DRESSED TO THRILL

FAÇADE CLADDING MATERIALS OF TODAY PERFORM A ROLE THAT GOES BEYOND THE MERELY AESTHETIC

BY ARUNA RATHOD

Cladding systems, an integral element of modern architecture, are used to provide an additional layer of thermal insulation and weather resistance. While offering security, privacy, often enhancing the natural light/daylight and sound-proofing a building, cladding also achieves energy-efficiency goals and delivers aesthetic value.

Dr. Prashanth Reddy, managing director, FunderMax India, states that cladding is akin to a second skin of the building envelope. In addition to protecting the building from the vagaries of nature, if selected properly, cladding also ensures energy efficiency in buildings and gives thermal comfort to occupants. "Rear ventilated façade systems ensure that the indirect or thermal heat transfer into the buildings is minimised to a great extent, thus resulting in lower air-conditioning requirements – and resultant lower energy costs. Also, in naturally

ventilated buildings, good cladding systems reduce the overall U factor of the building envelope," points out Reddy.

From traditional surfaces, cladding has now moved on to sophisticated finishes, bringing the interiors to the exterior. Balakrishnan Pillai, national manager – Surfaces, Häfele, states, "There was a shift a few years ago with WPC, ACP and cement boards trending. Then came porcelain and ceramic cladding in large slab formats. These products allow clients to take the finish they find in their home, office or hotel to the façade as well – which wasn't traditionally possible because of the high maintenance nature of natural stone or marble."

Cladding materials such as wood and stone lend an aesthetic appeal and texture to the building. Wood, with its weatherproof quality and strong resistance to external weather conditions like wind, sunlight and rain, is preferred conventionally due to its natural grain structure and the sheer variety of options, not to mention its natural beauty. Shankho Chowdhury, executive business head – Decoratives, CenturyPly, illustrates the various benefits of cladding. "Cladding enhances the durability and cuts down on the maintenance costs of a building. It also acts as a protective layer, which prevents seepage of water into the interiors, creating a good heat insulation layer that protects the interiors from absorption of extreme external heat, besides acting as a sound insulating layer which blocks out the external noise."

Façades activate space, drawing out relationships between light, environment and view. They also accommodate varied levels of privacy. Parul Mittal, director, Greenlam Industries, states, "Clads are versatile in terms of aesthetics and can be used in different ways. Adding warmth and elegance, façades are designed through studies in transparency and liminal conditions. Together, they show how we can frame new perspectives by rethinking how we connect to everyday cladding."

AIR AND LIGHT

One of the key benefits of cladding is that it provides fresh air for occupants of the building. Materials such as perforated metal or expanded metal can provide enough open area to reduce the requirement for artificial mechanical ventilation. When utilised in projects such as parking garages, façades can also help to significantly reduce dust and other airborne particles. Improved energy efficiency is a direct result of cladding. "By controlling light penetration/filtration and regulating heat, façades can lead to more energy-efficient buildings that achieve solar shading and passive cooling. Building façades can help to create a more comfortable interior by collectively reducing overheating, air-conditioning costs and excessive heat loss," explains Debashis Roy, vice president - Business Development, Alumayer. In addition to increased energy savings, studies have shown that natural light provides substantial benefits to human health and productivity. Similarly, day-lit retail spaces have witnessed increase in revenues.

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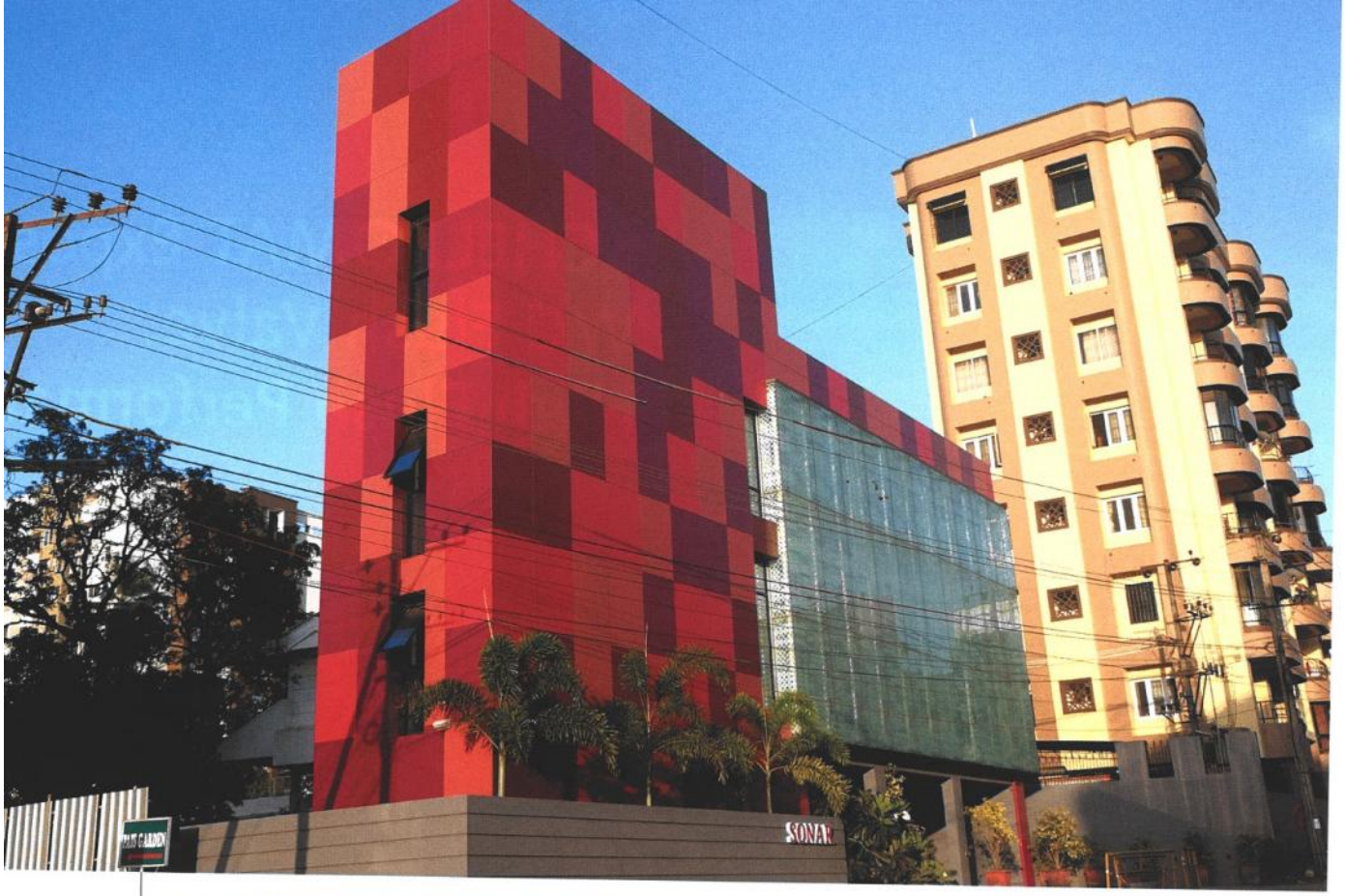
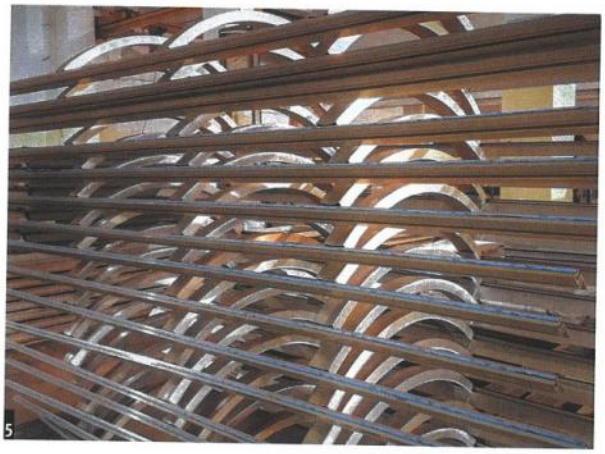
Dekton surfaces d for a variety of ıs, like flooring, ıd façades for and outdoors.

THE RIGHT CHOICE

Cladding is the application of one material over another to provide a skin or layer intended to control the penetration of weather elements, as well as for aesthetic purposes. CenturyPly's Chowdhury explains, "There are two types of cladding. There is wet cladding, where the application of the cladding material is done directly on a wall. Stone and ceramic tiles are examples of wet cladding. Whereas, in dry cladding, the application of the cladding material is done on another substrate, which is then fixed on the wall." CenturyExteria HPL panels, ACP, etc, are examples of dry cladding.

In wet, tropical countries like India, buildings need to be protected not only from heat but also from rain. "The cladding system that has both these benefits is the rain screen cladding or the rear ventilated façade," elucidates Reddy. "A well-designed rain screen system ensures that rainwater never reaches the wall and is drained away through a gutter system provided at the bottom of the system. On the other hand, rear-





ventilated systems also create active air movement behind the cladding – thus preventing hot air build-up between the cladding and the wall." The benefit of this kind of cladding is that it reduces indoor air temperature by a few degrees.

Besides weather, cladding also has to contend with environmental factors such as pollution and dust. Mittal explains, "Claddings are universal materials that can be used in pretty much any conditions. For example, Greenlam Clads have a special protection surface on the outside that makes them suitable for not only any climate, but also for dust and rain, which gives them a long life with minimal maintenance. Regarding exteriors, Lawa Stone and Vermillion Red are perfect examples of a classy combination of stone finish and solid colours."

Façades, today, are designed with a lot of research and study. Sun path analysis is conducted to ensure selection of the right type of glass. Spandrel panels are designed in ways to avoid glare. In some cases, sun-breakers are integrated into the façade to cut out the heat and allow diffused light to pass through the glass. Double skin façades, parametric designs, LED façades and rain screen façades are also popular in our climate. Alumayer's Roy says, "For south and west elevation which is exposed to direct sunlight, a double glazed façade is always preferable with laminated glass of 6mm or more, depending upon the U value and other criteria."

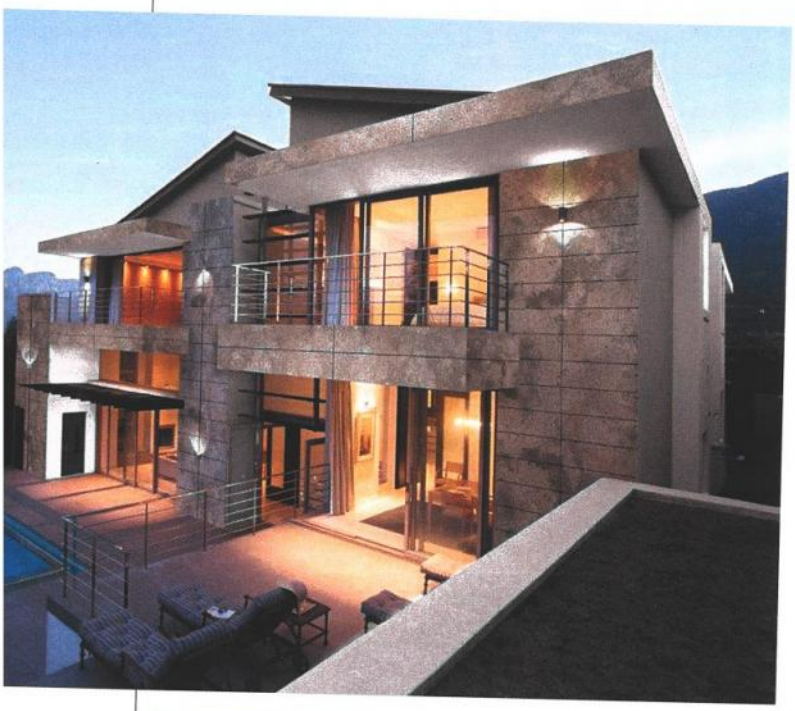
Weather and climate dictate the choice of material as well. "In coastal areas, there is salt content in the air – hence if we use metal without proper treatment, it can get salt deposits which are hard to clean. The sun path plays the most important role in deciding the glazed to the non-glazed component of the façades. Also, appropriate selection is extremely important in extreme scenarios – for example, a high humidity zone could cause a lot of fungus growth, whereas it could be avoided in fungus-friendly products such as natural sandstone, etc," informs Pillai.

In addition to material, the choice of cladding is governed by dimensions, weight and installation, and different formulas that take into account building height, basic wind speed, or edge distance. Pillai says, "If you choose bigger and heavier material, you need to support it equally well with proper anchorage to ensure that the material does not get too affected with wind pressure or change in climatic conditions."

NOW TRENDING

Even as cladding is gaining importance in modern buildings, so is the spectrum of materials used for cladding. Century-Ply's Chowdhury states that, in the case of dry cladding, there are several new materials which are in vogue – like steel and other alloy metals, aluminium composite panels, fibre cement boards and, significantly, exterior-grade laminates. Dry cladding is preferred over wet cladding because stones are expensive; wet cladding is labour-intensive; the materials are usually heavy and fragile. For instance, tiles are prone to crack or chip; while stones and tiles fall prey to algal and fungal attacks. On the other hand, dry cladding allows for expansion and contraction of stone in extreme weather conditions. The dry cladding method creates a gap in between the back wall and cladding product lining, creating an air cushion that acts as a thermal barrier.

Today, the Indian market, in terms of the cladding segment, is quite advanced and is at par with global standards. Glass has also been a popular cladding material for more than a decade. Other than this, there is an increasing demand for sustainable cladding design and usage of new generation



materials such exterior-grade laminates, high-pressure laminates (HPL), clay tiles, ceramic tiles, metal panels (zinc, copper and aluminium), fibreglass reinforced concrete/plastic, and polycarbonate panels. The differentiating advantage of these materials over glass is their superior eco-friendliness, thermal efficiency, energy renewability and sustainability.

Furthermore, as Indian Green Building Council (IGBC) states, commercial buildings consume more energy than highways and roads – so there is a growing need for sustainable and energy-efficient buildings to address this energy crisis in most cities. This necessitates the usage of energy-efficient cladding on buildings.

Alumayer's Roy reveals that the trending materials in the cladding segment are double-glazed façades, solid aluminium instead of aluminium composite panels, photo-chromatic glass, ornamental glass, self-cleaning glass systems with thermal break, and fire-rated aluminium composite panels which are virtually maintenance-free.

MINIMUM MAINTENANCE

We live in an era when pollution is omnipresent and even built structures are not spared from the ill-effects of pollution. As a result, buildings have to be cleaned at regular intervals, and façade elements which do not fare well in such an environment only aggravate the issue, adding to the running cost of the facility. "Modern low-maintenance materials are the solution," says Reddy, adding that FunderMax Max Exterior panels with their anti-graffitti and dust-repellent properties need minimal maintenance even in highly polluted areas. In addition, the open system without any sealants leaves no trace of sealant trail marks. These panels come in a vast assortment of vibrant colours that allow high design freedom, thus being able to give unique character to buildings.

The global scenario of the façade industry is undergoing several changes and developments in terms of performance deliverables and, being a developing country, India is experiencing its ripple effect in a positive way. Today, the preferences of the façade consultants are continually tilting towards HPL, because this product allows architects to design façades that move beyond the traditional possibilities – both technically and aesthetically – while being extremely low on maintenance costs.

For obvious reasons, architects and consultants are considering CenturyExteria HPL panels as the best choice for maintenance-free cladding. CenturyPly's Chowdhury reveals that maintenance of CenturyExteria HPL Panels is easy and totally hassle-free. "This product does not require any specific cleaning agent or process; plain water wash with any mild shampoo-based detergent suffices," says Chowdhury.

Good contractors give a warranty of at least 10-15 years and the coating comes with a warranty of 10-30 years for Poly Vinyl Dry Fluoride and Super Durable Fluoride, depending on the specific product. Glass itself has a long life – but in glass, coating is very important and a good contractor must always use a reputed coater, feels Roy, adding that if the specifications are not diluted, the right cladding system ensures much lower maintenance costs.

"As a responsible contractor, I always suggest that projects should use the best available coating for profile, bracketing and fabrication; and the installation of panels must be done by expert workmen. A properly designed cladding strengthens the structure, and proper ventilation improves the lifecycle of the building. So, it's not only about choosing the right cladding system, it's also about choosing the right materials, the right accessories and the right contractor (like Alumayer) who can make the building virtually maintenance-free."

Citing the example of a prominent Mumbai project, Roy says that the building is now planning to switch from regular ACPs to fire-rated ones. "The building has three towers, done by three different contractors around 12 years ago with the same specifications. As we gear up for the retrofitting, we are witnessing that the tower executed by Alumayer a good 12 years back is in the best condition, seeming like just a couple of years old. This is a good example of how, other things remaining the same, an expert contractor can make all the difference in execution when it comes to cladding systems."

The choice of exterior façades helps in reducing the maintenance cost of a building or structure. Mittal explains, "They are primarily meant to protect your structures from the wear and tear that is caused by external factors like water, wind, sun, dust, rain, etc. They are water-resistant, anti-bacterial, anti-graffiti, scratch, solvent, abrasion and impact resistant. As Greenlam Clads are equipped with modular system, they can be easily installed and are low maintenance – which makes them a perfect refurbishment option. This also makes them ideal for interior as well as exterior refurbishment."

With increased awareness of aesthetics, cladding is now an important focus of buildings. "Texture is coming to the forefront in the cladding space," says Mittal. "The High Pressure Compact Laminates help in enhancing fire resistance of the clads. Greenlam Clads have a high fire rating – BS1DO."

Ventilated façades are ideal for different weather conditions. In hot and humid weather, they tend to absorb less heat. Similarly, in cold weather, they give off less heat – which results in preventing damp atmosphere. A&I

CLUED IN TO THE CHOICES

EXPERTS FROM THE INDUSTRY TELL US ABOUT THE TYPES OF CLADDING AND HOW THEY DIFFER FROM CURTAIN WALLING

PANEL OF EXPERTS

Dr. Prashanth Reddy, managing director, FunderMax India
Shankho Chowdhury, executive business head, Decoratives, CenturyPly
Debashis Roy, vice president, Business Development, Alumayer
Parul Mittal, director, Greenlam Industries

What is the difference between curtain walls and other types of cladding?

Dr. Prashanth Reddy: Curtain walls are primarily glass, and used for areas that require 'vision'. They have their own structural support due to the installation technique used. Glazing can be done on curtain walls to make them opaque or transparent. Cladding is always fitted on dead walls, using cladding material and sub-structures. Aluminium frames are used in both cases to install and support the panels.

Shankho Chowdhury: Curtain wall systems are non-structural cladding systems for the exterior walls of buildings. They are usually associated with large, multi-storey buildings. Thus, curtain wall can be referred to as a subset of the cladding systems.

Debashis Roy: Curtain wall is of two kinds: structural curtain wall, which has two variations – unitised curtain wall and semi-unitised curtain wall; and cap curtain wall, which is either pressure plate-fitted or cover cap-fitted. On the other hand, cladding is a skin made with materials like stone, aluminium, steel, zinc, copper, cloth, fibre, etc, with mechanical fixing.

Parul Mittal: While exterior façades are primarily meant to protect structures from the wear and tear that is caused by external factors, like water, wind, sun, dust, rain etc, curtain walling is a non-structural design that protects the interior and the occupants of the building from harsh weathers including wind and water infiltration. Curtain walls are generally associated with large, multi-storey buildings, because they need constant maintenance to ensure they remain in the best condition.

Though cladding and curtain walls have some similarities, one of the key advantages that cladding has over curtain walling is the variety of styles that you can choose from – which will depend on the type of structure you wish to refurbish. For example, if you choose to redecorate your home, you may pick wood cladding to give your home a rustic and cosy feel. If you're looking at transforming your office space, you may select from a wide range of solid, wood and abstract patterns. The variety of colours and designs available under Greenlam claddings ensures innovative applications for main gates, pergolas, fencing, router cut entrance gates, balconies, etc.

Are there enough choices in the Indian market for fireproof cladding? What about environment-friendly cladding options?

Dr. Reddy: With the recent updates in National Building Code of India, it is heartening to see the importance given to fire rating of façade systems. The Max Exterior range from FunderMax is a flame-retardant material that doesn't propagate fire as a medium. FunderMax high-pressure laminates are made from wood pulp derived from sustainably managed forests with FSC or PEFC ratings. The resins that go into the production do not have any adverse effects on the environment, and are a perfect fit for both interior and exterior applications.

Chowdhury: CenturyExteria HPL Panels are 'Class A' fire retardant, as per the standards of EN 438-Part 6 and ASTM E84. It is also bestowed with the Greenguard certification, which ensures that this product is acceptable for use in green buildings and other delicate environments such as schools and healthcare facilities.

Roy: Currently, we have options for fireproof cladding. Many corporates are changing ACP and converting into fire-rated A2 grade. Fire-rated mineral wool is also readily available in the market, and most of the good contractors are using those under different brand names.

Our company has been contracted to install a green façade for a prestigious building in South Mumbai. To get a better rated building or green building, recycled aluminium is also a good choice. We, as a responsible façade contractor, always believe in sustainable development.

Mittal: Cladding has been in use for a little while now, and fireproofing has always been one of the many factors taken into consideration. They bring a lot to the table in terms of structural integrity and overall protection. Now, while there has been a certain level of awareness that has been there among the masses, the Grenfell tower tragedy made people realise the importance of fireproofing their buildings and the role that cladding plays in that process.

Greenlam cladding options are eco-friendly, as they reduce the energy consumption requirement. They are ISO certified and come with unmatched GLE technology that makes them fade-resistant, microbial-resistant, weather-proof and fire-resistant, hence apt for exteriors. They come with high fire rating – BS1DO – which is best in the category. These are ventilated façades, which makes them ideal for different weather conditions. A&I