

DESIGN SOLUTIONS FOR MAKING FENESTRATION SUSTAINABLE

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uPVC: for a safer ecosystem

Right installation, checking crevices for leakage, cracks in glass, among other steps help ensure durability.



Heat resistant Door

Unplasticised polyvinyl chloride (uPVC) windows and doors are eco-friendly and causing little or no harm to the surrounding. In India, climatic conditions keep varying from place to place which makes it hard to keep indoor temperature normal. In a situation like this, it is vital to have uPVC structure.

Low E-glass has maximum heat deflection, which means low U-value. It stops the temperature from passing through the glass, which gives it an edge over other window materials as an options. Lower U-values can be attained if there is a use of multiple glazing layers, gases, and low e-coating.

uPVC over PVC

According to Mario Schmidt, Managing Director, Lingel Windows and Doors Technologies Pvt Ltd, major amount of energy loss takes place through single glazed windows but double glazed uPVC reduces energy loss to an extent. These windows have thermal insulation hence even without expensive special glass they save energy loss. This also provides water tightness during the monsoon season, even for dry and dusty areas these windows are ideal because of their dustproof performance which is the highlight of PVC windows.

When one considers manufacturing of PVC, the extraction of raw material, transport, usage and recycling all is much lower compared to aluminium or wood. Even carbon emission compared to wood is three times lesser in PVC. Keeping in mind forest are depleting and India has about 16 per cent of the world's population using PVC windows can help curb wastage. Also use of energy and crude oil is almost four times less when PVC windows are manufactured when compared to aluminium.

Benefits of installing uPVC windows and doors

uPVC is the only eco-friendly material which can be used for one's dream house. Manish Bansal, Director and CEO, Window Magic India explains few benefits of installing uPVC windows and doors at his or her place.

- **Recyclable:** uPVC windows and doors are easily converted into other useful products even the waste material generated during manufacturing can be reprocessed, thereby helping in creating a reliable and sustainable future.
- **Conserve natural resources:** uPVC has replaced wood in terms of being popular framing material. The use of uPVC eliminates dependency on wood which, in turn, leads to forest conservation. These products therefore help drastically in reducing deforestation.
- **Low energy consumption:** uPVC materials are relatively low in cost as compare to other materials like aluminium.
- **Indoor air-quality:** Excellent sealing keeps environmental pollutants like sound, dust and smoke out of home, thereby reducing the health hazards and improving the environmental quality inside the home.
- **Energy saving insulation:** uPVC offers perfect insulation against the outside heat, resulting in lower energy consumption and reduced air conditioning costs.
- **Earn LEED credits:** uPVC windows are made of recyclable materials and use less energy during production plus it is a superior insulation against heat, dust, rain and pollution which helps builders and developers in achieving valuable LEED (Leadership in Energy and Environmental Design) rating points for their projects.



French Arch window

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Durability

UPVC windows and doors need minimum maintenance and care. It can also withstand the fury of nature to a great extent. Schmidt says, "Durability can firstly be ensured by purchasing a window or doors from a reputed, certified organisation." The key to having products last is right installation by an expert. Other factors like checking crevices for leakage, cracks in glass etc can help ensure the durability of a product.

Factors affecting durability

Bansal says, "While choosing building materials you want to ensure that they'll last a while. There's nothing worse than replacing your windows and doors sooner than you expected to. Luckily, uPVC is a highly durable material."

Windows and doors should be airtight for stopping dust and smog. Unlike timber and aluminium frames, uPVC is highly water and salt resistant. This means that it is perfect for those who live in coastal regions or for those are concerned about the weather.

Nowadays, everyone wants less energy product for their daily life. uPVC windows are light, malleable and easy to function plus they offer high levels of wind, water and air-tightness for optimum in-house energy efficiency. This results in warmer, less draughty homes and lower energy bills. uPVC windows and doors require minimal maintenance. He or she need not to bear the expense of regular painting and high cost maintenance in the case of uPVC windows and doors.

Enhancing performance

Galvanised steel reinforcement

Some measures to enhance performance are U-value with its thermal transmittance, (U-Value), low-energy. Schmidt says, "Galvanised steel reinforcement does not bend easily and is very stable to use in uPVC windows and doors." Double seal helps in preventing dust from entering in, also having the right kind of glass for your door or window.

Processes enhancing performance

According to a survey, the most important measures to enhance the performance of windows are aesthetics, durability, reliability, VOC content, energy and thermal performance. A thermal break helps in resolving heat-conduction problems in aluminium and other fenestration frame materials. The frame split into multiple components and get connected by elastomeric caulking, insulation and less conductive frame material.

In order to protect the integrity of enclosure air-barrier systems, the head, jamb and sill should be flashed so that there would be no penetration of the flashing or air barrier. Bansal says, "Pan flashings manufactured for window assemblies protect water intrusion, end-dam and back-dam detailing within the wall cavity to ensure that factory assemblies provide proper seal and minimum height, minimum heat gain and moisture resistance per code."



Lingel 6.0 aluminium window uses complete uPVC hardware range for aluminium windows.

► Mario Schmidt, Managing Director, Lingel Windows and Doors Technologies Pvt Ltd



uPVC frames are manufactured in our own state-of-the-art facility that guarantees highest standard.

► Manish Bansal, Director and CEO, Window Magic India

Latest offerings

Lingel 6.0: high-end aluminium windows and doors

Lingel 6.0 aluminium windows and doors is a product of international standards. The designs are exceptionally superior. It is manufactured in collaboration with German engineers and partners. The window is designed in a way that one can't tell if the display is of an uPVC or wooden window or door. The entire look and feel is of a traditional door or window one would like to have at their place. Schmidt says, "Lingel 6.0 aluminium window uses complete uPVC hardware range for aluminium windows. We ensure that our products follow the guidelines given by UWDMA."

uPVC profiles with prominent look

Window Magic's products come with a range of impressive accreditations and awards including various BSI kite marks and undergone strict quality control testing. Bansal says "uPVC frames are manufactured in our own state-of-the-art facility that guarantees highest standard and ensures that these uPVC profiles will surely give your house a striking appearance. For us, customer safety is of utmost importance which is why we take additional precautions as an environmentally conscious company and recycle over 95 per cent of all our waste."

UPVC window

