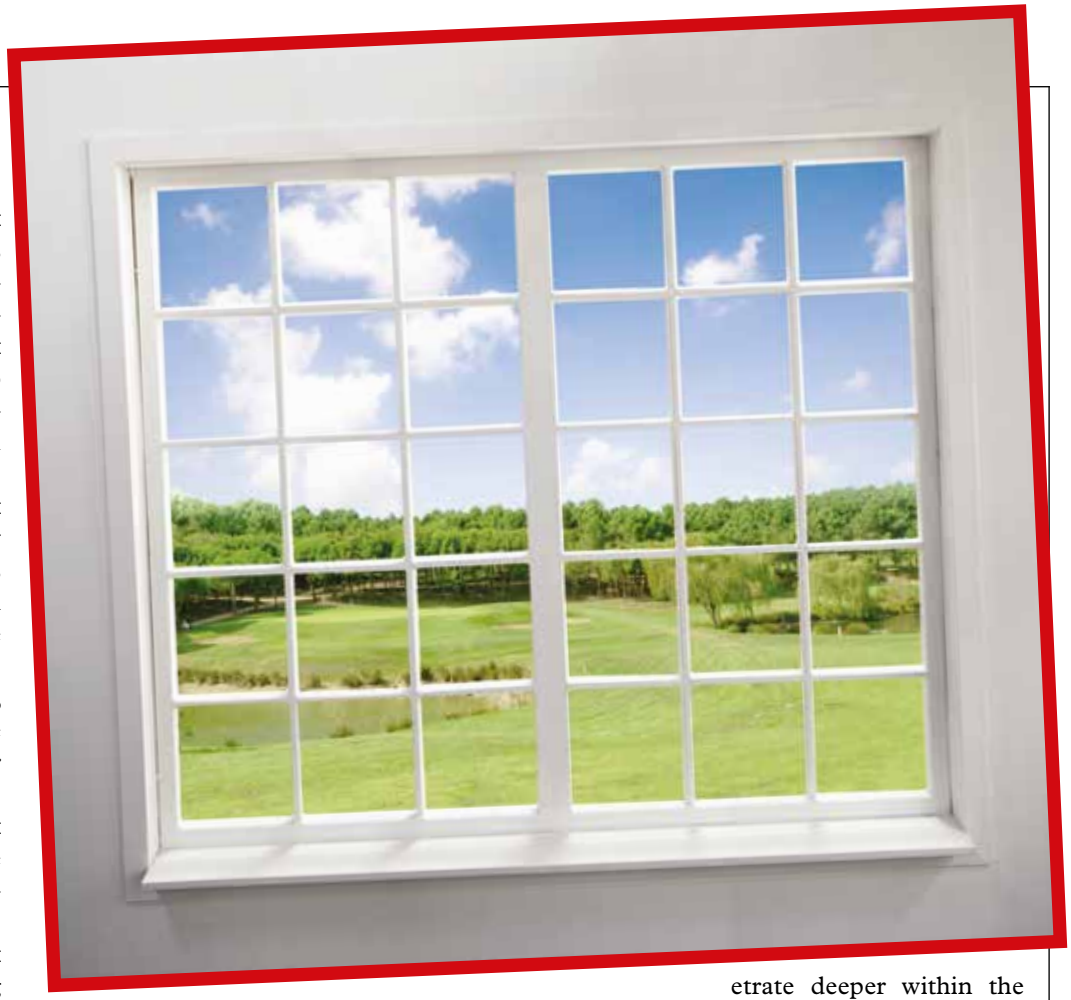
The importance of glass in architectural design

As a magical material of many different properties and uses, glass often presents architects with a wide range of new design possibilities. In this month's issue, we turn to CONSTROFACILITATOR for some expert reflection on why architects typically favour glasses that are reinforced, toughened and laminated.

Attentive as s/he is to transparency and safety, your average architect will likely agree that glass is a must for any serious building project. Here the reasons are clear. All arise from the advantages of glass, which include the following characteristics:



- It can absorb, refract or transmit light. Glass adds beauty to a building when used in transparent or translucent applications. It also transmits up to 80 percent of available natural daylight;
- The use of natural light can lower electricity bills, brighten the rooms of a building and can boost the mood of the occupants;
- Resistant to weather, glass can withstand the effects of wind, rain or sun;
- Glass is rust-resistant and is resilient before any chemical and environmental effects;
- Glass is recyclable and it will not degrade during the recycling process. It can also be recycled time and again without losing its quality or purity;
- Unaffected by noise, air, water, sealed glass panes transmit very little sound. As such they can be a good sound insulator;
- Glass has a smooth, glossy surface so it is dust proof and can be easily cleaned.

GLASS IN CONTEMPORARY ARCHITECTURE

Glass is also a more resistant and dimensionally stable building material, odour-neutral, hygienic and easy to maintain. That is why it is used in windows, on façades and as roofs. In buildings, transparent sliding elements such as those found in kitchens and bathrooms -or transparent partitions in large office rooms- are all made of this material. Glass is also used in architecture for elevators or balcony railings. It has various uses that makes it a fascinating material that has special importance in architecture.

WINDOW PANES

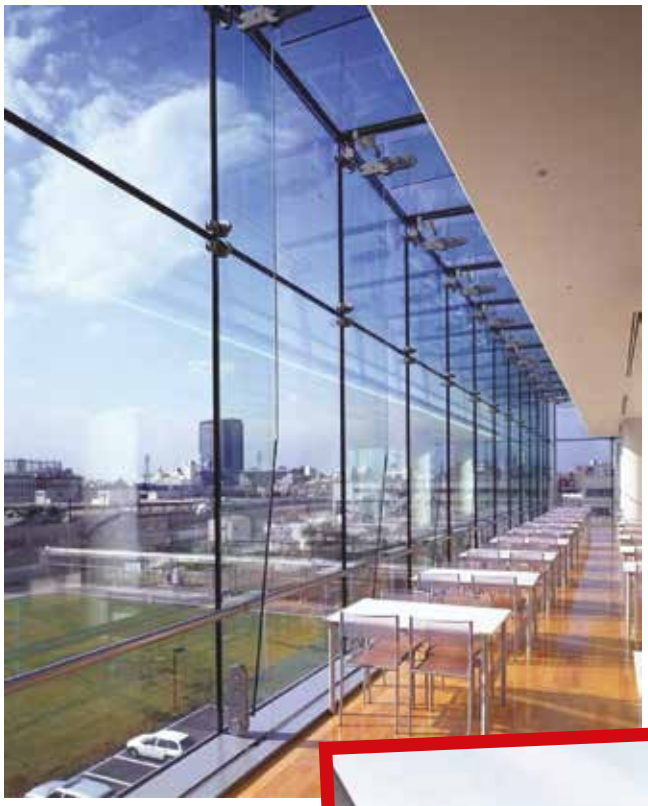
A glass pane is built into the frames of your window to create a spotless view, eliminate air flow and insulate your home. Glass panes vary in shape and size from one window to the next. Some might have films on them to provide better insulation. These are known as Low-E glass. Other glass panes will vary in thickness, depending upon window quality. As windows age, panes become thinner and more vulnerable to the elements.

CURTAIN WALLS

A curtain wall is an outer covering of a building in which the outer walls are non-structural. As such, it's only used to keep the weather out and the occupants inside. Since the curtain wall is non-structural, it can be made of lightweight materials, including glass - thereby potentially reducing construction costs. An additional advantage of glass is that natural light can penetrate deeper within the building. Besides its own dead load weight the curtain wall façade carries no structural load from the building.

ROOFS

Glass roofs are highly effective at transforming the interior aesthetic of a property, presenting some of the most versatile and impactful glazing solutions. That said, it's somewhat misleading to simply refer to 'glass roofs' as though they were a single product or entity. There are many different types, styles, and designs and there are all sorts of things you'd need to consider when choosing one. Depending on your property and your require-



ments, different types of glass roof will be most appropriate.

PARTITIONS

Glass partition walls are ideal for creating comfortable, practical office working environments. When natural light is allowed to flow into a given space, it changes how shapes, colours, patterns, textures and people interact. Glass partition walls are also one of the simplest ways to update an office or commercial space. These glazing systems are gaining popularity over traditional drywall installations. Indeed both interior designers and architects appreciate these glass wall systems for their scalability and translucent properties.

DOORS

One of the most common types of home and business glass outside of traditional windows is that of glass doors. Safe for both interior and exterior use, modern-day glass doors are made of tempered glass, energy-efficient and come in a variety of styles. Glass doors can be customised to fit one's space and personal design aesthetic. From opaque shower or etched closet doors to clear French doors that lead into a dining room or living space, doors can be made with large panes set in a frame -like those used for sliding doors and storm doors- or they can be made of such materials as hardwood, metal or composite, with smaller windows inset within the door.

CONCLUSION

Glass acts as an unique architecture material that's mainly used for its special features and advantages. Here's why both architects and engineers can design a beautiful structure - with the proper planning.