



# The new door

Steel doors save time and cost, and offers longevity

If you find the burgeoning price of wood and unavailability of good carpenters delaying your move to your dream home, you have a new option. Ready-to-use steel windows and doors that can partially solve your problem.

And if you really want your home to look different, then go in for steel furniture, railings and even modular kitchens.

"I opted for steel doors when I found the work on my home getting delayed for long," says Biju K Alex from Ernakulam. "They are easy to fix and maintain, and came with huge savings on labour costs." That they come powder-coated and hence would not need maintenance at least for 15 years was another reason why he chose steel door

frames and windows.

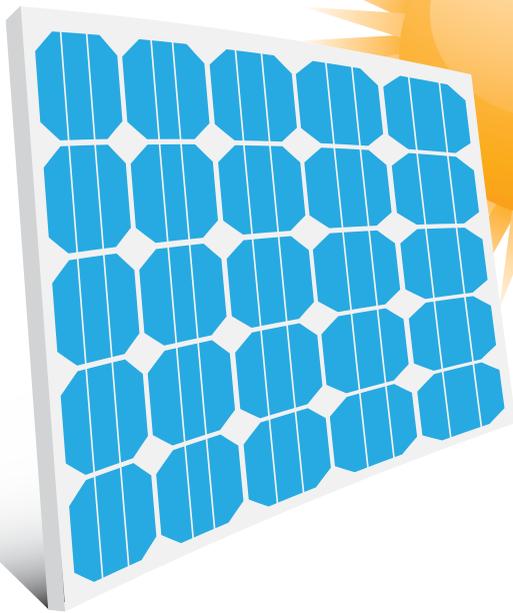
There are many other factors that go in favour of steel doors and windows. Steel is one of the strongest, and hence safe, building materials available. It is non-flammable and in fact contains fire and prevents it from spreading. They are free from defects such as knots, splits and twists that often plague wooden planks. They would not shrink, warp or swell, and are also free from termites and rotting. They also have a very large life-span, and don't have to be repaired or maintained periodically like wooden doors.

The ready-to-use windows and doors with assured quality can be bought off-the-shelf from stores. That they are factory-made helps them achieve the per-

fect fit, avoiding problems such as sticky doors and windows. Their lower weight reduces the risk of cracks forming in the walls.

The steel windows come with modular structure and are pre-punched with holes that allow them to be fitted easily. The accessories such as tower bolts, stays and handles often come with the unit. The window grills and panes are also prefabricated and fitted to the frame. The panes, fixed using beads, can be easily replaced in case they break. In addition, the wastage involved when you custom-build these parts can be avoided, thereby saving money and time.

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# Go solar

There is a sudden spurt in the interest in solar power systems in homes. How practical are they?

**D**r RVG Menon, a familiar face in the engineering and intellectual circles in the State and former chairman of ANERT, recently went solar. He installed a 1 KW system at home for ₹2,25,000. He connected all the household appliances such as a TV, refrigerator and washing machine to the solar system and they are all working smoothly. "I am expecting to get ₹81,000 as subsidy," Dr Menon said.

Trivandrum Tube Corporation, a shop selling pipes in Chala, Thiruvananthapuram, has been able to cut down its power bill to one fifth of the original after installing a 600 W solar power system. "Our power bill has come down from ₹2000 to ₹500. Given that of this ₹300 is fixed charge, it has effectively come down from ₹1700 to ₹200," said Mr Narayanan Ananthagopan, partner of the company.

For Mr Thomas Dominic, a director of CGH Earth group in Kochi, going solar was more of a passion. "The house is completely off the grid," said Mr Dominic. Its three bedrooms with air conditioners, a swimming pool, and utensils such as washing machines and fridge run on solar power.

If the frequent power cuts, trips, hike in tariffs have you going desperate, don't worry. Here's your chance to get even: join the expanding tribe of people who turn to sun, the eternal source of

energy, for the uninterrupted supply of quality power.

Solar power is not entirely new to us: solar water heaters have been a familiar sight on the rooftops of homes and businesses in cities and even in villages. But a solar photovoltaic (PV) system that generates electricity from the sun's rays to meet all the power requirements of a house or business is indeed rare. The high cost of installation made them unviable, and it remained a dream for most people.

Thanks to a steep reduction in the prices of PV panels and the liberal encouragement from the governments at the Centre and the State, solar energy has become an attractive option for many. The threat of looming power cuts and the fear of tariff hikes have only added to the new phenomenon. "We work with one to two customers every month who go completely solar," said Mr George Mathew, vice-president of TeamSustain, a Kochi-based green technology solution provider. "The cost per KW capacity of a solar PV system has come down from ₹5.6 lakh to ₹2.5 lakh in the last 5 years," says Mr Mathew.

The price of a solar panel has come

down to a third during last decade. Today a 1 KW solar PV system – that can take care of all the electricity needs of a typical 2000 sq ft, three-bed room house – would cost around ₹2-2.5 lakh. The exact cost depends on the energy demand of the house, as the systems that are designed and developed are site specific. The central government provides a subsidy of ₹81,000 per KW. Even then, it is indeed a costly proposition for the household sector.

For business and commercial establishments, it is a very different story. They have a double benefit in going solar. They pay a high rate – around ₹10 per unit – for the power consumed from the grid. And in addition to the subsidy provided by the government, they can also claim depreciation on the cost incurred. Considering these factors, the pay back period for a solar PV system is estimated to be around 10 years for businesses. The picture is even better for enterprises which use a diesel generator set as back-up. For them, the payback period for installing a solar PV system will be just 4-5 years.

Not surprisingly, quite a few of them are turning to the sun god for their electricity needs. Malankara Plantations recently installed a 27KW solar PV system at a cost of ₹65 lakh at its office in Kottayam.

Said Mr K J Thomas, managing director of Malankara Plantations, "We

**A 1 KW solar power system can produce 5-6 units a day, which is sufficient to meet the needs of a home**

haven't drawn a single unit of power from the grid since the system started working in January." He expects to recover his investment in 10 years. The system is expected to have a life of 25 years and maintenance is expected to be minimal. "We have to dust the panels once in a while," says Mr Thomas. "In addition, the battery will have to be replaced after 10 years."

How long would a system last? TeamSustain's Mr Mathew says even the smallest parts of the system are built with a 25-year life in mind.

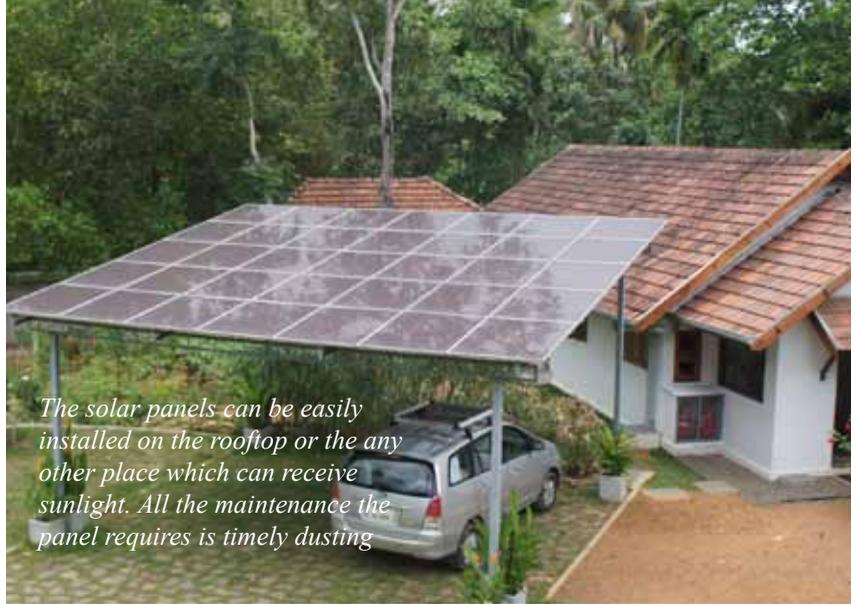
And for those who are yet to convince themselves about the solar surge, please wait a bit more. ANERT, the State government agency is planning a big campaign to promote solar power systems in homes. The State budget for 2012-13 has earmarked ₹10 crore for the purpose. ANERT is at present discussing the topic with the Kerala State Electricity Board so that the KSEB can buy the power produced at homes. This would do away with the requirement of batteries as part of the system, further bringing down the cost. An official of ANERT said the organisation also plans to subsidise the solar power stations. "If everything goes well, the cost for a 1 KW system for homes would be less than ₹50,000," he said.

Solar PV systems may work just fine when the sun shines bright, but what happens during the rainy season when the skies are cloudy? "Even then, we get around 60-70 per cent of the production," says Mr George Mathew of TeamSustain. "Excess capacity is built into the system to avoid shortages during the lean months." This poses a problem of plenty during the sunny months, when excess electricity will be produced, which could be sold to the grid.

Feel like going solar?

### Advantages of solar power

1. Environment-friendly
2. Freedom from power cuts: the sun is the most reliable source of energy in the world.
3. Eliminates the need for backup devices such as diesel generators and UPS



*The solar panels can be easily installed on the rooftop or the any other place which can receive sunlight. All the maintenance the panel requires is timely dusting*



**ANERT website has the list of approved agencies that provide the services. It is not mandatory that one needs to go through the agencies to get the subsidy. However, one has to ensure that the system meets MNRE norms**

4. Better quality power, obviating the need for devices such as stabilisers
5. Protection from increase in electricity costs

### Disadvantages

1. High cost of the solar PV system
2. Batteries have to be replaced after a period of time (10 years)

### Steps to install a solar PV system

1. Conduct an energy audit to determine the capacity required.
2. Try to reduce the overall energy demand for the building by using energy efficient methods of construction: giving sufficient shading and insulation

to the walls, to reduce temperature inside, making use of natural light as much as possible, using energy efficient appliances such as LED lights.

3. Design the system keeping the different seasons in mind. The electricity generated by the system in the leanest month – when least sunshine is available – should be able to meet all your requirements.

4. Of the two kinds of solar modules – crystalline and thin film – the latter is preferred in Kerala, due to its ability to operate in cloudy conditions. But it needs more space. Select the module type based on the conditions at your site.

5. Place the solar panels in such a manner that the maximum sunlight falls on them.

### For further details:

ANERT: 0471 2338077, 2334122  
 Dr R V G Menon: 94465 09413  
 Megabyte, Thiruvananthapuram (manufacturers): 93878 13000  
 TeamSustain, Kochi (consultants): 0484 3298806, 3298807

# For the right mix

If you opt for concrete ready mix, then ask the supplier some questions



Shortage of availability of sand, skilled manpower and time lags have forced many people to turn to cement ready mix for construction purposes. Many read this as a move towards ensuring quality raw material, as in the developed world. But there are certain things that one must check out before ordering a ready mix.

**The machinery:** Cement ready mix is supposed to be prepared in a centralised plant. Modern plants are computer-controlled and ensure that every process and raw material sticks to quality standards. It is worthwhile to ensure that your supplier has quality equipment at his plant.

**Manpower:** One of the reasons why people opt for ready mix is that the people who do the job on site lack expertise in their job. A ready mix is supposed to have the ingredients in the right/optimum measure. It may also contain mineral admixtures which help the mix perform better.

Costly equipment alone will not ensure this. Since the plant operation is a complex process, a supplier should have properly trained people to run it.

**Raw materials:** This is the most important ingredient determining the quality of the mix. Among them, sand comes at the top. It is worthwhile to enquire what the source of sand is. Most manufacturers find river sand difficult to get these days, and hence depend on manufactured sand. Check with the supplier the brand he uses and ensure that the sand is construction grade. Water is another important component. As per standards, water used for concrete mix must be free from all impurities, especially salinity. Check with the supplier what his source of water is. Crushed stone and cement are the other two ingredients. Also ensure that the mix uses the right kind of cement.

**Test reports:** A customer has limitations in ensuring that he gets satisfactory answers for all these queries. However, he can insist on test reports to prove the quality of the mixture. Most quality manufacturers provide the customers reports on a cube test and a slump test. One may ensure that the test values conform to the relevant IS norms.

#### Information courtesy:

R Venugopal, General Manager, CVC Readymix. He can be contacted on 98474 31055

## Steel plus

- Maintenance-free
- Aesthetic looks
- Flexible designs
- Ready-to-use
- Easy-to-fix
- No warping, gaps
- Powder-coated
- No fading of colours
- Flexibility in designs

## Aesthetic quality

Steel doors match wooden ones in their aesthetic quality. Large-scale manufacturers employ best-in-class designers, material and technology to build aesthetically attractive doors and windows that match international standards. Doors and windows that are designed to please the eyes and provide adequate ventilation and sunlight are on offer today. That too powder coated ones, in a variety of colours and designs - even in wood grain finish - to suit one's tastes.

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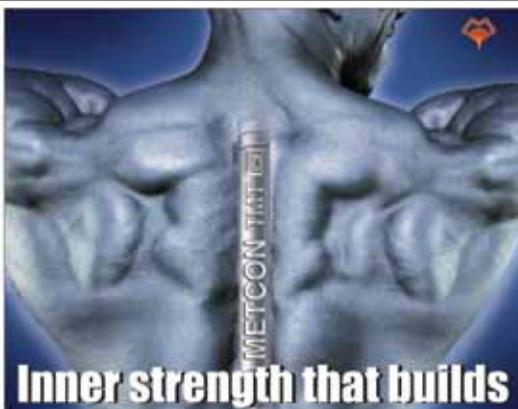


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## And how much would it cost?

Galvanised steel doors are available upwards from ₹450 per sq ft which is much lesser than that of wooden doors. Window units also are available at ₹450 per sq ft. The price includes that of the fixtures and accessories too.

(Information courtesy: Advik Tech; Tel: 0484 3123560)



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**SAVE 15% ON STEEL COSTS**



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\*Conducted in Central Govt. approved centres.