Introduces Innovative Integration of RE- in Residential Sector

What is Orange County Foundation

• It is a Group of individuals that is concerned about the impact of urbanization on the environment.
• This group is more of a voluntary nature & intends to bring about positive change in the urban environment that they loved most.
• SCN Builders, being part of the Foundation and in fact real force behind OCF whole heartedly came forward to convert eco-friendly ideas into practice. The OCF gives credit for success achieved so far.
We believe Solutions to the present day Urban problems are with The Indian Traditional Knowledge of Architecture – Vastu Shastra

Experiments with traditional Vastu Shastra and Modern architectural knowledge helped achieve

• Solar Passive Architecture
• Ideal wind flow pattern and natural air circulation
• Ideal Door and window openings

This achieved savings in 40% energy needs
Reduced energy needs encouraged to Explore Non-conventional energy options

Solar and wind Hybrid option proved success to function as the primary source of energy

It was enough to aim for Net Zero Energy buildings

Success achieved makes OCF projects Unique of their kind across India

Step I
Use of Energy Efficient Fixtures

To make this approach a viable solution, OCF ensured compulsory use of energy saving devices to minimize energy needs such as:

1) T5 tube lights
2) LEDs
3) Power Saving Fans
4) 5 Star rated motors
5) Energy saving Lifts, etc.

This reduced energy requirements by 30% of every flat & 67% of common area
Step II
Production of Renewable Energy

The Hybrid Solution was effectively used in residential building - Orange County Phase- II for the first time

- Solar PV- both crystalline & thin film [CIGS] panels [each approx. 6KW]
- Windmills [5KW x 2Nos.]
- Common inverter & UPS- 15 KW capacity
- SMFVRLA battery bank [2V 200Ah, 180 nos.]
Step III
Effective Utilization of Renewable Energy

Consider renewable energy as a primary source & Grid as a standby option for-

- Green energy to Every Apartment [except power points]
- Weight sensing, gearless Passenger Lift that reduces consumption by 66%
- Green energy for Common lighting reduces society maintenance cost
- RO water treatment system free from energy inputs – no maintenance cost
- Water Pumps that run on green energy – no maintenance cost

20%. Reduction of energy requirement of every flat

Green Lift
Step IV
Effective Solar Hot Water System

Conventional Solar Hot Water systems encourage wastage of water & are ineffective in high rise buildings.

• OCF introduced PLC based full-proof alternative Solar Hot Water Distribution System that has proved a real success.
• Guaranteed 125 Lit. hot water with back-up options for each flat.

Which eliminates conventional use of energy for hot water – thereby net saving of 40% energy needs
Result

• Net reduction in energy bill per flat by 80%
• Overall society’s maintenance energy bill is drastically reduced, thereby bringing down the maintenance cost.

Also guarantee of an uninterrupted clean power supply that is unheard of for any urban high rise building

Further Milestones- I
First time use of Lithium Ion batteries in India

Instead of SMFVRLA batteries, OCF used LiFePO4 batteries at Orange Srushti [3.2 V 110 Ah, 112nos.] Again first time in India.

• These batteries are eco-friendly, Non-toxic, recyclable, long lasting & very efficient.
• They require 75% less space.
• They can operate in temperature range of [0-50 Celsius] Ideally suitable for Indian climate.
Milestone - II
Use of unique Windmills

With average poor wind velocity conditions at Pune conventional wind mills are unsuitable as alternative energy source

• OCF used windmills that are rated for 5m/s wind speed which is considered as a low wind speed as against conventional wind mills rated for 12 m/s, to suit local conditions

• These wind mills with 20 pole technology are effective even at a low wind speed such as 2m/s.

Milestone - III
Unique Solar energy management system

• OCF used Intelligent Energy Controller with every solar panel that has enhanced overall efficiency of solar PV system by 6-7%.

• OCF used green power control unit i.e. Blink Free Change Over Box in every flat to regulate use of free green power up to 1.5 amp., which helps promoting culture of energy conservation.
Unique Solar energy management system

Milestone-IV
Modular Solar Hot Water System

- OCF introduced a new Modular Solar Hot Water System in Orange County Phase- IV, to streamline maintenance problems associated with centralized system.

- OCF also introduced solar hot water microcomputer intelligence controller, per flat to have efficient management system to suit individual requirements such as- quantity, temperature & back-up controls.
Milestone-V
Natural Structure Cooling System

- Based on traditional knowledge, OCF implemented Structure Cooling System which uses water to reduce the structural heat, thereby reducing energy inputs for air conditioning by minimum 30%.
Lime - Alternative to Cement

• OCF Re-Invented - Traditional Lime technology to replace conventional Cement that greatly contributes to the environmental pollution.

• Lime bricks, Limemortar, LimePlaster, Lime Finish; makes OCF constructions strong, long lasting with excellent finish better than the conventional cement but also reduces 40% use of Cement in comparison to conventional buildings.

Uniqueness Of Lime

• Self breathing qualities of Lime help regulate temperature within the built-up structure.
• This helps in overall temperature reduction by 8-9 degree Celsius & saving in energy inputs.
• Lime works as a tool of Carbon Sequestration by absorbing ambient CO2 that makes it most effective Eco-friendly construction material. (Cement too absorbs CO2 but fast setting limit sit to the great extent as compared to Lime)
• For enhancing lime composition quality we have identified 11 different ingredients based on our own R&D. There suits achieved has given us confidence that lime is definite alternative to cement to a great extent.

OCF is first in India to use lime as substitute for Cement in any high rise buildings.
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