Intervening Technique	Solar Roof-Top System for Plant Lighting Load in Tempered Glass Industry
Before CP	Plant is operating 15 nos. High Pressure Mercury Vapour Lamp (HPMV) of 250 watt each, for 8 hrs. per day. Also, approximately 20 nos. CFL of 32 watt in admin department as well which also operated almost 8 hrs. Per day.
After CP	After replacing conventional lighting system to LEDs plant lighting load will come down to 1.8 kW from 4.5 kW at present. Plant can install a battery assisted solar PV power generation system of 2 kW for the plant lighting load.
Economical	Investment: Rs.3, 00,000/- for solar PV system with battery. Annual Savings: Rs. 42,000/- per Annum Payback Period: 85 months

Improvement in Furnace Insulation using PCPF Wall Blocks

It is recommended to insulate the Furnace Walls using 'Pre-Cast Pre-Fired (PCPF) Hollow Wall Blocks. Its technical parameters are as follows.

As all the industries Steel, Cement, Non metal, petroleum, all engineering industries progressed in more and more sophisticated, their requirement for precision and durability increased. The need for better, stronger, stable at extreme conditions of pressure or temperature or abrasion material increased.

The conventional Pressed Refractory fired at high temperature were found wanting in such critical situation. Newer system of manufacturing, newer material stronger and fired at low temperature for the ease of Transportation and movement, far more stable were found. The unique ability to be formed in any shape you want, gave the designer a vastly improved area of working. These are pre cast, and pre fired to the precision required. The use of Hydraulic and Ceramic bonding simultaneous make these a unique material.

Historically, all the furnaces were lined by pressed, standard sized bricks in all the cases. So the wall thickness in all the furnaces was either 12-18 or 24 inches thick or even more, irrespective of its requirement. Anything less than 9" long was not available and hence they will use only this. Insulating materials like the Ceramic Fibre, the ULTRALITE, the Vermiculite got discovered in the last ten to twenty years.

Using this complete knowledge now the wall thickness can be made much lighter keeping the hot face of say 4.5" instead of 9" and design such blocks with cavity which will hold much superior insulating material like ULTRALITE within its hollow portion etc. Ultralite™ is a light weight refractory material used as a filling solution in hollow parts of thermally exposed materials. It has a density of just 75 kg/m^3.

This reduces the weight of the wall drastically. Keeping the solid part as required gave this wall a lasting life - Far more than a complete wall of ceramic fibre wall. Some pictures are shown in the attached email. The comparison between a solid brick wall, ceramic fibre wall and PCPF wall block is given here to highlight the energy efficiency of these wall blocks.

The fact remains that the new blocks will give far more stability at high temperature while keeping the fuel efficiency improved.