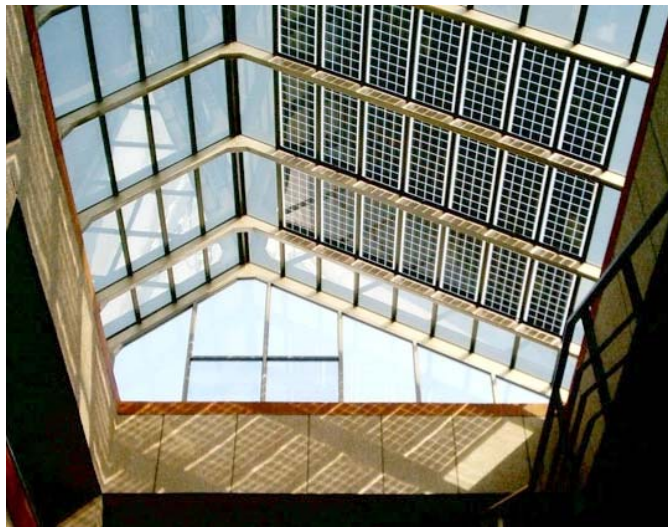


Building Integrated Photo Voltaic **(BIPV) Solutions from** **Tata BP Solar India**



Tata BP Solar India Ltd

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Bangalore 560100

Ph: 080 56601300

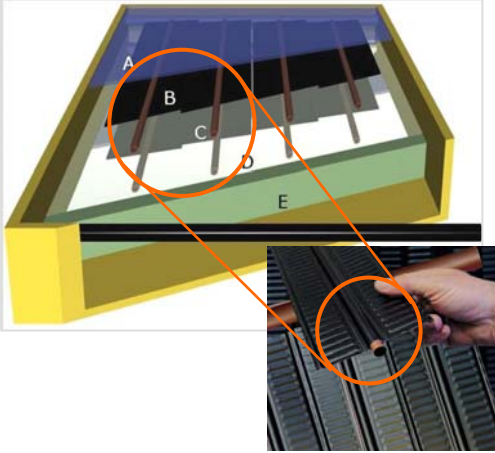
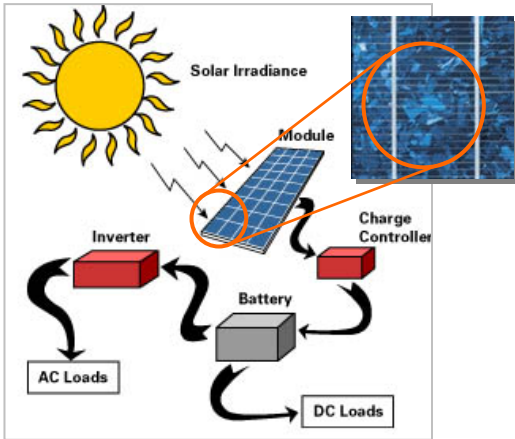
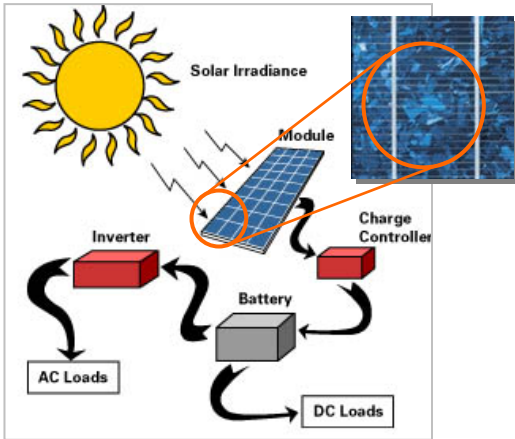
Email: basuak@tatabp.com

Web: www.tatabpsolar.com

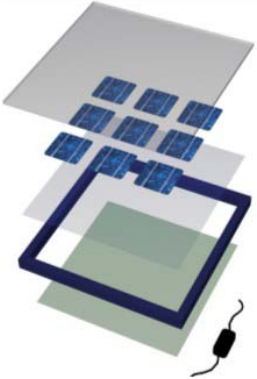
What is BIPV ?

BIPV or Building Integrated Photo Voltaic, as the name suggests deals with integrating the Solar Photo Voltaic panels into building design. The can be used to replace proposed glazing areas without affecting the contemporary aesthetics of steel & glass or fixed on South façade as building cladding.

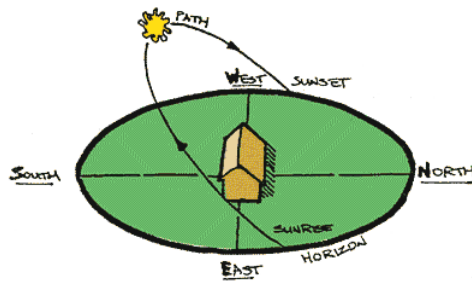
Introduction to Solar Technologies:

<h3><u>Solar Thermal System</u></h3>  <th data-bbox="805 569 1360 1115"><h3><u>Solar Photo Voltaic (PV) System</u></h3></th>	<h3><u>Solar Photo Voltaic (PV) System</u></h3> 
<ul style="list-style-type: none">• Technology to heat water.• Copper based technology.• Black body absorption.• Cost effective solution.• Water heating panels are 'SOLAR COLLECTOR'	<ul style="list-style-type: none">• Converts sunlight into electricity.• Silicon based technology.• Electricity can be used to power lights, fans, PC, TV etc...• The SPV panels are known as 'SOLAR PV MODULES'

The BIPV Module:

	<p>SPV Module consists of a top glass (low Fe, high transmissivity) with a set of crystalline blue silicon cells laminated onto them.</p> <p>The module can have a 2nd layer of backing that can be either transparent or opaque or even developed as IGU.</p> <p>Modules need to have a provision for carrying the electric cables either through hollow frame or other suitably designed means.</p>
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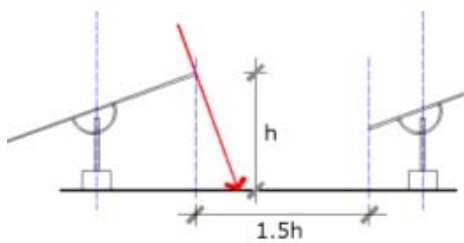
Design Considerations:



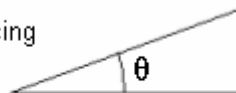
The sun-path in the northern hemisphere moves through the South sky.

Hence ideal orientation for fixing of SPV modules is on South façade, horizontal elements (atriums, skylights etc) or ideally fixed with tilt facing the south sky.

Fixing of Standard Solar Modules on Building Roofs or Open Ground:



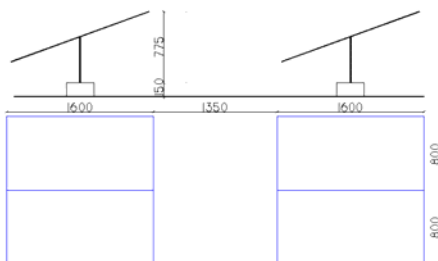
South facing



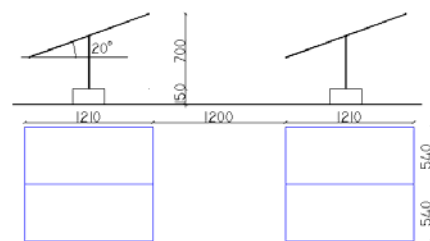
$\theta =$ latitude of the Site.



- Standard Solar PV Modules are available in two sizes:
80Wp ~ 1.2 m x 0.55 m and **160Wp ~ 1.6m x 0.8m**
- They are mounted on a 'module mounting structure' (as shown above) with a tilt equal to the latitude of the site.
- These modules can be placed in any location that is shadow free such building roof top, car-parks, integrated into landscape design or boundary walls.
- Consultants/architects can find the total no. of modules that can fit onto the available roof area as shown below.
- Total solar power plant capacity in kW = no. of modules X 80 or 160 (as per module of choice) *Note: spacing between modules can be reduced from given lengths.*

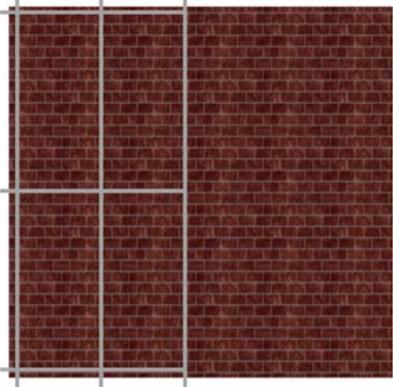
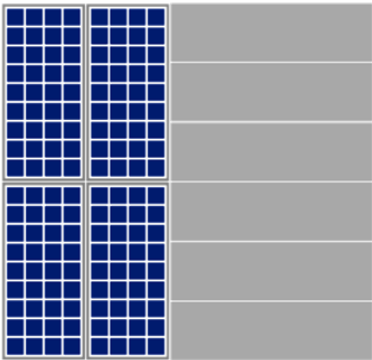




Layout for 160Wp Solar Module


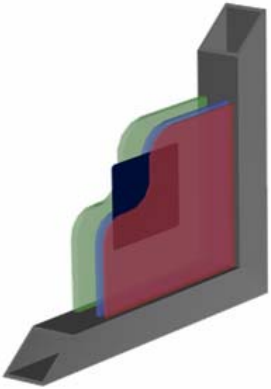
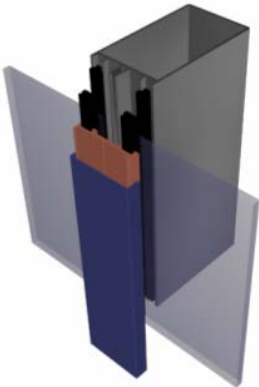


Layout for 80Wp Solar Module

Integrating Modules on Facades:

		
	<p>Opaque solar modules can be aesthetically integrated onto South facades of building similar to Aluminum claddings over s structural grid.</p> <p>The modules can be designed to have visible grid in required finish (colour) or modules can be flushed with one another to create a uniform façade.</p> <p>Ideally it is recommended that the facade is designed to have a slight tilt to ensure optimum output from the solar PV modules.</p>	

Integrating Transparent Modules into Building Design:

		
<p>Transparent BIPV panels can be thought of similar to structural glazing. They can be designed as single, double or triple glazing with a variety of structural framing.</p> <p>The glazing panels be designed in a variety of sizes & cell spacing (for varying the light passing thro) design options are limited only by imagination of the architect.</p>		

About the Company:



Tata BP Solar: A joint venture between Tata Power and BP Solar with Rs 4700 million turnover is fully equipped to be your one-stop solar solution provider, help achieve greater energy efficiency and collectively do our bit for the environment.

The company undertakes complete design, supply, installation, commissioning and maintenance of BIPV systems and we look forward to working with the architects and clients in developing BIPV solutions which are aesthetic and efficient.

Projects in India:

