AELIUS

Energy Generating Aesthetic Surfaces

LODHA VILLA ROYALE

Case study

Designer Solar by Aelius

30/05/2025

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ENERGY GENERATING AESTHETIC SURFACES

ABOUT US

COMPANY OVERVIEW

Aelius is a Solar Energy Company. We specialise in BIPV Integrated Roof, Rooftop and Ground Mount solar solutions for Commercial & Industrial clients. Our in-house engineering and procurement team ensures optimised solar solutions by using the best available materials in the market, following the latest engineering practices.

It was conceived in 2019 with a purpose of bringing green energy to the masses & trying to achieve the Net Zero dream. We offer end-to-end services, including design, engineering, procurement, and construction of solar plants. From assisting customers with obtaining necessary approvals from authorities, we provide a comprehensive solution.

ABOUT OUR CEO

Our Founder and CEO, Mr. Ankit Modi

- Msc Renewable Energy & Architecture(U.K)
- B.E Construction Engineering (INDIA)
- BREEAM (U.K), IGBC, GRIHA AP
- Low Carbon Consultant, CIBSE (U.K)

OUR ACHIEVEMENTS

- 80+ Projects Completed
- IGBC, GRIHA, BREEAM, CIBSE Accreditations
- 15 MW+ Renewable Energy Installed
- MNRE Empaneled Member to Apply for Subsidy
- 15+ Years of Renewable Energy & Sustainability Experience

ACCOLADES

- Best Green Energy Startup 2021, India.
- Invited by Govt. of India to showcase our innovations at Dubai Expo 2020.
- Runners up in the “Innovative Solar Applications” competition by MNRE & Germany, 2022.
- Attended Slush 2022 at Helsinki, Finland as part of India's delegation.
- Panelists & Curators on the first Indian BIPV Report by MNRE, CSIR & SUPSI, 2022.
- Hon. Prime Minister of India inaugurates our 1MW BIPV project at Shrimad Rajchandra Hospital, India,2022.

CERTIFICATION SERVICES

IGBC

GRIHA

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CASE STUDY

PROJECT INTRODUCTION

Lodha Villa Royale is an all-villa estate situated in Upper Thane, Maharashtra. There are 5 different Roof layouts for these 180+ villas.

SOLAR REQUIREMENT & CHALLENGES

With soaring energy requirements and prices for these villas, there was an obvious need of a cheaper renewable energy source i.e. Solar.
However, the main challenge was to not compromise on the architectural beauty (aesthetics).
Procuring customised Solar panels that could fit the different roof layouts and also generate decent energy output was not easily available in the market.
Mounting the solar panels on the Roof shingles without any impact on water proofing was another challenge.

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SOLAR SYSTEM SOLUTION

OPTION 1 : CUSTOMISED DESIGNER SOLAR PANELS

With custom crafted solar panels that match the roof shingle design, Aelius not just solved their aesthetic challenges, but also installed more Solar capacity in the same space compared to conventional panels due to the customised size..

TECHNICAL SPECIFICATIONS

Solar capacity	8.83 kWp
Dimensions	1500 x 600 mm
Thickness	5mm
Count	57 panels
Power (Wp)	155 Wp
Estimated generation	4,620 kWh per annum
Design	Matching Roof shingle design
Roof Area covered	50 sqm

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SOLAR SYSTEM SOLUTION

OPTION 2 : CUSTOMISED FULL BLACK SOLAR PANELS

Whilst the Designer Solar panels looked almost identical with the roof, it came with 35% less energy generation. So an alternative was full black panels that looked as beautiful as the designer ones and efficiency as good as a standard solar panel.

TECHNICAL SPECIFICATIONS

Solar capacity	8.83 kWp
Dimensions	1500 x 600 mm
Thickness	5mm
Count	57 panels
Power (Wp)	155 Wp
Estimated generation	6,600 kWh per annum
Design	Full black
Roof Area covered	50 sqm

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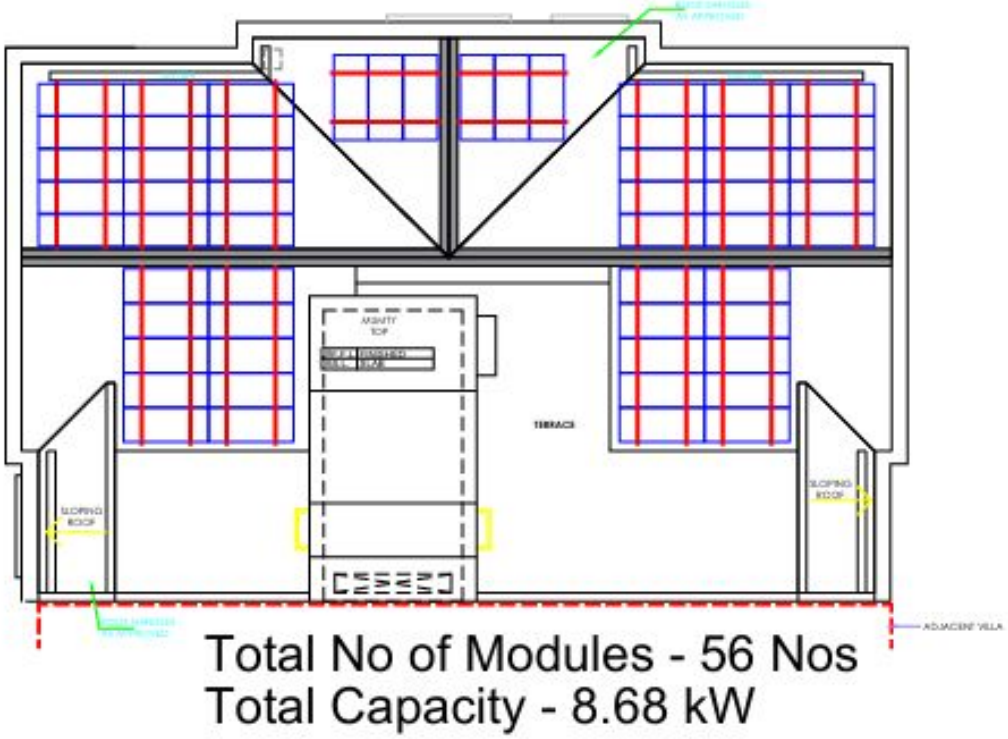
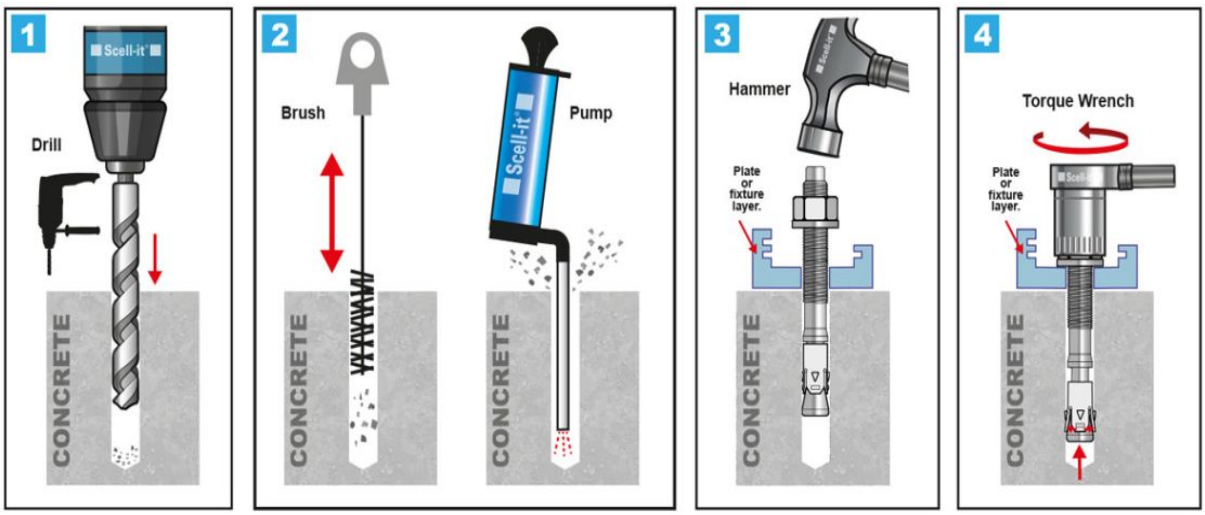
SAMPLE SYSTEM INSTALLATION



A sample solar panel layout for one of the villa configurations. We could install 25% more solar panels compared to conventional panels.

Use of Anchor Bolt at the Slope:

1. For the installation of Hilti anchor bolts, we intend to drill to a depth of 50mm using a 10mm drill bit. The anchor bolts to be installed are sized at 8mm x 50mm.
2. Following the creation of the hole, the Hilti anchor fastener will be installed. Subsequently, a chemical named Candorr SR500 will be applied to ensure waterproofing.
3. Hilti anchor fastener will then be installed in the hole.



4. The above step will be followed for installing an Hilti anchor bolt.

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Have a unique project in mind? Let's connect!

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