

Dow Corning Solar Energy Exploration and Development Centre



INNOVATING WITH SILICON-BASED MATERIALS
IN EUROPE FOR A SUSTAINABLE FUTURE

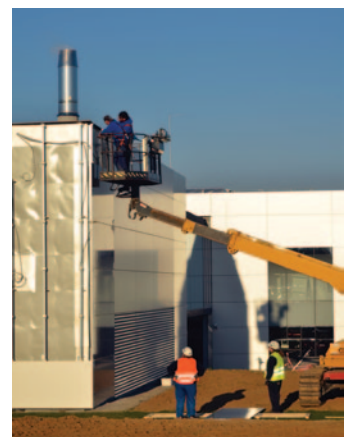
Innovating in Europe for a Sustainable Future



Dow Corning is a leader in the development of sustainable, silicon-based solutions for a wide range of industries. We are passionate about innovative silicon-based technologies, whose unique properties enable a wide range of clean energy generation, high-performance buildings and energy conservation applications.

That is why Dow Corning's new Solar Energy Exploration and Development Centre (SEED), located at our European headquarters in Seneffe, Belgium, was constructed with many of our cutting-edge technologies for true low K-value (K15) energy-efficiency.

The new center consists of the Solar Solutions Application Centre and the Synthesis Technology Centre. It provides state-of-the-art facilities to promote and advance applied and fundamental research in solar cell development and novel silicon-based materials.



High Performance and Energy Efficiency with Dow Corning Products and Technologies

Producing materials that enable higher-performing solar and wind energy devices is one way Dow Corning contributes to improving sustainability. Another is that our Construction Solutions allow buildings to be more energy-efficient while enhancing comfort and aesthetics.

- Vacuum insulation panels (VIP)
- Structural glazing
- Weather-resistant sealants
- Triple glazing for airtight buildings
- Solar panels
- Building integrated photovoltaics (BIPV)

Dow Corning's recent **breakthrough VIP technology** provides high-efficiency insulation featuring five to 10 times lower thermal conductivity than conventional insulation materials. With its increased thermal resistance, VIP makes it possible to create slim wall constructions with high R-value performance, enabling new design opportunities for zero-energy buildings.

Energy efficiency, aesthetics and improved quality of life are provided by Dow Corning's **structural glazed facade technology**. Structural glazing with silicon-based sealants gives architects expanded design options and the ability to use larger glass areas for increased natural lighting while improving energy efficiency and weather resistance.

Silicone materials improve the performance, durability and cost-efficiency of solar cells, solar modules and photovoltaic devices. Higher-performing, longer-lasting PV solar cell panels are made possible with Dow Corning's innovative **liquid silicone encapsulants technology**.

BIPV technology that takes advantage of natural lighting while generating energy is made possible with Dow Corning **sealants and adhesives**. Advanced photovoltaic technology integrated with structural building units provides access to solar power in an aesthetically pleasing package, functioning as both a building material and a solar energy converter. Silicone adhesives and sealants provide weathering protection for BIPV panels, solar modules and solar arrays.

Renewable Energy for Sustainable Operations

Our investment in SEED confirms our commitment to continued innovation in Europe and enhances our ability to collaborate with customers, academic researchers and policymakers to advance the technologies that will help solve the societal challenges of tomorrow.

- BIPV solutions that produce electricity
- Conventional solar panels showcasing Dow Corning Solar Solutions
- A wind turbine that supplies the Seneffe site
- Cogeneration plant for increased efficiency
- Geothermal energy, coupled with a heat pump, for natural heating and cooling





Designed for Success

The sustainable design of the SEED buildings, which has been made possible with Dow Corning's state-of-the-art silicon technology, has a measurable impact on the facilities' environmental footprint. The numbers speak for themselves: Heating costs are anticipated to be **75% lower** and electricity costs **70% lower** than those of a conventionally constructed building.

Due to the smart lighting and energy efficiency designs, the offices in the SEED buildings consume only minimal amounts of energy. And the energy needed for heating and cooling will be generated by the BIPV panels on the building and by the heat pump, resulting in the offices being "**zero-energy.**" In fact, **1.8 tons of CO2** per year will be saved by using the electricity produced with the solar panels.

Air recycling in the SEED laboratories will provide a dramatic **65% energy gain** compared to conventionally designed labs. With this improvement, Dow Corning will be able to reduce energy consumption by **725 MWh** per year, which represents savings of **290 tons of CO2** per year.

Confirming Dow Corning's Commitment to our European Stakeholders and to innovation in Europe

Producing materials that enable energy efficiency and higher-performing solar and wind energy devices is one way Dow Corning contributes to improving sustainability. Another is by making energy conservation a priority and using renewable energy sources in our own operations.

For More Information

For more information about the technologies featured in this publication, as well as our many other proven solutions, visit dowcorning.com.

How to Contact Dow Corning

Dow Corning has sales offices, manufacturing sites and laboratories around the globe. Contact information for locations near you is available at dowcorning.com/ContactUs.

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