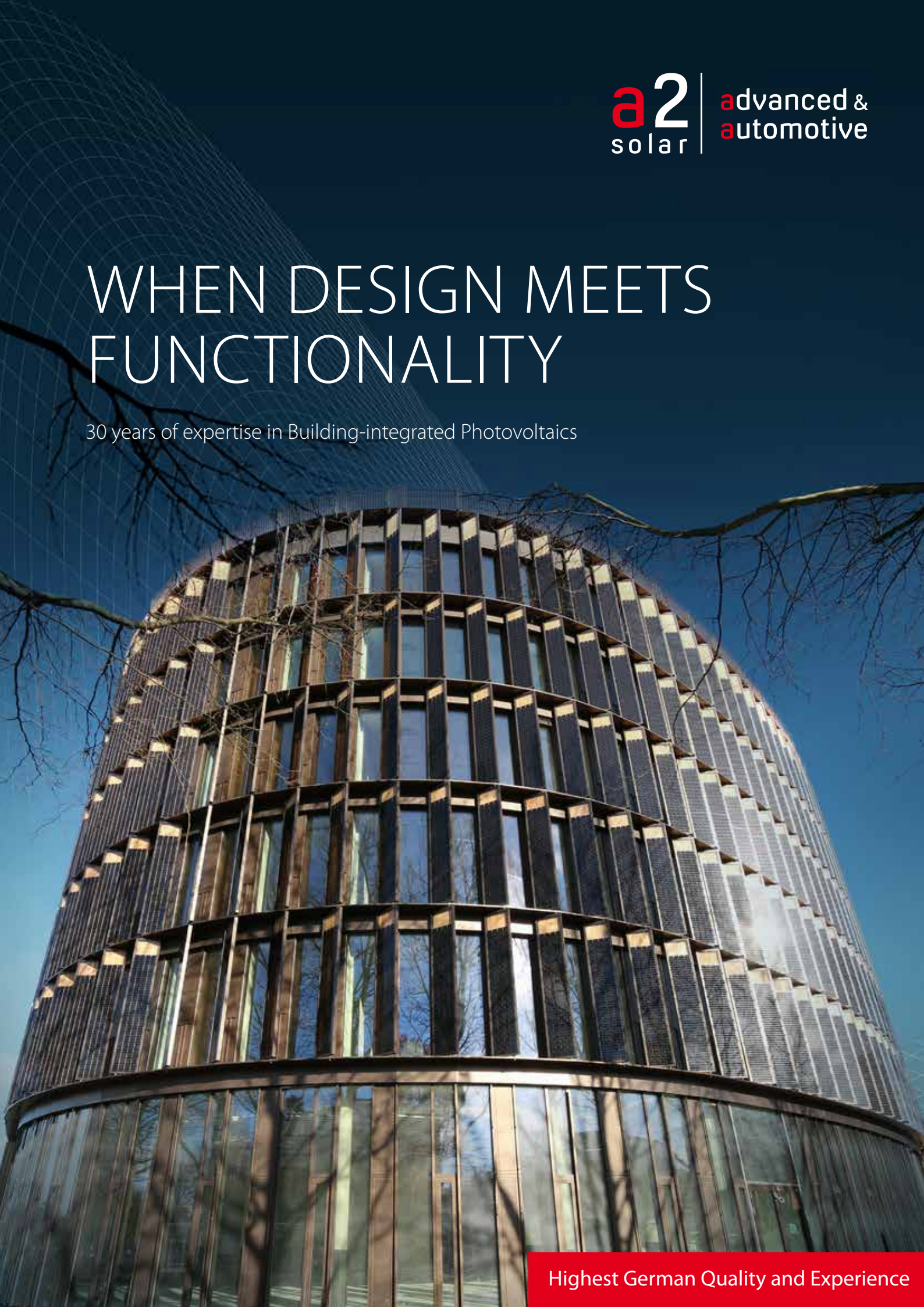
a2 solar | advanced & automotive

WHEN DESIGN MEETS FUNCTIONALITY

30 years of expertise in Building-integrated Photovoltaics



Highest German Quality and Experience

a2 solar | advanced & automotive

New City Hall in Freiburg (Germany)

One of Europe´s largest solar façades:

Made of solar modules designed and delivered by a2-solar.

With a surface of approximately 13.000 m², the energetically optimised façade consists of metal frames aligned towards the sun, for which the solar modules have been specifically customized by a2-solar.

The overall output of 220 kWp is generated by a total of 880 solar modules, which a2-solar has manufactured as special seamless double-glass modules with the exceptional dimensions of 3.5 m height on 60 cm width, weighing almost 100 kg each. The 7 mm spacing between the solar cells creates a high transparency for the wood panels installed behind: a design concept elaborated to combine highest art of technology with natural building materials - an extra-ordinary synthesis of design and functionality.

Thanks to this innovative solar façade, this new municipal building fulfils all of the European regulations on energy efficiency for new buildings as one of Germany's first public institutions. Thus, the new City Hall completely matches with the principal standards of a zero-energy building.

The "green building" concept with a 100 % energy self-sufficiency, however, was only successfully achieved by using the façade surface in addition to a photovoltaic roof-top system.

Also, the Fraunhofer Institute for Solar Energy Systems (ISE) validates this project for its holistic characteristics of sustainability and integrity.

Additional benefits

- 13.000 m² of solar façade
- overall output of 220kWp
- 880 solar modules in glass-glass technology with 3.5 m height on 60 cm width
- high transparency by 7 mm spacing between the cells
- harmonious combination of design, technology & natural building materials

A fusion of design and function.

Building-integrated solar systems made by a2-solar

www.a2-solar.com

Solar pylon for Porsche

Since January 2016, this unique kind of solar power system has been towering above the new Porsche Center in Berlin. The special 172 frameless double-glass modules have been designed and produced by a2-solar as a glass laminate of 2x6 mm glasses as well as the particular back-contact connection system for the modules to be mounted to the steel construction in an innovative structural glazing technology. Thus, the observer will only spot a homogenous glass design without any aesthetically disturbing holding clips. With a total surface of approximately 270 sqm and a height of 25 m, the solar pylon can generate up to 30.000 kilowatt-hours of electricity a year under ideal conditions.

More than "just" power suppliers:

High efficiency is the first argument. But we´ve got others as well.

Thanks to the multi-functional module characteristics, building-integrated photovoltaics (BiPV) combines architectonical features with structural physical aspects and enhances architectural design by integrating PV elements into entire building shells. The main reason for BiPV solutions is the aim to increase energy efficiency. As 40% of the total energy consumption is attributed to buildings, Europe requires that, as of 2019, all new public buildings and the latest by end of 2020, all new buildings must be minimum energy buildings.

Yet, the field of building-integrated photovoltaics (BiPV) provides even more potentials:

- Weather protection
- Thermal insulation
- Shading
- Privacy & sight protection
- Sound isolation
- Electromagnetic shielding
- Burglary protection
- Light control & conduction

Additional benefits

- Architectural functionality
- Appealing color variations available
- Special semi-transparent or high-efficiency modules for partial or complete shading, cold facades, carports, etc.
- Depending on the field of application, use of mono-, polycrystalline or bifacial cells
- Glass-foil or double glass construction
- Combined modules (power and heat) available on request

Façade solutions made by a2-solar:

When splendid design meets functionality.

Our solution for an active, energy-generating building shell is an easy-to-mount, back-ventilated cold building facade made of glass-glass modules with high-efficiency solar cells whereby all components may be perfectly adapted and customer-tailored according to any needs and architectural requirements. The overlapping module design creates a shingle effect which makes even older buildings shine forth in new splendour and brilliance. Whatever the design of solar cell or glass desired, you are free to select any type, shape or colour - even for adapting the back glasses in perfect colour shades - all without losing the focus on functionality while considering the overall scene. The DiBT- certified mounting elements are included within the system package.

The AWESO mounting system consists of upper, middle and lower mounting clips.

Innovative technology with eMotion:

With the spirit of invention to set application ideas in motion.

Photovoltaics has emancipated itself from buildings over the last few years. In cities or along highways, railroad tracks or waterways, you'll find more and more applications for photovoltaics:

- Sound-proofing walls
- Bifacial modules
- Special modules designed according to specific regulations for bridge railings, public lighting and signal systems

In addition, now more than ever, mobile solar systems are coming to the fore. Thanks to the unique and long years of expertise of a2-solar`s employees in the field of spherically curved solar systems, even fields of applications that weren't given much consideration until today are now becoming more and more appealing for our customers.

Additional benefits

- Customer-tailored as flat, bent or spherically curved modules in all geometrical shapes
- Glass thickness of 0,5 – 12 mm
- Glass size of 0,2 – 7 m^2
- Great choice of solar cell types and encapsulation materials in all RAL-colors

a2-solar Advanced and Automotive Solar Systems GmbH
Am Urbicher Kreuz 18, 99099 Erfurt - Germany
CEO: Dipl.-Ing. Reinhard Wecker

phone: + 49 (0) 361 518 049 20
fax: + 49 (0) 361 518 049 29

e-mail: info@a2-solar.com
www.a2-solar.com

a2-solar - Highest German Quality and Experience in Advanced and Automotive Solar Systems

a2-solar draws back on more than 30 years of proven knowhow and technological expertise for innovative solar solutions in the field of building-integrated (BiPV) and „automotive" solar systems. Our team incubates trend-setting module technologies for all kinds of solar applications. As a high-performance innovator in the industry, we are not only concentrating on advanced and ultra-light-weight modules for automotive applications but also on exclusive BiPV solutions from small to maximum-sized dimensions up to combination modules (power and heat). Our modules are tailored according to any needs and architectural requirements.

This project has been co-financed by means of the European Regional Development Fund.

Revision: November 2016