

# Austrian Green Planet Building®

Award-winning projects around the world



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Vienna, 2024

## **Imprint**

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Vienna, 2024

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# Sustainable building made in Austria

Know-how and technologies from Austria find recognition worldwide in the construction sector: impressive architecture, the highest level of expertise in energy-efficient building, experienced construction and technology companies ensure high-quality buildings.

Austrian Green Planet Building® (AGPB) honours the outstanding achievements of Austrian companies abroad in the field of sustainable building. The focus lies on energy efficiency and the supply of renewable energy. Whether it is a Norwegian coffee roasting plant, a Chinese office building, a Kazakh church, a Belgian bank, an Estonian passive house or an embassy building in Thailand: AGPB uncovers that Austrian companies are successfully active in the field of sustainable construction worldwide. The award gives the buildings, the technologies used and the Austrian companies involved in planning and realisation the public recognition they deserve.

## Austrian Green Planet Building® – the award

The AGPB Award is presented exclusively to Austrian companies and experts who have been actively involved in the planning and construction of buildings that have already been realised. The award is only presented to completed buildings and is a high-quality testimony to the owners' commitment to climate-friendly construction. The quality criteria to be applied are documented at [agpb.at](http://agpb.at). The AGPB Technology Award has been available since 2020. It focuses on technologies from Austrian companies that are used in buildings worldwide and further promote energy efficiency and climate protection in this sector.

## Excellence in energy efficiency and climate protection

Sustainable building involves many components. Austrian Green Planet Building® is based on the assumption that there can be no sustainable building without economical use of resources and energy. For this reason, the focus of the initiative is clearly on energy efficiency and renewable energy as the most important basis for climate protection.

The use of the klimaaktiv quality criteria for construction and refurbishment, which are well established in Austria, in the AGPB award system also takes into account numerous other requirements for sustainable buildings. The effort involved in providing evidence of this does not lead to high costs. In Austria, already over 1,500 newly constructed or renovated buildings of this quality are powerful examples of the economical and technical feasibility of the highest standards in sustainable construction. The award also communicates the performance of Austrian companies in an international environment.

## Projects around the world

The globally realised projects presented in this brochure inspire and serve as role models. They stand for a variety of possibilities, not only with regard to the different types of utilisation and construction methods. Sustainability, economy and efficiency throughout the entire life cycle, multifunctional use, re-use as the most important component of the circular economy, energy autonomy, excellent indoor air quality, high-quality materials and all this without compromising on comfort for users: this is how sustainable building made in Austria works.

AGPB is an initiative of the Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology together with ADVANTAGE AUSTRIA, the foreign trade organisation of the Austrian Federal Economic Chamber, and transfers the criteria of the national climate protection initiative klimaaktiv for the construction and real estate industry to the international environment. The public sponsorship of the AGPB Award ensures a high level of credibility and independence. Austrian architecture and planning offices, construction and technology companies are thus supported worldwide with their projects for climate-neutral construction.



Photo: R. Korner

## Active Energy Building

**Vaduz, Liechtenstein.** Outstanding architecture meets innovative building services and a holistic utilisation concept thanks to an adaptive supporting structure. The energy-autonomous building fulfils all the requirements of sustainable architecture.

falkeis<sup>2</sup>architects exploited every possible optimisation. Energy design Cody implemented building-integrated energy generation systems such as PV trackers and PCM climate wings as part of a movable building envelope. The efficient supporting structure from BDT IB Bauphysik is characterised by a high degree of adaptability and can therefore react to changing spatial requirements over the entire life cycle. White True Innovations designed the textile façade.

The building uses only renewable forms of energy and plays an active role as an energy producer and supplier within an energy cluster. The decentralised systems contribute to the democratisation of energy production and distribution. Energy efficiency and the supply of renewable energies are the key factors for a largely CO<sub>2</sub>-neutral building sector.

Active Energy Building received the **AGPB Award 2022**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/active\\_energy\\_building.htm](https://agpb.at/en/active_energy_building.htm)





Photo: NEUBAU best.energy

## Apple Garden

**Almaty, Kazakhstan.** The attractive design in the EPlus energy standard enables sustainable energy self-sufficiency at any time of year.

The detached house in the mountains of Almaty, designed by SPAZIO3 Architektur with a Weissenseer timber construction, was built within 15 months. NEUBAU best.energy designed the complex building services together with Stiebel Eltron and took on the general planning. Kärnten Solar took care of the photovoltaics and solar thermal systems, W+Kreisel provided the expertise in storage technologies and load management and the cooling ceilings were supplied by Harreither: this is Austrian teamwork in sustainable construction.

The building distinguishes between three different climate zones within the thermal envelope. An electrical storage system supplements the thermal solar panels and the PV system in order to be energy self-sufficient. A ground collector channels the pre-tempered fresh air into the controlled living space ventilation with heat recovery. The underfloor heating warms in winter and the flat ceiling cooling keeps the temperature in summer.



Apple Garden received the **AGPB Award 2022**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/apple\\_garden.htm](https://agpb.at/en/apple_garden.htm)



# Austrian EXPO 2020 Pavillon

Photo: Andreas Keller  
Fotografie

**Dubai, United Arab Emirates.** The pavillon makes an intercultural contribution to the energy debate and to questions of climate-sensitive construction.

querkraft architects combined local building tradition and intelligent climate engineering: Werner Consult was responsible for project management and Vienna Consulting Engineers for cost control. Werkraum Wien calculated the statics and Obkircher Plus provided the building services. Kieran Fraser Landscape Design and Green4Cities did the landscape as well as open space design, the engineering firm P. Jung was responsible for climate and energy planning.

Re-interpreting the building traditions of the host country, 38 interlocking cones of different heights form the unmistakable shape. The construction made of eight different types of prefabricated elements can be dismantled and reassembled. It makes it possible to largely dispense with conventional air conditioning technology in the hot desert climate. Compared to buildings of a similar type, the energy requirement was reduced by more than 70 per cent.

The Austrian EXPO 2020 Pavillon received the **AGPB Award 2022**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/expo20.htm](https://agpb.at/en/expo20.htm)



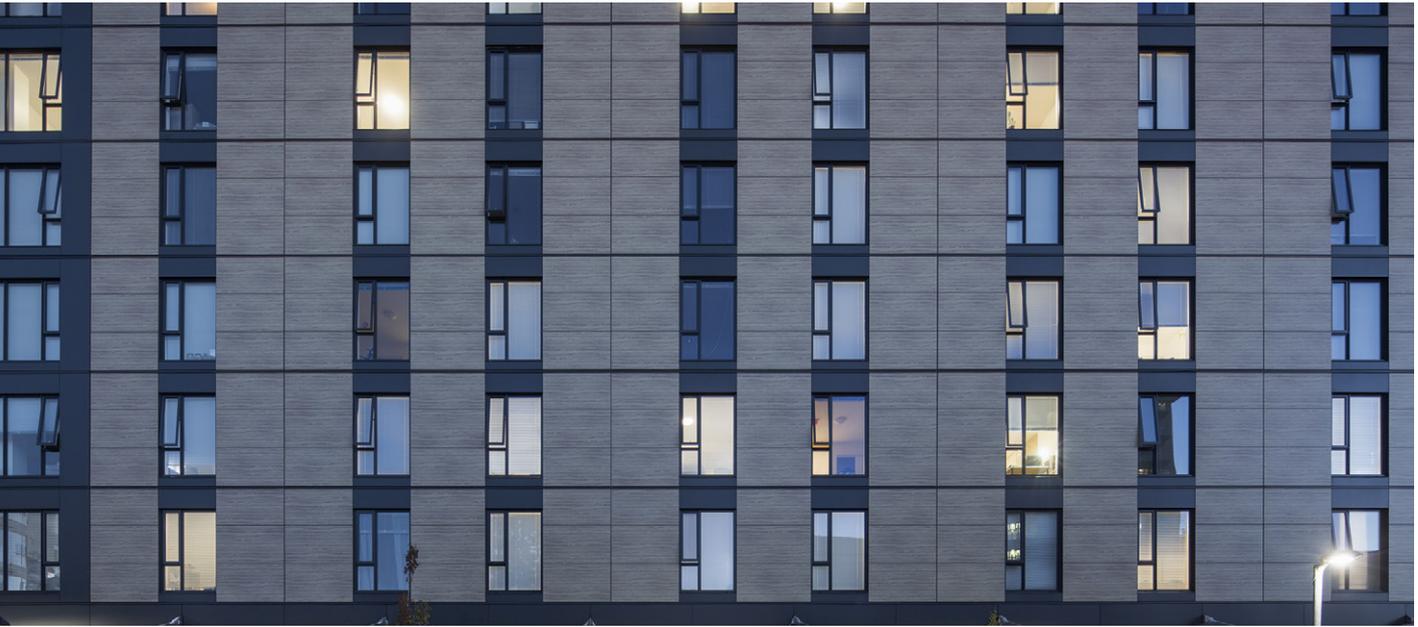


Photo: Michael Elkan,  
courtesy of Acton Ostry  
Architects

## Brock Commons Tallwood House

**Vancouver, Canada.** The award-winning high-rise, which is very well known in Canada and the USA, impresses with its consistent implementation of solid timber construction and resource-efficient construction.

At 53 metres, it is one of the tallest solid timber buildings in the world. Apart from the base storey and an access core, the building consists of solid timber elements: be it exterior walls, supporting structure or ceilings. Resource and time-efficient construction was achieved thanks to the use of a large number of prefabricated parts. Another plus point is the use of environmentally friendly materials, which were taken into account for the interior fittings.

The know-how for the development of timber constructions in solid wood construction comes from Austria: Hermann Kaufmann Architekten contributed its expertise to the design and realisation process.



Brock Commons Tallwood House received the **AGPB Award 2022**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/brock\\_commons\\_tallwood\\_house.htm](https://agpb.at/en/brock_commons_tallwood_house.htm)



Photo: Weissenseer

## DAN EXPO – high-efficiency housing

**Astana, Kazakhstan.** From efficient envelopes, PV systems and solar thermal systems to electricity storage systems, houses are being built for the coming decades. The „Energy City“ housing estate is set to include 200 buildings when completed, and the first buildings are already standing. Following its successful appearance at the EXPO in Astana, Weissenseer developed prefabricated timber houses with the lowest energy due to the latest technologies. The energy planning and quality assurance was carried out by NEUBAU best.energy. Photovoltaics and solar thermal energy were provided by Kärnten Solar and the engineering firm Jandl&Garz. The storage technologies were supplied by W+Kreisel.

The buildings are characterised by comprehensive energy optimisation, which, depending on the optimisation, come very close to or fall below the passive house standard, depending on the final design. PV systems, thermal solar collectors and ventilation systems with heat recovery ensure extremely low energy consumption.

DAN EXPO – high-efficiency housing received the **AGPB Award 2019**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/danexpo.htm](http://agpb.at/en/danexpo.htm)





Photo: ATP/Friedmann

## Designer Outlet Croatia

**Zagreb, Croatia.** Traditional design elements and high-quality materials create a stylish ambience with a resource-saving energy concept. It is the first outlet in Croatia to receive an BREEAM certification for sustainable construction.

The outlet in the Croatian capital is designed as a typical Croatian city. ATP architekten ingenieure provided a resource-saving energy concept. ATP Vienna was commissioned in advance with a master plan and subsequently ATP Zagreb as the local overall planner with the integral planning to ensure optimum utilisation.

The energy concept will hopefully find many imitators: Heating and cooling are provided by geothermal energy from 264 piles. This covers 100 per cent of the heating requirements in winter and 70 per cent of the energy required for cooling in summer. The photovoltaic system has a total of 1,200 solar panels covering an area of 3,000 square metres. LED lighting ensures energy-efficient and pleasant lighting conditions in all shop areas. Charging stations for electric cars encourage visitors to make an environmentally friendly journey.



The Designer Outlet Croatia received the **AGPB Award 2022**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/designer\\_outlet\\_croatia.htm](https://agpb.at/en/designer_outlet_croatia.htm)



Photo: Leis Reinberg

## Single-family house Leis

**Polva, Estonia.** Estonia's first certified passive house comes very close to the PlusEnergy standard thanks to an extensive PV system and solar thermal energy.

The architectural firm Reinberg provided the design and implementation support. The cross-laminated timber elements were supplied by KLH Massivholz, while the solar collectors were supplied by Sonnenkraft from Klagenfurt. S&P Climadesign was responsible for the building services planning and JR Consult for the structural engineering.

A second roof, which floats on supports above the building, carries photovoltaic elements and serves to generate electricity as well as providing shade in the summer. On the roof are angled thermal collectors optimised for summer operation and vertical thermal collectors in the façade for winter operation. The residual heat requirement is obtained via a heat pump from deep boreholes. The building adapts the passive house concept for the northern sun and serves as a model for passive and plus-energy buildings in northern latitudes. Energy consumption is being monitored, which confirms the expected demand values.

The single-family house Leis received the **AGPB Award 2019**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/polva.htm](http://agpb.at/en/polva.htm)





Photo: Schöberl & Pöll

## 1st Certified Passive House in China

**Zhouzhou, China.** The office building with adjoining residential wings is the very first building in China to be officially certified according to the rules of the Passive House Institute. Extremely low energy requirements combined with a high level of comfort are the tangible results.

Austria's expertise in energy-efficient construction was used specifically for overall optimisation: Schöberl & Pöll, DP Regeltechnik, BPS Engineering and Dawid Michulec cooperated with local partners.

The temperature and relative humidity are controlled in each room via metal heating or cooling ceilings, which are supplied with heat pumps via a separate water circuit. All heat pumps are connected to a geothermal network. The insulated envelope reduces heat loss in winter and cooling requirements in summer. Triple glazing optimises thermal insulation in summer and winter.



The 1st Certified Passive House in China received the **AGPB Award 2018**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/first\\_passive\\_house\\_china.htm](https://agpb.at/en/first_passive_house_china.htm)



Photo: Luc Boegly

## Green Office® ENJOY

**Paris, France.** The multifunctional property combines attractive architecture with extremely low energy consumption and was the first large-volume office building to be constructed with a plus-energy balance.

Designed by Baumschlager Eberle Architekten and its partner office SCAPE Architecture, the building also offers controlled ventilation with heat recovery, a PV system and connection to the city's district heating network as further points on the plus side of sustainable construction.

Around 1,250 people use the 17,400 square metres of office space. They benefit from the experience value of the architecture as well as from the comfort of the technical equipment. Buildings and their surroundings always interact. In the Clichy-Batignolles district of Paris, this had a significant influence on the design of the building: the concrete slab of the railway subway required a lightweight construction to be able to support the building's load. In times of heightened awareness of the finite nature of resources, wood was a natural choice.

Green Office® ENJOY received the **AGPB Award 2019**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/greenoffice\\_enjoy.htm](http://agpb.at/en/greenoffice_enjoy.htm)





Photo: Joh. Johannson  
Coffee Roastery

## Coffee roastery Joh. Johannson

**Vestby, Norway.** The innovative roof structure made of timber elements is not only visually appealing, it is also an important building element in the coffee roastery's sustainable energy concept. KIELSTEG Bauelemente made the wide-span yet slender structures possible. The 6,780 square metre roof structure made of KIELSTEG elements allows the building to have high load-bearing reserves even when covered with snow in winter. It is a worthy winner of the AGPB Technology Award, which was presented here for the first time.

Renewable energy covers 100 per cent of the energy consumption of the new coffee roasting plant and saves 85 per cent of CO<sub>2</sub> compared to the old production facility. Using solar panels, which are part of the building façade, and by recovering heat from the roasting process, more energy is provided than needed for production. The system's flexibility of use enables future expansions and changes in production and energy generation without further conversion.



The coffee roastery Joh. Johannson received the **AGPB Technology Award 2022**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/kaffeeroesterei\\_joh.johannson.htm](https://agpb.at/en/kaffeeroesterei_joh.johannson.htm)



Photo: tore Hobbelstad

## KIWI Lerberg

**Hokksund, Norway.** The supermarket sets an example in terms of ecological responsibility by significantly reducing energy consumption and thus greenhouse gas emissions. This is achieved, among other things, by the characteristic roof construction with a high load-bearing capacity.

The roof construction by KIELSTEG Bauelemente makes a significant contribution to reducing the building's greenhouse gas emissions. The lightweight timber roof has an extremely high load-bearing capacity and can therefore easily withstand snow and greenery. Despite this, the building only requires one support axis for the roof span of 40 metres. The lightweight construction system represents the optimised and at the same time specific use of wood as a raw material and thus utilises the strength and rigidity properties that only a few renewable raw materials have.

Varied roof vegetation ensures biodiversity, which interacts with the surrounding regional biotope via plant-pollinating insects. The building sets an inspiring example for the food retail sector in terms of eco-sensitivity and ecological responsibility.

KIWI Lerberg received the **AGPB Technology Award 2022**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/kiwi\\_lerberg.htm](https://agpb.at/en/kiwi_lerberg.htm)





Photo: Cyrille Weiner

## L1ve – Grande Armée

**Paris, France.** An impressive and energy-efficient prime example of reuse and recycling of building materials in the sense of circular economy shines with architectural sophistication in bronze and concrete.

The former headquarters of Peugeot Citroen was due to be demolished, but the city of Paris intervened. Instead, Baumschlager Eberle Architekten redefined the iconic building in the spirit of circular economy: the design focussed on preserving the building structure with its striking façade. In addition to flexible office space, the building was given an open „agora“, retail and restaurant areas. This mix of uses also „anchors“ the building in its socio-cultural surroundings.

Over 90 per cent of the demolished building material was reused, e.g. in the floor of the gallery on the ground floor. Green roof gardens, geothermal wells, district heating connection, photovoltaics: L1ve – Grande Armée is completely convincing in the broad spectrum of what sustainable refurbishment means in terms of the circular economy and achieved a reduction in CO<sub>2</sub> emissions in use of around 80 per cent.



L1ve – Grande Armée received the **AGPB Award 2023**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/grande\\_armee.htm](https://agpb.at/en/grande_armee.htm)



# Macallan Distillery

Photo: Mark Power Magnum  
Photos

**Easter Elchies, Scotland, United Kingdom.** The truly unique green wooden roof construction blends harmoniously into the hilly Scottish landscape.

The 207 metre long and up to 27 metre high domed roof consists of 1,800 individual beams, 2,700 roof elements and a total of 380,000 individual components. Each component was precisely calculated and is unique. Four temporary structural supports made of a block-glued laminated timber solution were used. The Upper Austrian company WIEHAG was responsible for the design, timber engineering, production, logistics and assembly of the 12,300 square metres of roof surface.

Five adjacent domes and a shady canopy now house the production facility and an indoor visitor centre, which is heated by heat pumps and district heating from a nearby biomass CHP plant. Local plants and herbs on the roof provide food and nesting opportunities for birds and insects and promote the biodiversity of the area, which is emphasised throughout the property.

The Macallan Distillery received the **AGPB Technology Award 2023**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/macallan\\_destillerie.htm](https://agpb.at/en/macallan_destillerie.htm)



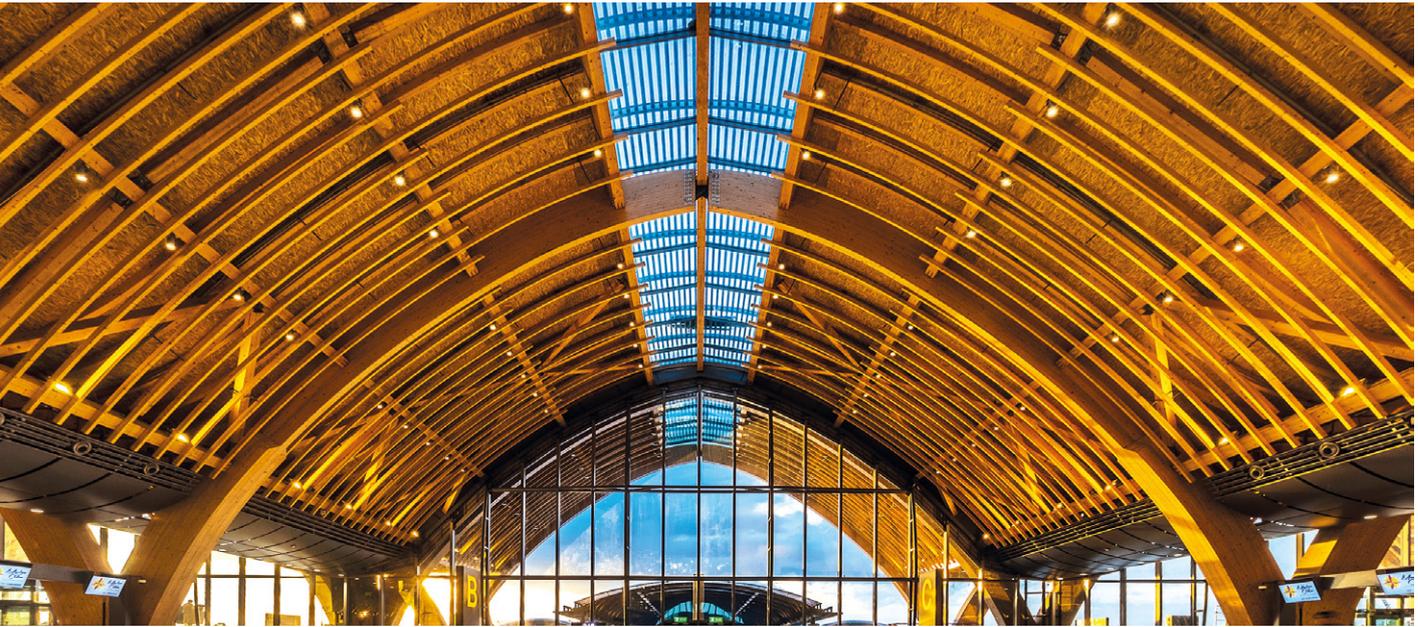


Photo: Christopher Colinares

## Mactan Cebu International Airport

**Mactan-Cebu, Philippines.** The roof construction, made entirely from glulam, can withstand high wind loads, is earthquake-proof and supports the photovoltaic system, which saves over 1000 tonnes of CO<sub>2</sub> every year.

The architecturally sophisticated timber roof meets the climatic and tectonic requirements of the region: it can withstand wind loads of up to 200 km/h and the building joints can move in the event of an earthquake. The wave-shaped barrel roof supporting structure has a span of 30 metres and a height of 15 metres. This enables a pleasant indoor climate. Rubner Holzbau was responsible for the construction of the roof structure at Mactan Cebu International Airport, which is made entirely of glulam.

Seen from the outside, the three-aisled entrance hall looks like a sea wave, while the view from the inside is reminiscent of the typical fishing boats of the locals.



Mactan Cebu International Airport received the **AGPB Technology Award 2022**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/mactan\\_cebu.htm](https://agpb.at/en/mactan_cebu.htm)



Photo: APT/Becker

## markas Headquarter

**Bolzano, Italy.** 1,800 plants and a water basin as climate regulators, a high daylight factor, automatic sun protection, a heat pump and much more. The full reservoir of climate-efficient construction has been used while at the same time increasing the well-being of the employees.

ATP architekten & ingenieure created a visually striking building: the V-shaped façade structure supports the building at its nodes and enables the column-free, flexible open office concept. The office areas start at a height of 20 metres, with the „air floors“ below serving as recreational space. If necessary, additional density can be added downwards. The open green space at a height of 14 metres accommodates a cafeteria and outdoor workspaces. A water basin and eight metre high trees serve as climate regulators in the forecourt. A heat pump supplies the switchable low-temperature system, which, together with the controlled living space ventilation, is responsible for a good indoor climate. The automated sun protection system reduces the cooling energy requirement despite the large windows.

markas Headquarter received the **AGPB Award 2023**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/markas\\_headquarter.htm](https://agpb.at/en/markas_headquarter.htm)





Photo: Cyrille Weiner

## Montagne du Parc

**Brussels, Belgium.** Separating, reusing and recycling materials when dismantling the old building were just the beginning of a comprehensive sustainability concept for its entire life cycle.

The bank's predecessor building from the 1970s was dismantled floor by floor, the resulting material was separated, recycled and partially reused. The multifunctional Montagne du Parc with its core use as a bank is highly flexible, aesthetically pleasing and sustainable: Baumschlager Eberle Architekten with Styfhals & Partners were responsible for the design, which was realised together with the international construction team (Jaspers-Eyers Architects, Eiffage).

The energy efficiency of the building in the centre of Brussels is characterised by a special feature: Its underground water reservoir, which serves as a seasonal heat reservoir, helps to reduce energy consumption, so that almost passive house standard is achieved. Green spaces in the courtyards and on the roof provide a habitat for plants, bees and birds and reduce the heat input for the building.



Montagne du Parc received the **AGPB Award 2022**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/montagne\\_du\\_parc.htm](https://agpb.at/en/montagne_du_parc.htm)



# Austrian Embassy Bangkok

Photo: HOLODECK Architects/Ketsiree Wongwan

**Bangkok, Thailand.** Outstanding architecture combined with low-tech building services, use of regionally available materials and a comprehensive photovoltaic system result in one of the first plus-energy buildings of its kind in the world.

The building, designed by HOLODECK architects, also sets standards in terms of material quality: Locally available resources such as laterite and teak wood were combined with the highest standards of comfort. The structural design comes from gmeiner haferl zivilingenieure and the building physics from IPJ Ingenieurbüro. The zero-energy building is also a lighthouse project in terms of energy performance.

On the one hand, the approximately 600 square metre photovoltaic system produces more electricity than is needed in the building all year round. On the other hand, it is also part of the ventilation and cooling concept: it provides shade and ensures a pleasant circulation of cooler air around the building.

The Austrian Embassy Bangkok received the **AGPB Award 2018**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/embassy\\_bangkok.htm](http://agpb.at/en/embassy_bangkok.htm)





Photo: NEUBAU best.energy

## Passive House Office

**Jiaxing, China.** Despite the warm and humid climatic conditions this is the first office building in the region to meet the certified passive house standard with a total of 740 square metres of photovoltaics on the roof.

After NEUBAU best.energy was allowed to realise the first passive house in the cold north of China, it was a special challenge to realise the first certified passive house office building in the warm climate zone. For the three-storey building with an area of 3,000 square metres, the company provided the general planning, energy planning and quality assurance for the three-storey project from design to certification.

The 740 square metres of photovoltaics on the roof not only serve as a sustainable energy source, their surface area also plays an important role in shading, which significantly reduces the building's cooling energy requirements. Heating and cooling are generated by air heat pumps. The energy is introduced via ceiling sails with humidity and dew point regulation.



The Passive House Office received the **AGPB Award 2022**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/passive\\_house\\_office.htm](https://agpb.at/en/passive_house_office.htm)



Photo: Sino-German Ecopark

# Passive House Technology and Experience Center

**Qingdao, China.** As one of the first buildings in the Sino-German Ecopark Qingdao, it is an outstanding example of energy-efficient and sustainable construction to the passive house standard in China.

Tropical climate with temperatures of around 30 degrees Celsius and up to 90 per cent humidity in summer and European climate conditions in winter. These climatic conditions require particularly energy-saving technologies in the field of dehumidification, among other things. As part of the international planning and development team, the Passive House Institute Dr. Feist Innsbruck was responsible for the energy planning, optimisation and quality assurance through to official passive house certification.

On a total usable area of almost 7,800 square metres, a lighthouse project was realised that sets an example for the entire region and for many follow-up projects in China.

The Passive House Technology and Experience Center received the **AGPB Award 2019**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/phtec\\_qingdao.htm](http://agpb.at/en/phtec_qingdao.htm)



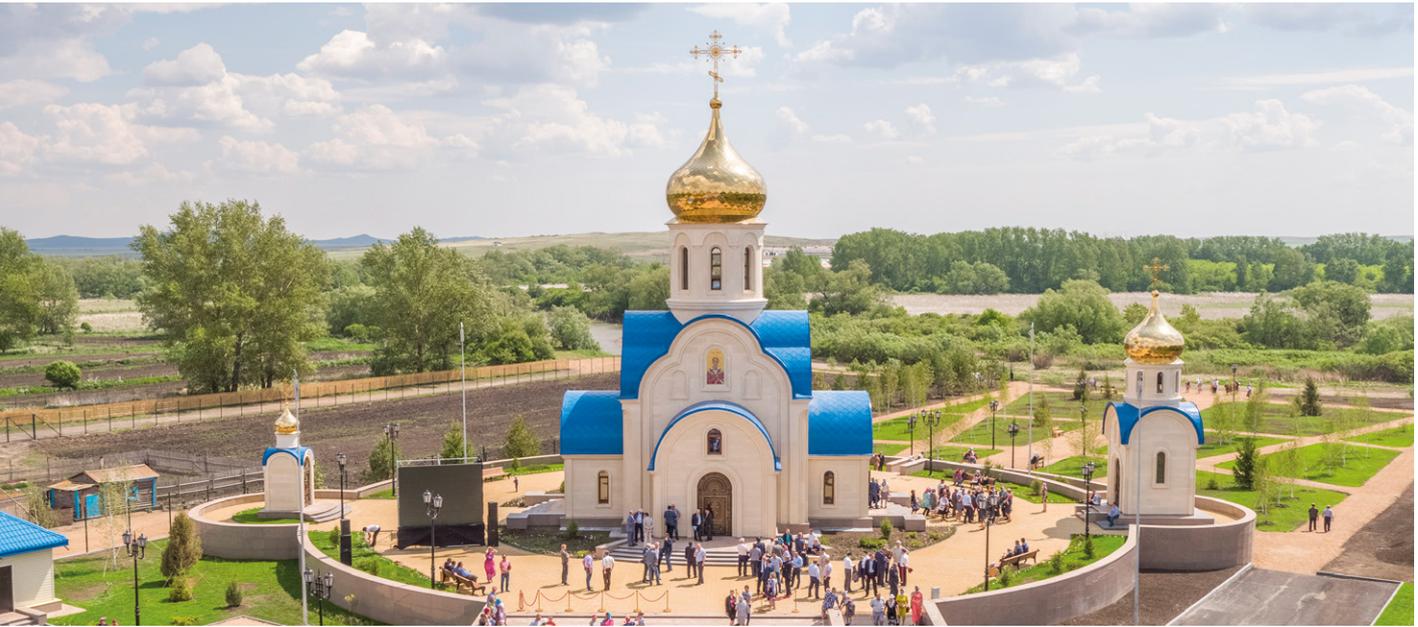


Photo: NEUBAU best.energy

## Roman Orthodox Church

**Maximovka, Kazakhstan.** Despite extreme climatic conditions, the church is energy self-sufficient and emission-free, as it covers its own needs using sustainable sources.

Following on from the world's first mosque, NEUBAU best.energy was also able to optimise the energy efficiency of a church in the village of Maximovka in the north of Kazakhstan and was responsible for general planning, energy planning and quality assurance. In combination with a brine heat pump, the photovoltaic system from Kärnten Solar ensures a pleasant temperature inside the thermally optimised church, regardless of the time of year. A probe field with three deep probes at a depth of 100 metres serves as a sustainable energy source. The building technology comes from Stiebel Eltron. If the electricity generated by solar energy exceeds demand, the church sells it to the local power grid and can buy it back at the same price at a mirror tariff.

Below minus 30 degrees Celsius in winter and above 30 degrees Celsius in summer – despite extreme climatic differences, the Roman Orthodox Church generates all of its heating, cooling and electricity on its own premises, using sustainable energy.



The Roman Orthodox Church received the **AGPB Award 2022**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/roman\\_orthodox\\_church.htm](https://agpb.at/en/roman_orthodox_church.htm)



Photo: Ott-Reinisch

# Royal Institute of Tourism and Hospitality

**Thimphu, Upper Mothithang, Bhutan.** The building was realised as a low-energy building, using both modern and traditional methods. Refurbishment and new construction went hand in hand.

Architect DI Irene Ott-Reinisch planned the tourism college with event hall and training hotel. The hotel, which was realised as a low-energy building, is specially adapted to the climatic conditions that are specific for the Himalayan region. These offer almost ideal conditions for the use of nearly zero-energy technology. The high quality of workmanship, procurement and correct use of suitable building materials required for this were and remain a major challenge.

The construction work carried out can make a valuable contribution to a sustainable building culture in Bhutan and also promote a reinterpretation of traditional architecture that was previously unfamiliar with insulation.

The Royal Institute of Tourism and Hospitality received the **AGPB Award 2019**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/rith.htm](https://agpb.at/en/rith.htm)





Photo: Chalabi Architects

## Sheikh Zayed Desert Learning Center

**Al Ain, United Arab Emirates.** Specific lighting design, maximum thermal comfort with the help of sustainable cooling technologies and a large photovoltaic system on the roof of the building meet the highest standards of sustainable architecture.

Chalabi und Partner Architekten designed a walk-in sculpture in the form of a spatial spiral that rises almost 20 metres above the desert landscape. The building demonstrates that sustainable building concepts can be realised in the desert.

The architectural concept significantly reduces the need for cooling: the building was constructed in depth. The glazed entrance zone faces north. The low heat transfer coefficients and the high storage mass of the outer shell ensure this, as does intelligent shading, e.g. a covered inner courtyard and the deep reveals of the windows.



The Sheikh Zayed Desert Learning Center received the **AGPB Award 2018**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/sheikh\\_zayed\\_desert\\_learning\\_center.htm](http://agpb.at/en/sheikh_zayed_desert_learning_center.htm)



Photo: Anders Bergön

## Stadshus Växjö

**Växjö, Sweden.** Over 4,200 cubic metres of wood make the town hall and railway station building the energy-efficient landmark of „Europe’s greenest city“.

In 1991, Växjö was the first city in Europe to decide to become climate-neutral by 2050. The new town hall and railway station building aims to strengthen national and international public transport. The Austrian company Binderholz Bausysteme supplied the columns, supporting structure and ceiling elements for the building, which was erected using a skeleton construction method. With the help of a construction tent, it was possible to quickly process the material protected from the weather.

The railway station on the ground floor offers shops, restaurants and a public space called „Växjös Living Room“, which is intended to serve as an open meeting place. The town hall comprises two further floors with around 600 workstations. Low energy consumption was the focus for the construction and the entire life cycle of the building. District heating and cooling, a photovoltaic system and a smaller building envelope due to the pitched roof reduce overall energy consumption and therefore CO<sub>2</sub> emissions.

The Stadshus Växjö received the **AGPB Technology Award 2023**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/stadshus\\_vaexjoe.htm](https://agpb.at/en/stadshus_vaexjoe.htm)





Photo: NEUBAU best.energy

## TechnoDom

**Karaganda, Kazakhstan.** Despite the extreme climatic conditions, the electrical shop is extremely energy efficient, utilising sustainable energy sources and contributing to CO<sub>2</sub> reduction.

The building saves 645 tonnes of CO<sub>2</sub> compared to other Kazakh shopping centres of the same size. NEUBAU best.energy was responsible for the general planning, energy planning and quality assurance of the TechnoDom. Its founder and owner wanted to prove that shops can also achieve maximum energy efficiency. The opening in February 2022 took place at minus 21 degrees Celsius outside, but the temperature inside was still pleasant.

To achieve this, the shop uses customers and appliances as internal heat sources. An optimised building envelope and a probe field with 41 deep probes as well as two heat pumps also ensure that the inside of the shop stays warm even in extreme sub-zero temperatures. The photovoltaic system on the roof covers over 70 per cent of the building's own annual electricity requirements.



TechnoDom received the **AGPB Award 2022**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/technodom.htm](https://agpb.at/en/technodom.htm)



Photo: NEUBAU best.energy

## Museum of Drinking Water

**Hangzhou, China.** The fulfilment of the strictest criteria due to the location in a drinking water protection area was topped by the energy-efficient planning and construction to the passive house standard.

As it is located in a protected area, the strictest criteria were applied to the construction of the museum, which was built to the passive house standard and certified in accordance with the criteria of the Passive House Institute in Darmstadt. The Austrian company NEUBAU best.energy supported the project from design to completion and provided the general planning, energy planning and quality assurance for the project, which is located on an artificial reservoir.

The optimisation of the building envelope and the dehumidification and cooling of the large halls required in this region were major challenges. These were solved by the ingenious ventilation system and cooled air inlet elements. Heat and cold are generated by several air heat pumps, while the photovoltaic system on the roof supplies sustainable electricity.

The Museum of Drinking Water received the **AGPB Award 2022**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/trinkwassermuseum\\_qiandao\\_hu.htm](https://agpb.at/en/trinkwassermuseum_qiandao_hu.htm)





Photo: Aldo Amoretti

## TUM Campus

**Munich, Germany.** Architectural emphasis on „light, freshness and spaciousness“, realised as a timber construction in the listed Olympic Park, forms an inseparable duo with the clear focus on energy efficiency in construction and use.

Dietrich I Untertrifaller Architekten designed the building in line with the above-mentioned motto of the 1972 Munich Olympic Games. The campus utilises the local groundwater as a source of heating and cooling in addition to district heating. The ventilation system with heat recovery is another example of the energy-efficient building technology for which VASKO+PARTNER is responsible. The striking 19 metre cantilevered canopy, manufactured by Rubner Holzbau, is a special timber construction made of prefabricated parts and allows measurements to be taken on the part of the sports track below, regardless of the weather.

The building, which spans up to 30 metres, houses 14 sports halls, 12 lecture theatres, 15 diagnostic rooms, 5 workshops, 300 offices, a cafeteria and a library.



TUM Campus received the **AGPB Award 2023**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/tum\\_campus.htm](https://agpb.at/en/tum_campus.htm)



Photo: Schöberl & Pöll

## Wood-Constructed Passive Houses for China

**Zhuozhou, China.** In addition to the advantages of timber construction, the pilot project demonstrates extremely low energy consumption. Together with a passive house company from China, the aim is to develop the market for this energy-efficient form of housing.

The prototype of a prefabricated house in timber construction realised by Weissenseer Holz-System-Bau in collaboration with Schöberl & Pöll serves as an example of how single-family houses can be built to passive house standards in China in the future. The right infrastructure exists to manufacture them on a large scale in China.

In addition to a highly efficient thermal envelope, the building has a controlled ventilation system with heat recovery. The insulation material used is a first for China: cellulose.

The Wood-Constructed Passive Houses for China received the **AGPB Award 2019**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/singleph\\_zhuozhou.htm](http://agpb.at/en/singleph_zhuozhou.htm)





Photo: Dawid Michulec,  
NEUBAU

## Yrskeldi Qajy Ata Meshidi Mosque

**Astana, Kazakhstan.** The Yrskeldi Qajy Ata Meshiti Mosque is the first one in the world with a positive energy balance and extremely low heating requirements.

Specific thermal bridge optimisation, increased insulation standards, quadruple glazing, the planning and implementation of an efficient ventilation strategy with heat recovery were also taken into account, as was a comprehensive photovoltaic system (pavements, carports) on the outside of the mosque. NEUE BAUPHYSIK UND ENERGIEDESIGN GMBH – NEUBAU only started the thermal-energetic building optimisation after the actual start of planning.

Extensive photovoltaic systems around the entire building provide significantly more yield than the electrical energy required. The heating requirement was also reduced to 35 per cent compared to comparable Kazakh buildings.



The Yrskeldi Qajy Ata Meshidi Mosque received the **AGPB Award 2018**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/mosque\\_astana.htm](https://agpb.at/en/mosque_astana.htm)



## Zero Carbon Resorts

Photo: GrAT – Gruppe angepasste Technologie

**Puerto Princesa, Philippines.** Low resource consumption and a focus on regional materials during construction as well as the sustainable, energy-efficient and energy-independent operation of the resort point the way for resource-conserving tourism buildings.

The single-storey residential and tourism building, developed by GrAT – Gruppe An-gepasste Technologie, blends in with the original local buildings in terms of materials while offering a high level of modern living comfort. From construction to operation, the focus was on regionally available materials such as bamboo, palm leaves, wood and clay.

Energy-efficient technologies such as a small biological sewage treatment plant and a photovoltaic system are used and characterise the independence of the property as well as its technical equipment (e.g. solar cooker, solar-powered lighting, hot water via solar system). Collected and purified rainwater is used for showers and toilets.

Zero Carbon Resorts received the **AGPB Award 2022**. All the companies involved as well as information and key figures on the building can be found at: [agpb.at/en/zero\\_carbon\\_resorts.htm](https://agpb.at/en/zero_carbon_resorts.htm)



# More than just a certificate

Austrian Green Planet Building® (AGPB) allows Austrian expertise in sustainable building to shine in an international context! Project organisers, architectural firms and consultants can submit their projects for the AGPB Award or AGPB Technology Award on an ongoing basis.

Austrian Green Planet Building® is more than „just“ the certificate, but offers a complete communication package for the award-winning buildings and companies:

- Award plaques for the building
- AGPB certificates for all participating companies, presented at a festive awards ceremony
- Publication of the projects and participating companies on [agpb.at](http://agpb.at)
- A short project video (if sufficient images are available)
- Factsheet with the most important information about the building
- Press release
- Dissemination via social media

The communication package is available in two languages (German and English) and thus offers the possibility of international dissemination. AGPB enables the award-winning companies and building owners to present their achievements in terms of climate efficiency and climate protection and at the same time disseminate their expertise.

## Contact for information on the award

The AGPB office is responsible for all content-related enquiries, the supervision and conformity testing of international building projects and the general dissemination of the content and objectives of Austrian Green Planet Building®. It helps and advises interested companies and planning offices.

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