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The Austrian pavilion at EXPO 2020 Dubai

The renaissance of the oldest building material on Earth

The Austrian pavilion at the World Expo in Dubai presents the country in an unconventional setting: 38 cone towers loom large on the 2,400 m² site. The cones are cut off at different heights, creating openings for light in varying sizes. This is architecture that catches the eye, inspires reflection, and leaves a lasting impression. The pavilion is thus a paradigm for intelligent, resource-efficient architecture that fosters a high quality of life.

Harmonious indoor climate thanks to the intelligence of the soil

Natural materials, building for the moment, and places of magic and beauty - the Austrian pavilion, designed by querkraft's interdisciplinary team, translates international architectural trends into a very contemporary contribution to the World Expo. Built from loam, the cones not only provide a striking contrast to the standard steel and glass architecture so common at world exhibitions, but also create a sensual experience of light and shadows, a pleasant atmosphere, and spectacular room sequences with impressive arches. Behind the pavilion's concept is a low-tech approach that is as robust as it is smart. What appears straightforward and easy was actually born out of a dialogue between traditional building techniques and Austria's multifaceted innovative power.

Cones activate the indoor climate

The Austrian pavilion requires no mechanical air conditioning. Intelligent climate engineering using natural, resource-efficient sources of cooling is achieved by combining the climate-conscious building traditions of the Arab culture with Austrian expertise in integral building design. The cones are arranged in the main wind direction; well positioned and highly effective openings for light provide for moderate air movement. The use of loam, which has a high thermal storage capacity, compounds the effect. In addition, targeted ventilation at night - in accordance with the ventilative cooling principle - capitalises on the aerodynamic lift in the towers. All in all, the sensory temperature in the cones is substantially reduced - by an impressive 5-10°C below the temperature of the surrounding area. In keeping with the model of adaptive comfort, the room temperature feels pleasant even in periods of hot weather, since the perception of comfort is a function of the outdoor temperature.

Compostable natural building material used by the earliest advanced civilisations

Loam has been used in construction for more than 9,000 years. It is the oldest building material on the planet and is utilised virtually across the globe, including a long tradition of use in both Austria and the Arab world. Even today, 3 billion people live in buildings made from loam. The haptics of this millennia-old construction technique convey a natural sense of comfort. Loam is also the ultimate sustainable building material: It is inexpensive and available practically everywhere, eliminating any need for lengthy transport routes. Loam is also low in harmful substances and creates a pleasant indoor

climate. In the spirit of compostable architecture, loam returns to nature at the end of a building's service life.

Austria's contribution: Austria makes sense

An interactive voyage of discovery for all senses

The exterior of the pavilion consists of some 38 interlaced cones. They are all the same size and are cut straight at different heights. These towers are built on a waterproof reinforced concrete base. The interior of the Austrian pavilion features content that has been designed to reflect a highly holistic approach. Even the waiting area was incorporated into the realisation team's plan: A canopy over the forecourt offers shade, and unexpected questions on the façade pique curiosity - making waiting times more enjoyable.

Visitors experience the motto of the Austrian Pavilion "Austria makes sense" in different ways. In the pavilion, visitors embark on an inspiring journey of experience for all the senses. This sensual and emotional experience is supported by digital technology from Austria. And also in terms of the holistic concept, the pavilion makes sense through its smart, sustainable architecture and the innovative projects and products that demonstrate Austria's economic competence.

The iLab, which stands for innovation, inspiration, information and interaction, will be particularly exciting. In this separate exhibition area, groundbreaking initiatives and inspiring solutions from Austrian companies and research institutions will be presented in turn.

A shady courtyard with water and plants also forms an integral part of the tour. The courtyard further contributes to the pavilion's comfortable atmosphere and provides an oasis of contemplation and tranquillity that encourages visitors to linger. A separate VIP area is also available for Austrian delegations and events, enabling guests, partners, and stakeholders to exchange ideas in a relaxed atmosphere.

The querkraft team

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| Project management | Clemens Russ |
| Team | Stefanie Meyer Tim Stahlhut |

Further project participants

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|---------------------------|---|
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| Graphics | Bleed Vienna - Astrid Feldner and Marc Damm |
| Scenography | Wunderkammer - Gerald Moser |
| TGA | VCE Vienna Consulting Engineers - Christian Nüssel |
| Rammed earth construction | Lehm Ton Erde - Martin Rauch |
| Statics | Werkraum Wien - Peter Resch |
| Building physics | IPJ - Ingenieurbüro P. Jung - Peter Holzer |
| Acoustics | David Haigner |
| Green space | Green4Cities - Lisa Enzenhofer and Bernhard König |
| Model | Gerhard Stocker Modellwerkstatt |
| Visualisation | Patricia Bagienski |

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The Vienna-based architectural office querkraft was founded in 1998. The team of some 30 employees has successfully cooperated on more than 100 projects, competitions, and buildings in Austria and abroad. Lateral thinking defines the work approach. The guiding principle behind querkraft is “giving people space”. Particularly in the field of residential construction, querkraft has been able to realise a great many projects in keeping with this philosophy of poetic pragmatism. Office and museum buildings and projects in public spaces are just as much a fixed component of querkraft’s oeuvre, as evidenced by the Museum Liaunig in Carinthia, which has already been awarded the status of a listed building.

Currently, querkraft is working on a number of residential buildings (Paris, Munich, Vienna), the Museum of Concrete Art and Design (Ingolstadt), and the first car-free, inner-city IKEA furniture store (Vienna). querkraft has been honoured with numerous awards, including the “Prize for Architecture 2016” from the City of Vienna and the “Design Award 2018” from the Precast/Prestressed Concrete Institute (PCI) for the façade design of an industrial building in the US.