



© Burtcher & Durig ZT GmbH / Bruno Klotz

Factsheet

School renovation Enkplatz, 4 zero-energy gyms

Facts & Figures



4

underground zero-energy gymnasiums

4.100 m²

GFA gym
3.500 m²
open-air sports area

4

interconnected energy systems

Contact

City of Vienna, Department for Technical Urban Renewal

Andreas Tschismasia
andreas.tschismasia@wien.gv.at

Project partner:

- City of Vienna, Schools
- City of Vienna, Building and Facility Management
- WIP Wiener Infrastruktur Projekt GmbH
- Burtcher-Durig ZT GmbH
- Vasko&Partner
- Wien Energie
- Austrian Institute of Technology (AIT)
- MuseumsQuartier (MQ)



Short film on refurbishment!

Total budget: 27 Millionen Euro

For more details see
www.smartertogether.at

Project context

The construction of four zero-energy gymnasiums and the extension of the secondary schools at Enkplatz serve as a pilot project for the use of new energy solutions in non-residential buildings.

Smarter Together measures

- networking between the actors
- promotion of an intelligent energy supply using different renewable energy sources
- feeding surplus solar thermal energy into the district heating network
- implementation of a participatory co-creation process with pupils and teachers

Boosting the process

The project is based on the municipal mandate to ensure a high level of public participation. In this case, the project tried to include children in particular on the Smart City journey.

The technical starting point for the school extension project within the framework of Smarter Together was the replacement of gymnasiums and the creation of a total of 16 classrooms plus ancillary rooms and 4 leisure rooms covering a total of around 8,000 m² of floor area.

Construction phases

The idea for the project emerged in 2015 in the course of the Smarter Together conception phase. In 2016, a feasibility study was carried out by WIP on behalf of the client. This was followed by an international architectural competition in 2017, for which additional criteria (e.g. zero-energy concept, solar thermal system with district heating feed-in) were defined in advance. Construction started in January 2018 and the building was handed over and put into operation when school started in September/October 2019.

Energy systems

Various energy systems were integrated in the course of the project:

- PV system on the roof (67 kWp)
- solar thermal system on the roof (320 m² collector surface)
- use of near-surface geothermal energy (16 geothermal probes with a depth of 120 m connected to a heat pump)

In total, 300 megawatt hours per year (MWh/a) of renewable energy are now generated on the site, covering 70% of the final energy demand of the gymnasiums and the new classroom building.



Funded by the Horizon 2020 Programme of the European Union

The surplus electricity is fed back into the public grid, and the surplus heat is fed into the secondary district heating system. The temperature of the rooms is controlled thanks to the all-year-round geothermal energy heat cycle.

Pupil participation

The SIMmobile (see related factsheet in this publication) was on site for 4 weeks in 2017 and formed the starting point for an intensive participation process. The pupils and teachers were asked, among other things, what they wanted their school to look like in the future. The result: their wish for a climbing wall became reality, and the students had a say in the colour scheme of the building. Furthermore, numerous workshops relevant to the topic were organised by the teachers themselves and/or with the Science Pool association.

Solar benches and 2 "Enzis"

- In 2017, 2 solar benches with power sockets were installed in the forecourt.
- In 2019, 2 Enzis (fancy benches) were installed in cooperation with MuseumsQuartier MQ. The pupils subsequently decorated them with artwork.

Monitoring

For the purpose of testing the effectiveness of the measures, an ICT-based monitoring system was set up and related measuring devices were installed. The data is read and subsequently evaluated by AIT and the City of Vienna Department for Building Management. All data is entered into the new data platform 'smartdata.wien', which was set up within Smarter Together.

Lessons Learned

The use of solar and geothermal energy makes it possible to meet a large part of the energy demand on site. The integration of different energy sources requires intensive coordination of various actors in advance, as well as ensuring follow-up support for fine-tuning of the facilities after the handover.



© Burtcher & Durig ZT GmbH / Bruno Klomfar

The project's success rests on a holistic vision, consistent networking among all actors (co-creation), a proactive municipal government and professional city administration, and the active involvement of children and young people.

Replication bzw. Weiterführung

The project results and findings can be integrated by all participants in their respective areas of competence.

Holistic thinking about school expansion

- seeing the refurbishment of a school building as an opportunity for innovation.
- implementing integrated energy solutions to drive innovation among energy suppliers and other groups.
- viewing the expansion as a landmark project for the haptic communication of topics.
- organising workshops with children, using the gamification approach and seeing children as a bridge to their parents.



© Burtcher & Durig ZT GmbH / Bruno Klomfar