TU WIEN

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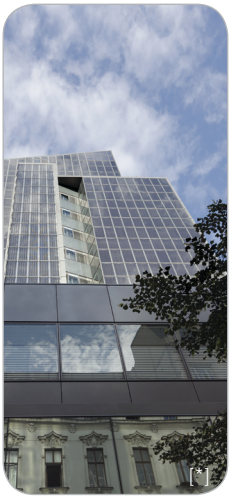
Cutting-edge construction: The TU Wien ‚Plus-Energie-Bürohochhaus' on the Getreidemarkt

The **‚Plus-Energie-Bürohochhaus'** is the **world's first office tower that can claim to feed more energy into the power grid than is required to operate AND use the building.** All in the heart of a large modern city.
Besides redefining the term ‚energy efficiency', the integral building concept demonstrates one thing in particular: that plus-energy office buildings are not only technically possible, but are also, above all, economically feasible concepts for the future of work on and in buildings.

The **‚Plus-Energie-Bürohochhaus'** is a unique research and construction project implemented by TU Wien in cooperation with the Federal Ministry of Science, Research and Economy and BIG.

Unique example of interdisciplinary networking
The TU Wien site on the Getreidemarkt is more than just the redevelopment of an existing university building as part of TU Wien's ‚TU Univercity 2015' site concentration project. The project, from scientific planning through to implementation, was realised under the management of Prof. Thomas Bednar from the Institute of Building Construction and Technology at TU Wien. The project partners are ARGE Architekten Hiesmayr - Gallister - Kratochwil, Baubüro Schöberl & Poll GmbH | Bauphysik und Forschung as well as employees from various institutes at TU Wien.

The new findings from the research project have set the standard for upcoming projects and construction activities for TU Wien and are already being applied for all 5500 employees, e.g. through more efficient computers, shut-down of technical equipment overnight, etc.



Facts & Figures

- Office buildings for the Faculty of Mechanical and Industrial Engineering with net floor space 13,500 m2 over 11 floors for around 800 TU Wien employees, capacity for up to 1800 individuals incl. seminar rooms and lecture halls
- Primary energy demand is met by **Austria's largest photovoltaics system integrated into the façade (façade, roof, total 2199 m²)**, Server waste heat utilisation to heat the building and energy recovery from the lift system.
- Extreme reduction in energy consumption by the **evaluation of over 9300 components from 280 categories** by a team of scientists - from the LED lamps, office equipment, kitchens and lighting through to the lift, ventilation and servers.
- **Combination of different components**: Plus-energy through the photovoltaic system integrated into the building, development of passive construction for office buildings (air tightness, night ventilation of the building core, optimised heat and moisture recovery) and the simultaneous optimisation of energy consumption for building engineering services and utilisation.

More info on the project website (incl. webcam):
http://www.univercity2015.at/plusenergiehochhaus

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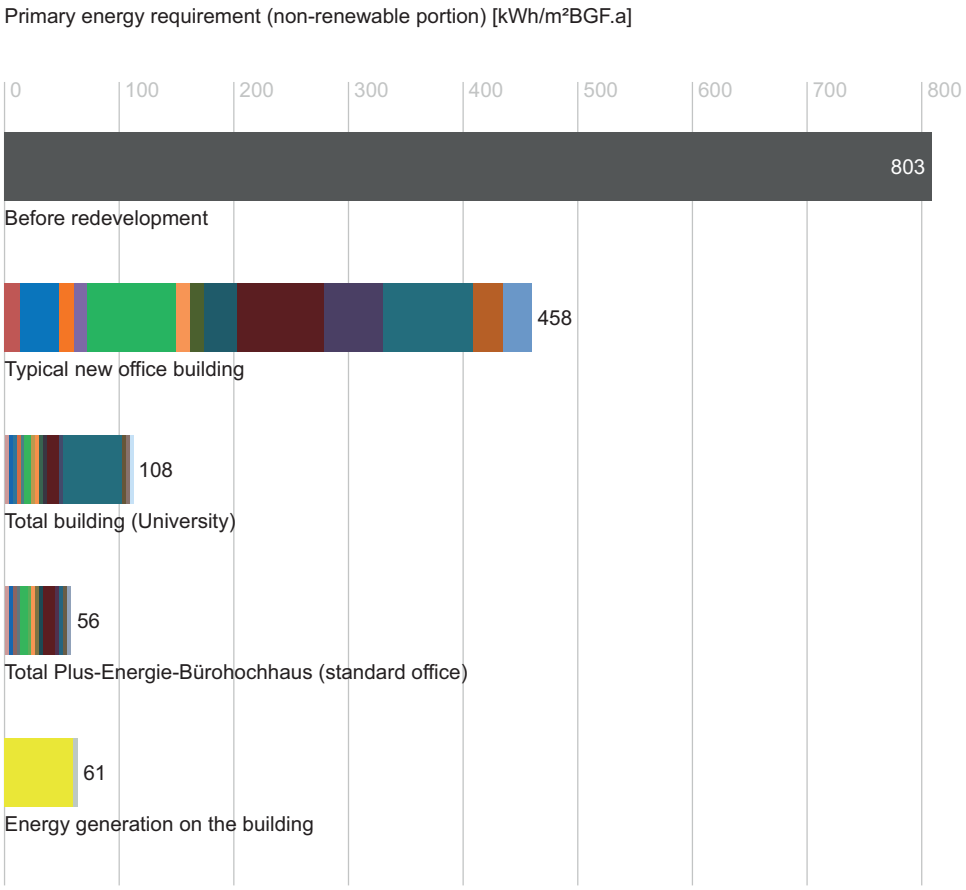
Plus-Energie-Bürohochhaus primary energy balance



- Energy recovery from the waste heat of the servers
- Energy recovery from the lifts
- Photovoltaics
- Social rooms and kitchenettes
- Other equipment (copiers, projectors, ...)
- IT workplaces
- Communication (telephone, switches)
- Server + UPS
- Measurement and control technology
- Remaining electronic components
- Lift
- Lighting
- Ventilation
- Hot water and drinking water
- Cooling and server cooling
- Heating

Explanation of the chart:
The demand for primary energy would have been much too high prior to redevelopment as well as for a typical office building. Only the development of the overall project, with a reduction of the primary energy consumption in all areas provides the opportunity to consume less energy over the 10 office floors than is fed into the grid, when considered over a period of a year. The ‚Entire building' bar shows the power demand for efficient servers for complex arithmetic calculations for the entire building when used as a university of technology. The waste heat from the servers is used to heat the rooms in the building, if required.

[*] Photo: Gisela Erlacher | [+] Photo: Matthias Heisler

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