

## Economical Passive House for Students in Record Time

*After a record-breakingly short construction time of only one week, the student accommodation “PopUp – GreenFlexStudios” for 40 students was built in Aspern – Vienna’s Urban Lakeside. It proves how fast and cheaply the highly energy – efficient passive house standard can be constructed. Moreover, this flexible pioneer project helps to save a majority of expensive property costs. Temporary living reflects modern times: it is economical, ecological in passive house standard, individual, chic, and can be constructed and deconstructed flexibly. After all, life is full of surprises...*

Vienna is one of the most popular student cities worldwide and a role model in the area of housing for students: high quality standards, ecological and economical. On the one hand, the demand for flats and student accommodation is high in many other cities, on the other hand, cheap property for building flats is increasingly sparse. Due to these circumstances, Christoph Chorherr, town planning representative of the Green Party in Vienna, came up with the idea of creating temporary and economical accommodation on currently unused property – the TEMPORARY STUDENT ACCOMODATION. As soon as the property is used for its ultimate purpose, the student accommodation simply moves to another property.



Exterior and interior views of “PopUp – GreenFlexStudios” Source: F2 Architekten ZT GmbH

The first project for 40 students is being constructed in Aspern – Vienna’s Urban Lakeside on a 3,500 m<sup>2</sup> construction site in August/September 2015. The basic layout of “PopUp – GreenFlexStudios” – 10 accommodation sections around the large, attractive, 2-storey atrium courtyards – was convincing and promises high quality standards. It proves that temporary accommodation and design can easily be linked. The covered courtyard of 250 m<sup>2</sup> is both an opening and a central community area of the house. It is lit by cupolas in the roof. It is also the heart of the building and provides the residents with spaciousness. Despite the very limited budget, this multi-functional meeting area is very important. A lounge area in the center of the 2-level, spacious room is the communication center. Moreover, a communal kitchen and a cleaning and laundry room are located in a reconstructed shipping container and are part of the courtyard.

Each accommodation section with its 4 room units can be accessed via the courtyard. The 4 rooms are equipped with 2 bathrooms and an additional small common room with a mini-kitchen. Although this intimate communal area is separated from the courtyard, visual connections are still possible. A small loggia on the upper floor offers an additional communal area. Apart from the high quality in architecture and construction technology, the compact energy and technology concept exhibits many innovations. Each of the ten accommodation sections is completely self-sufficient and functional, and can be relocated to various properties five times within 30 years including their furniture.

The GreenFlexStudioBoxes were pre-constructed in the weatherproof construction hall within two months, including windows, facing, blinds, doors, furniture, venting, heating, sanitary equipment and lighting. By means of special transporters, the finished boxes were transported from Schwanenstadt in Upper Austria to Vienna overnight. At the target location, the 75 m<sup>2</sup> accommodation sections were lifted and shifted by a truck-mounted crane and fixed in place. The 5 ground-floor boxes are set and fixed on deep-seated, prefabricated concrete foundations. The 5 upper-floor boxes were placed on the ground-floor boxes in an offset order and were efficiently anchored statically. The central hall is also made up of prefabricated wooden parts. Afterwards, the boxes only had to be connected to water, power, and canalization on site and were immediately ready for occupation. The setup of the 1,000m<sup>2</sup> student accommodation on site, including 10 GreenFlexStudioBoxes and

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an atrium took only one week. The finishing works in the interior and exterior areas can then be completed within 3 weeks.



Picture 1+2 Prefabrication of GreenFlexStudioBoxes at Obermayr Holzkonstruktionen GmbH



Picture 3+4 Transporting the 5.5 meter-wide GreenFlexStudioBoxes



Picture 5+6 Fully furnished at delivery. Mounting the PopUp GreenFlexStudioBoxes on the 2<sup>nd</sup> working day



Picture 7+8 Mounting the GreenFlexStudioBoxes of the PopUp Dorms on the 2<sup>nd</sup> working day



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Picture 9+10 Mounting the PopUp GreenFlexStudios and the multifunctional container on the 6th working day



Picture 11+12 Mounting and furnishing the PopUp GreenFlexStudios at the end of the 6th working day

The [Wohnbauvereinigung für Privatangestellte \(WBV-GPA\)](#) in cooperation with the accommodation operators [OeAD-Wohnraumverwaltungs GmbH](#) and [home4students – Österreichische Studentenförderungsstiftung](#) are the developers of this project.

The team “GreenFlexStudios”, including [F2 Architekten ZT GmbH](#), [Obermayr Holzkonstruktionen GmbH](#) as well as [Grünraum planen und bauen GmbH](#) from Schwabenstadt, [S&P climadesign GmbH](#) from Ohlsdorf and [LANG consulting](#) from Vienna, impresses with competences regarding sustainable, energy-efficient building – after all, the team is made up of members of the “Passivhaus Austria”. Moreover, the latest innovation by [J. Pichler Gesellschaft m.b.H.](#) from Klagenfurt, energy-efficient and economical ventilation units for passive houses, provides coziness for interior rooms. The comfortably warm outer shell of the building was supplied by [Saint-Gobain Isover](#).

### **Fast + economical + passive house – affordable for all students**

#### **Built and ready for occupation in no time**

After the submission of building plans in January 2015 and a 2-month fabrication period, the PopUp Dorms – part Green Flex Studios were assembled as of 18 August 2015. After only one month, they were ready for occupation and handed over to the developers on 18 September 2015. The setup time (to the topping-out ceremony) including the assembly of all delivered parts took only six working days.

#### **Low costs of property, construction and operation**

This project perfectly implements “affordable living”. Apart from the low property costs, the private housing pioneer project has minimal construction costs of only € 1,140/m<sup>2</sup> and thus falls well short of the usual construction costs (ÖNORM B 1801-1). Therefore, the project is exemplary for the fact that energy-efficient construction is not contradictory to social and affordable housing. Even though the project is implemented without housing subsidies, the students pay no more than 350 EUR per unit per month including all running costs.

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### High standard of comfort and design

Nevertheless, the best energetic standard – the passive house standard – could be realized for this project. Thus, energy efficiency is not a cost driver but rather ensures that residents benefit from constantly high living comforts due to ideal air quality and very low running costs – from the first day on. Moreover, the passive house standard including exterior sun shades guarantees comfortable temperatures even in summer.

### Ecologic passive house

All GreenFlexStudios are noggling piece constructions without chemical wood preservation. The entire insulation is made of mineral insulants. The totality of embodied energy could be reduced to a minimum for the entire building, as even the foundation is comprised only of reusable deep foundations which are again topped with a noggling piece construction rather than a concrete floor plate.

### Minimum construction site logistics

In spite of the unique and spectacular ten special transports of the 5.5 meter wide and 16.8 meter long accommodation units, the entire project exhibits only minimal construction site transportation. Almost all companies and workers involved in the assembly of the accommodation units are from around Schwanenstadt, where the high-quality accommodation units were constructed “ready for occupation” in the construction hall of the renowned woodwork company Obermayr Holzkonstruktionen.

For detailed project documentation see: [http://www.passivhausprojekte.de/#d\\_4509](http://www.passivhausprojekte.de/#d_4509)

Download all pictures: <http://passivhaus-austria.org/content/popupdorms-greenflexstudios-pressefotos#>

A short time-lapse video: <https://www.youtube.com/watch?v=i82SQeHSJ9s>

This object, as well as hundreds of other passive houses can be visited worldwide within the international “Passive House Days” on 13 November 2015.

For more information see: <http://www.passivhaus-austria.org/content/tage-des-passivhauses-2015>

<http://www.home4students.at/de/wohnen/studentenheime-wien/popup-dorms-seestadt-asperrn/>  
[http://housing.oead.at/de/unterkuenfte/detailansicht-de/details?view=application&object\\_id=341](http://housing.oead.at/de/unterkuenfte/detailansicht-de/details?view=application&object_id=341)

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