

*This lecture is collaborating with the WWTF funded project "Urban pop-up housing environments and their potential as local innovation systems", that is carried out by BOKU University, Institute of Technology Assessment (ITA-ÖAW) and alchemia-nova, an institute for closed loop processes (<http://popupenvironments.boku.ac.at>).*

*The pop-up housing project focuses on an inter- and transdisciplinary approach to systematically investigate and evaluate existing temporary housing options and to create holistic, innovative and sustainable models for pop-up living systems in urban environments. The core objective is to develop a robust interdisciplinary scientific basis for temporary housing options for diverse scenarios (selected target groups, different temporally unused urban areas, diverse building densities, etc.) in the Viennese context. To get one step further, temporary housing will be conceptualized as local innovation systems.*

The students create design proposals to one of the suggested models of urban temporary housing environments, which should take into consideration the outlined specifications of the pop-up housing project.

## Life on track(s)

The rail network in Austria includes 5,000 km of tracks and connects the country with the European network of over 200,000<sup>1</sup> km of rails, which offers a great opportunity to deliver housing units to any other European city or area.

'Life on track(s)' is a concept in which living space is provided in wagons on tracks. The wagons can be moved rapidly from one site to another without the organization of additional carriers. Like this, in a short period of time a large number of temporary housing units can be transported and placed. The residing is thought to take place at sidetracks that are not used for transit such as rails at former (freight) stations and unused sidetracks. To be suitable for housing the location has to be safe (no danger from passing trains) and located in an area that fulfills the resident's demands. Depending on the trigger and user group, a suitable location has to be selected.

The starting point for the housing environments can be a gutted passenger coach (Personenwagen) or couchette coaches (Liegewagen) or flat wagons (freight wagons). In/on that, a housing environment should be created. The possibility of using containers on a flat wagon embracing the opportunity to use the housing units off the tracks as well can be considered.

A locomotive has to be attached to the carriage used for housing in order to supply energy or collectors (Stromabnehmer) have to be integrated into the wagons. If the locomotive is not always attached to the wagons, an engine has to be organized to move the housing environment to another location.

Regarding the water supply and sanitation system, on-site solutions should be considered. An autonomous innovative system could be applied because there is most likely no network connection and therefore the provision of potable water might be challenging.

The open spaces surrounding the carriages have to provide secure access to the trains. Foldable, extendable platforms may be one way to create useable space surrounding the housing environments.

The planned period of residence of the users is from some nights up to several weeks. Potential user groups might range from homeless people accommodated during unfavorable seasons to visitors of a festival.

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<sup>1</sup> <https://www.statista.com/statistics/451812/length-of-railway-lines-in-use-in-europe-eu-28/> Zugriff: 17.9.2019

## Shop-hopping box (ShoHoBo)

The city of Vienna faces continuing high vacancy rates for ground floor retail spaces, especially if not situated in prime shopping streets<sup>2</sup>. To make better use of the available built environment of the city, these vacancies can be temporarily appropriated as living spaces until another retailer moves in.

The interim use as living spaces should be considered analogous to pop-up stores. They pop-up suddenly, serve their purpose and disappear as swift as they came<sup>3</sup>. During the interim use of vacant retail space, no major structural adaptations should be undertaken, as the overarching objective is the continuing use of the retail spaces as initially intended and not transforming it permanently for living purposes.

In this design studio, the concept of “shop-hopping boxes” has to be elaborated. The architectural challenge is to make best use of the existing building structure (e.g. floor plan) while still providing good residential quality. Structural adjustments therefore have to be envisaged either as reversible or easily removable or in the course of anyway necessary renovation or maintenance activities of the retail spaces.

“Shop-hopping boxes” address individual persons and smaller families, who voluntarily choose to participate in this rather unconventional form of housing and are in need of living space for a limited time period, for example people with a mobile lifestyle (e.g. students, digital nomads, expats). “Shop-hopping boxes” can be applied all over the city, as ground floor vacancies are dispersed all over the city. Retail spaces up to 150m<sup>2</sup> (for families) can be considered. The temporary residents will stay in their pop-up apartments for approximately 6-24 months. Designing individual living units are the focus of this design studio.

“Shop-hopping boxes” will be facilitated by a centralized platform that brings together potential residents and vacant retail space. Potential residents are not purchasing furniture, but are provided by the platform with ready to go furnishing modules – so-called “shop-hopping boxes” which should be easily assembled, disassembled, fit through available doors or windows of the retail spaces and allow space-saving storage (if not in use). The residents use the provided furnishing modules in the vacant retail spaces, but after their temporary stay, the “shop-hopping boxes” are returned to the centralized platform, repaired and refurbished if necessary, and put into storage until their next application – hopping into the next shop.

While designing the furnishing modules, durability and ease of repair should be taken into account in order to prolong the overall lifespan of the “shop-hopping boxes”. Flexibility regarding their application in different architectural frameworks or floor plans is necessary. Using ground floor spaces as residential areas comes with additional major challenges, for example regarding natural lighting, thermal insulation and privacy (e.g. large road-facing shop windows). In ground floor retail areas there sometimes is the additional challenge of missing kitchen facilities, showers and sometimes toilets. Concepts have to be developed to address these issues.

The task in this design studio is to choose different vacant retail spaces (rental expenses can be neglected for purpose of this design studio) and develop a concept for “shop-hopping boxes”: modular home furnishing, including mobile kitchen and wet cells (if necessary) and privacy screens if needed.

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<sup>2</sup> Conrad, K. and Scheuven, R. (2012). Perspektive Erdgeschoss. Werkstattbericht Nr. 121. Available at: <https://www.wien.gv.at/stadtentwicklung/studien/pdf/b008355.pdf>

<sup>3</sup> Anna Boxleitner: Pop-up Architektur. Mini-Lexikon architektonischer Modebegriffe. Available at: <http://minilexikon-architektonischer-modebegriffe.tugraz.at/index.php/modebegriffe/pop-up-architektur/>

## DonAutonom

This concept involves the use and redesign of old Danube ships (e.g. old cargo ships) that can be purchased, with the idea of being anchored to the river Danube to offer a short-term home for different types of user groups. What is special about this concept of accommodation is the high degree of autonomy or self-sufficiency in the use of resources.

For example rainwater and river water could be reused, biogenic waste and feces can be converted into biogas, which could be used as an alternative mode of propulsion for short distances by ship (for example regarding a general change of position).

Since ships offer a lot of conversion and remodeling potential, the possibility of year-round or seasonal food supply should also be considered (e.g. raising chickens on the ship, raised-bed gardening). At least in the summer months, the need for food could be met temporarily.

Ships should be in place for about 3 years and then change their position (either at another shipping pier in Vienna or in another city). The period of use for users is maximum 3 months.

The interior of the ships shall be converted into attractive housing units. This ship type's interiors often lack lateral openings for the passage of light and air and only present a removable roof-cover. Corrective measures, which also concern the modification of parts and components of the ship's bodywork, can be considered to improve lighting and ventilation.

This concept of housing could be occupied by people who are there for short-term work. If created as a research project, researchers or students accompanying the project may also be involved in this project as users groups. The presence of a "housekeeper" (in any form) who deals with the technical processes seems necessary.

Anchor points along the Danube are foreseen, if possible close to the underground trains (U1, U2, U6) in order to allow good connections with the city.

**Possible examples:** old cargo ships transiting Danube<sup>4</sup>.

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<sup>4</sup> <http://donau-schiffahrt.at/schiffe/frachtschiffe/>