Urban pop-up housing environments
Überlegungen zur Kreislauffähigkeit von temporären Wohnformen

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Temporary housing refers to the provision of accommodation for people with urgent housing needs for a certain limited period of time at a certain location. Days up to 5 years

Various concepts of temporary housing:

• Tent cities (emergency shelter)
• Mobile homes (houses on wheels, only temporary present of site)
• Container buildings (construction cabins, wooden containers, ...)
• Repurposed existing buildings (vacant office buildings, administration buildings)
• ...
Urban temporary housing (selected examples)

- City Container, Zürich
- Wohnwagon, Österreich
- Cubity, Versailles
- Pop-up dorms, Wien
- Better Shelter, Greece
- Slim Building, Wien
- Urban Rigger, Kopenhagen
- Holzmodule Podhaskygasse, Wien
- Wagendorf Lohmühle, Berlin
- HAWI, Wien
- Wohncontainer Pfarre Rodaun, Wien
- Notunterkunft Primavesigasse, Wien
- Domo, Hamburg
- Heijmans One, Amsterdam
- Shed, London

Temporary living space due to an emergency situation

Tiny home movement

Repurposed existing buildings for temporary uses

Other types of temporary living (e.g. temporary student accommodation, temporary apartment building)

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Temporary Housing in Vienna / Austria

Image of Temporary Housing in Vienna / Austria

Container in Pfarre Rodaun


Links:
- Flüchtlingsquartier: Vertrag auf 15 Jahre (wien.ORF.at; 5.1.2016)
- Viele Flüchtlingsprojekte aktiv (wien.ORF.at; 28.3.2019)
- Noch 184 Flüchtlinge im Ferry-Dusika-Stadion (wien.ORF.at; 25.12.2015)
- ErzDiözesen Wien

06.01.2016 mehr Wien-News

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Trigger for temporary housing

- Seasonal work
- Mobile lifestyle
- Disaster / emergency situations
- Study stays
- Homelessness
- Job-related temporary relocation
- Refugees due to violence or climate change
- Forced migration
- Temporary relocation for education & training

Increasing need for temporary housing facilities
Climate change and the building sector

The building sector is associated with substantial energy and resource consumption and release of emissions, contributing to climate change.

Make cities and human settlements inclusive, safe, resilient and sustainable

Temporary forms of housing can offer experimental / learning spaces for urban innovation towards sustainability and the future of housing.
Temporary housing – What happens afterwards?

A) Single use and disposal

B) Repeated reuse on same or different locations for temporary purpose

C) Partial reuse / recycling

D) New usage for temporary structure

E) Permanent adoption
Interdisciplinary research on sustainable temporary housing

“Urban pop-up housing environments and their potential as local innovation systems”

Interconnected fields of science in research project

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Project partners
Interdisciplinary research on sustainable temporary housing

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Project objectives:

Conceptualization of interdisciplinary temporary housing models, which
... are rapid to implement into urban environments
... are easy to construct
... can activate or contribute to communities or neighbourhoods
... are low-cost and flexible
... are sustainable, especially regarding energy and water efficiency during their use phase
... are considering circular economy aspects, regarding resource use and efficiency of their design and materials
... can accommodate a learning environment for technical and social innovations
Methodological Approach

**Data collection**
- Literature research on existing temporary housing concepts (scientific journals, grey literature, websites, articles, personal recollection, on-site visits)
- Literature research on user groups and human needs
- Survey of potential areas suitable for temporary housing in Vienna
- Document analysis of city of Vienna (policy papers, legislation and strategy papers)

**Analysis and Typology**
- Creation of database for collection of 82 temporary housing examples (so far)
- Systematic comparison of temporary housing examples (Typology) (tabulation according to methods of phytosociology)

**Development of Sustainable Temporary Housing Models**
- Definition of framework conditions, variables indicators and scales
- Integration of disciplinary sub-models to interdisciplinary model
Integrated models for sustainable temporary housing in Vienna

Potential available areas for temporary housing

- Vacant building lots
- Waterways
- Vacant shops, ground floor
- Residual railway areas
- Derelict industrial halls and factories
- Undeveloped sites (for emergencies?)

PICTURE CREDITS:
- Vacant building lot by Mirjam Stocker
- Waterways by Ma45
- Vacant Shop by Dave White
- Derelict industrial Hall by TLH12 Immo GmbH
Circular Economy approaches for temporary housing

**Maintain & Prolong:** Appropriation of existing vacant buildings for temporary housing purposes

**Recollect:** Choice of building materials enabling easier recycling

**Refurbish & Remanufacture:** Modular design, allowing for "wear and tear parts" to be replaced instead of whole temporary housing facility & allowing adaptions to varying user needs

**Reuse / Redistribute:** Design considerations allowing for various consecutive applications as temporary housing facilities (with interim storage)
Strategies for waste and resource management in temporary housing

(Circular) design considerations

- Design for disassembly
- Adaptability, flexibility, modularity
- Suitability for storage

Waste avoidance

- Repurposing of existing buildings
- „Second life“ for temporary housing facilities

Behavior change

- Mindful use of resources
LCA (Life Cycle Assessment) is considered a suitable methodology for evaluation of waste- and resource-related aspects of model development and will address environmental impacts, sustainability performance and circular economy considerations of temporary housing.
Conclusions

**Status quo:**
- Linear design approach in temporary housing
- Wasteful use of materials and resources
- Limited information available, often poor documentation
- Increased need for temporary housing is very likely

**Opportunity: Increased circularity in temporary housing**
- Circular economy considerations, maintenance and deconstruction / dismantling plans in early design stages
- Design for re-assembly, modularity, adaptability, reusability, „Second-life“ applications
- Exploring innovations for circular buildings (e.g. connection of building components)
- Data and technical requirements for urban mining
- Minimizing ecological impact of temporary housing facilities
Research project: “Urban pop-up housing environments and their potential as local innovation systems”

- Developing interdisciplinary models for sustainable temporary housing
- Methodology for integration of target criteria / indicators of all involved disciplines
References

Thank you for your attention