Reflection P4

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The relationship between graduation topic, master track and programme

This graduation topic aligns with the Architectural Engineering studio approach and the master track's emphasis on integrating technology and exploring circular adaptation strategies. Specifically, the studio focuses on the connection between technology and the transition towards circular adaptation strategies, such as Open Building or Second Life, for post-WWII housing in the Netherlands. This shared focus on innovative approaches to adaptation strategies and sustainable design principles provides a coherent framework for this graduation research. Investigating the future-proof adaptation strategies for the W-70 Large Panel Concrete System in Poland contributes to the broader understanding of how architectural engineering principles can be applied to address the challenges of the post-Soviet housing from the 60s and 70s.

The relationship between research and design

The research paper offered an overview of a wide range of future-proof adaptation methods to improve the living conditions within the Large Panel concrete system buildings in Poland. The specific building system W-70 was chosen as a case-study to extract guidelines that could be transferred to other Polish prefab estates. Moreover, the analysis from a technical and visual perspective suited as a guiding structure for setting the re-design principles and answer the main research question: *What are the possible future-proof adaptation methods for the Polish W-70 Large Panel concrete system residential buildings?* The conclusions were formulated as a set of guiding principles within the domains of the Building Envelope, Structure and the Public Space that were impacting the technical and visual performance. The methodologies and the principle of prioritization were incorporated into the design phase in a toolbox format, tailored to serve as a participatory instrument for residents and other stakeholders. This transformation signifies a departure from the conventional top-down approach towards a more bottom-up process. Consequently, the project serves as an illustrative visual solution, operating under the assumption that successive housing developments, adhering to the same design principles, will engage with different architects. This approach aims to introduce context-specific identities, providing residents with the opportunity to shape their surroundings.

The research underscores that hastily implemented interventions, lacking depth, compromise the sustainability and overall viability of housing estates. The design challenges the prevailing approach in Poland, favouring short-term, cost-centric solutions addressing technical concerns like poor thermal insulation. These solutions often overlook the broader context of urban fabric, ownership, environment, social dynamics, and economy. Comprehensive consideration of these elements reveals genuine potential for long-term investment. The design serves as a viable alternative to profit-driven housing developments and urban sprawl, advocating for economically, socially, and environmentally sustainable neighbourhoods that prioritize diversity, liveability, and inclusivity. This design also mirrors the research conclusions, and conversely, the research findings validate the principles embedded in the design.

Methodology

Examining various case studies within a comparable socio-geographic context proved to be a valuable method for distilling future-proof guidelines applicable to the Polish context. The technical study provided filtering guidelines, outlining both constraints and possibilities for implementing future-proof adaptation methods derived from the analytical study. However, it is crucial to acknowledge that the selected case studies are constrained by the timeframe, the author's background, and the specific circumstances surrounding the research. Furthermore, the technology-related solutions in the study could be more comprehensive. Adopting a research-by-design perspective would enable the establishment of more topological transformations for the

W-70 building. Additionally, addressing such a complex topic necessitates a multidisciplinary approach involving a team of diverse experts, including owners, residents, architects, sociologists, engineers, and state representatives, based on long-term studies.

The pivotal moment in the design process was linked to the foundational concept of adaptable and flexible architecture, incorporating a user-based selection principle with an inherent randomness factor. Given the multi-layered nature of this approach, the primary challenge in the design study was distilling the minimum viable approach while still showcasing the potential for diverse architectural outcomes and evolution over time. This design philosophy represents a notable departure from conventional building practices, emphasizing a shift away from static structures towards designs capable of dynamic change and evolution.

Ultimately, the establishment of the design minimum centred on prioritizing essential enhancements within both technical and urban realms, specifically targeting the improvement of thermal comfort while preserving the intrinsic value of intermediary spaces. Furthermore, this design minimum inherently integrated user-based choices that prioritize the integration of greenery as a key element for enhancing well-being in both private and public spaces. Serving as a foundational point, the design minimum provides a basis for subsequent extensions that contribute additional value across social, economic, and environmental dimensions, all while preserving the unique identity and individuality of buildings at various scales. The maximum solution seamlessly integrates research findings and aligns with the participatory toolbox that encapsulates both the research and design processes.

Academic and societal importance and transferability

In the larger social framework, the research on future-proof adaptation strategies for post-WWII residential estates addresses the pressing need for or another approach. To date, conventional heritage preservationists and architects have predominantly directed their attention toward distinctive structures. However, consideration must now be extended to mass-produced architecture, where replication extends beyond individual buildings to encompass entire spatial arrangements. It is imperative to safeguard intangible values stemming from social, cultural, historical, or economic frameworks. Within the scientific framework of adaptive reuse, this research contributes to the growing knowledge of strategies for transforming post-WWII housing stock into diverse, livable, and inclusive neighbourhoods. The W-70 Large Panel Concrete System case study in Poland provides empirical evidence and practical insights into the challenges and opportunities associated with adapting such housing estates.

Professionally, this research adds the Polish perspective to the adaptive reuse discourse by exploring how architectural interventions can preserve the heritage from the 60s and 70s cultural, social and spatial significance while meeting future needs and improving the spatial, energetical and aesthetical values. The findings can inform architectural practices and professionals working on similar projects in post-Soviet countries. By examining the exemplary W-70 system from Poland, which shares historical and architectural similarities to the prefab systems from other countries, this research provides valuable insights and recommendations that can inform the debate on future-proof adaptation strategies addressing the pressing need for affordable social housing in these regions. As a result, the neglected yet ubiquitous post-Soviet housing stock can become architecture beyond political ideologies, trends or profit-driven market.

Reflection questions

Can the prevailing large panel concrete system buildings not be perceived merely as relics of a bygone era, but rather as open systems in the present, capable of challenging stagnation and neglect?

How can diversity be integrated into mass-produced architecture, especially in contexts where entire spatial organizations, encompassing not just buildings but entire urban layouts, are replicated numerous times?