

Faculty of Engineering / Department of Architecture - Current and Future Research (July 2024)

The Architecture Department program at GIU Berlin is dedicated to conducting research that reconciles cultural, social, and constructive needs. The research agenda is driven by experimentation and dedication, promoting cultural exchange, understanding, and learning. This approach is essential for navigating systemic interdependencies in the built environment.

The overarching research approach follows the credo that no built sustainability is reached without the implementation of the social dimension. The approach is applied to two correlated research fields which are “Housing” and “Vernacular Architecture”. This lead spans over to defined research topics which are nourished by the department holistic approaches and cyclical processes. Therefore, the integrated research at the Architecture Department is geared towards a holistic approach to the cultural, social, demographic, technical, economic, and ecological conditions that shape today's and future living, working, and life environments. The department views the engagement with architecture as a cyclical process of conceptualizing, constructing, experimenting, and reflecting. These streams form the research ethics and research conduct which lead into the proposed establishment of a transcultural research hub between Germany and the MENA region. (Figure 1. Research Strategy of the Department of Architecture)

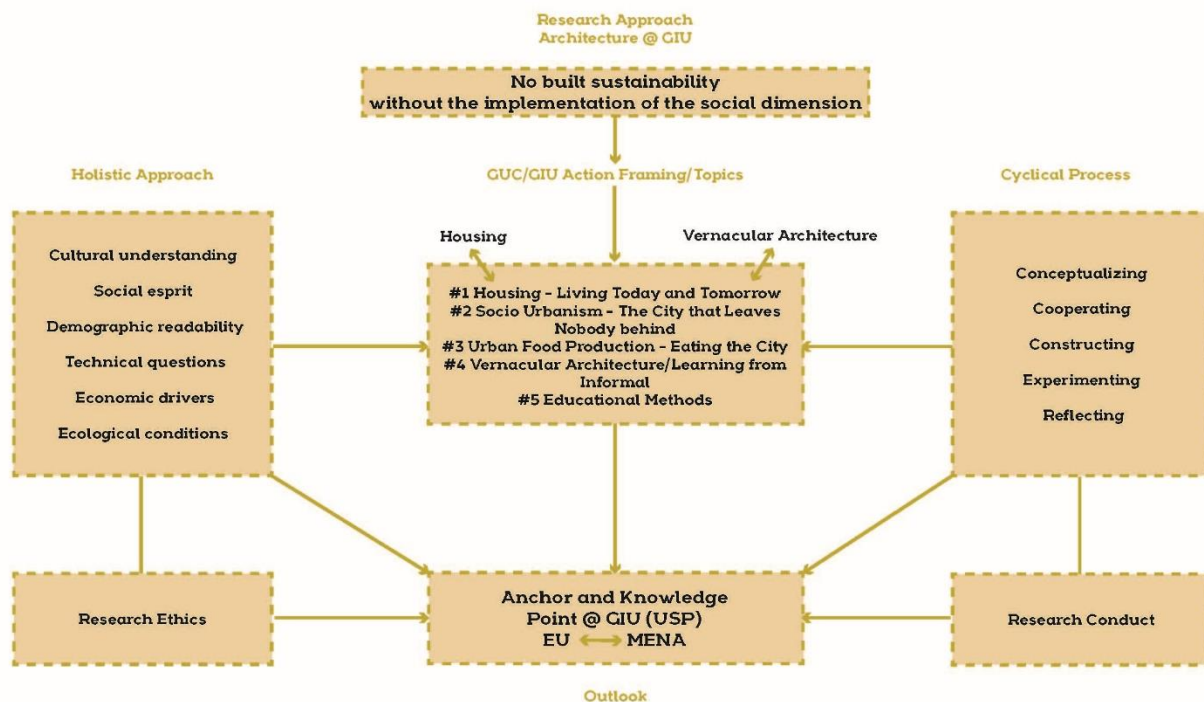


Figure 1. Research Strategy of the Department of Architecture

Architecture is underlined by a theoretical framework, creating a constant interplay between design practice and theory. The primary scale we address in research is that of humans in space, the house/building, and the neighbourhood (both new and existing), along with its sociocultural interdependencies. The research aims at facilitating holistically conceived architecture approaches and questioning the dynamics of architectural production. Accordingly, new strategies need to be developed to redefine "meaningful building culture" and the currently developing "build turnaround". To imagine a future build turnaround, concepts are required that go beyond the energy efficiency of the building envelope and structure, incorporating broader sociocultural factors. Architecture and buildings—whether new constructions, renovations, or conversions—that exhibit high energy efficiency and meet other sustainability criteria contribute to reducing carbon emissions and material consumption. Building culture on the other hand, contributes to the acceptance of architecture.

Architectural approaches must have a low carbon footprint, emitting as few pollutants into the atmosphere as possible, both during the building's construction (embodied carbon) and in the use of energy for its operation and eventual deconstruction/demolishment. Only in this way, and through the cultural acceptance of a meaningful building culture, international climate protection goals can be achieved.

The holistic approach to architecture, which places strong emphasis on the circular economy, opens up to new research opportunities with an experimental character. Therefore, the current and future research agenda in the Architecture and Urban Design department focuses on two main topics: Housing – Living Today and Tomorrow and Vernacular Architecture/Learning from Informal.

CURRENT AND FUTURE RESEARCH IN "HOUSING – LIVING TODAY AND TOMORROW"

The goal of the research focus is to initiate and academically support meaningful new developments for the future of (affordable/social) housing and their implementation into reality. Affordability, secure living conditions, and contemporary standards for a dignified living and dwelling environment form the foundation for theoretical approaches, practical considerations, and design experiments.

Moreover, many questions arise about how to respond to global developments and their impacts on people: How do we handle the changed conditions of work, for example? How can disadvantaged people be effectively supported? How can a high standard of quality be guaranteed when land and construction prices are rising, and people are under pressure? How do cities contribute to protecting our living environment? And how do we adapt to the already noticeable effects of climate change? How can sustainable living arrangements be designed and organized?

Based on these research questions, the following seven core themes emerge: Affordability and new housing forms, Mixed-use development, Re-development of existing buildings, Neighborhood development, Process development, Climate adaptation and ecological sustainability, Inclusivity.

Examples of recent and/or ongoing research in "Housing – Living Today and Tomorrow" include:

Publications - Monographs

Subtopic Research Focus – Re-development of existing buildings

Calas, D., Reiberger, B., Textiles Erbe | Aktive Zukunft, Über unsichtbare bauliche Strukturen der Waldviertler Textilindustrie, verborgene Potenziale, vermisste Wertschätzung sowie umsetzbare Ausblicke, Wien, Bundesministerium BMUK, 2022

ISBN 978-3-200-08386-8

Publications - Collected Volume: Articles and Contributions

Subtopic Research Focus – Process development

Brajkovic, J., Calas, D., Good Urban Life 2, in 17th Belgrade International Architecture Week 2022 eds. Danica Jovovic Prodanovic et al., Association of Belgrade Architects, Cultural Centre of Belgrade, 2022, p.135-179

ISBN 978-86-89561-15-9 (DAB)

Calas, D., New Tradition - What is left?, in Beta, Timisoara, Architecture Biennial 2020 eds. Alexandru Todirica et. al., Romanian Order of Architects, 2021, p. 471-476

ISBN 978-973-0-33962-8

Subtopic Research Focus – Climate adaptation and ecological sustainability

Calas, D., Haselsteiner, E., et al., Small Urban Hacks - Big Impact! Tackling major urban challenges through acupunctural smallness, in Scale Jumping: Regenerative Systems Thinking within the Built Environment eds. Brajkovic, J., Reith, A., Bolzano: Eurac Research, 2021, p. 132-175

ISBN 978-3-9504607-9-7

Publications/Conference Contributions, Symposium Contributions

Subtopic Research Focus – Affordability and new housing forms

11/2022

Beitrag: Praxisbeispiele sozial gemischter Wohnformen aus Berlin

Tagung: Innovative Wohnformen. Neue Wege in Südtirol?

Organisation: Wohnbauinstitut Südtirol, ARCHE, Architekturstiftung Südtirol

Subtopic Research Focus – Process development

06/2022

Beitrag: The Good Urban Life [?]

Konferenz: The Good Urban Life, Actions and Activism, Belgrade, SRB

Organisation: Architecture Faculty Belgrade, Cultural Centre Belgrade (KCB), TU Vienna, Cultural Forum Austria, Belgrade Architecture Week (BINA), Architecture Chamber Belgrade

11/2021

Beitrag: Do you feel it?

Konferenz: The Good Urban Life, Actions and Activism

Organisation: Architecture Faculty Belgrade, Cultural Centre Belgrade (KCB), Belgrade, SRB

10/2021

Beitrag: (Wissenschaftliche Begleitung)

Konferenz: Klimahouse 4.0, Digitalization meets Sustainability, Bolzano/Bozen, ITA

Organisation: ETH Zürich, IAAC Barcelona, Architekturstiftung Südtirol, Messe-Fiera BZ

Subtopic Research Focus – Climate adaptation and ecological sustainability

11/2021

'Learning from Quarantine', Living Future Challenge, Online

In: Living Future Europe, Masterclass 2021

07/2021

'Urban Co-creation in the Digital Age', Green-Building.Solution, Online

In: Green Building School Vienna, TU Vienna, OEAD

Subtopic Research Focus – Neighborhood development, Process development

10/2021

'Learning from Quarantine [?]', schauraum b (Art space), Basel, SUI

In: Pandemic Spaces, Basler Architekten, Architekturstiftung Basel

Research networks

Subtopic Research Focus – Climate adaptation and ecological sustainability

03/2017-04/2021

EU COST - Action 16114 „Restore“ - Rethink Sustainability Towards a Regenerative Economy

Rolle: Management Committee Austria, Subgroup Leader “Urban Nature and Creative Environment”

CURRENT AND FUTURE RESEARCH IN “LEARNING FROM VERNACULAR ARCHITECTURE”

Vernacular architecture is an inspiration for innovation in the field of ecologically and socio-economically sustainable design and planning. The ingenuity of the place with all its typographic and typological specifications. In traditional housing in particular, the desired climate and environmental solutions for sustainable design have already been achieved through local implementations. In this sense, traditional housing and traditional housing estates are considered an important example of sustainable architecture. Thus, ecological design elements are explored in the local examples by considering natural materials, traditional building techniques, refined design and spatial organization strategies that are responsible for the comfort, satisfaction and well-being of the inhabitants of the houses.

Vernacular building traditions are not the remnants of an underdeveloped or romanticized past. Rather, they are important to many cultures and societies around the world. The principles of traditional building have evolved over long periods of time in virtually all regions as people developed building techniques adapted to available materials and local conditions such as climate. As a result, traditional settlements convey an intelligent, sensible approach to architecture today that considers people's needs down to the smallest detail.

Vernacular buildings around the world are a great example of sustainable solutions to building problems. The buildings were energy efficient and highly sustainable due to the use of local materials and construction technologies. The architecture was in deep harmony with the surroundings and had minimal impact on the environment as the most commonly used building materials were clay, natural stone, wood and straw, which improved the thermal and acoustic performance of the building and reinforced the sustainability aspects. The construction was done according to sustainable principles using local materials and technologies by merging the physical and natural environment with cultural, social and mystical values that provide rational solutions to the harsh climate and human needs.