

RESEARCH
in ARCHITEC-
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OR DESIGN

aid 2024 yearbook

Alessandro Rocca (editor)
Research in Architectural Urban Interior Design
AUID Yearbook 2024

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AUID YEAR- BOOK 2024

REPORTING ON DOCTORAL RESEARCH IN ARCHITEC- TURAL DESIGN

Alessandro Rocca

TIMELY AND
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TIMELY AND DARING. DESIGN-DRIVEN RESEARCH BENEFITS AND ACCOUNT- ABILITY

Alessandro Rocca

A constituted disciplinary idea is likely in crisis. The report of the research underway in the year 2024 in the Auid (Architectural Urban Interior Design) doctoral program produces a vast and varied panorama both because of the high number of candidates and of the lack of a common center of gravity that can identify a dominant axis capable of expressing, synthetically, a position or a trend. Scrolling through the texts of doctoral students means taking a journey through the territories of architectural design, continuously subject to encroachment and hybridization.

At the end of the reading, the question that arises is, to quote the title of Vittorio Gregotti's most famous book, where and what is the "territory of architecture" today? The generation of professors who are now the supervisors of these doctoral students has grown up under the powerful influence of the disciplinary autonomy established by the so-called *Tendenza*. In that framework, architectural composition and the reading of urban phenomena were the two primary tools for the theoretical and practical elaboration of the architectural project.

The disciples of this generation, the doctoral students at work here, travel different paths, and it is not easy to understand their trajectories and the destinations to which they head. The distance, compared to the generation of the supervisors, is often due to a different cultural matrix, in the case of many non-European PhD students. However, it still expresses a recognizable generational gap in all the research recounted here. Indeed, it is proper and necessary that there be a discontinuity, and a difficulty of understanding, between teachers and students, and it is interesting to investigate, in these embryonic writings, the dawn of a new era that is partly already consolidated and partly is still in search of an author capable of giving it a name, a focus, a credible description.

In the activities of the AUID program, the PhD student is recognized (often, with a few exceptions) the right to explore new and different paths, compared to those trodden by the supervisors, and this is an important feature, a challenge and a bet on the future of these young but already adult researchers who apply themselves to find, independently, a point of view, an original outcome for their research. I believe that in other doctoral programs of Italian universities, the attitude is more conservative, oriented towards the consolidation of a culture anchored to the theories and personalities of the past century; an attitude that undoubtedly reinforces the identity of some schools, understood as repositories of important cultural traditions that intend to continue to exert, over time, their scientific and academic influence.

In the case of AUID, looking at this photograph dated 2024, it appears instead that a vigorous, and often even adventurous, momentum towards horizons that are still little explored and, above all, still little sedimented in architectural culture is winning. An interesting effect of this effervescence, of this indiscipline, is the questioning of the architectural field, the tensioning of its statute and its boundaries, and a solid indifference to the preservation of certain principles that,

for some decades, were untouchable. The most emblematic case concerns the relationship between architecture and the city: a mantra that, endlessly echoing the title of Aldo Rossi's inaugural book, has defined for a long time the theoretical field of Italian architecture, which, through an infinite number of different meanings and nuances, has tenaciously commensurate with these two polarities, the architectural and the urban. In the research of our doctoral students, both these polarities seem weakened, blurred, and surmounted by other parameters that often find their motivation outside architecture and draw heavily on politics, ecology, economics, technology, and other fields of knowledge and research. Doctoral research in AUID is essentially perimetric, marginal, concerning the discipline, but it would not be a correct assessment. Perhaps it is more interesting to ask ourselves if it is not fair to recognize the fact that the discipline is nothing more than, quoting a famous saying by Dana Cuff, "what architects do," and here, in the AUID doctorate,

it is the architects who operate, for their part, in the vast world of research, adapting their tools to the changeability of a dynamic and complex reality, in the overlapping of typical issues and contingent and little-explored problems. In other words, today's research in architectural design needs this oxygen from other environments. On the other hand, this approach and departure from the heart of architecture (assuming we know exactly where it is) is periodic; it is a pendulum that swings from a maximum of disciplinary autonomy to a maximum of heteronomy, accompanying and, sometimes, anticipating the epochal mutations of our societies. It is an oscillation that Michelangelo Sabatino has described well, tracing the overlaps, contradictions, and redundancies linking cultured architecture to popular, ethnic, rustic, vernacular, spontaneous architecture, as many authors have explored in the last century and recently. In this schism between the world of design and the reality of the built environment, approaches that directly address territories, to popular and vernacular architecture, to new typologies dictated by the needs of logistics and new technologies, to the impact and potential of existing infrastructures, to climate control techniques in urban environments, are becoming increasingly important.

Much works refer to a vast biopolitical framework, where field research is more important than theoretical research and where the project can become the point of conclusion after the analytical phase, data collection, and the examination of recent comparable experiences.

Design-driven research

We recognize a loss of centrality of thought that is authentically architectural today, in the world of architecture in general, and it is also evident in these presentations analyzed in their dominant lines. It is so in the language, the bibliographies, the iconographies, and the themes treated. In recent years, we have faced this centrifugal thrust full of many energies but also subject to many easy illusions and dangerous misunderstandings. Sustainability, post-covid, tactical urbanism intended in various meanings, have often legitimized lines of research that have clashed with the generic nature of the issues, the ideological cages, and the repetitiveness of some easy formulas that wear out quickly. In other ways, stimuli distant from architectural culture have then allowed in-depth, valuable and promising studies. But the methodological tool that more than any other contributes to giving shape and substance to the work in progress is design-driven research, an expression that has recently become the

main focus of the Ca2re (www.ca2re.eu) consortium, in which AUID has been permanently sharing, since 2019, milestones, seminars and workshops with other European programs, experimenting and comparing methods and results of doctoral research. Design-driven research (DDR), therefore, is proposed as a wide-ranging method capable of including different paths and methods, which, however, are all based on the centrality of the project. This methodology replaces the centrality of architecture, understood as a discipline, with that of the project, intended as a practice in which we find an essential contribution in terms of research in a transversal way, with respect to specific tools and objectives, including, for example, the practices of design and art. That said, researchers practice, analyze, prepare, and discuss the project in infinite ways, in a breadth of variants summarized by the sum of the prepositions that we can insert between the terms research and design: by, in, about, through, etc. The methodology, widely discussed in the various Ca2re publications reported here in the bibliography, is a multipurpose device that can inspire and guide routines as diverse as archival methods, analysis of architectural facts, the elaboration of real design hypotheses, the deconstruction of

Research Risky Topics

Themes of Architecture

creative processes, the historical, critical, ethnographic analysis of architectural artifacts and urban contexts. Keeping the project as a reference point allows research to explore the most diverse fields without losing substance and interest.

The project is the shield that will enable us to defend ourselves from the rigid norms of scientific culture without losing credibility, adopting the rules, tools and routines of the project as a guarantee of authenticity and originality of the research: creativity but also objectivity, synthetic but also logical construction, in a process that adopts its non-linearity as a qualifying peculiarity.

The Charter on Architectural Research drawn up by the European Association for Architectural Education (EAAE) indicates the three essential parameters of evaluation: rigor, relevance, and originality. Considering these objectives throughout the project immediately makes them more precise and achievable. We note that the first difficulty most doctoral students encounter is the

recognition of an objective, scientific reliability of their work. They often seek positive feedback through quantitative or mapping methods unsuitable to architectural culture. When, on the other hand, they approach their issues through the project, they find an environment where every investigation leads to a relevant discovery, being able to count on the essentially original and non-repeatable nature of the design, on its intrinsic hermeneutical richness of complex action that never reduce to a formula or a guideline, projected towards an outcome that is never just a result but is also a contribution of knowledge and exploration at the service of the community of architects. Discipline thus becomes a term of reference on which to measure a necessary component of indiscipline, a conscious renunciation of some pre-established certainty to enter the woods of the paths that fork equipped with the architectural knowledge but without the ballast of fixed stars, of indisputable principles, of values taken for granted. This exercise requires a quite challenging labor and the ability to take risks and construct discourses that cantilever beyond the perimeter of what is already accepted. This risky aspect is the one that most clearly outlines a mode of research closely linked to the architectural project in terms of modality and mentality.

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Display: research topics

It was not easy to organize the research presented here into chapters. From the beginning, it was evident how difficult it would be to divide them into disciplinary areas: architectural composition, landscape, representation, technology, history, theory, etc. These elements are all present but mixed and regenerated in assemblages that don't correspond with those categories. Therefore, we preferred to identify transversal themes that appear particularly relevant and fertile today. Themes of architecture include issues that go beyond the limits of the discipline to involve problems of various kinds: political, economic, scientific, etc. The first theme, proceeding in alphabetical order, is Commons, and identifies a point, which we have underlined with the expression Social Design, which concerns the regime of every citizen: borders, accessibility, quality, the reasons for living and working collectively, in a logic of shared value, of common good. The quotation from a text by Ivan Illich, which opens the chapter, refers to an idea of the common good as an alternative lore to the logic of society based on the principles and myths of capitalism. Ivan Illich's common good belongs to no one and serves everyone; it links to a condition of necessity and subsistence; it refers to situations that are increasingly

widespread on every continent, even in the territories of the first and second world, and which are often hidden, removed, circumscribed within the boundaries of marginality and difference. The second chapter, Environments, collects contributions that include the relationships between the artificial and natural worlds, the human and the non-human, comfort, energy balance, CO2 emissions, and climate change. The opening sentence is taken from an essay on entropy by Yves-Alain Bois and Rosalind Krauss that derives from the exhibition of the same curators "Formless. A user's guide." The aim is, therefore, to highlight the problematic relationship between the objectives of sustainability, ecology, the fight against climate change, the fight against territorial and social fragility, and the culture of architectural design that cannot fail to measure itself under penalty of its decadence and end, with formal invention.

The third chapter, Facilities, returns to collective architecture by analyzing space in a logistical and social function concerning the movement of people and things, studying different ways of reproducing or negating space through infrastructures. The purpose is, therefore, not to limit the field to the design or transformation of infrastructures but to use this term, based on the theoretical

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The Seven Themes

approach developed by Stan Allen, cited at the beginning of the chapter, as a vast field in which different instances and potentialities converge, held together by the shared nature of an entity not attributable to the univocity of the architectural object but articulated in a plural way through different possible meanings: polycentric, systematic, rhizomatic, reticular, neuronal, etc. The fourth chapter, Heritage, concerns memory, conservation, the relationship between architecture and historical time and values, and the problem of the regeneration of places, buildings, and territories that risk disappearing under the wave of mutations that are only apparently unappealable. The opening quote is taken from a text by John Hejduk, the architect who, perhaps more than any other, has sublimated memory, the tragic legacy of the short century, into the thought and form of architecture. The fifth chapter, Home, returns to the eternal and primordial theme of the home through a series of proposals that relate it to health, comfort, and social needs,

with essential insights into the Global South but also with historical reflections on bourgeois and proletarian living in the Italian and European context. The quote from Andrea Palladio wants to underline how the domestic project contains in its heart the most intimate part of the architecture, the one aimed at hosting man's individual and social life. Therefore, there is nothing so intimately linked to the founding core of architecture as the domestic project. The sixth chapter, Tectonics, deals with the constitutive aspects of architecture, the relationship with the soil and gravity, the relationship between form and structure, the cycle and recycling of materials, and the question of traditional technologies and local lore. Kenneth Frampton's quote pays homage to an author, and above all to a book, who had the merit of reformulating the question of tectonics and the relationship between form and structure in updated terms, putting it again at the center of architectural design theory. In the seventh chapter, Techniques, research converges that studies some specific modes of the project and also of the theoretical discourse in architecture: the prerogatives of the digitization of the project, temporariness, architecture that damages, reduces, or excludes the human presence, archival, performative and exhibition design, re-naturalization,

literary transliteration. Peter Eisenman's phrase indicates how we intend techniques in this chapter, examined as narratives, conceptual and formal contexts, "fictions," and performative constructs programmed to communicate the theoretical and critical contents of the architectural project.

In conclusion, the picture that emerges from this yearbook is promising and destabilizing and points out a widespread tension toward the opening of new research paths and a strong adaptability of the project tools to the themes suggested by society, economics, ecology, politics, and the changing world. It is significant that in the division into chapters, the highest density is found in the Commons section, testifying to a predominance of social impact issues over more strictly disciplinary ones. It is a significant reflection of cultural trends taking place on a large scale, and this alignment manifests in most of the research through specific studies oriented towards well-defined themes that effectively constitute opportunities for genuine advancement of knowledge and the operational capabilities of architecture.

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COMMONS

COMMONS

social design

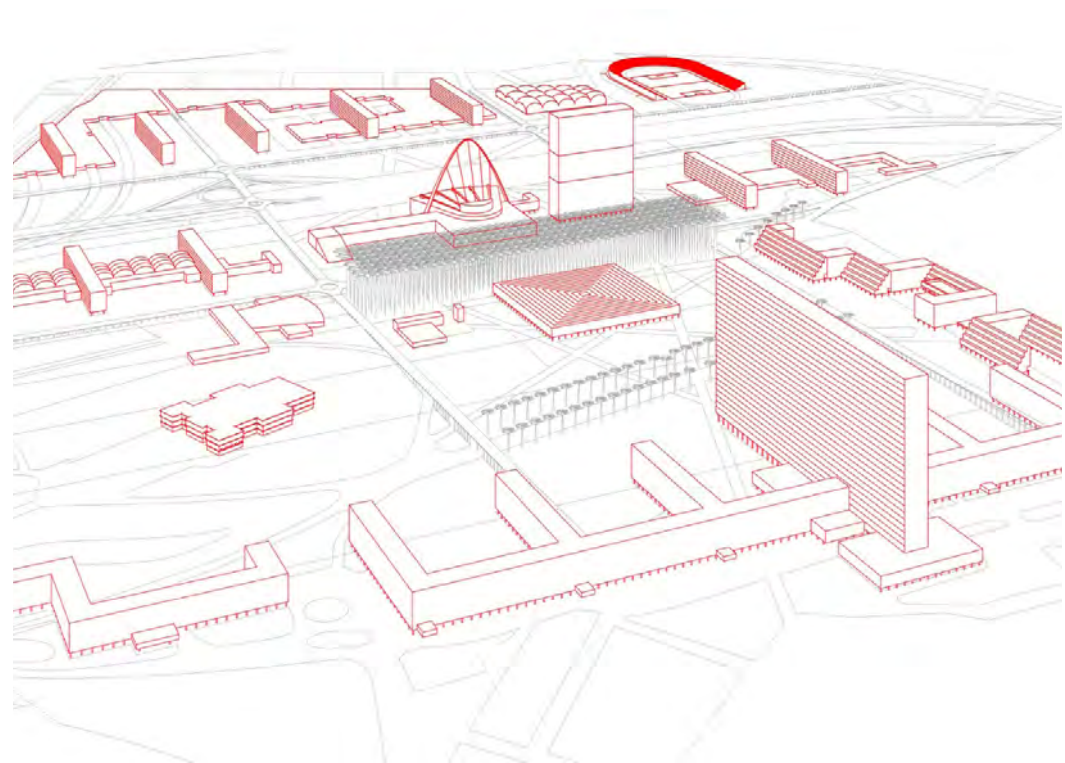
People called commons that part of the environment which lay beyond their own thresholds and outside of their own possessions, to which, however, they had recognized claims of usage, not to produce commodities but to provide for the subsistence of their households. (Ivan Illich, 1983)

THE LATIN AMERICAN UNIVERSITY CAMPUS AS A RESILIENT URBAN MODEL: THE CASE OF THE UNIVERSIDAD NACIONAL DE COLOMBIA IN BOGOTÁ

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Pablo Gamboa, Model of the project of the University Campus in Rio de Janeiro. Le Corbusier, 1936, 2024.

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This research-by-design thesis aims to explore new resilient forms of university campuses in Latin America that can combine the necessary higher density for the growth of the globalized university with the necessary closer proximity for interdisciplinary research and teaching while maintaining the required distance and dispersion to preserve the green areas and natural landscape that define the campus.

On the American continent, from Canada to Patagonia, the concept of university is associated with a university campus. This term encapsulates the physical and environmental essence of these educational spaces: an ideal and peaceful environment, away from the urban bustle and in harmony with nature, which is characterized by being composed of scattered buildings and green areas that welcome a community committed to education and research (1).

The university campus can be considered a citadel or university city, a term commonly used in Latin America. This space, an earthly paradise (2), is characterized by following its own rules of formal conformation, which are different from those of the cities of American or Spanish origin.

The university campus is considered an “American invention” (3), with its origins at Harvard in 1640, its evolution in the United States and its subsequent adoption in Latin America in the early twentieth century in the building of national universities. The campus is defined as a space that is distinguished by the presence of buildings and landscapes that give a distinctive identity and foster the feeling of belonging to the university institution (4).

The preservation of university campuses on the American continent is a frequent objective of local and national policies

supported by universities and cultural organizations at the national and international levels. These spaces are considered a cultural, architectural, environmental and landscape heritage. (5) In the 21st century, the need for greater density and proximity is challenging the traditional concept of campus as an urban and architectural model, posing a threat to existing university campuses. Often, the land extensions of these campuses are saturated by the construction of ever-larger buildings as the university expands over time. This expansion reduces green areas and, by exceeding a certain limit, begins to negatively affect the environmental, landscape and heritage qualities of the campus.

The present project research thesis focuses on exploring greater density and proximity as key elements for the design of a new resilient campus in Latin America. The objective is to reconcile university growth with the preservation of the number of green areas, as well as to generate proximity to foster greater interaction between individuals and the city while the horizontal extension and landscape characteristic of a university campus.

This research is based on the comparative study of form and scale (6) of a set of 35 campuses in the United States and Latin America with the intention of exploring new possible forms that derive from

Vertical Campus Green Roof as Public Space Integration Old/New

the campus as a model, studying it as a project from its origins with an eye to the future, and not an ex-novo form that solves today's problems. The comparative analysis in form and scale concludes with a series of project questions and rules of the game that are complemented by a bibliographical study of the development of this model over time and of the challenges and problems of today. The project site, where the general issues of the subject will be experimented with, is the National University of Colombia in Bogotá, a campus with a significant need for growth and land availability. The project is presented as a contemporary critical analysis of the design of the university campus and, at the same time, as a concrete proposal for the campus of the National University of Colombia in Bogotá. Design experimentation is based on the following aspects:

First, to shorten distances and greater densities, explore the vertical overlapping of elements and programs instead of the traditional horizontal segregation present

in the campus model.

Secondly, the possibilities of the architectural type of the platform that could accommodate the spaces of greater affluence and function as the base substrate of the campus, facilitating concentration, proximity and flexibility will be explored. The platform is combined with blocks in height that accommodate uses of lower affluence and are freely disposed on it.

Thirdly, they will explore the possibilities that can offer the use of green roofs at the campus scale, assuming them as a new green floor in height that, on the one hand, replenishes the natural terrain occupied by the buildings and, on the other, constitutes a new naturalized outdoor public space. The green cover may include a system of horizontal circulations that decrease the length of the vertical connections.

Fourthly, the gallery and the portico are architectural elements of horizontal connection that transcend the purely utilitarian function of the corridor by adding spatial, environmental and relational values.

The system based on the interaction of the above elements is tested in the alternative redesign of existing historical campuses such as Columbia or MIT and will subsequently be used in the design of new areas of growth and adaptation to new needs in the university city of the

National University of Colombia at its headquarters in Bogotá. Project research is the search for a new form of social, resilient, and environmentally sustainable interaction that critically and thoughtfully integrates existing buildings with new areas of growth.

The first chapter of the thesis, "The University Campuses in the American Continent", examines the origin, transformation, and spread of university campuses on the American continent from their beginnings to recent cases. The second chapter addresses the topics of density and proximity on campus by studying the cases of Columbia and Caracas as a result of extrusion and stacking as density-generating mechanisms.

The third chapter deals with the emergence, development, and evolution of the university city of the National University in Bogotá, as well as its comparison in form and scale with the other studied campuses.

The fourth chapter collects the process and results of the project experimentation, which is based on the questions raised in the previous chapters and the hypothesis of density and proximity as generating elements of a new resilient form of university campus.

Finally, the conclusions derived from the project experience are collected in the last section of the research.

Notes

(1) Paul Venable Turner, *Campus: An American Planning Tradition* (Reinhold. Architectural History Foundation, 1984).

(2) Martin Reinhold, *Knowledge Worlds – Media, Materiality, and the Making of the Modern University* (Columbia University Press, 2021).

(3) Robert A. M. Stern, *On Campus* (The Monacelli Press, 2010).

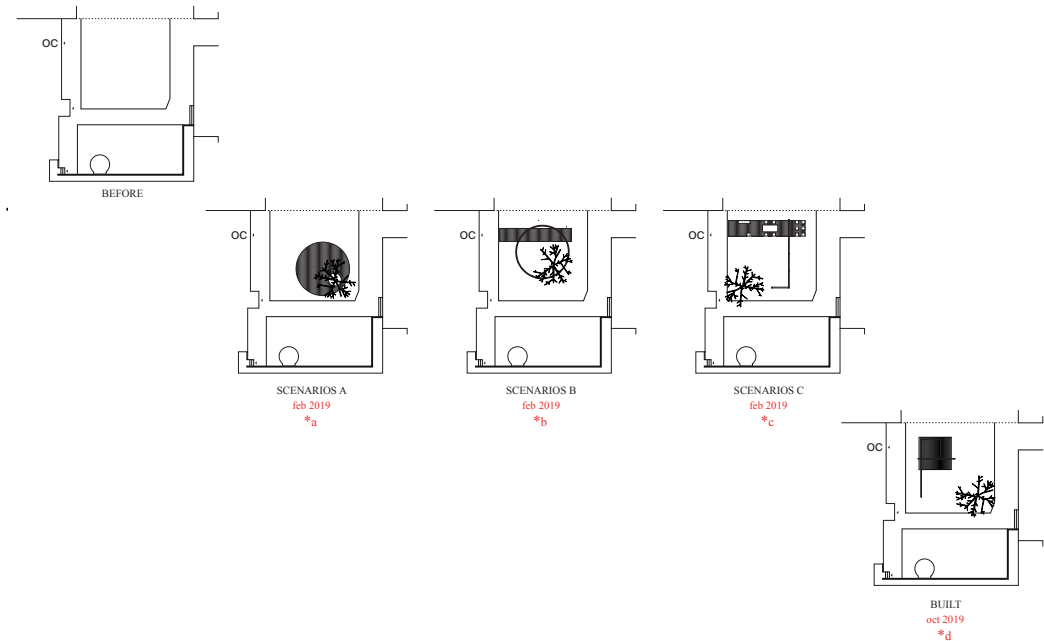
(4) Richard P. Dober, *Campus Planning* (Reinhold. Architectural History Foundation, 1963).

(5) Local, state or national standards on architectural and urban conservation, or international standards such as Unesco.

(6) Richard S. Wurman, *Cities: Comparisons of form and scale* (Joshua Press, 1974).

NARRATIVE AS A SPATIAL DESIGN TOOL IN MARGINAL CONTEXTS

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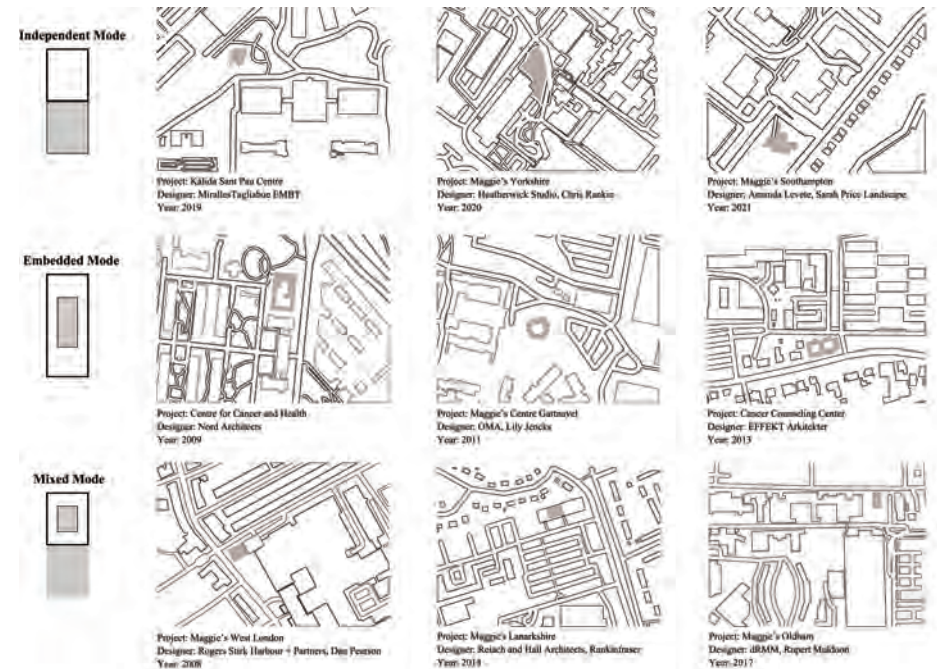
How can spatial design contribute to the regeneration of marginal contexts from within? How can narrative tools enhance the effectiveness of relational design practice? This research investigates these inquiries by integrating a theoretical framework with first-person experimentation, observation of others' experiences, and dialogue with practitioners.

Marginal contexts are inherently contradictory, affected by multiple conditions of fragility that relate to spatial aspects intertwined with social, economic, cultural, and environmental factors. This complex interplay of challenges results in a landscape that is difficult to decipher and act upon, often leading to a state of inertia. As a result, these areas are increasingly pushed to the margins of transformation and regeneration initiatives, potentially creating a self-reinforcing cycle of neglect that marks them as intractable. In response to these challenges, activists, multidisciplinary collectives, and researchers are exploring innovative approaches to spatial transformation that reassess both the condition of the sites of intervention and standard disciplinary procedures. These efforts involve a situated commitment to critical and creative thinking and the formation of relationships and alliances. This research is positioned within this milieu, critically examining how architectural design can contribute to the transformation of marginal contexts. Within this framework, the role of the project goes beyond offering solutions. It includes the first task of relating to everyday situations to reformulate and generate design questions. It considers the design process as a relational practice involving local communities,

associations, municipalities, and other stakeholders in the learning-by-doing approach. This expands the narrative time. The research explores narrative as a design tool to enable mutual knowledge that nurtures the process of possible transformation. This involves defining common codes such as languages, meanings and forms of narrative to enhance understanding and support the project's progress. Recognition, envisioning, prototyping, disseminating - these design actions are explored through relational practices such as walking, talking, mapping, performing creative actions, triggering uses, making together, hacking procedures, and documenting. The focus is on the collective approach and narrative tools applied in search of the link between the openness of the process and the effectiveness of the concrete form. The methodology is rooted in action research, incorporating first-person experimentation (in prison and peripheries of Milan), theoretical inquiry, and observation of relevant case studies. This approach entails continuous dialogue with fellow multidisciplinary practitioners who share a common goal: understanding how spatial transformation can effectively address entrenched social inequalities within marginal contexts.

THERAPEUTIC INTEGRATION: INTERPRETATIONS OF THE RELATIONSHIP BETWEEN LANDSCAPE AND BUILDING IN CONTEMPORARY HEALTHCARE ARCHITECTURE

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Prof. Stamatina Kousidi



Liheng Zhu, Icons of the selected nine cancer daycare centres, 2023.

This research investigates the strategies, tools, and processes to create, by means of the architectural project, an efficient and meaningful connection between buildings and open green spaces in the contemporary cancer day-care centre. It aims to achieve a therapeutic integration of nature into the built environment. The research, based on a design-driven inquiry, through critical summary, comparison, and analysis of the theoretical and design frameworks, aims to identify the design criteria for establishing a therapeutic integration of nature into the health-care environment.

Section I: Theoretical Framework

The aim of the theoretical framework is to offer a systematic synthesis of evidence pertaining to the role of healing garden acts of health promotion within healthcare environments, drawing upon history evolution, architectural fields, and interdisciplinary perspectives.

Chapter 1 identifies the critical design considerations by tracing the evolution of the ‘healing garden’ within Western contexts. It investigates the evolving dynamics of the building-nature relationship in hospitals and healthcare institutions throughout history, with an emphasis on design techniques prevalent in the nineteenth and twentieth centuries (1). Chapter 2 represents the literature review and the state of the art (theory) of the research. It explores the notion and main connotations of the healing garden, mainly in the field of architecture, while considering its meaning in other disciplines. It discusses the design philosophies through multi-aspects such as passive environmental design, organic architecture, and restorative environment. The architecture field describes (1) Architecture and the concept of health. It focuses on the design philosophy of modern architects who conceptualized architecture as a ‘healing machine,’ each offering unique perspectives to explain how health design strategies (such as transparency, ventilation,

and passive design) can be applied in contemporary architectural projects (2) (3). Integrating buildings with nature. It focuses on the design philosophy of “organic architecture”, aims to examine the interrelations among various garden typologies and buildings, and explores how landscape elements harmonize with the built environment (4) (5); (3) Threshold space. It focuses on the function of gardens as intermediary spaces linking building areas that utilized in shaping the overall environment and fostering engagement between people and space (6); (4) Hospital architecture and healing gardens. It focuses on the unique role of gardens as adaptable spaces within the spatial organization of hospital buildings. In the hospital, gardens contribute to enhancing circulation and facilitating the arrangement of different functional units, thereby promoting ease of navigation and reducing stress for users (7). The healing garden concept across other disciplines describes the principles of biophilic design, evidence-based design, and five-sense therapy. Chapter 3 reveals the current state of the art for nature-building integration in healthcare design by discussing the features of selected cases according to each integration typology, mainly from three aspects: functionality, aesthetics, and sustainability. Specifically, the typologies include (1) nature integration and spatial continuity.

Therapeutic Landscape Nature/Building Integra- tion Healthcare Architecture

It focuses on healthcare facilities for the elderly, Alzheimer's and dementia, and the sensory impaired. There, the gardens are attached to the different functional zones of the building and serve as spatial orientation or wayfinding. (2) Nature integration and aesthetic/visual perception. It focuses on healthcare, such as clinics, rehabilitation centers, hospices, and retirement facilities. There, the gardens provide emotional comfort for individuals through sensory stimulation, mainly from visual perception, by natural surroundings, (3) nature integration and environmental sustainability. It focuses on the establishment of ecological environments designing green spaces within healthcare institutions. There, the gardens encompass ecological functions such as the creation of microclimates, provision of thermal comfort, and enhancement of biodiversity. Chapters 2 and 3 identify research gaps through a comprehensive critical summary and comparison of the presented case studies. Consequently, this part serves as a basis

for identifying, analyzing, and better comprehending the healing garden within contemporary cancer day-care centers, which is the research subject of the next section of the thesis.

Section II: Design Framework

The aim of the design framework is to explore design strategies for achieving therapeutic integration in different integration modes of cancer centres through case study analysis, fieldwork and interviews. It aims to establish a comprehensive set of visual references serving as guidelines for therapeutic integration through design-driven research by diagrammatic approaches. Chapter 1 illustrates the analysis methodology through selection criteria, analysis tools, and interpretation criteria, focusing on day-care centres for cancer patients and categorizing them into three modes, which are independent mode, embedded mode, and mixed mode. Utilizing drawings and sketches, participant observation, and recording as analysis tools to identify how spatial arrangement in different forms of gardens could bring better therapeutic effects and affect sensory perception for individuals in cancer centres. All of the selected cases are located in three countries: England, Spain, and Denmark. Chapter 2 analyzes the selected nine cases according to categories through

drawings and sketches, including independent, embedded, and mixed modes. It explores the building-garden relationship in different projects through plans, axonometrics, and sections. It summarizes the composition of type/use, form/spatiality, texture/perception, and technology/performance. Through these criteria, the relationship between private/interior spaces, semi-private/shading spaces, and public/open green spaces is determined. In different modes of cancer day-care centres is examined. Chapter 3 conducts fieldwork through participant observation, taking the special needs of cancer patients as references and identifying the specific cases for further research evidence. Through an analysis of the following architectural parameters: type/use, form/spatiality, texture/perception, and technology/performance. It explores how and through which methods the characters of healing gardens in three modes affect therapeutic integration in cancer daycare centres and points out the design priorities of each mode. It discusses how the selected projects may hint at a typological advancement and the possible different effects of integrating open green spaces in healthcare architecture through comparison and critical analysis. Chapter 4 establishes a design toolbox for facilitating therapeutic integration in contemporary daycare centres through a

critical comparison of the case studies in connection to the aforementioned criteria of type/use, form/spatiality, texture/perception, and technology/performance, which provides a guide for the integrated design of healing landscapes and environments within healthcare architecture.

Chapter 5 collects further specific data on the design projects through interviews with experts (architects, landscape architects, scholars, and doctors) to evaluate the research outcomes. The primary focus is on the stakeholder's personal comprehension of establishing therapeutic integration, patient feedback received, and potentially relevant information obtained from healthcare professionals to support the architectural design.

Notes

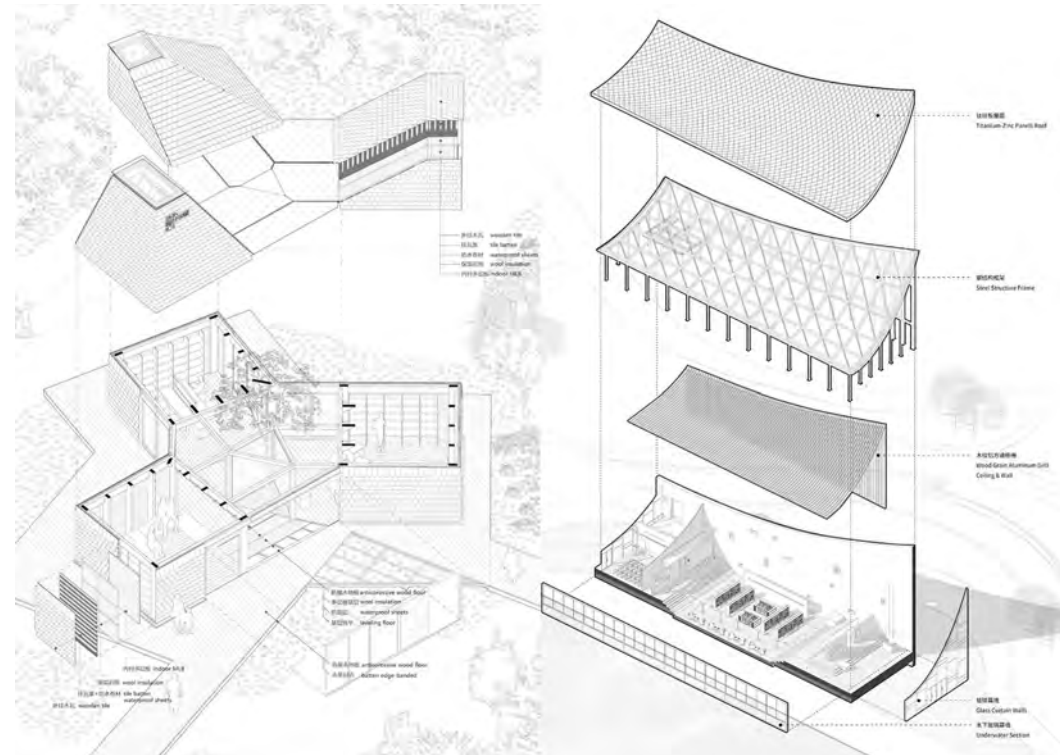
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- (3) Mirko Zardini, Giovanna Borasi, and Margaret Campbell, *Imperfect Health: The Medicalization of Architecture* (Montréal: Canadian Centre for Architecture: Lars Müller Publishers, 2012).
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ACTIVATING URBAN SPACES THROUGH PUBLIC ART: A CASE STUDY IN CHENGDU, CHINA

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Ai Cheng, Axion diagrams for Pyramid Book House, Xinglonghu Book Store, Chengdu, 2024.

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The study analyzes the evolution of public art in China and explores its impact on urbanization, community development, and cultural heritage. It highlights public art's potential to foster urban vitality and social interaction. It involves a detailed comparison of domestic and international public art examples, focusing on a case study from Chengdu. It aspires to provide new perspectives for the future development of public art in China and foster academic exchanges and collaborations in global public art practices.

The research explores the critical role of public art in shaping the urban landscape, stimulating cultural and societal transitions, and enhancing quality of life, particularly in the current context of rapid urbanization in China. The debate on the role of “art in public space” has continued since the 20th Century, particularly focusing on the stimulating energy of art and its capacity to provoke dialogue and incite public participation. Delving in-depth into this subject, the study questions the potential perspectives and fresh dialogues that can be brought forth into the realm of art in public spaces. Public art plays a pivotal role in reflecting society’s cultural and aesthetic preferences and demonstrating unique local spirit in multiple forms and languages. However, public art research and design in China’s urban development often lacks contextual depth, leading to problems such as unoriginal copying, absence of art, and in coordination with public spaces (Wang, 2018, 404-415). The comprehension of public art in China was initially limited to urban sculptures used as a tool for “urban beautification” set during the 1980s and 1990s. This era laid the foundational framework for public art in China. The establishment of the National Urban Sculpture Planning Group and Urban Sculpture Art Committee under Liu Kaiqu’s leadership in 1982 significantly formalized and

regulated public art at the national level, contributing vital growth to the public understanding of art (Sun 2022, 157). However, with the city sculpture committee’s influence reaching provincial and municipal levels, numerous urban sculptures criticized for their kitschy or excessive nature led to the derogation of public art’s reputation. Since then, public art has expanded its horizon beyond governmental and real estate involvement, promoting both private contemporary art exhibitions and public involvement. A noticeable shift has occurred within public art in China, progressing from conventional urban sculptures to emphasize public interaction and local rejuvenation. Adopting a mixed-method approach, this study conducts architectural analysis, spatial analysis, environmental psychology, and design principles analysis to construct a rounded, multidisciplinary perspective on the relationship between public art and urban space. It investigates beyond the physical intervention of art in the urban landscape and delves deep into the behavioral, emotional, aesthetic, and functional integration of art in urban life.

The Case Study of Chengdu

Chengdu, the core city of south-western China, stands out not only due to its rapid economic escalation but also as

Public Art Urbanization Social Interaction

the home of China's contemporary art scene, ranking third, following Beijing and Shanghai. Its public art sphere likewise brims with vitality. The city, backed by its rich historical culture and a widely inclusive cultural ambience, provides fertile ground for the blossoming of public art. Areas such as the Yulin community in Chengdu serve as exemplary exhibits of urbanization, showcasing the pivotal role of public art in community development, urban planning, and cultural conservation (Chengdu Municipal People's Government 2021). The Chengdu government's policy support and investment are targeted toward the cultural industry, and its emphasis on public art provides artists with ample creative space and a pragmatic platform. Furthermore, hosting internationally recognized art events, such as the Chengdu Biennale, strengthens its exchange and cooperation with the global art community, bolstering the city's cultural influence. The profound integration of public art into the lives of

the local citizens, where public spaces, both big and small, serve as vibrant hotspots of experiences and exchanges, ranked Chengdu among one of the most active cities in China regarding public art events and even performance art. Thus, Chengdu, as a paradigm for public art research, is noteworthy not only for its economic vitality and cultural diversity but also for its innovative practices and active explorations in the realm of public art. The city exemplifies the evolution and unique characteristics of public art in China, showcasing its crucial role in community development, urban planning, and cultural inheritance. The research into this particular case aids in elucidating the operating mechanism and influential factors of public art within a specific sociocultural backdrop. It also supplies potent empiric backing for the future evolution of public art in China. In conclusion, the research investigates the importance of understanding public art in the modern age and its crucial role in urban setup. It redefines the perspectives surrounding public art and its direct correlation to societal growth, cultural transformations, and the quality of life of inhabitants. The results aim to prompt academic discussions and cooperation and encourage a deeper appreciation of public art globally and locally. The research proposes a need for effective strategies to challenge the

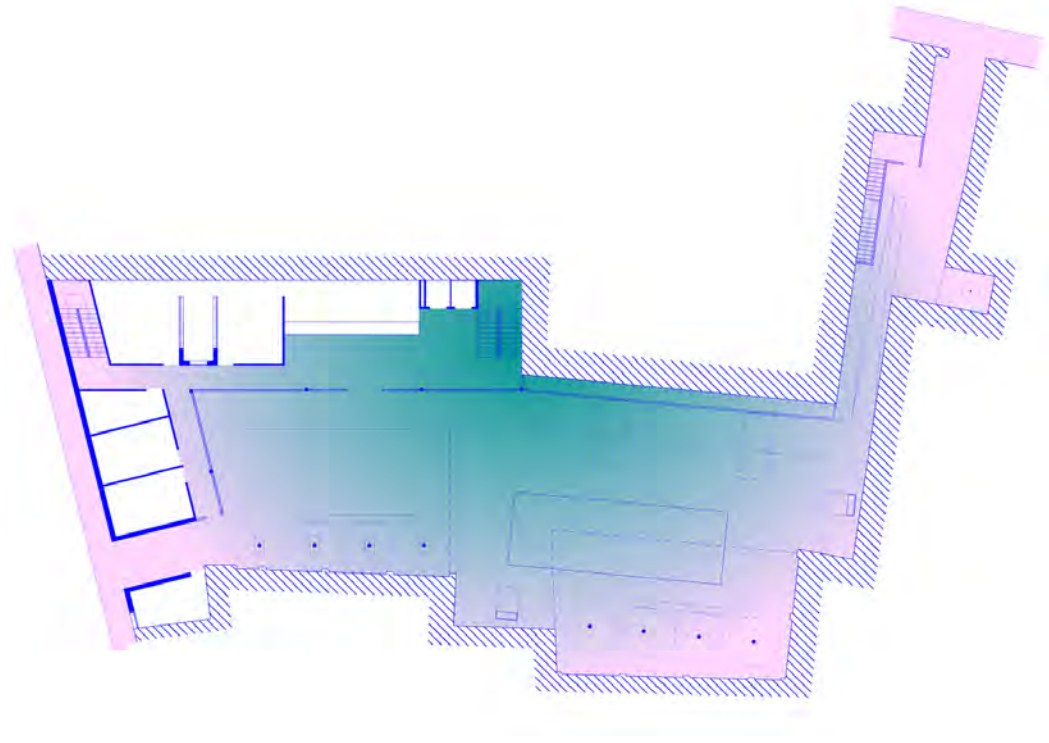
crisis of the urban landscape and to increase public involvement in the future of public art. It calls for practitioners in urban planning, design, policy-making, and artistic creation to extend public art beyond the frame of beautification, instead highlighting its value as an independent form and approach to displaying collective thoughts and the spirit of people. With Chengdu serving as a best practice, this study provides an actionable blueprint for the successful integration of public art into urban spaces. This research opens new paths for interpreting and activating urban spaces through creative public art. It emphasizes that true public art should transcend aesthetic boundaries to become an essential conduit for public participation, expression, and societal growth.

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COMMUNITY SPACES IN HEALTHCARE CENTERS. WELCOMING THE INDIVIDUAL AND THE COMMUNITY TO PROMOTE HEALTH

PhD Candidate: Francesca Ripamonti - Supervisor: Prof. Michele Ugolini



Welcoming both the community and individuals into Healthcare Centers, buildings for Primary Health Care, entails structuring them as new urban landmarks at the neighborhood scale, akin to libraries, schools, and civic spaces, serving as osmotic spaces in relation to the public realm where the culture of health can be experienced and disseminated. The aim of the project should be to shape a space that is both attentive to the privacy and vulnerabilities of the individual and open to accommodating a community with diverse needs within it. It should be both a refuge and a square for the culture of health.

The research reflects on how architectural design can create space for both the community and the individual within Healthcare Centers and structures of Primary Health Care in order to structure buildings that serve as new urban reference points at the neighborhood scale, akin to libraries, schools, town halls, and that are focused on health promotion.

Health promotion was defined in 1978 by the World Health Organization (WHO) in the Ottawa Charter as “the process of enabling people to increase control over, and to improve, their health”. According to WHO guidelines, the sector responsible for health promotion is Primary Health Care (PHC), first defined in 1968 with the Declaration of Alma Ata as “essential health care [...] universally accessible to individuals and families in the community through their full participation [...] in the spirit of self-reliance and self-determination”. The cornerstone and focal point of the national healthcare system, PHC is “the first level at which individuals, families, and the community come into contact with [it], bringing healthcare as close as possible to where people live and work”. To ensure this proximity to where people and communities live, PHC services have to be configured in structures separate from hospitals. Hospitals provide specialized healthcare services to a broad

population, centralizing the presence of staff and specialized equipment in a single large facility, which most patients access less frequently. PHC facilities, conversely, must provide a wide range of less specialized healthcare, social, and socio-health services, often accessed in neighborhood-scale facilities easily identifiable and accessible to citizens in their daily lives to maintain overall health.

Just as their organization and spatialization, the names given to these structures vary depending on different healthcare systems (Health Centre in the UK, Community Health Center in Canada, Maison de Santé in France, Centro de Salud or Centro de Atenció Primaria in Spain), however, they will be referred to here with the generic term “Healthcare Center”.

In Italy, they are known today as “Case della Comunità” and have regained attention following the pandemic period; the National Recovery and Resilience Plan (PNRR) invested within the Mission 6 “Health” in a line of investment for the activation of 1,288 CDCs (Case della Comunità) nationwide.

Although the role of the community is central in the name and was also at the core of the founding idea of these structures in 2006 when they were still called “Case della Salute” and were mainly widespread in Emilia-Romagna

Health Promotion Community Spaces Urban Centralities

and Tuscany, this centrality often does not find reflection in the spatial configuration of these buildings, which not only do not include spaces for the community in the guidelines but also struggle to establish themselves as urban landmarks open to people's use.

Furthermore, being a relatively new type of building, there is a lack of a shared spatial model and project guidelines, aside from some rare cases internationally. On the one hand, they struggle to depart from providing merely parametric, dimensional, and performance-based indications, and on the other hand, they do not give importance to the public and community side of these structures.

This research sees in this renewed interest in primary care and in the centrality of the community and the individual in a health promotion process an opportunity for architectural design to imagine a new way of imagining buildings for Primary Health Care as new urban reference points, open to the neighborhood, capable

of generating public space and fostering community. Indeed, it is important to welcome the community and the individual to promote health. Welcoming people in these buildings should not only be interpreted from a programmatic point of view, integrating activities and services aimed at promoting community health but also and above all, from a spatial point of view, exploring the ways in which space design can qualify it as welcoming, inhabitable, for the entire community.

At the same time, welcoming the individual: being always a building for health, it must work on ways to ensure different levels of privacy with sensitivity and reintegrating a relational approach to space design, accompanying from arrival to the consultation space.

The architectural project has shown the potential to interpret this openness to the community where regulations have not foreseen it, as demonstrated by international case studies of healthcare centers analyzed in the research.

The introductory part of the research focuses on the importance of Primary Health Care in health promotion and community involvement. The conceptual evolution of Primary Health Care is examined, moving from an individual-centered approach to a more holistic one that involves the entire community.

The buildings dedicated to Primary

Health Care, Healthcare Centers, are also analyzed, both nationally and internationally, exploring their basic spatial and organizational configuration. Finally, the Italian case of the transition from *poliambulatorio* to Casa della Salute and Casa della Comunità is examined, illustrating the different organizations, functions, and spaces of these new models of healthcare and the lack of true spatial reasoning on the implementation of spaces for the community.

The second part of the research focuses on the public spaces of existing models of Healthcare Centers. Different architectural design guidelines are compared to assess whether and how the theme of community spaces emerges and is spatialized, with a focus on the public area of the buildings, considering comparable case studies belonging to similar healthcare systems, such as those in the UK, Spain, and Italy.

The third part of the research focuses on modalities of implementation of spaces for Community in Healthcare Centers. It explores how to imagine and shape spaces to promote and educate about health, drawing inspiration from contexts such as libraries and schools. The Polisocial research project Coltivare_Salute.com project and its social, organizational, architectural, and urban objectives for the design of Casa della Salute per la Comunità are

discussed. Finally, various possibilities for integrating community spaces into Healthcare Centers are analyzed through national and international case studies, distinguishing between buildings integrated into complex systems, those that work with public space, and those that host other functions within them. The fourth part of the research focuses on how to welcome the individual in Healthcare Centers, proposing a redefinition of its spaces to promote health.

The reintroduction of the fourth dimension, movement, and the importance of humanizing care spaces are discussed. A spatial analysis of international case studies reflecting on the new meanings of spatial appropriation is then presented. It explores how to welcome people's arrival, proposing proximate, permeable, and recognizable spaces. Spaces for group and individual meetings, both indoors and outdoors, are outlined. Waiting is also considered an integral part of the experience, with varying degrees of privacy.

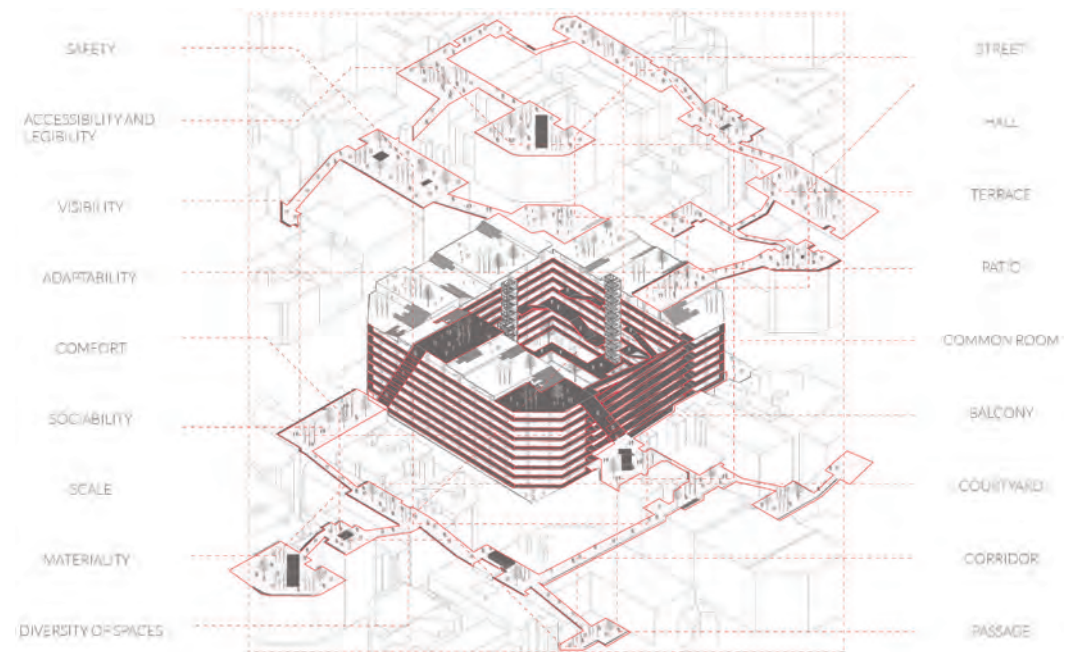
The importance of movement within buildings is evaluated, and the concept of reception is explored through the creation of urban oases in the outdoor spaces of Healthcare Centers. Finally, the proposal is to shape the extroversion of buildings to promote a cross-cutting welcoming action.

SPACES OF CARE AND EQUALITY. A DESIGN RE- FLECTION BETWEEN MOR- PHOLOGY AND PROCESS

PhD Candidate: Arianna Scaioli - Super-
visor: Prof. Ilaria Valente - Co-Supervisor:
Prof. Emilia Corradi

Arianna Scaioli, Spaces of Care and Equality, 2024.

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The thesis seeks to explore the spatialization of gender equality, understanding how this notion can shape the morphology of the built environment. The research starts from the recognition that we are undergoing a crisis of care where gender norms impact materially and symbolically space (Spain, 1992), enabling or preventing different (gendered) bodies from using, inhabiting, or modifying it (Massey, 1994; McDowell, 1999). Specifically, the thesis starts with the question: What does gender inequality do to architecture? And vice versa: What can architecture do to reverse gender inequalities?

The doctoral research builds a theoretical and design reflection within the broader context of social, gender and spatial inequalities, which are rising in both urban and rural contexts due to overlapping ecological, economic and political crises. Specifically, the thesis recognizes the existence of a “crisis of care” (Fraser, 2017), which couples the environmental one, becoming a catalyst for gender discrimination by exacerbating existing disparities in caregiving responsibilities, perpetuating gendered norms and reinforcing structural inequalities within cities, which emerge by, in and through design. Starting from the definition of a theoretical framework, supported by the collection and analysis of a series of case studies between Europe and America, the thesis considers gender inequalities as a design challenge that architecture has to confront. Observing the built environment from a gendered perspective opens up new horizons of interpretation of urban dynamics and modes of inhabiting space, unveiling the power relations that have shaped our cities, which have produced and are still reproducing space division according to gender roles rather than meeting the needs of the whole population (Rendell, 2000). The research, positioned within a feminist critique of architecture, becomes a terrain of discussion about the spatialization – or

translation – of gender equality and women empowerment into spaces and architecture. The thesis adopts a feminist critique on gender that emerged from the 1970s as an epistemological, cultural, and political stance concerning architectural and spatial design, specifically referencing the emerging aspects of materialist feminism interpreted through an intersectional approach.

Therefore, what does gender inequality do to Architecture? And vice versa: What can architecture do to reverse gender inequalities? This ultimately leads to a reflection on how the notion of gender informs the morphology of the built environment and which tools, processes and methods could help us define a methodological approach to design for care and gender equality.

The research roots in what (Hayden, 1980) describes as a “Non-Sexist” Architecture and explores the implications in terms of design and process of looking at the Active Off-Screen Space embodied by Feminist Critique on Gender within Architecture. Historically, the dominant voices in architectural discourse belonged to the mainstream space-makers: typically Caucasian, able-bodied males who approached design through the lens of a universal man, not considering the diverse experiences and needs of marginalized groups, with the result that this one-size-fits-all mentality flattened

Gender Equality By-in-through Design Caring Spaces Intermediate Scale

the richness and complexity of everyday spatial experiences (Lefebvre, 1991; Certeau, 1988; Teyssot, 2013).

Replacing ‘power over’ with ‘power for’, as well as ‘designing for’ to ‘designing with’ and shifting from the idea of “usagers” (Lefebvre, 1974) to ‘agents’, feminist methodologies value collectivity, cooperation and solidarity, but also justice, equity, care and engagement, positioning themselves at the crossroads of design, ethics, politics, and poetics of space. By recognizing that gender norms impact materially and symbolically space (Spain, 1992), enabling or preventing different (gendered) bodies from using, inhabiting, or modifying it (Massey, 1994; McDowell, 1999), the work questions what “Non-Sexist” forms of living could be to prioritize and make manifest care as both a design action and a paradigm promoting gender equality and considering how the notion of gender can inform a morphological and processual reflection within the project.

In this sense, the research proposes a

reflection on the design of collective forms of living conceived as catalyzers of caring and democratic practices, able to foster gender equality by, in and through design. These forms of inhabiting the intermediate scale could foster gender equality through a “sguardo progettante” that builds on the idea of “inhabiting the intervals” (Bassanini, 2008), and as places to build alliances between bodies and space starting from the “microphysics of the everyday” (Bassanini, 2008). The idea of collaboration and co-design at different scales and stages that permeates this approach to architecture allows for blurring the lines between public and private, individual and collective, considering the thresholds between these dimensions as places where empowerment, justice and dignity arise and as places where the paradigm of care becomes manifest. These forms of collective living go beyond the traditional notion of “housing” permeating space between building and context around with new forms of domesticity, caring and equality, with the intention of “making common space”. But can these spaces generate more equitable forms of living? How should they be designed? Which is their character?

The thesis aims to offer an operational device able to promote a synthetic yet interdisciplinary approach to the project, focusing on three main actions, which

correspond to the three main parts of the thesis:

Raise consciousness and provide depth by presenting the theoretical framework engrained in the research. It offers a perspective on the relationship between architecture, gender and design, going beyond the mere slogan of gender equality in the city. This background presents the standpoint from which to foster a feminist critique of gender in relation to architecture.

Promoting Feminist Activism in the built environment through the discussion and analysis of a series of case studies that interpret the spatialization of gender equality, focusing on different aspects. These case studies are emblematic of a design culture that exists but is still orienting itself within the practice.

Building a Boite à Outils that becomes a methodological tool organized in the form of a matrix of design actions, becomes a synthetic device to orient the architectural and spatial project. Starting with the analysis of a series of case studies identifies a set of possible design actions that can be implemented and are able to foster gender equality both in the process and the outcome of an architectural project at the intermediate scale, working at the crossroads of tangible and intangible aspects. In this sense, it brings together The ‘Hardware’ or The Physical Dimension: The

Materiality of Spaces, The ‘Software’: The Use of Space and the Experience of Architecture; The Symbolic Dimension: Visibility and Representation, The Perceptive Dimension: Thermal Comfort, Psychological and Physical comfort, and Sense of Belonging in Space, Safety, Noise.

With this holistic perspective, the discussion is on re-positioning the architectural and spatial project within the entanglement of form and use of poetics of space and politics.

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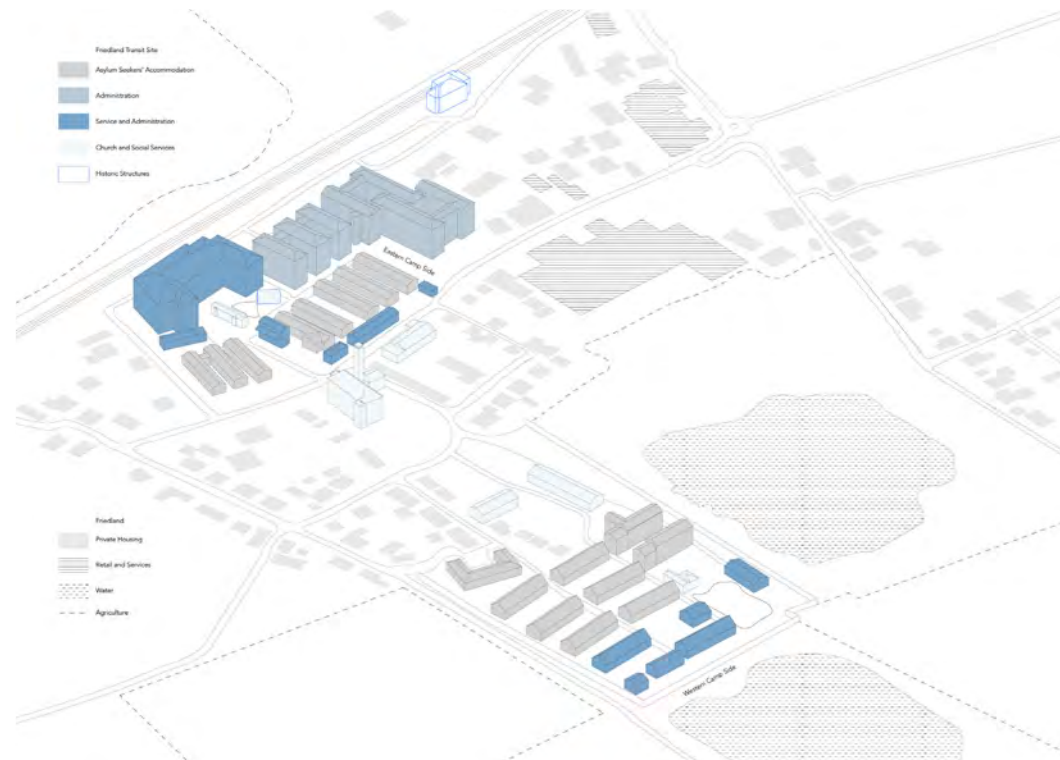
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BEYOND ARRIVAL: THE ARCHITECTURE OF THE PAST DECADE'S REFUGEE RECEPTION IN EUROPE

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Yona Catrina Schreyer, Refugee Transit Site inside of the town of Friedland, 2023.

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The demand for spaces that welcome and accommodate forcibly displaced people in Europe has surged considerably in the past decade.

The present architecture of asylum serves as a testament to the significant events (leading to) and political decisions (responding to) forced migration, (in)forming a design typology aimed at addressing urgent and multifaceted needs surrounding asylum. This research seeks to delve into the critical role and responsibility of its design and designers amid a complex web of design policies, laws, humanitarian aid, and ethical considerations.

Asylum is both a political status and a space of refuge. In our current era of migration, how does the theoretical structure of the European policies and its practice around asylum refract from the design of its physical spaces – the architecture of asylum?

The beginning of the 21st century has seen an exponential growth of arriving asylum seekers in Europe. Along with them, the demand for spaces that welcome, accommodate, and service forcibly displaced people inside of the EU member states (so-called host countries) has risen accordingly. (1) These spaces, the architecture of asylum, not only come to witness some of the significant global events of our times but also the political decision-making and the multifaceted regulations informing their design. Often responding to a sudden and unexpected mass demand, the nature, purpose, duration, location, and way of working of those structures can differ greatly, providing functions that range from temporary shelter to housing, from pure administrative purposes to fixed communal and educational spaces, from safety and health points to detention facilities. What (all) makes the architecture, those structures built from and beyond the arrival of refugees in Europe? Who (in)forms their design? What lies between an architectural response and an architect's responsibility?

The reception of asylum seekers, not only given the rise in applicants but also due to the complex circumstances surrounding their actual arrival (ranging from administrative, legal, to social and humanitarian aspects), is increasingly dominated by uniform procedures. The standardization touches upon the design sphere: In 2013, the European Union's member states consolidated their design policies on the accommodation and housing of asylum seekers (EU Common Approach in Asylum). Ten years later, the readiness and willingness of European host countries to uphold their constitutional promise to practice asylum have been tested amid two refugee waves (in 2015 and 2022) – challenging the design sphere in finding adequate shelter for asylum seekers and housing for refugees.

The role of the designer is called into question amid a complex set of factors and protagonists informing the design task: building for refugees is an urgent ethical obligation, as well as a highly political argument around which physical form architecture of humanitarian aid could (should) have—the design discourse circles around questions of materiality, location, space, and living conditions. Ad-hoc solutions and improvised structures have come into existence, often by means of a modular design logic. Some have

Asylum Architecture Design Ethics Housing Standardiza- tion

been dismantled by now, and others have outdated their originally foreseen duration. Additionally, structures never intended for housing purposes have been transformed or redesigned. And new structures have been built amid an influx of asylum seekers that is not likely to cease and the many millions of refugees residing inside the host countries who are not expected to be able to return to their countries of origin anytime soon. Therefore, temporary considerations of shelter are merged with the question of how national housing stock can be permanently increased. Next to the immediate access to accommodation and services, design aspects are intertwined with (urban) planning, often meeting an already strained housing sector. Only in a few cases, however, immigration. Instead, housing refugees remains a separate design task, upholding the image of the temporary. (2) Further, following the lead of some member states that have been calling for a more repressive stand when it comes to the asylum practice, the EU

has updated their policies, paving the way for “asylum centres”, expected to be planned and constructed at strategic locations along the EU external border lines. The implementation of this new EU Common Approach in Asylum would shift the design discourse around the architecture of asylum away from local design tasks towards an entirely uniform European design model. (3) Against this backdrop, the PhD research “Beyond Arrival” seeks to form an understanding of ten years of architectural design around asylum in the European Union – following an asylum seekers’ way from the point of arrival to the stay inside those structures beyond. In doing so, it applies a design-driven research approach in a threefold way – the discussion of its design theory, its design practice (and its practitioners), and lastly, through offering a critical reflection on the design narratives, forming a more speculative outlook. An introductory part presents the status of the existing architecture around asylum, from arrival points to refugee housing in Europe, featuring its trademarks against the present-day context and along an overview of the current architectural discourse.

The first chapter discusses the theoretical framework of the architecture of asylum. It begins with the origin, concept, and specific terms of its design in the

European context. It further questions the role of design set in the ambit of critical political events, humanitarian aid, and regulative measures. This aspect is then investigated more specifically while illuminating the present situation in Europe, the ongoing practice of the official “EU Refugee Reception Condition” and how it refracts on the actual physical design types that are further presented and discussed across the design method, functions, and contrasted with the lived reality for their users. The second part discusses a selection of case studies. Amid the entirety of ongoing projects, the selection offers a mere glimpse of numerous approaches. However, it seeks to represent a variety of possible design choices (that range from improvised shelters to structured camps and dedicated housing facilities). The case studies orientate according to host countries that have (and continue to) accommodate(d) the majority of the incoming asylum seekers and refugees during the past decades. They are further categorized according to their geographic location (whether they are first-arrival or second-line reception countries) and their individual demographic context, which influences the nature of the architecture of asylum. Some case studies further offer insight into how the argument infiltrates other areas of the architectural field, claiming a presence in cultural

institutions or manifesting itself in different (sub)typologies. In an attempt to critically reflect on the spaces that have formed the reception of refugees in Europe, the thesis further interviews people involved and concerned with the design of asylum architectures, as well as practitioners.

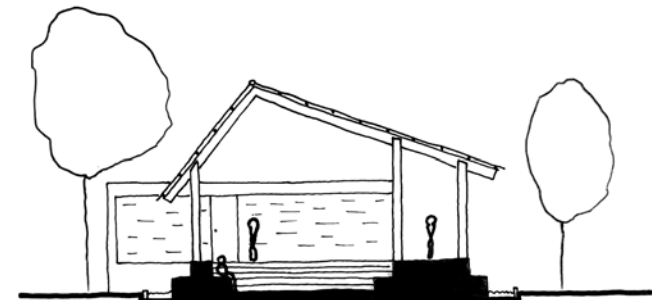
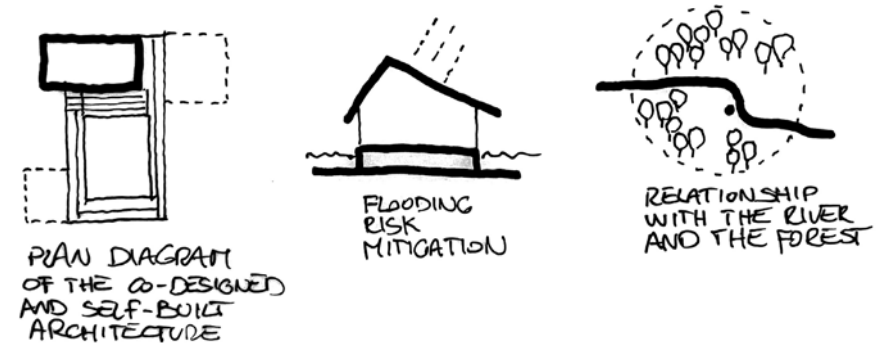
The discussion of the case studies underlines the role and responsibility of design(ers), aiming to offer perspective and propose a critical and more speculative viewpoint on the design around the refugee reception in Europe.

Notes

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CO-DESIGN: THEORIES AND PRACTICES FOR TRANSFORMATION, MITIGATION, RESILIENCE

PhD Candidate: Francesco Airoidi - Supervisor: Prof. Emilia Corradi



An example of architecture co-designed through community-based and bottom-up processes, self-built in an at-risk context. Marta Maccaglia and Semillas, Community Center, Otica (Peru), 2019 (drawing by the author).

This research investigates co-design strategies for architecture in fragile contexts exposed to natural risks and uncertainties accelerated by climate and environmental crises. To achieve anti-fragility conditions of territories and communities, a (co) design-driven research methodology is proposed as a synthesis of analytical and participatory approaches, accompanied by an ethnographic sensibility to spatial and social issues. The development of it consists of an experimentation on the topic of spatial education as a working scenario «before, during, and after disasters»⁽¹⁾

Over the past few years, the renewed interest in participatory architecture and co-design practices seems to derive from less ideal and more practical impulses, particularly related to territorial and community fragilities, whether in urban, peripheral or inner areas. Alongside the “traditional” conditions of risk and uncertainty, new challenges are emerging nowadays, generating a widespread identity crisis in fragile communities and places: on the one hand, the pandemic period has widened both spatial and social gaps between centers and peripheries in need of territorial cohesion; on the other, the environmental and climate emergency is causing drastic changes, increasing the impact of natural disasters and highlighting the urgency of interventions for mitigation and prevention.

The topics of disaster risk reduction and management (DRR and DRM) and climate change adaptation (CCA) are also central to the PNRR *Return* program, which forms the general framework of this PhD research. (2) Its multidisciplinary nature presents the critical issue of a substantially absent spatial dimension: alongside interesting visions from numerous fields of knowledge, architecture can help restore to the program the deeply physical connotation that should characterize it, evident in the essential spatial implications of

DRR, DRM and CCA. Therefore, the role of this PhD research concerns the questioning of this structural, spatial lack, inserting itself in a critical and transversal way, trying to be a virtual bridge between WPs. Referring to a specific bottom-up methodological orientation built through the community-based approaches suggested by *Return*, co-design for architecture is considered in this doctoral work as a means to front the issues explained above.

The plurality of narrations around participatory practices that concern living prefigures the formulation of a methodology of research applied to architectural design that is highly adaptable to the different social and territorial contexts. However, to imagine it as a design tool sensitive to contemporary issues – such as climate change and environmental crises – it is necessary to rethink architectural co-design outside the traditional patterns, (3) defining possible declinations of it. More precisely, in front of the polysemy of this concept, there is a need to share meanings, expressing different characters by means of a common language. As is well known, participatory practices have much to do with social involvement in territorial planning and policies. However, today, architectural co-design finds fertile ground in other areas of inquiry as well, responding to the

Risk Preparedness (Spatial) Education

fragilities of smaller contexts through the transformation of places, risk mitigation and the achievement of conditions of resilience and preparedness. (4) While the historically urban connotation of the issue makes it possible to identify potential scales of action, it also makes an urgent transition of values that places the concept of identity alongside participation. This is evident in fragile territories, where communities are repositories of identity meanings deeply rooted in the places they inhabit. (5)

The importance of an *ex-ante* approach – more than an *ex-post*-working scenario – is evident in front of risk and uncertainty. In these circumstances, anti-fragility conditions can be pursued through a preparedness-oriented approach that leverages community education and awareness of the conscious transformation of places. This is a recurring theme in the research and design methodologies of the case studies analyzed in the thesis, too: it can be found in the experiences of Yasmeen Lari and

the Barefoot Social Architecture, Alejandro Aravena and the Elemental project, the Italian group's La Rivoluzione delle Seppie, the Semillas Peru Project, and many others. The dimension of co-design today shifts from social to spatial, losing some of the original ideological strength but gaining a focus on issues of proper architecture and landscape design. A design methodology based on architectural co-design practices aims to bridge not only the hiatus between the specialized knowledge of the architect and the common sense of the inhabitants but also the co-evolutionary gap between communities and territories. The latter is both the cause and consequence of those territorial fragilities that plague the Italian inner areas and minor contexts. Among the infinite possible declinations, it is necessary to investigate some community-based approaches to co-design that enable the triggering of bottom-up processes of regeneration and revitalization in these fragile contexts.

The first and most widespread is the classical approach, a legacy of the ideological matrix of the 70s, easily traceable in past experiences. (6) It is based on moments of confrontation, in which the residents are considered active participants in the design choices: a very frequent practice in any project that proposes a participatory methodology.

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In temporal order, the earliest forms of co-design occurred in vernacular architecture, with self-construction activities that today we could count in a self-deterministic approach. The personalization of space and architecture itself by the user is a widespread practice in contemporary times: an appropriative approach directs the designer's gaze toward the needs of the inhabitants, especially in post-disaster temporalities. A possible experimentation tool can be identified in the incremental design. Considering architectural design as a process for building knowledge, the architect's goal is to educate people through participatory practices, increasing awareness toward the built environment and community cohesion. In these terms, co-design can use of a pedagogical approach, which sees spatial education as one of the purposes of participatory architecture in contexts subject to risk and uncertainty. A useful tool for participatory spatial and architectural exploration is the workshop.

If human identity presupposes the identity of a place, (7) it is evident how the physical dimension of architecture can be juxtaposed with the social dimension of the communities. An ethnographic approach can be implemented through fieldwork, which allows the designer to adopt a vision that relates space and the individual by taking on, in addition

to a figurative register, an interesting anthropological one. (8)

The study of the state-of-the-art and best practices forms the basis for the formulation of the (co)design-driven research methodology outlined in the previous lines. The proof of concept identified to test this methodology is the Ischia Island, where the complexity of the context is defined by an overlapping of natural risks – hydrogeological, seismic, volcanic, hydraulic, etc. This allows for outcomes based on the formulation of strategies for recurring themes through field experimentation in various risk scenarios.

Notes

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(2) *Spoke 7 TS3 - Communities' resilience to risks: social, economic, legal, and cultural dimensions*, included in the scientific PNRR network *Return - multi-Risk sciEnce forresilienT commUnities undeR a changing climate*. Coordinator of DASTU unit: Prof. Emilia Corradi.

(3) Marco Navarra, *Terre Fragili. Architettura e catastrofe* (Letteraventidue, 2017), 75.

(4) Yasmeen Lari et. al., *op. cit.*

(5) Zygmunt Bauman, *Community. Seeking safety in an insecure world* (Polity Press, 2014).

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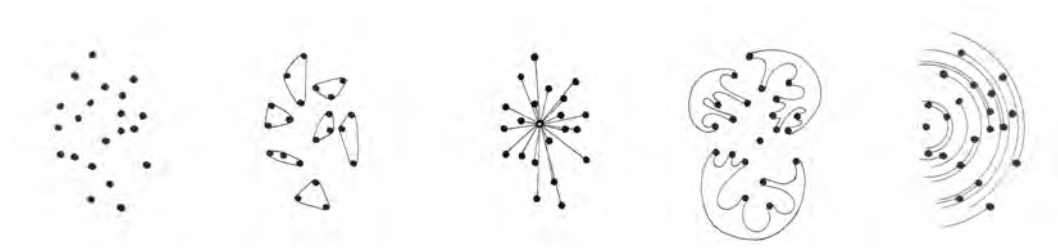
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LEARNING SPACES IN CONTEMPORARY METROPOLITAN CITIES. ARCHITECTURAL STRATEGIES TO CARE AND UPDATE MILAN'S PUBLIC SCHOOL

PhD Candidate: Raffaella Cavallaro - Supervisor: Prof. Barbara Coppetti



The research project explores the progressive rethinking of architecture for education in response to the experimentation introduced by the renewed relationship between pedagogical concepts and spatial structures. The research is an opportunity to generate a design tool, in written and diagrammatic form, whose application can trigger synergies between the different realities that shape the project and allow for the definition of innovative strategies to re-introduce them through a renewed holistic view.

The cultural and social changes in the current historical period, better known as transitions, make the need to update learning spaces evident. They call for a more excellent articulation of the conventional idea of a school, breaking down the hierarchies to which we are accustomed but no longer correspond to contemporary forms of learning. Instead of a scheme made up of a sequence of functions ordered along a corridor, the new forms of learning advocate for more complex diagrams, which add new experiences to the educational spaces and encourage students to experiment, using their bodies and imaginations.

The spatial alternatives that contemporary pedagogy advocates in order to promote an education that is the result of an active experience ⁽¹⁾, centred on the student and his or her specificities, find shape in school buildings whose spaces take on a relevant and significant role in the city and the community in which they are located. The extensive spatial programmes and the necessary mixing of diverse functions, often to be realized on small plots of land or through the upgrading of existing buildings, is now a common challenge for all schools in metropolitan cities, but also represents an opportunity to design environments whose use can change according to the users.

This approach stems from a renewed

democratic vision of the school and the necessary redefinition of the links between the forms of learning and the forms of the city.

The research explores, therefore, the potential spatial configurations that buildings for education in contemporary metropolitan cities take on as architectural and urban elements, the result of typological and spatial experimentation, capable of interpreting and transforming programmes, pedagogical visions and design limits into challenges that result in unprecedented experiments capable of giving rise to a greater number of experiences.

Quoting John Dewey, “There is an intimate and necessary relation between the process of actual experience and education” ⁽²⁾. The ability of a space to prompt a certain quality of behaviour in individuals significantly influences the design of what the well-known American pedagogue would call the “objective conditions of educational experience”, to which the spatial conditions with which the learner is called to interact certainly belong. Defining these conditions brings with it the necessity to understand the needs and abilities of individuals who learn in a given time, for whom to design school contexts that can be experienced without prejudice, that are open to individual interpretations and that allow the richness of informality to be explored.

School Experience Open space

The second topic on which the research is based is the need for education architecture to assume a central role in cities. The optimization of the building's surface area, resulting in an increase in the area of open space available, allows for generous urban solutions which, through the design of outdoor spaces on different levels and accessible at all times of day, make the school a community space strongly anchored in the neighbourhood.

The first part of the research explores the reasons and forms that have guided the construction of Milanese school heritage, describing and comparing the characteristics of all the primary and secondary schools in the Milanese territory: listed historical heritage, model buildings repeated in several examples and one-off experiments.

The survey of the current and future situation of the Milanese school heritage made it possible to recognize and assume that the architecture for

education in Milan will be characterized in the coming years by the progressive replacement of part of the built heritage with prefabricated elements and the care of existing schools. Most of the buildings surveyed are part of that architecture often considered 'ordinary' and built under emergency conditions: there is, however, a part of heritage designed and built by the architect Arrigo Arrighetti, who, through his assignments in the city's technical offices, has left a recognizable mark on the history of Milanese schools. These considerations led to the definition of more specific goals, such as the need to identify and develop macro-strategies of intervention to be adapted, case by case, to the heritage: updating and enhancement of listed buildings [1870/1949]; addition and regeneration [1950/1974]; replacement of prefabricated buildings [1950/1975]; renewal of open space [1976/2023]; new buildings (new neighbourhoods). The research, therefore, investigates and defines strategies to Design, Build, and Care – *Progettare, Costruire, Curare*⁽³⁾ – for school spaces, understood as Educator Architecture – *Architettura Educatrice*⁽⁴⁾ – according to Ernesto Nathan Rogers. For this purpose, the selection, description and comparison of practical and theoretical experiments in the pedagogical field capable, during the 20th century and in contemporary times,

of determining a substantial rethinking in the design of spaces for learning and the relationship of the school with the urban space and, therefore, with the neighbourhood and the community is crucial. At the same time, the construction of a European overview of the reforms of design standards in public schools (primary and lower secondary education) is necessary in order to draw up design strategies that take into account the outcomes and good practices of a much broader pool of reflections on the subject. The aim of this process is the development of a contemporary codification of learning spaces together with the collection and critical reading of school architectures considered to be identity-conscious – aware of their context but at the same time contemporary and experimental – thus constituting the fundamental tool through which to extrapolate and synthesize spatial topics and qualities, measuring and comparing the impact that the adoption of innovative typological models has on architectural and urban aspects, both qualitatively and quantitatively. Finally, by questioning conventions in school construction, the research aims to demonstrate the possibility of breaking new ground in terms of content and pedagogy, highlighting how the challenges of limited space and budget, energy

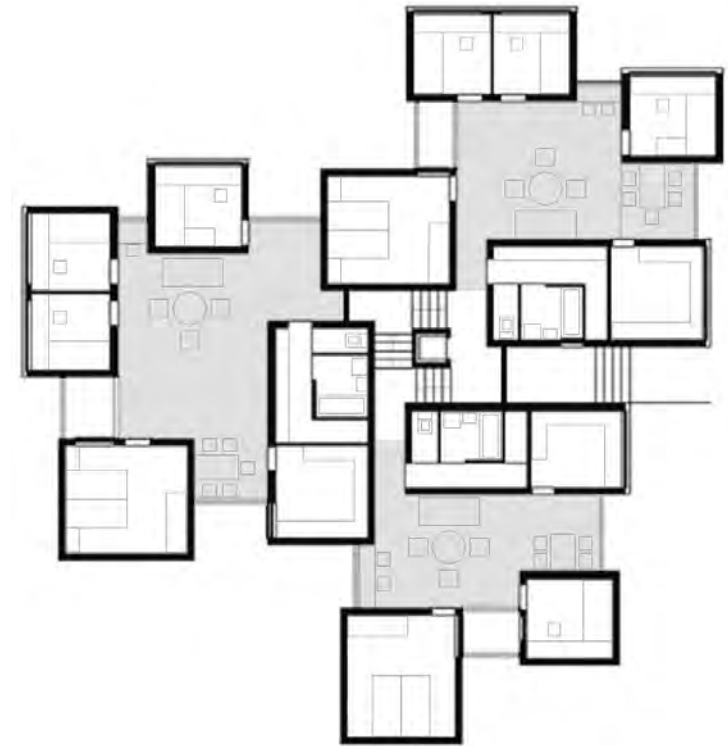
efficiency and ecological transition can be turned into opportunities to experiment with new solutions outside the usual standards. The formulation of non-uniformed strategies aims to respond to the changes in goals, methods and knowledge transfer tools that significantly alter spatial requirements and architectural standards of educational buildings. The expected result is the definition of an abacus of design approaches outlined from the application of the non-uniformed strategies to sample schools in the City of Milan. Both learning spaces and parts of cities and school buildings are in harmony with the landscapes in which they are set and spaces designed to foster human relations.

Notes

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AGE-FRIENDLY ARCHITECTURAL DESIGN IN POST-PANDEMIC CONTEXT

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Redrawn by Tianqin Chen, Typical floor plan of "Neue Stadt" housing cluster in Cologne, 1962,
Initial competition proposal by O. M. Ungers.

As the global population ages and challenges brought on by Covid-19 are considered, fostering healthy, fulfilling lives for older adults is urgent. Considering the impact of the pandemic, this study aims to seek positive design solutions for active ageing-in-place. Will extended lifespans bring vitality or increased disease burden? We will address the disparities and pandemic impacts for future residential design iterations by investigating innovative designs that align with age-friendly communities. The goal is to enhance the well-being and happiness of older people as they age independently.

Everyone gets old. As the proportion of older people and their lifespans increase around the world, some key questions arise. Will population ageing be accompanied by longer periods of good health, sustained well-being, and greater social participation and productivity, or will it be burdened by more disease, disability, and dependence? How will ageing affect health care and social costs? Are these futures inevitable? Architectural design can take action to raise consciousness, promote better health and well-being, and maintain or improve their quality of life. “Ageing in place” is a popular term in social policy that refers to methods of helping older people remain in their own homes for as long as possible. While the ageing-in-place policy is often proposed as an alternative to the cost of residential facilities and nursing homes, it is supported by a large literature showing that older adults tend to stay at home as they age, ⁽¹⁾⁽²⁾ the place where they live now and where they want to spend their old age. Integration and the creation of a network of relationships are key aspects of future housing for older people, who should not live in institutions removed from the surrounding social fabric. Instead, residential districts should be attuned to the needs of older individuals, allowing the existence of young and old. ⁽³⁾ Research shows that there is a general

positive correlation between ageing in familiar surroundings and deeper feelings of satisfaction and contentment. ⁽⁴⁾ Atchley proposed in “A Continuity Theory of Normal Ageing” that people tend to sustain the same core values, interests, and behaviors during the transition from middle age to old age, ⁽⁵⁾ that is, to maintain internal psychological continuity (personality, values) and external continuity of social behavior and environment (social roles and relationships, leisure activities). ⁽⁶⁾ For older adults, loss of continuity indicates fluctuations in their lives and circumstances. It is reasonable to assume that when the sense of attachment to family and community ceases to exist by entering care homes, the continuity that nourishes their sense of identity will be threatened. ⁽⁷⁾ An emerging initiative by the WHO ⁽⁸⁾ involves the creation of so-called “Age-Friendly Cities and Communities”, which represents an attempt to transform urban communities into supportive environments for older people. This initiative poses important challenges to policies related to ageing and the urban environment. Regardless of size, a living environment can truly work functionally only when it can provide diverse social interaction opportunities. As more residents and stakeholders realize the benefits of living in mixed-

Housing Design Ageing in Place Post-Pandemic Spaces

use communities, more mixed residential projects are coming up, which in turn enriches the features available to people of all ages: healthcare services integrated with social, cultural and commerce. (9) At the same time, combined with the interior design of each living unit, ageing in place for older people becomes a more convenient and sustainable choice. In this way, the living mode for older people can be made more diversified, and they can face their old life with a more positive attitude—a transition from passive ageing to active ageing. It should be noted that the creation of age-friendly cities and communities needs to be based on creating a good living environment for all. Moreover, the outbreak of Covid-19 in recent years has led to rapid changes in the social patterns of older people. (10) Under the influence of home quarantine and social distance policies, the living environment of older people has once again become an urgent issue. In Greer's study of major healthcare and nonprofit organizations

serving older adults in Salt Lake City, Utah, respondents highlighted how the pandemic had exposed social isolation and mental health vulnerabilities. They describe how the cancellation of social events and the closure of community centers had exacerbated feelings of isolation among older adults who rely on community spaces to maintain social connections and physical health and how mistrust of information, conflicting instructions, and divisive political rhetoric had fueled anxiety. Participants also noted a surge in non-COVID-related deaths among community-dwelling older adults they served in 2020-2021, which they attributed to declining mental and physical health and failure to thrive. (11) While social connectedness is a known protective factor in older adults, isolation became an even more important public health issue when social interactions were suspended during Covid-19. A survey carried out by the AARP association in 2020 shows that, among respondents aged 50 and older, 24% said they felt less connected to their community since Covid-19. (12) Home modifications can reduce the care needs of community-dwelling older adults (13) and are critical to reducing safety risks for older adults and extending the time they live at home. In anticipation of home repairs and renovations, a recent survey found that 71% said their homes

need accessibility assistance inside and outside, 61% said they need emergency response systems in their homes, and 48% said they need to implement smart home systems, home devices such as voice-activated home assistants. (12)(14) The pandemic has highlighted existing inequalities and vulnerabilities faced by older people, raising important concerns about their access to health care, social support, and overall well-being. As we move through these challenging times, it becomes critical to address new design solutions and ensure that older people are not left behind or forgotten in the post-pandemic responses. This study aims to investigate innovative architectural design solutions and urban revitalization strategies in line with the World Health Organization's advocacy of age-friendly cities and communities and to cope with the impact of the pandemic on people's lives. By emphasizing the key aspects of housing, green areas, public spaces, and transportation, the focus is on developing sustainable, smart, and age-friendly strategies to promote independent living, social interaction, and easy travel for older people. We hope that our research can inspire the design of age-friendly residential environments, thereby improving the quality of life of all people as they get old and enhancing their sense of belonging and happiness even under pandemic constraints.

Notes

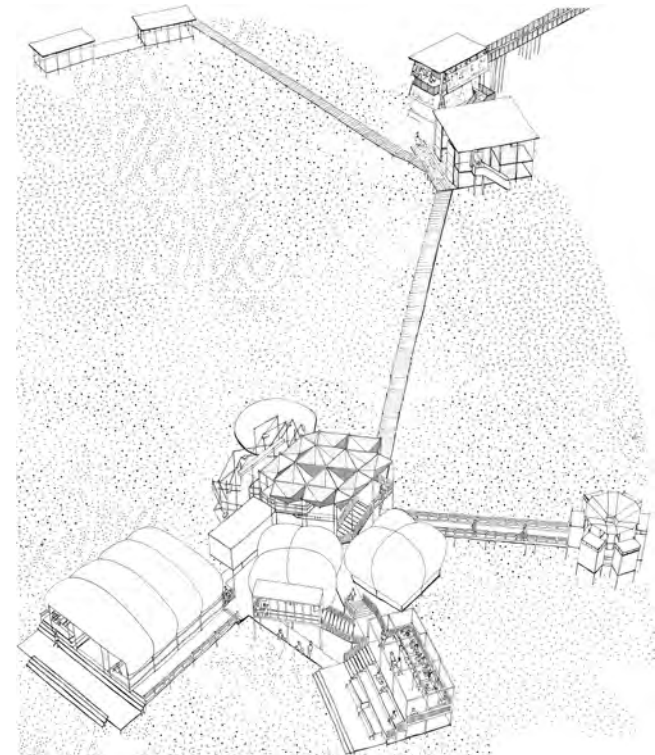
- (1) Robin Means, "Safe as Houses? Ageing in Place and Vulnerable Older People in the UK," *Social Policy & Administration* 41, no. 1 (2007): 65–85.
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PUBLIC SPACES FOR MORE- THAN-HUMAN COMMUNI- TIES

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pervisor: Prof. Jacopo Leveratto - Co-Su-
pervisor: Prof. Freek Persyn (ETH Zürich)

Raumlaborberlin, the Floating University, 2018. Re-elaboration by Michele Porcelluzzi, 2024.

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Design for biodiverse public space is a collective process – a continuous dialogue that involves people, animals, plants, soil, water, climatic conditions, and more. In these projects, the role of architects and designers is to provide a frame for expected and unexpected outcomes. What are the collaborative processes and the design strategies to conceive urban public spaces in which human and non-human inhabitants can coexist as a community? How can biodiversity in public space act as a catalyst for social involvement and collective awareness?

The doctoral research deals with biodiversity in public spaces through the lens of architectural design. The significance of biodiversity in urban areas extends beyond environmental considerations and encompasses human well-being and social needs. However, these aspects are not entirely considered in the current requirements for public space design. In European countries, urban biodiversity is regulated by a legislative framework that defines a set of parameters and indicators, according to which a project is assessed only through numeric values and quantitative data (number of species, variety of ecosystems in an area, and more). This research seeks to introduce a qualitative dimension in the discourse, emphasizing factors like spatial quality, social interactions, and community-driven dynamics. Reading biodiverse public spaces as green urban commons makes it possible to recognize their central role in collective life. These spaces indeed have relevant potential from the perspective of social interaction, health/well-being, and education for all the involved generations.. Architects play a crucial role in this process, with the responsibility to move beyond traditional design approaches to engage in a dialogue with local communities. The objective is to use biodiversity to strengthen community bonds, offering the residents

opportunities for expression in open spaces and fostering a direct connection with natural elements – even in the densest areas of the urban tissue. This collaborative approach extends not only to human stakeholders but also to non-human agents such as animals, plants, soil, water, and climatic conditions, challenging the prevailing anthropocentric perspective. The aim of the research is to present the design of biodiverse public spaces as an ongoing and dynamic process and to identify the processes and the design attitudes that can support designers, public institutions, and activists to work with this approach. In order to classify the different theoretical positions on biodiversity in public space, it is useful to set the two extreme points of a broad spectrum: spaces for more-than-human communities (100% coexistence) and urban enclosed reserves (0% coexistence).

Symbiotic Exchange Zones

The first category is conceptualized as a type of urban area in which human and non-human inhabitants coexist symbiotically, contributing to each other's well-being and creating an interconnected urban ecosystem. In this approach, the conventional boundaries between urban spaces for humans and wildlife are blurred. The emphasis is on

Public Space Design

Biodiversity

Urban Commons

the coexistence and interdependence of species within the urban fabric. To understand the theoretical background behind the idea of spaces for more-than-human communities, it is essential to explore its theoretical background. Actor-Network Theory (ANT) by Bruno Latour serves as a foundation, challenging traditional distinctions between human and non-human entities. ANT posits that both are integral parts of complex networks ⁽¹⁾ that carry out collective action. The call is for a shift from anthropocentrism to a more extensive approach, recognizing the agency of non-human entities in shaping the urban environment. Architectural designers' role is fundamental in responding to the needs and dynamics of both human and non-human stakeholders within urban spaces. Another relevant theoretical premise is the research conducted by Matthew Gandy, which emphasizes historical parallels and contemporary attitudes toward urban biodiversity. Gandy urges a critical examination of humans' relationships with nature in urban

settings, advocating for more inclusive and equitable approaches to biodiversity conservation. ⁽²⁾ Furthermore, David Maddox's vision emphasizes the need for urban environments that embrace biodiversity as an essential element for enhancing the quality of life for urban residents. ⁽³⁾ Community engagement and citizen initiatives are emphasized as useful and relevant to urban biodiversity conservation, contributing not only to biodiversity preservation but also to environmental education and social cohesion. One more fundamental theoretical position is the one by Donna Haraway, whose book "Staying with the Trouble. Making Kin in the Chthulucene" is a reflection on overcoming conventional boundaries and the coexistence of humans and non-humans in shared spaces. ⁽⁴⁾ Haraway emphasizes the need to think beyond anthropocentrism and explore new ways of relating to the natural world, encouraging a deep understanding of the interconnectedness of all life forms within urban environments.

Enclosed Protected Reserves

The second analyzed category includes, on the contrary, spaces that prioritize the conservation of native ecosystems. As human activities increasingly intensify in urban areas, the preservation of

biodiversity within urban confines becomes a complex challenge. A possible design strategy to improve the quality of biodiversity in public spaces is to conceive them as enclosed areas in which non-human agents can thrive undisturbed. In these spaces, human access is strategically limited to prioritize native biodiversity conservation. These areas, often referred to as "wildlife reserves" or "urban refuges," are intentionally designed to be either entirely off-limits or minimally accessible to humans: the emphasis is on providing a haven where biodiversity can flourish without direct human interference.

Michael Hough's position aligns closely with the philosophy of enclosed urban protected areas. ⁽⁵⁾ Hough, a landscape architect, emphasizes the significance of preserving and designing urban spaces where biodiversity can develop independently of human disturbance.

His approach focuses on integrating ecological considerations into urban design and development, recognizing the need to balance human needs and preserve natural systems.

Another scholar in landscape architecture, Simon Bell, emphasizes the relevant role of islands of "wildness" within urban landscapes. ⁽⁶⁾ His theoretical exploration aligns with the concept of creating public spaces for biodiversity within cities, underlining the benefits of embracing

wildness to preserve native plant and animal species. Bell's assumption is that urban landscapes need not be entirely accessible for human inhabitants; instead, they can retain pockets of wildness, contributing to the overall health and well-being of local communities.

Notes

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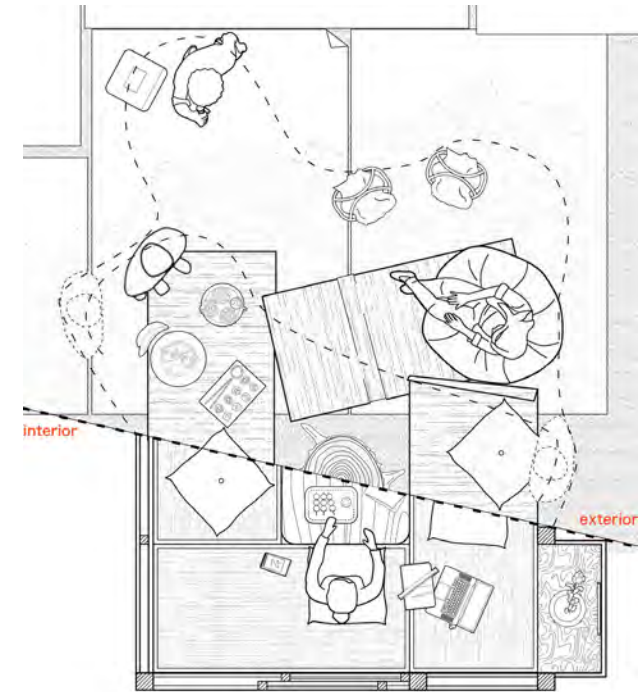
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HOME BEYOND BOUNDARIES: THE PUBLIC SPACES APPROPRIATED BY THE DOMESTIC PRACTICES

PhD Candidate: Ren Yuwei - Supervisor:
Prof. Jacopo Leveratto - Co-Supervisor:
Prof. Gennaro Postiglione



“At the same time, modern architecture, as a structure seeking to guarantee the greatest possible number of degrees of freedom for the user, within a ‘configuration’ or ‘representation’ that is as rigid as possible, recognizes in the urban phenomenon its real ‘destiny’ and in the ‘private’ its real nature.” ⁽¹⁾

Urban and dwelling spaces have long been distinct areas, yet as the latter increasingly integrate typical urban functions, many domestic behaviors have begun encroaching on conventional public spaces.

In high-dense cities, residents often move furniture such as tables, chairs and sofas to porches, alleys, and parks for activities like chatting, exercising, and relaxing. These transgressive behaviors challenge city rights ⁽²⁾ and disrupt the original order and functions, often perceived as manifestations of poor quality. Addressing these contradictions in space rights, experiences, and boundaries, this study intends to use an interdisciplinary approach, focusing on interior practices and behaviors, to explore the topic of “the domestication of public space”. The phenomenon of “Domestication of Public Space” signifies the overflow of domestic behavior and interiority into exterior spaces. This study readdresses the issues of interior and exterior, exploring urban space development through a lens that is both more intimate and personal. Driven by residents’ desires for freedom, relaxation, social interaction, or self-experience, the boundaries of “home” are broken as people venture into public spaces in search of “additional domestic practice spaces.” These spaces, appearing and disappearing with domestic practices, are both static and fluid, creating an overlap between private practice and public experience. Since the last century, urbanists like Jan Gehl ⁽³⁾ and William H. Whyte ⁽⁴⁾ have explored the use or occupation of streets, squares, and threshold spaces from the

perspectives of body scale, behavior, and rights. Their research includes urban public spaces and infrastructures with flexibility, polysemy, and potential features. It is apparent that urban studies at the body scale lack an exploration of experience and a more detailed study of behavior, that is, the sequence, events, and narratives of practices—an interior position. Also, in the last century, Archizoom’s No Stop City conceptualized a homogenous, flexible, and infinitely expandable interior city that integrates the domains of home and city, addressing the distribution of spatial resources. Following this, researchers like Suzie Attiwill ⁽⁵⁾, and Liz Teston ⁽⁶⁾ have studied interiority in urban spaces, including commercial spaces that also encompass the control of spatial resources through gentrification. Thus, the democratization of urban spaces necessitates adopting a perspective within interiority that is closer to the people’s lives and more related to the home. In practice, tactical urbanism ⁽⁷⁾ has conducted many self-built experiments with installations, yet often, there is no clear distinction between citizens’ practices and designers’ projects, and the “typology” of space remains unclear. Addressing those questions, this study aims to explore the spontaneous appropriation of public spaces by domestic practices and learn from the

Domestic Practices Urban Spaces Research by Drawings

informal creation of spaces and body behaviors, thereby proposing a design agenda for public spaces that enhances inclusiveness and well-being. It further seeks to investigate the role of the interior position and experience in urban space design, striving to find balanced typologies between informal practice and formal design in public spaces. Domesticity, derived from the notion of “home,” always embodies a sense of privacy, be-oneself and safety. It is a transient and situational condition characterized by interiority, intimacy, and appropriation. And the spaces appropriated by domestic practices are termed “Outdoor Rooms”. By employing metaphors of “doors” and “rooms” in describing public spaces, the domestic mechanisms infuse urban open spaces with political, social, and experiential attributes, effectively domesticating them. These spaces have characteristics of tolerance, proximity, and fluidity. The methodology of this study intends to apply research by drawings, divided into desk research and fieldwork components. In the desk research phase, the focus is

on collecting and analyzing literature and case studies through drawings. Based on the definition of the domestication of public space, cases are categorized into “Practice” and “Design.” The purpose of this approach is to compare formal and informal spatial practices to identify moderate space design methods. Depending on their characteristics of appropriation and fluidity, these cases are further classified by duration into permanent, periodic, or temporary and by spatial scale into open spaces, transit spaces, and architectural boundaries. The results of practices often involve transferring events that frequently occur in dwelling spaces outside, forming rituals of life either periodically or non-periodically. The criterion for evaluating these cases is the intimate and interior experience. They need to satisfy the ritualistic life and sensory of oneself, with clear purposes such as eating, conversing, sunbathing, and performing, such as Japan’s Hanami and Hong Kong’s urban living rooms. Design cases, on the other hand, are selected based on the tolerance and affordance of existing spaces, allowing domestic practices to utilize this potential, though this often means that they do not have explicit behavioral controls, such as Barcelona’s superblocks project and London’s Serpentine Gallery. This study will select some cases to establish

a toolbox and conduct analysis by architectural drawings. Then, fieldwork on one selected case from each category is necessary. This research intends to improve space design by learning from the users (although the users do not directly participate in the design process). Therefore, the fieldwork component will be guided by the theories of Architectural Ethnography, conducting an immersive investigation. This method emphasizes a holistic experience, placing the experience of the space, people’s psychological states, and the temporality of behaviors/practices on the same dimension. This approach does not only generate rich visual information but also forms a narrative expression (8), layering storytelling overlapping. Such narrativity allows the research to infer users’ emotions from the environmental context of the residents within a drawing and to feel the dynamic rhythm based on the steps of domestic practices, showcasing the potential and vibrancy of public spaces. This method will introduce spontaneity and new possibilities into the creation of the design agenda. After completing the investigation, new characteristics might be discovered that differ from the initial toolbox, necessitating updates to the design principles and features. Finally, a design project will be used to test the feasibility

of the design agenda. As stated in No Stop City, the study of these phenomena represents a political transformation in society. It illustrates the mutual reinforcement between public space resource distribution and citizen behaviors, offering a new perspective for promoting the democratization of public space.

Notes

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- (7) Mike Lydon, Anthony Garcia, *Tactical Urbanism: Short-Term Action for Long-Term Change* (Island Press, 2015).
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THE INTERFACE BETWEEN RURAL VILLAGES AND IN- DUSTRIAL ZONES. A CASE STUDY ON CIYAO VILLAGE

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Prof. Ilaria Valente - Co-Supervisor: Prof.
Gerardo Sempredon

Likun Shen, rural village and industrial zone of Ciyao village, 2024.



Since the 1980s, China has embarked on the industrialization of rural areas, aiming to modernize the rural built environment by integrating local resources, introducing industry, and relocating rural villages. The new villages, akin to suburban areas, are integrated into nearby urban systems. This process of urbanization and industrialization has accelerated the pace and manner of rural village transformation, leading to the migration of the farming populace from rural areas to new settlements of more convenient conditions of working and living quality.

This population migration has resulted in two outcomes: first, existing villages are abandoned due to reasons such as transportation or natural environment, and second, the government plans new villages by introducing urban-like models of housing into the rural system. (1) This process has brought significant industrial investment to rural areas. In order to support the establishment of industrial zones and improve the unfavorable geographical location and living conditions of existing mountainous rural areas, an increasing number of planning and architectural professionals have been involved in the construction of collectively built new villages in direct or indirect ways. Due to the introduction of urbanized construction methods from the city, the construction team, aiming to save land and reduce investment, has resulted in a large number of mechanically repetitive urban-like rural communities, neglecting the differentiated needs among villagers. This is detrimental to daily interactions among villagers, contrary to the order of the “acquaintance society” in rural areas, accelerating the disintegration of rural social order and the decline of rural culture. (2)

Ciyao Village is a typical case. Ciyao Village is quite typical of villages in the Lvliang region at the junction of mountains and plains in a cold area. Due to the poor land and weak

traditional agriculture, the traditional ceramic industry has disappeared due to the impact of modern industry. Large numbers of heavily polluting energy-intensive enterprises have gathered in rural areas, such as sand factories, paint factories, mixing plants, and coking plants.

At the end of the 1990s, the government chose a site for the new village on the plain southeast of the original village, adjacent to the road. The entire new village is laid out with grid-patterned residential plots, each with a basic size of 15 meters in length and width, forming a similar rectangular shape. Under the government’s regulations on form control, such as the number of stories and building height, construction was carried out by villagers themselves with the help of construction teams. The entire village consists of a rural settlement community composed of a group of single or double-story brick houses with surrounding walled courtyards. From the perspective of settlement form, the scale of industrial production land is not harmonious with the village fabric, resulting in structural variations in the original fabric and the lack of public space, leading to the alienation of residents’ lifestyles. The concept of residential enclave is introduced to define such relocated villages that only satisfy residential functional requirements.

Interface Zone Rural Settlement Mat-building

These discontinuous residential enclaves generated by abrupt changes are adjacent to industrial land parcels. There are two main problems. Firstly, when the government designed uniformly, it simply copied the generic template, mainly considering the realization of residential functions in limited land resources, but did not reasonably consider the collective activities of villagers, nor did it consider the actual situation of villagers' ages, leading to underused public buildings in the village and building forms that do not meet the actual needs of villagers. Secondly, the new village is adjacent to surrounding industrial landscapes, replacing rural landscapes. Due to the proximity to heavily polluted industrial facilities and expressways, the fringe area of the village presents a trend of decline and disorder, similar to the causes of the NIMBY phenomenon in the United States. The industrial zone has become an obstacle to the future expansion and development of the village. After the industrial zone is abandoned, it leads to a waste of a large amount of land

resources and idle factories. In summary, we need to study the relationship between industrial construction and the development of surrounding rural communities.

I believe it is necessary to borrow the thinking mode of structuralism. Firstly, the village and the industrial zone, as well as nature and artificiality, are the relationship between the whole and its parts. They are parts of an interrelated system and not isolated, unrelated elements. Secondly, we need to analyze this mutual influence and development over time from a diachronic perspective. In the near future, industrial zones may serve as potential spaces for the expansion of villages. We need to introduce the concept of “in-between” (3) to recalibrate our intervention mode and provide effective design strategies. Focus on the interface zone between the village and the industrial zone. This is not only a transition area between two land uses (functions) but also a transition area between building scale and interactive mode.

In this case, I believe the intervention of architecture needs to focus on three keywords in the future development of such rural areas: affordance, catalytic, and participability. Spontaneously evolving rural housings are the best models to interpret the spontaneous vitality of rural areas. By studying rural

residential architecture, we summarize several characteristics. Firstly, rural housing, as diachronic devices, reflects the relationship between architectural form and rural life, embodying affordance. (4) Secondly, rural housing is similar to catalytic tools, as figures that can influence or generate their ground, giving rise to inhabitable and uninhabitable spaces around them. We call this “constructed ground,” which includes public spaces at different levels and service spaces such as pipelines and frame devices. Thirdly, rural housing is both a product of different construction methods and a mediator of various social roles in organizing the construction process. During and after construction, various roles establish social relationships and identities through participatory construction processes. As Peter and Alison Smithson wrote in “How to recognize and read MAT-BUILDING,” it is necessary to start from the relationship between individual buildings and the city and to use the methods of architectural urbanization and urban networking to find a building prototype that can inherently express “community life” and social complexity. (5) The characteristics reflected by rural housing echo this viewpoint.

This research focuses on studying the possibility of using house-like forms as the basic units of structure, generating

cluster-style buildings or landscape installations, and trying different design strategies for different types of interface zones.

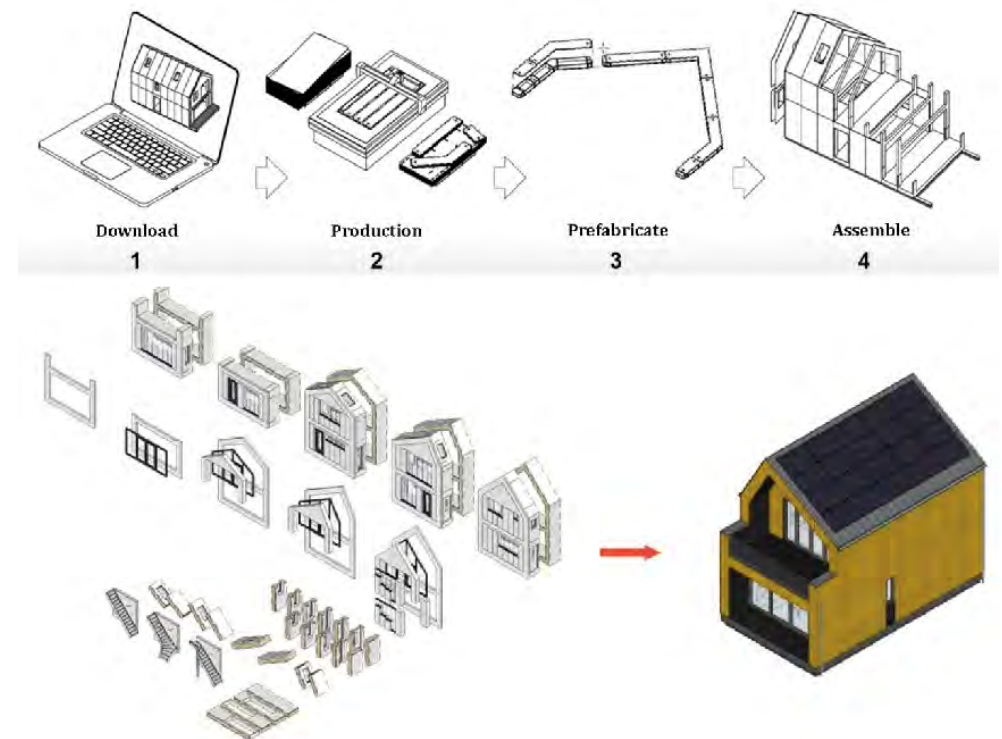
Firstly, the methodology used in this paper reveals the types and changes of elements within the existing interface zone through a series of plans and sections. Secondly, by analyzing the evolution of rural residential buildings, it will analyze their variations and iterations. Thirdly, it will generate basic units in house-like forms and explore the organizational logic of units and the entire system according to different types of sites. I hope to take the research in the Luliang region as an example to explore the missing or neglected elements in current design practices.

Notes

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ARCHITECTURE COMMUNITIES ONLINE: PARTICIPATORY DESIGN AND COLLABORATIVE PROCESSES

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WikiHouse workflow diagram.

Historically, professionals have dominated architectural design, with limited input from the end users or the community. However, the advent of the internet and social media platforms has democratized the design process, enabling a more inclusive approach. These online communities have become crucibles of innovation, where architects, users, and stakeholders converge to co-create, share knowledge, and challenge traditional architectural design paradigms.

This study explores the extent to which online architectural communities are reshaping the landscape of architecture through participatory design and collaborative processes. It seeks to uncover how these communities foster innovation, democratize design, and contribute to sustainable architectural practices. This research's central question is: How do participatory design and collaborative processes within online architectural communities influence architecture regarding innovation, inclusivity, and sustainability? Case studies such as the Open Architecture Collaborative (formerly Architecture for Humanity), WikiHouse, the Open Building Institute, and the Hybrid Space Lab are examined to illustrate how participatory design and collaboration manifest in practice. These case studies reveal the potential of open-source platforms, self-built initiatives, community empowerment strategies, and interdisciplinary collaboration in shaping the future of architecture. Methods include content analysis of online forums, interviews with community participants, and surveys to gauge the effectiveness and outcomes of collaborative projects.

Open Architecture Collaborative

The Open Architecture Collaborative (OAC) embodies a community-centered approach, advocating participatory

design and collaborative processes as foundations for architectural practice. Emerging from the closure of Architecture for Humanity in 2015, the OAC continued its mission to empower marginalized communities and ensure their active involvement in shaping their environments. This approach is not just consultative but deeply integrative, allowing community members to significantly influence the design and implementation of projects affecting their lives.

One exemplary initiative is the Neighborhood-scale Pedestrian and Traffic Safety Plan in Downtown Brooklyn, where the OAC facilitated community workshops and design sessions, engaging residents in envisioning their neighbourhood revitalization. This led to sustainable urban development plans that cater to immediate needs while paving the way for long-term socio-economic improvement.

WikiHouse

WikiHouse represents a revolutionary architectural design and construction shift, embodying a community-centric approach that democratizes the building process. Initiated at the 2011 Gwangju Design Biennale in South Korea by Alastair Parvin and Nick Lerodionou of Architecture 00, WikiHouse has

Online Architectural Communities

Participatory Design

Collaborative Processes

evolved into a global open-source building system. This innovative platform utilizes digital manufacturing to enable anyone to download, customize, and self-assemble sustainable and resilient buildings, reducing cost, skill, and time barriers. The De Stripmaker project in Almere, Netherlands, exemplifies WikiHouse's application on a community scale, marking a significant milestone in sustainable urban housing. This project leveraged the WikiHouse Swift system, enabling residents to actively participate in designing and building their homes, fostering a sense of community and personalization.

The Open Building Institute

Founded by Catarina Mota and Marcin Jakubowski, OBI advocates for environmental sustainability, cost-effectiveness, and community empowerment. OBI's methodological core is a library of architectural modules enabling the assembly of various structures like homes, greenhouses, and educational spaces, emphasizing

eco-friendly living and self-sufficiency. These modules, designed for easy assembly by non-professionals, are shared online, allowing free access and modification. The approach fosters a community production ethos reminiscent of traditional barn raisings, updated for modern ecological and social needs. The institute's history is marked by continuous growth and innovation, leveraging interdisciplinary collaboration to develop holistic, sustainable living environments. Through workshops and educational programs, OBI transfers skills and knowledge, empowering communities to actively participate in creating their built environments and reflecting a transformative movement in architecture towards inclusivity, sustainability, and open collaboration.

Hybrid Space Lab

Hybrid Space Lab, founded by Elizabeth Sikiaridi and Frans Vogelaar, operates at the intersection of architecture, urbanism, design, and digital culture, striving to transform societal and environmental landscapes through innovative, interdisciplinary projects. As a think tank and design laboratory, it champions the fusion of physical and digital realms to address global challenges like climate change, urbanization, and technological advancement. Through collaborative efforts with experts across various fields,

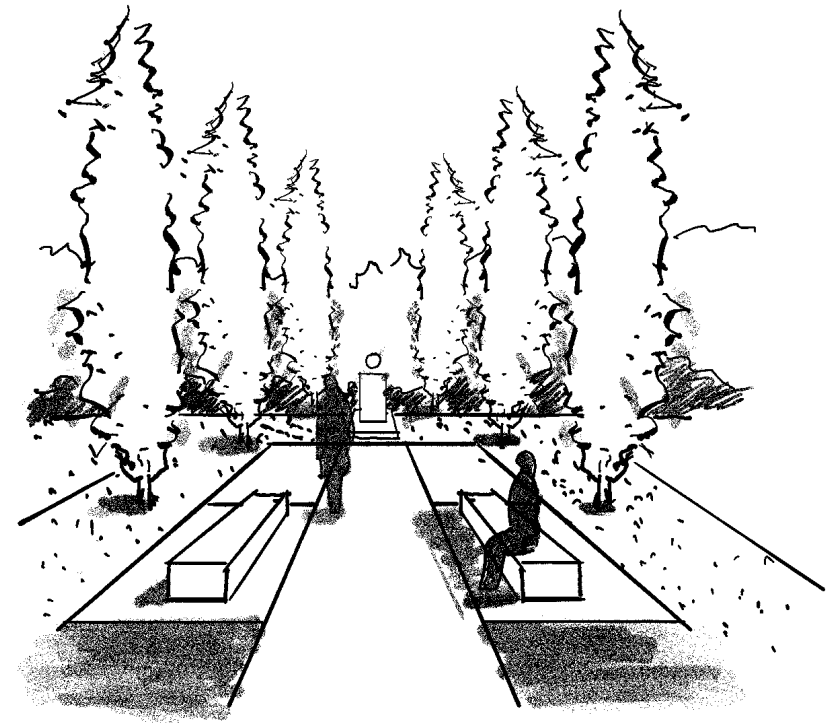
Hybrid Space Lab develops initiatives like "City Kit" for participatory urban planning, "DIY Pavilion" for community-driven design, and "NatureTecture" for integrating urban nature with technology. These projects, like "Simple City", embody the lab's approach to creating interactive, networked spaces where public participation and digital innovation converge, shaping future urban and architectural practices.

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MEMORIAL PARKS

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Prof. Sara Protasoni - Co-Supervisor: Prof.
Michela Bassanelli



“It is essential to experience all the qualities of the material itself; its weight, its surface texture, its temperature, and the quality of the space it bounds.”

“The tactile sense connects us with time and tradition: through impressions of touch we shake the hands of countless generations.”⁽¹⁾

In current memorial landscape design, traditional sculptural and architectural elements often fail to realize their full potential in space. Nor can they trigger collective memory.

(1) Juhani Pallasmaa, *The Eyes of the Skin: Architecture and the Senses* (John Wiley & Sons, 2012).

The existing literature on traditional sculptural and architectural elements in memorial landscapes often underplays their potential to invoke collective memory, indicating a significant gap that this study addresses. In order to explore how to enhance the perceptual experience and spatial quality of memorial parks through innovative design, this study adopts a phenomenological theoretical framework, with a special focus on the design approach of interacting natural elements with the senses.

The scope and classification criteria of memorial landscapes and memorial parks are defined through a combination of literature review and case studies. Adopting qualitative research methodology, the study analyses emblematic memorial parks such as the Vietnam Veterans Memorial Park, the September 11th Memorial Site, and the Berlin Wall Memorial Site, etc., focusing on Context, Dimension, Form, and Narrative of the site in the design, and how to utilize the sensory elements (sight, sound, touch, and smell) to enhance the visitor's experience. This study relies on phenomenological theories, particularly Merleau-Ponty's understanding of the sensory experience and Pallasmaa's ideas on the phenomenology of the architectural senses. These theories provide insights for understanding human experience in memorial spaces.

The Research Goals

1. To delineate the current state of the art by reviewing theoretical-critical texts and reference projects and to explore new interdisciplinary approaches informed by phenomenological philosophy.

2. To define conceptual categories and practical tools for the design of memorial landscapes and parks, ensuring that these spaces are active environments that promote dynamic interaction with the memory they commemorate, thus reflecting the evolving nature of memory as a living entity that grows and evolves with its participants.

This approach ensures memorial parks transcend being mere passive spaces of remembrance, transforming them into dynamic environments that engage visitors and invite deeper interactions with the space and the memories it preserves. Future research will further investigate how these phenomenological theories can be applied more broadly in landscape design.

The focus of contemporary memorial parks has progressively shifted towards an experiential approach rooted deeply in the sensory engagement of visitors. This approach does not merely seek to create a space that is visually or aesthetically pleasing; instead, it endeavors to craft an environment that invokes a deeper interaction between the visitor and the memorial through all senses.

Sensory Perception Landscape Memorial

Central to this methodology is the integration of sensory natural elements, a concept eloquently championed by John Ormsbee Simonds, who believed that “one designs not places or spaces or things; one designs experiences.” This philosophy underscores the essence of memorial parks as realms where sensory experiences are not accidental but are meticulously crafted to enhance the emotional and reflective engagement of the space. The design process considers how a space will be used, perceived, and experienced, ensuring that every element — from the pathways that guide visitors through the space to the benches where they might pause and reflect — contributes to a comprehensive experiential journey. By applying phenomenology to the design of memorial parks, planners and architects strive to uncover the essence of sensory engagement with nature and built environments. Phenomenology, particularly the insights provided by philosophers like Edmund Husserl

and Maurice Merleau-Ponty, plays a critical role in this sensory-oriented design methodology. This philosophical approach focuses on the structures of experience and consciousness as people interact with their environments. They explore how sensory perceptions shape our understanding and appreciation of spaces, ultimately influencing the depth of the memorial experience. In the realm of sensory engagement, the design of memorial spaces often incorporates natural elements that can evoke memory and emotion through the senses. For instance, the sound of rustling leaves or gently flowing water can transport one to a different time and place, potentially unlocking personal memories linked to similar sensory experiences. Michael Arad, architect of “Reflecting Absence” in the 9/11 memorial, leverages the sensory power of sound through the cascading waterfalls that drown out the city’s noise, creating a sanctuary of peace. Furthermore, plants in memorial parks, for instance, are often selected for their symbolic meanings — poppies for remembrance of fallen soldiers, oak trees for strength and endurance, and cherry blossoms for the transience of life. These elements serve not only a decorative purpose but also deepen the narrative and thematic substance of the memorial. Meanwhile, tactile experiences are also

profound, with bronze parapets inscribed with the names of the victims inviting visitors to trace the engravings, fostering a personal connection to the tragedy. These elements create a multisensory experience that memorializes the victims while providing a space for public reflection and collective mourning, firmly rooting the memorial in both the landscape and the community’s heart. In the analysis of memorial parks from around the world, the case study chapter initially included a comprehensive review of 100 memorial parks. This broad collection aimed to capture a wide array of design philosophies, cultural representations, and historical contexts. However, after a thorough drafting and analysis process, the scope was narrowed down to 20 projects. This selection was primarily based on factors such as the nationality of the parks, ensuring a diverse and representative sample that spans different cultures and geographical regions. Additionally, the analysis looks at how the memorial integrates into its urban context, examining both the physical layout and its broader implications for community and urban development. It assesses the memorial’s role not just as a site of remembrance but also as a living part of the city that interacts with daily life and urban dynamics. Overall, the analysis method uses a

blend of architectural critique, sensory exploration, and cultural context to understand and evaluate the effectiveness and impact of the memorial parks.

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DESIGN OF THE LEFTOVER SPACES IN KARACHI FOR CURTAILING THE IMPACT OF SOCIAL POLARIZATION

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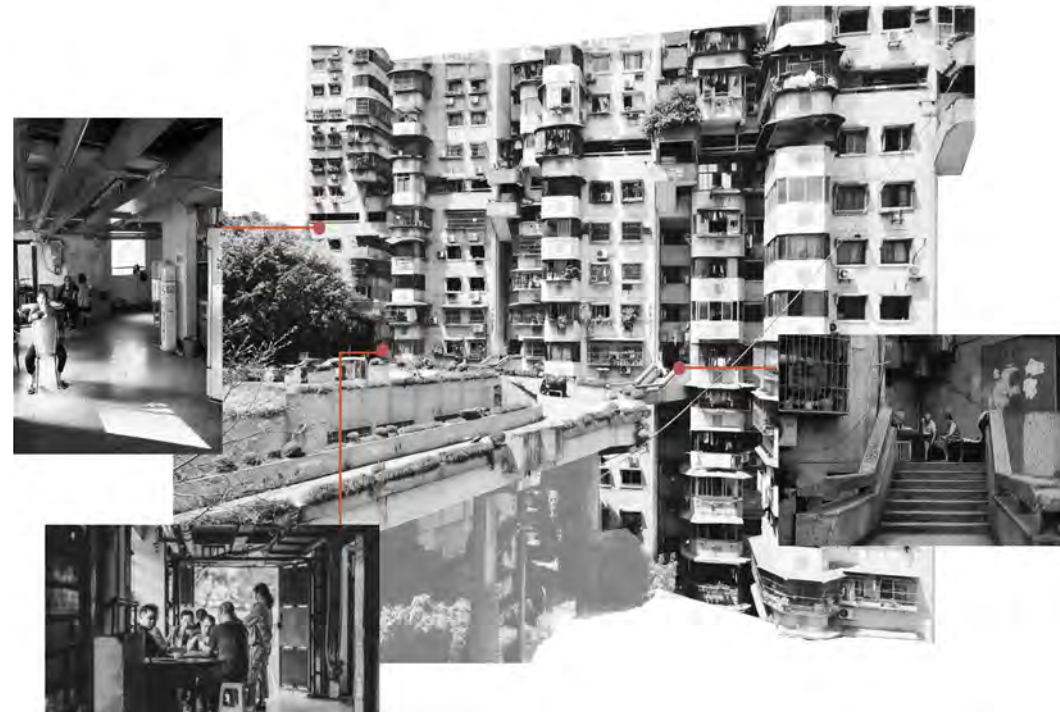
Karachi's public space is shrinking or becoming increasingly exclusive. This city of 22 million inhabitants is becoming denser day by day. As the economic hub of Pakistan, the city attracts the most business and domestic migration, and the economic imbalance has blown the phenomenon of gentrification. Meanwhile, any leftover space has been used as a public space with no regulation and access conditions, essentially becoming the true public space of the city. Such spaces hold vast potential because they have become the hotspots of social interaction.

Each existing designed or allocated public space in Karachi is subject to some phenomenon that eventually overcomes it and makes it inaccessible to, if not all, most of the vulnerable classes. Growing security concerns have spiked the usage of boundaries, gates, and fences, adding to the loss of porosity of the city's urban system and inclination to an exclusivity culture. The only natural and open public space, Karachi Beach, is also being gradually cordoned off with the development of linear gated Parks in the name of the "beautification" of the city. The system creates a bias towards low-income groups, hence making them a subject of exclusion. Gentrification is the main driving force behind most of the regulations that are systematically designed to make people gradually forget about the spaces that belong to them. The projects encouraged by the so-called civilized class (urban forests, Denso hall, etc.) mostly exclude the poor people from them. Even if the projects are projected on some goodwill, they often need to be implemented more effectively. Karachi is also grappling with the urgent threats of heritage loss and climate change. The city's tangible heritage is either being razed to the ground due to rampant infrastructure development or left in a state of neglect, with no interest from the authorities due to a lack of funds and political will.

These city problems are all interconnected in some way or another. The public is polarized because it needs more venues or directions to interact and learn about harmonious coexistence. Karachi is losing its existing public space because of the existing divide in society that is making public spaces more and more exclusive; it is losing its heritage because there is no sense of ownership and community belonging among the inhabitants of the city for its heritage. The economic divide is getting bigger, with the marginalized becoming more marginalized with flooding and extreme weather. Karachi is a complex system functioning but in need of major interventions that are not imposed but blended into the existing system, derived and inspired by the city's existing essence. The informal public spaces are the pockets that are still letting this highly dense urban fabric breathe and are providing the opportunity to be used as spaces of interventions that would slowly become the anchor points of the inhabitants coming together, learning to coexist in harmony, building tolerance towards others, and developing a sense of community to take ownership of the city and its tangible heritage and political will; streets, sidewalks, under flyovers, and other areas not or managed but owned by the city.

INFORMAL PRACTICES AS A DRIVE: EXPLORING THE POTENTIAL OF SOCIAL INFRASTRUCTURE IN URBAN RE-NEWAL

PhD Candidate: Li Dongni - Supervisor:
Prof. Jacopo Leveratto



Set within the urban context of China, the research investigates the engagement of residents in employing informal practices within architectural spaces—including appropriation, occupation, and intervention—as fundamental tactics in their everyday lives. By harnessing these spatial practices as a drive, this research explores how architecture, serving as both material and social infrastructure, can be re-envisioned to form a paradigmatic response to urban fragmentation, marginalization, and social injustices.

Urbanization has driven rapid infrastructure development while reducing public space and aggravating urban segregation and social injustices. (1) Social infrastructure and the way space are produced, appropriated, transformed, and used around it, reveal tensions between public accessibility and mobility, reflecting societal segregation. (2) Although infrastructure aims to iron out urban divisions, ironically, these divisions are yet scripted into the workings of infrastructure: the rules and tariffs of supply”. (3) Compared to the well-supported mobility of upper-class groups, the mobility of vulnerable groups is often neglected. (4) Notably, informality flourishes in economically disadvantaged area, as evidenced by their creative interventions. These interventions are manifested in everything from informal settlements in social housing to aspects of the market economy and street vending culture. Consequently, usage of space evolves from passive spectating to active participation and creative intervention, expressing flexibility as a political strategy and challenging functionalist domination.”(5) Moreover, many spaces endorsed by situationists tend to arise by chance than deliberate design. Researchers have closely kept an eye on everyday events in residents’ lives to understand how they adapt through appropriation and transformation. (6)

Set within the urban context of China, this research investigates the engagement of residents in employing informal practices within architectural spaces—including appropriation, occupation, and intervention. These are fundamental tactics in their everyday lives, employed within a unique social infrastructure that flourishes a rich diversity of spatial practices. Serving as both a material and social infrastructure, these spaces are utilized and transformed by different agents as a strategy to improve their current environment. By harnessing these spatial practices as a driving force, this research aims to explore how social infrastructure can be re-envisioned, proposing a paradigmatic response to urban fragmentation, marginalization, and social injustices. Mobility and daily practices redefine public and private realms, creating informal, social, and consumption spaces that are inherently embedded within the community. These spaces operate under diverse rules, reflecting varying operations. (7) Theories by Lefebvre and Certeau propose the theories of Space and the importance of everyday life. Space can be contested in the action residents modify their environment through exploring the intervention of people in the forms of transformation and appropriation. The dynamic relationship with the architectural environment

Informality

Spatial practice

Community engagement

constantly reconstructs publicness by embracing diversity and heterogeneity through everyday life. The theory of space production by Henri Lefebvre expresses the concept that (social) space is a (social) product, space as a product of social practice. In the architecture discourse, the production of space is not only about the physical constructs but also involves the symbolic dimensions. Moreover, the Actor-Network Theory can be actively applied in the process of spatial practice through the everyday lives of the actors.

Based on the foundation of theory, this research investigates the dynamics between informal and formal spaces within urban environments, focusing on the formation and usage of informal space. Employing a mixed-methodology including interviews, Based on the foundation of theory, this research investigates the dynamics between informal and formal spaces within urban environments, focusing on the formation and usage of informal space. Employing a

mixed methodology including fieldwork, interviews, observations, drawing, mapping, and participatory design will help demonstrate the rules of deep mechanisms and fundamental factors of social infrastructure. This research will collect data on how everyday encounters and heterogeneity transform the space to reconstruct the publicness and influence the architectural environment. Moreover, this research will review and analyze informal interventions within urban and architectural discourse, focusing on application in architectural cases. In defining informal architecture, this research builds upon various cases of informal spaces—ranging from spatial transformations such as appropriation and occupation to the use of temporary objects as interventions that may extend beyond traditional architectural realms. Within this broad disciplinary context, these cases illustrate how informal interventions can be understood and integrated into social practices and spatial production. The research explores the potential of informality to be applied to architectural design, with the objective of meeting residents' needs to develop design strategies that could be adaptive and inclusive. Furthermore, re-assess the impact of community activism on sustaining social infrastructure operations induced by socialisation. In the contemporary Chinese urban context,

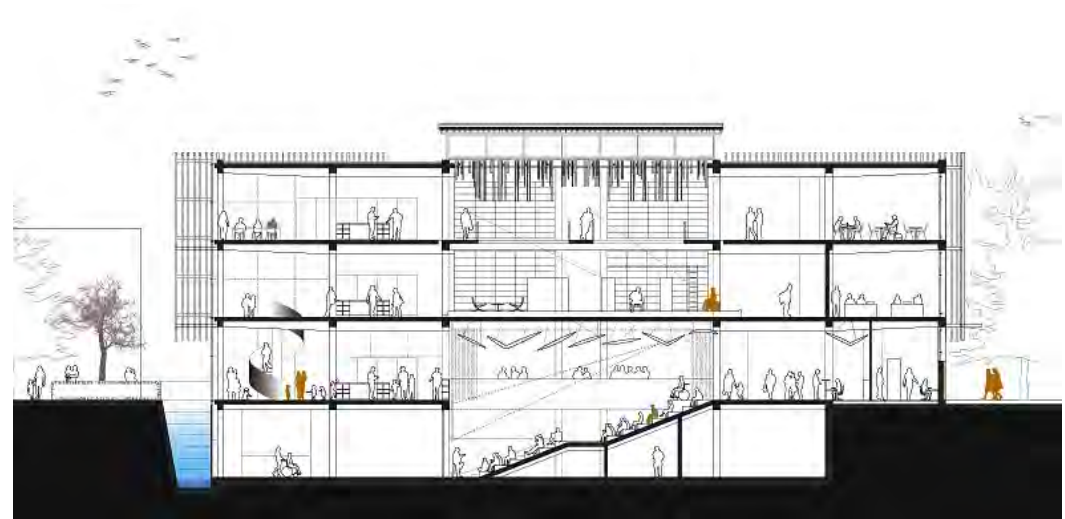
whether infrastructure is designed and managed could refer to the social-spatial logic of this paradigm. Explore a future vision of inclusive and sustainable urban spaces by claiming and defending more diaspora powers for the underclass in their everyday life. And further redefine the role of informal residents as active citizens and agencies in the production of space and decision-making.

Notes

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THE DESIGN OF STUDENTS' LEARNING SPACES IN ACADEMIC ARCHITECTURE

PhD Candidate: Huang Shilu - Supervisor:
Prof. Maria Fianchini



Redesigning learning spaces is a growing trend in schools and universities. Future Learning Spaces (FLSs) integrate complex thinking, advanced learning science, and technology to transform educational settings. However, spatial design in academic architecture remains under-researched. This project aims to establish a theoretical framework for students' learning spaces in academic architecture by using mixed methods to explore design strategies and solutions. It will provide architects with effective design references and lay a foundation for multidisciplinary collaborations.

Learning transcends traditional classroom settings, happening through various interactions and environments, both physical and virtual. Spaces play a crucial role in shaping learning experiences and fostering collaboration or isolation. Nowadays, higher education is witnessing a shift from an “instruction paradigm” to a “learning paradigm.” This shift recognises the impact of “built pedagogy” on teaching methods, moving away from the traditional views of separating space and learning into distinct categories. Academic institutions are reevaluating learning environments as student-centred designs both on and off campus. The evolution of technology has shifted the focus from physical to digital spaces; emerging technologies like online communities and mobile devices redefining learning environments as more flexible and adaptable. Future Learning Spaces (FLSs) are pivotal in this evolution, blending disciplines such as Education, Psychology, Sociology, Computer Science, and Architecture. While architecture is essential in shaping the interior environment, layout, functionality, and usability, the focus in designing learning spaces often prioritises technology and pedagogy. Furthermore, learning spaces extend beyond campus boundaries to include internal and external workplaces,

homes, cafés, and even moving vehicles, underscoring the diverse needs and experiences of students. Despite growing recognition of the relationship between learning spaces and students' experiences, empirical evidence remains limited. Prompted by the “built pedagogy” turn, digital technology, and a holistic view of learning, contemporary learning space design challenges architects to reassess students' needs and experiences. Architecture serves as a place for learning behaviours, yet impressive new buildings and creative designs do not guarantee effective learning experiences on their own. What are the requirements of learning spaces in academic architecture? How can architects contribute to enhancing learning experiences through spatial design? A four-stages approach is organised to address these questions comprehensively. In the first stage, a series of literature reviews related to learning spaces will be explored to identify theoretical issues, design approaches and solutions. In the second stage, lots of case studies of learning spaces will be selected and examined thoroughly on spatial analysis. In the third stage, on-field research will evaluate selected learning spaces. Observations, questionnaires and interviews will be used to collect data. The fourth stage aims to develop a

Academic architecture, Learning space design Learning experience

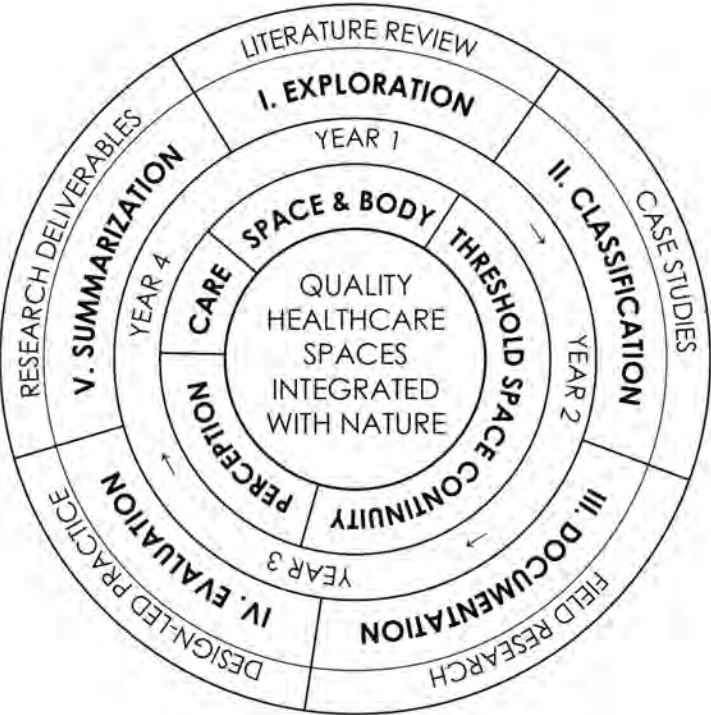
theoretical framework for the design of
students' learning spaces.

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COMMUNITY-BASED ARCHITECTURE FOR THE ELDERLY: TOWARDS THE INTEGRATION OF HEALTHCARE SPACES WITH NATURE

PhD Candidate: Lin Zhihang - Supervisor:
Prof. Stamatina Kousidi



The research on care and concepts of nature has gradually become an integral part of the architectural discourse and practice against the backdrop of ageing, drawing attention to the point of quality spaces and guidelines. This project focuses on the design of community-based healthcare architecture for the elderly through attention to integrated landscapes, aiming at defining design principles, tools, and processes that could serve as a guide for future projects.

The following issues are explored: How do we redefine quality healthcare spaces in a community context? What are the present forms of community healthcare facilities? How can we establish an effective design framework for the spaces of community healthcare through the integration of buildings with nature? To answer these questions, the design-driven approach will be applied in the project, following the hypothesis that integrating nature into community-based healthcare architecture may lead to a definition of better-quality living spaces for the elderly on functional, social, and biological levels.

The research project is organised into five phases. In the first phase (exploration), a collection of state-of-the-art literature linked to healthcare architecture and nature integration is systematically explored, followed by an introductory narrative analysis of a typical description concerning the etymology and notions of “care,” “biophilia,” and “community health” (Lange and Schaad 2023; Murphy, Mansfield, and Barber 2021; Wilson 1984). In the second phase (classification), specific euro-centric case studies are selected and classified in a Case Study Abacus, referencing the categorization illustrated by Feddersen and Lüdtkke (Feddersen and Lüdtkke, 2017). Case study analysis examines three thematic categories and generates comparative plans of “in-between space,” “building

envelope,” and “promenade.” In the third phase (documentation), a series of experimental field studies will be conducted, integrating the results of observation, onsite documentation, and design-led analysis. The field research projects will include both historical projects (1900-2000) and contemporary projects (2001 - present). In the fourth phase (evaluation), a practical project will be conducted and serve as a test case and real-world application, which aims to help generate the definition of quality healthcare space and formulate design standards under a variety of scenarios in community-based healthcare architecture. In the fifth phase (summarization), a set of research deliverables will be produced and optimized by participating in academic conferences and seminars to ingest the latest healthcare architecture knowledge from peers and finally define design principles and tools of better-quality living spaces integrated with nature for the elderly.

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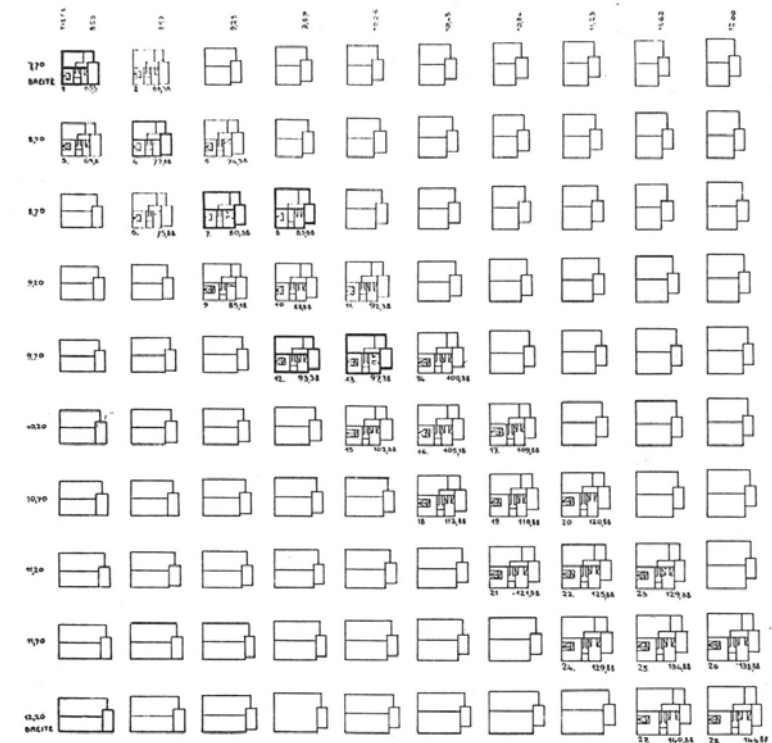
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RETHINKING HOME. LEARNING FROM EVOLVING DOMESTIC SPACES IN SOCIAL HOUSING PROJECTS

PhD Candidate: Giuliana Miglierina - Supervisor: Prof. Camillo Magni - Co-Supervisor: Prof. Fabio Lepratto

Alexander Klein, Plan efficiency comparison scheme, 1928.

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The housing crisis has increasingly taken a central position in the agendas of numerous European cities due to the escalating number of individuals and families affected by housing unaffordability.

How does, or should, architecture contribute to addressing this challenge? How are the different cities of Europe tackling the problem, and how is this reflected in terms of architectural design, read through the lenses of sustainability, aesthetics and inclusivity?

European Union policies have aimed to address these intertwined challenges through a series of initiatives advocating for a more comprehensive and holistic approach to the housing issue. Initiatives such as the Green Deal, the Affordable Housing Initiative, and the New European Bauhaus emphasize sustainability, energy efficiency, and the reduction of carbon footprints in the built environment while envisioning enriching, sustainable, and inclusive housing for all, blending design with innovative and adequate forms. As a result, over the years, various European cities have effectively delivered innovative housing projects through what can be considered specific and different approaches. For instance, non-profit housing cooperatives in Zurich are pursuing an alternative approach by producing decommodified housing, integrating social aspects and innovative typological solutions. (1) In Vienna, public-private partnerships have produced social housing of high architectural quality, and balanced economic parameters, (2) while in Barcelona, recent projects have been able to weigh locally sourced materials, bioclimatic architectural strategies, and non-hierarchical housing typologies. (3) On the other hand, in Milan, where the housing crisis is most acute in Italy, recent initiatives seem to lack this rounded approach.

Environmental sustainability is often reduced to technical aspects, new social models are implemented in limited instances, and innovation in typological aspects appears to be absent. The research aims, firstly, to delve into these varying approaches that different initiatives in European cities are carrying out through the lenses of the core values of the New European Bauhaus (sustainability, aesthetics and inclusiveness) and how these affect and translate into architectural design. However, it will also try to underpin the challenges and the possible contradictions in doing so, examining best housing practices. Secondly, shifting attention to the case of Milan, the research will seek to understand why, if really so, Italy seems unable to tackle these challenges and translate them into innovative architectural projects and what could be the reasons behind this. Ultimately, it will propose a comprehensive set of potential strategies and recommendations to move forward.

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This chapter collects the presentations of the work in progress of the Architectural Urban Interior Design doctoral program candidates focusing on the “Commons” theme.

The candidates are in different stages, comprised between the 35th cycle (beginning in 2019) and the 39th (beginning in 2022). Here is the list of the candidates with their cycle:

35 Pablo Gamboa
36 Marianna Frangipane
36 Zhu Liheng
37 Ai Cheng
37 Francesca Ripamonti
37 Arianna Scaioli
37 Yona Schreyer
38 Francesco Airoidi
38 Raffaella Cavallaro
38 Chen Tianqin
38 Michele Porcelluzzi
38 Ren Yuwei
38 Shen Likun
38 Yang Qianqian
38 Zhou Yuhang
39 Babar Khan
39 Li Dongni
39 Huang Shilu
39 Lin Zhihang
39 Giuliana Miglierina

The epigraph at page 17 comes from: Illich, Ivan. “Silence is a Commons”. *The CoEvolution Quarterly* (Winter 1983), 1–6..

ENVIRONMENTS

ENVIRON- MENTS climate design

Bataille conceived of a kind of thermodynamics in reverse. In his view, because the sun's energy is in a state of superfluity, we are condemned to an ever-increasing overproduction, and it is this cosmic

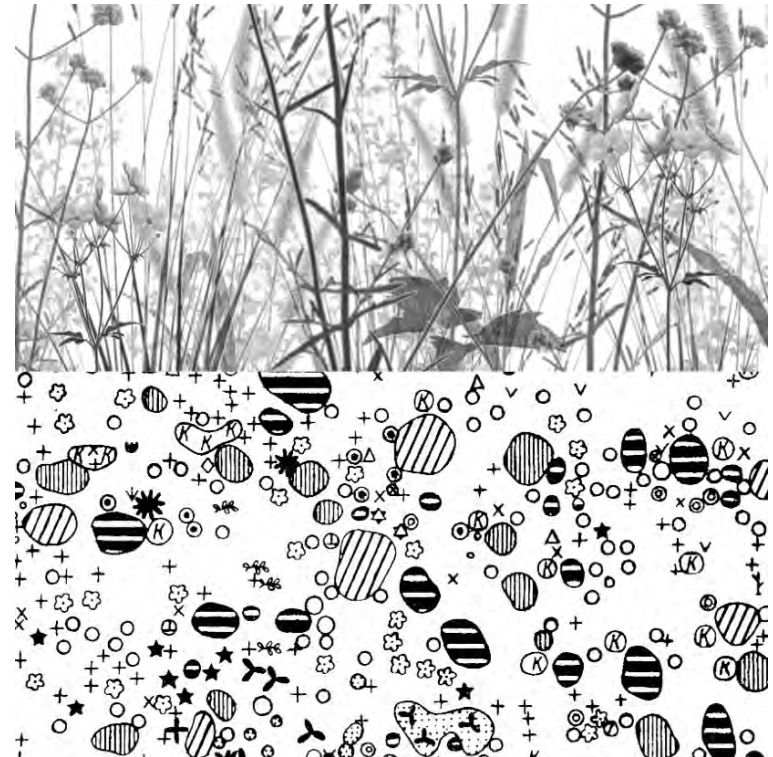
imbalance that is at the root of the cyclical character of certain regulatory mechanism - like war - that are activated by a buildup of unspent energy. (Yves-Alain Bois, 1996)

WILD GARDENS. AN INVESTIGATION INTO CONTEMPORARY PLANTING DESIGN

PhD Candidate: Silvia Mundula - Supervisor: Prof. Alessandro Rocca - Co-Supervisor: Prof. Annalisa Metta (Università di Roma Tre)

Silvia Mundula, the composition of plant species as done by Josias Braun-Blanquet in Pflanzensoziologie, Grundzüge der Vegetationskunde, 2023.

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This research investigates how garden designers in Europe refer to wildness, both in terms of imagery and environment, using it as a symbolic, aesthetic and ecological model for designing gardens. It starts by speculating about some interpretations of wildness in landscape architecture, breaks the garden down into its fundamental components to figure out how they can be read through the lens of wildness, and then reflects on the relationship between the garden and wildness from different angles.

This research has been developed by looking at the increasing number of contemporary wild gardens in Europe, in which garden designers have referred to wildness by focusing on planting design, displaying very detailed knowledge of the plant world. In garden architecture, planting design is the phase of the project which refers to the disposition of plants, but in the last few years, it has also become a synecdoche to indicate a more specific current in garden design, which is also referred to as Naturalistic Planting Design. This is the interpretation for a wider audience of a design direction in which garden designers look at wild nature as a source of inspiration for their planting schemes. Naturalistic Planting Design is not the sole definition of this design direction, although it is the most overarching. From the 1990s onwards, this tendency has been referred to under various names in various countries, such as The Dutch Wave, The New Wave, The New German Style, The New American Garden Movement, and The New Perennial Movement.

This research refers to Wild-oriented Planting Design, to emphasize the relationship between planting design and wildness and also to recall the studies that have been done on 'the wild garden' by various authors during the twentieth century in Europe. As planting design focuses the attention

on the plants, in Wild-oriented Planting Design, wildness is primarily included through the selection and disposition of plants, recreating schemes that are typical of plant communities as they are found in the wild. Indeed, some of the common characteristics of the projects in the category of Wild-oriented Planting Design are technical and objective, such as the use of perennials, the reduction of resources and the minimization of maintenance and care. In some cases, landscape and garden designers also follow dynamic planting principles, deriving their knowledge from ecology and plant sociology.

Such choices are reflected in the design process. This can be deduced by looking at the sketches that are often created using patterns. However, some aspects of this trend, such as the aspiration to contribute to sustainable development for ethical reasons, are more ambiguous and open up possible discussions, as they are based on questionable choices, such as the preservation of local vegetation, the increase of biodiversity or the propaganda for an ecological aesthetic. Indeed, this thesis aims to explore the unclear and more equivocal aspects of Wild-oriented Planting Design in contemporary gardens. In addition, several possibilities appear when speaking about the wild and wildness in garden architecture, increasing possible

Garden Wildness Planting Design

vagueness. Gardens can include wildness in their design on different levels: symbolic, environmental, behavioral, and programmatic. This variety also regards planting design, as, for instance, the design of wild plant communities is a practice that is situated between symbolic and environmental levels. However, it also requires a specific approach to maintenance, influencing people's sensitivity to nature.

This research aims to explore the design principles and practices, as well as the cultural references of a certain direction in planting design, by examining the architecture of selected wild gardens. The focus of this research is on European gardens; however, as some theoretical issues have been addressed very clearly by specific American authors, there are a few exceptions. These exceptions include the idea of Hypernature, which has been used by MVVA in many of their projects, and the debate around the relationship between ecology and aesthetics within landscape architecture. It started with the influential book

Design with Nature by Ian McHarg, published in 1969 and addressed from the 1980s onwards by authors such as Catherine Howett, Anne Whinston Spirn, Louise Mozino and Elizabeth Meyer. In Europe, beyond the theories defined by the writing and practice of authors from the Counterculture, Joachim Wolschke-Bulmahn's book *Nature and Ideology* (1997) constitutes a fundamental driving reference for this research.

This thesis is divided into three parts, which analyze the design of gardens with wild-oriented planting design, cross-checking theoretical themes with practical issues. The first part provides the framework for the terms of investigation - the wild and the garden - and defines some precise interpretative angles. The second part examines the theories which create a basis for a critical point of view on contemporary planting design. The third part analyses nine selected case studies to speculate on broad and extensive themes. This part aims to analyze design issues, which have been partially addressed in the previous chapter, starting with an analysis of certain meaningful gardens on the various levels of the symbolic, the environmental, the behavioral and the programmatic. As emblematic examples, these gardens represent a practical opportunity to speculate on certain themes, such as the difference

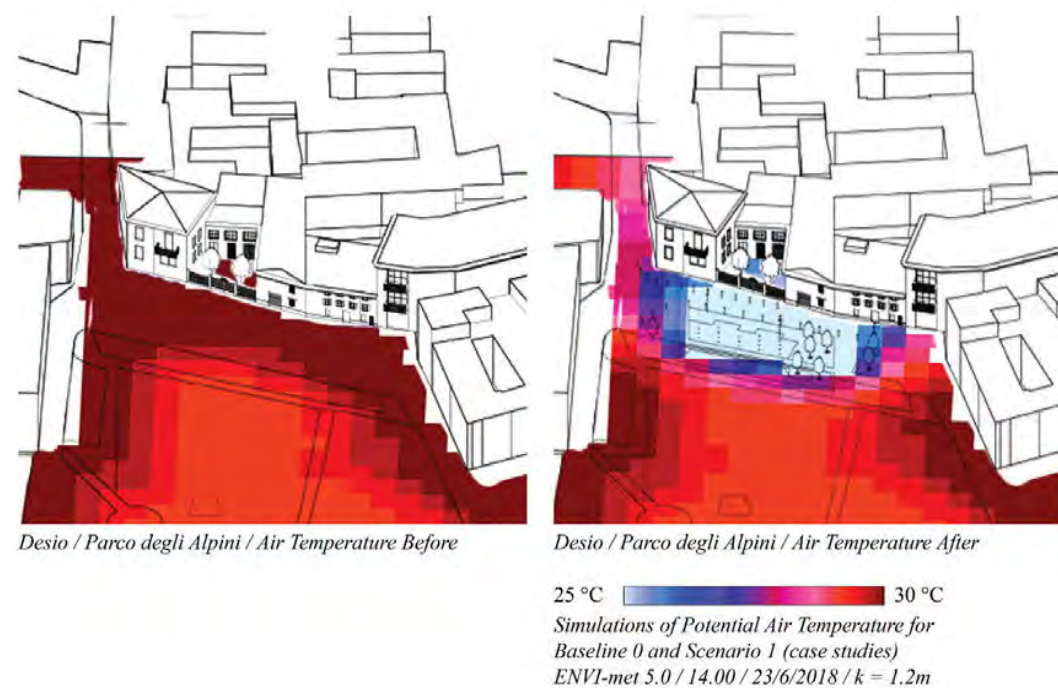
between natural and naturalistic, the reasons to preserve native plant species, the choice of promoting biodiversity, the importance of understanding how plant communities behave spontaneously, the role of a conception of beauty which adheres to ecological principles and so on. In fact, science has taken over this subject, although both scientific analysis and artistic intuition are necessary to create these kinds of gardens. The conclusion of this research demonstrates a connection between the importance of connecting landscape architecture and nature, as well as wild oriented planting design, which could be interpreted as a reply to the challenges posed by environmental change. Contemporary garden designers, indeed, consider new fields of action by looking at ecological and agricultural notions and, therefore, contributing to sustainable development.

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THE EVAPORATIVE CITY. GUIDELINES ON BIOCLIMATIC URBAN ADAPTATION AND REGENERATION USING WA- TER

PhD Candidate: Mariana Pereira Guimarães
- Supervisor: Prof. Valentina Dessì



Climate change's global and local nature forces us to think on multiple scales. On the macro scale, several theories, such as urban metabolism, help advance systemic notions of sustainable cities. On the other extreme, in buildings' design and performance, much effort has been put into making buildings smarter, biophilic, and healthier. The scale in between, the neighborhood, remains an unexplored topic. It provides a fertile ground to test innovative synergies in a design-driven approach. It calls to investigate design solutions, envision hypotheses, propose, and test.

Climate adaptation in cities is one of the most significant challenges for the future: it requires immersively envisioning rapidly shifting future urban environments that will be hotter, drier, wetter and even colder at times. It deals mainly with the space between buildings, with air and atmospheres or the unbuilt, which requires an extra effort to be visualized. Additionally, the window for implementation of responsive solutions that can be ready when needed is rapidly closing as global warming intensifies. According to the European State of the Climate 2019 Report (Copernicus Climate Change Services), temperatures in Europe were the highest on record in 2018. Numerous June and all-time daily maximum temperature records were broken at individual stations. In late July 2019, all-time records for daily maximum temperatures, broken by the heatwave just the month before, were again surpassed, and each summer since, they have been advertised as the hottest on record. Heat loads from heat waves can be exacerbated by the urban heat island (UHI) effect in urban centers. The UHI effect is the difference in temperatures inside the city and the surrounding rural or less built-up areas. Negative impacts of urbanization, such as the production of extra heat from human activity from transportation and industrial activities, together with altered

physical and chemical properties of the atmosphere, the impermeabilization of soil surface, and the intense use of concrete, steel, glass, and bricks in buildings, (without adequate green covering by trees and vegetation) intensify the UHI phenomenon. European cities that accumulate centuries of history in heavily built and dense urban plans are particularly vulnerable to quick environmental change. The increased summer temperatures will have high health, social and economic impacts and significant energy penalties due to the higher use of air conditioning inside buildings. Higher energy consumption means more greenhouse gas emissions and more heat expelled in the external environment as an output from indoor artificial cooling in a vicious cycle. To address this, the network of external public spaces can play an essential role in decreasing urban outdoor temperatures. Adapting city spaces should be a priority to enable all to use their ecological and social spaces. Undoubtedly, climate change is a global phenomenon, a “hyperobject” massively distributed in time and space (1), but people tend to connect to what happens at their local level, be it in their neighborhood or city. With abundant and accessible information from credible sources, one would expect a broad understanding and agreement about the climate crisis upon

Water Neighborhood Microclimate

us. However, that is not the case, and the government's action is unfortunately very slow. Thus, urban life becomes a key component to start a conversation about environmental impacts in this new era of the "Anthropocene" and to subsequently rethink what it means to habit, to be part of the environment (and alter it), and the many relationships between human and nonhuman life. The city in the Anthropocene demands that it is seen from the large to the small scale: alleviating extreme heat or managing floods requires solutions that happen on the microscale of buildings, courtyards, and squares, such as the de-paving and reclamation of every possible space—not only to address the issues posed but to also move towards a new *commons* at the ground scale (2).

Designs and plans delivered now by design, planning, and engineering must incorporate a microclimate-sensitive approach that can respond to shifting extremes. On the other hand, there is a renewed interest in cities' public spaces

and how they can respond to an offer after the Covid-19 crisis (3). At the local level, municipalities had already started to identify short- and long-term actions to mitigate climate change and adapt the urban environment, often in the form of climate or resilience plans but also as direct interventions in the public spaces or approaches to its re-design (4).

On the academic side, although part of everyday culture, little is studied about the contemporary potential of water to revitalize spaces to create cool islands, such as misting systems, evaporative cooling of facades, jets, fountains, water walls, etc., concerning the immediate surrounding urban fabric and when applied broadly in the city (5) (6). These interventions also have social and urban ecological co-benefits such as stormwater infiltration and storage and provide a respite to citizens during heatwave events—instantly generating space livability under unbearable thermal conditions. Besides being a powerful tool for transforming urban spaces into new commons and its role in promoting the "Right to the City," as proposed by David Harvey (2008), water has several advantages as a natural cooling technique. Energy is needed to convert liquid water to vapor, which comes from the water and surrounding air, resulting in cooler air and water. Regarding cooling principles and physics, urban water cooling can be

divided into three main groups: ponds or water bodies, fountains, sprays, jets, and misting or fog systems. The way citizens interact with urban waters and thus experience such principles can be divided into nine verbs: to swim (on), to perform (on), to transit (through), to shelter (in), to sightsee (to go see and be seen), to manage (store, infiltrate, conduct), to play (with), to listen and to contemplate. Five projects constitute the preliminary steps in the research, and one of its products is a catalogue of case studies containing a study of the project and the microclimate benefits provided by the water cooling features. An example is the regeneration of Largo degli Alpini in Desio, north of Italy, by the office Openfabric. This project incorporates water jets in a reclaimed public space that once was a parking lot.

Fountains are remarkable elements in several cultures and carry enormous symbology. Nowadays, they have become key elements in urban revitalization because of their seasonal multifunctionality. How they are now conceptualized is key to achieving more sustainable urban water management. The announced climate crisis is widely advertised, but it is surprising how little the design discipline, especially the design of cities, is devoted to thinking about the way architecture interacts with and influences climatic processes such as

evaporation. Water cooling using water vapour is very effective on a small scale. Nevertheless, it can be a remarkable tool in creating cooler and more livable outdoor spaces. On the city scale, the UHI analysis is important for mapping heat-vulnerable areas that can benefit from these interventions. Still, heat, especially during heatwaves, threatens the whole territory and those that are vulnerable to it. It is more interesting than guaranteeing a minimum distance to cool spaces of a minimum square meter range, such as 200-2,000 m² (7), that could accommodate both resting and leisure activities inside and constitute a new urban oasis in the face of extremely hot summers.

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PARK CITY. AN ALTERNATIVE URBAN FORM

PhD Candidate: Hailong Chai - Supervisor:
Prof. Maurizio Meriggi



This research proposes a new park city form from the perspective of rural settlements and through morphological analysis. The Urban-rural Continuum theory guides the research and takes the Linpan settlement (a typical settlement landscape in the Chengdu plain area) as the research object. The research proposes a pedestrian community model with Linpan settlement as the core, hoping that it will become a template for future park city construction to protect traditional topography and cultivated land and avoid the traditional Urban-rural continuum structure from being destroyed.

China's urbanization is realized through the construction of new cities, and China has begun to regard park cities as a new focus for exploring future urban forms. Park City is China's new exploration of Howard's Garden City concept in the context of modern urbanization. China is trying to improve the living environment by building park cities. However, the current park city planning and construction model remains based on "city + park". City builders create a new artificial environment at the expense of the original ecological base. To compensate for the park environment, not only new urban problems have emerged, but high construction and maintenance costs are also a major burden on the city. Based on this background, the research object is determined to be a new urban design strategy. This strategy is formulated based on a full study of the spatial forms and typologies of regional traditional settlements. The research area is determined to be Chengdu Tianfu New Area, which is the first demonstration area to integrate the park city concept into new city construction and has a unique traditional settlement - Linpan. The study puts forward a hypothesis that traditional settlements can be integrated with modern cities, which can not only reflect local cultural characteristics but also meet the living needs of modern cities.

The purpose of the research is to protect cultivated land resources from the erosion of urban construction, prevent traditional settlements from disappearing in the construction of new cities, and protect the unique spatial structure characteristics of the urban-rural continuum.

Methodology

The study conducted morphological research and typological analysis on the Linpan settlement, analyzed the traditional settlement spatial organization form, ecological space, and the relationship with the terrain, and applied this law to the urban morphological design of the park. The urban-rural continuum theory is a model of the natural growth of traditional Chinese villages and towns discovered by the American scholar Kenya through the laws of traditional Chinese market gatherings (a form of rural transactions). This theory points out that traditional Chinese towns can be divided into general towns and high-level towns. They are related to population and economic development, and their distribution is closely related to topography and transportation.

This continuum is a special form of close connection between urban and rural areas in China. Because the theory of urban-rural integration is closely related to local traditional culture, it is used in the field

Park City

Urban-rural Continuum

Vernacular Architecture

of architecture and has important guiding significance for the study of vernacular architecture and urban form. The research focuses on the Chengdu Plain in China, taking the traditional Linpan settlement as the research object. Linpan settlement is a characteristic rural settlement landscape that evolved from the long-standing farming culture. Linpan refers to a micro-ecosystem that has outstanding performance in the combination of natural and artificial environments. The study conducted morphological research and typological analysis on the Linpan settlement, analyzed the traditional settlement spatial organization form, ecological space, and the relationship with the terrain, and applied this law to the urban morphological design of the park.

Design Strategy

1 - Respect the original landform and traditional settlement mechanism; maintain the original urban-rural continuum. Tianfu New Area is located

in the southern part of the Chengdu Plain and has a typical shallow hilly landform. The design was based on the original shallow hilly landform, and the site construction and design were carried out according to the location of the traditional settlement. Cultivated land and sloping land are preserved to create a natural landscape with rich layers.

2 - Pedestrian community scale, implanting urban functions into rural communities. Traditional settlement production and living spaces maintain good walking accessibility. The new design strategy continues this accessibility. At the same time, public service supporting functions such as businesses, offices, schools, and hospitals in the city are implanted into new communities to meet different life needs.

3 - Small-scale buildings to build courtyard-style building communities. We researched and analyzed the scale of traditional buildings and retained the original scale to better adapt to different terrains. We retained the scale of the original small-scale buildings and combined them in the form of courtyards.

4 - Design the residence with the concept of a “vertical courtyard” to build a diversified living experience. Three types of residential buildings with low, medium, and high intensity are designed. The traditional horizontal courtyards are processed vertically, and the public

courtyards are retained to meet the social needs of the neighborhood. Design a private courtyard to meet the needs of modern life.

5 - Continue the traditional vernacular architectural design language and use traditional building structures and materials. Based on the main load-bearing structure of the building, a large number of bricks, tiles, and wood are used as space division and decorative materials, which is not only low-carbon and environmentally friendly but also promotes the inheritance of traditional architectural culture.

This design case is located in the Tianfu New Area planning area. Traditional settlements have been demolished, but new towns have not yet been built due to investment reasons. Therefore, the design abandoned the original square grid road network planning and instead carried out urban design on the site of the original demolished settlement.

The maximum height difference in the area is about 35 meters, and the design considers using a platform type for the building layout. While controlling the size of the community, a pedestrian path was designed to connect the four communities. Residents can engage in agricultural farming on the site, retaining their original production methods. At the same time, some areas have developed into urban agriculture, and urban

residents can participate in agricultural experience activities. The courtyard is surrounded by five to six buildings, and residents can conduct social activities in the public courtyard. Each courtyard is equipped with commercial facilities and office facilities, and residents can share these facilities to work and shop nearby. This urban form is different from the traditional centralized, high-density urban form. It retains traditional production methods and introduces the urban lifestyle, preserves the high-quality ecological environment of the countryside, and forms a modern urban form.

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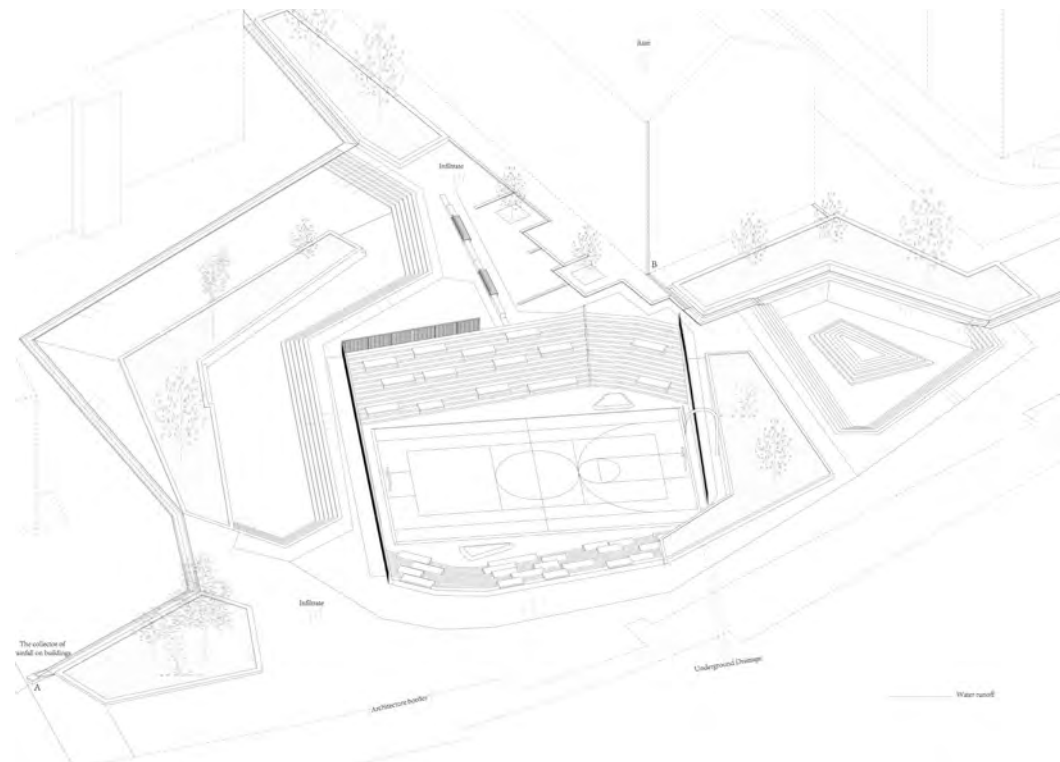
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DIVERSIFYING DESIGN OF WATER-ADAPTIVE PUBLIC SPACES IN HIGH-DENSITY URBAN AREAS: INSIGHTS FROM HONG KONG

PhD Candidate: Jiaxi Li - Supervisor: Prof. Andrea Oldani

Jiaxi Li, Diversifying designs of water-adaptive public spaces in high-density urban areas: Insights from Hong Kong.

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This research tackles the trend of homogenization in the design of Water-Adaptive Public Spaces (WAPS) by developing diverse and context-specific design approaches. It positions WAPS as a distinct academic category, and through a thorough typological analysis, this study categorizes various design prototypes based on their unique spatial characteristics. The findings present a diversified approach to WAPS design and deliver insights that can inform broader climate adaptation strategies, serving as a reference for other design initiatives.

In recent decades, the increasing severity of water-related issues such as floods and droughts linked to climate change has driven the integration of innovative water management solutions into urban design. These solutions encompass Integrated Urban Stormwater Management (IUSWM) approaches (e.g., Best Management Practices (BMP), Sustainable Urban Drainage Systems (SUDs), Water Sensitive Urban Design (WSUD)), as well as Blue-Green Infrastructure (BGI) and Nature-Based Solutions (NBS), etc. Consequently, public spaces have attracted growing attention due to their potential for effective water adaptability, leading to an increasing number of projects focusing on the development and retrofitting of these areas to enhance their capacity to handle water-related challenges. However, a prominent issue emerging is the trend toward homogenization in the design of these water-adaptive public spaces (WAPS), which may reduce their effectiveness and compromise their distinctiveness. Homogenization in WAPS is widespread in high-density cities worldwide, often resulting in standardized designs that overlook local socio-cultural and environmental contexts. This standardization, while simplifying maintenance and design, causes these spaces to fail to resonate with local

communities, thus losing their unique identity. This study focuses on the past decade's development and retrofitting of WAPS in high-density environments, analyzing the uniform design approach and emphasizing the importance of diversity and contextualization in climate-adaptive design.

The root causes of homogenization include globalization, mass culture, and detachment from local identities, leading to uniform public space development. Other factors include urban development pressures from late-stage capitalism, which demand efficient space use at the expense of natural settings, and widespread reliance on standardized practices that overlook site-specific characteristics.

Additionally, the influence of standardized international policies and the imitation of benchmark projects contribute to this trend. Addressing this homogenization is crucial for preserving the unique qualities and continuity of places and fostering vibrant, inclusive, and environmentally integrated public spaces that enhance the urban fabric and community engagement. This research also underscores the importance of site-specific water management strategies to effectively adapt urban areas to climate challenges, maintaining the diversity essential for meeting the heterogeneous nature of high-density environments.

Water Adaptation Public Space Urban Density

This study aims to address a significant gap in the current academic research by introducing a novel category in public space design—Water-Adaptive Public Spaces (WAPS). This type of design is distinct from other categories identified in existing academic studies. Furthermore, this research employs a typological approach to provide insights into diversifying homogenized designs of WAPS, particularly within high-density environments. The investigation into WAPS design is structured through a typological methodology that explores three main areas:

1. Establish a methodology for exploring potential WAPS spaces (newly built or retrofitted), especially in high-density environments: This aspect of the research identifies potential spaces for WAPS in new constructions or retrofits, aiming to enhance water adaptability more effectively in dense urban settings. Special attention is given to underutilized or neglected spaces, leveraging climate adaptation projects as opportunities to revitalize and maximize the utility of

these areas.

2. Typological study: An in-depth typological analysis is conducted on these potential spaces, extracting various design prototypes and their characteristics based on their distinct spatial features.

The transferability of these WAPS design prototypes is also examined, exploring how these concepts can be adapted to different settings.

3. Design strategies tailored to the context and diversity of each prototype: For each design prototype, strategies are formulated that are suitable for its specific environment and diversity. This includes localizing different prototypes to their respective sites by integrating specific geographic and spatial characteristics and exploring tailored design approaches that meet the site-specific needs.

The specific research content of this study focuses on Water-Adaptive Public Spaces (WAPS) within high-density environments, leveraging a design-driven research approach suitable for addressing complex, non-prescriptive issues like climate adaptation. This methodology acts as a bridge between purely cognitive activities (research) and purely operational activities (design practice). The complexity of climate adaptation challenges, which require ongoing management and innovation, makes this an ideal approach for the study.

The research utilizes Hong Kong as a

case study for high-density environments, chosen based on specific criteria detailed in Chapter 3 of the methodology section of this study. The research is structured around three primary objectives:

Objective 1: This targets the identification of potential public spaces in high-density environments that could be transformed into WAPS. These spaces are currently underutilized and exhibit the potential and necessity for redesign, along with a strong need for enhanced water adaptability. The focus here is to explore these spaces and envision how they can be reinvented as vibrant, adaptive environments.

Objective 2 is to identify the typologies of Water-Adaptive Public Spaces (WAPS) and the design prototypes within each typology. This objective aims to establish WAPS as a distinct category of public space. It involves conducting individual studies on various typologies and prototypes, formulating specific water-adaptive design strategies tailored to each.

This detailed investigation into different WAPS typologies serves to enhance understanding of how these spaces can function under varied urban conditions and demands. The design prototypes derived from each typology are explored to provide adaptable and innovative solutions that can be applied across different settings.

Objective 3 is about contextualising a generic prototype into a site-specific design of WAPS. It focuses on integrating WAPS into the urban landscape, emphasizing their profound interrelations and significant impacts with the surrounding urban environment, including buildings and other public spaces. Given the dynamic nature of water and its capacity to reshape spaces, addressing water-related challenges requires a broader perspective than merely direct site interventions. The fluid nature of water means that actions taken in one area may amplify risks elsewhere, necessitating a deep understanding of each site's unique environment and its complex relationships with adjacent urban structures. To this end, two sites are selected for comprehensive analysis to explore diverse design strategies for WAPS.

Through these three research directions, this study deconstructs WAPS as a new type of public space, constructing knowledge about heterogeneous designs of WAPS and systematically establishing insights into diversifying homogenized designs in high-density environments.

GROUNDS AND ROOFS. MORPHOLOGY AND TECH- NIQUE FOR THE ECOLOGI- CAL ACTION OF ARCHITEC- TURE FACING THE CLIMATE CRISIS

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 Prof. Ilaria Valente - Co-Supervisor: Prof.
 Monica Lavagna



If nature-based solutions are increasingly present in architectural projects, a design reflection is required to understand how these elements are and could impact the morpho-typological aspects of the project. Hence, the research investigates how horizontal surfaces could become crucial in addressing climate hazards as a spatial issue.

In this context, the research stresses the need for a balanced approach between technical and morpho-typological considerations, where the theme of climate fragility is, in the first instance, a question of design.

The doctoral thesis is part of the research panorama concerning the climate crisis and its impacts on architecture. The increasing amount of research relating to this area reveals two main issues. The first links the international interest concerning climate fragilities and their relation to the project (1). Secondly, the topic casts a shadow on results and practices where the project seems to be mainly linked to technical instances or in which the rhetoric of design sustainability (2) is not reflected in the effective reduction of impacts. The latter has often given rise to generic languages, where quantification of the impacts is absent. At the same time, a technology-driven approach often configures abacuses of “solutions” applicable in various contexts, in which, in the face of their operability, a critical reflection on the spatial modifications and the impact on the relationship between project and territory (3) seems to fail.

Assuming this condition, recognizing an often ideological approach, the PhD contribution offered the possibility of repositioning the critical observation point for the issue, reflecting on the transformation of the physical space that these conditions can signify for the regeneration project of urban areas. From this, the research considered Nature-based solutions as a set of widespread and recognized strategies in

the context of adaptation and mitigation, investigating their influence on the culture of the project. Therefore, the aim is to identify the possible object of the contemporary overwriting project, where the mentioned themes could converge, concerning the possibility of re-reading a balance between naturality and minerality. Thus, the contribution reflects on the relationship that could exist between the usage of specific nature-based solutions and the morphological reflection of the project, specifically addressing the role of horizontal surfaces as elements of transformation. Here, the presence of vegetation and action on the forms of grounds opens a critical debate on the idea of a “reproduction of nature” (4) while looking at the action on grounds and vegetation as a proper form of architecture (5), shaping a possible character through the horizontal elements of the project. Hence, a critical genealogy of nature-based solutions has been considered a pivotal research momentum, through which the roots of the current tools and the cultural depth they could have in the current practice are identified. Thus, the final scope of the research is to define the morpho-typological thinking that could be the basis of using nature-based solutions in the construction of architectural and urban projects, considering them in their qualitative

Climate Crisis Grounds Nature-based Design

and quantitative impacts. Alongside this, thanks to the practical experience carried out and a series of targeted interviews, it is possible to provide a mapping of the operators and figures necessary to implement effective adaptive processes, where the very role of the architect is investigated. Paying attention to the transformation of the project, an approach strongly oriented towards the observation of design practice has been considered essential, as well as conducting, alongside the theoretical-bibliographic research, an in-depth analysis of case studies and projects. This has opened the possibility of structuring a perspective capable of identifying recurring spatial themes, the rule rather than the variation. From this, through the redrawing and schematization of these projects, the research can propose a critical position on the project, identifying the need to refocus the contemporary debate on the theme of the horizontal level of the city, where this is assumed as the physical dimension on which the project can measure itself in

re-establishing spatial relations and care for the territory. The horizontal level would reveal a privileged action plan for regenerating urban fabrics in response to climate fragilities, thus defining a renewed morphological value of grounds and crowns.

For developing this research theme, it was considered essential to establish an interdisciplinary doctoral path, weaving a close relationship between the sphere of architectural and urban design and architecture technology. Indeed, interdisciplinarity can reveal a capacity for conceiving transversal ways of interpreting reality, which need to be reformulated in the face of the growing fragmentation of knowledge. Through this preferential point of view, the research tried to identify the network of complementary relationships, allowing a more complete vision of the subject. In this way, interdisciplinarity is not a blending area between the disciplinary fields but a possible tension between them. Finally, refocusing the climate change theme means not only framing it as a problem to be solved technically or as a pure aesthetic-formal solution but as a spatial feature to be investigated ⁽⁶⁾ concerning its influence on the construction of space and its effectiveness.

Thus, the method highlights the importance of reflecting on the

architectural project, seeking the necessary balance between technical aspects and morpho-typological issues, highlighting this tension in structuring a future-oriented thought of urban transformation. Here, the architectural project is a methodological instrument of knowledge and transformation, through which it is possible to act on the horizontal level of the city, rethinking urban and artificial soils, where the theme of climate fragility is, in the first instance, a question of design ⁽⁷⁾.

Notes

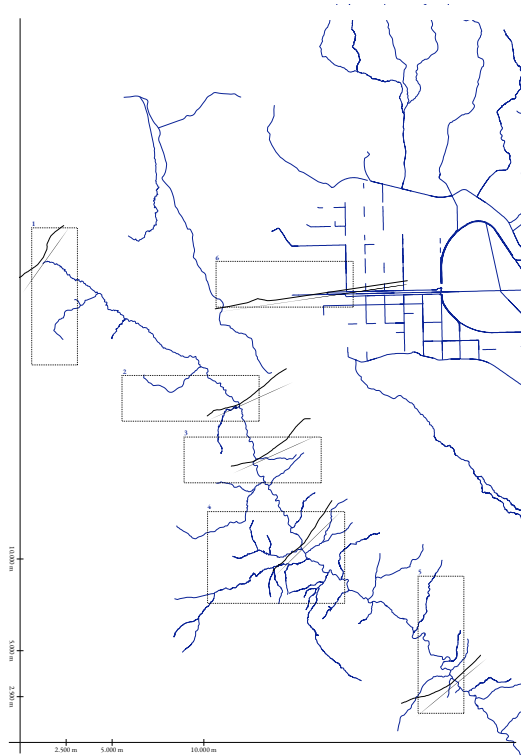
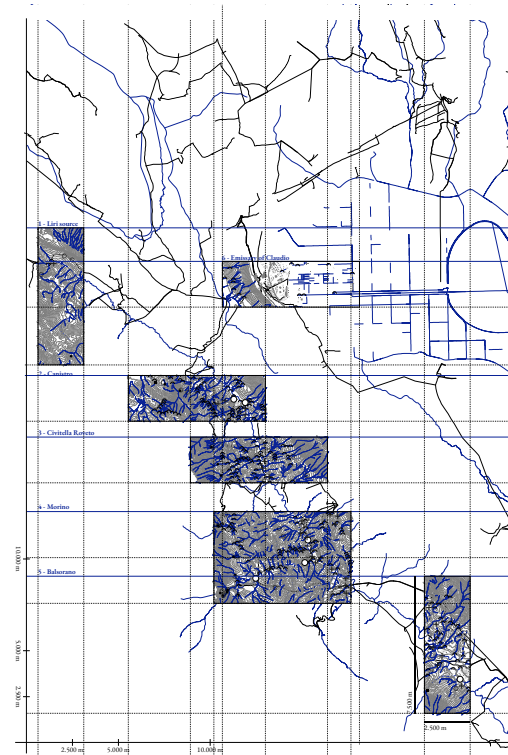
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HYDRAULIC INFRASTRUCTURE OF LIQUID LANDSCAPE. REGENERATION PROCESSES FOR ROVETO VALLEY

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Giulia Azzini, Transects analysis in Roveto Valley, 2024.

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The research investigates design strategies for hydraulic infrastructure in mountain areas: driving force behind the development of these places, this heritage is barely integrated with the landscape and the communities it supports, while suffering from the global warming consequences. Analyzing the Roveto Valley, the research proposes a design-driven methodology based on three approaches: adaptation, reuse, and hybridization. The outcome is the identification of projects and prototypes applicable to similar contexts, fostering their regeneration.

This research is funded by an INPS Scholarship entitled “Theories and Projects for a Social and Economical Regeneration of Rural Architecture and Landscape in Mountain Areas”, whose main purposes are the reactivation of rural economy and communities and, at the same time, the enhancement of the built and landscape heritage in mountain areas.

The research started by replying to two main questions: why do research in mountain areas? And what is meant by regeneration? Concerning the first one, mountains represent an interesting research field in Italy: they occupy about 35% of the national surface ⁽¹⁾ revealing a rich historical and natural heritage but, at the same time, marked issues related to environmental risks, socio-economic opportunities, low income and productivity levels, demographic aging, and depopulation. ⁽²⁾

Within the framework of territorial fragility, the ongoing climate emergency has aggravated these conditions, intensifying the urgency of interventions for risk prevention and territorial cohesion ⁽³⁾. Concerning the second question, the term regeneration has been defined by several authors as an oxymoron ⁽⁴⁾, as it is often used in different ways and with contrasting meanings and intentions. Here, the regeneration represents the whole set of

actions aimed at addressing the causes of fragility within a territory. Design-driven research is a promising tool for achieving this purpose: architecture, working at different scales and enjoying a sensitivity that integrates the spatial perspective with the environmental, social, and economic issues of our time, can effectively respond to the needs of environmental adaptation, spatial quality, and social cohesion, which are particularly significant in fragile areas. The complexity of the themes through which to tackle a regenerative project has required limiting the research to a specific architectural topic: hydraulic infrastructure, the driving force of the economic-productive dynamics of the mountains. Conceived as a cross-scale system of interconnected architectures, it has been divided into three different scalar categories: the territorial scale networks, the architectural scale facilities for connection, distribution, and water control (on which to focus the research), and the minor scale facilities for the water supply.

Nowadays, this heritage faces two essential problems: on the one hand, it suffers from global warming consequences, representing a critical node in the contemporary discourse on water resource management and mitigation of the climate crisis’ effects; on the other, it seems barely integrated into the landscape and excluded from the social

Hydraulic infrastructure Mountain areas Regeneration

dynamics of the communities it supports, often resulting in hidden artifacts scattered throughout the territory. Considering infrastructure as a connective system ⁽⁵⁾, and water as a collective resource around which the interests of mountain areas revolve, the research investigates design strategies for hydraulic infrastructure: the latter represents both the lens to understand the mountain landscape, and the tool to foster regeneration processes.

The study begins by examining the relationship between hydraulic infrastructure and the “liquid” landscape. This term was coined by Zygmunt Bauman to describe the modern condition: a state with a dynamic and provisional nature, characterized by the dimension of uncertainty ⁽⁶⁾. Initially employed in a sociological context, this concept finds further expression when applied to mountain areas, highlighting their transient and unstable character. Furthermore, “liquidity” evokes associations with water, a vital resource

and a potential peril for these places: the worsening of climatic conditions leads to increasingly frequent and violent phenomena, with serious consequences for land, people, and infrastructures. Thus, this term intersects the traditional fragilities of the mountains, the water system as a collective and sustainable resource, and the issues derived from the worsening climate crisis. Furthermore, it encourages a rethinking of possible interactions between landscape and hydraulic architectures, leading to the development of a design-driven methodology based on three systemic design approaches: adaptation, reuse, and hybridization. The first involves rethinking the infrastructure both from an environmental perspective (adaptation of water collection or distribution facilities and risk mitigation works to the current changes), and from a spatial perspective (to encourage greater integration of the infrastructure into the landscape), through the collaboration between architectural sensitivity and engineering choices; the second means recycling disused infrastructure, converted into public spaces; the third refers to the integration of active infrastructure with new functions open to the community. These approaches are supported by case studies that, while treating infrastructure differently, always consider its spatial, social, and

environmental impacts. After an opening analytical phase (aimed at providing the theoretical background, the literature review, and the case studies), the research includes an experimental phase in Roveto Valley, a mountain area located in the southwestern part of the Abruzzo region: here the above-mentioned issues are deeply relevant, due to the presence of the Liri River and its tributaries, which determine the particular morphological condition of the landscape and its economic and social implications. The Roveto Valley is analyzed as a liquid landscape through the lenses of fragility, risk, water and infrastructure system, focusing on two significant areas: the Liri River, which crosses the main municipalities, and the Fucino Plain, site of one of the largest land reclamation projects of the second half of the 19th century. After identifying the main nodes of the hydraulic infrastructure at the territorial, architectural, and minor scales, and selecting some transects for the greatest concentration of different typologies, the more suitable tools to represent the complexity of this landscape will be identified. The aim is to develop design strategies for the hydraulic heritage of the Valley, supporting its regeneration. Finally, a synthetic phase aims to move from the local case, to propose projects and prototypes applicable to mountain

contexts with similar morpho-typological features: this is the outcome of the research, in addition to the production of architectural knowledge concerning an ignored heritage, reshaping the imaginary of mountain landscapes where such infrastructure is still an integral component.

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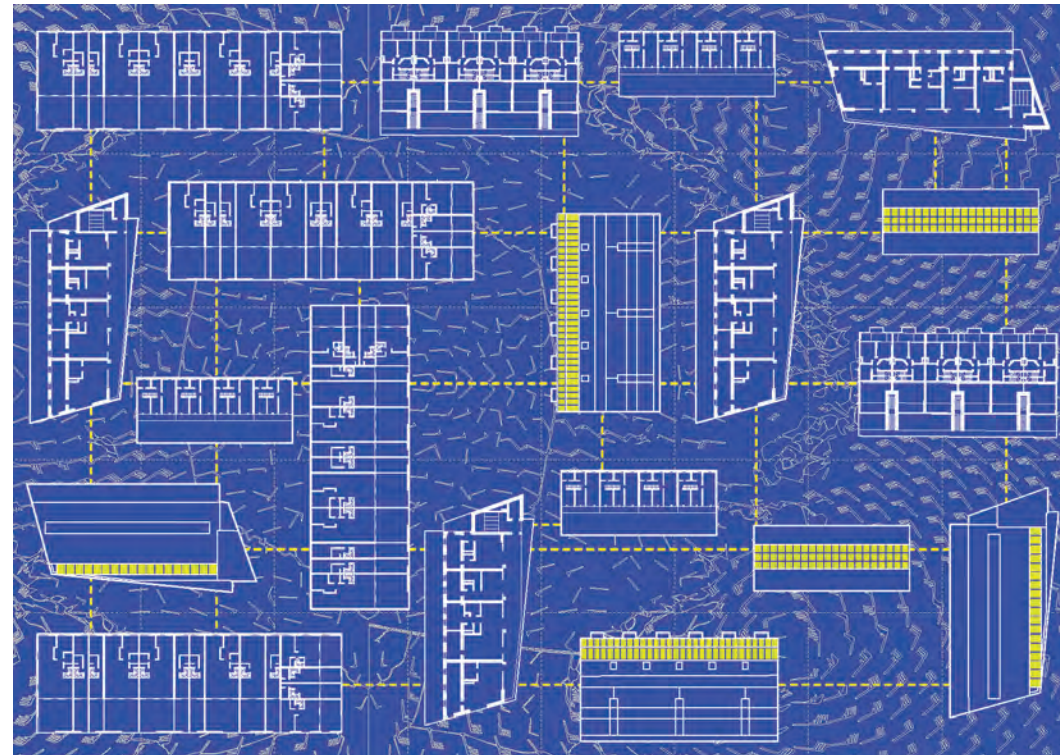
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PERFORMATIVE HOUSING FOR SELF-SUFFICIENT COM- MUNITIES

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pervisor: Prof. Alessandro Rogora

Maddalena Laddaga, collective housing energy-water grid, 2024.

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Surpassing the rhetoric of sustainable design, an ecological approach is needed to respond to the environmental crisis and the effects of climate change on contemporary society. Therefore, this research investigates how to develop energy- and water-sufficient community housing for affordable solutions, evolve traditional bioclimatic design principles, and integrate advanced methods in architecture. The results will be an innovative proposal for an information-based design process through an experimental approach at the scale of the collective housing.

Addressing the Emergencies

as recently reported in the European Green Deal project, sustainable buildings in European countries will drive to achieve decarbonization and define a clean energy system. The energy consumption is mainly produced by buildings, which represent one-third of all the EU emissions. However, “only 1% of buildings undergo energy-efficient renovation every year, so effective action is crucial to making Europe climate-neutral (net zero emissions) by 2050. Currently, roughly 75% of buildings in the EU are not energy efficient, yet 85-95% of today’s buildings will still be in use in 2050”, as reported by the European Commission (1). Therefore, it has been singled out in the EU Green Deal as an essential point to drive energy efficiency in the sector and obtain results. “Approximately 42 million people across Europe – 9.3% of EU citizens – were unable to keep their homes adequately warm in 2022” (2), as outlined in the 3rd EESC (European Economic and Social Committee) Conference on Energy Poverty.

The housing system should be reconsidered in the era of climate change and energy crisis. The sustainable solutions adopted in research are insufficient and need a more radical approach, and academic research should lead the way for the practice in the next

years, starting from our home. In fact, residential buildings are one of the largest construction segments in our cities. Barnabas Calder argues: “From the earliest building archaeologists can trace, energy has always governed architecture.” (3)

Housing and Self-Sufficiency

One of the first research phases is represented by selecting and collecting case studies of energy and water self-sufficiency housing projects. On the one hand, there are relevant case study solutions for single units from the XXth century to the contemporary age. Starting with the well-known experimental project Dymaxion House by Buckminster Fuller, to explore the mass-produced, affordable, transportable and energy-efficient house with “maximum gain of advantage from minimal energy input.” (4)

A contemporary case study project is the ‘Rambla Climate House’ by Andres Jaques and Miguel Mesa de Castillo in Molina de Segura, Murcia, Spain. The architects designed a climatic device and an ecologic system to recycle water and improve climatic conditions in and around the house beyond conventional bioclimatic solutions.

The investigation moves between single unit and collective housing, from the utopia to living alone, isolated and

Energy-sufficient Housing

Water-sufficient Housing

Collective Housing

independently, to collective solutions based on the sharing policies of services, production and systems.

On the other hand, investigating collective housing projects is more challenging; the search is based on built projects, and evaluating the efficiency of the most recent built construction cases is not easy. One exemplary case of collective housing is BedZED from 2002 in London, a pioneer housing community project designed by ZedFactory under the direction of Bill Duster. From the beginning, the project was described as a new manifesto of sustainable housing; after twenty years, this utopian approach seems to have been unsuccessful (5). Another project with a significant amount of energy photovoltaic roof production is the *Solarsiedlung am Schlierberg*, the Solar Community designed by the architect Rolf Dish in Freiburg. The mixed-use programme buildings of housing and commercial share the energy production strategy, and all the performances are based on

reducing energy needs and maximizing production. The case study analysis is based on settled parameters, mainly on environmental and sufficiency drivers to recognize the design strategy and approach proposed in every project.

Design-Driven Research Methodology

The research aims to develop a design-based methodology within an evolutionary approach to develop an architectural project for collective housing. With this premise, the research starts with a case studies analysis to list the main criteria to adopt or to be improved and then considers dwelling buildings as living infrastructures, open systems able to evolve and expand over space and time according to climate change dynamics and social needs. At the same time, using design-led methods helps to investigate the design possibilities and argue the research to answer the following questions: How could the energy transition accelerate and inform new dwelling solutions? Could the constraints about sufficiency and sharing be a paradigm for new performative housing solutions? How a climate-sensitive design approach could transform householders from consumers to producers? Could the energy and water needs be transformed into an architectural design opportunity to generate new collective

housing solutions and improve users' quality of life?

With this premise and the analysis from the above experience, the research investigates the final design in a case study project to test the design methodology, address the above questions and develop a specific design-driven research.

The design starts with an infrastructural system as a device to absorb all the energy and water facilities as an integrated solution related to renewable energy (production, stocking and distribution sharing system) and water collection (reuse system and collecting rainwater for distributing, stocking and filtering system). Taking inspiration from some Japanese metabolism principles, and the case study of the "Agricultural City" project by Kisho Kurokawa, a modular and grid strategy defines the infrastructure, and the grid becomes a generative system.

The infrastructure is a structural and multifunctional apparatus instrument that combines systems and environmental aspects, and it is applied at the community housing and cluster scale. This approach will formulate an innovative idea for energy- and water-positive communities that will share several environmental and social facilities, transforming the housing users from consumers to energy producers.

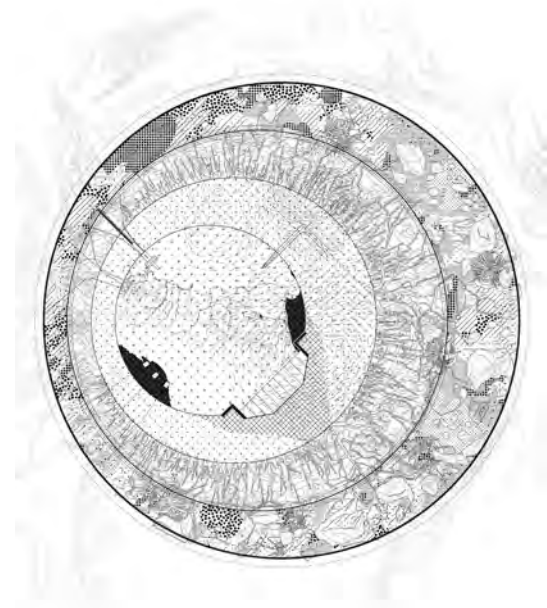
The result of the research will be a design process and an architectural project.

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AFTER THE CRISIS. COUNTERPROJECTS FOR A NEW BIOPOLITICAL ACTION: THE CASE OF THE PO RIVER

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In the current panorama defined by a new climatic regime, the research aims to comprehend the constellation of projects promoted by the National Recovery and Resilience Plan (NRRP). The study explores the entanglements between the contemporary crisis of water and biopolitics, applying the concept of cyborg landscape to the deep infrastructural space of the Po River for an investigation of future transformation scenarios for the XXI-century landscapes of water.

Moving from the line of research initiated by Mirko Zardini in his book *Dopo le Crisi. 1978, 2001, 2008, 2020*, and looking at the ongoing reality we are living, it is possible to trace a line that, starting from the oil crisis in 1973 and the publication of the report *The Limits of Growth* in 1972, opens a prolonged period characterized by uncertainty. It is an intricate journey, where the combination of multiple moments of instability draws a complex set of conditions which define the state of crisis as a new normal. Within the wider framework of the ecological crisis, the research redirects the focus towards one of the most urgent emergencies currently confronting us: the crisis of water. More specifically, the objective of the work is to shift the attention to the territory of Emilia-Romagna as a symbolic place to explore the vital impact of water infrastructure.

By examining this particular region, it appears clear that water apparatus has significantly contributed to both physically shaping and crystallize a specific landscape and, at the same time, destroying it due to an evergrowing process of commodification and capitalization of a natural resource. This process became an active catalyst for a series of extreme environmental events that radically affected the stability of the hydrological network. Water stands as the pivotal resource in the establishment

and formation of a territory, and currently, this fundamental element has entered a profound state of crisis. Historically, water has systematically structured, organized, and rationalized the landscape of Emilia-Romagna, along with its political, social, and ecological processes.

The foundational economic activities of the region have persistently relied upon water resources, rendering the Po Valley intricately entwined with hydrodynamic processes. This lays bare the crucial role of water as a dualistic and paradoxical force – concurrently constructive and destructive – in shaping the territory. Moving from the perspective of water as a constructive material of the landscape, the contemporary environmental question – defined by the urgencies of global warming and scarcity of resources – draws the line of scenery of uncertainty, unveiling a renewed wave of preoccupation with the question of life and its complex implications between space and power. That opens the possibility of reading about built space and its future production from a biopolitical perspective.

Biopolitics is conceived as a significant interpretative device to redefine the role of the space and its project, becoming a tool to understand how it can be used as a lens for the landscape architecture discipline. In the current reality, characterized by a state of crisis, the

Water Crisis

Biopolitics

Cyborg Landscape

remand of the question of life and its multifaceted dimension can no longer be ignored. Is exactly the collapse of the security and protection paradigms (Cavalletti, 2005) triggered by an increasing number of extreme environmental phenomena to put in analysis the relation between biopolitics and the Emilian waterscapes? Moving from these premises, it is clear that the question of water and its urgent crisis coincides with a risk for life itself. Furthermore, it is not possible to abstract the concept of life from its entanglements with space and power, the function of which persists in the background. Therefore, the research aims to investigate the complex relations occurring between life, space, and power of the modern hydro-landscapes of the Po River Basin, looking for a redefinition of an affirmative biopolitical action capable of shaping the spaces of water of the twenty-first century. In light of the mounting risks produced by the crisis of water, an array of overlapping and contradictory visions and projects has been activated. More

precisely, the most significant ones are contained within the National Recovery and Resilience Plan (NRRP). Although these measures seem to address the urgencies of the crisis of water, they appear to foresee a constellation of projects where nature is envisaged as a subject detached from technological and human stratifications. In this context, the research aims to expose the criticality through which these visions are founded, unveiling their inefficiency. While an idea of nature – conceived as strictly separated and autonomous from what is considered artificial (or cultural) – guides the actions of naïve processes of restoration of a so-called “primordial nature”, the thesis argues for the necessity to reflect on the question of hybridization, as an angle to describe and transform the landscapes. By shifting the premises and understanding the Emilian landscapes of water as an occasion to propose a new affirmative biopolitical project, the research will focus on the question of the coexistence of different forms of life and the complex implications with space and power, where space is intended as a design category no longer drowned in the opacity of a larger normative discourse. Through a reasoned apparatus of cartographies aimed at building a bibliography of reality (Cavaliere, Viganò 2019), the research, following the methodology of research by design, will propose a

series of site-specific counter-projects that will question the ongoing practices of landscape regeneration within the Po River. The river is here conceptualized using the definition of a natural object, proposed by Bruno Latour, able to elude the “dualistic system of western rationality” nature/culture. Moving from this perspective, the Po River is understood in its multi-scalar dimensions and multiplicity of forms, generating heterogeneous practices and diverse typologies of space which does not coincide exclusively with its physical and normative boundaries; the Po River is an invention, a biopolitical production. The rhizomatic spaces the river is able to generate widen to the industrialized and automated countryside, permeated by artificial canals, ploughed by noisy machinic bodies, and probed by robotic gears abstracting water. The perimeter of the river could correspond to a vast polished metallic roof pertaining to the intensive farming industry or to underground pipes capable of carrying water in the urban environment, domesticating water and ensuring the correct metabolism of the city. The space of the river can also coincide with the glorious and heroic architectural monuments of the dams or the brutal craters of the extraction activities excavated into the ground and scattered in the heights of the hills and mountains

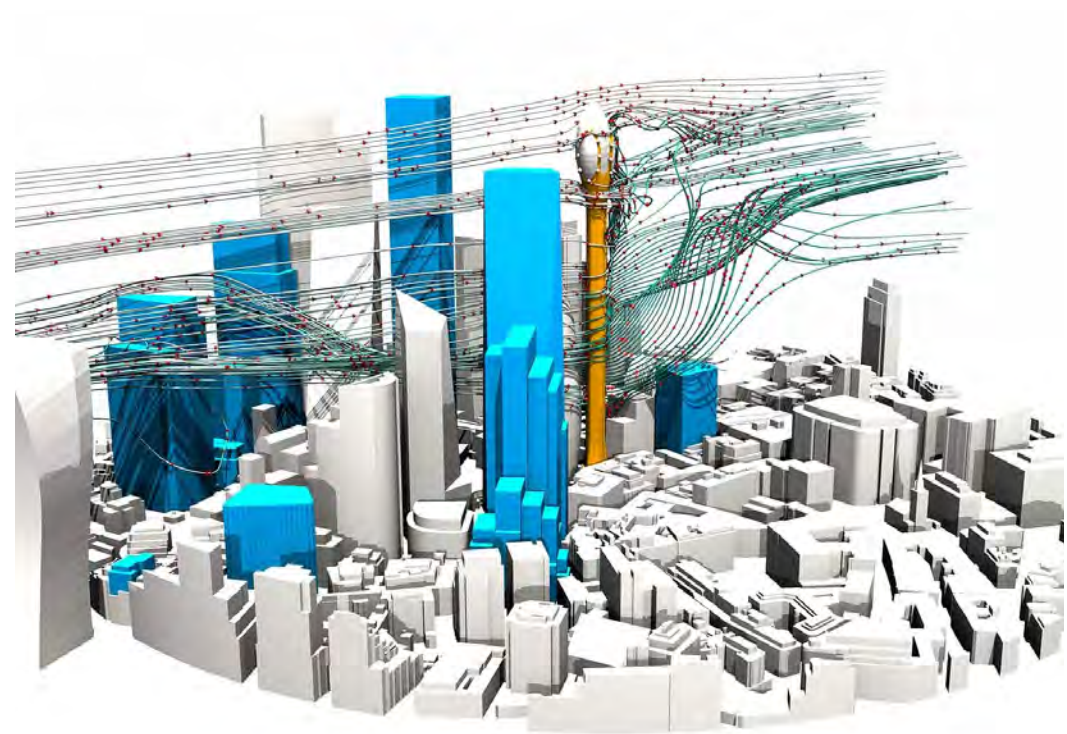
above the floodplain of the Emilian region. The complex conditions we are living in claim the need for a new theoretical and design framework able to overcome the outdated dichotomy of Nature/Culture (Descola, 2005) and to accept the hybrid status of contemporary landscapes.

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WIND-DRIVEN URBAN DESIGN- GENERATIVE DESIGN OF URBAN BLOCKS BASED ON ENVIRONMENTAL PERFORMANCE OPTIMIZATION

PhD Candidate: Zheng Wu - Supervisor:
Prof. Matteo Umberto Poli - Co-Supervisor:
Prof. Eugenio Morello



The Tulip, London – Wind Flow Streamlines showing the westerly wind impacting the building through the City of London (CoL) central cluster: Windtech Consultants, Air Flows in Urban Built Environment, 2020.

Architects try to address the deteriorating ventilation through urban design. However, the existing “Post-Assessment” model separates design and evaluation, leading to various drawbacks such as limited scheme options and optimization effects. Therefore, this study integrates generative design with CFD simulation at an early stage to construct the Wind-Driven Urban Design framework, which includes six steps: Built Environment Analysis- WDUD Prototype Development- CFD Simulation- Automatic Multi-Objective Optimization (MOO) Experiments- Summary of WDUD Strategies.

People lack understanding and application of the relationship between urban morphology and environmental performance. Thus, this study proposes the concept of Wind-Driven Urban Design (WDUD) to explore the interactive relationship between urban morphology factors and wind-comfort-oriented environmental performance indicators. This paper integrates morphological design and simulation evaluation at early stages and utilizes genetic algorithms for automatic multi-objective optimization experiments to explore a set of design solutions that meet predefined goals. Therefore, this research is essentially a generative design approach.

The core issue explored by this research is: Which factors in urban design processes affect the ventilation of blocks? Answering this question requires conducting sensitivity analysis on urban wind environments, which demands extensive sampling of urban morphological parameters and climate data. Thus, parametrized urban models are essential. Additionally, the quantification of urban geometric shapes and input urban morphological parameters should be linked to urban environments, culture, and other relevant backgrounds. The foundation of the WDUD concept lies in an assumption: there is interaction and mutual influence

between urban morphology and environment performance, primarily wind environment. This means urban morphology affects environmental performance, while conversely, environmental performance can influence urban morphology generation.

By exploring the above question and combining universal and local urban design rules, this thesis aims to construct an urban design model that connects block morphology with comprehensive environmental performance. In this context, wind environment evaluation metrics will serve as the primary optimization objectives, while thermal comfort and other environmental performance indicators will serve as design constraints included in WDUD. This model will be driven by the following questions:

- (1) What are the basic urban components that constitute urban blocks? Which indicators could be used to express these components both physically and emotionally in the WDUD model?
- (2) To what extent do these indicators influence the wind environment and other environmental performance metrics? How can we evaluate and constrain our door wind environment?
- (3) How to guide the evolution of block morphology? How do we formulate and verify WDUD strategies?

Regarding the above issues, this study

Wind Environment Generative Design Multi-Objective Optimization

proposes a six-step process from urban-scale morphological control measures to block-scale morphological design schemes, which involves Core concept definition - Built environment analysis - Design prototype construction - CFD simulation and sensitivity analysis - Automatic optimization experiment - Design strategy summary. The research focus of this paper will be on Berlin, Germany.

The first step will provide a detailed exposition of the concept and workflow of WDUD. On the one hand, the article summarizes the focus of wind-adaptive urban design and the tasks and challenges currently faced by examining and discussing the attitudes towards wind and the methods of application in urban design across different historical stages. On the other hand, based on a literature review summarizing the main steps and key aspects of Generative Design, this paper defines the concept of “Wind-Driven Urban Design” (WDUD). This stage will outline the construction

methods of the WDUD model, serving as the workflow for the subsequent research. The second step involves an investigation of the urban built environment in Berlin. Utilizing a broad definition of urban morphology and the urban design process, general design rules for constituting urban basic units (Blocks) will be compiled. Subsequently, ArcGIS software will identify urban blocks in Berlin based on the sampling method, whose basic information and morphological indicators will be collected as a method for describing spatial form features related to the wind environment and building the database of basic information of blocks. The above information, along with additional environmental performance requirements based on local climatic characteristics, will constitute local design rules for Berlin, which, together with the general design rules, will serve as constraints for WDUD to eliminate potential unreasonable solutions.

In the third step, the results from the previous step will be parameterized and used to construct the WDUD prototype based on the predetermined rules established in the first step. The offspring generated by this prototype can meet both generic urban rules and indigenous design constraints for urban morphology. Additionally, this is a batch-generation process.

In the fourth step, the research focus shifts from urban morphology study to the mechanism of morphology-environmental influence and establishment of the prediction model. Initially, wind environment evaluation criteria will be established based on relevant studies on Berlin and recommendations from local governments regarding outdoor wind environments. Then, integrating the model reconstruction process and CFD simulation process in the Grasshopper platform and using field-measured microclimate data for correction will provide sufficient samples for mining the impact mechanism between urban form, wind environment and other indicators. The fifth step will utilize generative design based on genetic algorithms to drive the iteration and evolution of the WDUD prototype, which would automatically explore solutions of block morphology that meet predefined goals and constraints. The results of the former two steps will serve as the data foundation and evolutionary basis for urban block prototypes. The final generated super solutions will simultaneously satisfy multiple optimization objectives formulated in the preceding text, providing ideal references for new area construction. Additionally, the impact mechanism analysis will be extended to controlled variable CFD

simulations, guiding the transformation of the urban built environment. The ideal solutions from the previous multi-objective optimization experiments will also undergo CFD simulations to quantify and compare the effects of ventilation improvement.

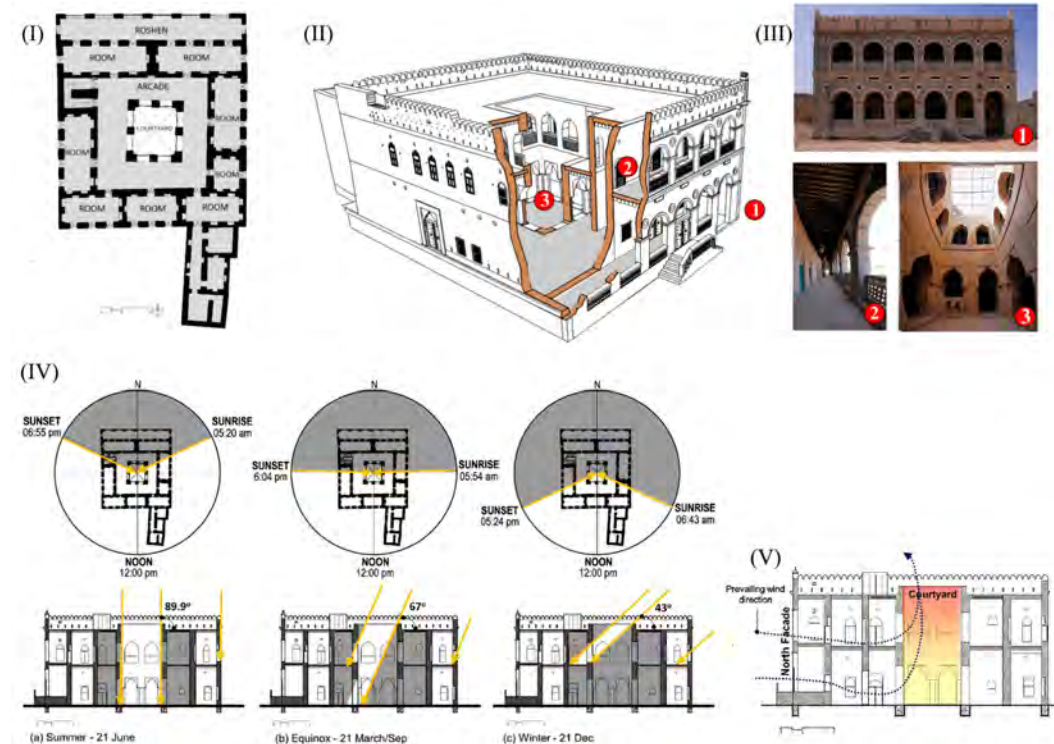
The sixth step involves expanding module design strategies based on qualitative and quantitative discussions. This five-step framework is applicable to block configuration, tree cluster, and building form to achieve the expected environmental benefits.

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SUSTAINABLE VERNACULAR ARCHITECTURE, A RESOURCE FROM THE PAST. THE CASE OF QATAR, IN HOT DRY REGION

PhD Candidate: Deema Alattar - Supervisors: Prof. Valentina Maddalena Dessì - Prof. Madhavi Indraganti (Qatar University)



Aliya Al-Hashim, Naima Benkari, and Saleh Al-Saadi, Al-Falaj house (I) Ground floor plan, (II) Axonometric view, (III) building photos, (IV) The sun position throughout the day in the house, (V) Stack effect in the house, 2023.

Most parts of the planet are experiencing the impacts of climate change, particularly overheating in the urban environments due to the combination of the urban heat island and the heat waves. The massive energy consumption, the depletion of natural reserves and the urban configuration (morphology and materials) produce high levels of greenhouse gas (GHG) emissions that are the most evident drivers of the climate change. As the impacts are evident in every climatic zone, in the hot and dry zones, the effects are amplified with a huge amount of energy for cooling.

Health risks, especially for vulnerable people, and loss of liveability and environmental comfort in dwelling and urban spaces are visible. The hot and dry climatic zones are in some parts of Australia, in the Southern part of Africa, and mainly in north/central Africa and Middle East Asia (between 15-30°Lat N). In Qatar (between 24, 5° and 26° Lat. N), the area which will be focused on the PhD research, greenhouse gas emissions are at their peak on a global scale, and residential buildings consume around 60% of the country's gross energy consumption across different sectors. Air conditioning accounts for around 50% of the electricity bill for residential buildings.

To cope with this big issue, which is destined to increase and include many other countries in the next decades, different strategies must be considered, starting with urban reconfiguration, such as slow and sustainable mobility and green spaces. The existing building stock and new development could have an important role, but a dramatic change in the design process is required. Reconsidering the bioclimatic strategies successfully used in the past to develop the built environment of the hot and dry zones, often very similar in the areas with the same climatic characteristics, could be the first step to allowing an effective synergy between climate, well-

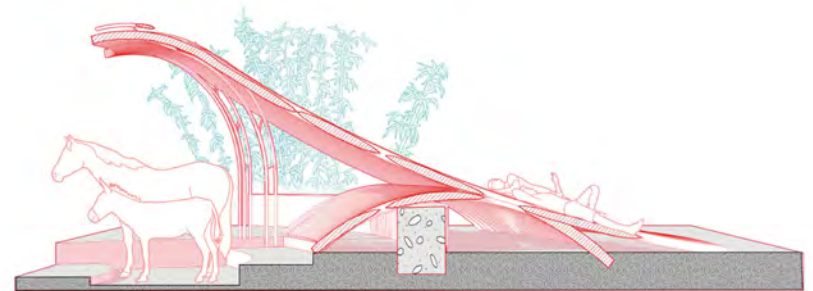
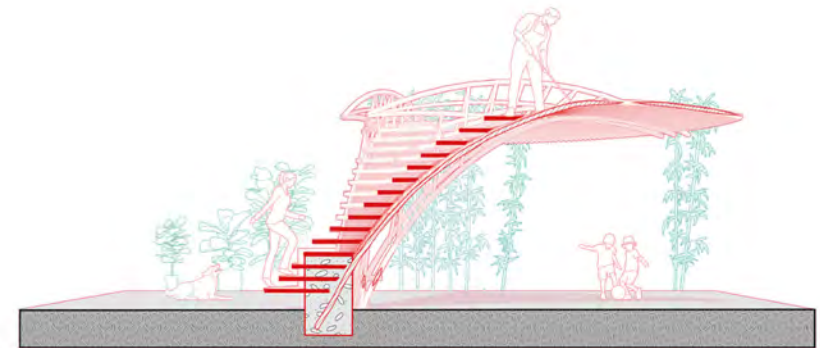
being, and cultural aspects. Vernacular architecture preserves a heritage of solutions that deserves to be deeply studied and redesigned according to the characteristics and the needs of the different places. The proposed methodology combines both qualitative and quantitative methods. Particularly, the research is approached by combining field surveys (on-site measurements) and modeling simulation. This research intends to investigate the following three objectives: (1) scrutinize the bioclimatic and vernacular architecture nuances of Qatar and its bioclimatic traits, (2) Assess the thermal behavior and energy performance of the selected case study, and (3) Propose solutions, derived by the vernacular architecture, suitable to be integrated into the modern context, to achieve more thermally comfortable, climate-responsive, and environmentally friendly residential buildings. The climate is changing and more areas will share similar climatic conditions. Methods, strategies, and innovative solutions will be helpful not only in the Qatar context but also in many other built environments, which will be able to mitigate and adapt to climate change. The expected outcomes of this research are to grasp the most influential practices of vernacular/bioclimatic architecture and suggest how these aspects can be integrated.

COUNTRYSIDE, THE NAKED LAND? A NEW URBAN-RURAL LINKAGE IN RESPONDING METROPOLITAN DYNAMICS

PhD Candidate: Dicheng Yang - Supervisor: Prof. Antonella Contin

Dicheng Yang, Fence of Wengding Village (Productivities/Public Services), 2023.

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Rapid urbanization fragments urban peripheries, challenging the traditional rural-urban binary and redefining the countryside within new metropolitan contexts. Neglect and oversimplification of countryside complexities, echoing Agamben's *La nuda vita*, strip the countryside of its cultural identity and symbolic value into the naked lands. Wengding's journey highlights MC as a tool for comprehending countryside complexities and building a new urban-rural linkage for large-scale transitions. Can Wengding's approach be formalized as a methodology and extended to other countryside areas?

"Countryside" consists of two parts, etymologically speaking: "country" from Latin "*contra*" meaning opposite or against, and "side" from Proto-Germanic "*sīdō*," meaning edge or surrounding area. These two words refer to boundaries and areas opposite the main body. Therefore, today, the term countryside is directly used to describe non-urban areas; this differs from the traditional understanding of countryside as synonymous with rural.

Due to rapid urbanization, numerous fragmented areas now permeate the urban peripheries, even in some emerging developing countries where informal expansion appears in rural areas driven by tourism. Consequently, the simplistic binary distinction between rural and urban no longer fits in today's metropolitan context. Therefore, the term countryside can better encompass the complexities of contemporary urbanization and conceptually support metropolitan dynamics co-responding to Metropolitan Goals, Issues, and Principles (MGIP).

The shadow of abandonment looms over the skies of today's countryside territories. Persistent collective neglect is one of the countryside's dilemmas; this neglect renders many people invisible individuals (1) and distorts countryside areas in public insight. Based on this collective distortion, Rem Koolhaas

describes the countryside as a blank canvas projecting everyone's intentions (2). This oversimplification of real issues separates the countryside and its own form (3) by drawing parallels with Agamben's *La Nuda vita*. Is countryside a "Naked Land?"

The Naked Land is a result of the loss of productive and symbolic connotations of the cultivated land (4) because today's metropolitan scales and measures are not able to hold the unregulated growth of the countryside nor associated with human dimensions and commensurate densities of local communities. Moreover, countryside areas also have extensive overlaps of various boundaries; the accumulation of complex boundaries forms an in-between area, as McGee calls "Hybrid territory."

Therefore, we find it challenging to define them using traditional urban/rural boundaries since they are just one aspect of this hydration (5).

The countryside's dilemmas lie in the inadequacy of traditional research methods to cope with the accumulation of fragmentation caused by rapid urbanization. These methods often neglect the vast complexities of countryside areas and add stereotypical understandings. These acts align with the definition of "naked," which disregards internal complexities and only addresses the surface of issues.

Countryside Urban-Rural Linkage Metropolitan Architecture and Cartography

The first initiative involves understanding the complexity of the countryside by researching the overlapping boundaries for redefinition. Metropolitan Cartography (MC) is a powerful tool for defining areas challenged by fragility, socio-economic inequalities, and climate change. Maps serve as crucial tools not only for understanding the countryside but also as essential foundations for communication and mediation of dilemmas. Similar to languages, the process of map-making allows cartographers to re-examine and comprehend land accumulation, akin to a form of reading; also, the MC tool produces maps contenting composition of the primitive elements guided with Metropolitan Goals, Issues, and Principles (MGIP) and transmit information into a common ground as communication (6). Nowadays, more or less all the villages inside the countryside are connected or even included in the metropolis, so it is important to map those villages and propose a virtual linkage to fully integrate

into metropolitan cities crossing the complex countryside territories (7). Thus, proposing an urban-rural linkage that connects various centers across vast regions into a network system is fundamental to preparing a common ground for future transitions. These projects aim to recognize interphase zones amongst metropolitan landscapes (urban areas, peri-urban zones, agricultural and natural areas) and design linkage patterns amongst them to create enjoyable urban spaces by redefining urban morphotypes and introducing green-grey infrastructures. Another profound significance lies in the utilization of green-grey infrastructure within urban-rural linkages. The aim of the metropolitan architecture project is to create memorable, desirable, and emotionally resonant scenes, forming a new paradigm of metropolitan urbanity to reinforce interconnectedness among places and their inhabitants (8). Therefore, the vision of this research is to determine whether these projects can help urban-rural linkages achieve a broader area of mutual bonding between places and inhabitants in countryside areas and whether these systems can be physically manifested as a new landscape within the urban-rural linkages. The first metropolitan architecture project to propose a large-scale transformation for the countryside through urban

rural linkage was completed in 2022. Wengding Village, an important Chinese rural heritage site, is facing a crisis of shrinkage and the vanishing of its own cultural identity. The metropolitan architecture project of Wengding Village aims to reconnect rural heritage with urban-rural linkage particularly conducted with small and intermediate cities. Among this urban-rural linkage, an approach involves opening spaces between boundaries and landscape interventions based on boundary conditions to identify practical knowledge-to-action proposals that can be applied to urban development (9). After the publication of Wengding Village at the end of 2023, the current agenda is to determine whether Wengding's practical experience can be applied to other struggling countryside territories. Given the complexity of countryside issues while increasing public awareness of countryside dilemmas, can the dilemmas of different countryside regions fully reflect Metropolitan Dynamics and MGIP (Metropolitan Goals, Issues, and Principles)? Or, through closer analysis and research of these urban-rural linkages, can they contribute to the current frameworks of Metropolitan Dynamics and MGIP?

Notes

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URBAN COMMUNITY GARDENS: ASSESSMENT AND STRATEGIES TO IMPROVE MICROCLIMATE AND USABILITY IN DIFFERENT URBAN CONTEXTS

PhD Candidate: Lixuan Zhu - Supervisor:
Prof. Valentina Maddalena Dessi



Urban heat island, which characterizes the main part of the planet's urban environment, is not only an issue that affects the living environment but also increases social inclusion, food security, and health problems. Urban Community Gardens (UCGs), as part of solutions, encourage people to share knowledge and activities and contribute to enhancing the quality and quantity of urban green. The research proposal deals with a methodology and strategy to improve the presence of community gardens in contemporary cities, the microclimate, and the citizen's well-being in different goals.

Climate change is a threat to the natural environment, people's health, and well-being in various countries and regions around the globe. In this context, cities are gradually becoming the places where some specific impacts of the CC, such as overheating and floods, occur in a tangible way. Nevertheless, cities are involved not only in adapting to the impacts of climate change but also because urbanization is partially responsible for climate change (UICC). In the past, the connection between the territory and the built environment was more evident, and the presence of green had played an important role in shaping the urban landscape. Community gardens, due to rapid urbanization, represented a way to satisfy the desire for green open spaces. In this specific case, they were capable of reducing food shortages and, in some cases, the homesickness suffered by the immigrants. Nowadays, the impact of the development of UCGs is evident, especially in social and environmental terms (1). It is an important public space for recreation, leisure, and communication of its inhabitants, and its research has an important place in sustainable urban development. It combines nature education and natural gardening activities to bring neighbors vibrant, and liveable and promote the formation of a friendly community,

which is an important part of the urban community (2). The existence of the UCG changes the living habits of the residents (3). In addition, the effective role of food and medicinal species grown in UCGs in mitigating the urban heat island also affects the physical and mental health of residents (4).

This research aims to valorize the role of the UCG through a process that starts with the description of the state-of-the-art of the topic in different climatic zones, and includes field surveys with micro-climatic measurements and interviews simulation of different scenarios. The aim is to propose solutions for sustainable community gardens that enhance quality of spaces, social cohesion and thermal comfort of people who use the open spaces in the neighborhood.

Notes

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<https://doi.org/10.3390/ijerph14010071>.

This chapter collects the presentations of the work in progress of the Architectural Urban Interior Design doctoral program candidates focusing on the “Environments” theme.

The candidates are in different stages, comprised between the 33rd cycle (beginning in 2017) and the 39th (beginning in 2022). Here is the list of the candidates with their cycle:

33 Siliva Mundula
 35 Mariana Pereira Guimaraes
 36 Chai Hailong
 36 Li Jiaxi
 36 Kevin Santus
 38 Giulia Azzini 38 Maddalena Laddaga
 38 Davide Montanari
 38 Wu Zheng
 39 Deema Alattar
 39 Yang Dicheng
 39 Zhu Lixuan

The epigraph at page 135 is taken from: Yves-Alain Bois and Rosalind Krauss, “A User’s Guide to Entropy”, *October*, Autumn, 1996, Vol. 78, pp. 38-88.

FACILITIES

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Moving People and Goods

Infrastructures are flexible and anticipatory. They work with time and are open to change. By specifying what must be fixed and what is subject to change, they can be precise and indeterminate at the

same time. (..) They do not progress toward a predetermined state (as with master planning strategies), but are always evolving within a loose envelope of constraints. (Stan Allen, 1999)

HUBS. CONNECTIONS AND STRATIFICATIONS IN THE CONTEMPORARY METROPOLIS

PhD Candidate: Amath Luca Diatta - Supervisor: Prof. Pier Federico Caliarì (Politecnico di Torino)

Amath Luca Diatta, Sketch inspired by a series of Grand Paris Express construction sites visits and urban context observations capturing imaginative project outcomes and subterranean discoveries, 2023.

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HUBS are central to modern metropolises as nodes where urban stratifications and transport infrastructures converge in a dynamic interplay between past and present. These critical nodes embody complex socio-economic, historical, and architectural narratives. The interaction between HUBS and urban layers emphasizes a holistic approach that balances modern development with heritage conservation. This research advocates for an integrated view of architectural, urban, and interior design, where HUBS serve as vibrant environments that influence and shape the broader urban landscape.

The contemporary urban landscape emerges as a dynamic and multiform stage, imbued with an incessant dialogue between past and present. In this vibrant arena, modern cities reveal an intricate and sophisticated mosaic dictated by the coexistence of heterogeneous urban stratifications settled over the centuries. This urban phenomenology inevitably reflects a rich texture of historical, architectural, socio-economic and cultural imprints that, taken together, constitute the unique and unmistakable identity of each metropolis (1).

When carefully observing these stratifications, it is impossible not to notice the pervasive and dominant presence of transport infrastructures, particularly the large HUBs, understood as vital and neuralgic epicentres of urban mobility networks. These inescapable nodes, characterized by an incessant flow of people and goods, emerge as spaces of intersection and encounter, where the dynamics of the stratified city manifest themselves with overbearingness and determination. Therefore, the interaction between urban stratifications and transport infrastructures is not merely an academic exercise or an empirical observation; rather, it represents a crucial field of investigation and a prism through which to interpret and understand the complexity of the contemporary urban fabric. The research

not only contributes to shedding light on a still partially unexplored field in the contemporary architectural debate but also offers innovative tools and perspectives to approach the planning and management of the urban territory with a critical, analytical and proactive gaze. The attention paid to the dialogue between archaeology and modern infrastructures, in particular, opens up new and stimulating scenarios, suggesting how the valorization of the historical-archaeological heritage can and must go hand in hand with the demands of infrastructural development and modernization, with a view to mutual enrichment and valorization.

It is essential to also acutely consider the intrinsic impact of architectural and interior design practices that characterize and define such hubs and other transitional spaces. The details and decisions underlying architecture and interior design are not marginal or aesthetic aspects, but actively contribute to defining the functionality, accessibility and aesthetics of spaces that, in turn, modulate citizens' everyday experiences, behaviours and interactions (2). The quality of the interior design and layout of transit hubs, stations and other nerve centres in the city influences not only the efficiency and usability of these spaces but also the well-being and quality of life of those who pass through and use

Stratigraphy Transport Infrastructure Heritage

them. The architecture and interior design of these crucial spaces express and, at the same time, contribute to shaping the identity, culture and vision of a metropolis, acting as tangible manifestations of the social, economic and cultural dynamics that animate its life (3). They must, therefore, be interpreted and analyzed not in isolation but included in a broader and deeper reflection that considers the complex and multifaceted processes of production and transformation of urban space. This research uses a 'research by design' methodology to explore the complex relationships between urban stratifications and transport hubs. By examining diverse sources, including historical maps, architectural plans, and academic literature, the study establishes a comprehensive context for understanding the interactions between historical-archaeological heritage and modern infrastructure. The methodology begins with a detailed analysis of primary and secondary sources to gain a deep understanding of

urban and archaeological dynamics. It then moves to specific case studies that illustrate the theoretical themes discussed throughout the work. These case studies serve as catalysts for further reflection and comparison, shedding light on the intricacies of urban development and infrastructure.

A comparative approach is used to highlight and interpret patterns within the observed dynamics, focusing on the unique cultural, social, and architectural contexts from which they emerge. The final section offers an interpretive framework to help readers navigate the complex data and insights presented in the study, fostering a critical understanding of the interactions between urban stratification and transport hubs. Overall, the research aims to present the transport hub as a distinctive architectural typology, demonstrating its potential to facilitate various interactions in both highly urbanized contexts and areas with significant archaeological and stratigraphic layers. This approach advocates for a design perspective that balances historical preservation with modern urban development.

The core of the scientific discourse presented here is founded on the fundamental need to recognize and appreciate the complex and ongoing interaction between the levels of urban stratification and infrastructural

structures, understood as vital spaces of connection and transition. In this context, urban hubs play a crucial role: they are places where the ancient and the modern, the material and the immaterial, the physical and the symbolic coexist, interact, and mutually shape one another. The dissertation thus emphasized the importance of a design approach that is both sensitive and innovative, capable of navigating the sometimes turbulent waters of memory and innovation, conservation and transformation. The urban spaces analyzed are interpreted as components of a complex mosaic, where each element contributes to defining the overall image and the development of an urban identity that is harmonious and coherent yet also dynamic and sustainable. Furthermore, the research has highlighted the relevance of adopting a design perspective that carefully considers the duality between historical heritage and contemporary infrastructure, promoting a functional and aesthetic symbiosis that effectively and sustainably addresses the needs of citizens and the challenges of modern urban life.

The strategies and design solutions proposed in this dissertation, therefore, represent a significant and original contribution to the scientific and professional debate in the fields of architectural, urban, and interior design.

Ultimately, the work presented in this doctoral thesis is intended not only as a theoretical and analytical reflection on the dynamics of stratification and connection in contemporary metropolises but also as a useful orientation tool and a catalyst of ideas and inspiration for designers, urban planners, researchers, and all those who are engaged in addressing the complex and fascinating urban reality of our time. The vision outlined here advocates for and promotes the creation of cities that, anchored in their past and projected toward the future, are qualitatively high-quality, inclusive, sustainable places to live, capable of telling stories of connection and stratification, of rootedness and openness, of identity and plurality through their morphology and spatial organization.

Notes

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URBAN INTERIORITY AS SPATIAL CONTINUUM: EX- PLORING [RETAIL-ORIENTED] COLLECTIVE SPACES IN LAHORE

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Sarah Javed Shah, Sectional Perspective: Public Square, Chowk Sootar Mandi, Walled City, Lahore: Extension of Inside to Outside Forming a Spatial Continuum Through Blurring of Boundaries Between Urban, Interior, and In-between Space, 2024.

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The proposition “urban interiority as spatial continuum” beyond the conventional oppositions of space corresponds to subtle liminality where the transition can be experienced along or traversed in different directions through articulating one space and another via thresholds. It determines permeability characterized by blurring visible and invisible boundaries, often intermingling through the architectural façade while connecting inside and outside. It establishes ephemerality through spatial practices of inhabitation and appropriation and manifests complex conditions of interiority.

Contemporary theoretical debate and design practice perspectives describe a paradigm shift in public space—from death and decline to renewal and rejuvenation. Its redefinition as the “collective space”, challenges the conventional oppositions of urban/interior and public/private. The notion extends to encompass everyday spaces of collective use, such as retail spaces, where the public activity of “shopping” is considered a prerequisite for urbanity. In contemporary cities, shopping permeates collective space, and subsequently, the collective realm pervades into retail space, particularly the interiors of shopping malls. The research positions in the novel design field of the conjunction of urban and interior—defined dualistically as interior urbanism and practices of urban interiors. The proposition embraces the continuity of urban and interior space not as an alternative, but as a potential of one another. Considering it as a lens to read and interpret space, urban interiority stimulates the prospects of defining methodologies for design-driven research. It accounts for space embodying experience through interaction between people, space, and objects, distancing itself from the concept of geometrically presented space, while remaining in dialogue with this idea of physical space as a relational field.

Commencing with the global discourse

and analysing design practices of urban interiors, the research narrows its focus to the specific context of Lahore, where a labyrinth of experience of its collective spaces uncovers the poignant enthrall that distinguishes this city, presenting a reconciliation of tradition and modernity. Urban interiority profoundly manifests in Lahore’s collective spaces—temporal and spatial continuity of its canal, the dual character of its streets, meandering and grid-iron, with unique in-between spaces extending the domestic (private) realm into the public realm, and its urban squares as quadrangles of cultural resonance, where colours, chaos, and the tempos of collective life entwine.

It unveils Lahore’s image as a “City of Gardens”, continued from the Mughal era through the British Colonial period to the present day and the spiritual and emotional connections between the physical environment and people through the collective prayers in the sacred space of mosques. Moreover, Lahore’s retail spaces—bazaars, markets and shopping malls—exhibit varying degrees of publicness, blurring of boundaries between inside and outside, spatial transitions through thresholds, and unique practices of spatial inhabitation—temporary appropriations and people’s engagement through sociocultural activities.

Contemporary architectural discourse integrated philosophical concepts of

Liminality Permeability Ephemerality

“space”, enriching its interdisciplinary interpretations and making it an inextricable architectural component. Any definition of architecture itself requires a prior analysis and exposition of the concept of space (1).

Such conceptualisations paved the way for renewed thematic discussions and revaluations of conventional concepts of space—new ways of interpreting the relationships between people, objects, and space while overcoming polarities and embracing continuity—through the redefinition of architectural boundaries, thresholds, and interstices, the dialectics of inside and outside, and the complex relationships among interiorities and exteriorities (2). This research defined specific keywords—liminality, permeability, and ephemerality—to explore the proposition of “urban interiority as spatial continuum” by developing a theoretical framework and applying it to read and interpret design practices by using drawing as the primary research tool.

In sociocultural milieu, the liminal entity is a person; in design contexts, it is the space itself. Jonathan Hill relates space to the concept of “liminality” and defines it as the conceptual, transitory relationships between people and spatial environments, often associating with ephemerality and intermediate passage between alternative conditions (3). This notion of intermediary experience is linked with ambiguity in both ways, between here and there, inside and outside, suggesting neutrality or in-betweenness. The experience of liminality occurs instantaneously while crossing thresholds and continuously while traversing through the passages of transition. The root word “limen” is derived from the Latin word for threshold and literally means being on a threshold, more explicitly understood as a transgressive space, a point of entry into another zone. The term is used to designate any number of limits, representing an end, the outer boundary, or the mark of an enclosure. However, in contrast to the enclosed space, which is defined by its perceived boundaries, the liminal space embodies a sense of “opening, unfolding, or becoming” (4).

The phenomenon of boundaries and their blurring defines “permeability”. As a metaphor in design, permeability reveals characteristics and spatial attributes essential to enhance the multiferocity and adaptability of space in contemporary

cities. It refers to that entrenched condition which appears at various levels of (collective) space—from the urban structure to the architectural interface to the interior layout. It concentrates on two significant parameters: (physical) accessibility and visibility (or visual accessibility). The primary function of boundaries is to separate and connect, that is, to define space. Henri Lefebvre presents a distinct perspective, suggesting that each individual creates space through their own presence. He uses the metaphor of a spider’s web, where the web is inseparable from the spider that creates it, to illustrate how bodies define significant places and spatial markers (1). Boundaries are also interpreted as “signifiers of space” (5). Thus, boundaries and space are interconnected; one gives meaning to the other. Space lacks definition without boundaries, and boundaries lose their context without space. The discourse is centred on the human experience of movement—an act to cross boundaries, facilitating the transition from one space to another, from inside to outside—proposing that movement is constitutive of space rather than being a product of space. This perspective adds a temporal dimension to the exploration.

The temporality, fleeting, or the quality of being transient can be explained as “ephemerality”, which refers to something that lasts only briefly, often disappearing

or fading away quickly. Recent architectural discourse includes the idea of ephemerality, with terms like ephemeral, provisional, interim, and temporary to be used interchangeably (6). Everyday spaces of collective use may transform over time, experiencing shifts in design, function, and usage patterns. They often serve as venues for temporary activities, interim gatherings, or provisional installations and have the character of ephemerality fostered by the acts of spatial inhabitations and appropriations. For instance, the temporal practice of street vendors with moving carts promotes a flexible relationship between people and space (7).

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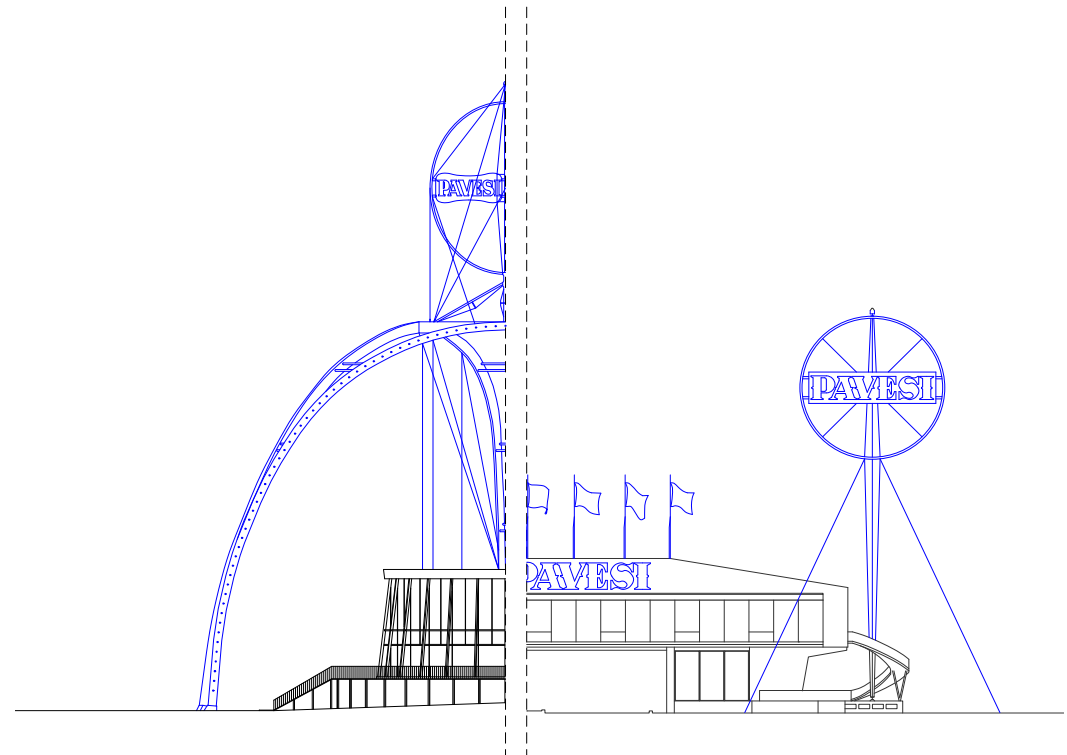
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ENGINES OF SUSTAINABLE DEVELOPMENT: ARCHITECTURE FOR HIGHWAY SERVICE AREAS

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Comparison between the Lainate and Fiorenzuola d'Arda *autogrills*. Drawing by Beatrice Azzola, 2024.

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Highway service areas are isolated from both urban centers and rural and peri-urban areas. At the same time, they are highly connected to the network of high-speed road mobility. This peculiar condition of hyper-technological remoteness allows for roadside buildings to become a field for architectural experimentation. This research aims to operate a dual reading of highway buildings: first, in their individuality as object-image, mainly through the study of the history of roadside architecture, and second, as a system of elements that punctuate the journey of the traveler through the landscape.

The research aims to demonstrate the uniqueness of the architectural type of the highway service area due to its geographical independence from areas of high urbanization and parallel high interrelation with the territory in order to answer the question: can highway service areas become a field of architectural experimentation, in terms of space design, integration with the corporate image and technological development in the field of energy sustainability? The aim of the research is also to contribute to the construction of a “language” of the highway through the attribution of defined meanings to the words related to transport and infrastructure architecture.

The background of this work is built through historical research into the origins of roadside architecture and advertisement and the evolution of the architectural type of the service station through bibliographic, iconographic, and archival research. The integration of historical research with typological analysis leads to building the foundational structure of the thesis, which aims to demonstrate the peculiarity of highway service stations in terms of their independence from the urban fabric and hyperconnection with the territory. Historical and contemporary case studies are used to construct the language and categories attributable to the architectural type of roadside architecture, specifically in Italy. Through the redesign

and production of interpretative diagrams, the research on case studies allows for deepening issues related to mobility and retail buildings.

The research is structured in three parts: “Frontal view/object – image” and “Moving gaze/landscape – sequence” represent the two filters through which I intend to read the theme of roadside architecture. In the third, “Scenarios,” I explore the issues related to the design of service areas at different scales. In the initial stage of the research, issues related to the past are examined and reported through the perspective of the three thematic axes: architectural heritage, cultural identity, and the imagery of the future in the historical context.

This approach enables an in-depth understanding of the complex interconnections between these aspects, thus contributing to a more comprehensive view of history. They are explored by highlighting the transformations over time and the influences on how the landscapes and cultures of highway service areas have been narrated. This in-depth analysis aims to provide a dynamic perspective, allowing the complexity of interactions in highway time and space to be captured.

The Italian highway network is dotted with notable architectural episodes, realized during the incubation and development phase of highway service areas. In the group of these episodes, several *autogrills*

Roadside Architecture

Highway

Autogrill

(1) should be ascribed as a priority. This neologism, coined by an industrialist, Mario Pavesi, and an architect, Angelo Bianchetti, was intended to identify the typological novelty represented by the service areas, many of them bridges, that garrisoned large quadrants of the Italian highway network between the early 1960s and the late 1970s (2), under the stimulus of some champions of the Italian confectionery industry. Given that the Autogrill Company has fulfilled and developed the genealogical line inaugurated by Pavesi and Bianchetti, the research considers the heritage of highway service areas that boast architectural qualities as elements to be actively preserved, emphasizing the opportunities offered by the development of the thematic axes of the research.

In the early stages of architectural development along the highway network, traditional typologies are replicated, which do not abandon the features and scale of domestic interiors. The buildings later evolves, integrating with broader

infrastructure-related functions. The buildings help define the visual and conceptual identity of the entire highway, influencing architectural landscape. This evolution emphasizes the relationships between architecture and infrastructure. At a time of high confidence in infrastructure growth in Italy, projects dedicated to service areas reflected an atmosphere of optimism and experimentation. The representation and communication of such projects were steeped in references to guiding concepts such as development and innovation, which help consolidate positivistic approaches to the country's growth issues. An optimistic streak pervades the way service areas are conceived and presented. The depiction of the future in specific historical moments painted imaginary scenarios in which technology and progress assumed a decisive role in social and cultural development. In these contexts, potential worlds were conceived in which technological innovation was the engine for significant advances that helped shape the technological landscape, culture, and society. This projective view of the future underscores the deep interconnection between the perception of technology and the construction of utopian scenarios that fueled the collective imagination in specific periods of history. What has been the impact of past imagery on current transitions?

The second phase explores current events by leveraging the concept of "transitions." The analysis of current transitions is realized through three basic categories: actors/processes, sustainable practices, and digitization. This approach critically examines evolving processes while maintaining a conscious connection to history and established heritage. The final stage's objective is the definition of useful tools to improve environmental sustainability, energy efficiency and technological innovation in the transformation operations of highway service areas in the short, medium, and long term, developed around three thematic axes, to which the possibilities of intervention in highway service areas are referred as uses, physical environment, and digital environment. The first relates to the multi-modal and multi-functional expansion of the services offered to users who frequent the service areas; the second to improving the energy standards and ecological footprint of the buildings and open spaces that make up the facilities given under concession by the highway operating entities; and the third to enhancing accessibility to digital networks and circuits that project the virtual space of the service areas beyond the boundaries of the physical one. In general, the research describes and interprets the evolution of service areas, classifying them on the basis of the recognition of architectural

values, even partial ones, and an analysis of the life cycles of construction and technological components. Three clusters of intervention are identified: structures to be preserved, structures to be maintained according to well-defined time horizons, and structures to be designed from scratch. Along the Italian highway network, there is no shortage of situations in which these conditions occur simultaneously and which impose the combination of integrated design solutions. The three thematic axes and clusters of intervention are the subject of the activities carried out during the phases of the research, which address the prefiguration of general visions and scenarios, the drafting of intervention guidelines, the identification of qualifying case studies, and the elaboration of multi-criteria matrices to support intervention strategies. Each phase corresponds to specific research products. Through applying the solutions proposed by guidelines to the case studies and foreshadowed by scenarios, the research intends to elaborate criteria capable of guiding the design choices to be made in the context of conservation, maintenance or new conception interventions of highway service areas.

Notes

(1) "Autogrill" is an Italian false anglicism for "roadside restaurant"

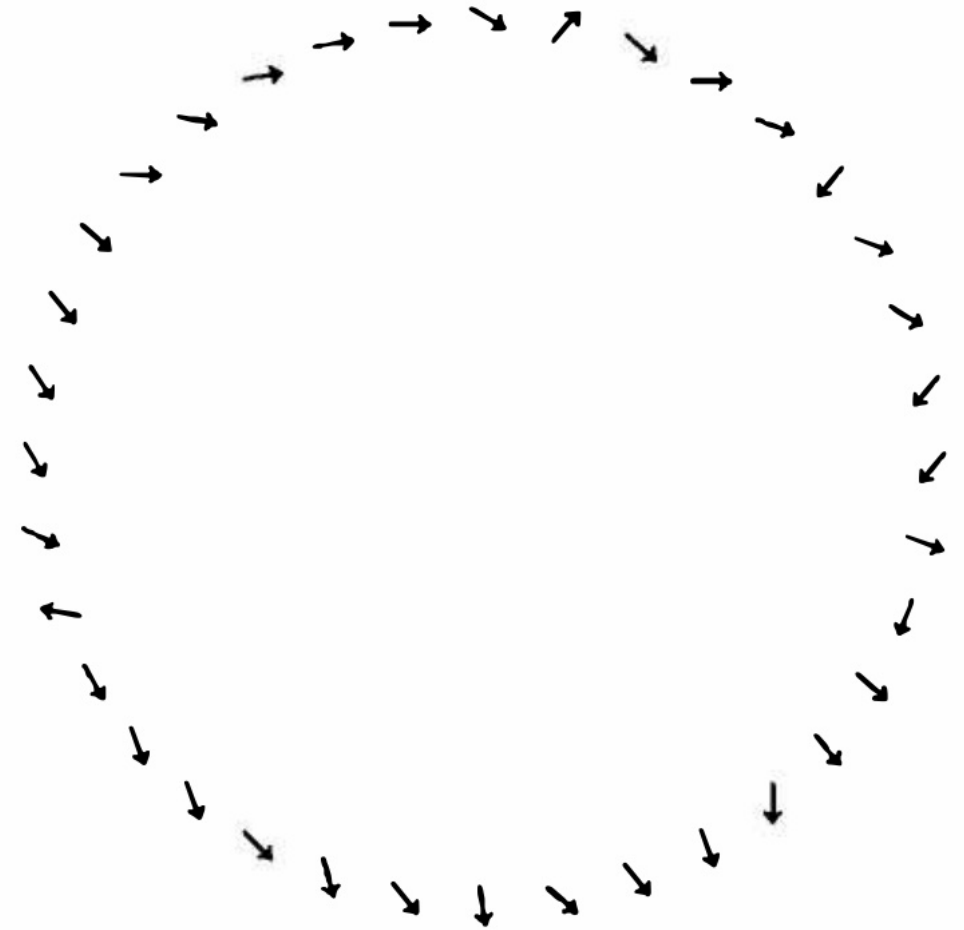
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TWO OF EVERYTHING. EMERGING PRACTICES FOR THE RE-PRODUCTION OF URBAN SPACE

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Richard Long, Dartmoor Wind Circle, 1985.

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This research investigates emerging design practices using digital technologies to develop forms of RE-production of urban space. The study focuses on the relationship between design actions and the cognitive, operational and dissemination tools these practices employ to promote local awareness and a closer relationship with physical space. Through case studies, the research explores the impact of locative technologies on architecture, proposing a RE-definition of the concept of “smart,” which enhances human and social dimensions in urban design.

The research investigates emerging design practices that make use of digital technologies and develop forms of RE-appropriation, RE-signification, and RE-production of urban space (1).

The research traces and describes the mutations in the design processes of what have been called “emerging practices” (2), which have helped update the state of the architectural profession since the 2008 economic crisis.

This thesis observes how the everyday activities of these practices cannot be prescind from the extensive use of digital technologies (3) in all the phases that comprise their interventions: from conception to installation and to the dissemination of the project itself. An examination of these design realities, therefore, requires placing particular emphasis on an often overlooked aspect, namely the interrelationship between design actions and the cognitive, operational and disseminating tools that these professionals habitually employ.

These practitioners make use of digital technologies not as a form of estrangement or escapism from the real, tangible world, but on the contrary these locative media are used to pursue a deeper relationship with physical space in order to enrich users’ local awareness and participation and to develop an evolution of our perceptual, cognitive and operational relationship with the city.

They, in fact, operate with the existing, in the interstices of the planned city. Using the latent resources offered by the urban environment, they promote alternative uses and management, taking care of fragility, neglect or inequalities within places in search of new identities.

The thesis describes a design attitude connoted by a strong laboratory attitude, both in its mediation and interaction with the local communities in their onsite elaboration. The aesthetic values that this design attitude generates are the product of lively experimentation in the use of limited resources, its intersection with other disciplines, and its natural inclination toward the symbolic and performative. The widespread use of low-tech tools, both analogue and digital, embraces creative reuse and transformation of waste (upcycling), resulting in a formal apparatus typical of the assemblage or the bricolage, which fuses together material and immaterial by-products, the combination of which suggests a kind of augmented design reality.

This thesis attempts to demonstrate how mobile and locative technologies are changing not only the way we experience cities but also the design tools of architecture. Over the past three decades, the advent and increasing availability and affordability of locative functions applied to mobile devices have encouraged

Emerging Practices

Re-production of Space

Digital Tools

the development of innovative designs based on real-time tracking, which then exploits the ability to map and represent individual movement patterns in space. An arsenal of low-tech sensors and actuators is being deployed by architects and designers interested in creating interactive or responsive environments and devices.

At the same time, other practices employ cutting-edge techniques in spatial and architectural analysis, digital modeling, and immersive technologies for actual or post-occupancy monitoring and evaluation of their projects or specific areas of interest. Finally, designers are taking advantage of the potential of digital tools not only for online communication of practice activities but also for developing and fostering public and community participation through social media.

Following a survey introduction on the theoretical implications underlying this research, the thesis is developed in three main sections that coincide with the three main project phases: ideation, installation,

and dissemination. The thesis focuses on the consistency of the projects by describing the action in its three main stages of development, both through methodological contributions and through diagrams and maps, the codification and syntax of which is itself a matter of research and elaboration.

In order to develop a direct engagement with the theoretical frameworks described here, the research process includes a personally analyzed case study, that is, a practical contribution provided by my individual field research. Thanks to the variety of functions and the population it hosts on a daily basis, the Innovation Harbour Campus of Xi'an Jiaotong University (China) brings together suitable characteristics to provide a case study for practicing and experimenting with methods of urban mapping and direct observation of urban space. The selected site will be systematically analyzed for the actual duration of one week in order to understand and describe its complex and dynamic social life through various methods for quantitative and qualitative data collection and according to a set of curated and contextual themes ⁽⁴⁾.

Different methodologies, both manual and automated, are experimented in order to highlight the relationship between the physical conditions of the spaces and the human activities and behaviors taking

place within them. The ultimate goal of the research, accordingly, is to learn from these design practices in order to develop a redefinition of the concept of “smart” as applied to urban planning, preferring the particular to the general, the qualitative to the quantitative.

The research starts from the evidence of a growing academic literature ⁽⁵⁾ critiquing the concept of the “smart city” as a vague and shifting term that places undue emphasis on the promise of techno-centric solutions and does not adequately address the human and social qualities of cities. Between expectations and exaltations toward scientific progress on the one hand and tragic narratives of dysfunctional digital futures on the other, pessimism and positivism turn out to be equally irrelevant positions. In this thesis, a third way is attempted, shifting the debate in a rather more constructive direction, namely, gathering the proactive drives in the development of urban technologies that link the physicality of places with the symbolic and immaterial dimensions inherent in the ways in which citizens inhabit and experience the city and with which planners intervene on it, re-writing it.

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With a global mental mutation underway, and the digital revolution as an effect, we are blurring the conventional boundaries of the spaces and re-constructing the definition of these spaces. Spaces have become urban, and urban has become spaces. The home we live in, the space we work in, and the city we wander around are all diffused into one environment, a productive environment. The nature of this productive environment is cybernetic. The essence of production, the spaces it takes place within, and the bodies that carry it out are all being redefined.

‘Work’ has always been the spine of human civilization. It has continuously and spontaneously structured how people live, how they interact with the material world and social realities, and how they achieve the status of self-esteem. No definition of work is satisfactory because the concept of work relates to all human activities, and one would have to exhaust all such activities to exhaust the work provinces. A primitive definition is that: “Work uses the things and materials of nature to fashion tools with which to make objects, grow food, and control living creatures and forces of nature to satisfy human needs and wants. However, some types of work do not make anything physical, like the teacher, doctor, scientist, waiter, caretaker, etc.” (Applebaum 1992). In this way, work includes making things and performing services of value to oneself and others. With the development of new types of technologies, information and knowledge can be contained, controlled, exchanged, and traded as products, thus giving a new definition to the concept of work. It is also why the modern terminology ‘occupation’ is widely used to identify work activities; it is a functional term describing what people do to ‘earn a living,’ emphasizing that it is Work that sustains life (Applebaum 1992).

In the contemporary context, with the significant growth of the internet and

social media, human productive activities in purely physical space have been extended to that of a cyber and relational context. We built The Otherworld, which is not only the digital copy of the world but also a natural habitat for the New Humans, where we operate and organize our activities in complete freedom (Baricco 2016).

Thus, the cognition and perimeter of the definitions for Work in the contemporary and foreseeable future context are urgently needed, which is the first objective of this research. This research investigates these different phases through the history of human productive activities by collecting the most representative case studies in chronological order, finding the patterns of mentality and behavior for each historical period, and analyzing how it constructs the spaces from different scales guided by three crucial aspects:

- People, which indicates human conditions, the way of thinking, the value of environments;
- Place, which indicates the creation of human environments as urban texture, architectural forms, and interior spaces;
- Practice, which indicates the context of human relationships and their contact with the material world.

Even though the development of the concept of Work is a constellation

Work Space Redefinition

of a diverse and articulated array of phenomena and events, an underlying structure can be detected. Thus, when laying down the diagrams of the patterns of different productive activities through history, we expect to observe the apparent spatial structure shift between each pattern, emphasizing that Work constructs spaces.

What is the inner power that triggered these shifts? What is the earthquake underground that pushed up and formed the ridge?

There is always a socio-economic technological phenomenon that triggers every revolution. Between each case study laid down previously, there is always a significant leap in our civilization. Either it is technological, like the invention of essential tools, industrialization, the invention of the computer and the internet, or economical, like globalization and the post-war economy; it may also be social, like urbanization, the feminist movement, or social media phenomenon. Applying the same logic to zoom in on the

contemporary and foreseeable future context, we are all aware that we are experiencing and contributing to a new revolution, a mental mutation. Thus, this phenomenon is reforming a new concept of Work that is shifting the value, definition, and concept of spaces and boundaries.

The perimeter of this research is the contemporary and foreseeable context, with the mental mutation underway and the digital revolution as an effect. Various examples from different cultural backgrounds indicate that a new definition of spaces, in a range of interior, architectural, and urban scales, is gradually and spontaneously becoming a new normality. However, there is a paradox with the rapid changes in needs and yet still the conventional definitions of spaces. Some of the essence of these alternations and so-called ‘innovations’ are obsolete, and a new definition of spaces or environments is needed for new objectivity in today’s society.

With the advent of the internet and social media, human productive activities studied in purely physical space have been extended to that of a cyber and relational context. The Covid-19 pandemic has further intensified this shift (Yin, Crooks, Yin 2022). The significant growth of social media and online life (Floridi 2016) has given rise to the expansion of cyberspace, and has stimulated research

in exploring the connections between cyber and physical spaces along with online and offline interaction. However, the connections and interactions between these hybrid environments have not been sufficiently investigated, and the definition of different environments has never been distinctly clarified.

Thus, the other main objective of this research is to define a cognition of these new environments stemming from the intricate relationship between online and offline life.

The perimeter of the first environment is called hyper-employment (Bogost 2013).

Within this environment, work activity is not limited to the concept of ‘earning a living’ or ‘producing the product or providing the service/information.’

Organizing our work, as well as our personal life, becomes part of work; there is a total blend of work and leisure due to the permeation of work into personal life; and our involvement in the life of social networking platforms, also known as *onlife* (Floridi 2016). Unlike Hyper-employment, there is a Productive Environment, which is the main focus of this research. Within the Productive Environment, there are various forms of productive activities. Based on the definitions of these environments, there is clearly a hierarchy among them.

One of the principal methodologies this research introduces to define these

concepts further is to define variables such as People, Place, Practice, and Price. Then, they are applied to the selective case studies to build a classification model and typological labeling. By doing so, the thesis constructs a detection system, which is expected to reveal a more extensive range of productive activities, thus discovering the patterns for future spatial solutions based on the different environments.

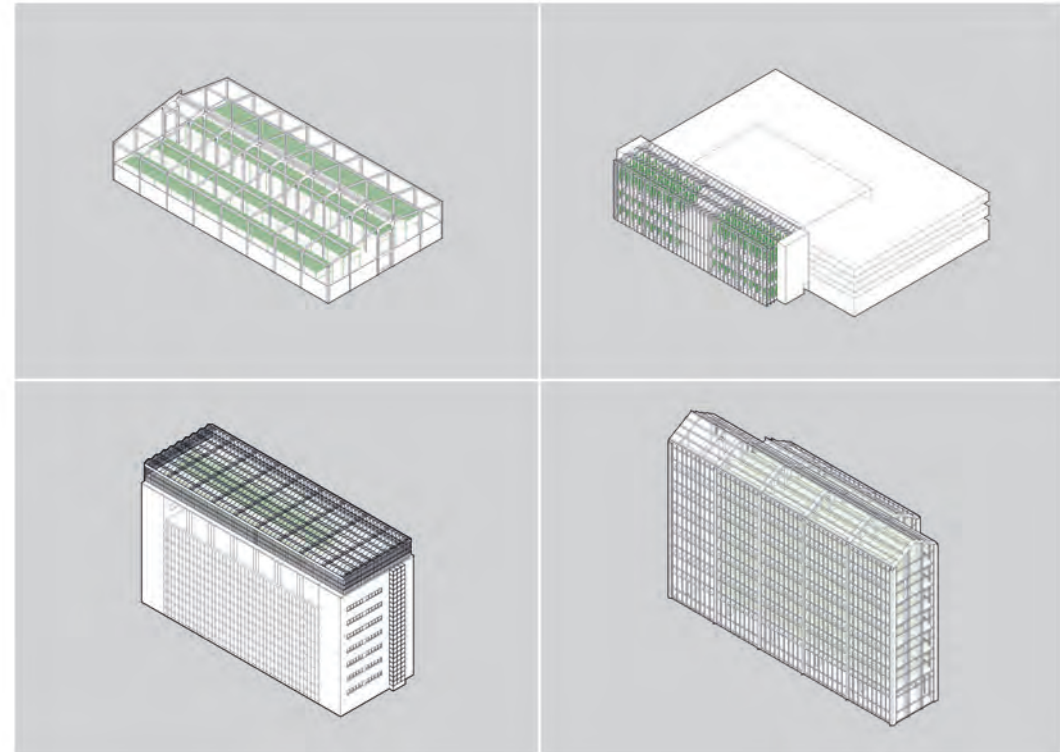
The expected result of this research is to define a cognition of the Productive Environment obtained from selective case studies and socio-economic-technological phenomenon analysis and to provide innovative architectural solutions. It will profoundly redefine production and space, which will produce effects for the contemporary and future contexts.

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FEEDING CITIES: DESIGN GUIDELINES FOR THE INTRODUCTION AND DEVELOPMENT OF VERTICAL FARMING IN URBAN SYSTEMS

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Filippo Oppimitti, Four Vertical Farms in axonometric view (Agricooltur Plant 240 in Genoa; Vertical Harvest in Jackson, Wyoming; The New Farm in The Hague; La Cité Maraîchère Romainville in Paris), 2024.

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Nearly seven out of ten people will live in cities by 2050, with the global population expected to reach 9.7 billion. Already, metropolises occupy only 3% of the world's land, but they consume almost 70% of the world's resources. ⁽¹⁾ Given these premises, it is clear that enormous changes are needed in the way food is produced. Relocating agricultural production sites closer to or within the city limits (Urban Farming) and/or using systems that do not exploit the soil but develop vertically (Vertical Farming) are some of the possible viable alternatives.

This research aims to address the topic of urban farming mainly as a design issue, defining spatial implications and social interactions arising from the introduction of these technologies in the urban context. Highly efficient food production in cities has recently become a topic of great interest in various professional and academic disciplines. Indeed, food grown in the city – to be consumed in the city – reduces carbon emissions due to transportation and water pollution caused by agriculture while providing a fresher product for consumers. These possibilities challenge preconceived notions of the purpose of a building and bring new thinking to the historical dichotomy between town and country. Among the possible strategies, the proliferation of buildings producing food inside, on the roof or on the façade could prove to be particularly effective in tackling the food problem within densely populated metropolitan areas. They provide a vision to integrate current traditional systems of urban agriculture with widespread innovative production. Vertical Farms are based on the application of highly specialized indoor cultivation techniques; they are structured as real machine-buildings in which seeds are cultivated in a reduced space compared to traditional fields, allowing vertical development and reducing the soil footprint. The various Vertical

Farm configurations are included in the broader definition of “Building Integrated Agriculture” ⁽²⁾, an approach to production based on the idea of placing high-performance hydroponic growing systems on and inside buildings, using renewable and local energy sources to produce high-quality vegetables and fruit using from ten to twenty times less land and from five to ten times less water compared to conventional agriculture ⁽³⁾. In 1851, Joseph Paxton, a greenhouse builder, designed the Crystal Palace, “the first great building mechanism in the history of architecture; the first in which the integral adoption of iron and glass technology, divorced from its “garden” context, shows entirely utilitarian traits” ⁽⁴⁾. For many historians, the building that marks the beginning of modern architecture is a large, oversized greenhouse, emptied of its typical interior, for which a new use is conceived; in the same way today's Vertical Farm buildings, ultra-technological and efficient greenhouses, can play the same pioneering role, conjuring up new typologies and unprecedented architectural practices. To this date, the subject of Vertical Farms has hardly been analyzed from an architectural point of view. The VFs about which information is found online are almost never presented as buildings, but more as patented, registered and

Food Production Vertical Farm Building Integrated Agriculture

reproducible products that can be purchased and equally adaptable to any context. For the design of these types of artifacts not to be reduced to a mere choice of the best technology, it is necessary to conduct extensive research within the architectural discipline in order to understand the requirements and limitations of these interventions and their design implications. At the methodological level, this research aims to provide a set of tools, each with a precise purpose and function, that can shed light on different aspects of the Vertical Farm phenomenon.

The Glossary (Definitions)

The aim of this tool is to identify, through definitions and technical terms, the words inherent to the world of the Vertical Farm. Vertical Farms exist in many different forms, and there is currently no consensus on terminology (5). For example, the same project can be referred to as Vertical Farm (VF), Plant Factory with Artificial Light (PFAL), Vertical Farm with Artificial Light (VFAL), or a fully contained

cultivation system. The consideration of words and definitions in this chapter is intended to indicate precisely which terms are most appropriate to define the subject of this research.

The Map (Geographies)

In 2010, there were no known vertical farms (6), but in the following years, the number of vertical farms increased significantly as advances in various industries reduced start-up costs and made them profitable to own and operate. The number of vertical farms in the world has certainly grown exponentially in recent years, but it is still of such a scale that a global map of all such realizations is not unconceivable. Presently, there is no comprehensive survey or paper that can provide a detailed analysis of the architectural features of vertical farm buildings, and there is almost no information on the location or physical consistency of these buildings. Understanding the precise location, size, dimensions and relationship of a building within its context is essential in architectural research for many reasons; firstly, the precise location of a building can provide important contextual information and the physical environment, including topography, climate and surrounding structures, can influence design considerations and the performance of a building.

In this section, which currently includes

around 200 projects, there will also be an online map, accessible to all and constantly updated, to provide a fundamental and hitherto non-existent tool for all future researchers wishing to work on this subject.

The Atlas (Space)

During the mapping phase, a variety of types and spatial configurations of Vertical Farms emerged. It was therefore decided to propose an initial classification to organize these projects, starting with three macro-categories to which all the Vertical Farms identified so far can be assigned (containers, on-existing buildings, new construction).

Understanding the relevance of these buildings within the architectural discipline necessitates the capability to describe these projects in their architectural form. Consequently, in this section, 100 projects are selected from the 300 included in the map, represented in plan, section, and axonometry (or main elevation). This approach aims to create, for the first time, an “architectural” image of this type of building.

The Identikit (Quality)

Vertical farms are typically mono-functional buildings due to several reasons. They require highly specialized infrastructure tailored to the specific needs of plant cultivation, such as lighting, irrigation systems, and climate control. However, in the last 5 years,

especially in Europe, we have witnessed the spread of a new type of vertical farm in which the production function is only one of many and is integrated with other activities that may be residence, catering, education, research, and others. Within this research, around thirty buildings with these characteristics were identified, which were given the name Hybrid Vertical Farms. A set of around ten case studies is being selected from them for more in-depth analysis. All the projects collected in this section are already presented and briefly described in the previous chapter, so this section focuses on more detailed aspects of these buildings, which are being analyzed at several levels through text, diagrams, and drawings.

Notes

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(3) Toyoki Kozai, Genhua Niu, Michiko Takagaki, *Plant factory: an indoor vertical farming system for efficient quality food production* (Academic press, 2019).

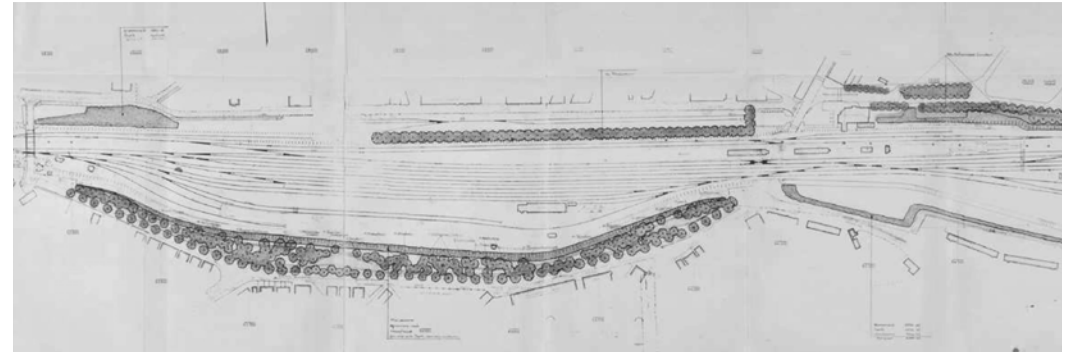
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ARCHITECTURAL REINTER- PRETATION OF THE RAIL- WAY INFRASTRUCTURE EDGE AS AN OPPORTUNITY FOR URBAN REGENERA- TION

PhD Candidate: Beatrice Basile - Supervi-
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The edge is the interface between infrastructure and territory, the physical border along which the longitudinal dimension of the railway encounters the context, establishing a transversal relationship. Understanding the edge, both as artefact and room for action, can be the starting point to attribute an urban, connective, and environmental role to it. Through the architectural project, this linear element seeks a variable-depth dimension that transforms it into an 'extended' edge, a place to inhabit, an opportunity for regeneration that gives quality to the border and its relationship with the crossed fabrics.

The research is framed into the Italian NRRP (National Recovery and Resilience Plan) PhD Scholarships Program and is co-funded by FNM Group, the leading non-state integrated group in sustainable mobility in the Lombardy region and one of the majors in Italy. It offers an opportunity to focus part of the research on a specific context that becomes both the starting point of the research and its final testing ground for design strategies/solutions and verifying the outputs of the design-driven approach; the partnership also allows a direct dialogue with experts of this sectors and the possibility to have access to the archives of the company, so to historical documentation, projects, architectural surveys, reports.

The specific context of the FNM railway network developed in Lombardy, in the North of Italy, frames a widespread rail system characterized by short distances between its stations whose main role is to offer commuters a direct link between the northern suburban centres in the metropolitan area and the centre of Milan. The research focuses on three existing links: Milano-Saronno, Saronno-Como and Saronno-Malpensa..

The local context offers a densely urbanized territory, where, with the rapid development of the second half of the XX century, lots of historical cores welded together, often presenting an urban sprawl along their fringe areas.

As a strictly designed system, led by its own laws that do not admit exceptions, the longitudinal, almost flat line of the railway 'encounters' this complex territory, generating heterogeneous conditions of infrastructure-context relationships that still find a series of critical issues: the insertion of the infrastructure into consolidated contexts seems to be mainly addressed from an engineering point of view with a purely functional and economic approach, both when it is about a new project or a transformation along an existing line. Thus, the edge of the infrastructure becomes the actual physical boundary along which the railway meets its closest context: it is an interface, a mediating element. As an artefact, the edge undergoes continuous variations in relation to the contextual situations of its proximity, which may also be considerably different between one side of the railroad and the other (that is why we should talk about two edges of infrastructure).

The edge is generally a continuous element that follows at a (relatively) variable distance the railway track, bordering the space strictly reserved for the infrastructure and denying access to it, being an excluding border: it protects both the infrastructure and people/animals from the inherent danger of railway traffic. As a physical,

Infrastructure Edge Railway Borderscape

visible explication of the longitudinal dimension of the railway, the edge has a close relationship with the track. It is directly dependent on it: at a large scale, the border consolidates the character of margin and caesura, which are inherent in the railway infrastructure and assumed by the railroad in the urban context in relatively recent times. In fact, the railroad was originally traced outside existing historical centres; with the gradual expansion of the built-up area, the railway became an edge of the urban fabric and, with the further development of the city, the infrastructure soon translated into a barrier, a caesura: thus the original relationship between the tracks and the crossed landscape was significantly altered. On the one hand, the linear and network development of the infrastructure constitutes its main strength, crossing and relating different territories, each one with its environmental, historical and socio-economic specificities; on the other hand, the character of caesura represents

its major criticality: the railway provokes an interruption of anthropic (such as roads, routes, farm systems, urban and rural textures, etc.) and environmental transversalities (such as ecological corridors, natural habitats, etc.), often demonstrating a lack of an infrastructure-territory mediation due to the hard character of the infrastructure.

From this, research questions arise: what is the nature and character of this edge? What kind of relationship does it interweave with the territory? How does it interface with the places it encounters? How does it deal with the intrinsic dangerousness of the railroad? How does it define the way people experience the presence of the railway?

Ascribing a Transversal Dimension to the Edge

Through a multiscalar approach, the research aims to outline an interpretative analysis and classification of the complex and heterogeneous condition of the relationship infrastructure-territory that consolidated over time. Analyzing and describing the edge, understanding its point-to-point relationship with the crossed landscape, its perception and the closely adjacent areas opens the reflection toward design thinking. It is the first step to define where spaces are available to the project and which room for action can be attributed to the edge. The purpose is

to understand where the infrastructure edge can become more than a simple line by transforming into a place, shifting from being a border to a ‘borderscape’ (a term borrowed from the political boundaries field). The linear element seeks a transversal dimension and depth within the crossed fabric, a variable extension that transforms it into the place of interaction between the infrastructure and the territory.

This leads to the third phase, in which the research aims to understand where and how the architectural project may contribute to the definition of a new role of the infrastructural edge in these highly urbanized areas by being involved in the reinterpretation and rewriting of different complex and critical conditions along an existing railway line.

Within the framework of Mission 2 (Green Revolution and Ecological Transition) and Mission 3 (Infrastructure for Sustainable Mobility) of the NRRP, the research aims to investigate the possibility of inhabiting the ‘extended’ edge, regenerating residual spaces, longitudinal paths, interrupted transversalities, reconnecting and considering them as a continuous system capable of giving new quality to the infrastructure border. This potentiality lies in the fruition of the linear dimension of the edge, and it is sought in a possible threefold decline in the role of the border.

Gaining a transversal variable measure, the edge can assume an urban role within the consolidated fabric: it can offer places to be to the areas immediately adjacent to the railroad, usually marked by a residual and marginal character due to the infrastructure presence.

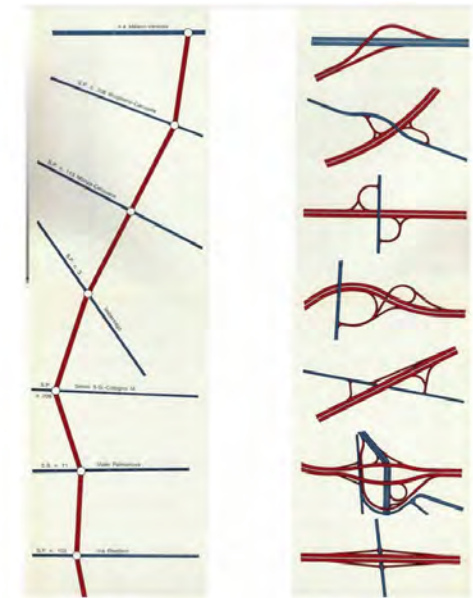
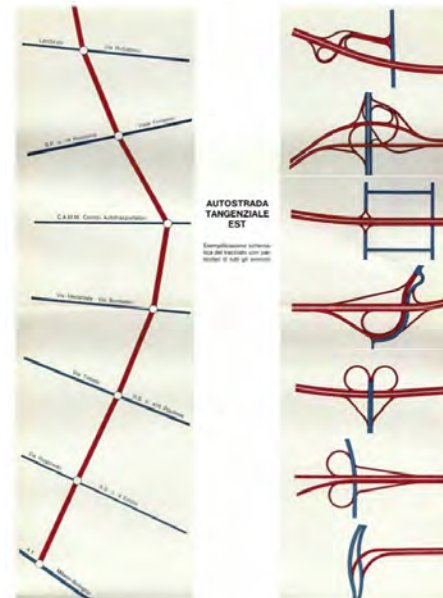
At the same time, the continuity of its longitudinal dimension contributes to a possible connective role by finding space for a bicycle-pedestrian connection that, in close relation to the railway, encourages sustainable mobility.

Finally, the linear dimension can also improve the environmental quality of the infrastructure, encouraging the development of a green seamless system along the track, which may contribute to the preservation of the biodiversity the railway verge provides.

Understanding the nature of the edge – both as an artefact and as room for action for the project – and giving it a transversal dimension strictly related to its longitudinal extension can be the starting point for attributing the edge a role within the places the railway crosses, reinterpreting the complex relationship infrastructure-consolidated fabrics that the architectural design of the edge may contribute to rewriting.

SUSTAINABLE MOBILITY FOR URBAN AND LAND- SCAPE REGENERATION. RETHINKING THE MILAN RING ROADS FOR THE ECO- LOGIC TRANSITION”

PhD Candidate: Nicolò Chierichetti - Su-
pervisor: Prof. Laura Montedoro



With the evolution of the contemporary city, the modern model of the functional city has proven not to be suitable anymore in the contemporary framework - and once combined with the Ring Road system of a city such as Milan - generated a series of infrastructural residual urban voids that the modern agenda often considered as non-urban. Such spaces are, instead, an occasion to propose experiments of new models of interactions between heterogeneous systems, as well as spatial opportunities for urban and landscape regeneration, for the enhancement of new regional-urban landscapes.

Recovering urban voids means not only taking up the challenge to stem the expansion of the city but can also be an opportunity to investigate new systemic approaches to the urban and architectural project. The space below, above and around the highway belt are currently places for which their bureaucratic-administrative nature links them to the sole mobility function and are usually left behind as so-called “Gray spaces”, usually taken over by informal activities. It is the case of Milano Serravalle - Milano Tangenziali, which faces a series of reliquati ⁽¹⁾ and highway junctions that, if also combined with the PGT’s identified spaces for urban regeneration, constitute a wide heritage and field for the design project. The research project focuses on rethinking sustainable mobility as a transformative opportunity for urban and landscape regeneration. Reclaiming these urban spaces and overlapping them with other areas available for the transformation is the first line of action to recognize territorial figures and propose synergies of actions. Through the definition and application of spatial criteria, a taxonomy of these urban spaces will allow to constitute an index of the possible scenarios that are most representative of their conditions. With the adoption of the drawing and especially the section as an investigation

tool, the intention is to return an atlas of typical situations on which to propose a series of guidelines for the regeneration of the places. The main challenge in dealing with this kind of physical entity is for sure related to the attempt to apply cultural and methodological devices that refer to the domain of architecture and urban design. The expected approach adopts the tools typically referred to as architecture, which means design-driven solutions, in proposing visions and atmospheres that could be implemented on the side of the mobility system. From the proposed punctual explorations, it is crucial to highlight how the intent of the research is to shift between a certain degree of modelization in focusing on some typical families of landscapes and scenarios where invariant elements can be recognized - and the site-specificity of the selected areas, where the variant elements are referred to the specific sensitivity of the context. Therefore, the research will shift between modeling the opportunities given by the possible categorized scenarios of the atlas and the nature of site-specific/punctual experiences – bouncing between reproducibility and generalizability. The initial operation sees a preliminary activity of mapping the areas available for transformation, understanding and creating connections with the highly technical and engineeristic

Infrastructures Residual Spaces Urban Regeneration

approach given to the infrastructure, but reflecting it through the lens of the spatial and architectural dimension. In an urban design-driven approach, the analysis phase is crucial in reading the system in its components and through the heterogeneity of the different interactions that it conveys with the adjacent networks. This also allows us to define certain families of landscapes or typical scenarios that can be found throughout the whole network, given the intersection of different conditions and variant elements in each segment of linear development. The taxonomy given on the state-of-the-art also allows a consequential development in associating the type of landscape identified within a possible taxonomy of spaces (2) and interventions to enhance the value of the individual specificities but still with a broader and adaptable approach. This is crucial in defining the components that can be considered system invariants and, on the other hand, the variable elements. The peculiarity of the design-driven

approach relies specifically upon the attempt to return an abacus of possible interventions, configured as meta-design explorations, that take as roots the site-specificity of the Milanese case study in all the presented scenarios but that can be eventually replicated and adapted to different conditions. This is possible by selecting the most representative areas based on the proposed categories and indicators resulting from the analytical investigation.

As regards macro-scale approaches, it was certainly necessary to recognize the complex territorial figures and systems that characterize not only the infrastructure of the Milanese ring roads but also the more complex territory of the Metropolitan City of Milan; the reading of the infrastructure, not only as a physical entity but in its relationship with the territories crossed is a crucial element in the investigative activity of the research project.

The three main topics referred to in the design phase will be dedicated, firstly, to understanding and proposing spatial design configurations for the regeneration of the nodal opportunities given by the *reliquati*. Secondly, attention should be paid to the dimension of multimodal interchange nodes in a sustainable relationship with soft mobility and a dialogue with other mobility infrastructures, such as the

railway network. Then, peculiar attention should be paid to the environmental and ecological values in dealing with existing or proposed green infrastructures and ecological corridors that intersect the spaces of the infrastructure. Lastly, the quality of spaces, the relationship between architecture and the built environment, and the landscape of the urban mobility infrastructure will be emphasized.

Another very relevant theme when talking about an infrastructure characterized by linear development is also that of the threshold. The threshold is a concept in which we can identify the opportunity for the different systems to collide with each other and, above all, to interact with the ring road infrastructure. The objectives are those referring to urban regeneration, and in particular to the challenge of ecological and environmental transition, with also the attempt to enhance new landscapes that cross both the urban and regional-metropolitan scales.

The design solutions, therefore, are developed taking into consideration scalable and incrementable scenarios - and at the same time, the value of the really specific context they are firstly proposed for, as well as the possibility of extending the same approach in a comparable, yet different, atmospheres and situations.

The final output will constitute an atlas of design probes that may serve as pilot cases and as guidelines, useful either for the owner of the land plots but also for territorial entities in order to propose strategic transformations and synergies of actions with the local, metropolitan, and regional stakeholders.

The approach is, therefore, to work with a double gaze, on the one hand with attention to the issue of the technical dimension and road safety, but with the added value of the designer who deals with the issues of infrastructure while still referring to the dimension of architecture and urban design.

Notes

(1) *Reliquati* are portions of land, part of the corporate assets of the motorway concessionaire, but which are not directly used for the mobility and transport function for various reasons - expropriations, irregular cultivation etc. - but could be if combined with other neighboring areas.

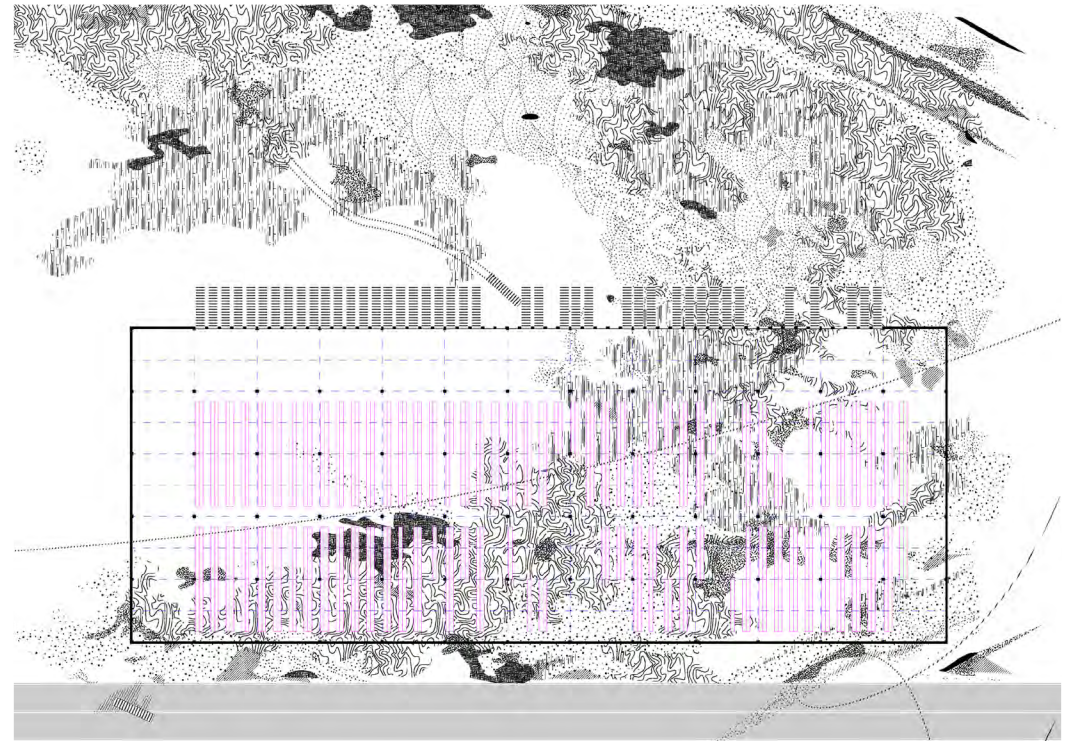
(2) The proposed taxonomy relies on a series of selected indicators, in order to return a hierarchy of spatial occasions and opportunities and select a series of the most representative spaces to produce an abacus of design guidelines.

POST-LOGISTICS ECOLOGIES. PLATFORM ARCHITECTURE FOR COEXISTENCE SCENARIOS IN THE PO VAL- LEY

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sor: Prof. Sara Protasoni

Andrea Foppiani, Post-Logistic Assemblage, plan, 2024.

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Post-Logistics Ecologies is on the rise and fall of logistics hubs in the Po Valley, where – due to contemporary geopolitical, economic, and social shifts – a typology with profound impacts on environmental processes becomes subject to future transformations. A speculative exploration of obsolescence scenarios overturns current processes of soil and landscape commodification. The aim is to use architectural and landscape design to unlock the hidden ecological potential of these monofunctional surfaces by interpreting them as platforms able to support more-than-human interactions.

The research sets its roots in the rich spatial and cultural *palimpsest* of the human settlements in Emilia-Romagna. This region of Northern Italy can be recognized as a stratified network of urban, peri-urban, and rural areas, founded on a sequence of medium-sized cities connected by linear infrastructures along the Po Valley. Such an ancient system, standing on a background of productive agricultural land, has historically been part of a crucial commercial infrastructure (with the city of Piacenza as its hinge along the river basin) linking central European and Mediterranean ports. Dominated by two large-scale monofunctional forms of production – logistics and agriculture – the Po Valley territory is commodified through a long-standing extractive approach operated toward landscape and its vital processes.

Today, this overland freight transport network – while undergoing deep transformations dictated by the on-demand economy – is attracting international investments, giving shape to continuously evolving geographies. The chain of logistics – physically embodying the growing spatial impact of the economy of fulfillment – is, on the one hand, colonizing the urban landscape through micro-scaled distribution, while on the other, is devouring rural land next to high-speed infrastructures on a much

larger scale, where the issue of *bigness* finds new social, economic, and spatial implications, not far from the ones of *hyperobjects*. Multinational companies such as Ikea, Amazon, Geodis, and DHL have settled some of their crucial distribution hubs in Pianura Padana. These settlements, closer to the field of action of the landscape than to the understanding of a single architectural object, are entirely developed horizontally, following a matrix of ground coordinates orienting flows of humans, trucks, and robots inside and across their indeterminate shells. Contemporary *logistics landscapes* are *backyard landscapes*, where space is produced “in the same way goods are produced” ⁽¹⁾, and form is directly dictated by those goods it contains. “As nodes in a thick interwoven network of industrial highways and double-stack rail corridors, these industrial buildings are neither the origin nor terminus of a product; they are unadorned and engineered for efficiency. While physically opaque and removed from the public sphere, they both conceal and inadvertently express their function” ⁽²⁾. If the morphology of logistics hubs and centers (linked to an array of different sub-typologies) is an object of constant inquiry and mathematical optimization, relations between their vast footprint and biological processes of space

Logistics Landscapes Co-existence More-than-human Ecologies

appropriation and transformation can still be studied and used to uncover hidden potential. Such hyper-functional landscapes currently face a growing fragility linked to the transience of their global economic premise and the unprecedented pressure of climate change on urbanized areas and anthropic systems. This research will consider the building components of logistics centers, in order to allow for hybrid fulfillment ecologies to be developed around and across landscapes currently deprived of any architectural quality. These phenomena, observed through a *posthuman* lens, recognizing the relevance of other agents and forms of life, can describe a hidden narrative: a phenomenology of muteness (or alienation) with a genealogy rooted in large-scale economy and potential linked to an uncertain future. If “acts such as online shopping coalesce to produce distinct geographies across the planet at multiple physical and temporal scales” (3), future growth or

shrinkage patterns – related to a hyper-dynamic relationship between spaces for storage and transportation of goods – are yet to be explored. Through a suspension of judgment (*epoché*), where spatial impositions and environmental manifestations depict a repetitive generic landscape, the existing friction between built platforms and porous grounds can be seen as a generator of new conditions of co-existence. In this context, the platform, “a flat horizontal surface that is usually higher than the adjoining area” (4), is re-interpreted and turned from the primary act of land appropriation behind the very existence of any logistics hub to a hybrid substrate, a “base” capable of hosting unexpected ecologies. Elaborating on the narrative trajectory based on *four ecologies* – which pointed towards the diversity of layers through which it is possible to use the term – the interpretative reading proposed by this research considers the concept of ecology as an open repository of the multiple living dimensions to which the landscape architecture project refers, including systems of spatial, cultural, and biological relations. Following the methodology of the design-driven research, the thesis will develop a theoretical approach to logistics and post-logistics ecologies, develop a series of emblematic scenarios, and finally focus on the Piacenza Logistics

Center case study. The Emilian landscape – understood through the metaphor of the *porous city* – will be the object of a mapping process. The mapped freight landscapes will be the subject of pilot site-specific projects aimed – at expanding the potential for *assemblage* – and at broadening the spectrum of possible interactions of shape and type with the sphere(s) of ecology. In the post-pandemic era, facing recent political shifts across the European continent, with new conflict scenarios opening across Western countries, the globalized model appears to be on the brink of mutation. Flows of goods between countries and across continents are yet far from being questioned, but the logistics apparatus supporting them might be close to a structural change. Beyond the short-term scenarios driving (through algorithms) its current expansion and issues connected to road transport, posthuman automation, and ambiguous planning, the long-term destiny of the *automated landscapes* of logistics remains unclear. “Nowadays, so-called ‘contamination’ is the norm.” (5) Moving from this assumption, the research’s final objective is to investigate possible generative interferences between logistics platforms and the plurality of human and non-human agents on highly infrastructured landscapes, fostering biodiversity,

ecosystem continuity, and interspecies practices of space appropriation. Establishing the concept of post-logistics landscapes and ecologies, the research will work on the what-if domain, casting future scenarios of obsolescence as a speculative framework to react to. The expected research outcomes include an array of architectural models to be applied to logistics landscapes, turning XL-sized opaque containers into *more-than-human* living milieux – components of geographies with a vital thickness – and unveiling their potential as platforms for unexpected “posthumanist and non-anthropocentric” (6) ecologies.

Notes

- (1) Jean M. Besse, *La nécessité du paysage* (Editions Parenthèses, 2018); It. tr. Jean M. Besse *Paesaggio ambiente. Natura, territorio, percezione*, (DeriveApprodi, Roma, 2020), 44.
- (2) Cyrille Dubreuil, “The Bow”, *Topos Magazine*, acc. 27 September 2023. <https://toposmagazine.com/the-bow/>.
- (3) *ibid.*
- (4) Merriam-webster, online dictionary, acc. 29 April 2024. <https://Merriam-webster.com>.
- (5) Teresa Galí-Izard, *Selvatico. Quando, chi, come, dove, cosa*, (tr. by the author) in Annalisa Metta, Maria Livia Olivetti, *La città selvatica. Paesaggi urbani contemporanei* (Libria, 2019), 110-117.
- (6) Rosi Braidotti, Simone Bignall, *Posthuman Ecologies: Complexity and Process after Deleuze* (Rowman & Littlefield, Lanham, 2019), 9.

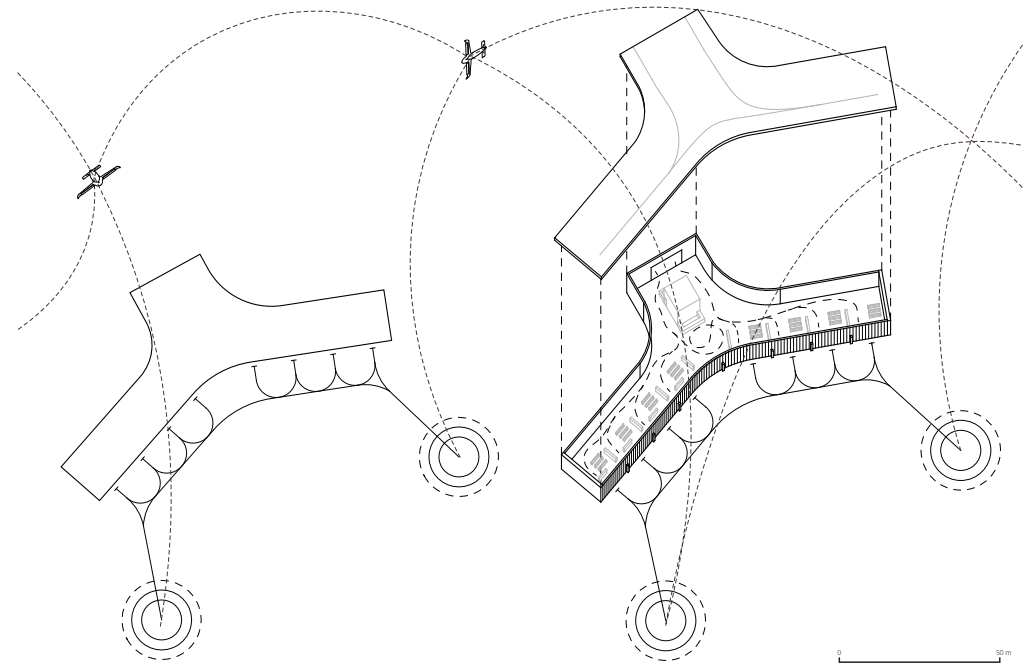
PIONEERING INFRASTRUCTURE: EXPERIMENTATION ON DESIGN STRATEGIES FOR URBAN AIR MOBILITY IN ITALY

PhD Candidate: Ottavio Pedretti - Supervisor: Prof. Giulia Setti - Co-Supervisors: Prof. Fabrizia Berlingieri, Prof. Giuseppe Quaranta

Ottavio Pedretti, Lake Nona (Orlando) Vertiport reading, 2024.

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Place: Orlando (USA) - Vertiport sqm: 2'400 - Year: 2023 - Phase: Concept Design - Design : Lillium - eVTOL: Lillium



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The research sets its framework in the urban air mobility ecosystem, focusing on Italy. It aims to read configurations and define the typology of vertiports while exploring design strategies for their integration into urban environments. The research tests three key vertiports dimensions: ecological catalysts, adaptive reuse activators, and urban connectors. Selecting Golfo di Napoli as a case study, the proposal aims to provide prototypes to study architectural strategies linked to the vertiport project and outline a guide for the integration of vertiports in the urban environment.

The research explores the architecture of vertiports and new physical infrastructures that are fundamental to urban air mobility (UAM) development. Urban air mobility represents a new approach, initially developed in 2016 ⁽¹⁾ to urban transportation, aiming to reduce travel time and improve city connectivity. UAM involves electric vertical takeoff and landing (eVTOL) aircraft, capable of taking off and landing vertically and designed to be quieter, more efficient, and safer. The work fits into the broader research framework funded by the PNRR within spoke 1 air mobility, part of the hub “MOST - Centro Nazionale per la Mobilità Sostenibile.” The field of application concerns the Italian territory.

The emergence of vertiports represents a novel concept in urban infrastructure ⁽²⁾, necessitating a comprehensive understanding of the architectural design field. Vertiports present unique architectural challenges due to their vertical takeoff and landing capabilities and the need for integration with surrounding built environments. Architectural strategies are fundamental in bridging this integration by addressing design, functionality, and urban aspects. Additionally, architectural strategies can enhance the spatial qualities of

vertiports, transcending their utilitarian nature to become points of interest capable of integrating with diverse functions. This transformation enables vertiports to serve as versatile places, accommodating various activities such as transportation hubs, commercial space, and tertiary functions. This integration enhances vertiports’ adaptability to different environmental conditions and increases their relevance and significance within the urban environment.

From a scientific standpoint, the study of vertiports as architectural entities remains nascent, necessitating a comprehensive inquiry. Available literature predominantly derives from disciplines such as aerospace engineering and air traffic management ⁽³⁾, reflecting the interdisciplinary nature of the subject matter. This lack of dedicated architectural studies underscores the topic’s novelty within architectural research, highlighting the investigation’s relevance.

The research is organized into two sections, each addressing critical aspects of Urban Air Mobility infrastructure and their design. The first section delves into a comprehensive analysis of the UAM ecosystem and the imagination related to flight..

To understand what vertiports are, it is important to grasp the backgrounds

Urban Air Mobility Infrastructure Design Strategies

of vertiports comprehensively; it is essential to delve into two distinct yet interconnected dimensions. Firstly, exploring the urban air mobility ecosystem provides key insights into the positioning of vertiports within its broader framework. Secondly, examining the imaginary and cultural perceptions surrounding flight ⁽⁴⁾, particularly during the 1930s, offers valuable historical context. These two perspectives, though distinct, complement each other, offering a holistic understanding of the genesis. The starting point of the research is the reading of vertiport. The primary objective is to discern configurations and establish a definition, leading to the selection of representative projects. A comprehensive research of the vertiports projects available ensures a systematic examination of them. The development of an abacus that categorizes vertiports through their plan and elevation helps to discern recurring patterns and spatial configurations and

provides insights into the emerging typology of vertiports ⁽⁵⁾. To understand better the principle behind the Vertiport design, a selection of case studies from the abacus will be read to decode their variation and define the elements that compose the vertiports.

The research has formulated three distinct design strategies for the vertiports project and their integration in the application areas. These strategies serve as methodological frameworks for investigating various facets of the design process, thereby contributing to advancing knowledge in this nascent field.

The design strategies define the role of vertiports in urban environments, clarifying their potential as ecological catalysts, adaptive reuse activators, and urban connectors. Vertiports serve as ecological catalysts to foster positive environmental change. Vertiports are adaptive reuse activators, repurposing existing buildings into versatile vertiports and promoting multi-functional space. Furthermore, vertiports act as urban connectors, alleviating urban congestion and enhancing mobility in high-density cityscapes through spatial optimization. A design-driven research approach critically explores the relationship between architecture and integration into urban environments. The

utilization of vertiports spans a spectrum of applications, from the initial phase of emergency scenarios to transporting goods and passengers. It tests theoretical design strategies, using the Golfo di Napoli region as a case study. This area serves as a model applicable to Italy due to its relevance within the dimensions of the city and inner areas, considering the region's distinct geographical and infrastructural features. The definition of prototypes aims to provide experimental insights into the adaptation and optimization of vertiports to suit various environmental conditions. The goal is to pinpoint suitable sites within the Golfo di Napoli region. By illustrating how each strategy can be tailored and applied to address this coastal region's unique challenges and opportunities, the goal is to guide future actions in urban development.

The experiences and insights from design-driven research conducted in Golfo di Napoli offer a new perspective on the design of the infrastructure. The success of this perspective is rooted in the possibility of replicating it in cities like Milan and Rome. By extrapolating lessons learned, the aim is to explore how similar design strategies could be adapted to diverse urban contexts, thereby anticipating potential future outcomes. The tests in new cities will

raise questions exploring potential challenges and opportunities. They indicate areas where further research and exploration are needed to address the complexities of implementing urban air mobility.

Notes:

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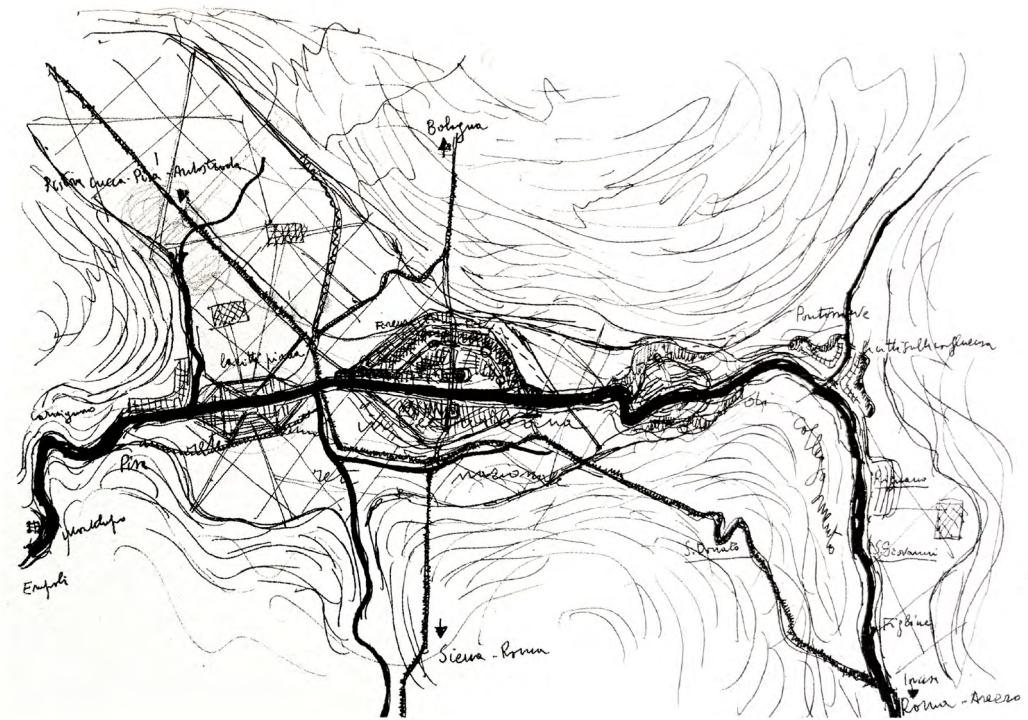
(3) Bianca I. Schuchardt, Dagi Geister, Thomas Lüken, Franz Knabe, Isabel C. Metz, Niklas Peinecke, Karolin Schweiger. "Air Traffic Management as a Vital Part of Urban Air Mobility—A Review of DLR's Research Work from 1995 to 2022." *Aerospace 10* (2023).

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(5) Rafael Moneo, "On typology." *Oppositions* no.13 (1978).

CROSSING BEYOND THE CROSSING. THE FOOT- BRIDGE AS AN OPPORTUNI- TY TO CREATE NEW RELA- TIONS WITH THE RIVER

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sor: Prof. Michele Ugolini



The river is the backbone of complex and varied landscapes, acting as a separating and interfacing element within the context of the river park. The crossing is a connector of places on a small and wide scale, in the narrowness of the seam of the two banks to the depth of the territorial scale. The footbridge is an intermediary between the territory and the constitution of inwardness and identity places, facilitating a profound relationship between humans and the river.

The research presented here refers to the NRRP Doctoral Scholarship Programme (NRRP 351 Call for Proposals, Local Strategies: Design for the Regeneration of River Areas, which arose from the agreement between the Politecnico di Milano and the Consorzio del Parco del Lura, the public body representing the partnership of the research. The distinctive feature of the scholarship is the involvement of the public body as an intermediary, which provides the opportunity to anchor the research in the specific characteristics of the Torrent Lura subbasin. Furthermore, through the internship activities at the public office, as stipulated in the call for applications, the knowledge of the places in question transcends mere theoretical study, affording the opportunity to measure the design dynamics and the concrete implications in the transformation of places, a fundamental aspect for design-driven research. In order to organize and systematize the projects carried out over the past twenty years in the context of the River Contracts, a document was drawn up through constant dialogue with the Park: The Atlas of Projects was thus created as an annex to the research, with the aim of providing a record of the projects by presenting cards for each work, themed by type of intervention. The Atlas also aims to interpret the role of the projects within a system in which trajectories and directions can be

recognized, if further related to planning tools such as the Piano Particolareggiato Attuativo del Parco del Lura, updated in April 2023. The instrument in question, which provided an overview of the state-of-the-art of the river park, presented an opportunity for the Institution to focus on the more or less direct relationship between man and the river, which is the true bond and element of identity for the Park.

The river park develops longitudinally on either side of the watercourse, weaving its way through the unbuilt areas of the territory. This territory, northern Lombardy, has experienced aggressive urbanization of an extensive nature, resulting in the fragmentation of natural areas with dangerous ecological implications. Conversely, the recognition of the park's identity role for the community emphasizes the need for a fruition network that roots it in the inhabited systems that surround it. It is not coincidental that the activities of Lura Park can be described, among other things, through two documents: the LuraNet Plan and the VeLu Plan, which are planning tools for the ecological network and the cycle/pedestrian fruition network. The theme of connections and the establishment of *intra-* and *extra-* park networks thus becomes central and foundational. In this context, it was acknowledged that the connection between the two banks of the stream via

Footbridge River Transversality

bicycle and pedestrian footbridges – in the context of the park – represents a pivotal design point with inter-scalar resonances. The research thus sets itself the objective of investigating the role of the crossing (in addition to the objectivity of the artifact) with the intention of developing a narrative structure through a system of scales and scopes, which will enable the crossing to be related to the territory and the territory to be related to the stream.

[Scope: Interscalarity as an Approach to the Territory]

beyond the park: the wide scale of the territory

The large-scale identification of interconnections between territorial systems reveals a sprawling apparatus representing the network of relations outside the administrative perimeters of the consortium. This infrastructure constitutes the link between intra- and extra-park realities.

The ecological and fruition filaments, which represent the backbone structuring the park's transversalities, find their local interchange with the river corridor in the stream crossing.

within the park: the medium scale as interaction

between park and conurbation

The medium scale defines the logic of interaction between the river shaft, the Park's places (the rooms, the equipped and rest areas, etc.) and the architectural relevance present in the settlements that describe its margins. The systematization of these elements constitutes necklaces of the centrality of local relevance, capable of linking fragments and places to the centrality of the watercourse.

around the bridge: the scale of proximity

The river's vast heterogeneity and inhomogeneity become immediately measurable through the crossing element. In the context of a river park - stretched across the unbuilt stretches of land, often reduced to fragile filaments - the bridge can stitch together realities that are practically adjacent and simultaneously detached from the presence of the watercourse. Connecting the two banks, therefore, means transforming the balance of the landing places, stretching and extending their surface, and resonating the presence of the connection in their immediate proximity.

The foot of the bridge: the landing and its adjacency

The purely architectural scale represents the possibility of describing the true interface between the objectuality of the artifact and the adjacency to the crossing. On the one hand, the theme is embodied in the true element of the interaction of the bridge with the ground and, thus,

in the relationship with the form of the bank on which it stands. The interest of the close scale lies primarily in the shape of the banks and in the possibility of the presence of accessible intermediate heights in direct relation to the stream. On the other hand, where the morphology of the watercourse does not allow this, the crossing must interact directly with the body of water, defining a new segment of the bank. On the other hand, it is this last, close scale that allows us to introduce the theme of perception and the relationship with the river, studied in its relationship with the connecting element. The bridge, as well as being an element of transversal connection, becomes a device of elevation at a privileged height, a point of observation towards what is around in the short and long distance, establishing, moreover, an otherwise impossible relationship of length with the stream.

In the same way, where the conformation of the ground allows it, being under the bridge can become an opportunity to seek a secluded sphere of inwardness in close relationship with the water.

[Scope for Action on the River Park Territory]

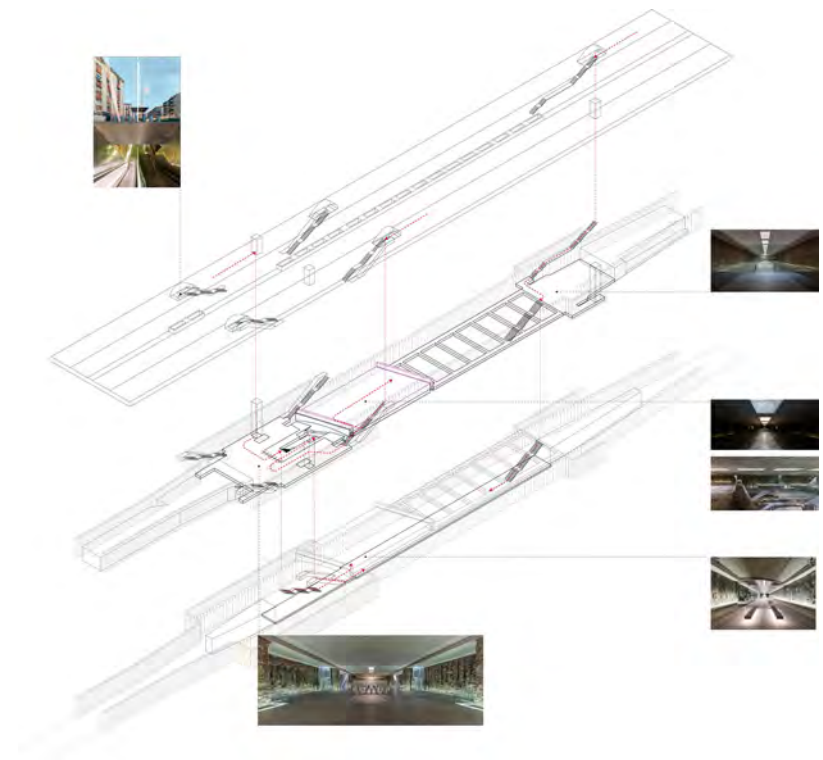
Reading the survey areas in relation to the territory they describe in system with the Park's planning tools, which make explicit the direction towards a regional ecological and fruition network, and by rereading the elements of the Atlas of Projects, a kind of disjunction emerges

between the planning scales - in the constitution of a network on both sides of the river - and the architectural scale of the crossing.

This theme has also emerged in the design work presented for participation in the *Interreg Italy-Switzerland Axis 2, O.S. 2.4 "Ri.Ver.LhAB: Re-naturalisation of Green River Habitats"*, in which the projects developed by the author, can be read *ex-post* as the latent potential for the bridge landing to become a nodal element between pathways, park areas, settlements, and historical-architectural and local identity elements, in a new direct relationship with the river. On an architectural scale, the foot of the bridge becomes an element for a new integration of the artefact with the system of places and routes, with the system of heights, providing a new proximity to the stream. The research aims to address the issues of existing bridges in their integration and systematization with adjacencies, as well as to confront new design elements, giving them a new and broader meaning beyond the crossing. The internship activities have already prompted a number of reflections on the significance of the crossing in facilitating new levels of proximity to the stream and in recognizing the centrality of the river as the defining identity element of the river park.

MOVEMENT PLATFORMS: CONCEPTION AND PERCEPTION IN TRANSPORTATION HUBS

PhD Candidate: Hao Wang - Supervisor:
Prof. Pierre-Alain Croset



Movement platforms and key stills in Alcázar Genil Station, Granada; drawn by the author.

The initial interest of this investigation lies in the experience of movement inside stratified platforms in transportation hubs. This study begins with two questions: Firstly, how can architects avoid generating architectures or infrastructures that are indifferent to the site by allowing the terrain to operate at an unprecedented scale? Secondly, how can the experience of movement in transportation hubs adapt to specific architectural topographies? Two basic topics - “platform” and “movement” - will be discussed: the various relationships between platforms and ground and the temporal-spatial structure of movement inside platforms.

The first topic is “platform”. The term entered English in the 16th century, coming from the Middle French *plateform* or *platte fourme*, which means “flat form” that refers to a raised level surface. In architectural discipline, Leon Battista Alberti thoroughly and insightfully examined the term “platform” (his Latin term was *area*). For him, “under the title of platform, we shall likewise include all those spaces of the buildings which in walking we tread upon with our feet.”⁽¹⁾ The work of other author-architects on this topic will also be studied. If we focus on the mound (base platform) among the four elements of Gottfried Semper, undoubtedly, it serves the purpose of convenience and unfolding human situations, which aligns with Alberti’s platforms. He is also deeply concerned with articulating the base platforms in design works. In the short yet seminal article “platforms and plateaus”, Jorn Utzon documented the phenomenological experience on platforms in multicultural contexts, as well as their inspiration for his design works⁽²⁾. For Oswald Mathias Ungers, who confronts the condition of the fragmented city, the platform serves as the binding element in his *Grossform*. Alberto Campo Baeza regards the platform not only as the primary element of architecture but also as the spatial limit between the stereotomic and the tectonic

(3). In this study, the “platforms” shall mainly refer to the integrated building levels that touch the ground, as well as the connecting elements like stairs, ramps, escalators and elevators. As the initial constructive act, a fundamental understanding of the platform is that it breaks the continuity of terrain, delimiting it both horizontally and vertically to unfold human situations, and subsequently reestablishes and structures connections with the surroundings in an architectural way.

In regard to the relationships between platforms and ground, Tomà Berlanda proposes three basic categories: “interlock, adherence and separation,” from which all types of relationships can be derived⁽⁴⁾. However, despite its diminishing application in the modern period, the category of mound used for platform construction is not addressed within these three categories. This study further refined the categories of elevation, continuation, and interpenetration.

As a result of the disparate range of approaches by architects, the meaning should be analyzed case by case. Sections seem to be the most appropriate way of analysis, as they reveal the basic relationships and tectonic solutions, as well as the vertical relationships between stratified platforms. As Carol Burns puts it, “conveying the topographic qualities of both building and setting in the baseline,

Platform

Experience of Movement

Transportation Hubs

the horizon line, and the profile line, the section shows the relationship between site and building in phenomenological terms and not in geometric terms.”⁽⁵⁾ The second topic, “movement”, aims to examine those with the dynamic experience of movement inside platforms in different spatial conceptions. The whole process is interpreted according to the temporal-spatial structure of storytelling, which involves spatial characters that we perceive from the outside and the tangible world and the inner landscape formed in our mind. These two aspects work mutually to give the orientation of “where you are”. Similar to the aforementioned three categories of platform, another three would be ascribed to movement. According to Hunt, the three basic kinds of movement are the procession, strolling and wandering ⁽⁶⁾. Procession happens more frequently in ritualized settings with a definite destination and prescribed route. By contrast, the strolling aims at a destination, and the wandering has neither ⁽⁷⁾. In the experience of

movement, architectural topographies are structured in two ways: spatially and temporally; while compared to the explicit spatiality, the temporality of topography is generally implicit. At any given instant, places and times have linkages to distended conditions: the past lingers into the present as the future prolongs it ⁽⁸⁾. This is to say that one important way of thinking about the temporality of architectural topographies is through the spatiality of movement. This study particularly examines the temporal-spatial structure of movement on platforms. Cases from various times and locations, such as the ritualized procession in Egyptian Architecture, the Greek Picturesque in the Acropolis of Athens, the picturesque tradition in early modern architecture, and mechanical movement, will be examined to delve into the conception and perception behind them. Axonometric drawings with key stills shall be utilized as graphical tools to represent the sequence of movement. Based on the study of these two topics, the third part would delve into the discussion on the particular type of transportation hubs. The movement platforms in this type have different key features:

- Several building levels, including the transportation infrastructure, are integrated as a whole to touch the ground.
- Due to requirements of light, visibility

and circulation, the platforms in transportation hubs are more permeable and interconnected, making the platform the prominent element.

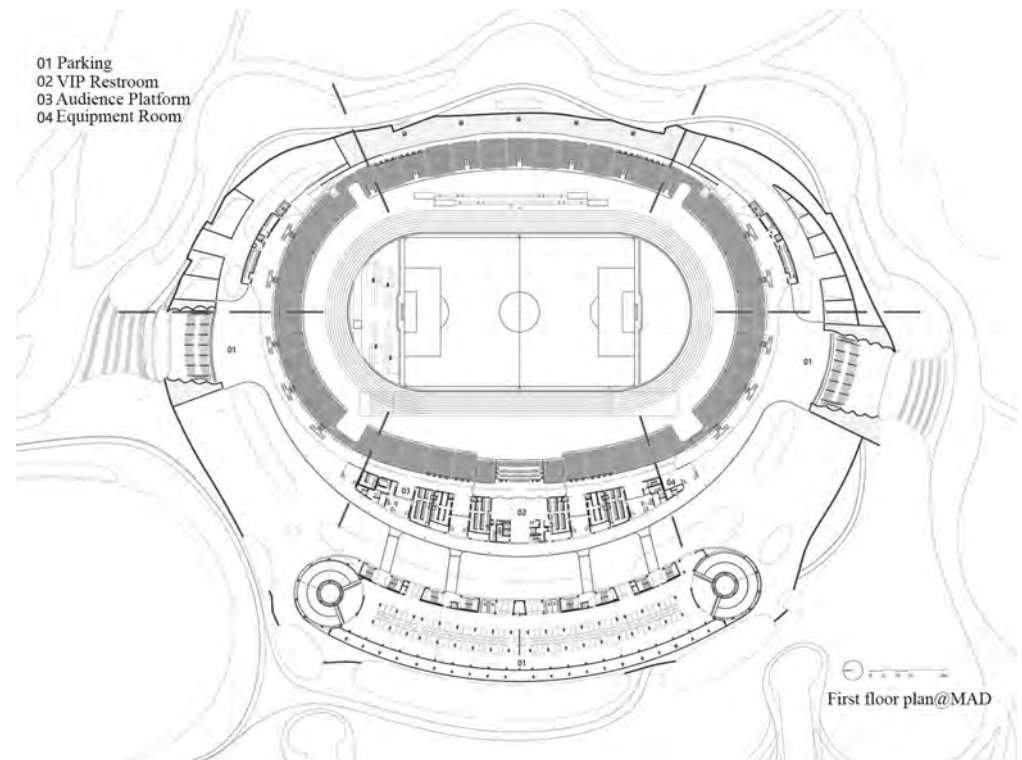
- The pedestrian movement in transportation hubs is characterized by the goal-oriented and strolling categories
 - Different modalities of movement with different speeds are coordinated in stratification, which will also affect the pedestrian experience.
 - Concerning the construction of infrastructure, the tectonic dimension of the platform plays a crucial role.
- To begin an examination of the historical genealogy of transportation hubs provides insight into fundamental aspects of this type. Then, former study on the two topics would shed further light on the analysis and design works of transportation hubs.

Notes

- (1) Leon Battista Alberti, ed. Giacomo Leoni, Cosimo Bartoli, *The Ten Books on Architecture: The 1755 Leoni Edition* (Dover Publications, 1986).
- (2) Jorn Utzon, “Platforms and Plateaus: Ideas of a Danish Architect”, *Zodiac 10*, (1962): 113-140.
- (3) Alberto Campo Baeza, “Flat Horizontal Plane: on Horizon.” *Principia Architectonica* (Mairea Libros, 2013), 43-50.
- (4) Tomà Berlanda, *Architectural Topographies: a graphic lexicon of how buildings touch the ground* (Routledge, 2014), 3.
- (5) Carol Burns. “On site: architectural preoccupations.” *Drawing, building*, text, ed. Andrea Kahn (Princeton Architectural Press, 1991), 154.
- (6) John D. Hunt, “Lordship of the Feet, Towards a Poetics of Movement in Gardens,” *Landscape Design and the Experience of Motion*, ed. Michel Conan (Dumbarton Oaks, 2003), 188.
- (7) David Leatherbarrow, *Architecture Oriented Otherwise* (Princeton Architectural Press, 2009), 275.
- (8) David Leatherbarrow, *Building Time: Architecture, event, and experience* (Bloomsbury, 2020), 10-14.

RESEARCH ON SPATIAL ADAPTIVE DESIGN OF LARGE-SCALE SPORTS IN- FRASTRUCTURE IN CHINA AND EUROPE, A COMPARA- TIVE STUDY

PhD Candidate: Siyu Liu - Supervisor: Prof.
Filippo Orsini



With the increasing international exchanges, the scale and level of sports development have become an important symbol for measuring the social development and progress of a country and region. Sports activities, cities, and buildings form a three-way interdependence and promotion. Sports buildings are the main elements of urban infrastructure and, more importantly, the critical pillars of the regional system, representing the most effective connection hub with urban organisms and an essential part of the city's historical evolution, current status renewal and future development.

With the continuous improvement of the living standards of the Chinese people and the continuous advancement of the “Healthy China” strategy, China’s sports industry is developing vigorously and advancing towards diversified development. The number of sports infrastructures is gradually increasing, such as the “Bird’s Nest” stadium built for Olympic events, Shenyang Olympic Sports Center and other well-known large stadiums. Along with such rapid development, a number of problems have gradually emerged, too: (1) the distributions of large vs small stadiums are not reasonable, (2) the usage for sports competitions by athletes vs that for other activities by the citizens is not well balances, (3) such sports venues neither fully function well socially for city masses nor gain profits for commercial purposes, (4) more importantly, construction of such venues has been done poorly in terms of coordinating the environment and protecting the ecology, and still lacks the concept of sustainable development. This study proposes to compare the construction of sports infrastructure in China and Europe, especially the construction of sports facilities for large-scale sports games. On the basis of comparative analyses of data from China and Europe in light of urban renewal and development, plus my own field research, this study

will discuss the relationship between the construction of sports facilities and urban development, especially the relationship between the construction of sports facilities for large-scale sports games and urban development in the cities they are located in; it focuses on a comparative study of the interior space design of sports facilities for large-scale sports games (like the functions, traffic organization, and spatial layout change with urban renewal, that is the most important part of this study) in a number of selected Chinese and European cities, so as to formulate some specific ideas and methods for the systematic construction and sustainable development of sports facilities. With a combination of selected samples from China and Europe, it tries to explore the mode of construction of sports facilities that are more suitable for China and Europe and their relationship and interaction with urban development. Moreover, this study, with its positive and practical significance for the promotion of the construction of Chinese urban sports facilities, hopes to produce some important social, economic and environmental ecological significance for the promotion of city regeneration and urban development in general. The relationship between the construction of large-scale sports facilities and urban renewal:

- The construction of sports facilities for

Sports Facilities City Regeneration Architectural Design

large-scale sports games will promote the renewal and development of the city.

- The construction of sports facilities for large-scale sports games, especially national, continental and international events such as the Olympic Games, World Cup, Asian Games, and National Games.
- The construction of venues and facilities for national sports activities has a very important and far-reaching impact on urban development, which is manifested in the following aspects:

(1) It promotes the construction of urban infrastructure and improves the image of the city. Urban infrastructure is the guarantee for the smooth progress of large-scale sports games. It is related to the success or failure of large-scale sports games. Huge investment has made urban infrastructure a qualitative leap. For example, in order to host the 25th Olympic Games in 1992, Barcelona, Spain, carried out a large amount of urban infrastructure construction. The new road network has increased the daily flow of

motor vehicles in the city from 590,000 to 900,000, and the traffic is very smooth; the expansion of the airport has doubled the flow of passengers from 6 million to 12 million per year; 31 kilometers of underground pipelines was newly added to the city; the green area increased from 400 hectares to 750 hectares; a 268-meter-high TV tower and a large number of communication and TV facilities were built; the poor environment in the coastal area, originally the location of ports, factories and warehouses all being removed was greatly improved, and a residential area was built along the coast as an athlete's village during the Olympic Games, making a thorough improvement of the city along the Mediterranean coast as well as the appearance of the city of Barcelona. (2) It makes a good adjustment to the formation of the city as well as optimization of its urban structure. The construction of large sports venues and supporting facilities will greatly improve the environment of the region, greatly enhance the function and image of the region, and thus drive the construction and development of surrounding areas. Through the reasonable distribution of venues, the purpose of optimizing the urban spatial structure is achieved. (3) It spreads sports culture, promotes the development of urban culture, and plays an important role in the renewal

of urban culture. For example, the Olympic Games in Los Angeles, Seoul and Barcelona have all made cultural contributions, promoted the development of sports culture and urban culture, and greatly improved the taste and levels of the culture and arts of the local people. The Los Angeles Olympics made a profit of 225 million US dollars. The organizing committee donated 60% of these profits to the United States Olympic Committee and 40% to the Southern California Olympic Committee, and it established a foundation to promote amateur sports in Southern California. The foundation supported many other amateur sports activities as well.

Research Objectives

As people's health and sports are valued by globalization, the development and construction of sports infrastructure, as the carrier of major behavioral activities and industrial development, is the top priority. Under the background of continuous renewal and evolution of complex urban systems, the function, layout, organizational structure of sports infrastructure, physical space, and urban non-adaptive phenomena occur. This study expects to achieve the following goals:

(1) Clearly outline research ideas for the construction of modern sports facilities from the perspective of the city in relation

to urban renewal as well as its complexity of evolution during its process.

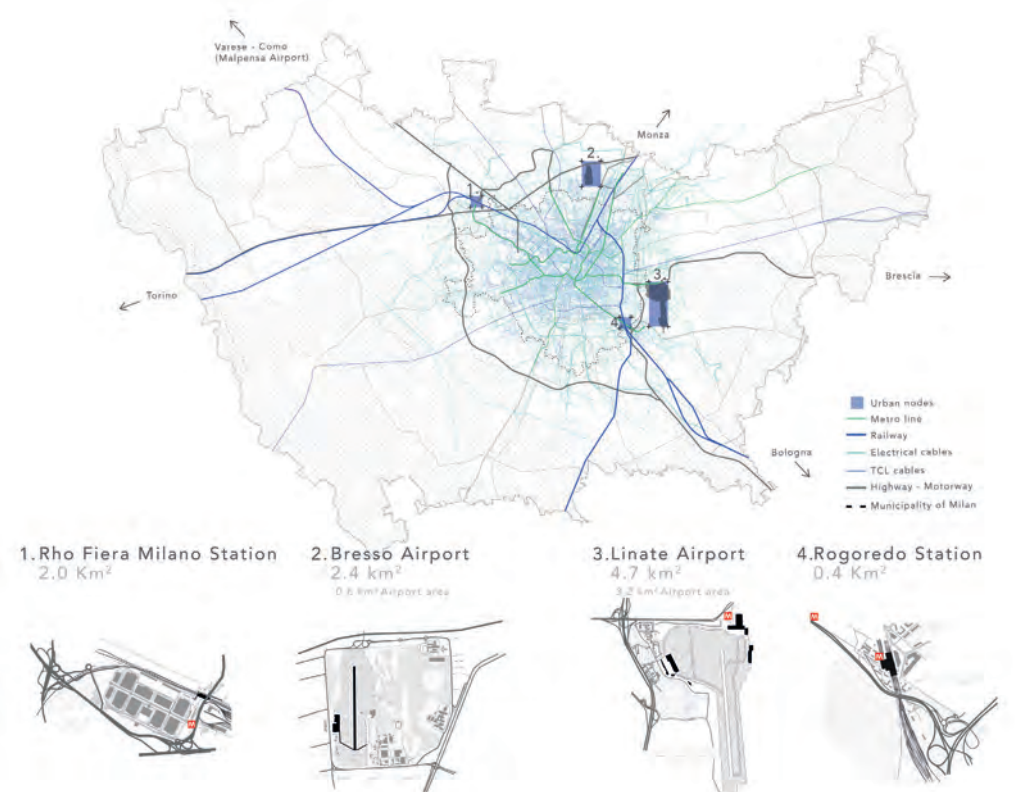
(2) Explore step by step the close relationship between the construction of sports facilities, especially the construction of large-scale sports facilities and urban renewal, select representative cities in China and Europe and their large-scale sports facilities, examine the relationship between the post-match use of large-scale sports facilities and urban renewal, in the effort of learnings their lesson and experiences as well as finding out their internal rules and general trends. (3) Compare the research results of selected cases in China and Europe with a combination of selected individual cases in China to further explore the interactive relationship and mutual impact between the construction of sports facilities in Chinese cities and urban renewal. (4) Based on the above research, put forward the strategies for China's sports facilities construction from the perspective of urban renewal so as to provide some reference for the future construction of urban sports facilities in China, especially the construction of sports facilities for large-scale sports games.

FROM SPACE TO TIME. URBAN AIR MOBILITY FOR CURRENT EVOLVING INFRASTRUCTURAL URBAN FORMS

PhD Candidate: Francesca Monteleone -
Supervisor: Prof. Fabrizia Berlingieri - Co-
Supervisors: Prof. Giuseppe Quaranta, Prof. Giulia Setti

Francesca Monteleone, Dematerialization of the infrastructure and enrichment of urban infrastructural nodes in the Milan metropolitan context, 2024. The progressive dematerialization of the infrastructure is represented by the fading network of the electrical and TCL underground cables, vectors of mobility fluxes, stopped at the border of the city where new intermodal places are trespassing the boundary.

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The mobility of goods and people has been a constant throughout the history of humankind, leading to the implementation of different types of infrastructures that have artificially shaped the territory. The current unprecedented technological progress has led to the progressive dematerialization of the infrastructure, both from a digital and a physical perspective. In this context, it is crucial to investigate how Urban Air Mobility is about to set new forms and times in the cities.

To understand the articulation of this new system and its consequent spatial impact, it is crucial to frame the evolution of mobility infrastructures in the current worldly-urbanized landscape. Therefore, the first part of the research takes a twofold framework of actions. On the one hand, it deepens the recent process of dematerializing infrastructure towards the new concept of mobility, a constitutive passage from a spatial dimension to a temporal one. In recent literature, in fact, infrastructures are more and more conceived in terms of flows and digital connections rather than streets and places. On the other hand, the research focuses on a new encroachment of the urban environment. A reflection on the recent urban condition is urgent in the infrastructural discourse on its evolution. Dematerialization and speediness of infrastructure modified space-time relationships within the urban environment, generating a pervasive urban landscape. This inescapable city is the spatial translation of the infrastructural evolution process and, at the same time, is the base layer of Urban Air Mobility.

The architectural choices and strategies of Urban Air Mobility placement stem from this ongoing dematerialization process and influence the unprecedented extension of the city, reshaping the relationships between the parts.

Therefore, the Urban Air Mobility project grasps the city dimension in its metropolitan domain, redrawing urban nodes, intermodal stations and infrastructural places.

This framework of the research is spatially examined through a methodology of Test Cases that built the design-driven dimension of the research. The Test Cases are constructed through speculative design projects on urban nodes and infrastructural places in metropolitan geographies, leading to the identification of possible settlement strategies. The speculative design projects broaden the borders of the research, merging with ongoing interdisciplinary Urban Air Mobility engineering research. This work, in fact, is conducted through an interdisciplinary activity with the Department of Aerospace Science and Technology (DAER) of Politecnico di Milano. The speculative Test Cases will then be imported in engineering Urban Air Mobility simulation models, as well as provide inputs for settlement perspectives and international discussion on UAM benchmarks. Therefore, Urban Air Mobility design strategies and settlements ignite a new reflection on the territorial dimension and form of the contemporary infrastructural project and its projected evolution, disputed, contested and shaped between different (im)material forces.

This chapter collects the presentations of the work in progress of the Architectural Urban Interior Design doctoral program candidates focusing on the “Facilities” theme.

The candidates are in different stages, comprised between the 35th cycle (beginning in 2019) and the 39th (beginning in 2022). Here is the list of the candidates with their cycle:

35 Amath Luca Diatta
36 Sarah Javed Shah
37 Beatrice Azzola
37 Nicola Campri
37 Cui Jiarui
37 Filippo Oppimitti
38 Beatrice Basile
38 Nicolò Chierichetti
38 Andrea Foppiani
38 Ottavio Pedretti
38 Andrea Renucci
38 Wang Hao
39 Liu Siyu
39 Francesca Monteleone

The epigraph at page 209 is taken from: Stan Allen, *Points + Lines: Diagrams and Projects for the City*, Princeton Architectural Press, 1999; p. 55.

HERITAGE

HERITAGE memories design

To take a site:
present trac-
ings, outlines,
figments, appa-
ritions, X-rays
of thoughts.

Meditations on
the sense of
erasures.

To fabricate a
construction of
time.

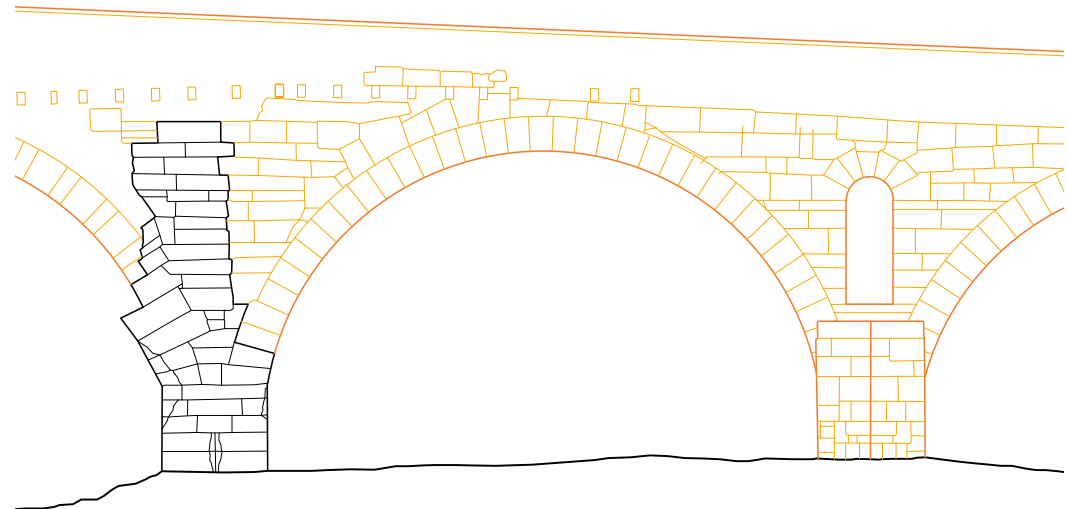
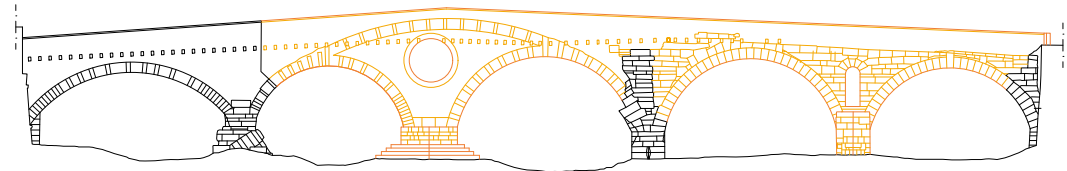
(John Hejduk,
1986)

RE-ARCHITECTURE. RE- CONSTRUCTION OF MOD- ELS / MODELS OF RECON- STRUCTION

PhD Candidate: Pietro Brunazzi - Supervi-
sor: Prof. Pier Federico Caliari (Politecnico
di Torino) - Co-Supervisor: Prof. Francesca
Lanz (Northumbria University)

Pietro Brunazzi, Verona, Ponte Pietra (ruins in black and reconstructed elements in orange): the
overall comprehension of a monument lays in its palimpsest, 2024.

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Loss of meaningful architecture leads to a first attempt to restore a form. Facing an absence, the architectural project intervenes with a reconstructive act, giving a new formal presence to ruins taken as a model, coming as close as possible to the original or recalibrating it through degrees of invention/interpretation. The model suits the principle of replication; a model is the origin of repetition as it holds the truth of originality. What comes after is done by placing representation alongside the essence: the replica retains the figurative essence of the original.

To explore the theme of reconstruction in architecture, it is necessary to directly address the *vexata quaestio* and answer a long-standing question: what does reconstruction mean? Reconstruction is commonly employed in the broadest sense, which, although including practices belonging to both architectural design and restoration, leads to a precarious semantic generality. The attempt is to provide an appropriate response to redefine the role, task and perspective of reconstruction through design. In order to frame the meaning of “reconstruction”, it is necessary to start from language since a large part of the sedimented and intelligible meaning of the concepts we use is contained in the headwords we use and select through grammatical and syntactic rules. The difficulty in giving an unambiguous definition of reconstruction can be traced not only to reasons of content and etymology but also to the richness of the term: each type of definition determines, for example, its importance, its use or non-use and the responsibilities it requires. The controversies surrounding reconstruction are, in fact, often because different things are meant and understood by this term, and the meanings or definitions associated with it are, moreover, often linked to evaluations of particular origin or interest. The

term “reconstruction” is a synthetic expression stating a broader concept; attempts to distinguish “reconstruction” from terms deriving from the doctrine of restoration, reinstatement, or from the idea of copying, lack grounding in the historical substance of the project and its historical and normative terms, so that, in everyday language, the terms merge into each other or are used as synonyms. Restoring something that has been altered or destroyed for whatever reason to a condition as close as possible to its previous state goes back a long way in human culture.

A broader systematisation of the concept of ‘reconstruction’ must also consider the trans-disciplinary declinations of the term. In archaeology, reconstruction is intended as the set of operations necessary to graphically complete the architecture of an ancient building or monument, conjecturing the missing parts on the basis of the ruins that remain or of information that has come to light. Archaeological reconstruction refers to ground finds that are added to partially or wholly reconstructed buildings according to the respective state of knowledge of archaeology (1).

In philology, the reconstruction of a literary text is meant to restore it to its original form (or supposedly so), supplementing gaps, removing interpolations, and correcting

Ruins

Re-construction

Verona

transcription or printing errors (2). This first wide-ranging investigation of the meanings of reconstruction shows the transcultural importance of the concept of reconstruction, understood as a gesture of translation in the etymological sense of transmitting, which can be used in various spheres of application. For the purpose of this research, it is then helpful to shed light on other terms commonly used in relation to intervention in the built heritage. The figure of the architect understood as the creator of architecture, indicates both one who has the capacity to construct a principle (i.e. a thing that founds other things and from which other things follow) and one who has the capacity to construct an artefact endowed with authority (i.e. a thing that exerts power over other things, from which other things are determined and to which they refer). Through form, architecture thus addresses the double need to define at the origin a previously undefined space, to separate the space of human creation from the space of wilderness, controllable

and safe, from natural space, not so controllable and safe, but also to define an excellent space, in which to establish a positive relationship to the needs of human beings. Faced with the lack of this formal reference, the re-constructive ideal is linked to the possibility of repeating an action following different degrees of intensity in the same or opposite way. Its first syllable, “re-”, already contributes to the entire understanding of the term and is present in a series of words that are very common today, emphasising the need for man to think, plan and construct himself on the basis of what existed in the past.

The crux of the matter is contained in the interpretation of the prefix “re”: as a rule, in Neo-Latin languages, it has an iterative value that can also take on an intensive valence. In the prefix “re”, in fact, lurks the idea of re-thinking in order to find a new idea, of re-doing in order to do better, of re-recovering and re-cycling, in order to save and bring back again within a productive cycle (3). According to a doctrine traceable to some of Plato’s dialogues, the “re” signals a gap between the original and its re-presentation (4), whereby, in this view, the reconstruction would realise an image of the original reality.

Re-Architecture thrives on shared elements based on the search for continuity between old and new

structures, where the reconstructed parts are not mere mimetic additions but maintain their identity as architectural interventions. The project facing the loss of form or the reduction to a state of unrecognizability of an artifact must aim at a particular physical reconstruction of architecture in its measurable components in terms of size and gravity but, above all, through the sensitive component, it aims at a reconstruction of meaning that belongs to the complete form.

Beyond the simple copy, which envisages the continuous existence of the original, beyond the concepts of conservation and preservation, which immobilize the pre-existence in a state of fact from which no meaning can be conveyed, Re-Architecture becomes a reconstruction project seen in the light of an all-encompassing design operation.

The monographic study of the Italian city of Verona represents an internationally recognized case of permanence of monumental, urban, landscape, and archaeological context thanks to reconstruction and overall continuous operations of reintegration and repair the architectural patrimony which managed to preserve and transmit to present times a complex palimpsest of monuments which tracks the entire history of the from its foundation.

Among those cases of reconstruction, some emblematic ones emerge for

their value in defining the city’s urban landscape, for the historical events that characterize them and for the conceptual contribution they made in the development of the research. From value system and intervention context analysis, some models for reconstruction may be defined as repeatable approaches on the basis of the relationship that the project aims to weave with the context, with the presence of ruins, with society and generally, with reference to an architectural image sedimented in the collective consciousness, in particular, the research focuses on the evocative reconstruction of the Roman Theatre, anastylosis reconstruction of Ponte Pietra and Ponte di Castelvecchio, in vitro reconstruction of St. Sebastian façade on St. Nicolò fabric, and logical-inventive reconstructions occurred over Castelvecchio palimpsest.

Notes

(1) “Glossar,” in *Geschichte der Rekonstruktion. Konstruktion der Geschichte*, ed. Winfried Nerdinger (Prestel, 2010), 479.

(2) *La Piccola Treccani* (Treccani, 1996), s.v. “Ricostruire.”

(3) Ilaria Bignotti, “Resilienza,” *Recycled Theory: Dizionario illustrato/illustrated dictionary*, ed. Sara Marini, Giovanni Corbellini (Quodlibet, 2016), 533.

(4) Romano Gasperotti, “I due toni del ricostruire,” *Anfione e Zeto*, no. 30 (2020): 167-169.

DESIGNING PRESERVATION. TESTING AN ARCHITECTUR- AL APPROACH TO UNESCO TOOLS FOR HERITAGE-CON- TEXT VALORISATION

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Sara Ghirardini, Collage view of one of the design actions for territorial and heritage valorization in
Tivoli, testing the "interpretation framework" in the experimental part of the research, 2023.

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The research investigates the relationship between cultural heritage and its territory, exploring the potential role of design in the management of the fragile link between Unesco sites and their context, with a particular focus on the Italian situation. The focus shifts from the principle of conservation to the one of preservation, understood as a design activity that supports and conveys the values of the tangible cultural heritage. The final objective is to define a methodological proposal for the integration of architectural design as a strategic approach for the mutual valorization of heritage sites and territory.

The research stems from the recognition of a strong gap between an academic scenario that, in the last thirty years, has shifted the focus of heritage studies towards an increasing immateriality of the values constituting it, positioning itself in a highly critical way towards Unesco mechanisms, and a Unesco institutional framework that, despite theoretical efforts to broaden the vision on heritage, struggles in practice to acknowledge this change, spreading as a cultural brand with not necessarily positive impacts. Heritage design practice gets caught up in this stalemate, not finding an official role of its own in safeguard and enhancement strategies but working more frequently in an incidental and punctual way, outside of a systemic vision.

The primary objective of the research is to contribute to the bridging of this gap, according to the pragmatic gaze of architecture as a discipline that manages the transformations of anthropic space, and therefore, from the point of view of design, in order to verify its potential role among the tools for the active valorization of the relationship between heritage and territorial context. The main research question is therefore aimed at defining the implementation of the typical tools of the architectural design discipline within the institutionalized systems of protection, safeguarding, and valorization

of heritage assets classified as Universal Heritage.

Therefore, this research moves both through desk research and practical experimentation. If, on the one hand, the critical framing of current academic studies and the evolution of Unesco tools is fundamental to identifying the main critical points of intervention; on the other hand, the continuous confrontation with the reality of places and direct experiences – both of investigation and design – foster the verification of theoretical findings and the relevance of the proposed solutions to the concreteness of the object of investigation, which is the cultural heritage-related territory.

The dialogue between design practice and theory unfolds throughout the research, in a continuous cross-reference between the indications of texts and documents on the one hand and the insights gained from the analysis of realized projects, as much as from the direct application of design tools on the experimental case study of Tivoli. The project is both the object and the instrument of the research: in order to explore the integration of architecture in a bureaucratic planning process that has so far almost totally excluded it, it was deemed essential to test in a practical manner how this integration could take place, and thus produce a project for a specific case. What emerges is the need for a recovery of the architectural project

Heritage Buffer Zone Design Tools Valorisation

not as pure formal or technological expressiveness in response to specific needs but as a way to give «form to materials ordered to the purpose of living». (1)

Desk research on the state-of-the-art national and international debate on the definition and value of cultural heritage leads to a critical investigation of the tools of buffer zones and management plans, the main UNESCO tools concerning the territorial system outside the property perimeter. Partial and improper use of these instruments generates paradoxical conditions of induced fragility in contexts that should instead be pivotal in terms of enhancement. This is defined here as the ‘paradox of fragility’, with particular reference to the buffer zones of Unesco sites, introducing the idea of architectural design as a practice of care (2) for heritage-related territories. The hypotheses for the introduction at a methodological level of a design-based approach in the drafting of the Unesco tools proposes a review of their application more closely

linked to the specific context and to the transformative capacities of places and is also informed by the analysis of a selection of case studies developed in parallel with the theoretical research. The investigated cases deal on the one hand, with the partial use of an approach linked to the design of places and to the control/management of the transformations of the contextual space in relation to Unesco instruments, and on the other hand, with some examples of good design practice for the interlinking of heritage and territory.

Therefore, the structured methodology of project integration defines two main areas of intervention or application phases of the design tools. The first has been defined as a “cognitive framework”: it is a moment of investigation of the place characteristics aimed at defining the respect areas of a site inscribed on the World Heritage List, with a view to a long-range interaction between heritage and territory. The second, named “interpretation framework”, is a multi-scalar strategic project that, coordinated with the actions envisaged by the management plan, can guide and orient the context transformations of the inscribed property for mutual enhancement and support.

To substantiate, deepen, and verify this methodological proposal, a practical project experimentation was conducted

on the specific case study of Tivoli, where the two Unesco sites of Villa Adriana and Villa d’Este are located, inspired by the real possibility of interaction with the administrative and management apparatus of the Unesco heritage.

If the initial purpose of the experimental phase of the research was the drafting of a pilot project that would relate as realistically as possible to the Unesco mechanisms for management and safeguarding - either existing or under revision - the result was more likely to be the development of an initial methodology, certainly still perfectible, for the introduction of architectural design tools into the information and drafting phases of the protection and development of the territories surrounding the cultural heritage and supporting its recognized value.

This multi-scalar, holistic approach leads to the identification of different levels of implementation of design tools, both in the definition of the buffer zone and in the structure of the territorial management, seen as parts of a whole valorization project.

More specifically, the final definition of a hierarchy of transformative phases, defined through ‘design actions’, underpinned by a common ground of ‘design principles’, subverts the traditional vision of strict negative regulations and sets the basis for a

practical stakeholder confrontation. Within the Unesco framework, the diversification of the conditions of each site is such that abstract generalization of rules and tools is almost impossible. The development of suitable design tools, however, can be applied at a methodological level to different categories of cultural heritage – and at different scales – when the intention is to activate a positive relationship with the surrounding territory, whether urban, semi-urban, or natural, that allows the enjoyment of the heritage and the transmission of its values, fostering and not blocking the development of its anthropic context, which is the living substratum of those same values (3).

Notes

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(3) Laurajane Smith, *Uses of Heritage* (Routledge, 2006).

ESTABLISHMENT AND APPLICATION OF SPATIAL DATABASE FOR THE RENOVATION OF HISTORICAL VILLAGES

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Dan Hu, An interactive interface of the database: the old settlement of the village, 2024.

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Focusing on the renovation of historical villages in China and based on analysis and conclusion, the database presents policies, renovation strategies, and current status data of historical village renovations in a 3D visual form. The database structure is divided into nation, region, village, settlement, and building levels. Architects can zoom, rotate the model, and click on relevant buttons to obtain architectural information and interact. Relies on point cloud data and cesium, Muka village serves as an experimental case for exploring the potential of database application in all historical villages.

In recent years, rural issues have garnered significant attention in Chinese society. Historical villages, repositories of traditional culture, are grappling with severe challenges such as depopulation, disappearance, and decay, leading to considerable losses in cultural heritage. The sustainable development of historical villages has emerged as a crucial component of China's rural revitalization strategy. As digital technology enters the field of historical village preservation and development, many villages are being digitally recorded and showcased. Integrating digital technology with the design of historical villages is a challenging topic. The research focused on establishing a 3D database as a kit box and providing basic current situation data for the renovation of historical villages in China. According to the normal transformation process, the database content mainly includes three general parts: policy visualization, transformation strategy visualization, and visualization of current site data.

Firstly, this study analyzed all relevant Chinese policies and regulations, integrated duplicate content, and visualized them. This forms the guidelines and prerequisites that designers need to adhere to. Then, through theoretical exploration and case studies, design strategies were summarized, and a strategy kit box was

established. It provides specific tools and methods for practical implementation. The characteristic of "The Renovation of Oia" is a fusion of modern architecture with historic buildings. Matera renovation is a good case of transformation completely based on the existing historic building complex. In the renovation case of Shangping Village in China, which participated in the Venice Biennale, designers chose to start with the dilapidated buildings, beginning from the key nodes, thereby driving the overall renewal of the entire village. Wulong Village is a historic village in Yunnan Province, China. In its reconstruction, the architects employed the method of morphological deduction, which is evolving new buildings from the traditional architectural forms. The case of Dongximen Village in Tai'an, China, involves an attempt to activate and renew the area in the ruins. The case of Jintai Village in China focuses on incorporating low-tech methods into village housing design (1).

In the Future Cities Laboratory in Singapore, designers took advantage of the ease of editing features of point clouds; the point cloud model is divided into different sections. It was exported to Rhino for modeling, assemblage and visualization with the original point cloud environment. The workflow bridges spatial information of the point

Database Historical Villages Renovation

cloud model with meshed geometries for editing. Ultimately, the tailored designs are assembled with the unchanged 3D context (2). The final part entails the content of the site's current situation. It needs to be collected from regulations and studies. All the site's data should be gathered, integrated, and structured. In terms of the structural design of the database, Kevin Lynch put forward the theory of the "image of the city", which suggests that urban form is expressed in the interrelationship between five elements of the environment: Path, Edge, District, Node, and Landmark (3). In 1969, Haggett proposed five spatial elements of the geographical model. They are nodes, hierarchies, networks or channels, flow, and surfaces (4). Likewise, in 1979, Christian Norberg-Schulz proposed that at least five space concepts can be distinguished: Pragmatic Space, Perceptual Space, existential space, Cognitive Space, and Abstract Space in pure theory (5). The existing forms of databases are

diverse and varied. First, there are 2D Digital Databases such as the German Digital Library (DDB), which consists of text and image data and allows for information input and retrieval. Second, there are 3D Databases based on Extended Reality (XR), such as the "Immovable Cultural Relics Exhibition in Zhuhai High-Tech Zone, China". It is a simple VR presentation program based on photograph models. In the digital Shanghai History Museum they have incorporated three-dimensional models into their VR presentations. Third, there are 3D Databases based on Gaming, as seen in the case of the Great Wall E-Tour WeChat Mini Program. They designed the interface and interaction process like computer games. Users can interact with the program. Fourth, there are 3D Databases based on WebGIS, such as Mapbox and Google Earth. Additionally, there are other 3D Databases like Wiss ki 3D repository, DFG (3D) Viewer, and Sketchfab. Each of them has its strengths, but there are shortcomings in presenting architectural professional information on geographical villages in remote areas. After analyzing the user end of multiple databases and considering the characteristics of Chinese historical villages, from macro to micro, the structure of this database is designed into five levels: national level, regional level, village level, settlement level, and

building level. This hierarchical structure not only considers the management needs of different levels but also facilitates information organization and management. Regarding viewing modes, the database primarily presents in three-dimensional form, with zooming and rotating as the main viewing methods. Architects can switch between point cloud models, three-dimensional models, and terrain models. Users can access comprehensive data by clicking on side buttons to get more comprehensive information. These buttons change according to the scale of the main model, including multi-scale maps, floor plans, elevations, cross-sections, orthoimages, CAD, model downloads, land use classification, and so on. Additionally, through the zoom function, users can navigate to more detailed models to obtain further information. Compared to existing databases, this database has several unique features. Firstly, it addresses the lack of open information about historical villages in remote areas by providing detailed data. Secondly, it offers professional architectural drawing models, providing more references and support for professionals. Thirdly, the database offers the possibility of downloading and uploading, providing users with an interactive experience. However, the research also encountered

some challenges. Firstly, there are limitations in the automation of data generation, particularly in establishing BIM models and generating CAD drawings, which still require manual assistance. Secondly, when uploading strategies, we need to rely on third-party software to provide sufficient upload space due to the uncontrollability of uploaded data. In summary, this spatial database provides important support and a basis for the protection and renewal of historical villages. However, further improvement and refinement are needed in areas such as automated generation and data uploading to meet user needs and make greater contributions to the sustainable development of historical villages.

Notes

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- (3) Kevin Lynch, *The image of the city* (Yuan-Liou Publishing Co, 2014).
- (4) Peter Haggett, Richard J. Chorley, *Network analysis in geography* (Edward Arnold, 1969).
- (5) Christian Norberg-Schulz, *Existence, space and architecture* (Praeger, 1974).

FUTURE RURAL ARCHITECTURE IN JIULONG RIVER DELTA: A HOLISTIC DESIGN APPROACH BASED ON URBAN-RURAL CONTINUUM

PhD Candidate: Li Xiang - Supervisor: Prof. Maurizio Meriggi

Xiang Li, Future Rural Architecture in Jiulong River Delta: A Holistic Design Approach Based on Urban-rural Continuum, 2024.

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This thesis focuses on the modern design strategies in Chinese rural areas, considering their vernacular architecture and traditional urban-rural settlement system as sources, taking the Jiulong River Delta as the research area. It aims to be an alternative to the current undeveloped practice of Chinese urban development, learning from the vernacular architecture and traditional urban-rural continuum system and respecting the local social and natural environment.

The uncontrolled urban spreading expansion has swallowed the traditional landscape and settlements in rural with indifferent and orthogonal industrial and residential blocks. Moreover, many indigenous residents in traditional villages have abandoned their hometowns, hollowing out of the rural area. Such unsustainable urbanization continues, making rural more fragile than ever, which is more evident in coastal areas where the economy booms rapidly. In past years, Chinese architects such as Shu Wang and Jiakun Liu have taken vernacular architecture in rural areas as a design source to recall the territories' identities in the city and revitalize rural areas. However, most projects are limited to the “manifesto” single building and are insufficient to improve the indifferent urbanization ruining rural areas.

Research Objectives

However, from vernacular architecture to traditional settlement systems, it is true that contemporary architectural and urban design could learn much from the rural. In the old days, the top-down administrative hierarchy was limited to counties.

Many rural settlements below the counties mainly adopt self-governance, and these rural settlements were linked through markets, clans, and folk beliefs, forming close urban-rural continuum

systems from the bottom up. Unlike the current development model, these settlement systems are greener and more sustainable, with rural settlements distributed point-like, respecting their surrounding environment, retaining a large amount of arable land, and interacting favorably with mountains and water.

Two important theoretical researches describe traditional urban-rural systems. The first one is Marketing and Social Structure in Rural China. It focuses on markets and constructs a hexagonal regional network to express the system of rural settlements in China. The second one is Ritual Alliance. The theory takes Putian City, also located on the southern coast of Fujian, as the object of research and establishes a rural settlement system by examining clans and religions.

As for relevant research on architecture design, an architectural urban-rural continuum design originated from the marketing and social structure in rural China. It considers vernacular architecture not merely as “stylistic architectural heritage” but as the unit of the rural and natural landscape and suggests a “holistic methodological approach” that follows traditional settlement systems, taking urban and rural as continuous systems. Based on tradition's interpretation, it remains a natural element with scattered

Urban-rural Continuum Vernacular Architecture Modern Rural Design

settlements' distribution and respects historical contexts to address design problems of enhancement, preservation, and future development of rural areas to become part of contemporary urban development.

Following these previous researches, This thesis focuses the modern design strategies in Chinese rural areas, considering their vernacular architecture and traditional urban-rural settlement system as sources, taking the Jiulong River Delta in Longhai City (County level), Zhangzhou City, Southeastern Fujian Province as the research area since the conflict between rural area and urban expansion is apparent here. It aims to be an alternative to the current undeveloped practice of Chinese urban development, learning from the vernacular architecture and traditional urban-rural continuum system, respecting the local social and natural environment.

Methodology

The research first collects literature about vernacular-modern design, traditional

urban-rural continuum systems, and local textural materials in Longhai City. Then, it does field research to reconstruct traditional urban-rural continuum systems in the research area and check vernacular architecture typologies and morphologies by drawing architecture maps and illustrations. As a design-driven research, this one finally drafts design guidelines to illustrate possible design strategies in this particular environmental and historical context.

Findings Until Now

This research summarizes three main conclusions from traditional urban-rural continuum systems to architecture morphologies and typologies. (1) clans based on blood-ship found close-related villages. A single Natural Village (She) and village clusters may comprise one or more clans with the same or different ancestors and family names. Villagers of a particular geographical territory had similar social living environments, shared cultural beliefs, and a sense of mutual identity that transcended individual interests, forming 'Village Communities'. Longhai City mainly has "Thirty-six and a Half She", "Eighteen and a Half She", "Five She", and so on. "Eighteen and a Half She" and above are the first-level surnames of village communities, dominated by one family name. Second-level surname

village communities contain only single-digit numbers of She, such as the most typical "Five She". The village community is a complex social structure with complex and diverse manifestations involving:

- i. Folk beliefs forming 'Ritual Circles'. Villagers within particular geographical boundaries often share one primary belief.
 - ii. Production responded to by the 'Water Alliance'. Villages along the canals often formed multiple single- or mixed-name water unions, whose members maintained the irrigation system together but were relatively independent
 - iii. Economic activities responded to by the 'Market Systems'. Each grassroots standard market covers a particular geographical territory; the natural villages in the standard market are approximately the quantities of one first-class village community
- (2) The settlements are distributed in a point-like pattern along the main roads and waterways. The irrigation systems form water transportation networks, shaping the landscape of cultivated and built-up islands with a strong relationship with water. Traditional building clusters are usually oriented in the same direction with solid relationships with water and hills, which are vertical, parallel to or surrounding the water or hills.
- (3) There are four traditional architectural

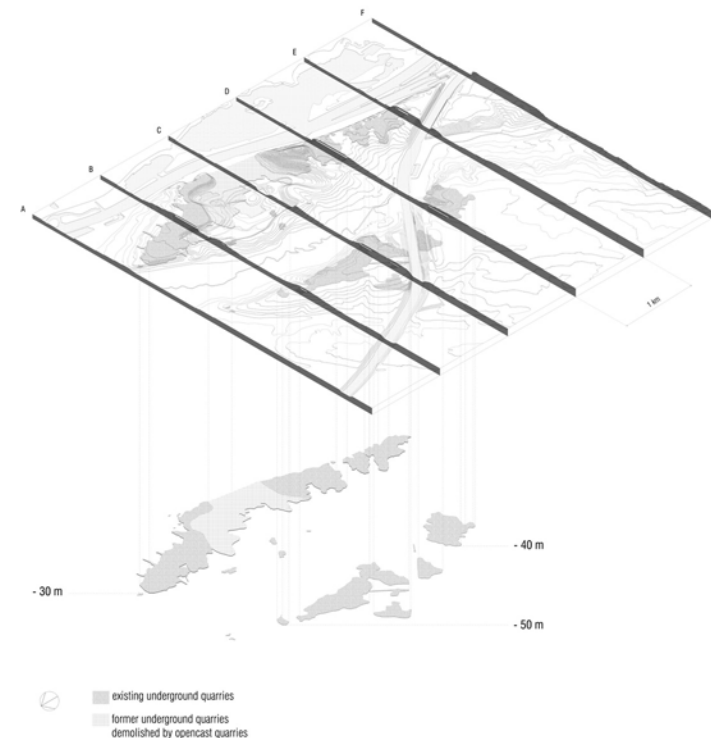
typologies in the research area, which are the C-type (PaShi), the quadrangle courtyard (Sidianjin), the courtyard with two patios evolved from the first two, and "Fanzai Lou", which combined the South Asian architectural style with the local style. All traditional buildings are replicated or mutated from these types.

Significance

The research provides an abacus of architectural typologies and morphologies in a delta environment characterized by irrigation systems, cultivated land, and built-up islands. Experimental design could be assumed as a possible approach for designing in such a special environmental and historical context.

DUGSCAPES. DESIGN TOOLS FOR UNDERGROUND QUARRIES AND LANDSCAPE REGENERATION STRATE- GIES

PhD Candidate: Chiara Caravello - Super-
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Considering the extractive landscapes, the research focuses on underground quarries, chosen for their strong spatial, ecological, and cultural links with the urban fabric and landscape transformation processes. By adopting an architectural and landscape approach, the research aims to answer one main question: what are the spatial, ecological and cultural values of underground quarries and how could they nurture and stimulate strategies for sustainable territorial development, particularly in a cross-border context?

The research deals with underground extractive landscapes by adopting a research approach through landscape and architectural design (1). In particular, the research focuses on past and potential interactions between underground limestone quarries and landscape transformation processes by and for the quarrying industry.

In the examined case study at the heart of the Euregio Meuse-Rhine (BE-DE-NL), while extractive basins extend according to the geomorphological continuity of the underground layers of soil and subsoil, surface landscapes are often approached from a fragmented and sectoral perspective according to administrative subdivisions. In an extreme case of such parceling out, underground extractive landscapes represent cultural resources whose unifying nature is recognized but partially unexplored, given their great invisibility under national borders..

The research aims to answer one main question: what are the spatial, ecological, and cultural values of underground quarries, and how could they nurture and stimulate strategies for sustainable territorial development (2), particularly in a cross-border context? This question pursues three objectives:

(1) Testing architectural design tools and methods on underground quarries, integrating the available documentation for the examined case study.

(2) Building a brief international atlas of architectural and landscape design experiences for underground extractive landscapes, with a focus on underground quarries, providing systematic and transferable knowledge on the subject.

(3) Advancing architectural and landscape strategies for underground extractive landscapes, with a focus on underground quarries in the case study, feeding into the ongoing debate on strategies for the preservation and sustainable development of open space and landscape quality in European cross-border contexts (3).

Finally, the research aims to demonstrate how the recognition of recurring elements in underground extractive landscapes can be an important vector for guiding landscape regeneration and sustainable territorial development strategies in complex and administratively fragmented areas. Furthermore, by exploring the relationships between surface and underground landscape, the research acknowledges the soil as the key factor at the center of the human-nature relationship occurring in the processes of landscape transformation by and for the extractive industry.

This research is structured around two sections that represent a fundamental binomial of architectural and landscape design: understanding and imagining space. The first section deals with

Extractive Landscapes Underground Quarries Design Tools

understanding “dugscapes” (4) in the cross-border territory of the Three Countries Park in the Euregio Meuse-Rhine (BE-NL-DE). This process of understanding is articulated around the recognition of a “territory-system”, a landscape consisting of a complex set of natural and human elements interconnected and in continuous evolution (5). By adopting the gaze of the “attentive observer” (6), understanding the landscape’s elements and dynamics is deemed as the very basis of the possibility of conceiving sustainable territorial development, acknowledging its past and present, to imagine its future (7). The operations constituting this situated-knowledge-building process are multiple and interlinked in an iterative method of continuous explorations and observations. The repeatable actions so far undertaken in this territory can be summarised according to three categories:

(1) Survey of landscape’s elements and components that are both material, tangible and/or intangible, and that can simultaneously be natural/spontaneous

and artificial/imposed in a non-dichotomous relationship of perpetual exchange between nature and humans as non-separable parts of a cause-effect continuum (8).

(2) Mapping and reconstruction of a landscape’s evolutionary logic, both historical-environmental and socio-cultural. Reading of spatial transformation processes and diagnosis of cause-effects (9) at the basis of the present landscape’s conditions and development perspectives.

(3) Collection of landscape narratives and memories underlying a heterogeneous set of qualities, expectations, and ambitions attributed to open space and landscape by both its inhabitants and frequenters. The design tools are mainly: surveying, drawing, and modeling, producing outcomes such as maps, sections, and diagrams to relate the development of the underground and surface landscape by comparing cartographies and historical documents; composing and re-drawing existing fragmentary graphic materials on the underground and surface, giving a global interpretation (horizontally and vertically) of a landscape otherwise perceived and treated ‘by layers’ and in a sectorial way (see cover picture);

- Interviewing local actors and frequenting places to understand the different points of view, needs, and expectations. The second section deals

with imagining “dugspaces” through comparable experiences. The process of imagining the space is articulated around the recognition of a “territory-laboratory”, where the project nurtures and accompanies (10) the territory and landscape transformation process. By adopting the “recherche-projet” method (11), this section still implies involvement in the field, not to verify hypotheses developed a priori, but to put concepts and models into action to assess their fecundity.

This is developed around two specific ambitions: relating/systematizing elements and components of territory and landscape by bringing out existing and potential synergies; testing territorial development scenarios moving from the landscape, assumed as a shared value to be placed at the basis of a dedicated policy (12). Reference projects considered range from Purini and Puglielli’s competition for “Montericco Quarries” (13), Zumthor’s “Allmannajuvet” (14) and more conceptual design experiences such as “Super Terram” (15), and “The Earth is Architecture” (16).

Notes

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(3) Michael Dejozé, EMR 2030. Eine Strategie Für Die Zukunft Der Euregio Maas - Rhein.

(4) The term ‘dugscapes’ refers to landscapes resulting by an act of digging to create/build (foundations, underground infrastructures, tunnels, shelters, etc.) or to extract/find/reveal (resources, materials, artefacts, etc.). The research focuses on ‘dugscapes’ resulting by ‘quarrying’, i.e. the reiteration for a given time span of the process of extracting natural stone to produce building materials, resulting in a landscape alteration.

(5) European Commission, *European Landscape Convention*.

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(13) Montericco (IT), 1973.

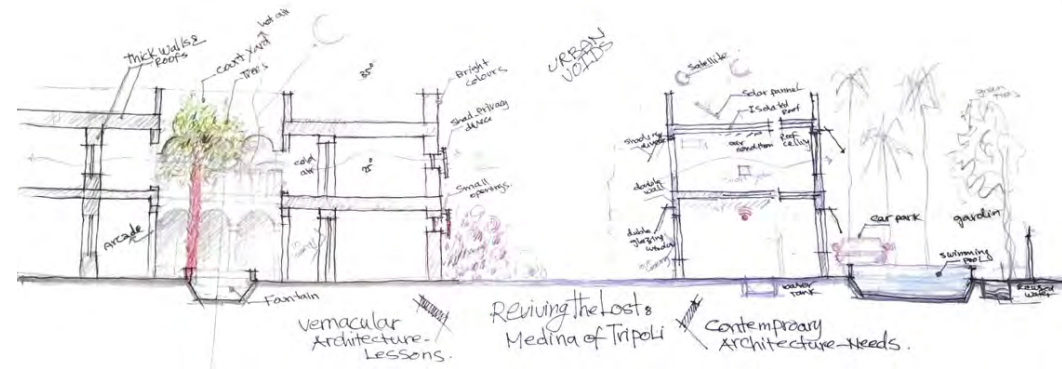
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(15) Innoviris-funded project. Brussels (BE), 2021.

(16) TVK, Biennale Venice, 2021.

REVIVING THE LOST: EX- PLORING THE POTENTIAL OF URBAN VOIDS IN TRIPO- LI'S MEDINA

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The Medina of Tripoli faces numerous issues, including the deterioration of old buildings, leading to voids in the urban fabric and new buildings incongruous with the Medina. However, these voids can be transformed into exciting, livable, and sustainable communities, adding value to the city and enhancing residents' and visitors' experiences. The methodology used depends on learning from the past by exploring the Medina of Tripoli and meeting today's requirements by studying best practice experiments in reviving old cities.

The revitalization of degraded areas aims to prevent the weakening of urban and social tissue, strengthen social unity, improve residents' quality of life, recognize the actual needs of the urban fabric, and address the needs of its users to enhance the overall quality of life (1). This view was established by Couch (2), who described urban regeneration as seeking to bring back investment, employment, and consumption and to enhance the quality of life within urban areas.

The Unesco recommendation emphasizes the importance of integrating historic areas into contemporary society's life, ensuring harmony in town planning and land development, preserving human activities, and incorporating traditional living shapes and handicrafts while maintaining building protection and spatial organization (3).

The Icomos Washington Charter (4) emphasizes the importance of preserving historical cities' quality through changes in urban open spaces. It includes four zones of variation: intangible heritage, built environment, natural environment, and social environment. The changes must adhere to specific standards, including respecting Cultural values, improving the quality of life, avoiding major changes unless they enhance the urban environment and cultural values, maintaining cohesion, maintaining

balance and compatibility, and considering time. Cultural diversity must be respected, and a sensitive balance must be established to preserve historical heritage. The charter emphasizes the need for effective collaboration between specialists, researchers, private organizations, and the broader public to ensure the preservation of historic cities. In this context, urban revitalization requires a creative method based on a mix of physical, social, cultural, economic, and environmental initiatives. Also, understanding the physical, social and economic structure of historic urban environments is required to be conducted in order to find out the type of obsolescence (physical, functional, locational, image obsolescence), and development dynamics (high, low, or static) of the historic environment. Accordingly, sustainable historic urban environments can be reached only with the revitalization of three means: physical, economic, and social of such areas. The Medina has undergone significant transformations, leading to a new layout and model that is still to be identified and designed. The most significant transformation was the formation of great voids in the western part of the city, which compromised the compact fabric of the Medina in 1911. Part of the city, which compromised the compact fabric of the Medina in 1911.

Revitalization Urban Voids Medina Of Tripoli

This transformation is primarily due to the abandonment of the city, which evacuated ghettos, hara El-Saghira, and hara El-Kebira, leading to the compact fabric's decay. The presence of voids in the continuous fabric propagates and amplifies pathology. The modern urban fabric has lost its distinctive physical continuity and embodies great voids, which are neither squares nor streets. The resulting voids have produced an odd urban situation, affecting the original and genetic characters of the residential fabric. This mutation tends to reproduce almost automatically when urban conditions occur, causing a deep mutation of the relation between housing type and urban morphology (5).

This research aims to develop a proposal for the urban voids (hara El-Saghira, and hara El-Kebira) in the old city by exploring the possibilities of revitalizing ancient cities in general and examining the potential of urban spaces and ruins as spaces for community participation, cultural expression, and economic development that take into account values

inherited from the past and provide for contemporary living requirements, through lessons and qualities learned from vernacular architecture and urban fabric, and the effects of modernization on the other hand as a main generator of change. Studying the best practices for reviving urban voids in old cities helps to understand more about how to treat urban voids in heritage cities. By analyzing similar examples of old cities that have been successfully revived, lessons can be learned from them, and the key issues for choosing the appropriate examples are sharing similar culture and climate, suggesting good ideas for reviving old cities, and the availability of the information. This research employs a combination of theoretical studies, logical arguments, contextual analyses, and correlation assessments, divided into several stages, to achieve its main aim. The inductive approach is used in the first stage of a theoretical research study, which focuses on revitalizing old cities by reusing urban voids for sustainable development. This involves identifying the problem, studying its dimensions, and determining the necessary strategies to solve it from various perspectives. The study reviews and evaluates related theories to form a theoretical framework, ensuring that the research contributes to the current era's needs. The subject of the study consists of exploring

the Medina, its physical, cultural, environmental, and economic aspects, and identifying the best methods for its revival. It also explores the nature of open spaces, their classifications, types, and factors, as well as their historical, social, environmental, economic, and aesthetic values. The study also explores methods for revitalizing open urban spaces, strategies, and practical stages for creating appropriate strategies. It also focuses on identifying the foundations for sustainably revitalizing historical urban open spaces. The second stage involves a critical study of previous experiences of cities with similar issues to the Medina of Tripoli, using criteria based on the study on voids in the old city of Tripoli, which revealed 5 types of open spaces are: small spaces in neighborhoods; open spaces, known as *Wasa'iyat*, are within the urban fabric of the Medina; few spaces, including those of historical and architectural value, require scientific study to complete damaged parts; war-damaged spaces and large open spaces need to be rebuilt with functions to revive and improve the area. Accordingly, the study examined three case studies in Tunisia, Morocco, and Muharraq to assess the effectiveness of the proposed strategies for revitalizing old cities. The chosen examples share a similar culture and climate, suggest good ideas for revitalizing old cities, use architecture

as a tool for urban regeneration, and provide the necessary information to determine the success of these strategies. The third phase of the thesis focuses on experimental studies or interventions to revive the Medina in a contemporary urban and architectural manner, preserving and adapting local traditional architecture. The process involves site visits, observing, and meetings to analyze the open spaces (voids), select a specific void, study previous studies in the selected void, suggest a design proposal, arrange a workshop to revitalize the area, present the accepted proposal to decision-makers, and take suggestions for the final proposal. The framework will be suggested, discussed, and adapted from literature and experience of revitalizing urban voids in Tripoli's old city.

Notes

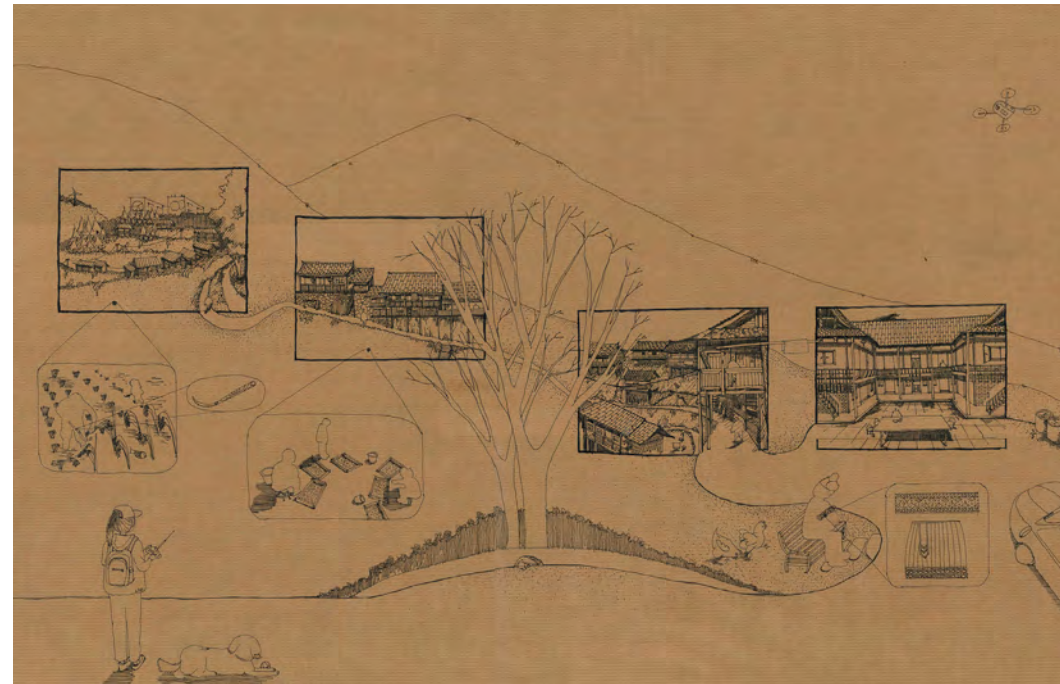
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CULTURAL NARRATIVES IN COLLECTIVE SPACES. THE ROLE OF ARCHITECTURAL DESIGN IN THE REGENERATION OF MIAO VILLAGES

PhD Candidate: Liu Yidan - Supervisor: Prof. Marco Bovati - Co-Supervisor: Prof. Paolo Vincenzo Genovese (Zhejiang University)

Yidan Liu, Public space use in daily life of Miao villages, 2023.

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In the context of China's rural revitalization, architectural design subtly shapes survival strategies amidst rapid societal changes. This study analyzes Miao villages' spatial morphology and architectural features, exploring their connection with the natural landscape. Focusing on how architectural design conveys cultural meaning, the research examines Cultural Narratives and Collective Spaces to deepen our understanding of the relationship between architecture and culture in Miao communities through the integration of theoretical frameworks and empirical research.

The traditional Miao villages in China, celebrated for their rich cultural heritage and distinctive architectural style, are currently confronted with a complex array of challenges stemming from the processes of modernization and urbanization. These settlements' territorial layouts and construction techniques have evolved throughout history, adapting to the needs of their inhabitants and landscapes. In the process of China's rural revitalization, the rapid and transformative changes of contemporary society, coupled with the influx of modern infrastructure, have disrupted the original spontaneous order of residents. Fortunately, the locals are aware of the predicament and are already attempting to survive, and architectural design plays an important role without their knowledge. This research tries to investigate the intricate relationship between Architectural Design, Cultural Narratives, and Collective Spaces within the unique context of Miao villages in China. By examining how architectural design influences and reflects Cultural Narratives within Collective Spaces, this research offers new insights into the dynamic interplay between architecture, culture, and community identity. The study begins with an in-depth examination of the spatial morphology and architectural characteristics of Miao villages, elucidating their relationship

with the surrounding natural landscape and the diverse range of architectural elements present in these settlements. Subsequently, the research frames cultural narratives and collective spaces theory within architectural design, drawing upon the principles of Narratology to analyze how each architectural element contributes to the broader cultural narrative landscape of Miao villages. Furthermore, the research underscores the significance of collective spaces within Miao villages as vital sites for social interaction, cultural exchange, and the preservation of collective memory. It explores how these spaces serve as catalysts for community cohesion and cultural continuity, fostering a sense of belonging and shared identity among residents. The core focus of the study lies in examining the role of architectural design in conveying cultural meaning within Miao villages, elucidating how architectural elements serve as symbolic representations of cultural identity, beliefs, and values. Drawing upon best design practices from rural areas, the research synthesizes theoretical frameworks with empirical research to deepen our understanding of the intricate relationship between architecture and culture in Miao communities. Miao villages exhibit diverse spatial morphology and architectural

Design-Driven Research

Rural Revitalization

Cultural Heritage

characteristics, reflecting their unique cultural heritage and historical evolution. The morphology and typology of Miao villages vary based on geographical location, social organization, and environmental factors. The residences with stilted structures are typical housing styles in Miao villages. Architectural elements such as gates, bridges, granaries and mills, drum towers, corridors, and public squares are distinctive features of Miao village architecture, symbolizing cultural identity and craftsmanship. At its core, the research aims to unravel the intricate nexus between architectural interventions and cultural resilience in rural settings. The research seeks to offer a holistic perspective on rural development dynamics and cultural heritage preservation strategies through a multidisciplinary lens encompassing architecture, anthropology, sociology, and cultural studies. Within this expansive research area, the spotlight is firmly on Miao villages in China, where traditional lifestyles intersect with

contemporary developmental trajectories, presenting a rich tapestry of challenges and opportunities for architectural interventions.

Embedded within the research framework are overarching objectives aimed at advancing knowledge, fostering innovation, and driving positive change in rural development and cultural heritage preservation. Through critical analysis, empirical inquiry, and theoretical synthesis, the research seeks to unravel the socio-cultural implications of architectural interventions, identify key challenges and opportunities, develop innovative design strategies, and contribute to theoretical frameworks and practical guidelines for interdisciplinary approaches to rural development and cultural heritage preservation. Ultimately, the research endeavors to harness the transformative potential of architectural design as a catalyst for sustainable development and cultural resilience within Miao villages and beyond.

In conclusion, this research offers a comprehensive exploration of cultural narratives in collective spaces, highlighting the crucial role of architectural design in the generation and transmission of Miao village culture. By synthesizing architectural design features with theoretical frameworks and empirical research, this study

advances our understanding of how architectural design shapes and reflects cultural identity, social dynamics, and storytelling traditions within Indigenous communities.

The chapters of this research are intricately woven to provide a comprehensive exploration of the challenges and opportunities facing architectural design in the regeneration of Miao villages. In Chapter 1, the introduction sets the stage by delving into the complexities of balancing traditional village life with contemporary development pressures, emphasizing the pivotal role of architectural design in cultural preservation and community resilience. Building upon this foundation, Chapter 2 delves into the spatial morphology and architectural characteristics of Miao villages, unraveling the unique spatial layouts, typological variations, and cultural significance embedded within their architectural elements.

Moving forward, Chapter 3 navigates the cultural narratives and collective spaces of Miao villages, exploring how architectural design influences and reflects cultural identity, social dynamics, and community cohesion. Meanwhile, Chapter 4 shifts the focus to architectural design-driven research, presenting innovative strategies and interventions aimed at revitalizing rural communities

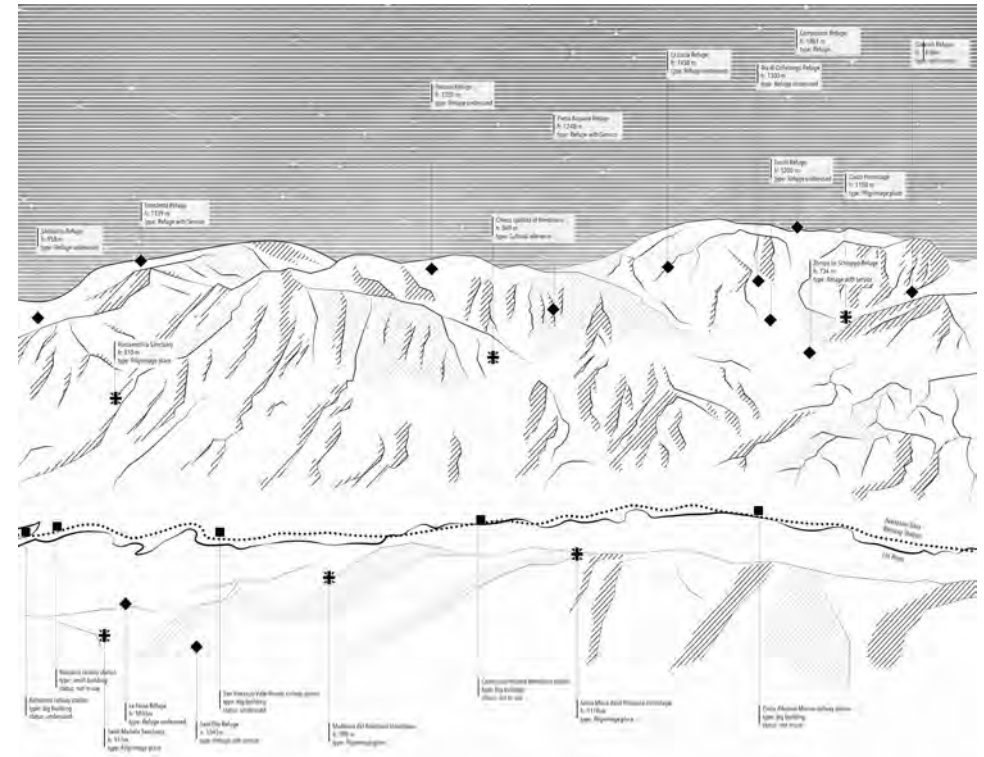
and preserving cultural heritage. Through a structured design methodology and experimental projects, this chapter showcases the transformative potential of architectural design in fostering cultural resilience and sustainable development within Miao villages. Finally, Chapter 5 brings the discussion full circle, offering a comprehensive synthesis of the research findings and their implications for theory, practice, and policy.

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MINOR ARCHITECTURE. DESIGN METHODOLOGIES FOR INNER AREAS.

PhD Candidate: Stefano Sartorio - Supervisor: Prof. Emilia Corradi



The research investigates the potential of minor rural architecture for Apennines' inner areas; here, the lack of services and infrastructures has produced human abandonment of built and rural habitats. Starting from a test bed in the Roveto Valley (Abruzzo), the research questions the current abandonment of those minor buildings, aiming at the enhancement of local communities. The design-oriented research focuses on recurring rural typologies to elaborate design methodologies boosting local ecologies in the Valley.

The potential of rural architecture for the enhancement of rural lagging areas (1) is thought to have a key role in the development of the so-called “Inner areas” of the Italian panorama. For Apennines ecologies, in which the majority of inner areas are located, the lack of services and infrastructures is producing human abandonment of urban and rural habitats despite a large naturalistic and historical capital (2). The general abandonment leaves negative impacts both on the landscape, in which rewilding issues are mutating locals' geographies, and on the economies of small communities, in particular, the ones tied to an agricultural and rural past. Is it possible to solve – or at least slow down – this abandonment process? And how can architectural research link these social-economic and environmental problems? Supported by a Municipal Grant, Agenzia Governativa per la Coesione Territoriale (Agency for Territorial Cohesion) with four leading towns for the Abruzzo Region, the research addresses the described topics of rural architecture abandonment, which importance characterizes Italian Inner Areas and shaped the traditional landscape. Although the socio-political fragmentation and the multitude of conflicting/overlapping strategies already exist on the site, the condition

of population loss and the abandonment of Borgo towns and architectural strongholds are commonly widespread in the whole Valley, as among most of the Apennines Inner Areas. The research domain is extended to various built typologies and landscapes of the Apennines, but its output considerations are to be tested and tailored to the mountain buildings of the Inner Area of the Valle Roveto-Vallelonga-Valle del Giovenco (Abruzzo, Italy). In order to elaborate site-located guidelines and design methodologies – output required by the Agenzia per la Coesione Territoriale – to boost local ecologies in the valley, the design-driven research focuses on recurring typologies of rural architectures. Specifically, the research addresses its focus on refuges, bivouacs, shepherd huts, and hermitages, as well as their path connection with the valley floor, intercepting depopulating borgos. Indeed, this research aims to stress the importance of an architectural design gaze on those minor manufactures through three main objectives orienting the investigation: (1) Collecting testimonies of the present abandonment through a design-driven approach, in which physical explorations of the manufactures and their territory, photographic surveys, and re-drawing analyses are the principal tools. What are the national and international best

Rural Architecture Research by Design Italian Inner Areas

practices for working on these subjects?
(2) Collecting testimonies from the past through archive research of documents and photographic descriptions of the original anthropic environment, in which memory and material existences are fading away. What is missing and what can be missed on territorial assets nowadays?

(3) Collection testimonies for the future through ethnographic site surveys on people living in the place, aimed at avoiding (as much as possible) an urban-centric gaze for the final output proposals. Indeed, the thesis project is conducted inside academia with a theoretical basis but is willing to be rooted and tailored for future inhabitants of the rural Valley. For whom is thought to be architectural design-driven research?

The thesis development, based on on-site inquiries and methodologies from various disciplines at the margins of architectural research, aims at reinterpreting the case study area assigned by Agenzia, considering the importance of a

multidisciplinary perspective within the project to deal with such a delicate topic of Inner Areas.

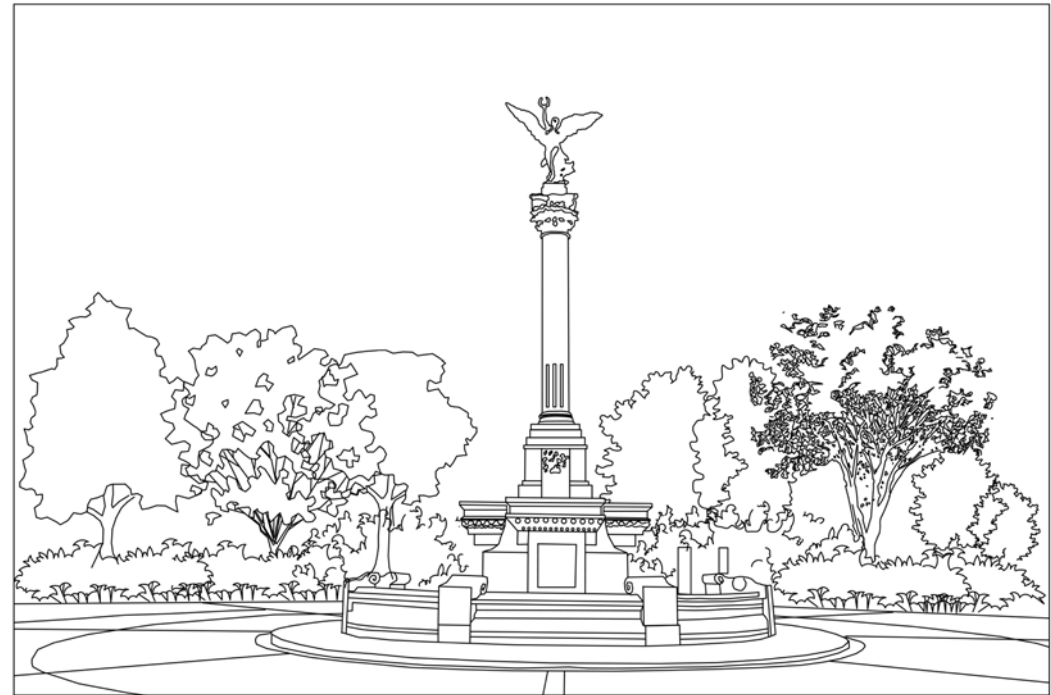
The premises contained in this extended abstract stem from an internal point of view generated after weeks of co-living with those who lived in the places and originated through various research methodologies. Hence, a set of investigations, such as Kevin Lynch's research on inhabitants' imageability, Giuseppe Pagano's ethno-architectonic exploration of rural manufact (3), and Saverio Muratori's interpretation of drawing to make visible new territorial assumptions (4), are emulated as a tool to re-imagine the case study area.

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ADAPTIVE REUSE OF COLONIAL HERITAGE IN POSTCOLONIAL SOCIETY. EUROPEAN CONCESSIONS IN CHINESE COLONIAL PORT CITIES

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Prof. Filippo Orsini - Co-Supervisor: Prof.
Cassandra Cozza



Jiajia Wei, 2024: Piazza Regina Elena, now known as Marco Polo Square, was the most important square in the former Italian concession, serving as a focal point for various activities. At its heart stands the Victory Monument designed by the Italian architect Giuseppe Boni.

This research focuses on the adaptive reuse of colonial heritage in former concessions in China. A concession is a leased land to colonial powers that remained nominally Chinese when China was reduced to a semi-colonial, semi-feudal state after the Opium War in 1840. China has undergone a big shift from destroying colonial heritage to embracing it as a symbol of cultural diversity and using it for tourist attractions. This study explores the problems that occur in the redevelopment process of colonial heritage and conducts critical preservation and adaptive reuse of the colonial legacies.

Colonial heritage is associated with global colonialism, wherein a more powerful country occupies and conquers another country or region. Architectural legacies are the most prominent symbol of one country being colonized. The preservation and interpretation of colonial heritage have sparked a contentious global debate. Some people believe that it offers an opportunity for reflection and reconciliation since it provides a perspective for people to know what happens when different cultures encounter each other, while others argue that it is a painful reminder of oppression and exploitation. For many post-colonial societies, colonial heritage is intertwined with their cultural identity. Two different cultures have interacted and merged. It often does not overcome one another but rather a mixture formed through mutual compromise. Recognizing the objective significance of colonial heritage is a prerequisite for this research.

Adaptive reuse has been used to preserve historic heritage. Instead of freezing the heritage, adaptive reuse provides a broader perspective to develop the colonial heritage while maintaining a connection with the past. It often requires creative problem-solving and innovative design approaches to adapt historic buildings to new uses while preserving their historic character.

This research focuses on the adaptive

reuse of colonial heritage in the former Italian concession in China. After the First Opium War in 1840, China remained a semi-colonial and semi-feudal society for about a century, resulting in China maintaining a rich colonial heritage. Because colonialism has never been a national experience in China, the areas occupied by Foreign Powers were called *concessions*, which means leased territories.

The former Italian concession is the leading case study in this research. It was the only example of Italian colonialism in Asia. The former Italian concession was one of the nine concessions in Tianjin, a city 120 kilometers away from the capital, Beijing. It was a small area of 447.647 square meters on the northern bank of the Hai River. Initially, the land was occupied by a cemetery with approximately 14,000 tombs, salt stocks, and a Chinese village with about 2,000 residents. The rest was a wasteland that turned into mud puddles on rainy days. It was not the best piece of land in Tianjin. However, the newly unified Italy wanted to seize the opportunity to build a little Italy in East Asia to foster the Italian spirit (*Italianità*) and improve its international status among all the other Western powers.

In just over twenty years, through projects carried out by Italian designers and implemented by Chinese workers, a

Colonial Heritage Adaptive Reuse Decolonization

neighborhood was developed consisting of public buildings and urban services, elegant residential buildings surrounded by gardens, wide tree-lined streets, and a neat quay on the river for docking boats. The purpose was to improve the image of that moment's Italian urban, architectural, and artistic culture in China. It was a period when many architects and engineers went to China to pursue career success. For Europeans, China was seen as a vast land for creativity and innovation. The newly established concessions and international settlements required architectural professionals for planning and construction. Among these professional immigrants was the Italian engineer Daniele Ruffinoni. He was in charge of many projects in the former Italian concession. One was the Italian hospital, the girls' school, and the Sacred Heart Church. These three buildings were located on the same plot of land and were connected through corridors. The buildings were of typical Neo-Renaissance style. Ruffinoni also designed the Municipal building. It was

an Italian Renaissance-style building consisting of a two-story brick and wood mixed building with a basement and a tower with a clock set in the center. The design made by Ruffinoni embodied the concept of showcasing Italy's international reputation. The tower represented political and military power, while the mullioned windows reminded people of the glorious history of the motherland.

There were also other Italian professionals. The Roman engineer Rinaldo Luigi Borgnino took over Ruffinoni's work when he returned to Italy in 1914. Engineer Tommaso Pincione carried out the project for the dock. Artist Galileo Chini was responsible for decorating the municipal building.

After the reclaiming of Concessions in Tianjin in 1947, there was a period when colonial symbols had to be removed. The manifestation of the process of decolonization was the demolition or partial demolition of Western architecture, such as churches and government offices, which served as symbols of colonial power and modernization (1). In 1963, the municipal government of Tianjin made a ten-year urban construction plan. The problem it pointed out was mainly the shortage of infrastructure and housing. The preservation and development of colonial legacies were absent from the

plan. Recently, Tianjin has experienced tremendous urban and social changes. However, the Italian atmosphere is still present and well-recognizable. It has become the city's brand, showcasing its cultural diversity and serving as a place that preserves the memory of communication between China and Italy. Since 2000, Tianjin municipal government has cooperated with some Italian construction companies regarding the redevelopment of the former Italian concession. Buildings have been given new functions and have undergone varying degrees of renovation and adaptation. It has been commercialized and has become an Italian-style Town or Italian business park. Instead of presenting just Italian tradition, they use it as a window to showcase other Western countries to the locals. French, Spanish, Russian, American, and Japanese restaurants and bars are scattered in the area.

Many efforts have been put into repairing the exterior of the building, and the internal structure has been damaged and cannot be used. Many of these buildings are still not resident by people, not open to the public, and have not been given proper use today. The development of the Italian Quarter is tourism-oriented, ignoring the needs of residents, although not many of them still live there. However, the southern part of

the Italian Quarter has achieved success in tourism. Italian colonial legacies have been transformed into hotels, museums, restaurants, and so on.

A certain degree of adaptive reuse is being applied in this area. Of course, precisely because of the pursuit of tourism success, a series of movable food and souvenir stalls are set up on both sides of the street near Marco Polo Square, which hinders people's approach and appreciation of the architecture itself. Regulations about how the structure can be changed, how the exterior can be restored, and how interior space can be reorganized should be more precise. Improvements in building adaptation can be made in future development.

Note

(1) Tianjin Archives. Archive No. 401206800-J0090-000443-081. "Please completely remove the Nazi iron swastika sign on the front door of the former German Consulate and the fascist pillar on the Forum Stadium of the former Italian Concession to provide a positive view." (translation of the author).

TACTICAL RECYCLING. TRANSFORMATION OF OR- DINARY ARCHITECTURE FOR THE ECOLOGICAL TRANSITION OF MINOR CENTERS

PhD Candidate: Silvia Di Mauro - Super-
visor: Prof. Marco Bovati - Co-Supervisor:
Prof. Andrea Oldani



Places in the field of design for the transformation of the existing built environment, the research poses architectural-scale recycling of ordinary buildings as a design tactic directed toward the ecological transition of smaller towns. The proliferation of abandonment phenomena and the obsolescence of the ordinary is considered a challenge and an emergency that the project must confront. Specifically, the research studied the dynamics related to the network of punctual fragilities inside the productive urban-rural continuity of the metropolitan periphery, widespread throughout the territory.

Three minor centers in the province of Bergamo are investigated in depth as paradigmatic cases for similar contexts in which the issues overlap.

The research studies the architectural recycling project dealing with ordinary buildings in minor contexts, changing their urban, social, and environmental roles. The study raises the question of how to respond to inhomogeneous and particular problems with general yet declinable tactics, strategies, and tools in response to dynamic situations.

Starting from the results of the research of the last ten years around the theory of re-cycle, the thesis proposes a theoretical-practical reflection regarding the application of recycling at the architectural scale as a declinable tactic and as a multiscale strategy, exploring design tools oriented toward ordinary obsolete architecture with collective potentials. In the contemporary cultural context of ecological transition and the progressive and necessary normalization process of environmentally oriented design actions, architectural recycling is a topic yet to be explored in terms of its implications and design effects.

In the two main natural conditions that push the problem of abandonment – age-related obsolescence and use-related obsolescence – it is the problem of loss of urban role and meaning for the community of buildings that must guide

deep reflection for the reinterpretation of the existing. Often, people in a privileged position in urban structures, ordinary buildings, residential buildings, or similar types fail to find a spontaneous sense of reuse. The thesis reclaims a return of these “wastes” to citizens as commons. The title Tactical Recycling associates an adjective, which describes a system of actions, with a design approach that projects the term recycling toward the need to define purposes and actions based on the ability to drop in and adapt to different real conditions. Following these premises, how does the role of architectural design and the design process change? Can the recycling project become a viable tactic for ecological transition within minor centers? What tools does the recycling project use to reinterpret ordinary buildings to rewrite their role?

Through the construction of a theoretical framework, the collection and analysis of contemporary case studies concentrated in Europe, and design experimentation in collaboration with the local administrations of the case studies, the municipalities of Bottanuco, Lallio, and Stezzano, the research will test tactics, strategies, and tools oriented to urban, social and environmental regeneration. The project aims to stress the possibility of stimulating ecological transition with design actions compatible with existing

Recycling Ordinary Minor Centers

conditions. The strategy is based on the activation of a network of small-scale architectural recycling projects guided by the spontaneous conditions of abandonment and the strategic potential of the existing, considering local needs. Re-cycle Italy research, in particular, is investigated here as a starting point for the recognition of a design approach characteristic of recent years. This has triggered changes in understanding the concept of recycling as a design for reuse, as well as the way of approaching the issues related to sustainability, the post-materials of the existing, and the ends and processes towards new life cycles. The width and indeterminacy of this approach make the possibility of applying the principle of recycling endless. The declination toward ordinary stock reflects an idea of architecture and design that renounces the spectacular by recalling the ordinary as a theme of analysis and design. Ordinary buildings, rather than for their historical characters, are here considered in an anti-hierarchical way and compared asynchronously, in the way

vernacular characters were rediscovered during the last century, beyond a simple chronological setting. The purpose of the process is to analyze and understand the urban and typological structure that form the “specific ordinary”, and to build the appropriate rewriting tools oriented to the recycling project.

The methodology starts from the premises related to the themes of the NRRP (National Recovery and Resilience Plan) and the places under investigation that immediately set the subjects and themes in a specific scale of intervention. The theoretical background deals with the theme of architectural recycling and design related to ecological transition, responding to and interpreting the topics related to the sustainable development of the NRRP. The process is based on a combination of literature review for state-of-the-art construction and analysis of contemporary theories, best practice-based research from which tactics, strategies, and practical design tools are derived, and research by design applied to case studies from which a tested methodology will emerge.

The approach develops an architectural discourse that impacts and is directed by an applicative phase through three design experiments in real contexts in collaboration with the administrations of the municipalities of Bottanuco, Lallio, and Stezzano. Both phases, theoretical

and practical, involve the construction of a critical state of the art and a thesis discussion phase, highlighted in the research structure.

Following two sections of introduction and methodology, the research is organized into five parts: the first two deal with state-of-the-art, theoretical and design related to the contexts of the case studies, a theoretical discussion phase based on best practices, a design phase conducted on the case studies, and a synthesis and analysis of the work. While the theoretical sections are supported by images and re-drawings of projects that compose visual essays, the design sections present analytical and descriptive drawings developed during the design process and the internship in municipal administrations. The “Shifting Paradigms” section analyzes parallel and posterior processes developed in the academy and practices around the concept of recycling and possible contaminations related to the mentioned issues. The second section, “Reading the Abandonment”, provides an overview of case study conditions by developing tools for reading the context. The third section, “Tactical Recycling”, identifies an approach to the ordinary by discussing contemporary projects to extract tactics, strategies, and tools from them, identifying an architectural identity proper to the recycling of the

ordinary. The fourth section, “Design Experimentations”, presents the results of the three design experiments, highlighting the matrices of intervention applied. The final section, “A Character for Transition”, brings the themes back to more general issues, attempting not to give a univocal definition of this approach but to explore what themes and possibilities would open up recycling as a widespread character of the future development of minor contexts.

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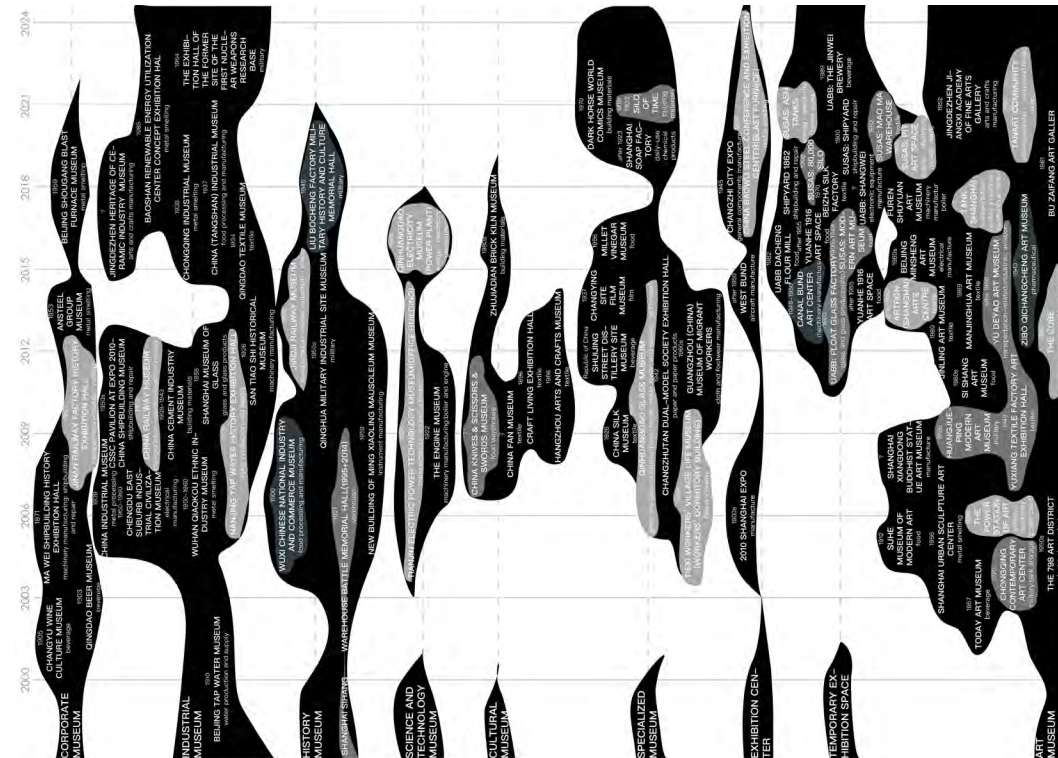
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COMBINING HERITAGE AND NARRATIVE: MAINTAINING AND ENHANCING COMMUNITY MEMORY THROUGH MUSEUM REUSE OF ABANDONED CHINESE INDUSTRIAL ARCHITECTURE

PhD Candidate: Fu Yiling - Supervisor: Prof. Marco Borsotti

Yiling Fu, development context of the reuse of China's industrial architectural heritage as museum cases, categorized by different types of museums, 2024.

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The collective memory of industrial workers imbued with historical, social, and cultural significance must be preserved and made accessible to everyone through the musealization of places. This process offers a valuable opportunity: employing the concept of a content-focused narrative exhibition; it facilitates the preservation of disused industrial buildings through an adaptive redesign. This research aims to explore the extent of progress made in this direction and assess the potential for further developments.

As unique historical evidence, industrial heritage not only encompasses the development context of the nation and the city but also carries the social responsibilities of industrial enterprises in different historical periods. It possesses significant social value, similar to other forms of heritage. The memories embedded within industrial heritage become the material foundation that fosters people's sense of social identity and belonging (1).

As we enter the post-industrial era, cities and regions that rely on traditional industrial development are facing significant challenges. Abandoned and demolished industrial buildings have become a common sight, resulting from changes in industrial development, deindustrialization, and urban economic transformation. These changes have had a profound impact on industrial communities, leading to stagnation and a range of associated problems, including the deterioration of these communities. In China, one more special factor that strengthens this phenomenon is the reform of state-owned enterprises (SOEs), which led to many SOEs breaking down and resulting in their industrial buildings being left abandoned, and simultaneously, millions of SOE workers lost their jobs and their once noble political, economic, and social status under Planned Economy (1949-

1978). These have led to the loss of community memory and regional culture related to past industrial industries and the dissolution of community identities. With over two decades of practical experience, the scope of reuse of industrial heritage in China is extensive, and the methods of reuse are varied and plentiful. While these structures possess the potential for functional transformation and are ripe with industrial-era collective memory, current reuse practices often prioritize economic profit and spatial sustainability over the authenticity and integrity support of cultural sustainability, leading to a lack of narration of community memory, and loss of historical integrity and cultural identity.

Chinese scholars have conducted systematic research on industrial heritage. They have studied the development of China's industrial technology history, digital management of industrial heritage, value assessment system for China's industrial heritage, analysis of the current state of conservation and reuse of China's industrial heritage, and explored the integration of industrial heritage with the cultural and creative industries. However, there is a lack of attention to industrial heritage and its close association with people, such as the working class, an important subject that has become invisible in research and design practice. The collective memory and physical

Adaptive Reuse Community Memory and Identity China

spaces that are closely related to their experiences and lives together shape their identity. The period of industrial construction in modern China is also an important part of the history of the people of the New People's Republic of China and constitutes an essential component of the identity of the broader population. While the primary aim of architectural design is to shape functional living spaces—which may also carry symbolic and communicative meanings—the focus of exhibition design and museography is distinctly on communication. These fields are dedicated to effectively presenting and transmitting content, values, products, and narratives (2). Facing the problem of industrial building transformation and the loss of historical integrity and cultural identity. One instrument should be the museum and exhibition. According to the International Council of Museums (ICOM), a museum should serve “society to research, collect, conserve, interpret, and exhibit tangible and intangible heritage”(3). Preserving and developing

memory, material and immaterial, are the mission of the museum; an exhibition is a communication tool (4). Modern exhibition design uses a wide array of tools to start and support a narrative structure, leading to a greater and clearer understanding of what each displayed element is meant to represent in the part of human history where it belongs (5), which is exactly what is missing in the transformation of industrial buildings. This means museums and exhibition design can play a pivotal role in preserving the tangible and intangible legacies of the industrial era, especially through the reuse of industrial buildings. This research aims to address the rapid decline in Chinese industrial heritage and the accompanying loss of cultural and community identity, proposing a synergistic solution through the integration of Adaptive Reuse, Museums, and Exhibitions. The study examines the transformation of industrial, architectural heritage—specifically, state-owned enterprises’ industrial buildings served under China’s planned economic system from 1949 to 1978—into museums from 1995 to the present, researching museums located at industrial sites. The research explores how exhibitions and architectural design narratively preserve and present the collective memory and history of these sites, making the intangible memories

of former industrial workers and their families’ communities visible and accessible.

The study is structured into three main sections: investigation, case study, and design-driven research. The first section examines the current development and value of adaptive reuse, museums, and exhibitions. It sets the foundation for case studies and comparisons of practices in China, highlighting the benefits of musealization and adaptive reuse in terms of cultural sustainability, narrative, and communication. This underscores the intertwined nature of architectural and exhibition design. In the second part, the research will conduct case studies separately for China and the global scope. Based on insights gained from case studies, the third section will undertake design experimentation (theoretical) on the reuse of abandoned industrial buildings at the former site of the Zhuzhou Chemical Plant as a museum for workers directly involved in production and manufacturing in state-owned enterprises. Currently, the remaining buildings include the sulfuric acid plant, the phosphate fertilizer plant, and the electrolysis plant. This part aims to develop feasible schemes for the reuse of industrial architectural heritage, with a particular focus on enhancing community memory and identity through thoughtful exhibition and museum

design. These will be applied to the core research question of the study: “In the design of transforming industrial heritage into museums, how do exhibitions and architecture narrate community memory?”

By bridging the investigation of the value related to the protection and extension of memory and identity in heritage and culture of the adaptive reuse, the museum and exhibition in the contemporary period with case study insights and design experimentation, this research seeks to contribute to the cultural sustainable reuse of industrial heritage maintaining historical integrity, community memory and identity through innovative reuse practices.

Notes

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(2) Gianni Ottolini, *Architettura degli allestimenti* (Altralinea Edizioni, 2017), 10.

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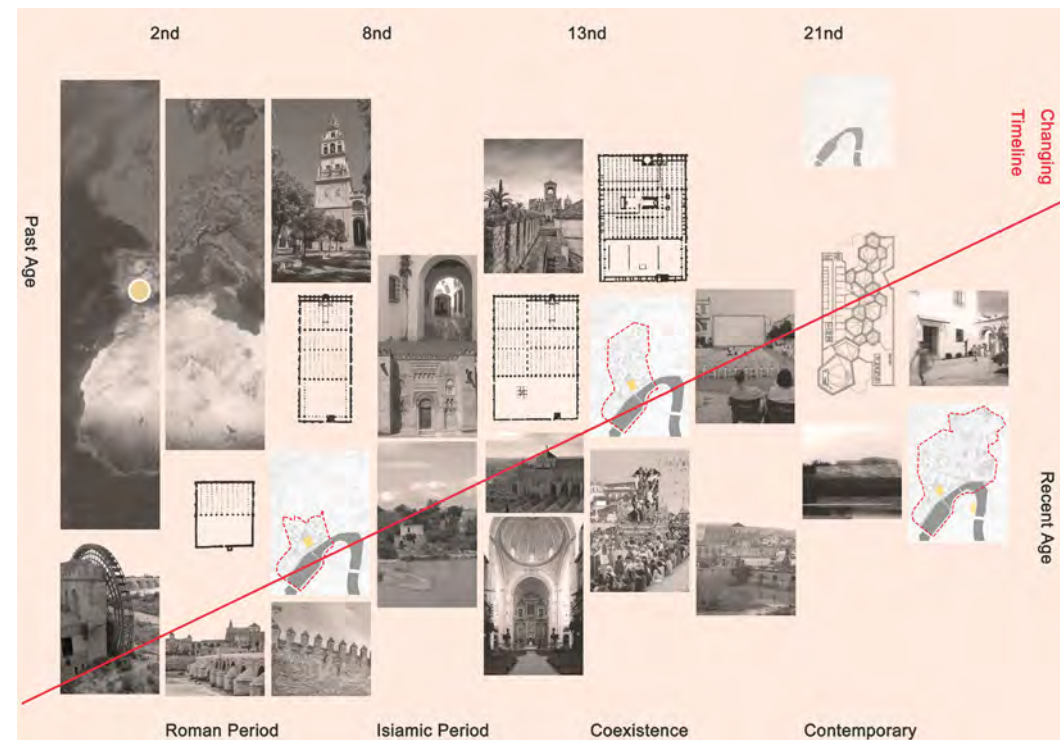
(5) Marco Borsotti, *Ibid.*, 65.

TRANSFORMATION AS A HERITAGE PRESERVATION APPROACH: IDENTIFYING AND COSTRUCTING HUMAN NARRATIVES IN HISTORIC URBAN LANDSCAPE (HUL)

PhD Candidate: Hu Xiao - Supervisor: Prof.
Pierre-Alain Croset - Co-Supervisor: Prof.
Silvia Bodei

Xiao Hu, The Layered Characteristics of the HUL Approach: Taking the Historic Center of Córdoba (Spain) as an Example, 2024.

364



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The Historic Urban Landscape (HUL) approach provides a holistic framework for urban heritage preservation. This study examines how incorporating human narratives into urban landscapes enhances their livability and resilience. By exploring crucial moments in heritage preservation and HUL, it outlines how design-driven solutions can bridge the gap between theory and practice, offering actionable strategies to balance conservation and development and promoting sustainable, inclusive urbanism.

Cities and urban settlements around the world are growing exponentially. According to United Nations research on population distribution, it is projected that by 2050, the number of people living in urban areas will reach 68% of the world's population. Distinguished from people's previous lifestyles and social practices, urban life is now in the social context of epidemic normalization, globalization, urbanization, neoliberalism, and other intertwined multiculturalism. The financial crisis has become a permanent state of affairs that legitimizes demands for cuts in social spending, health care, support for culture, and scientific research.

People feel that they are living in a generally tense urban world. Urban heritage preservation, as a key element of sustainable urban development, enhances a city's livability, fosters economic growth, and promotes social cohesion, balancing development and quality of life. This aligns with the UN's 2030 Agenda for Sustainable Development (SDG). Goal 11.3 emphasizes inclusive and sustainable cities, while Goal 11.4 calls for strengthened efforts to protect and safeguard the world's cultural and natural heritage. The HUL, adopted by UNESCO in 2011, aligns with these goals, sparking positive discussions on climate change, social segregation,

equity, cultural identity, and economic circularity. However, solutions to these issues remain largely hypothetical.

Proposed Studies

This research begins with a systematic literature review (SLR) to establish an understanding of the HUL approach. The review includes analyses of UNESCO's official guidelines, conference records, and workshop reports to explore the origins, development, and principles of the HUL approach.

Next, the study selects UNESCO-recommended urban heritage practice projects alongside typical examples of living heritage preservation and utilization in cities, neighborhoods, and buildings. GIS is employed to identify the cultural, natural, and social resources within these cases, complemented by digital tools to track public footprints and understand local characteristics and human narratives. Morphological and typological methods are then used to analyze and compare cases, reflecting on and evaluating current design practices to build a design-driven heritage preservation theoretical framework for HUL backgrounds.

Finally, theory and practice are integrated to create a holistic, action-oriented, multi-level design toolbox, supporting the integration of urban heritage and spaces making the city's unique cultural

Design-Driven Preservation

Critical Heritage Studies

Cultural Landscapes

landscapes more readable. The toolbox includes collaborative public participation decision-making and working methods, as well as multi-level design strategies from cities to buildings, with case studies to illustrate from case to case. It aims to support residents, architects, researchers, and students, promoting design-driven urban heritage preservation, improving built environments, enhancing residents' quality of life, and providing replicable action tools for the HUL approach.

Literature Review

The recommendation on the Historic Urban Landscape seeks to increase the sustainability of urban conservation and development holistically. It considers built heritage, intangible heritage, cultural diversity, socioeconomic and environmental factors, along with local community values. The HUL approach is significant as an innovative way to preserve heritage and manage historic cities, marking a shift from a monument-centric view to a holistic

approach, acknowledging the dynamic, multi-layered nature of urban landscapes and aligning with the SDGs. Layering theory serves as a key identification tool for HUL. The urban context and its geographical setting include cultural, natural, and human resources. Thus, cities are seen as dynamic layering results, including built environments, cultural customs, infrastructure, economic processes, social values, and the natural environment, with both diachronic and synchronic characteristics. Over 20 years, the HUL approach has been implemented globally, from Africa's Swahili Coast to Asian and European cities, demonstrating its adaptability through dynamic expansion and holistic considerations. The World Heritage City Lab in 2020 further expanded HUL's scope, proposing five recovery strategies: people-centered recovery, green recovery, equitable economic recovery, recovery of space and infrastructure, and digital-driven recovery. The main goals are to coordinate heritage preservation and sustainable development, addressing modern challenges: robust governance mechanisms, better regulations, effective management frameworks, encouraging community participation, and recognizing heritage as a public good. Current research focuses on urban management, public cooperation methods and tools, and heritage economics, but

studies on vulnerability assessment and resilience building are presently missing. There are few action and practical solutions.

Significance

Culture serves as a driving force for sustainable development. The definition and boundaries of heritage are evolving, encompassing social, economic, and cultural values.

Integrating human life, culture, and historical experiences into the urban landscape creates a holistic, dynamic narrative reflecting human life, history, and cultural activities.

By observing human narratives and authentically connecting design with specific places, themes, and events, this study summarizes architectural knowledge and practices, improving built environment quality, enriching the toolbox, and balancing urban heritage preservation and development. Design must reconsider urban heritage preservation's value as a collective memory, its social significance, and its role in sustaining urban vitality and diversity. This research bridges the gap between theory and practice in the HUL vision, enhancing urban resilience and moving towards an inclusive urbanism future.

Notes

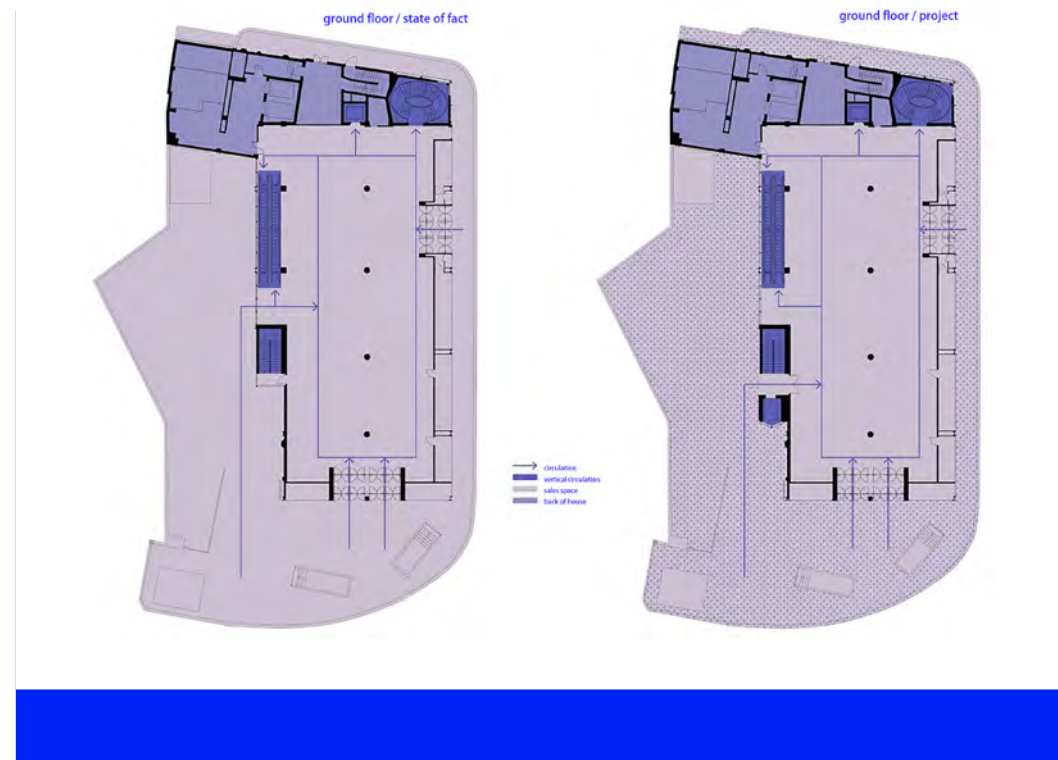
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ARCHITECTURAL HERITAGE REUSE: A COMPARATIVE STUDY OF SPATIAL DESIGN METHODS FOR COMMERCIAL BUILDINGS IN ITALY AND CHINA

PhD Candidate: Qi Yangyi - Supervisor:
Prof. Ferdinando Zanzottera

2050+, Plan for the transformation of La Rinascente bldg., Piazza Fiume, Roma, 2022.

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With the increasing global awareness of sustainable development and cultural heritage preservation, the reuse of architectural heritage has become an important part of urban renewal and development. Italy and China are examples of cities that have experienced rapid industrialization and modernization, which have left behind a rich architectural heritage from the late 19th and early 20th centuries.

This study explores how these approaches can support sustainable development goals by comparatively analyzing spatial design approaches in the reuse of architectural heritage in commercial buildings in Italy and China. Through case studies, comparative analysis, sustainability assessment, design research, and other research methods, the different strategies of architectural heritage reuse and their contribution to sustainability in the cultural and economic contexts of the two countries are analyzed. This research focuses on two core issues: how to maintain the historical value of buildings through design approaches and ensure that reused spaces can meet the needs of modern businesses.

Commercial architectural heritage reuse projects in Italy and China were selected as case studies, including historic buildings in city centers as well as regional commercial buildings, such as Shanghai Xintiandi in Shanghai and the Italianate District in Tianjin, which show a variety of styles from the end of the 19th century to the modern day. These typical colonial-style buildings represent part of China's modern history and reflect Shanghai's position as an international trade center. In contrast, the commercial historic buildings in Milan, such as the Vittorio Emanuele II shopping street and the La Rinascente department store

in Rome, are outstanding examples of the reuse of architectural heritage as commercial buildings, testifying to the splendor of Italy as a center of art and culture. These projects all reflect the importance and challenges of reusing heritage buildings in contemporary society. By comparing Italian and Chinese approaches to spatial design, it provides a cross-cultural perspective and practical guidance on architectural heritage reuse and the potential value and significance of understanding and optimizing architectural heritage reuse on a global scale.

In terms of architectural heritage utilization, Italy focuses more on preserving and emphasizing the historical elements of a building, whereas China tends to combine traditional elements with modern design in order to increase commercial attractiveness. Although very different, both approaches aim to achieve sustainable reuse of architectural heritage, and both face the challenge of balancing the relationship between conservation and innovation, as well as tradition and modernity. It is important to identify how these two approaches balance heritage conservation, spatial innovation, and the need for commercialization while promoting the sustainable development and adaptive use of heritage buildings. Recently, the Italian Government has encouraged private investors to

Heritage Reuse Spatial Design Sustainability

participate in architectural heritage preservation and reuse projects. The Chinese Government has gradually recognized the importance of architectural heritage protection in recent years and has begun introducing a series of policies and measures to promote heritage protection and reuse.

Heritage reuse involves the process of adapting historic buildings to modern uses, emphasizing the preservation of the historical and cultural values of the buildings. In the reuse of commercial buildings from the late 19th to early 20th centuries, cases from Italy and China show how the historical context and architectural styles of these buildings were assessed and strategies for converting them into different functions such as retail space, offices or cultural facilities were explored. The study should further explore how technological and design innovations can enable these buildings to meet modern safety and functional needs while retaining their historical appeal. For example, it may

examine how modern building techniques and materials can be integrated without destroying the original structure and appearance. In addition, the study looks at the interactions and impacts of stakeholders such as community members, architects, and policymakers in the process of heritage reuse.

Spatial design plays a key role in the reuse of architectural heritage, especially when adapting interiors to new commercial functions. By comparing Italian and Chinese design approaches, the study reveals how modern design elements and technical facilities can be combined while preserving the original historical elements.

The design focuses on creating flexible spatial layouts that support a wide range of commercial activities while optimizing the user experience, such as improving spatial circulation and the use of natural light. Further research could also explore how heritage buildings can be made more interactive and adaptable to possible future changes through interactive technology and multifunctional design. Sustainability is a core consideration in the reuse of built heritage and encompasses environmental, economic, and socio-cultural dimensions. In the environmental dimension, reuse projects assess how environmental impacts can be reduced through energy efficiency and reduced resource consumption; in

the economic dimension, the stimulating effect of reuse on the local economy, such as increased employment and tax revenue, is analyzed; and in the socio-cultural dimension, how these projects can enhance community identity and cultural continuity, and promote public participation and cultural heritage is explored.

Through this multi-dimensional sustainability assessment, the study aims to provide practical guidance and policy recommendations for effective reuse of built heritage. The study should also include an assessment of the long-term sustainability of heritage reuse projects. This includes examining economic factors such as maintenance costs, operational efficiency, and life extension of buildings after reuse.

Through an in-depth analysis of the three key areas of heritage reuse - heritage reuse, spatial design, and sustainability - this study demonstrates how historic buildings can be transformed into commercial spaces that meet modern needs while maintaining their cultural and historical values. Heritage reuse focuses not only on the physical preservation of the building but also on its educational and cultural role in the community. Research in spatial design emphasizes how to meet functional needs and improve energy efficiency through innovative design while preserving

historic features. Sustainability analysis extends to the environmental impacts, economic benefits, and socio-cultural contributions of buildings, calling for the development of effective policy frameworks and incentives to support the sustainable reuse of heritage buildings. This study aims to fill the gap in cross-cultural comparative research on the reuse of architectural heritage in spatial design practice, especially in the commercial sector.

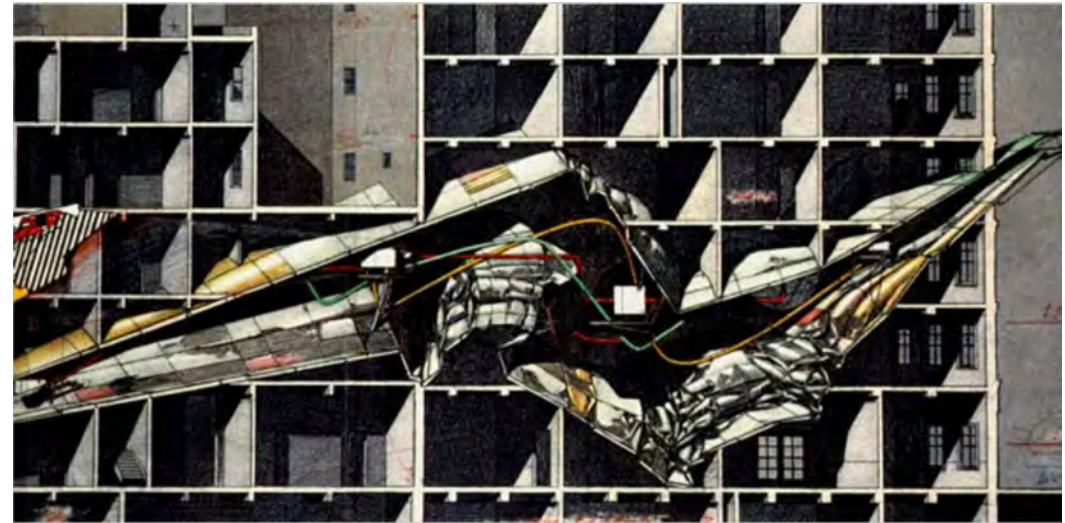
By comparing Italy and China, two countries with very different cultural and historical backgrounds, the study aims to reveal the differences in spatial design approaches in different socio-economic environments and to explore the implications of these differences for the adaptive use of architectural heritage.

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ABANDONED BUILDINGS AND COMPOUNDS OF PUB- LIC REAL ESTATE IN ITALY

PhD Candidate: Maria Scandroglio Anelli -
Supervisor: Prof. Ilaria Valente



Lebbeus Woods, Berlin Free-Zone 3-2, a re-thinking of an abandoned government building in Berlin, 1990.

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This research concerns abandoned buildings and compounds of public-owned real estate in Italy. Specifically, it will center on military structures, focusing on barracks. By examining the concepts of heritage, public good, and the issue of abandonment, the study aims to ascertain the adaptability and habitability levels of this architectural type, unraveling its inherent potential. The overarching goal of the research is to establish a methodology capable of guiding design decisions in this domain.

The first approach to research was to understand what is meant by the term “reuse,” investigating the possible benefits and main issues. Environmental advantages need to be mentioned, such as the transition from a linear to a circular model. Additionally, the economic advantages of reuse compared to new construction and the socio-cultural benefits should be noted. Regarding the latter, it can be briefly stated that reusing promotes non-standardization, which is against the logic of self-referentiality of new constructions. Furthermore, the symbolic value that existing buildings have within the urban context is linked to the constitution and maintenance of collective memory. On the other hand, abandoning a building means leaving an uncontrolled void within an urban fabric with associated social costs. Reuse also stimulates typological and technological experimentation. Many architects and authors have addressed these themes, starting from Rafael Moneo, Aldo Rossi, Carlos Martí Aris, André Corboz, or even earlier, from Quatremère de Quincy, Viollet-Le-Duc, Ruskin, or Riegl, engaging with the theme of memory and the ancient-new relationship. In particular, the first phase of the research focused on understanding the value of existing heritage, not just as such, but rather as tangible symbols of some constitutive values of the contemporary

community, through a process called past-presencing. This involves bringing the past into the present through actions that imply a more or less conscious memory process. It is, therefore, necessary to establish continuity with history, and reuse is a method to achieve this. Returning to the themes raised at the beginning of the research, the main problems related to reuse have also been identified. These are design and functional problems: it is necessary to give new functions to buildings originally designed for different purposes, so it is essential to understand which buildings are most suitable to accommodate specific functions—in two words, habitability, and adaptability. There is also the challenge of dealing with voids and problems related to the presence of obsolete materials and systems. After understanding these issues, the research will continue with an experience at the Agenzia del Demanio, where there will be an opportunity to understand the current workflow and identify possible weaknesses. This part of the research will also be developed through the analysis of case studies belonging to a specific category of public assets, namely abandoned barracks built during a specific period. In addition, a semester-long experience at a foreign university will allow comparison with other case studies in the European context.

This chapter collects the presentations of the work in progress of the Architectural Urban Interior Design doctoral program candidates focusing on the "Heritage" theme.

The candidates are in different stages, comprised between the 35th cycle (beginning in 2019) and the 39th (beginning in 2022). Here is the list of the candidates with their cycle:

35 Pietro Brunazzi
35 Sara Ghirardini
36 Hu Dan
36 Li Xiang
37 Chiara Caravello
37 Majdulin Elmansuri
37 Liu Yidan
37 Stefano Sartorio
37 Wei Jiajia
38 Silvia Di Mauro
38 Fu Yiling
38 Hu Xiao
39 Qi Yangyi
39 Maria Scandroglio Anelli

The epigraph at page 297 is taken from: John Hejduk, *Victims*, Architectural Association Books, London, 1986; p.11.

HOME

HOME inhabiting the planet

we commonly call a House convenient, when it is suit-

able to the quality of its Master, and that all the parts of it not only have a proportion answerable to the whole, but also an exact symmetry each with one another.

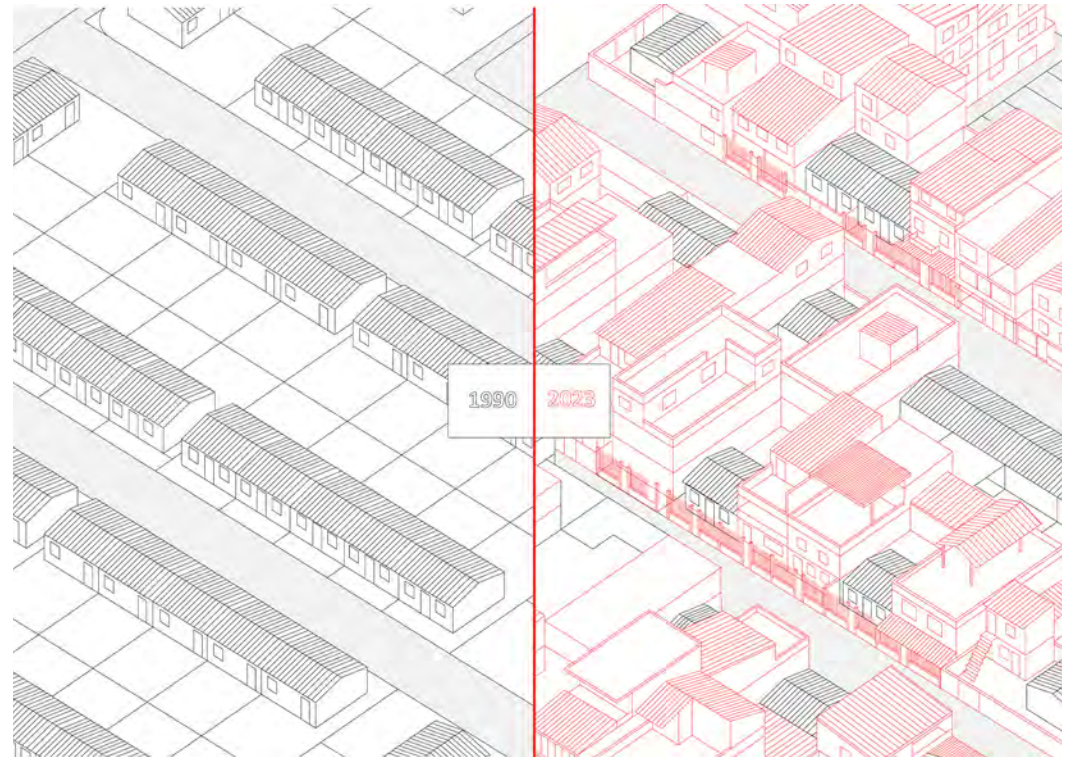
(Andrea Palladio)

INCREMENTAL. DESIGNING FOR THE UNPROGRAMMED GROWTH OF SOCIAL DWELLING

PhD Candidate: Cecilia Cempini - Supervisor: Prof. Andrea Gritti - Co-Supervisors: Prof. Antonio di Campli (Politecnico di Torino) - Prof. Laura Montedoro

Cecilia Cempini, Sauce Norte social housing transformation, 2024.

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The research analyzes social housing in Latin America, using incrementalism as a tool to understand, represent, and design the complex nature of dwelling conditions. Through a comprehensive analysis of incrementalism's theoretical and operative field and an in-depth investigation of the socio-spatial transformations of Loja's social housing, the research explores the possibilities and constraints of time-based design strategies for improving dwelling conditions in Andean middle-size cities.

Beyond the formal-informal character of dwelling or progressive typologies, incremental housing is the predominant way of building Latin American cities. Today, not just those with limited resources or living in informal contexts build incrementally. City dwellers of varying socio-economic backgrounds adopt progressive practices to address social or market housing inefficiencies regarding affordability and financing systems between others. Only 5% of the entire building stock is constructed in a single stage and overseen by formally trained architects. The remaining 95% emerges through a participatory process involving spatial configurations, personal and collective stories, and economic resources.

For this reason, since the '60 up to today, incremental housing has been considered a socio-technocratic solution to the housing deficit. This approach recognizes self-construction and participation as the primary resource for guaranteed adequate living conditions for many urban poor. Projects such as site and service, core/minimum housing, or progressive typologies like Previ or Elemental have promoted a process without form (Open form), reducing architecture to a framework from which each user is responsible for building their own living space according to their changing needs, desires, and possibilities.

Even in subsidized housing programs where progressivity and participation are not explicit design principles, the proliferation of standardized "minimum housing" units spanning 37 square meters fosters the un-programmed growth and adaptation of living spaces over time, blurring the border between designed and spontaneous architecture (1).

The hypothesis is that incrementalism is a cognitive structure of sense and socio-spatial organization that overcomes binary categories such as formal/informal, process/product, and bottom-up/top-down approach. Although incremental housing has been a useful tool in the past century, it requires scrutiny in light of contemporary challenges. Large-scale urban development in peripheral areas often marginalized public spaces, social infrastructure, and the importance of location in fostering social and economic ties. Furthermore, poorly constructed spaces often lead to uncontrolled growth of domestic space, negatively impacting residents' and communities' long-term sustainability, livability, comfort, and quality of life. Similarly, the idea of "half-house" has been criticized for perpetuating neoliberal logic that reducing production costs transfers the responsibility of providing for their roof to users (2).

Moreover, according to the last BID

Incrementalism Social Housing Time-based Design

report, compared to the past century, 94% of Latin America's housing deficit in urban areas is qualitative. Despite 90% of government investments allocated to constructing new units, how to incrementally recover and upgrade existing building stocks is a major challenge (3). Therefore, it could be interesting to review incremental design and discourse and understand space, people, and time's pivotal role in constructing living and community spaces. However, while incrementalism is a focal point for those vested in comprehending the housing landscape of Latin America, there remains a notable scarcity of studies focused on comprehending and representing open-ended and participatory patterns of inhabitation. Publications like Garcia's "The Time Builds" and the work developed by the Global Consortium for Incremental Housing -MIT are some crucial examples. However, they often overlook smaller cities and experiences without autographs. Nevertheless, peri-

urban areas of small and medium urban centers become the catalysts of population growth and urbanization, leading to new questions about the role of housing in this process.

Therefore, the thesis investigates the incremental design, asking: What comes next? Which are the main components of incremental housing, and which architectural instruments allow a compelling reading and representation of open-ended and participative patterns of inhabitation? How does ordinary social housing evolve, and what are the patterns of social-spatial transformation? And finally, what are the limits and possibilities of incremental design in contemporary scenarios?

The research is systematically organized into three macro-sections, each contributing to a comprehensive exploration of the subject differently: one that frames the theoretical and design discourse, one related to the case study, and one of research by design that aims to synthesize the previous ones. While the sections may appear isolated, they are meant to intertwine intricately.

The first one, "Time-based design: a reading of Latin America incrementalism," includes a critical cartography of incrementalism, with particular attention to the Latin American context. By meticulously dissecting both theoretical underpinnings and design

contributions, this chapter aims to construct a critical comprehension of the incremental discourse in architecture and urban design. This section explores the potential of time-based architectural design in the face of contemporary challenges and seeks to distill and define the core concepts of the thesis.

The second part, "Analysing open-ended pattern of inhabitation: an extraordinary toolkit for ordinary architecture," delves into social housing production within Ecuadorian Andean-intermediated cities. Through the analysis of three projects built in Loja between 1980 and 2010, the aim is to understand housing from a relational conception, where the process and the dynamic and changing relationships between factors matter more than the architectural object itself (4). The social housing landscape is a product of subsidized housing initiatives, typically materializing as standardized units within a monofunctional, low-high pattern of urban development on the urban edge. Despite growth and change not being incorporated as design principles, the small sizes of typologies provoked the un-programmed transformation of living space. In this sense, the studio encompasses formal analysis, viewing housing as a complex system that arises from the interplay between physical structures, social practices, and economic resources within specific geographic,

cultural, and political contexts. Through typological re-drawing, metrical survey, photographic documentation, and interviews with inhabitants, the aim is to reveal the articulation between the original project and the actual configuration and to identify the key factors that have steered transformations over time. This section comprehensively explores research-by-design activities, where drawings are a projective tool for uncovering the intricate relationship between forms and uses, spatial organization, and way of living. The third part, "Designing Adaptive Infrastructure for Andean Middle-Size City Social Housing," develops design strategies to enhance social housing production. It serves as a ground for synthesizing, testing, and discussing the theoretical, analytical, and design matrix built in previous sections.

Notes

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RURAL ARCHITECTURE AT 0° LATITUDE. A CRITICAL IN- VESTIGATION ON ANDEAN DWELLING

PhD Candidate: Valentina Dall'Orto - Su-
pervisor: Prof. Andrea Gritti - Co-Supervi-
sor: Prof. Antonio di Campli (Politecnico di
Torino)

Valentina Dall'Orto, The portal as a spatial determinant of Andean architecture in Southern
Ecuador, 2024.

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The study explores the spatial characteristics of Andean rural housing in southern Ecuador, focusing on the architectural components that enable the relationship with the surroundings. Field surveys and comparative analysis of thirty-five rural architecture in Loja province suggest the presence of a system of mediating spaces connecting architecture with the natural and anthropic environment. These spaces, intrinsic to the house structure, aid adaptation to environmental, social, and economic cycles while acting as bridges that enhance interaction between the dwellers and their habitat.

Rural housing architecture, often termed autochthonous or native architecture, emerges as a direct response to local resources, meeting the needs of inhabitants and shaping complex social and cultural systems (1). These are highly dynamic and interactive, encompassing the natural, built, and anthropic environment. It serves as a cornerstone in ceremonial activities, social interactions, and solidarity, influencing the transformation of surrounding territories through a continuous dialogue with various contextual factors, including the geographical landscape, cultural heritage, and community traditions (2) (3). In contemporary contexts, rural housing faces intricate challenges, particularly in regions like Latin America, where extractive phenomena driven by neo-colonial policies reshape landscapes and communities. This process has resulted in heightened fragmentation, exacerbating inequalities and materializing through the abandonment or exploitation of large swathes of land, as well as the establishment of new economic structures and residential occupation patterns (4). Therefore, it is imperative to examine rural architecture within these contexts to comprehend the elements that shape its spatiality and its capacity to adjust to perpetually shifting environments. This study delves into the typology of Andean rural housing in southern

Ecuador, aiming to identify spatial components that enable adaptation to different physical and cultural contexts. It is observed that rural architecture in this region exhibits a certain level of abstraction and complexity resulting from geometric relationships between its elements. Hence, the hypothesis suggests the existence of a system of mediating elements facilitating the connection between the enclosed interior of the home and the exterior, managing privacy thresholds. Through a qualitative methodology integrating architectural and ethnographic approaches, 35 rural houses across varied climatic and anthropic conditions in the Province of Loja were analyzed.

The methodology is built upon insights gleaned from prior studies conducted in South America. Locally, it draws upon research conducted in 1977 by architects Jorge Navas and Susana Rendón, as well as a subsequent study in 2011 by the University of Azuay. Both of these researches propose a typological classification of rural dwellings based on the interplay between solid and void elements within buildings, using architectural plans as a reference image in the former case and focusing on the main facade in the latter.

Additionally, the research of Glenda Kapstein Lomboy, an architect of Chilean origin who splits her professional activity

Rural Architecture

Andean Dwelling

Intermediate Space

between Spain and Chile, serves as a central point of reference. Kapstein underscores the significance of intermediate spaces as pivotal spatial determinants in shaping building typologies found in the Atacama Desert. She identifies intermediate spaces not only as transitional zones between interiors and exteriors but also as existential architectural elements that accommodate diverse functions characterized by flexibility and ambiguity (5). Therefore, the objective of this study is to identify these spaces and analyze their role in integrating housing within the Andean context.

The five intermediary spaces identified—portal, hallway, front and rear courtyards, and basement—facilitate connectivity and regulate privacy dynamics. These elements exhibit adaptability to diverse climatic conditions and serve multifunctional purposes, contributing to the resilience and sustainability of rural housing:

Portals are very common in rural

housing, regulating the interior climate and offering protection. They serve multiple purposes, from drying grains to serving as communal social spaces, extending beyond the confines of individual family privacy within a specific dwelling. When positioned on the main facade, it serves as a hub for social interaction and a link between public and private domains. On sloped terrain, portals facilitate navigating changes in topography, establishing a direct connection between the structure and the access level from the road. The **hallway** serves as a crucial link between the public and private spaces and displays various geometric features. In cold, rainy regions, it's a narrow corridor connecting the porch to the courtyard. In dry areas, it extends to promote cross ventilation, cooling the interior. It serves a more transient function compared to other intermediary spaces, which consistently serve as living areas. The hallway can also be viewed as a semi-public element, frequently acting as an intangible boundary between two houses and granting access to the rear of both properties. The **central courtyard**, typical of larger buildings reflecting the Andalusian architectural tradition, illuminates and ventilates interior spaces while organizing various areas. It serves multiple functions, including hosting receptions, living

quarters, and agricultural activities. In multi-story structures, the central courtyard links different levels and connects the built environment with nature, often featuring a staircase and providing sky views. Conversely, the **rear courtyard**, typically behind lots or houses, primarily serves as a productive space, such as a garden or storage area. Originating from the Andalusian tradition, this configuration is common in buildings along streets, with the rear courtyard more prevalent than the central courtyard, even in peri-urban contexts. The **basement** serves as a mediator, elevating the house on sloped terrain and preventing moisture seepage from the soil, ensuring structural integrity. It varies in size and often functions as storage space, with potential for expansion to accommodate provisions and animals. Additionally, it complements water management systems, like rainwater collection channels, especially in areas with heavy rainfall. The **intermediary spaces** serve as transitional zones, facilitating interaction between interior and exterior, between individual and collective, accommodating a wide range of activities. They play a pivotal role in moderating climate, negotiating topography, and engaging with the landscape, thereby shaping a sustainable system from diverse perspectives. Moreover, they nurture

community interactions, reflecting the communal essence of rural life and embodying the contemporary significance of inhabiting practices in rural contexts. Their significance also lies in their capacity to accommodate diverse economies, with their flexibility enabling rapid adaptation to various configurations. In essence, the intermediary spaces function as devices, membranes that mediate relations across multiple scales, serving as defining elements in Andean typology. Reinterpreting these elements in contemporary projects enhances spatial experiences and resilience to evolving rural dynamics and life practices.

Notes

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INFORM/ALL. INNOVATIVE AFFORDABLE LOW-IN- COME LIVING SOLUTIONS IN SUB-SAHARIAN AFRICA

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pervisor: Prof. Laura Montedoro - Co-Su-
pervisor: Prof. Nelson Mota (TU Delft)

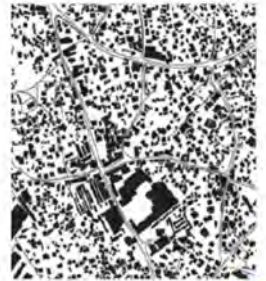
Baixa
Officially planned



Polana Caniço
Un officially planned



Chamanculo C
Un-planned



“Architecture is concerned with giving shape to the places in which we live. The shape of these places, however, is not only defined by the aesthetic trend of the moment or the talent of a particular architect. They are the consequence of rules, interests, economies and policies, or perhaps even lack of coordination, neglect and simple randomness. The forms they take can improve or ruin people’s lives. Difficult conditions (a lack of resources, very restrictive constraints, needs of all kinds) are a constant challenge to quality results.”⁽¹⁾

The research project aims to analyze the housing issue in the Global South countries, where access to decent housing is limited, if not entirely precluded, for millions of people. In addition to analyzing the phenomenon, the research also questions the role of architecture and architects in slum upgrading processes. The research will focus on setting up design strategies to guide a process of developing affordable, low environmental impact housing, maximizing social acceptability, and architectural and urban quality. In spite of the relevance of the topic and a wealth of research in different contexts in the global south, the research on social housing in Sub-Saharan African countries has not yet consolidated a critical mass of experiences that could spread new, more virtuous practices. While sociological, economic, and urban planning phenomena have been well described in the literature, an accurate look from a project perspective seems to be lacking. In fact, if we go deep into the disciplinary tradition in order to reconstruct, through some critical texts, the timeline of the debate of low-cost housing in the Global South contexts, we can see how the roots of the debate are set mainly in Global South continents that are not Sub-Saharan Africa. The developing countries, especially in

Sub-Saharan Africa, feature the world’s highest rates of population growth. In these informal territories, a deep concentration of poverty and social problems co-exists with social and economic dynamics, creative initiatives, and a sense of urbanity. Considering that currently, one-third of the world’s population lives in slums and distant outskirts and that the poor constitute the world’s fastest-growing group, it is vital that new intervention strategies are investigated (2). Nowadays, in these contexts, the issue of social housing and its impact on the urban structure is urgent, and many aspects remain to be investigated. In addition to investigating the phenomenon, the research will focus on strategies to guide a process of developing affordable and low environmental impact housing, maximizing social acceptability and architectural and urban quality. The research project proposes to define two types of perimeter: the first of a typological nature and the second of a geographical one. With reference to the first, the research observes the phenomenon of diffuse urbanization, whether formal or informal, from the point of view of the house because it is the most pervasive urban material in these territories (in the absence of services, infrastructures, and public

African Cities Housing Slum-upgrading

spaces, the house is the most characteristic element of the informal fabric).

The second perimeter concerns the geographical aspects: until the beginning of the 21st century it was Latin America that led the field of research on experiments and housing policies in informal settlements, with a higher rate of urbanization than all the countries of the Global South, today, it is Sub-Saharan Africa and Asia that are the places with the greatest growth, in very different ways. In Asia, the growth of cities is oriented towards the formation of new megacities. For this reason, disciplinary criticism sees the African continent as one of the most interesting contexts within which to observe the phenomena of rapid urbanization. However, two areas must be culturally distinguished: North Africa and the countries of Sub-Saharan Africa. The research proposes to delimit the Sub-Saharan area because it can show urban phenomena with greater evidence and drama and, simultaneously

because it is a fertile ground for analyzing, understanding, and experimenting with innovative housing solutions and policies in informal urban settlements. This whole new universe requires new research methods, new vocabularies, new concepts, and more dynamic design strategies to intervene in informal settlements with more flexible approaches, considering multiple futures, diverse types of urban design, and different programs rather than stable or permanent configurations. Specifically, the thesis selects Mozambique as a case study because it highlights the relationship between housing issues and urban regeneration. Mozambique, after a devastating civil war ended in 1992, grew at an annual demographic rate of around 10% with unprecedented migration to urban areas. A complex organizational and institutional structure, largely inherited from the Portuguese, did not adequately manage this extraordinary influx, and most migrants settled in informal settlements. The government's efforts to reduce social inequalities decreased poverty from 70% to 54% throughout the country from 1997 to 2003. However, if we focus our gaze on the cities where immigration is most intense, for example, in the capital Maputo, then we find that poverty rates have increased from 67% to 70%.

According to UN-Habitat (3), more than one million people live in Maputo, the capital, 75% of whom are in informal neighborhoods with precarious or non-existent infrastructure and urban services. In fact, the 'Maputo Municipality Urban Structure Plan' (PEUMM) (4) proposal recognizes that 'the injustice of this situation is unsustainable' and that 'it is imperative that informal neighborhood upgrading operations be given top priority in budget allocations; that the technical mechanisms and institutional organization necessary for the great battle for a city without slums be created'. Maputo is relevant because of its history, strongly marked by Portuguese colonial policy and inadequate infrastructure conditions, but which at the neighbourhood scale presents stimulating projects for the regeneration of informal settlements and is the scene of various samples and forms of planning, planned, semi-planned, and spontaneous. In this historical moment - in which slums have become an integral part of urban realities and, according to estimates, an ever-growing phenomenon - what should be the role of the technician, understood as an architect, urban planner, and planner, when confronted with the challenges posed by these settlements? What lessons/warnings can be drawn from the regeneration projects already

experienced?

In this sense, the research is intended to reflect on the role that architectural design and the architect can play in the face of complex cultural, infrastructural, and design barriers. Therefore, the research aims to use the project as a research tool to understand how it behaves in contexts of poverty, inequality, and the effects of climate change in two ways: on the one hand, the project will be an analytical tool of reality through which to observe the existing (comparison of case studies significant to the understanding and description of the phenomenon) and, on the other hand, the project wants to be an empirical tool of knowledge, through which to deepen some project probes to bring out more clearly the problems related to the social housing issue of the countries of Global South.

Notes

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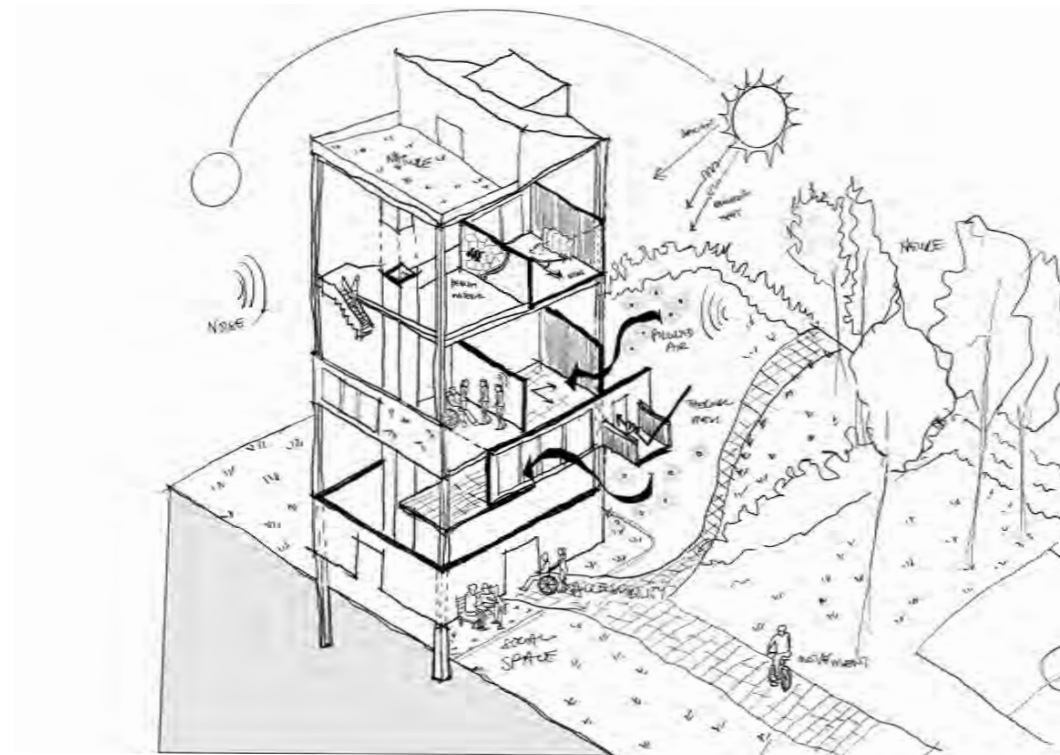
(4) PEUMM was prepared with the scope within the scope of the Maputo Municipal Development Programme (MMDP) and is the main urban planning instrument of Maputo city, which defines the spatial vision and strategic planning priorities of the city.

WELL-BEING HOME: AN APPROACH TO MULTI-FAMILY HOUSING DESIGN

PhD Candidate: Rose-Ann Mishio - Supervisor: Prof. Antonio Carvalho

Rose-Ann Mishio, Making well-being visible: A cut-away view showing key themes, 2023.

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Europe is approaching concurrent crises: aging, disability, and housing inadequacy, which become causes of poor health and poor well-being. As a proposed solution, the research hypothesizes an approach to designing housing for the well-being of all, irrespective of health or age status. This is born from the idea that instead of segregating age groups or special needs groups, housing design is attempted holistically, incorporating well-being-centric design considerations in a comprehensive approach for a sustainable and resilient future.

Europe is approaching concurrent crises: aging, disability, and housing inadequacy, which become causes of poor health and poor well-being with increasing impact on public health policies and expenses. In addition, data reveals that we are living longer, and therefore, everyone is bound to face eventual disabilities that are encountered with aging. With the growing societal need to focus on well-being on the one hand and Europe's population aging faster than the average global population on the other, it has become expedient that the housing designs are reconsidered. The situation is made dire considering that additional housing is required to house various populations, yet what is already present is not suitable for the marginalized and vulnerable. This image of housing problems begs the question of whether we should be building more or better. And if better, in which sense? An analogy of the current housing solutions reveals that attempts are being made to tackle the concurrent crisis through "silo approaches", i.e., different housing types for different ages and abilities, focusing solely on aspects of well-being or for precisely defined categories of people. With this premise, the research proposes a hypothesis to rethink housing design through an encompassing approach of well-being-promoting qualities for everyone, one that is suitable irrespective

of age or health status: 'A Well-being Home'. It proposes going beyond building codes and preventing ill-health to architectural solutions that are deliberate in simultaneously considering all ages and abilities and nudging towards well-being.

As an exploratory study, this research follows a logical, systematic approach, critiquing the discourse in search of solutions. The methodology is structured in an attempt to identify possible solutions to the quest through a series of theoretical contributions, analytical reflections, and case studies that draw out recommendations of qualities of spaces for housing from the perspective of architectural design and its relations with interiors and the urban context. As Koen Steemers rightly puts it, "When designing for well-being in buildings, it is more important to incorporate a wide range of health considerations rather than to focus on single, narrowly defined criteria. Such 'silo thinking' tends not to aid good design (perfectionism can be crippling), and often different criteria are in tension"⁽¹⁾.

Using design thinking towards utopia, an inclusive approach to well-being in housing design is simulated through logical reasoning and translation of precedent knowledge into pragmatic solutions that reflect the complexity of concurrent issues. This investigation is,

Well-being Housing Architectural Design

therefore, ‘research through design’⁽²⁾ as it goes through the process of questioning literature, theories, practices, and cases (reality) to translate current knowledge and propose ‘new’ findings for housing design and ‘research for design’⁽³⁾, as one that proposes a potential approach that could be tested and used for practice-based investigations. Fundamentally, the study is a proposed approach to designing housing for well-being through objective architectural practical solutions.

Envisioning a Holistic Design Approach

The research is developed in three main parts:

- (1) A preliminary exploration study based on the hypothesis of well-being for all obtained from literature, courses, seminars, and lectures, followed by critical analysis and reflections, revealed six key themes relevant to the hypothesis: comfort, accessibility, materiality, movement, nature, and sociability.
- (2) The second part of the research delved

deeper into the six themes. Each key theme was studied and defined for the research, and ‘how to’ approaches from an architectural perspective were drawn out. Subsequently, the responses for each theme were streamlined into taxonomic criteria on the building scale - building site, building envelope, interior layout, circulation, and installations.

- (3) The third part of the research tests the approach to selected housing case studies. The housing category of the investigation was multi-family housing, given the role and influence an architect could have on such a project, rather than single-family housing, which is usually developed together with the client and is more subjective. The cases were selected from award-winning multi-family housing projects since they exemplify housing projects objectively viewed as ‘good’ from 2000 until date. This is because research indicates that interest in Well-being design has grown tremendously since the 2000s.

Gold Standard or Glimmering Facade? Unveiling the Limitations of Well-being in Award-Winning Housing

After analyzing twenty multi-family award-winning projects, a trend was identified. While the reviewed award-winning housing projects demonstrably prioritized well-being in their designs, their focus often skewed towards specific

aspects at the expense of others. For example, the Social Housing in Bordeaux, commonly known as the transformation of 530 dwellings project, excelled in accessibility and thermal comfort but lacked consideration for fostering social interaction among residents, as well as considerations for air quality and movement. Conversely, the Arroyo Affordable Housing project addressed social interaction, movement, and comfort, but accessibility features were limited. Similarly, the Rue de Suisses Apartment Building prioritized material selection but neglected to address air quality, a crucial factor for occupants’ well-being. Despite their accolades, these case studies highlighted the limitations of a partial approach to well-being design in housing. While they addressed individual aspects, they did not achieve a truly holistic approach that comprehensively integrates all crucial themes.

The Future of Well-being Housing: A Call for an Integrated Approach

The challenges of aging populations, rising disability rates, housing shortage, and inadequate housing pose a significant threat to well-being in Europe. While significant advancements have been made in both well-being design and universal design principles, these approaches often operate in silos. This

research proposes a paradigm shift: a holistic approach to well-being housing design that integrates these crucial aspects into a comprehensive framework. This framework, developed through a four-year exploration of existing theories and best practices, acknowledges the limitations of a singular perspective. Recognizing the dynamic nature of research, the proposed approach serves as a springboard for further exploration. By advocating for a holistic approach, this research seeks to elevate awareness and inspire a unified vision for future housing design that prioritizes well-being for all residents, regardless of age or ability, fostering a more resilient and supportive living environment for generations to come.

Notes

(1) Koen Steemers, “Architecture for Well-Being and Health,” *Daylight and Architecture*, no.07 (2021). <https://www.daylightandarchitecture.com/architecture-for-well-being-and-health/>.

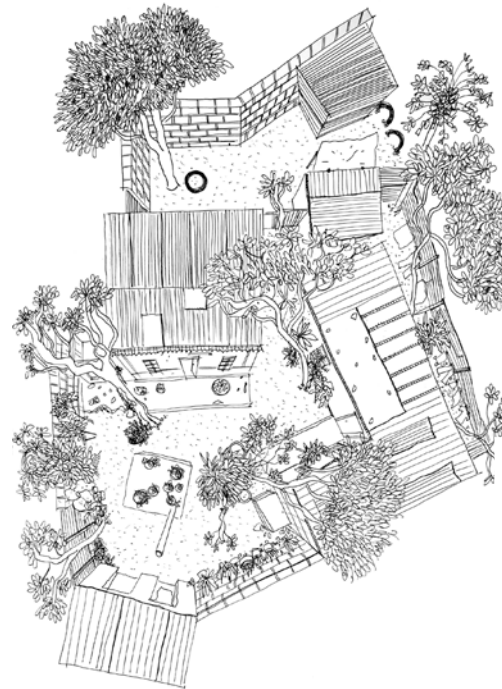
(2) John Zimmerman, Jodi Forlizzi, “Research through Design in HCI,” *Ways of Knowing in HCI*, (2014): 167–89.

(3) Pieter J. Stappers, Elisa Giaccardi, “Research through design: Doing research as a part of doing design,” *The encyclopedia of human-computer interaction* (The Interaction Design Foundation, 2014).

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DWELLING IN CHAMANCULO C: REPRESENTING THE DOMESTIC SPACE OF AN UN-PLANNED ENVIRONMENT

PhD Candidate: Michela Vanda Caserini -
Supervisor: Prof. Camillo Magni



Michela Vanda Caserini, drawing of a quintal in Chamanculo C, 2023

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This research stemmed from an agreement with the consulting firm ARS Progetti S.P.A., which involved the candidate in a regeneration project of an unplanned settlement located in the capital of Mozambique, Maputo. Through fieldwork, hand-drawing, and photography, using ethnographic techniques to engage with the community, the overall purpose of this work is to provide a deep and meticulous representation of how the inhabitants of Chamanculo C typically live in order to positively inform the design of the new houses that will substitute some of the existing ones.

Supported by the National Operational Programme on Research and Innovation that follows the objectives of the European Union's cohesion policy in disadvantaged areas, this work originated from an agreement between Politecnico di Milano and Ars Progetti S.P.A., a consulting firm that secured the Regenera project in 2022. Funded by the Italian cooperation (AICS), the project aims to develop urban and architectural improvements for the unplanned Chamanculo C district in Maputo, Mozambique.

The Regenera project, in which I am involved as a junior architect and PhD researcher, focuses on the urban reassessment of road infrastructure and its drainage system in a vulnerable area that is frequently affected by flooding, namely Chamanculo C. The intervention will involve the demolition of several houses along the main road of the neighborhood and the construction of new houses embracing in-situ relocation. The delicate issue of demolition and reconstruction gives rise to some of the key research questions: How do the inhabitants of Chamanculo C dwell? How can their dwellings be represented, and how can ethnographic analysis support the design phase?

Understanding how people dwell in an unplanned district implies, as a first step, a comprehension of the literature

review related to the unplanned side of architecture. The focus on the architectural form of spontaneous dwellings and their representation stems from a critical question arising from the disparity between the widespread prevalence of spontaneous urban architecture as a direct response to contemporary challenges in the Global South and the limited research conducted on this subject.

As Peter Kellet ⁽¹⁾ pointed out, spontaneous settlements were often viewed as visual and social pollution, reinforcing negative stereotypes and prejudices about the morals, abilities, and values of the residents. Over time, these settlements have been primarily interpreted through safety and overcrowding lenses, neglecting architectural considerations. While vernacular and rural architecture have gained attention in the last century, spontaneous urban dwellings, despite their extensive prevalence, are still overlooked. This first part of the research explains the need to understand and depict the architectural forms of informal architecture as they are becoming the common way of dwelling in the cities of the Global South.

Today, the tumultuous development of the cities led to the incessant growth of unplanned districts, and to say that with

Spontaneous Ethnography Drawing

Colin Ward's words: "Limiting the discussion to monuments and squares is akin to reducing botanical science to roses and lilies". (2) For the reasons explained, we might shift away from folkloristic, sociological, and process-related perspectives to immerse ourselves in architectural sight.

Beyond the critical examination of the architecture in informal settlements, the question of how to represent unplanned architecture drives the research to find ways to depict an architecture that is usually not represented and does not follow the codes of the official architecture. This leads to experimenting with different kinds of drawings aligning with an ethnographical approach, hopefully looking for a more sensitive understanding of the architectural characteristics and creating a base for the design phase. Indeed, the expectation of drawing a subaltern architecture belonging to a fragile context is an attempt to depict something that usually stays in the shadows. Ultimately,

researching subaltern architectures and making drawings on them means giving a voice to something that is usually silent. This condition raises the relevant issue of understanding the techniques and tools that could be welcomed by the inhabitants.

Following the path of architectural ethnography outlined by Atelier Bow-Wow (3), various hand-drawing methods have been analyzed, with the Modernologio theory of Wajiro Kon, who was involved in depicting ordinary lives of common people, and the Uzo Nishiyama Investigation on living styles, serving as the primary drawing references. The choice of these case studies is influenced by the technique employed, thus the freehand drawing, and even more by the analyzed subject: the ordinary or "trivial" architecture. Additionally, the work of other architects, such as Hayuda Tayob in South Africa and the field survey of Balkrishna Vithaldas Doshi in India, has been studied as a reference for the design phase. This part became fundamental to understanding the application of the tool of hand drawings already experimented with by other architects. The hybrid nature of the work encourages using a mixed methodology with a documentary phase in the university, followed by fieldwork in Maputo involving hand drawings, pictures, notes,

and analyses taken from conversations with the inhabitants and the design phase, which is developed in the office, and on the field through a participatory design. In June 2023, a preliminary site inspection was possible through a workshop with the students of the Politecnico di Milano's Master Design for Development course, where I took part as assistant professor. Subsequently, a second site visit was conducted directly with the ARS Progetti company. The mission was followed by an on-site verification of data in the neighborhood, which was undertaken throughout August, giving the possibility of preparing assessments and documenting streets, public buildings, facilities, houses, open spaces, trees, communication routes, etc. During this phase, I worked alongside a Chamanculo resident, not only for security reasons but especially to strengthen the relationship between me and the local inhabitants. Parallel to the urban analysis, initial visits to the residences, called "quintal," were made, conducting a preliminary test on how to represent them in the research. Hand drawings were supported by pictures taken with a camera when inhabitants allowed it.

The next month, May 2024, will be dedicated to the on-site deep analysis of the houses that will be demolished and rebuilt. The survey will be conducted by

a local team composed of architects, sociologists, anthropologists, and a topographer. From my side, the surveys involve in-depth hand drawings, pictures, and conversations that will constitute the overall analysis of the dwelling to be shared with the company.

Due to the nature of my position, being a PhD researcher and a junior architect located between the university, the consulting firm, and the community of Chamanculo C, the overall purpose of this work is to positively and effectively contribute to the redesign phase of the houses. The whole process will be nourished with deep and meticulous ethnographical analysis aiming at both understanding how people live and supporting the participatory design also through a deep involvement of the local residents. Expected outcomes include a detailed record of the houses to support the participatory design phase.

Notes

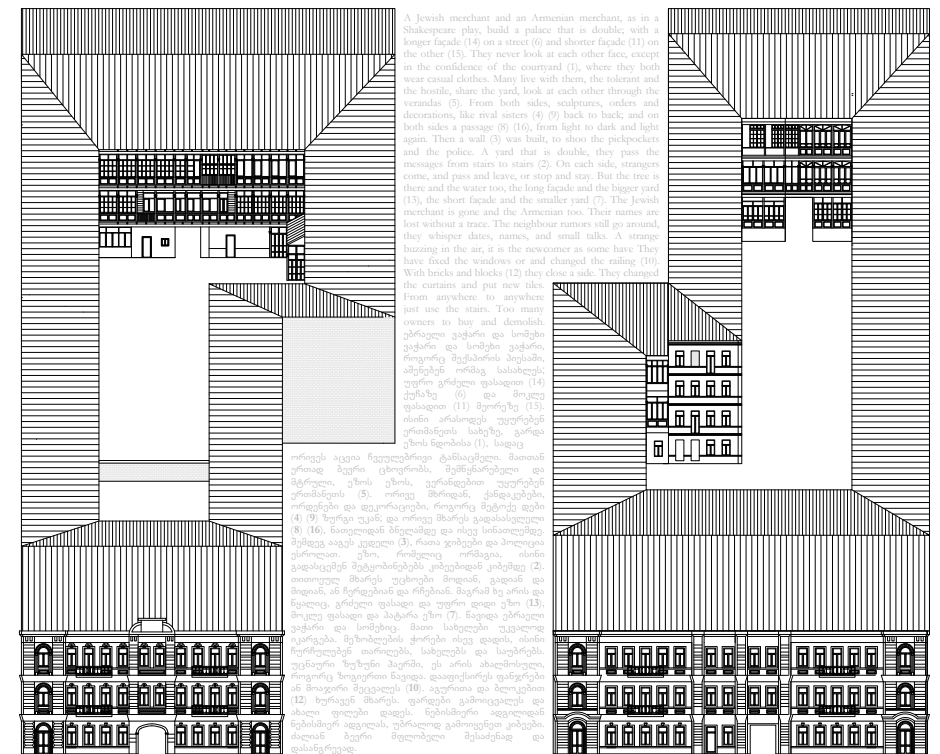
(1) Peter Kellett, Mark Napier, "Squatter Architecture? A Critical Examination of Vernacular Theory and Spontaneous Settlement with Reference to South America and South Africa." *Traditional Dwellings and Settlements Review*, vol. 6, (1995): 7-24.

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UNSCRIPTED ARCHITECTURE: THE YARDS OF TBILISI

PhD Candidate: Duccio Fantoni - Supervisor: Prof. Fabrizia Berlingieri



The research explores the capacity of architecture to produce unscripted results that transform the urban fabric both in its physical configuration and in its narrative. Focusing on the Yards of Tbilisi, peculiar semi/public threshold-spaces between dwellings and streets with verandas on the perimeter, this investigation aims to explore an under-studied phenomenon through the collection of multimedia documentation and using notational drawings as a tool to represent dimensions often excluded from the architectural field. The result is an exploration of unscripted architecture as a latent structure of the city.

The peripheral position of the Yards ⁽¹⁾ in the discourse on the city reflects the role of these places in the power relationship of the construction of Modern Tbilisi. Neglected in its spatial dimension, this phenomenon emerges as a discourse that oscillates in supporting different contradictory positions. Despite their pervasive presence in the urban fabric of the city, these spaces are under-studied in the architectural field; they gained recognition in the soviet period through modernist paintings and cinematographic production, cherishing these urban conditions as places for sharing and togetherness in a subtle anti-colonial narrative. Since the reconstruction of Tbilisi during the Russian Empire, the Yards have favored social interactions and an intense sense of proximity. However, situated in a colonial context, these architectures have been considered minor artifacts and scarcely studied as a coherent phenomenon. As a supposed oriental or orientalist counterpart for the ambition to Europeanize the Caucasus and as an unplanned presence in the city, this study investigates this architecture as a latent structure of the city: an unscripted phenomenon that spread in the urban fabric as a hybrid and collateral urban space. At the intersection of physical alterations and cultural narratives, these urban spaces embody architecture as a

semi-autonomy field, neither a completely passive product of events nor an independent entity, but as an entanglement of relationships and conflicts.

Referring to the definition by the linguist Mary Louise Pratt, the Yards perform as a contact zone of the city: “I use this term to refer to social spaces where cultures meet, clash, and grapple with each other, often in contexts of highly asymmetrical relations of power” ⁽²⁾. The Yards are the hidden parts of Modern Tbilisi, the niches of the old town, the backside of an elegant palace, the courtyards of the dense districts, and the rear side of modernist housing projects. In the secondary spaces, the verandas and balconies allow a mediated relationship with the city’s public life.

The genealogy of the Yards inevitably includes the genealogy of the contrasts, struggles, and clashes that shape the contact zones. The study examines how this phenomenon intersects different media to define both the quality of these artifacts and their narratives as spaces of negotiation in the construction of the Modern Metropolis. Despite this genealogical approach considers the Yards as resulting from diverse and heterogeneous narratives; nevertheless, they present evident consistency and regularity. Therefore, the investigation proposes a new multimedia apparatus of

Unscripted Architecture

Notational Drawing

Yards of Tbilisi

interpretations in a network that includes copies of archival documents, architectural projects, maps, paintings, movies, cinematographic scripts, posters, ephemera, photographs, texts, and anecdotes. As a result, this documentation composes a digital archive that connects diverse sources that contribute to defining this urban phenomenon.

Since the Architecture of the Yards participates in complex power relations, urban processes, and sequence of alterations, it is necessary to elaborate a coherent framework of interpretations in which anomalies compose series and families, as Carlo Ginzburg exposed: “Any document, even the most anomalous, can be inserted into a series; but not only that: it can, if properly analyzed, shed light on a still-broader documentary series” (3).

The entanglement of the Yards with conflicts and controversies exposes the relational potential of Architecture in latently negotiating urban transformations. However, the agency in

this process is never concentrated on the author(s) intentions, the builders’ skills, or the inhabitants’ forms of appropriation. This ambiguity offers the opportunity to explore architecture for its unscripted qualities: not necessarily the mysterious or unknown, as the tacit and unpredicted dimension includes the implicit and the unsaid. Overcoming the impasse that results from the division of architecture as a static and complete object or the sublimation of subjective spatial experiences, the focus on the agency of architecture as a situated matter discloses an unexpected field of investigation. Architect David Leatherbarrow defines this condition as the “unscripted performance” (4) of architecture, interpreting the performance not as the functioning of a mechanism but for its unpredicted agency and considering architecture more as an event rather than a solid Galilean object.

This argument involves a twofold implication. On the one hand, it regards the performative character of architecture as an unstable bundle of accidents, controversies, and adaptations that challenges the capacity of conventional representations to capture and acknowledge these dimensions. On the contrary, Bruno Latour and Albena Yaneva highlighted the necessity of developing tools that reveal the movements of the buildings despite their

apparent stability, similar to the invention of photography that allows the study of movements through a series of static frames (5). These movements include alterations and transformations, maintenance, conflicts, and the involvement of many actors in the building’s becoming. On the other hand, this understanding considers that architectural drawing already implicitly presents the inclusion of different dimensions in the representation through the use of notations. As Stan Allen argues, architectural drawing in the form of notations involves the unpredicted and the complexity exactly because it renounces to resemblances (6): the notations integrate the unrepresentable aspects that intervene in architecture as a network of indirect cross references. Against this background, the research proposes notational drawings as a tool to study the under-documented, unscripted, and unknown in the architecture discipline. The combination of drawings and different forms of annotations discusses the architectural richness of the Yards, as well as the controversies and narratives that are involved in these places.

Therefore, the use of notational drawing aims to include more dimensions, which are usually excluded from the architectural discourse. This practice reflects both an interpretative and an

operative nature of the investigation, proceeding by approximations and layering of knowledge on drawings. The notational drawings engage with ambiguity and unpredictability of reality, in which stories, events, and accidents participate in the molding of spaces. In its unfolding, the research outlines a topological perspective that focuses on the relational qualities of places, not as a newly made comprehensive system, but on the contrary, as an approach already scattered in architectural knowledge. This topological approach emerges as an epistemic strategy, focusing on the relational potential of architecture at the nexus between societal and material. As a result, the research proposes a series of drawings as a search for urban patterns latently operating in the power relations of the city, not as closed, objectified facts, but as a constellation of places where the unscripted takes place.

Notes

(1) The English word “Yard” refers to the Georgian “*გზინი*”, with meanings that range from “garden” to “square”, without ever coinciding with either of them.

(2) Mary Louise Pratt, “Arts of the contact zones”, *Profession 91* (1991): 34.

(3) Carlo Ginzburg, *Threads and Traces. True Falsa Fictive* (University of California Press, 2017), 202.

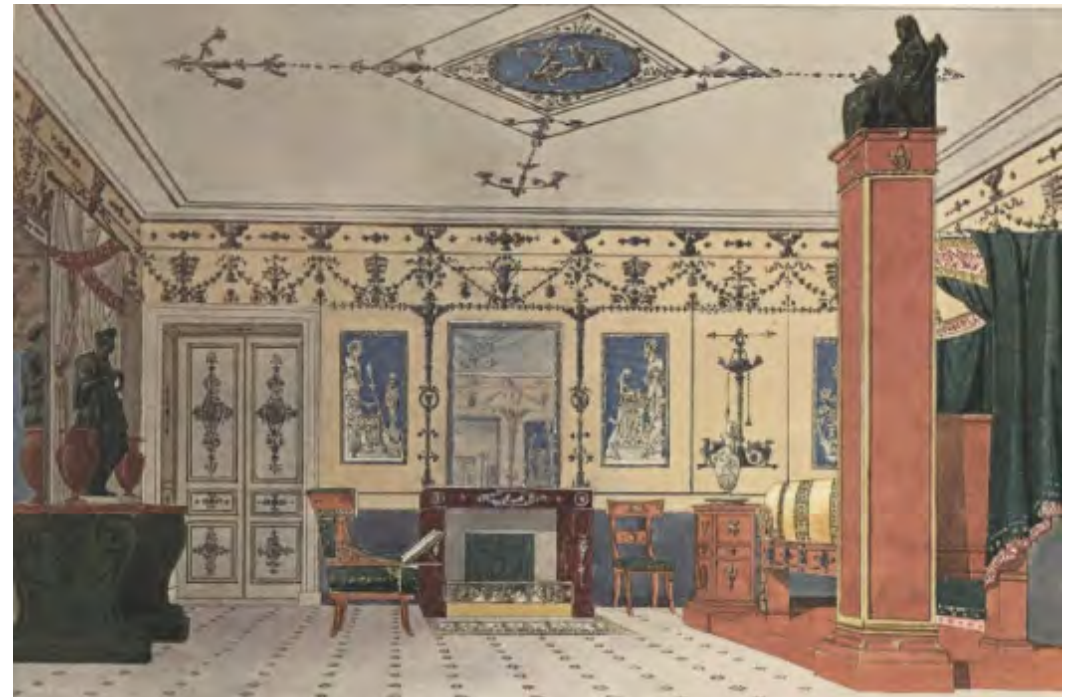
(4) David Leatherbarrow, *Architecture oriented otherwise* (Princeton Architectural Press, 2009), 41-66.

(5) Bruno Latour, Albena Yaneva “«Give Me a Gun and I Will Make All Buildings Move»: An ANT’s View of Architecture” *Explorations in Architecture: Teaching, Design, Research* (2008): 80-89.

(6) Stan Allen, *Practice: Architecture, Technique and Representation* (Routledge, 2009), 32.

EXISTENZ MAXIMUM. FOR A SPATIAL NARRATIVE OF ITALIAN INTERIORS, 1965- 1990

PhD Candidate: Isabella Giola - Supervisor:
Prof. Immacolata C. Forino



Perspective View of the Chambre à Coucher du Cic. in Paris, 1700. Drawing from: Percier, Charles, and Léonard-François Fontaine, *Recueil de decorations interieures* (Paris:1827). Paris: L'aventurine, 1997.

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The object of the research is an investigation of the emotional and performative dimension of the Italian domestic interior between the late 1960s and the early 1990s. It is multidisciplinary research that simultaneously involves architecture, art, and design. The selected temporal range begins at the height of the utopian (Italian and foreign) Radical experimentations of the sixties – reviews the complex Italian phenomenon of postmodernism and the years of Reagan hedonism – and arrives at the threshold of a cultural scenario of the early nineties that, inevitably, will mature its own response/reaction regarding the preceding episodes.

The critical reinterpretation explores the cognitive and constructive processes and symbolic valences of visionary architecture that transcends the materiality of the ‘everyday’ to offer a new cultural and housing landscape. A design practice of the architectural interior is considered, which places at the center of the discourse an aesthetic of wonder at the center of the discussion to design through an unprecedented organization of space, the accurate design of the furniture, and a wise and refined use of decoration. The emotional intuition towards interior design, devoid of didactic intent and with fervid freedom of expression – of which the brothers Alessandro and Francesco Mendini have been undisputed representatives – was a response to exhausting years of introspective investigation of the Italian art scene in that time frame. The Milanese duo proposes an affective dimension, in which human beings possess a sentimental bond with their objects thanks to spaces and furnishings that emphasize that relationship. Starting from this propensity toward the domestic project, it is possible to interpret a wide spectrum of Italian interiors, which ideally continue its compositional traces, thus rewriting the paradigm of contemporary living. Up to that historical moment, often the house understood in its highest form of expression appears as

a surrogate of economic and social compromises that do not disregard the idea of the *existenz minimum*, sanctioned internationally by the CIAM- II of 1929 in Frankfurt am Main. Housing is conceived as a *machine à habiter*, in which the reduced dimensions of spaces are combined with features of extreme functionality, arriving at an effective solution to achieve the minimum standard of living. “Unification and industrial standardization” (Savorra 2015, 48) became among the cornerstones of interior architecture in the late twenties and early thirties, with substantial aftershocks and implications over the following decades. In many cases, the result is a panorama of simplified, unbold, and rhetoric-free everyday scenarios. They are pragmatic environments in a momentary suspension from decorum, rich colors, and anti-functional ritual ideas. In the research on interiors conducted in the late 1960s and the following three decades, however, the vision of the precisely measurable body manages to fade away, leaving room for the overbearing emergence of the person in all its many facets. Thanks to the role of furnishings as “an act of man through which living becomes a cultured fact, decided according to a mental intention and not one of mere survival” (Mendini 1984, 2), changing life from elemental to

Existenz Maximum Italian Interiors Domesticity

“sophisticated” (Mendini 1984, 2). Emerging in an increasingly pressing way is the “need to flatter with novelty a mind that was beginning to be satiated with true beauty” (Percier and Fontaine 1812, 5), a theme present many centuries ago. From the first collections of modern times that “collected all kinds of curiosities” (Praz 1964, 134), typical of the *Wunderkammer* of the late Sixteenth Century, to the multiplication of French *cabinet* and Eighteenth-Century English *closet*, to the “muffled rooms” of the Victorian era (Forino 2011, 11) the “tension between ostentation and comfort” (Sarti 1999, 162) has always been palpable over the centuries. There is a trend toward a more pronounced specialization of rooms, as well as their incessant multiplication and an accompanying *horror vacui* of furnishings, ornamentation, and decoration. Starting from the identification of a substantial range of leading authors on the Italian architectural scene, the research aims to trace an unprecedented

history of a brief but dense design period in which the sensory *fil rouge* highlights an interior architecture that, having overcome the objectivity of minimal needs, measures itself against the subjectivity of the “utmost desires” (Mendini 1984, 2) inherent in the human soul. It is a process of humanization of technique that outlines a timeless, prophetic, and still relevant housing model. Pioneers of this “movement” were Gio Ponti, Carlo Mollino, and Ettore Sottsass. The founder of “Domus” declares the urgency of initiating a process of humanization of technique in the field of architecture. The Turin architect also identifies the house as a shell that “is formed over time in infinite layers that are the negative, petrified image of the animal that inhabits it: it is the concrete expression of a feeling” (Levi 1938, 2). On the other hand, Sottsass materializes a deep and rich autobiographical language capable of communicating personal experience while also exciting the observer. Through restitution of the cultural landscape in the field of interior architecture identified as *existenz maximum*, present in Italy – in Milan but not only – the main body of the research will examine case studies exemplifying spaces related to everyday living through some interpretative keys such as introspection, refuge, and seduction. The first phase of work consists of archival research, combined

with direct interviews and perusal of specialized literature. The primary intent is to arrive at a careful selection of interiors – developed by authors such as the Mendini brothers, Nanda Vigo, Claudio Dini, Uga De Plaisant, Toni Cordero, Carla Venosta, Gaetano Pesce, Bruno Sacchi, Mario Scheichnbauer, and others – exemplifying a large group of architects, designers, and art connoisseurs who design virtuosic living spaces overflowing with works of art, custom furnishings, and objects. The magnificence, the visceral relationship with “families of objects” (Mendini 1984, 2), the exuberance of architectural elements, and the overuse of geometric forms alternating with floral motifs all fall under a “fact of density” (Thornton 1985, 7), as a reflection (or response) of (to) the respective era. Furniture plays, therefore, a fundamental relationship in the subtlest determination of spatiality, intercepting a place that is “private, far more complex than physical, sometimes even virtual, but nonetheless charged with the symbolic aura of living” (D’Amato 1992, 17). The two further phases of work will involve the redesign, together with the restitution of conceptual models, of each selected interior so as to have a final comparison, on a design and visual level, exhaustive and synthetic of the reflections previously set out, collected, and

deepened. The ultimate aim of the research, rather than purely anthological restitution of such interiors, is to dwell on this radical revision of the project of living through the *existenz maximum*, which in response to an architecture of interiors as of “gestures continually relegated to the slow decantation of reality and never contemporary” (Celant 1968, 54), proposes, instead, a domestic space that recovers the *intérieur*, which “is not only the universe, but also the custody of primitive man” (Benjamin 1962, 154).

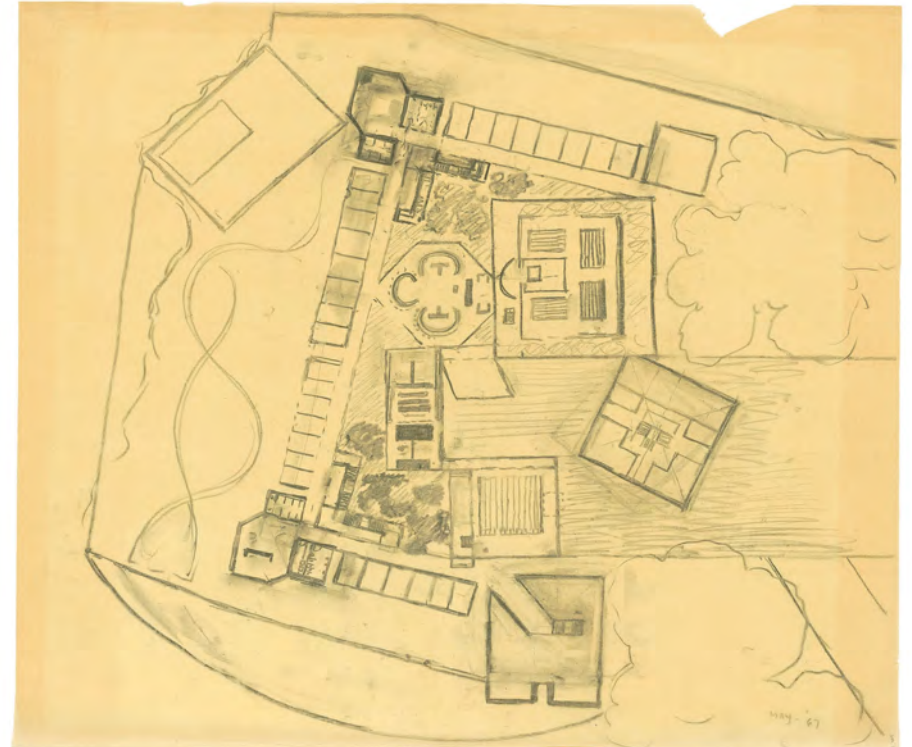
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THRESHOLD. MILANESE RELATIVITY

PhD Candidate: Guan Kaiyue - Supervisor:
Prof. Carles Muro

Louis I. Kahn, Sketch plan of the Dominican Motherhouse, Circa 1965.



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Taking inspiration from Louis Kahn and Aldo Van Eyck, architecture is conceptualized as a collection of a series of rooms, each possessing independence while also being interconnected in a specific manner. The focus of this study lies in examining this mode of interconnection, defining it as thresholds. By considering Milan as a case study, this research aims to explore how specific thresholds mediate between conflicting poles, fostering relativity among rooms and balancing various opposing spatial demands within a contemporary context.

When every individual on earth acknowledges beauty as beauty, then ugliness is also recognized. Likewise, when goodness is universally acknowledged, evil is also acknowledged (1). Matter and space arise through mutual opposition, with polarities manifesting and coexisting interdependently. Individuals exist as both independent entities and crave connections. Privacy and public spaces stand in opposition yet also highlight each other, mirroring the "twin phenomena" (2) of independence and connection within space. In architectural design, inspired by Louis Kahn, architecture is conceptualized as a collection of a series of rooms, each possessing independence while also being interconnected in a specific manner (3). The focus of this study lies in examining this mode of interconnection, defining the interrelationships between rooms as thresholds. Through these thresholds, different realms encounter and unite, forming "the common ground where conflicting polarities can again become twin phenomena" (4), thereby establishing relativity among rooms. Concepts such as small-great, unity-separation, part-whole, simplicity-complexity, opened-closed, indoor-outdoor, and privacy-publicness harmonize and reinforce each other through these thresholds. As a result, the characteristics and

identities of individual rooms are emphasized.

This research aims to reconcile the seemingly conflicting demands within architecture by exploring the expressions of thresholds. In contemporary society, characterized by a growing population and diverse ideologies, individuals' understanding of their identities and corresponding spatial requirements has become increasingly intricate. People not only inhabit familial roles like daughters or fathers but also fulfill societal roles such as professors, entrepreneurs, cashiers, or bartenders, alongside various collective roles like successful neighbors or fashionable high-school classmates. Moreover, individual personalities and traits like introversion or sociability add another layer of complexity. The intersection of these identities creates numerous spatial overlaps, leading to the emergence of multiple twin phenomena within spaces. Consequently, a growing imperative exists to balance an increasing number of polarized states.

This study delves into Milan as a case study, highlighting its status as a modern international city that encapsulates the juxtaposition of diverse identities and states prevalent in contemporary urban settings. Milan stands out for its flawless representation of the "twin phenomena", where tradition coexists harmoniously with radicalism, nostalgia blends with

Threshold Milanese Rooms Spatial Languages

modernity, and elegance seamlessly merges with trendiness. Moreover, both modern and contemporary Milanese architecture exhibit versatile and intricate threshold spaces ⁽⁵⁾. The Milanese house, in particular, challenges the notion of the “living machine” by transcending material and functional constraints ⁽⁶⁾. Through subtle spatial organization and experience-based consideration, Milanese architecture develops its unique spatial language of thresholds. For architects like Gio Ponti, this distinctiveness is manifested in Casa P through the orchestrated sequence of vistas created by the perforations in the walls, which exemplify a series of spatial relativities, including openness-closure, privacy-publicity, and scrutiny-being scrutinized. Similarly, Luigi Caccia Dominioni's creation of a winding pathway along Corso Italia seamlessly connects the city with its buildings, intricately weaving together the past and the future. There are myriad exquisite threshold spaces eagerly awaiting examination, each poised to

exemplify exceptional spatial relativity derived from a diverse array of architectural components and interventions.

In summary, this study will be divided into two parts: the first focuses on the notion of threshold, and the second examines Milan as a case study. The first part entails theoretical research and the review of drawings to perceive how thresholds balance conflicting poles from a general perspective. More precisely, it explores how rooms are defined and, based on various drawing reviews, how the relationships between rooms can be represented. Ultimately, this part will establish the methodology of the threshold study, serving as the foundation for the second part, which mainly consists of case analysis.

Viewing Milan as a whole, the study will investigate the various expressions of thresholds within it. Subsequently, a series of representative cases will be selected. Building upon the methodology derived from the first part, this research will conduct comprehensive analyses of the chosen cases from different scales and perspectives, aiming to investigate how specific thresholds mediate between conflicting polarities and foster relativity among rooms.

By summarizing these thresholds, the study will generate a series of spatial languages embodying Milanese relativity.

These spatial languages will inspire architects confronted with various conflicts in spatial needs, allowing for delicate adjustments of the mutual influence between rooms, ultimately creating a harmonious spatial relativity.

Notes

- (1) Lao Tzu, *Tao Te Ching* (Zhonghua Book Company, 2021).
- (2) Francis Strauven, Aldo van Eyck. *The shape of relativity* (Francix Strauven and Architectura & Natura Press, 1998).
- (3) Louis I. Kahn, “The Room, the Street and Human Agreement,” *A+U no.500* (2012).
- (4) Francis Strauven, Aldo van Eyck. *The shape of relativity* (Architectura & Natura, 1998).
- (5) Orsina S. Pierini, *Nelle case: interni a Milano (Milan Interiors) 1928-1978* (Hoepli Editore, 2023).
- (6) Enrico Morteo, *Domus and La Casa Bella. in interni a Milano (Milan Interiors) 1928-1978* (Hoepli Editore, 2023).

THE REDESIGN OF SOCIAL HOUSING SUBURB IN ITALY: TARGETED ACTIONS ON BUILT HERITAGE

PhD Candidate: Marco Patruno - Supervisor: Prof. Luigi Spinelli



Living is among the fundamental rights of human beings, a priority to be fulfilled; the home is the stage where everyone conducts their actions or rather the space that adapts, whether freely or forcibly, to the life of its inhabitants. Consequently, it is logical that humans, the creators of liveable space, seek to domesticate it according to their needs. However, it is necessary to question both the content of the term “social housing” and especially the evolution of the concept itself.

The attention to the theme arises from the construction of popular public housing buildings, which, through organizational policies, are preparing to respond to emergency scenarios, including migratory flows to cities during previous centuries and the need for space for the numerous inhabitants of urban areas.

The moment of change that has led to the concepts now known as space sharing, community space, and social *mixité* was the revision of the question posed.

Although, in the past, the goal was the creation of a high number of housing units solely to accommodate new tenants in housing with minimal services, the topic is currently approached with a different perspective. A dwelling must be designed to adapt according to the individual's needs. In recent years, and especially after the Covid-19 pandemic, human habits have changed with a different and increased liveability of the home; housing can no longer be identified in a single model to be repeated.

Given the historical moment we are in, with the climate change emergency and the transformation of the social fabric, among the most appropriate responses is intervention in the built heritage, to be preferred over new constructions.

Therefore, it is necessary to question the intervention methods, which are numerous and valid at the same time. In

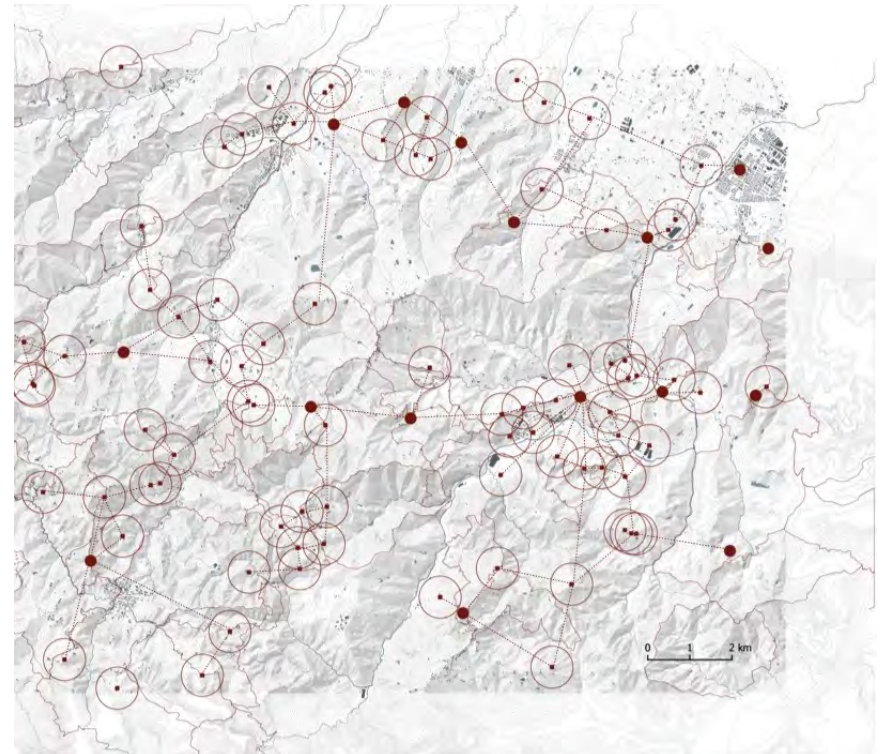
Italy, as well as in the rest of Europe, the presence of public housing buildings is extensive. Since the 1930s, there has been a massive construction of residences, which today are in a state of decay that began several decades ago. It is legitimate to wonder what has led to this decay. One answer could be the lack of interest in creating a maintenance policy. There is a legislative gap that does not provide for the reuse of heritage but rather its decline. This policy could be a consequence of society's lack of interest in specific issues. Alternatively, society's perception of these places could discourage political positions in this direction, as they would not represent a valid issue to invest in. What interventions can be made to promote greater cohesion among the different fabrics of a city and their reuse? Redefining distribution spaces to foster a stronger sense of community among residents, reassessing individual space allocations to discourage informal encroachment, and redesigning physical boundaries to encourage openness to the external environment represent targeted actions to reshape the housing setting. However, the overarching aim is to develop a model that can be adopted across European contexts while also preserving the unique features of each intervention to safeguard the intrinsic and extrinsic qualities of the built heritage.

STRATEGIES AND PROJECTS FOR THE RURAL ARCHITECTURAL HERITAGE - THE “CASA A TORRE” IN THE REGGIO APENNINES

PhD Candidate: Erika Sezzi - Supervisor:
Prof. Pierre-Alain Croset - Co-Supervisor:
Prof. Emilia Corradi

Erika Sezzi, Map of the Case a Torre and of the fisical and visual connection in Viano and surrounding areas. 2024.

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The building typology of “Casa a Torre” in the Reggio Emilia Apennines has played the role of a recognizable garrison of the territory and the society around it for hundreds of years. It has been a military, economic, and social symbol, a three-dimensional sign that defines a landscape made up of visual connections and consequent layouts and tracks, which has varied around it until it assumed its present-day features. Nowadays, many of these buildings, pivotal throughout the centuries, are in a state of neglect and lack of protection that threatens to lead to oblivion.

The location of “case a torre” (tower-houses) within what we call Italian inner areas is a double-edged sword: the abandonment of territories is unlikely to lead to sudden building replacement, but rather, the natural decay caused by decommissioning will be facilitated. At the same time, the lack of protection and knowledge allows, in the case of intervention, the superficial application of general building regulations unsuited to the respect and enhancement of such a peculiar and valuable heritage. The need is to bring a culturally and architecturally significant, internationally recognized, and tutelary approach that can provide a tool capable of guiding and instructing quality regenerations. The research sets out to frame the “casa a torre” from a historical, geographical, topographical, and social point of view, defining its material, morphological, urbanistic, and functional characteristics. This is to recognize it as a specific building type, which deserves its own specific knowledge to act with specific intervention rules. Through a design-driven path, the thesis intends to identify tools from architectural composition, technology and landscape design to understand reinterpretive ways that go beyond mere regulation. At this point, possible approaches to contemporary architectural design will be investigated in the form of notable, thoughtful

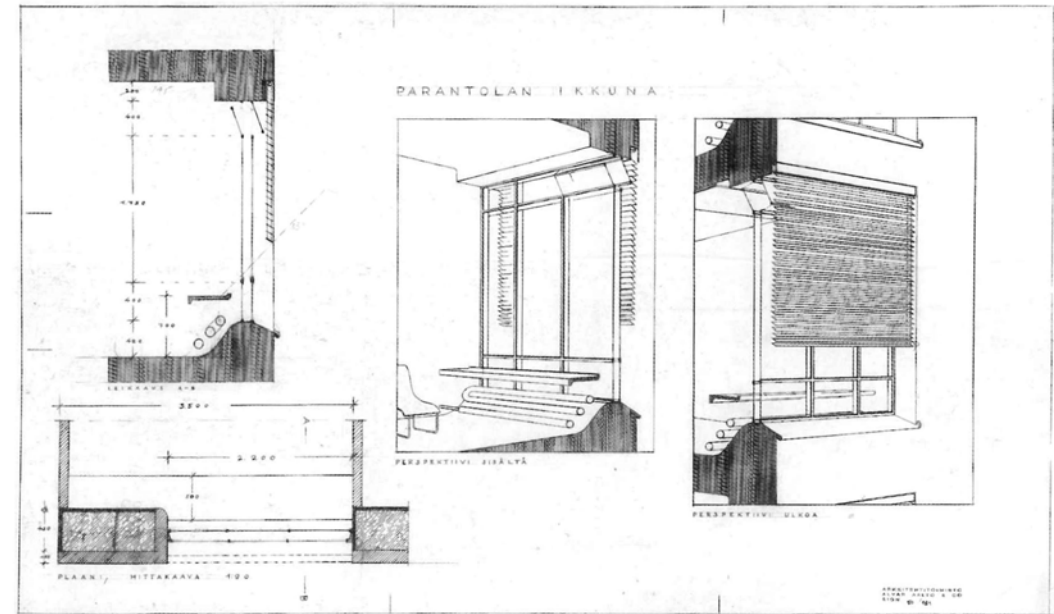
examples that define simple actions that can be translated into ordinary practice. Since it is rare to find notable examples of the same building type, similar examples of contemporary interventions in the international panorama will be sought, most likely on other building types. There must emerge a willingness to act on these artifacts in a targeted way in order to claim the role of strongholds in the contemporary context of a fragile and fragmented territory such as the inner areas.

The outcomes of these two approaches aspire to be translated and verified in a third, didactic-practical moment to ground the usability of these through an intensive, multidisciplinary workshop involving students, administrators, technicians, and academics.

The goal will be to verify the usefulness of the research and the possibility of translating the information that has emerged in the analytical, design, and experimental sphere into an abacus of actions of the architecture and landscape project, borrowed from similar experiments in other typologies in the Italian and international panorama such as to restore meaning and continuity to these artifacts whose typology represents an element of the genetic code of the architecture of the Emilian Apennines.

ENABLING HOUSES: REFLECTING PERCEPTIONS AND NEEDS OF OLDER ADULTS IN THE ARCHITECTURE PROJECT

PhD Candidate: Joana Teixeira Pinho - Supervisor: Prof. António Carvalho - Co-Supervisor: Prof. Gennaro Postiglione



The importance of details and person-centred design for the experience of a room: a window in an inpatient room that allows a deep view of the outside even when seen from bed. Paimio Sanatorium, Finland, 1929-1933. © Alvar Aalto Foundation, Helsinki.

Research in the field of residential architecture for older people must be considered in the context of a comprehensive intervention in the existing built environment. These environmental considerations go hand in hand with the need to understand and incorporate the diversity and evolution of users' perceptions and needs into the design process. Indeed, the built environment can have a constricting or impeding effect, particularly in interaction with older adults. An enabling perspective of architecture could contribute to a meaningful and responsive brief and design methodology.

The domestic space is where a person, in particular older adults, spends most of their time. Thus, the interaction between a person and their house should be an enabling experience. The quality of this experience results in part from the quality of the architectural experience. In this sense, architecture should be responsive to the fact that a person's perceptions and needs evolve during one's lifetime, ⁽¹⁾ as well as through the history of societies. In other words, architecture should act as a facilitator of everyday life ⁽²⁾. The built environment can have a constricting or impeding effect in interaction with a 'user', this is to say, a person, a body. On the one hand, accessibility is often not considered part of the design approach in architectural practice but is only introduced later in the project as an "afterthought" ⁽³⁾. A contextualized critique might help to question the adequacy of design guidelines and other practice instruments. On the other hand, perception and the non-visual dimensions of space have been explored by architects ⁽⁴⁾. Research on the architecture of healthcare and results of environmental behavior inquiries also highlight specific architecture variables central to the experience of space. Namely, it is a person-centered approach and spatial principles, such as proportion, orientation, privacy, ornament, or detail ⁽⁵⁾, which, in

turn, are important to the quality of space of residential projects for older adults. These same principles have been steadily evoked as critical to many architectural movements, such as modernism. Therefore, it might be revealing as a starting point for analyzing projects and historical references of relevant typologies. This could help to inform an approach that, nonetheless, would start, not from an 'ideal user' but from the consideration of the complexities of the aging experience ⁽⁶⁾. The research will look into contemporary processes of reuse of existing structures that respond to the above-mentioned themes. This comparative analysis could shed light on an enabling perspective on architecture and help to consider an approach to existing buildings. Knowledge from social sciences, such as anthropology, phenomenology, and environmental gerontology, should be called in to substantiate this possible design approach.

Notes

(1) The term *Ageing* is related to a living experience rather than a conventioned age limit.

(2) Jos Boys, *Doing Disability Differently* (Routledge, 2014).

(3) Jay Dolmage, *Academic Ableism* (University of Michigan Press, 2017).

(4) Steven Holl, "Questions of perception," *Domus* 1076 (May, 2023): 1-3.

(5) Gemma Koppen, Tanja Vollmer, *Architektur als Zweiter Körper* (Mann Verlag, 2022).

(6) Distinctive aspects of older adults: great diversity and intersectionality factors, changes in the perception, and in matters of self-determination.

This chapter collects the presentations of the work in progress of the Architectural Urban Interior Design doctoral program candidates focusing on the “Home” theme.

The candidates are in different stages, comprised between the 35th cycle (beginning in 2019) and the 39th (beginning in 2022). Here is the list of the candidates with their cycle:

35 Cecilia Cempini
35 Valentina Dall’Orto
36 Alessia Macchiavello
36 Rose-Ann Mishio
37 Michela Vanda Caserini
38 Duccio Fantoni
39 Isabella Giola
39 Guan Kaiyue
39 Marco Patruno
39 Erika Sezzi
39 Joana Teixeira Pinho

The epigraph at page 385 is taken from: Andrea Palladio, *The Four Books of Architecture*, John Watts, London, 1715; *The Second Book*, page 1.

TECHNIQUES

TECHNIQUES the theoretical discourse

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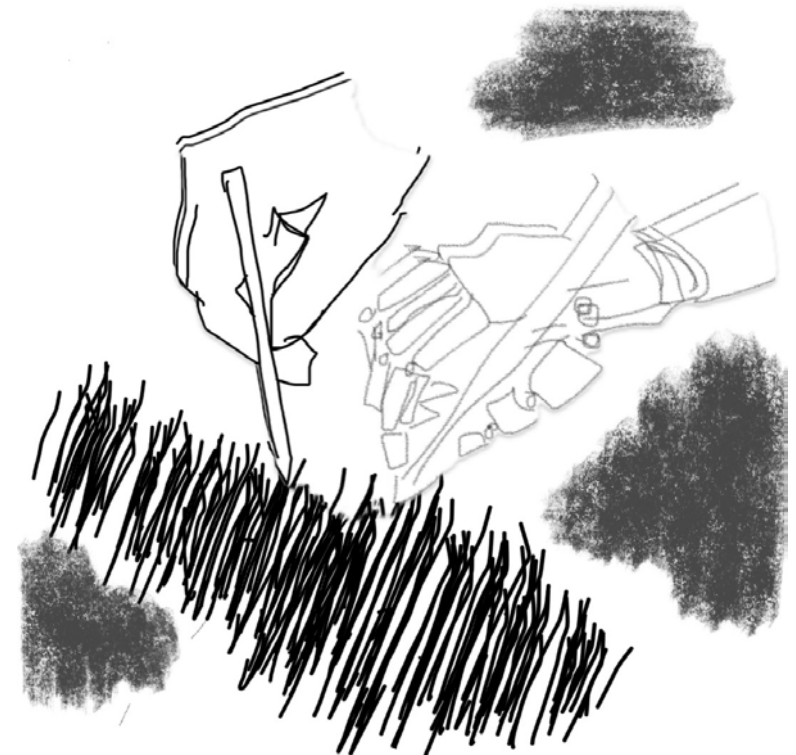
Architecture from the fifteenth century to the present has been under the influence of three «fictions.» Notwithstanding the apparent succession of architectural styles, [...] - these three fictions have persisted in one

form or another for five hundred years: they are *representation, reason, and history*. (Peter Eisenman, 1984)

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DIGITALISATION, ARCHITECTURE AND HOUSING

PhD Candidate: Elena Maj - Supervisor:
Prof. Alessandro Rocca - Co-Supervisor:
Prof. Pascal Terracol (ÉNSA, Paris Val de
Seine)



To understand how information is reshaping the means of production of architects and the way they work. This research aims to understand the added value of digitalization (from CAO through BIM to AI) in the ways architecture is produced and in the work of architects.

This research is an industrial PhD developed between a French social housing company (one of the founding Public Housing companies of Est Ensemble Habitat), the department Architecture and Intelligences of EVCAU research lab from the French school ENSA Paris Val de Seine, and the AUID doctoral program at Politecnico di Milano. The goal is to understand how information is reshaping the means of production of architects and the way they work.

The research aims to understand the added value of digital devices (from BIM to AI) in the ways architecture is produced and in the work of architects. Since the emergence of information management science and technologies, those have been proposed as means by which production in general could be improved, enhanced, and made more efficient and better. This ideology has been spread through different channels and has renewed its discourse following reiterative cycles of innovation since the end of the Second World War.

In architecture, it was translated in the sixties in the development of prefabrication and in the nineties with the emergence of computer-aided drawing and design tools in the design processes and prototyping. We focus part of this research on housing as the main field of intervention for architects based on the

volume of production ⁽¹⁾. Housing is also the most impactful area of intervention of architects in terms of impact on people's daily lives.

Therefore, this research aims to understand the hypothetical concurrency between a mainstream discourse on innovation and technology and its tangible translation into architectural production in practice and research. In recent years, we have seen an increase in the means available to architects to develop projects in terms of software solutions to help us tackle the increasing number of constraints we need to address. This work focuses on the architect's means of production. It focuses on their evolution linked to the digital turn and the mirror transformation that those means have had on the production of architecture. "Digital networks are no longer separate from architecture." "We would be wiser to accept them as a design challenge, or emphasize their more wholesome prospects (which are less likely to develop by default), and to connect them with what we value about the built world." Malcolm Mc Cullough MIT press 2004 ⁽²⁾.

Artificial Intelligence is already ubiquitously present in our lives and in the tools we use as architects. It is reshaping the way we work, learning from us in many aspects of our lives, practices, tastes, and habits. It is present

Digitalisation Artificial Intelligence Housing

as a competent assistant in scientific fields such as engineering; for example, the aerospace industry or the medical field is well documented.

Generative AI is also in the front row of recent artistic exploration in numerous disciplines: art, music, literature, and architecture. It has permeated our field through the AEC industry, where it is already being used and is quickly moving in our daily practices through automated design proposals or text-to-image generation. In their introduction to a special AD issue dedicated to AI and Architecture, Mattias del Campo and Neil Leach qualify Artificial Intelligence as “the first genuinely 21st-century design technique that is revolutionizing architectural culture”⁽³⁾. For real estate companies, contractors, or engineering firms, the integration of artificial intelligence has been at the center of their innovation work for the last decade. The research has been developed in three movements. The first is a historical overview of the relationship between

architecture and information done through research in the archives of different institutions. The research time-frame starts in the sixties and finishes in our contemporaneity. This part focuses on documents such as articles, catalogs, and other documents from the archive of the Cité de l’Architecture and the Venice Biennale. Our contemporaneity focusing on the last five years is treated through exhaustive state-of-the-art technological tools available for architects or proposed as substitutes for architects and developed by architects, engineers, or other actors of the construction sector.

The second part focuses on the PhD candidate’s experience as a licensed architect and a participant observer in the housing company where the PhD was developed. The final part is a collection of points of view from architectural firms on the way they live, anticipate, or receive these changes in their practices and around them, which is done through a series of interviews.

These three movements give us a general understanding of the situation of our professional practices as architects in this time of crisis. They also situate, to some extent, the architect’s role in tackling today’s main challenges.

Notes

- (1) The Architectural Profession in Europe, 2022 Sector Study. https://www.ace-cae.eu/fileadmin/user_upload/2022_Sector_Study_EN.pdf
- (2) Malcolm McCullough, *Digital Ground: Architecture, Pervasive Computing, and Environmental Knowing* (MIT Press, 2005).
- (3) Matias del Campo, Neil Leach, Machine “Hallucinations: Architecture and Artificial Intelligence,” *Architectural Design Profile*, no 277 (2022).

INVESTIGATING THE STIMULUS, PRACTICE, AND PERFORMANCE OF EVENT-BASED TEMPORARY ARCHITECTURE IN QATAR

PhD Candidate: Almaha A. Almalki Alje-hani - Supervisor: Prof. Jacopo Leveratto
- Co-Supervisor: Prof. Mohd Faris Khamidi (Qatar University)

Egidio Panzera Architects, Qatar Pavilion in Milan Expo 2015, 2015.

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This study aims to explore temporary architecture in Qatar, focusing on temporary architecture for events. The research will use a theoretical framework and experimental fieldwork, including site visits and interviews with locals and professionals. The findings will provide a holistic understanding of the presence and utilization of temporary architecture in Qatar. The research will also help define typologies of temporary architecture, emphasizing its importance, impacts on built form, and its remaining legacy.

1. Introduction

Temporary architecture also referred to as ephemeral or transient architecture, is increasingly important in contemporary urban planning. It profoundly influences the urban form and the surrounding built environment. This thesis seeks to examine the significance of temporary architecture worldwide, with a specific focus on its role in Qatar. By analyzing previous examples from various regions, including Qatar, the research aims to uncover the drivers behind this phenomenon and identify scenarios necessitating temporary interventions. Understanding the process of temporary architecture is essential for comprehending the requisite procedures and evaluating its effectiveness. Moreover, temporary architecture serves as a catalyst for urban revitalization, responding to the rapid changes in urban landscapes. It fosters experimentation, flexibility, innovation, and community engagement, aligning with the evolving needs of urban environments. Temporary architecture is used for a specific purpose and for a specific type of program. In order to successfully justify an intervening structure as a temporary structure, it must be easily constructed and deconstructed. Temporary architecture has existed since the beginning of time, offering an alternative lifestyle. It is not limited to one location

and can be relocated as required (1).

It can also serve as a cost-effective solution for providing shelter and housing in emergency situations, such as natural disasters or refugee camps.

Additionally, it allows for experimentation and innovation in design without the long-term commitment and financial investment of permanent structures.

2. Significance

Temporary architecture is an important topic to study in architecture since architecture, by definition, is meant to be permanent. However, a branch of architecture is meant to serve temporary purposes. Temporary architecture could solve the problem by planning for cycles of construction and deconstruction. In this system, buildings could be assembled and disassembled after a short period of time to adapt to the present context fully. Temporary architecture presents unique challenges and opportunities in regard to site and context.

Temporary architecture can help improve and revitalize abandoned spaces and boost commercial districts and activities through special events or in response to an immediate need. However, temporary architecture is cost-effective and presents a unique challenge and a set of opportunities to its surrounding site and context.

Temporary Architecture Event-based Qatar

3. Background

The literature review on temporary architecture is an integral element that governs and leads the direction of this study. It explores the extensive history of temporary architecture, how it was utilized across different eras, and how it is used nowadays. By examining the evolution of temporary architecture, this literature review provides valuable insights into the factors that have influenced its development and the reasons behind its continued relevance in contemporary society. Moreover, it also delves into the various functions and purposes served by temporary architecture, shedding light on its versatility and adaptability in meeting diverse needs.

It also summarizes the key advantages associated with using temporary architecture and explains the challenges correlated with it. Furthermore, the literature review examines the various typologies of temporary architecture, such as pop-up stores, event structures,

and emergency shelters. It also analyzes the social, economic, and environmental impacts of temporary architecture in different contexts. Overall, the literature review provides a comprehensive understanding of the subject matter and is a foundation for this research objectives and methodology.

The literature review has identified common structural elements utilized in the design and construction of temporary architecture, delineating various typologies within this architectural domain. Moreover, it underscores the pivotal role of temporary architecture in mega-events, emphasizing its significance in facilitating social, cultural, and economic dynamics during such occasions. Furthermore, the literature highlights emerging trends in temporary architecture, notably its growing prominence as a venue for hosting major events and exhibitions and its integration into urban regeneration initiatives. Additionally, the review delves into the potential of temporary architecture to promote sustainability and its capacity to adapt to evolving needs and circumstances, signaling its multifaceted utility and relevance in contemporary architectural discourse.

4. Case Studies Focused on Event-Based Temporary Architecture

This chapter comprehensively examines

recent case studies focusing on temporary architecture across various global locales. The objective is to thoroughly explore the evolution and diverse characteristics of event-based temporary architecture, as elucidated in the literature review chapter. The selected case studies represent various applications and design methodologies, showcasing the field's versatility and innovation. Key criteria for selecting these case studies include their relevance to mega-events, demonstration of innovative design solutions, incorporation of sustainability practices, and representation of diverse contexts and purposes. These case studies underscore temporary architecture's global impact and significance across various cultural and environmental settings, contributing to a holistic understanding of its potential applications. The analysis of each case study is guided by seven key elements: design concept, construction materials, structural innovation, functional adaptability, aesthetic appeal, environmental impact, and legacy and transformation over time. Furthermore, this chapter provides a comprehensive overview of temporary architecture projects from different global locations, categorized into international, regional, and local examples.

International instances such as the London Aquatic Centre, the Tree

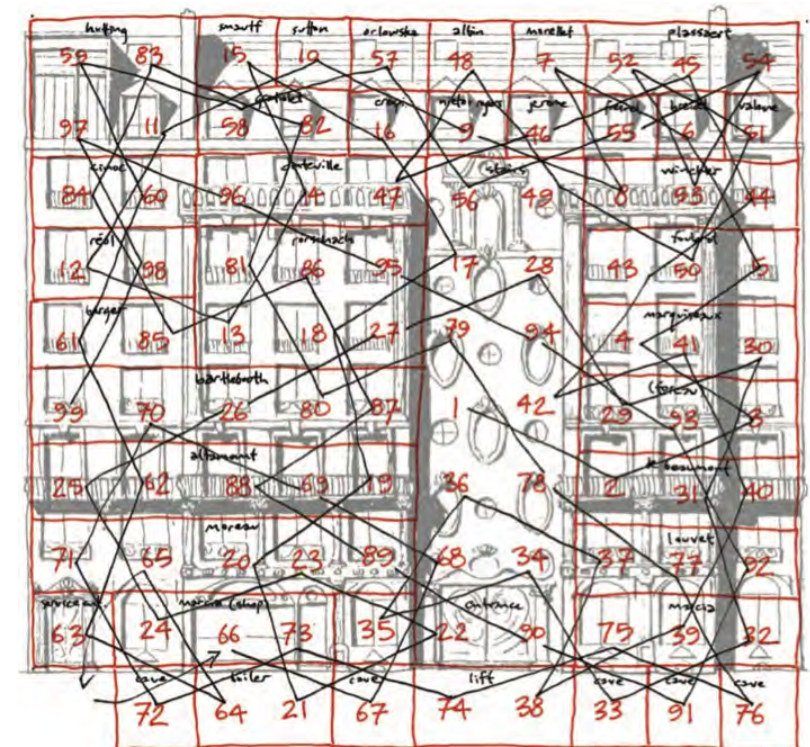
of Life in Milan, and the China Pavilion in Shanghai exemplify how temporary architecture can serve as iconic landmarks and enhance visitor experiences during major events. These projects showcase innovative designs and sustainable practices, leaving a lasting legacy beyond the event itself. Specifically, the London Aquatic Centre, constructed for the London Olympics 2012, demonstrated sustainable design principles and contributed to the urban revitalization of East London. Similarly, the Tree of Life at the Milan Expo 2015 symbolically represented environmental themes, attracting visitors with its captivating design and multimedia projections. Additionally, the China Pavilion at Expo 2010 in Shanghai showcased traditional architectural elements while also serving as a permanent cultural center post-event. Other precedents from the region and Qatar are analyzed.

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ARCHITECTS' TRIPS IN REPRESENTED PLACES

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This research examines the interactions between modern architecture and media tools, emphasizing a theoretical framework that highlights how media representations have shaped modern architecture. The concept of “trip” evaluates the impact of journeys conducted through media tools on architectural design processes. The research proposes that due to the limited nature of media tools, they offer a travel space in a mixed reality. It centralizes the limitations of media tools as research instruments, hypothesizing that these limits could reveal architectural design and discourse potentials.

The design process of architectural projects thrives on significant experiential elements when it unfolds entirely in a free, individual, and subjective manner. Since these processes belong to an almost abstract domain, interpreting and defining the articulations that nourish them is clearly challenging. Hence, there seems to be a definite lack of motivation for doctoral theses in the field of architectural design to undertake the research task of investigating these procedures, which lack a readily definable scientific foundation in practice. However, understanding the elements that feed into this process is inevitable for comprehending contemporary architecture and the factors that influence it. This thesis is based on the observation that architectural projects exist in a complex reality realm between the abstract world of thoughts constructed by the architect’s experiences and the tangible real space they aim to build. The constant encounter with information provided by contemporary media tools emerges as a parallel instrument to the physical journey in the process of constructing this abstract realm. In fact, given the widespread use of media tools in daily life, this journey sometimes extends beyond physical travel, arguing that media journeys are a primary instrument in the process of constructing this abstract realm of architecture.

Therefore, a media trip is examined as a key tool in the design process alongside its internal state. Such a journey emphasizes a mechanism where the experience is not merely about observing and admiring architecture but instead transforms into a non-material idea internalized by individuals based on its physical connotations. This notion preserves the characteristics of architecture like space, form, and materiality while also becoming part of a repository of memory; however, due to the altered and transformed information brought by the media journey, this repository of memory acquires different qualities. In this context, the thesis considers the media journey as one of the primary tools in contemporary architectural design, aiming to understand the impacts of the ‘different’ information it brings to architectural design. Travel has always been an important subject in the field of architecture, particularly from historical and theoretical perspectives. Travel has served as a means of mutual interaction among different regions, peoples, and cultures. Wigley (2011) defines architects as individuals who are constantly on the move. Throughout centuries, these travellers have enriched their visions, memories, and knowledge about spaces by adopting various observation and learning methods during their journeys.

Architectural Design

Media

Trip

Therefore, it can be argued that travel plays a critical role not only in the actual production of architecture but also in the formation of architectural practice theories.

Poza Medina (2011) emphasizes that journeys begin on paper and leave traces on paper. These representations take the form of maps, photographs, postcards, and more, forming the starting points of journeys. Two significant changes occurred in the 20th century. Firstly, individualism and personal travel preferences became more important, altering traditional travel methods. Secondly, advances in media tools created a digital media network that enables non-physical journeys independent of space and time. Following these changes, Wigley (2011) draws attention to a strong relationship between physical mobility and the mobility of images, highlighting the strong connection between the circulation of photographs of architectural works and the mobility of architects themselves.

Media tools continuously offer travellers numerous representations that are independent of space and time. These representations, along with architects, create a mixed-reality travel space. Due to the limitations of the media tools that constitute it, this travel space cannot transparently present reality; instead, it interprets, modifies, and transforms this reality through its limited structure, presenting it as a new “reality.” Moreover, this reality space offers experiences that may not be obtained through physical travel alone. This is where the focus of the research emerges. These limitations create a paradoxical situation; while distinguishing physical travel from media travel, it expands the exploration area by offering a new “reality” and provides architects with discovery opportunities that cannot be achieved through physical travel alone. The research focuses on this dilemma and investigates the following questions: Do the limitations of media tools provide architectural design and discourse potential in such journeys? Can the paradoxical behaviour of this phenomenon be traced in contemporary design production? The main purpose is to affirm that journeys, both along the theoretical path of architectural design discipline and through the interactions that derive from its physical products, the media

trip we use every day is one of the most important and interesting tools contributing to the architectural design process. The aim is more specifically to understand how architects utilize the media trip within the design process and to investigate the consequences of this media-travel relationship in contemporary architecture by delving deeply into and interpreting methodological procedures in the presented case studies. In this context, the aim is to conduct a cross-reading of the relationship between travel media and architecture to trace the impacts and interventions in the creative sense within the architectural design process. The project focuses on exploring the development of this concept, drawing a dynamic map primarily based on intriguing and diverse experiences while maintaining individuality and subjectivity appropriate for reasoning about the meaning of media travel. It highlights variability as a value (the changing of media tools, the changing of the journey, and architectural transformations) without confining architecture to any rigid and categorical superstructure. Therefore, attempting to classify something inherently spontaneous and unpredictable (also comparing such journeys with real journeys) is not the purpose of this research. Instead, the main purpose is to reflect upon, discuss, and trace the effects of a practice that significantly influences

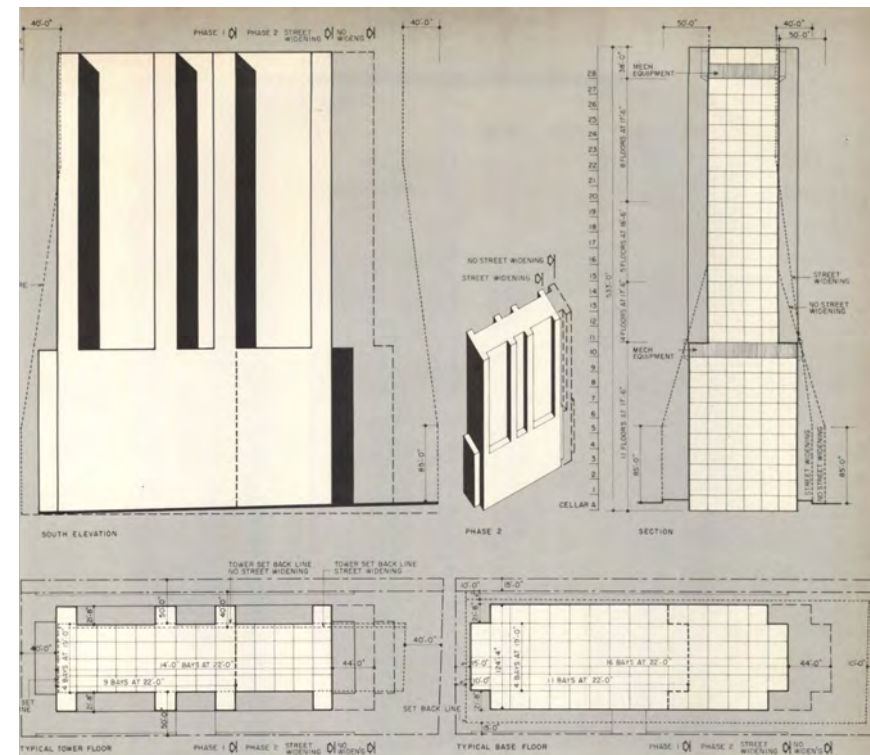
the world of architecture, following its basic steps and rediscovering its traces within a much more intense and complex contemporary narrative.

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WINDOWLESS ARCHITECTURE: TOWARDS EXPANDED INTERIORITY AND EXTERIORITY

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Prof. Alessandro Rocca - Co-Supervisor:
Prof. Stavros Kousoulas (TU Delft)



Form study drawings of AT&T Long Lines Building in New York City, John Carl Warnecke. Courtesy Warnecke Architectural Archives, 1968.

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This study deals with a peculiar phenomenon identified in contemporary architecture called windowless architecture. As its name implies, it seeks to explore what kind of architecture is windowless, how an architecture without windows is even possible, and what broader discourses this particular paradigm engages with questions and potentially untangles. Beginning with examples of almost ancient underground structures, huts, and storage spaces – often categorized as ‘primitive’ or ‘non-pedigreed architecture,’ as elaborated by Bernard Rudofsky in his exhibition at MoMA ^{(1) (2)}

In 1964, this seemingly unusual phenomenon paradoxically pervades architectural culture across epochs. In the 20th century, it spans from radical avant-garde paper architecture practices in Italy and the UK during the 1960s to diverse designs of churches and monumental structures and industrial and infrastructural facilities in Western Europe and the US during the same era. More recent examples include museums, cinemas, theatres, and experimental or temporary pavilions like those of John Hejduk in Oslo or Jean Nouvel in Murten. And finally, today, this phenomenon extends to various infrastructural buildings, mainly data centers, power stations, and other buildings, which are primarily tailored for machines rather than humans. Altogether, these cases spark an intriguing discussion on architectural form, language, tectonics, and aesthetics within 21st-century culture.

However, a particular segment of this phenomenon encapsulates a novel, expanded relationship between interiority and exteriority, which is the central focus of this study.

The total dominance of communication and information technologies (ICT), which began with the proliferation of the internet in the 1990s and exponentially accelerated in the 21st century due to the rapid development of mobile technology, big data, social media, e-commerce, machine

learning, and artificial intelligence, has radically transformed all aspect of our daily lives. As the ICT sector has become one of the most critical drivers of economic growth, it has also given rise to unusual anomalies, a dark underbelly of a ‘digital dream’, manifesting in malicious manners within different aspects of the 21st-century society.

These anomalies include wide variety of shifts, from fundamental social alterations of power mechanisms evident in a new form of domination known as the ‘information regime’, to purely economical, a new form of capitalism that monetizes humans’ personal data without their awareness, surveillance capitalism ⁽³⁾. However, architecturally speaking, these radical transformations have given rise to a completely novel and probably the most successful building typology of the 21st century - a data center ⁽⁴⁾.

Just as the First Industrial Revolution gave the city the train station, or the rapid modernization of the 20th century gave it the skyscraper, parking garage, or shopping mall, the Fourth Industrial Revolution, led by the ICT sector, gave birth to a data center. While the architecture of data centers offers an extremely interesting and rich field for investigation, especially today, considering the rising spatial

Windowless Architecture Data Centers Telephone Buildings

demands of our increasingly digitalized collective history (5), this study directs its attention to an exceptionally specific niche within this architectural typology. Rather than examining purposefully built data centers, which are typically designed as generic warehouses, prioritizing machine functionality and efficiency over human occupation, this research delves into a quite unique architectural phenomenon. It investigates structures originally built as telephone buildings during the Cold War era, primarily in the 1960s and 1970s in the United States, which were transformed into data centers in the 21st century.

In contrast to the general methodology of positioning data centers in secluded places, hidden deep within the rural landscape and far away from the sight of urban life, these buildings are situated in some of the most densely populated, vibrant, and dynamic urban areas in the world (6). Astonishingly, three of them stand in the heart of

Manhattan in New York City, while others are positioned in the strict centers of Los Angeles, Chicago, Washington, and San Francisco. For example, 33 Thomas Street, formerly known as the AT&T Long Lines Building, is a massive windowless skyscraper standing at 170 meters in height in the middle of New York City, functioning as a data center operated by the NSA (National Security Agency of the United States). Conceived as the world's largest facility for connecting long-distance telephone calls by John Carl Warnecke in 1974 during the Cold War, this building was purposefully designed to survive an atomic catastrophe. Its spatial capacities include the capability to store enough supplies to sustain 1,500 individuals and 250,000 gallons of fuel (equivalent to 1 million litres) to power generators, which would enable it to function as a "self-contained city" for a duration of two weeks in the event of a catastrophic power failure or emergency (7). Another example is the AT&T South Canal building located in Downtown Chicago, which also serves as the NSA data center. This nearly windowless (last 7 out of 23 stories have windows) 160-meter-high concrete monolith stands right next to the Union Station, the primary train station in Chicago

and the third-busiest terminal in the United States. Commissioned by the telephone company Illinois Bell, the predecessor of today's AT&T, and built by Holabird & Root, one of the most significant architectural firms from Chicago, the building was also designed to survive a nuclear attack, extraordinarily. It could operate for two weeks or more without electricity or water from the city thanks to its internal generators and a well for water supply.

This distinctive typological shift, coupled with the intriguing temporal and spatial context surrounding these structures and their radical architectural qualities stemming from their physical materiality, renders them a unique research subject within the architectural discipline. Thus, this thesis aims to unwrap this peculiar phenomenon through three distinct discourses – three lines of thought converging towards a common idea. These three lines of thought, invisibility, flow, and folding, are defined as paradoxes, which, on a superficial level, may appear methodologically paradoxical as they seek to discover something by grappling with the paradoxes surrounding the subject matter. However, it could be argued that such an approach is necessary to thoroughly

explore a topic, digging deep into the disputed territory and navigating the in-between space at the boundaries of thought. Whether or not it is something this thesis aims to find out.

Notes

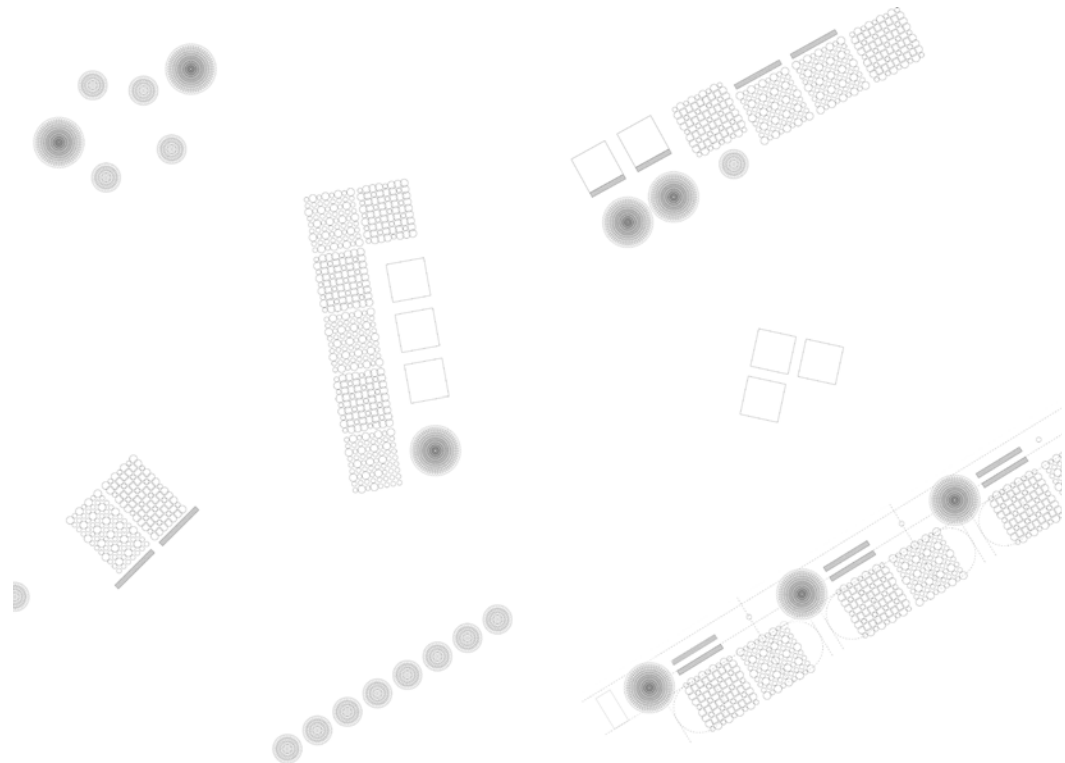
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BUILDING ECOLOGICAL PEDAGOGIES: LANDSCAPE ARCHITECTURE AS A TRANSLATOR

PhD Candidate: Thomas Cabai - Supervisor: Prof. Matteo Poli - Co-Supervisor: Prof. Chiara Geroldi

Thomas Cabai, Afforestation plots in the metropolitan city of Milan, 2023.

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As the world confronts escalating rates of biodiversity loss and ecological degradation, the imperative for effective environmental action becomes increasingly critical.⁽¹⁾ This research focuses on the integral role of landscape architecture in this context, not only as a form of environmental intervention but also as a pivotal pedagogical and translational tool amidst ecological crises. It explores the historical and theoretical underpinnings of biodiversity management, examining how landscape architecture has evolved in response to changing ecological and societal needs.

It investigates the role of policy frameworks in shaping environmental strategies across Europe alongside a critical analysis of ecological theories such as succession, adaptive cycles, and the concepts of rewilding, restoration, and conservation.

Finally, it addresses the central importance of cognitive biases in the perception of the sixth mass extinction happening in the last decades, among which shifting baseline syndrome, plant blindness, and alienation ⁽²⁾ ⁽³⁾. The research emphasizes the pedagogical potential of landscape architecture to bridge the gap between scientific understanding and public perception of ecological issues. Through a series of case studies, including Junya Ishigami's Japan Pavilion and projects by Studio Ossidiana, the study illustrates the application of theoretical models in practical design, highlighting how these designs serve as both functional ecological interventions and educational platforms. The cases demonstrate how landscape architecture can communicate complex ecological dynamics effectively, facilitating a deeper public engagement with and understanding of biodiversity issues.

Anticipating further development, this research will continue to explore the integration of aesthetic, functional, and ecological dimensions within landscape

projects, advocating for a design approach that aligns ecological integrity with human aesthetic appreciation and functional needs ⁽⁴⁾.

By situating landscape architecture at the confluence of ecological science, cultural interpretation, and spatial design, the study aims to contribute significantly to the discourse on sustainable environmental design and management. This approach seeks not only to mitigate the impacts of ecological crises but also to enhance the resilience of both human and non-human communities in the face of ongoing environmental change.

Notes

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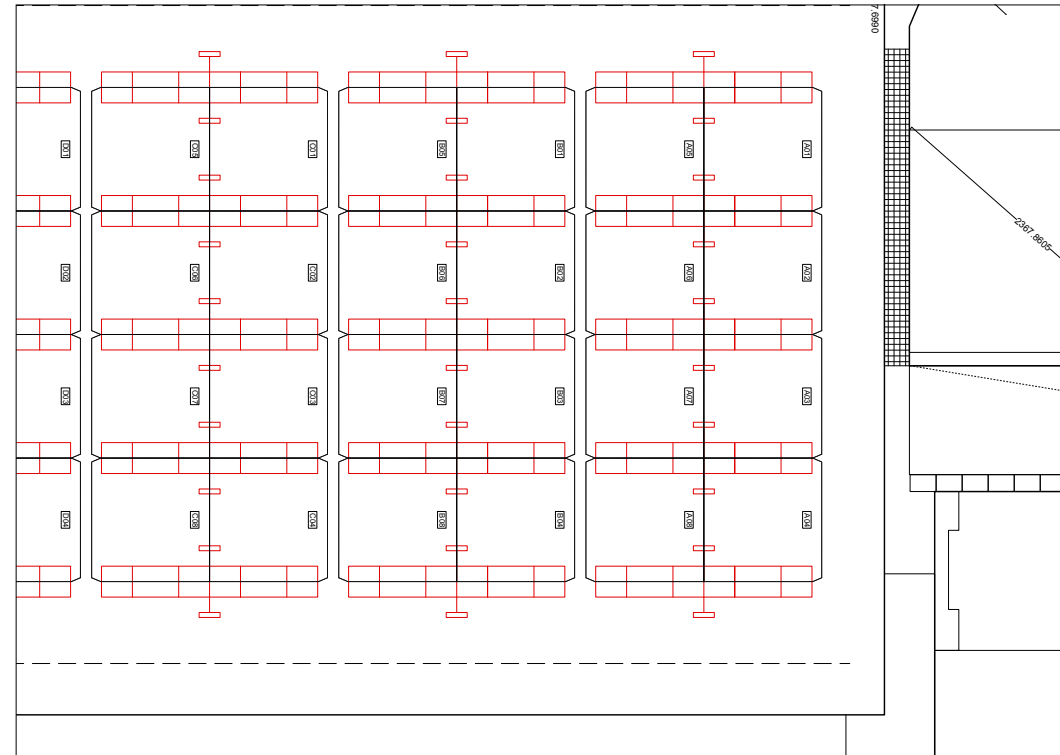
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BUILDING PARANOIA

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Valentina Noce, *Plan*, 2023.

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A fragmented shift can render technological solutions within the sphere of unease and unsettling conditions of space. The research extends to contemporary contingencies, the imaginary of the architectural uncanny, and other space distress investigations. It delves into the unhomely interaction between the human body and space driven by technologies and digital devices. In an attempt to generate a critical platform for design, the domain of “atonal spaces” defines a framework to incorporate technology dysfunctions into architectural practice.

The first part of the research investigates the conditions of distress related to space: the disturbing interactions between the body and space can be read through various terms, such as the uncanny and the eerie.

The anecdote of “Pascal’s abyss” tracks a discourse around the construction of fear into a critical architectural theme; allegedly, after an accident in 1654, Blaise Pascal kept seeing a horrific void on his side. From this obsession, reflection on the void developed into a theoretical address: late eighteenth-century architects like Etienne-Louis Boullée and Claude-Nicolas Ledoux embraced “Pascal’s resistance to the open transparency of rationalism (...) as a way of symbolically and effectively exploiting the ambiguities of shadow and limit, remaining a sign of potential disturbance beyond and within the apparently serene and stable structures of modern urbanism.”

This chapter addresses the range of issues connected with body and space, analyzing the relationship between the body, the psyche, and the subject’s place in the world. Extending the sphere of interest to contemporaneity, the introduction of new technological devices and systems generates emerging unsettling conditions: if Le Corbusier defined the “house as a machine for living in,” clearly stating the boundary

between the natural object and the technological environment, in the chapter of “The Architectural Uncanny” about the work of the New York architects Elizabeth Diller and Ricardo Scofidio, Anthony Vidler mentions the possibilities the “the body, itself invaded and reshaped by technology, invades and permeates the space outside” as a language for architecture, anticipating the potential of a techno-uncanny.

The interaction between space, body, and technology is no longer a modernist compartment relation but a complex imaginary of cities for cyborgs, prosthesis kitchens, and ghost infrastructure. The sphere of the Freudian nineteenth-century uncanny incorporates what Kriss Ravetto-Biagioli defines as the digital uncanny: the “anticipation of our responses is a feedback loop that we humans have produced by designing software that can study our traces, inputs, and moves”. Being the architectural uncanny a narrative tool for an “unhomely” modern condition, the digital uncanny expands it to the contemporary “unhomely” digital condition. For example, how the increasing inclusion of apparatus of digital technologies (such as temperature control, movement detector, Bluetooth speakers) in residential architecture is changing the definition of domesticity? Is the digital infrastructure permeating buildings and cities contributing to

Technology Unhomely Body

a disturbing perception of space?

This research proposal identifies the theoretical frame for circumscribing the possible interactions between space, technology, and user in the digital uncanny.

In the second part of the research, the technological systems that contribute to the space- distress of the digital uncanny are analytically investigated. Defined as trauma wares, digital devices are classified through recurring qualities: the automatic and standardized response of architecture to digital solutions that led to the establishment of generic spaces. This investigation is carried out in the Home and Building Automation business segment of the partner company ABB. The opportunity to access the fieldwork for six months as part of the PhD program allowed this research to collect, interpret, and process a catalogue of building automation services and technologies as a case study, defining the operational and unintentional circumstances of the digital uncanny. The imaginary of a technological body

expanded to different fields and disciplines, from art to cinema, passing through gender studies; the definition of the cyborg as “creatures that combine technology (usually robotics) and biology” by Donna Haraway argued that “late-twentieth-century human beings are cyborgs, poised between a lost myth of nature and a futuristic dream of perpetual technological revolution.”

The narrative of the cyborg moved between the subject and the space (see William Gibson), and became a tool for architectural practice, as in the work of Elizabeth Diller and Ricardo Scofidio: “As attempts to “redesign” the body, we need only recall cases of electronic transmitter implants which monitor bodies on supervised discharge. Surveillance, hygienics, health – any number of microrobots are waiting to invade our bodies.” Focusing on the domestic environment, “the house is explored as a site that suggests various possibilities with regard to psychological aspects of embodied experience in space. Some well-known links between architecture as site and the psyche as terrain are noted. Four readings of house, psyche, and body are investigated with reference to core texts relevant to each. A first reading explores Jungian interpretations of the house as feminine. The next reading inscribes the house as masculine in its Freudian repression of nature. A third reading finds Freud’s notion of the “uncanny” useful for the exploration of the feminine becoming-

hysterical of the house. The fourth reading posits the house as being both masculine prosthesis and feminine prophylactic in accordance with the current poststructuralist practices of architects Elizabeth Diller, Ricardo Scofidio, and others.”

In the last part of the research, with a background of understanding the cultural and spatial phenomenon, other disciplines and media response to the same issue, and a critical attitude, the aim is to describe and include the unhomely digital condition in projects and research. Within the objective of design-driven research, the proposal aims to develop a platform for design, intended as a set of strategies, vocabulary, and ideas that set an experimental ground for the integration of technologies within the built environment. Defining a field of operation, the research introduces the description of atonal space. Atonal spaces are subjectively designed as architecture that intentionally renders technology dysfunctions - or trauma-wares - as part of their language.

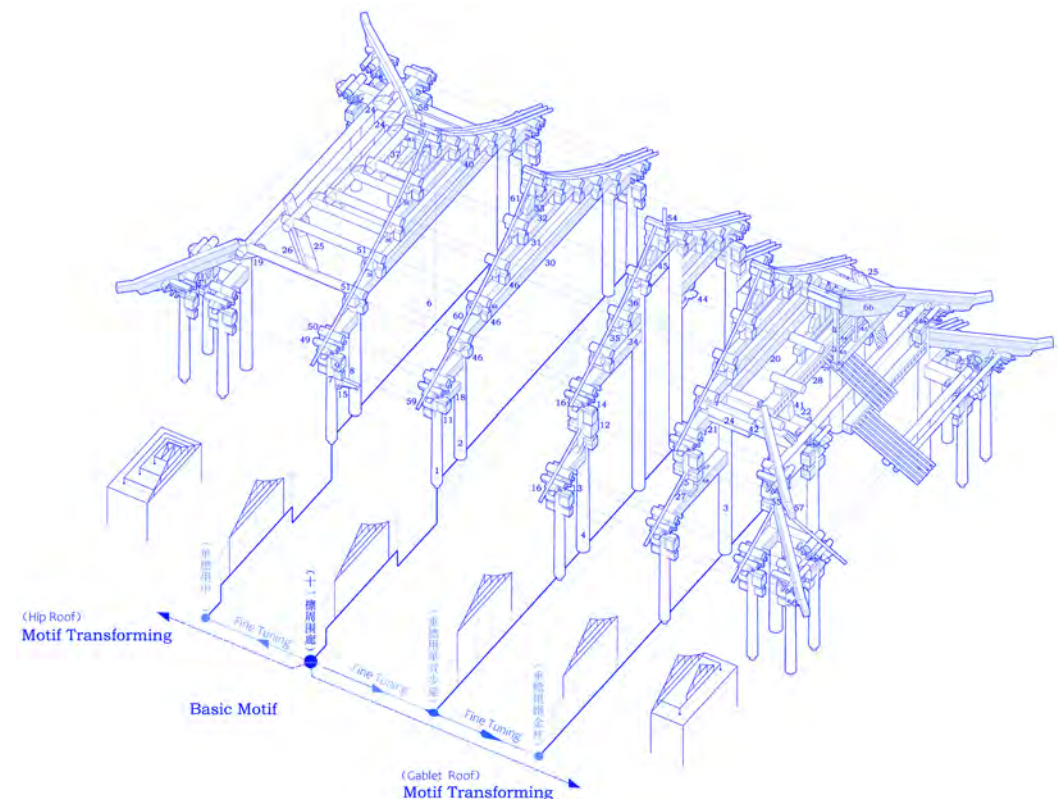
Technological conditions of distress - or the digital uncanny of architecture - are recurring in a set of preconfigured spaces. Atonal space is a catalogue of selected space, and a definition of certain qualities. As a junkspace operation, we identify certain space as atonal.

In this last chapter, the theoretical

framework of Chapter One and the technical asset of Chapter Two will be critically performed through the architecture domain. Information and contents are post-structurally merged into the design as part of a non-linear, non-deductive, and non-mechanical process.

“YINGJIN” DRIVEN ARCHITECTURAL DESIGN INTERPRETATION, RE-ELABORATION, AND RE-PRODUCTION OF ANCIENT CHINESE CRAFTSMEN’S BOOK

PhD Candidate: Zhou Junliang - Supervisor: Prof. Luigi Cocchiarella



“Yinjin” is an ancient Chinese craftsman’s handwriting book from the Ming and Qing Dynasties(13th to 18th centuries). It is a design guide for ancient Chinese architecture written in ancient mathematics, covering various types of architecture.

For various reasons, this book was not properly understood and utilized in the past. This research aims to reveal the architectural design system within the book through systematic study and explore the possibility of applying it to contemporary design.

In the first step, collect, compare, and reorganize the sourcebooks; through terminological research, illustrate the text and geometric images of the book, including text structure, algorithm, and positional expressions, uncovering its essence as a mathematical model. As the second step, based on the interpretation, focusing on several key architectural types within the book, conduct in-depth case studies. Re-elaborate the book, recognize each mathematical model, and reconstruct the 3D parametric model utilizing Grasshopper. Verify the accuracy of the model through the existing architecture measurement and archival verification. Furtherly, several means of reproduction of the book are anticipated, focusing on what is the design system that these algorithms reveal, what is the culture and aesthetic system behind the design system, and relation to temporary architectural design research, what we can inherit from it, and the possible application in the future. “Yinjin” is an ancient Chinese craftsman’s handwriting book from the Ming and Qing Dynasties (13th to 18th centuries). The book contains two parts: “Yinjin” and “Yinjin Algorithm”.

“Yinjin” serves as the core, describing the proportions and calculation methods of various architectural components with text. Meanwhile, the “Yinjin

Algorithm” supplements “Yinjin” with a mathematical algorithm related to architectural engineering, accompanied by some illustrations. Its content includes angle calculation, arc length and radius calculation, earthwork calculation, volume calculation, remote surveying methods, etc.

When we contextualize the book within the broader framework of the ancient Chinese architectural official construction system, we find it serves as a guide for architectural design written in ancient mathematics, akin to parametric models in modern academia (1). Based on textual records from surviving literature such as the “Zhou Li,” it’s evident that since the Zhou Dynasty (1046 BC-771 BC), ancient Chinese craftsmen had already mastered parametric tools in manufacturing, a practice that continued into the Qing Dynasty.

Upon deeper examination of the design methodology and algorithmic structure recorded in “Yingjin”, we discover that the parameters are organized hierarchically through repetitive one-to-one correlation. And this kind of hierarchically parametric design method not only applies to individual architectural design but also to architectural group design and serves as a method for harmonizing architecture with nature (2).

This method stems from a derivative

Ancient Craftsman's Book "Yingjin" Parametric Model Computational Modeling

mode of thinking influenced by agrarian civilization. It originates from the philosophical and worldview core of ancient China, centered around the worship of nature. Through observation and learning about nature, the ancient Chinese recognized the hierarchy as the basic structure of nature, and living and material things in nature were organized hierarchically. They shared universal similarities and held diversities at the same time, acknowledging class and derivative relationships. Through observing and understanding natural phenomena, people summarized natural laws and structures, formed a unique philosophy and worldview, and applied these principles to social structure organization music, the same as the organization of architectural component relationships. This design method is deeply rooted in the cultural soil of Chinese agrarian civilization and differs significantly from Western architecture. The most notable difference lies in the fact that Chinese

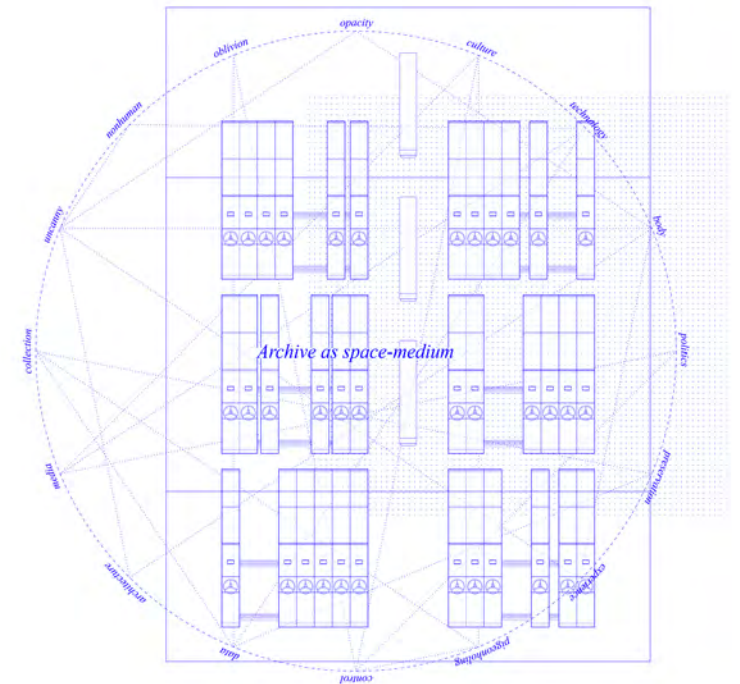
architectural design is entirely algorithm-based rather than geometric-based, focusing on quantitative relationships rather than spatial relationships. Therefore, their architectural design path is quite distinct: they adopt a design method from the part to the whole, starting from simple motifs, continuously deriving variations, and finally combining them into buildings. The focus of architectural design is how motifs change rather than specific entire forms.

Notes

- (1) Junliang Zhou, Luigi Cocchiarella, Qiheng Wang, "Architecture Mathematical Model and Modeling Based on Ancient Chinese Craftmen's Book Taking the Stone Archway as an Example," *Graphic and Application-The 14th Asian Forum on Graphic Science*(AFGS 2023),ed.Baoling Han(Beijing Institute of Technology Press,2023),77-78.
- (2) Qiheng Wang,"The Xingshi" Principle in the Fengshui Theory and The Design of The Exterior Space of Old Chinese Buildings," *Research on Fengshui Theory*, ed. Qiheng Wang (Tianjin University Press, 1992),117-138.

THE ARCHIVE AS SPACE-MEDIUM: ARCHITECTURE BETWEEN PERMANENCE AND OBLIVION

PhD Candidate: Filippo Lorenzo Balma - Supervisor: Prof. Alessandro Rocca - Co-Supervisor: Prof. Nina Bassoli



The Archive as Space-Medium explores the figure of the archive as both architecture and a means of ordering and controlling things and bodies. The research reveals the condition of places of collection and accumulation, from traditional archives to server farms, and how these influence spatial experiences through the dynamics of permanence and oblivion.

The research aims to investigate the archive as a space medium, focusing on the interplay between permanence and oblivion in architecture and the experience of the body within archival settings.

Over the past two centuries, our society has transitioned towards the culture of information and data, heightening the centrality of the figure of the archive. The proliferation of both physical and digital documents has rekindled interest in places of collection and accumulation. Thus, discussing archives today means understanding the architectures and systems for recording experiences, memories, data, and places, all of which involve the body.

Consequently, the research unfolds in two main directions.

First, it encompasses the comprehension of the role of the archive as a medium. Here, the archive is viewed as the institution and, more in general, as the systems and means of recording (in architecture and not only).

That unveils the archive's intrinsic political and cultural nature. It selects, decontextualizes, collects, lits, and pigeonholes objects, documents, and information. In this process, the individuality of the single object is depleted, acquiring a new meaning in relation to the hosting collection.

Curatorship embodies the political power

of the archive, determining what (or who) is inside, in what form, and what is excluded or even forgotten. In other words, the archive is a mode of imposing order on the world.

Second, it includes the exploration of the experience of the body within the archive as space. The archive can be meant as an architecture: a physical but also mental and virtual space, in a broader sense.

This is not a space intended for bodies but for objects or objectified bodies. It is *unheimlich*, uncanny in the Freudian sense: familiar and overlooked, as well as unease and hostile. Primarily because of its direct relation with technology, the archive space undergoes processes of virtualization and dehumanization. From gloomy interiors filled with dusted shelves to always-lit server farms, the archive transforms its relation with the body, unlocking new dimensions (digital, cyber, metaphysical).

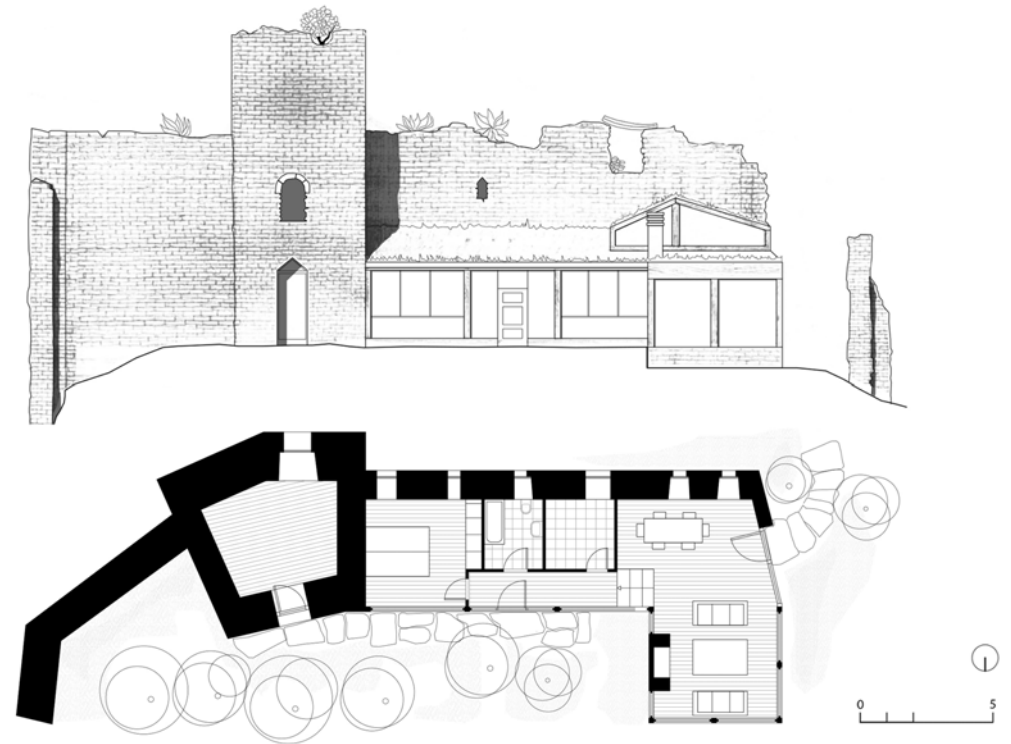
The investigation learns and unlearns from a transdisciplinary theoretical framework and specific practical experiences in curatorship, architecture, design, and art, which address the archival condition. Collaboration with Triennale Milano enriches the work, fostering productive dialogues between academia and cultural institutions.

ARCHITECTURE, LAND- SCAPE, TERRITORIES IN THE WORK OF PIER PAOLO PASOLINI

PhD Candidate: Riccardo Maria Balzarotti
- Supervisor: Prof. Luca Maria Francesco
Fabris

Casa Pasolini in Torre di Chia (VT). Plan and north elevation of the original proposed design, submitted by the architect Ninfo Burruano to the Municipality of Soriano nel Cimino, 25 March 1971 (redrawn by the author. Source: Maria Grazia Eccheli, "L'infinito abita a Chia. La casa/castello di Pier Paolo Pasolini", *Firenze Architettura* (1, 2015), 12-15.

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Although the figure of Pier Paolo Pasolini has been extensively studied in a wide range of disciplines, his very close relationship with Architecture, Territory, and Landscape has not received broad and systematic attention. Within the “Tourism and Culture 4.0” National Recovery and Resilience Plan (PNRR) framework, the objectives of the research aim to systematize the role architecture had in Pasolini’s thinking and artwork. This means exploring aspects deeply rooted in his Friulian origins, expanding into the broadest possible context, and then returning to the local core.

“Home is in some way the minimum fundamental nucleus for the sense of belonging to a territory to be realized.” ⁽¹⁾ Pasolini’s home in Casarsa della Delizia, the maternal home that today hosts the Centro Studi Pier Paolo Pasolini (research co-promoter and partner), is a point of origin, the place where the memory of an archaic, rural, authentic world was formed “[...] // La povera grande casa / con le mosche sulla tavola unta della cucina, / nella vampa del sole, vuota, stanca, / che brucia / nel cortile la vecchia pompa, / i marciapiedi, i campi. // [...]” ⁽²⁾ His last home, the medieval tower in Chia, surrounded by a landscape where “[...] Ariosto sarebbe impazzito di gioia nel vedersi ricreato con tanta innocenza di querce, colli, acque e botri [...]” ⁽³⁾ is a medieval ruin, grafted by a new dwelling with a surprisingly modern intervention. These are two points, two physical places, in Pier Paolo Pasolini’s life path that unwound from his Friulian rural origins through the harsh Roman outskirts and then passed through remote, distant places in that Third World, where he tried to find an ‘innocent’ environment that the rapid and fierce neocapitalist western progress consumed.

A series of places studded this journey: experienced territories, narrated landscapes, and portrayed buildings where it is possible to recognize a dual value, representing both the real and the

symbolic. In their vastness and variety, sometimes even full of contradictions, recurrent and persistent themes unfold, showing how architecture and landscape are part of Pasolini’s narrative. Without the ambition to identify a theoretical approach in strictly architectural terms, Pasolini’s thoughts and works analysis makes it possible to distil places and figures, from some wide and generic concepts to the more detailed specificities of individual objects, which build a lexicon. A lexicon capable of decrypting how places influenced Pasolini’s visions and amplified with meanings and values his interpretation of the world.

This work aims firstly to study and relate these aspects, recognizing the influence that the Friulian territory, and specifically the Casarsa della Delizia’s, had on Pasolini’s thinking, for then synthesizing visions and proposals where the Friuli’s territory could flourish, preserving and at the same time paying tribute to his invaluable and intangible cultural heritage.

Notes

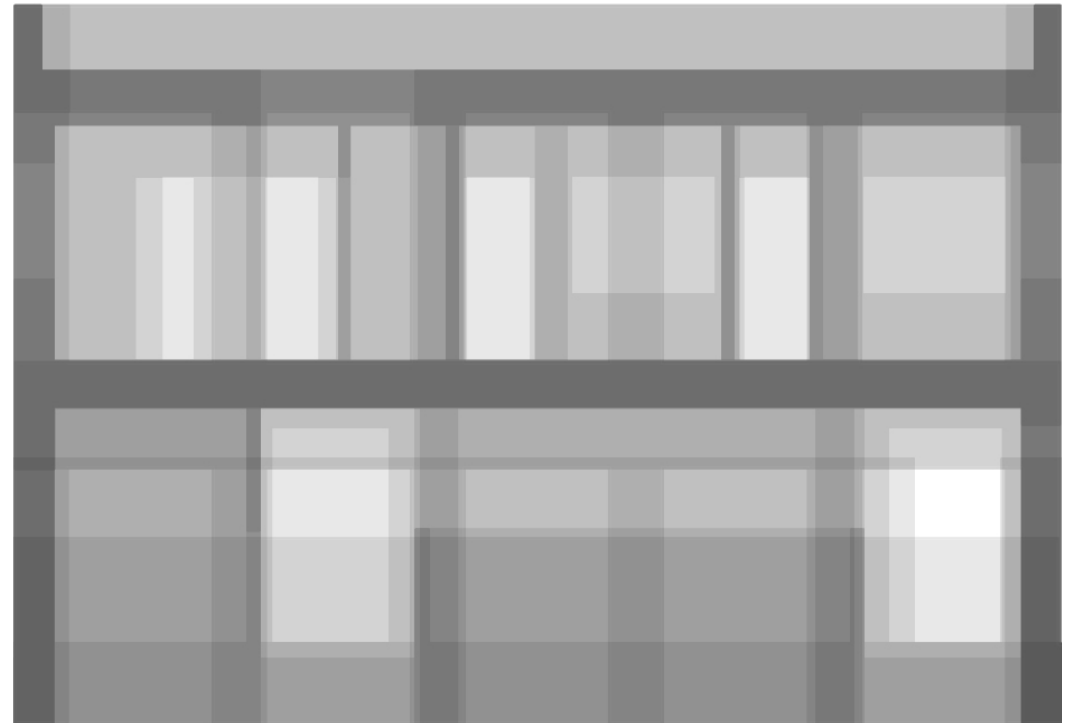
(1) “La casa è in qualche modo il nucleo minimo fondamentale perché il senso di appartenenza ad un territorio si realizzi” (Author’s translation from Italian). Gianni Biondillo, *Pasolini. Il Corpo della Città* (Unicopli, 2001), 49.

(2) Pier Paolo Pasolini, *La meglio gioventù* (Einaudi, 1975), 40.

(3) Pier Paolo Pasolini, “Poeta delle Ceneri”, in *Bestemmia*, ed. Graziella Chiarocossi, Walter Siti (Garzanti, 1996), 921–922.

OPACITY: A REFLECTION ON SPACES IN ARCHITECTURE

PhD Candidate: Federico Casati - Supervisor: Prof. Carles Muro - Co-Supervisor: Prof. Fabrizia Berlingieri



Federico Casati, Casa in Calabria: South-North overlapped sections, 2024.

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The research investigates opacity both as an absolute concept and a design tool for affirming a different idea of dwelling. The advent of modernism fostered a rush towards an “unlimited transparency” of constructions as defined by Sigfried Giedion, a transparency that nowadays seems more than unlimited or excessive. Is it possible to retrace a different tendency in modern architecture? Is there a less explored legacy that tells of shadowy, dimlit, opaque spaces? What are the potential consequences of such a switch of perspective on architecture and society?

Trans·par·en·cy

- 1: the quality or state of being transparent
- 2: something transparent especially a picture (as on film) viewed by light shining through it or by projection

Opac·i·ty

- 1a: obscurity of sense: unintelligibility
- 1b: the quality or state of being mentally obtuse: dullness;
- 2: the quality or state of a body that makes it impervious to the rays of light broadly: the relative capacity of matter to obstruct the transmission of radiant energy;
- 3: an opaque spot in a normally transparent structure (such as the lens of the eye); (1)

Understanding the consideration that opacity has today is useful in comparing the definition given above. If transparency is defined as a quality without further implications, the word opacity always refers to other meanings, almost always negative. Opacity seems to be a term that is fully understandable only if related to some synonyms, while on the other hand, transparency has a place of its own in the dictionary. Perhaps from this last point, we want to start to trace a new possible history of opacity in architecture as something closely connected to transparency, its (dark) reverse, an integral part of transparency itself. The aim is also

to establish a new way of looking at opacity as something that can stand alone as a feature, a quality of architecture. Exactly a century ago, the book that changed Western architecture the most was published for the first time: *Vers une architecture* by Le Corbusier. Any possible rereading of our architecture under the lens of opacity must necessarily consider the publication date of this book as its ground zero. In 1955, in the article “Transparency: Literal and Phenomenal”, Colin Rowe and Robert Slutzky wanted to demonstrate that the transparency as intended by Le Corbusier was a transparency of spaces and not necessarily of surfaces. As in the articles, the research aims to reread modern Western architecture as a non-unitary body starting from year zero (1923), where traces of a different way of intending and looking at space can be recovered. The research will be supported by the critical reading of different case studies, mainly of single-family houses since they are considered freer by many social and economic dynamics that might influence the result and dilute the author’s poetry.

Note

(1) Merriam Webster’s Dictionary (accessed March 4, 2024). <https://www.merriam-webster.com/dictionary>

NEO-RURAL ARCHITECTURE: INTEGRATING LAND RENATURATION THROUGH CIRCULAR ECONOMY PROCESSES

PhD Candidate: Francesco Gugliotta - Supervisor: Prof. Alessio Battistella

Francesco Gugliotta, Exhausted countryside, 2024.

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The relationship between sustainable construction and the circular economy is crucial for the energy transition, offering integrated approaches to reduce the environmental impact of buildings while promoting energy efficiency and operating cost reduction.

Sustainable building design and construction incorporate technologies and materials that minimize energy consumption and greenhouse gas emissions.

In the pursuit of sustainable solutions to the challenges faced by contemporary societies, the research delves into the dynamic field of neo-ruralism. Neo-ruralism represents a contemporary reinterpretation of territory, extending beyond the traditional view of soil as merely a foundation for building construction or urban development. The relationship between sustainable construction and the circular economy is crucial for the energy transition, offering integrated approaches to reduce the environmental impact of buildings while promoting energy efficiency and operating cost reduction. Sustainable building design and construction incorporate technologies and materials that minimize energy consumption and greenhouse gas emissions. By integrating circular economy principles, we promote efficient resource use and waste reduction, helping mitigate the intensive energy use and emissions associated with building material production. The research foundation is based on three key factors, each crucial in directing the trajectory of neo-rural development:

(1) Addressing Environmental Challenges: Neo-ruralism presents a promising approach to tackling pressing environmental challenges such as climate change, loss of biodiversity, and soil degradation. By exploring potential synergies between land renaturation,

organic food production, renewable energy, materials and nutrient recovery, and sustainable architecture, we aim to develop sustainable solutions that address these issues.

(2) Promoting Renewable Energy Transition and Economic Opportunities: Rural areas hold vast potential for renewable energy generation. By examining the integration of renewable energy technologies within the neo-rural context, we contribute to the transition towards a low-carbon energy system, fostering energy independence, reducing greenhouse gas emissions, and creating economic opportunities.

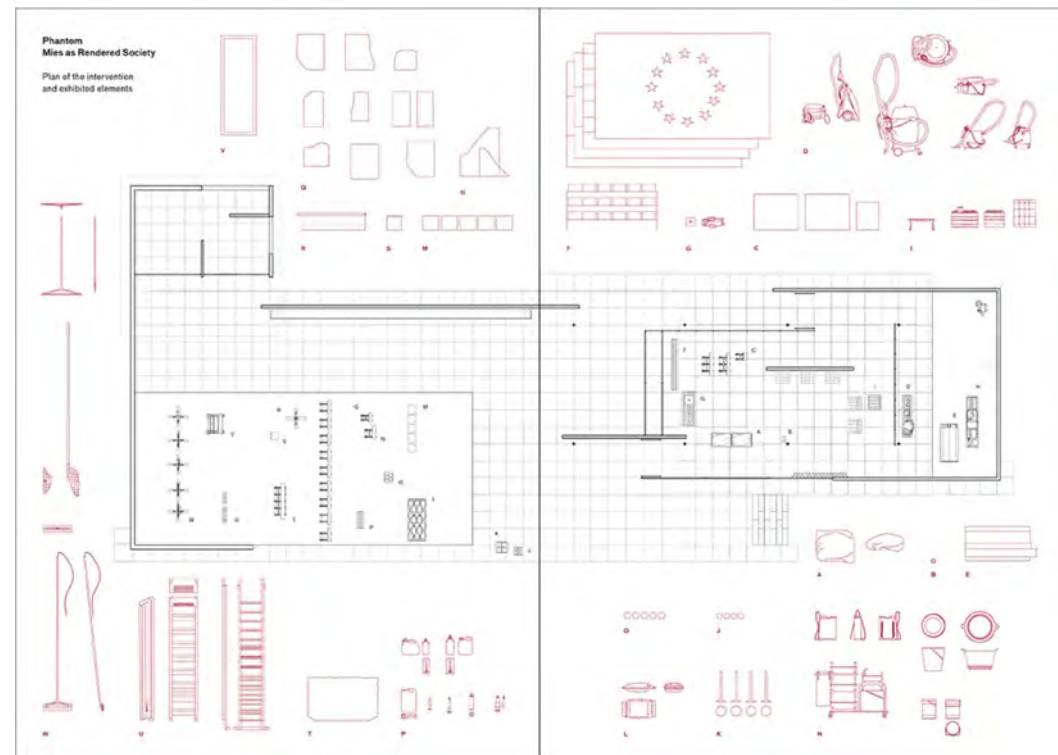
(3) Advancing Sustainable Architecture within the Neo-Rural Paradigm: The built environment significantly influences the sustainability of rural communities. By investigating sustainable architectural strategies within the neo-rural paradigm, we aim to enhance resource efficiency, resilience, and community well-being, all while honoring local cultural and historical contexts. As we explore Neo-Rural Architecture, this research aims to provide a comprehensive overview of our research findings. Through a synergistic exploration of environmental, economic, and cultural dimensions, we aspire to contribute to both theoretical discourse and the practical implementation of sustainable and regenerative practices that shape the future of rural landscapes.

DISPLAYING BROADER NARRATIVES: ARCHITECTURE EXHIBITIONS AND THE CONSTRUCTION OF TRANSSCALARITY

PhD Candidate: Alessandro Pasero - Supervisor: Prof. Alessandro Rocca - Co-Supervisor: Prof. Nina Bassoli

Andrès Jacque, Office for Political Innovation, *Phantom. Mies as Rendered Society*. Plan of the intervention in the Mies van der Rohe Pavilion with the exhibited elements, 2013.

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The research investigates contemporary architecture exhibitions - both their design and curating - to understand the way thematic narratives are constructed through them. The project addresses specific exhibitions to show how what is being displayed are “bigger histories” and not “just architecture itself”: it’s about the construction of a broader narration rather than the re-representation of the architectural object. The narratives are constructed by considering realities in different temporalities and places: *transscalarity* refers to the way architecture translates across scales of time and space.

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That the exhibition has been one of the primary sites for developing architectural discourse is well established. The ambiguous status of architecture as an object of display was the topic for an intriguing conversation between Rosalind Krauss and Jean-Louis Cohen published in *October*’s 1999 summer issue: Cohen concisely formulated that it is not the real “stuff” on show.

This happens because architecture must indeed be curated - not as with art to cure it of its open-endedness or ambiguity, but of its matter-of-fact nature, its inconspicuous state, and of the fact that, as Walter Benjamin concisely expressed in his essay, it is experienced “in a state of distraction”. From this perspective, the exhibition becomes one possible space of criticality and, at the same time, an intermediate space in which the ephemerality of the event advocates for a precise type of permanence in the collective memory.

The diffusion of exhibition forms in which the object of the show is not so much the architecture itself but the social, economic, cultural, and artistic backgrounds has led to a wide panorama of contemporary exhibiting practices that do not wish to talk exclusively about architecture but rather prefer to use architecture in order to talk about something else that surrounds it. By considering architecture as a bigger

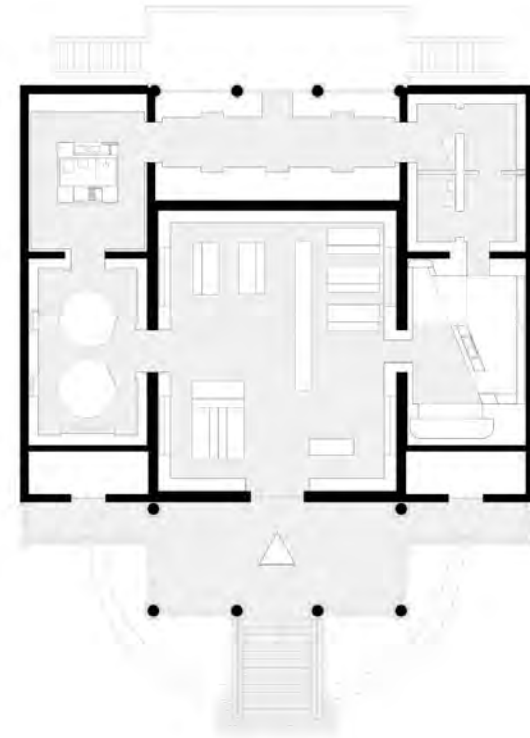
framework - every agency has spatial implications - architecture exhibitions take a broader spectrum into account. This necessarily implies that the realities mobilized are distributed in different temporalities and territorialities. As Andres Jaque explains, the term *transscalarity* refers to the way architecture - and by extension societies and ecosystems - translates across scales of time and space: «In the past, architecture was understood as the art that acted at the scale of buildings; now architecture is necessarily *transscalar*». In the design of this type of architectural exhibition, something is happening in-between, which Wilfried Kuehn defines curatorial design because it is unclear if it is design or curatorial practice when making spatial decisions in exhibiting something.

Therefore, through curating, buildings can also turn into portable objects: displaced as a collectible, they still retain their architectural integrity, and this “holding together” a macro and a micro scale makes the narration visible. By tracing these architectural exhibitions of the 21st century, the research looks at architecture *transscalarity* through the media of exhibitions to investigate how narratives are constructed and displayed.

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EXPOSING DOMESTICITIES. EXPERIMENTATION AND DISSEMINATION OF NEW DWELLING PARADIGMS

PhD Candidate: Miriam Pistocchi - Supervi-
sor: Prof. Alessandro Rocca - Co-Supervi-
sor: Prof. Nina Bassoli



Shumi Bose, Jack Self, Finn Williams, Plan of the exhibition *Home Economics*, British Pavilion,
XV Biennale di Architettura di Venezia, 2016.

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Exposing Domesticities is an investigation that delves into the experimentation of new forms of domestic space within architectural exhibitions. The architecture of the home is among the fields that influence a society's lifestyle the most, and in turn, it is constantly conditioned by the social, cultural, political, and economic context. Freed from the constraints of housing construction, exhibitions are the place where new spatial practices, new ways of living, and new subjects of domestic projects can be publicly experienced and debated.

This research focuses on a relatively recent period, more specifically, from the decline of modern architecture to the present day. The starting point is the exhibition "Italy: The New Domestic Landscape" (MoMA, 1972) since it is considered the moment of a split with the modern way of exhibiting domestic projects. The research selects significant case studies to find those episodes in which architecture has addressed the design of the home by proposing new ways of living and new spatial practices as a response to changes in society and in the Western social and economic context. Architecture exhibitions are considered a privileged place from which to observe the development of new ideas and their translation into spatial forms. Thus, while architectural construction must submit to constraints dictated by material and regulatory factors – such as construction and bureaucratic time limits – the temporal and ephemeral character of exhibitions accelerates the process and allows one to go much further toward imagining and proposing new ways of living, also thanks to a clientele that does not necessarily coincide with the end user. The nature of exhibitions is also that of showing, de facto, the very process of exhibiting: exhibitions are a means of communication. Not only do they make it possible to show the architecture, i.e., to exhibit and publish projects, but above

all, they make it possible to show through architecture: curatorial choices express a point of view, an idea of domestic space, and therefore, an idea of common life. This research, therefore, does not only focus on residential projects designed to be displayed in exhibitions but instead on the exhibition as a whole: from the context in which it is created - the institution that commissions it and its aims - to the curatorial choices, the architecture of the exhibition, and the legacy it leaves once the exhibition is over. This research starts from the assumption that designing a house, as well as designing an exhibition on housing, is never a neutral action but rather presupposes an idea of inhabiting: it is putting into practice an image of the world, the spatial translation of an idea of being together. In this, architecture is always a political fact, especially the architecture of the home. Hence, the plural title: domesticity as a plural fact. At the center of this research are, in fact, the different and possible ideas of life, of manifestations of living that architecture has addressed, not an abstract or unitary idea of domesticity. The questions posed by this research are: what social project underlies the exhibition project? Who is the subject inhabiting these houses? What have been the architects' experimental proposals for the various problems related to the home in recent decades?

This chapter collects the presentations of the work in progress of the Architectural Urban Interior Design doctoral program candidates focusing on the “Techniques” theme.

The candidates are in different stages, comprised between the 35th cycle (beginning in 2019) and the 39th (beginning in 2022). Here is the list of the candidates with their cycle:

35 Elena Maj
 37 Fuat Arabaci
 38 Almaha A. Almalki Aljehani
 38 Đorđe Bulajić
 38 Thomas Cabai
 38 Valentina Noce
 38 Zhou Junliang
 39 Filippo Balma
 39 Riccardo Maria Balzarotti
 39 Federico Casati
 39 Francesco Gugliotta
 39 Alessandro Pasero
 39 Miriam Pistocchi

The epigraph at page 451 is taken from: Peter Eisenman, *The End of the Classical: The End of the Beginning, the End of the End*, *Perspecta*, Vol. 21. (1984), pp. 154-173.

TECTONICS

TECTONICS

form and structure

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By its very nature, the heavy gravitates toward the earth, and so is telluric in character, while the light tends to reach for the sky because it is usually framed, skeletal, and aerial. If you think about building

in these very generic terms, the sculptural then tends to emerge more naturally out of the earth and out of the plastic character of the earthwork. (Kenneth Frampton, 2003)

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URBAN STEREOTOMY. METHODOLOGICAL EXPLO- RATION OF MASS HOUSING BASE

PhD Candidate: Valerio Maria Sorgini - Su-
pervisor: Prof. Ilaria Valente - Co-Supervi-
sor: Prof. Filippo Orsini

Valerio Maria Sorgini, Urban Stereotomy. Connecting References (collage), 2023.

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Stereotomy, seemingly so distant from the investigated research field, was a starting point for tackling the exploration of social housing districts, the object of this study, constituting almost an interpretative “obsession”. The desire to summarise in synthetic term readings and meta-design proposals for these contexts, in fact, lies in the definition of the object itself to be investigated, i.e., the base on which mass housing is “based” and from which it seems it is intended to receive a ‘nourishment’ made up of flows and relations that it very often fails to receive.

Beginning with Gottfried Semper’s definition of the discipline of stereotomy (1), which deals primarily with the precise formal field of ‘bases’, a lexical connection has been made to the urban sphere. The study of the principles and properties of this discipline of the “cutting of solids” - among others, the necessary “cohesion”, “solidity”, and “reaction” between the ashlar of a masonry apparatus -, therefore, and their transfer to the sphere of social housing in order to read the opposite fragmentation found between the parts that make up these housing ensembles, has been enriched in the course of studies to find confirmation in the urban context. From stereotomy as a discipline, we have moved on to the reading of “stéréotomie” as a principle of urban composition, rediscovered by reading Jaques Lucan. The French architect and historian, in fact, writing in 1974 in the pages of *L’Architecture d’aujourd’hui* about a new social housing project (*Les Coteaux de Mauboué*) (2) which he interpreted as a “hinge of a renewal”, speaks directly of a “stéréotomie urbaine” which, wishing to avoid “assemblages” dictated by an excessively driven technicality of those years, he instead directs his research towards geometric tracings and cavities at various scales capable of drawing figures of open spaces and relations through which to give shape to

the built environment. It is a significant “breakthrough” because it underlines the need to reverse specific logics of composition and reading of these districts or, as Lucan puts it, to create a “stable assemblage”, the foundation of a city that can be later on built.

Therefore, although to be considered a metaphor, stereotomy accompanies the entire research, constituting itself as a process of investigation, as a method of reading and as the ultimate goal of the considerations made in the districts examined. In this sense, the research investigates “the bases” of social housing districts, understood as an inseparable ensemble or series of architectural and urban sequences made up of open spaces, and ground connections of the buildings, aiming to find a method of reading and approaching the project for their reactivation.

Faced with the more simplistic actions seen in the demolition, erasure of traces or shattering (*résidentialisation*) of these grounds as a quick solution for intervention, the proposed methodological approach is based on the idea that these contexts often preserve signals and ideas to be researched and that, if used as a reference, they may be enabled to provide indications and anchorage points for a contemporary project, indeed based on the interpretation of these districts as a legacy to be

Mass Housing Base Open Spaces Reactive Solidity

preserved. A focus on researching a design vocabulary and state-of-the-art interventions in these ‘public bases’ - that would allow us to understand the complexity but also the vagueness of these spaces - led to the definition of a synthetic term - namely urban stereotomy - which, as mentioned above, is capable of summarising the main methodological directions and objectives of the work. As an autonomous discipline, stereotomy refers precisely to the formal field of bases, of which it describes some principles applicable to the sphere of the urban (such as the necessary solidity, reactivity, and preparatory nature of the design aimed at the correct cutting of solids), gathering many directions and orientations shared by the research. Beyond this operational metaphor, the thesis investigates a precise production of social housing that is identified by studying some thematic, lexical and, normative cornerstones around the production and debate on the theme of relational space in these districts, comparing writings, drawings, and

districts built from the late 1960s to the late 1970s (1967-79). These were the years in which the theories of the ‘urban project’ spread in the field of social housing, with an exchange of ideas and references mainly involving Italy and France.

From here, then, and within the chosen framework, three metropolitan contexts (Rome, Milan, and Paris) are studied, where three case studies are identified with an instrumental role in exploring and preparing some reactivation strategies for their bases, already framed by three pilot case studies that build, as mentioned above, a thematic and chronological reference framework (3).

Examples that deal with various themes: from the optimization of modern-type flows to the Quaronian theory of the “territorial and ordering sign”, from more rupture cases that make their way, especially after the crisis of the model given by the large dimension to others that see the “proliferation” (4) of the built environment as a “recipe” for the creation of relational spaces that, after all, will not succeed in functioning optimally. The “suffocating regulatory conditions” (5), on the other hand, left little room for the evolution of these theories on the importance of the relational space of these districts, expressing a certain discomfort of designers in operating in these contexts. Therefore,

the explorations of these districts are instrumental in producing drawings and solutions that, collected in an atlas and interpreting these spaces as places rich in city ideas, want to take a stand against those simplistic, destructive, or generic interventions often advocated by administrations. More operationally, the study of these ensembles starts from a comparison of visible and invisible traces, given by the practices of use of these bases (*traces of use*) and by the presence of a rich archival material that can define, in an open way, orientations on which the project can refer to the unfinished (*traces of absence*).

In this way, “active memory” (6) of these public grounds is defined as a vast “archive” from which to draw in order to give new directions and new ideas to the contemporary project, a more solid and instrumental support.

Urban stereotomy, therefore, enriched by the research of an active memory, intends to confirm the importance and value of these spaces at the basis of mass housing districts, orienting contemporary design and rehabilitation towards reflections that take into more significant consideration the compositional values in which these grounds are rich, showing how integration between contemporary needs and respect for often unfulfilled ideas of the city can be reconciled or at least imagined.

Notes

(1) Reference is made to the discipline of stereotomy as described by Gottfried Semper in *Der Stil* (1863), not only with regards to the attributes and possible interpretative transfers to the object of research, but also for the representation technique itself used to better illustrate the processes, with a predilection for the section and the “trait urbain”. The geometric definition of a “cutting surface” is central to this discipline, and is widely described in French treatises on the subject, especially from the second half of the 15th century to the second half of the 18th century.

(2) See the article written by the design group Eupalinos Corner, “Deux hirondelles font peut-être le printemps.” *L’Architecture d’aujourd’hui*, no. 174, juillet-août (1974): 43.

(3) The case studies selected within the thematic and chronological framework are: *P.d.Z. Val Melaina*, Rome (De Feo, Bonamico, Costa, Maltese); *Bovisasca-Cerkovo* district, Milan (Consadori, Manzoni, Prusicki); *quartier Des Deux Parcs-Luzard*, Noisiel and Champs-sur-Marne (Arretche, Pingusson, Dugas, Van Bellinghen)

(4) G. Monnier & R. Klein (Ed.), *Les années ZUP* (Éditions Picard, 2002). We are referring to that design trend that was very present at the beginning of the Seventies in French social housing which tended towards the fragmentation and “proliferation” of residential volumes, as underlined by Monnier.

(5) Giorgio Ferraresi, “L’abitazione e le politiche urbane.” *Casabella*, no. 459 (1980): 27-34.

(6) Bruno Fortier, *Métropole Imaginaire* (Mardaga, 1989). Bruno Fortier speaks of this in his *Métropole Imaginaire* describing precisely how it is possible to refer to an “archive” of drawings and tracings which, in the city of Paris, have been able to construct a veritable ‘laboratory’ within which it is also possible to operate and read the foundation of specific ‘stable structures’ of the contemporary city.

RE-ACTIVE SCHOOLS. METHODS AND DESIGN AC- TIONS FOR THE SCHOOL HERITAGE WITHIN SEISMIC ITALY

PhD Candidate: Greta Maria Taronna - Su-
pervisor: Prof. Ilaria Valente - Co-Supervi-
sors: Prof. Claudio Chesi, Prof. Emilia Cor-
radi, Prof. Wessel de Jonge (TU Delft)

Greta Maria Taronna, Re-think, Re-draw, Re-active - a strategy of interaction between structural reinforcement and space for the "A. Pecorini" school in Gorizia, 2021 - *collage*.

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Schools built in the 1950s-70s constitute more than half of all active buildings of this type in Italy. A heritage with an average age of more than 50 years ⁽¹⁾ that, due to its conception period, presents different degrees and types of fragility. Among these, its structural vulnerability is the starting point of this research that, based on the assessment of specific seismic risk factors, investigates strategies that, alternative to widely diffused technical and emergency approaches, aim to integrate the design of necessary structural reinforcement and securing of the legacy with the improvement of its spatial qualities.

This research aims to develop strategies for the seismic risk prevention and adjustment of the Italian modern architectural heritage by experimenting with a design-based methodology. Specifically, the research subject is school buildings, realized between 1950 and 1970, with reinforced concrete structures in seismically vulnerable areas. A field of investigation whose relevance and topicality are confirmed by national and institutional interest ⁽²⁾, for which architecture and the actions of the architectural project, too often held on the sidelines, must once again play a central role. The data provided by Anagrafe dell'Edilizia Scolastica (AES) and by Fondazione Agnelli's Rapporto sull'Edilizia Scolastica (2020) reveal that, among the active schools in Italy, more than half were built between the end of the Second World War and the end of the Seventies, a fertile period for both typological experimentation and the heated debate about schools ⁽³⁾. The currently in-use school heritage, most of which was built more than fifty years ago in a context of poor awareness of the Country's seismic vulnerability ⁽⁴⁾, reveals all its fragility and urgency of adjustment, especially in consideration of the strategic role it fulfills. In particular, the research interest is focused on those buildings designed by architects defined as minors ⁽⁵⁾ who,

between 1950-1970 and following the establishment of Centro Studi per l'Edilizia Scolastica ⁽⁶⁾ in 1952, conducted research and developed solutions capable of revising schools from a typological, formal, and structural point of view. Behind this decision lies the awareness that these buildings, bearers of strong compositional and spatial qualities that are more often than not unrecognized, are more easily exposed to interventions that, mainly aimed at ensuring the safety of their spaces through structural adjustment, result in solutions that are disrespectful of their original architectural design. The objective is, therefore, to explore, by means of design exercises, alternative solutions that can interact with the building to adjust it to current structural (but also spatial and pedagogical) requirements, in dialogue with the architectural space and contrasting with the most widespread emergency practices that, all too often, irreparably modify architecture. Through the use of specific tools, including the MiC's 20th-century heritage census, AES data, period publications, and sector archives, it was possible to systematize recurring issues and select three Italian case studies (Primary school "A. Pecorini" in Gorizia by Roberto Costa - 1954-59; Art institute "E. Mannucci" in Ancona

Schools

Seismic Risk

Design Methodology

by Paola Salmoni - 1962-67; Secondary school “P. Maroncelli” in Forlì by Ciro Cicconcelli and Luigi Pellegrin - 1963-70) on which to elaborate - following a careful study of the original projects’ compositional features, current state and the identification of structural fragilities also associated with formal solutions - a design methodology that, through experimentation on buildings with more distinct architectural qualities, could subsequently be applied, with greater degrees of flexibility, to the broader widespread school legacy. Considering, then, the potential for developing and applying a design-based methodology - understood as a tool for inquiry and response to issues linking seismic risk to the quality of space - the research opened up a parallel field of investigation. This last one, identified in the Groningen province in the north-east of the Netherlands - an area exposed to induced seismicity due to natural gas extraction - was allowed to be verified, through direct

experimentation on a comparative case study (the “Bisschop Bekkers” primary school designed by Jaap Wilhelm in 1965-66), the method’s applicability also to risk contexts and building typologies that differ in some features.

The design experimentations developed, finally collected in thematic abaci, made it possible to directly identify the interactions and implications that the structural intervention (fundamental and not procrastinable) and its components may have on the architectural space and on the original typological characteristics of the building (layout, modifications of the teaching spaces, interactions with the open spaces and elevations).

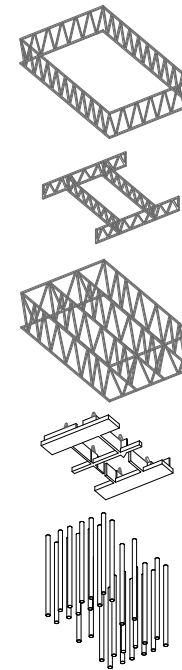
The developed solutions can establish a methodological guide aimed at orienting possible interventions in specific contexts and buildings, but also at encouraging and opening up a reflection on the effects that emergency actions, such as structural adjustment, can have from a spatial point of view not only in school buildings but, in a broader sense, on the built environment. Questioning the validity of methods applicable to the existing legacy is the ultimate aim of the research, which proposes to draw considerations from direct experimentations while leaving the field open to further interpretations.

Notes

- (1) According to the data released in 2015 by *Anagrafe dell'Edilizia Scolastica* (AES) and systematised in *Rapporto sull'Edilizia Scolastica* (Fondazione Agnelli, 2020).
- (2) Over the last ten years, and especially following the most recent earthquakes that hit central Italy, numerous funding plans have been promoted at an institutional and governmental level to carry out a reconnaissance of that school heritage which, built precisely between the 1950s and 1970s in seismic risk areas and with reinforced concrete structures, required adjustment interventions.
- (3) Consider the 12th Milan Triennale on the subject *La casa e la scuola* (1960).
- (4) Italy was only classified in four seismic risk areas with OPCM 3274/2003
- (5) Professionals who, operating in regional or more marginal contexts of our Country, did not benefit from the same recognition as the so-called masters, even though they were able to experiment design solutions that were particularly valid from a spatial point of view, representative of the typological, material and technological research of that period.
- (6) *Centro Studi per l'Edilizia Scolastica* was set up upon the initiative of the Italian Ministry of Public Education and comprised a commission of architects, pedagogists, doctors and administrators coordinated in the first period (until 1958) by Pasquale Carbonara. Their aim was to examine the building’s shortcomings and revise the schools to compel the renewed pedagogical and architectural necessities already spread worldwide.

INVISIBLE FORM. NARRATIVES OF FORM AND STRUCTURE THROUGH FOUNDATIONS.

PhD Candidate: Gino Baldi - Supervisor:
Prof. Carles Muro



The research starts from some main questions around the relation of form and structure, like: is the form invisible? What are the ingredients that define this character? How do these ingredients influence the visible parts? To answer to this questions, it is necessary to explain some pre-requirements. The thesis investigates the relationship between form and structure through the foundation component, and investigates form as an intrinsic rule capable of connecting every part of the building, visible and invisible, through the hidden clue of the foundations.

The research wants to highlight design cultural quality of foundations, considered not as an isolated element, but as a symptom, a clue to the syntheses of an entire building. It is a study on how foundations influence the general form of a building. The structure of the thesis is divided in four main chapter. In a first part the topic of form and structure were treated. Starting from form as a totality, in relation to structure, it was understood how to divide and disassemble the topic, considering totality as a unit between different components. From here a component was selected, unusual and invisible to explain visible parts. Foundation becomes a clue, in a reverse of sense, in bottom up reading. It is an analysis of intrinsic rule of form. It is a biopsy of architecture. Ground connection was identify as a crucial point in the definition of form, the point where all the tensions (in terms of composition and load) arrives. It is a threshold point, of loads and meanings. It is a threshold from an idea to construction, where architecture become linked with earth crust. A state of art, around the topic of ground connection was made, discovering different important books that frame this topic and knowledge, with different consideration about how a building is linked or not with ground. Summarizing and schematizing it to some common

condition (Berlanda - Interlock, adhesion, detachment) ⁽¹⁾ (Steven Holl - on the ground, under ground, above ground) ⁽²⁾. Following questions were about, what is the thickness of this connection? which are components that identify this part? From here, the thesis crosses the ground line, the line of consideration and the line of knowledge, little regarded, to investigate the topic from the point of view of foundations in a cultural way. Form as a compositional quality, is linked with visibility, so the thesis tries to explain its role from a hidden element, like foundations, to trigger different knowledge. Foundations show an ambiguous aspect, fundamental but hidden, necessary but forgotten underground. It reminds to the definition of Carlos Martí Aris ⁽³⁾, about casting form, necessary but hidden, that disappear when the construction process is over. So how to make this component visible, in terms of culture and design knowledge? The research moves from a non-technical point of view, looking and filtering cultural value from different disciplines such as engineering, geology or history searching order in scattered information. Foundations are not considered in terms of tons but in terms of cultural and imaginary framework, as defined by Angelo Ambrosi ⁽⁴⁾. It is necessary to change the radar of consideration to make

Form and Structure

Foundations

Invisible Architecture

foundation visible, like when one looks at invisible ink or invisible airplane. So the research uses foundations as a clue paradigm (5), an unusual element, considered to explain the topic of form, able to highlight unknown quality. The clue paradigm take reference from the bottom up view of John Weaver (6), about the study of biological roots that are able to explain areal phenomenon of plants; or the decontextualization of Daniel Shodek (7), considering art works from a structural point of view; and D'Arcy Thompson (8) for the structure in hidden components. Similarly, the methodological mechanism implemented is that of decontextualisation, taking a given element or topic, studied in a given field in a little-explored light, shifting the context of reading. Through this type of mechanism, it is possible to contribute to a development of knowledge of the element itself as well as the sphere in which it is usually analysed. It is thus possible to develop and re-read projects that have already been extensively analysed from a

different point of view, contributing to the knowledge of the subject. A first way to try to give an order to cultural value of foundation is the X foundations. If foundations have an unknown value, there is an X, like in algebraic operation, where it is a substitute cultural value to this X. So foundations become as a place, memory, myth, ruin, palimpsest, space. Another important point to define an order of the topic was the foundation archive, a selection, collection as redrawn of building that use foundation in a compositional way. This is not just a list of examples, but a list of reference, a design tool. Through the list of examples, a comparison between strategies is triggered, like in the plants roots. A first way to make a critical comparison among examples, was a simple collection of building along the same imaginary section, through time and space, highlighting permanence and variation of foundations. It is a manifesto, it is a “foundationscape”. After a collection of knowledge in term of theory and building reference, the objective of the thesis was to test these things in a design way. Variations define the final part of the thesis and the research by design approach of the research, in the idea that transforms something is an intellectual activity, as define by Carlos Marti Aris (9). It is an experiment to connect research

with design dimension, understanding different possibility to analyse a building and its transformations. From the variations it was understood how a building can be investigated, studied through transformative exercises. At the same time, topics of investigation around foundations are studied and developed. It is understood how on the same foundation there can be several buildings; how different foundations define other buildings again, emphasizing the role, constraint and design value of foundations. Foundations alone have the ability to express the value and form of an entire building, like a constructive black box.

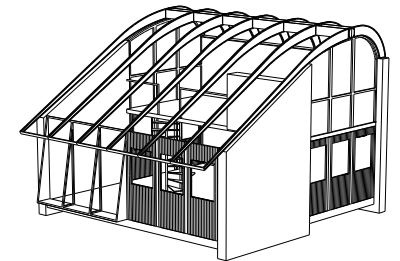
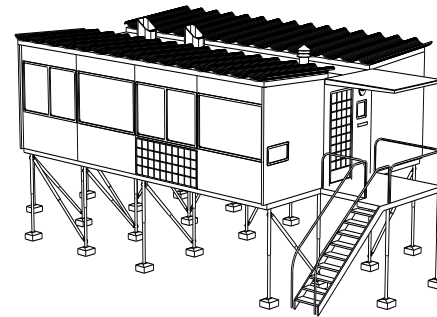
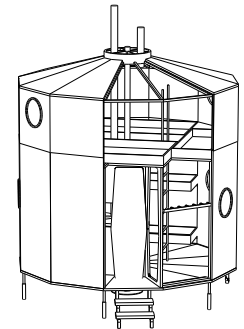
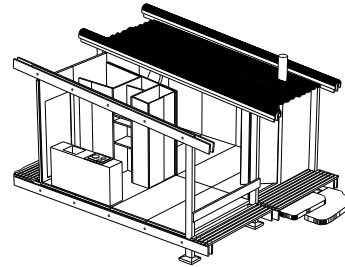
The thesis tries to contribute to a contemporary definition of foundation, defining a key to understanding the relationship between form and structure, attempting to move the foundation component from a technical to a cultural and compositional sphere, outlining a methodology for analysing and reading buildings in a bottom-up view, starting with the invisible components.

Notes

- (1) Tomà Berlanda, *Architectural topographies: a graphic lexicon of how buildings touch the ground* (Routledge, 2014).
- (2) Steven Holl, *Within the city: Phenomena of Relations Introduction, Correlational Charts* (MIT, 1988).
- (3) Marti Aris, Carlos, *la cèntina e l'arco. Pensiero, teoria, progetto in architettura* (Marinotti, 2007).
- (4) Angelo Ambrosi, “Le fondazioni dell'architettura,” *Lares*, Vol. 60, No.3 (1994): 305- 335.
- (5) Carlo Ginzburg, “Spie, Radici di un paradigma indiziario,” in Aldo Gargani, *Crisi della ragione. Nuovi modelli nel rapporto tra sapere e attività umane* (Einaudi, 1979).
- (6) John Ernst Weaver, *The ecological relations of roots*, (Carneige Institution of Washington, 1919).
- (7) Daniel L. Shodek, *Structure in sculpture* (MIT Press, 1993).
- (8) D'Arcy Thompson, *On Growth and Form* (Cambridge University Press, 1961).
- (9) Carlos Marti Aris, *Variations of identity. Type in architecture* (Editions Cosa Mentale, 2021).

PIERRE JEANNERET'S TECHNICAL EYE: TOPICS AND PROJECTS INTO THE POETIC THOUGHT OF HIS WORK 1922-1966

PhD Candidate: Oljer Cardenas Niño - Su-
pervisor: Prof. Orsina Simona Pierini -
Co-Supervisor: Prof. Carmen Espegel (ET-
SAM)



Oljer Cardenas Niño, 3D constructive reconstructions of the analyzed projects: *Le Tritirion*, 1937 (P. Jeanneret and Ch. Perriand), *Tonneau hut*, 1938 (P. Jeanneret and Ch. Perriand), *Maison dépliable et transportable*, 1941 (P. Jeanneret) and *Maison à étage*, 1944-46 (P. Jeanneret and Jean Prouvé).

In Pierre Jeanneret, the concept of technique appears to have the wealthiest and most diverse meanings. By studying his professional trajectory, we could conclude a journey in the study of technique, a polyhedral circuit in which he integrated disparate trends and aspirations of what architecture should be. Likewise, his extensive work allows us to observe the different declinations that can be made in the word technique, from the working methods, creating interrelationships between ideas and images, to the construction itself, with the various construction systems, materials, or details.

The thesis offers an interpretation of Pierre Jeanneret's technical thought through its work. It resorts to an argumentative construction, to an analytical and critical scaffolding: five series of projects enunciated by five themes that allow us to dissect his works. These are: "Construction à sec": industrialization and standardization; Prefabrication: assembly technique; Mixing Systems: traditional and industrialized construction; Masonry Construction: local techniques; and Column-and-Slab Construction: climate construction. Through them, it is possible to discover the complex and fortunate conjunction of romantic thought, according to which architecture resides in eternal principles and immutable laws, with the manifestation of a modern form of production that is heir to the positivism and pragmatism of the 19th century, which demanded the satisfaction of practical needs.

I present this series of themes and projects in the hope that the accumulation of examples, design instruments, and their various instances in which technique has been an essential part of the conception of architecture will shed light on the ideas presented and reveal Pierre Jeanneret's technical eye, providing new generations with a way of looking at technique in order to design.

"If there were some cataclysms and

there remained on earth only one or two architects among the boulders or in the trees, they would die very quickly because they wouldn't know how to use a boulder, how to use a tree, but I think Jeanneret, in any event, would always have managed to build something... I'm not sure that Corbu would have" ⁽¹⁾

During a 1983 interview, Jean Prouvé, gave high praise to Pierre Jeanneret, highlighting his technical and unassuming nature with a fine tribute. In keeping with Jean Prouvé's resounding words, Pierre Jeanneret has been recognized for possessing a unique set of skills that are typically associated with professionals in various creative fields such as manufacturing, design, photography, and architecture.

These skills include technical proficiency, scientific expertise, and an acute sense of aesthetic sensitivity. Pierre Jeanneret's technical competence was essential to his success as an architect and designer. He was known for his ability to apply engineering principles to his designs, ensuring that his buildings were not only aesthetically pleasing but also structurally sound and functional. He possessed a deep understanding of materials, construction techniques, and manufacturing processes, which allowed him to create designs that were both innovative and practical.

Pierre Jeanneret, who remained

Pierre Jeanneret

Technique

Construction

anonymous, found his way through his collaborations with architectural luminaries such as Le Corbusier, Charlotte Perriand, Jean Prouvé, and Dominique Escorsa. While his name might not resonate with the same intensity as his co-workers, his technical and constructive skills were instrumental in executing numerous projects throughout his career. His ability to problem solve and his skill in materializing the ideas of his collaborators were pillars that underpinned many iconic works. Jeanneret was a master of combining aesthetics and construction, leaving a lasting legacy that transcends individual labels to embrace the greatness of teamwork in architecture and design.

“Construction à sec”: for Pierre Jeanneret, industry and technique are the expression and solution to the problems of construction; the search for simplicity between these two - industry-technique - is one of his main concerns, as he reflects in a letter sent to Le

Corbusier: *“L’industrialisation demande des simplifications partout. Ce ne sera jamais assez simple. Je dis simplification des éléments et des combinaisons de ces éléments dans l’ensemble”*

(2). Such a thought generates that the industry applied to the materiality of the construction, and the standardization of this materiality must be reflected in the same way in the attitude towards the project. This is the reason that gives rise to an architectural and constructive solution for this productive research, the *“maison à sec”*.

Prefabrication: With the war, the magnitude of the destruction and the labor shortage made the idea of prefabrication become a slogan, a panacea to rely on to build and rebuild quickly at the lowest cost. Pierre Jeanneret will explore with Charlotte Perriand and Jean Prouvé the prefabrication systems, based on the concept of constructive idea, characterized by the search for unity from the origin of the project, i.e., the project from its first sketches should be understood as the condition of concordance between the assembled parts, constituting a coherent whole in structure and function.

Mixing Systems: After the war, we can observe a change of attitude with respect

to the industrialized vision of architecture of the first two chapters: “another research was followed: to resume contact with the dignified and fundamental materials of architecture: the brick, friend of man; the raw concrete, also a friend, the white plastering, friend of man; the presence of intense colors that provoke joy” (3). The appearance of load-bearing walls in stone or brick and the mixture with industrialized systems will show a transition in Pierre Jeanneret’s work between his European work and his future work in Chandigarh.

Masonry Construction: Upon his arrival in India, Pierre Jeanneret was faced with a situation where the underdeveloped industry could not be the solution to the construction of the new Punjabi capital, Chandigarh. Techniques and materials will be the solution for the fast and efficient construction of the city. The use of brick will predominate as P. Jeanneret writes: *“La brique est le matériau approprié à Chandigarh. Ce n’est pas une brique surcomprimée, mais cuite au four, de belle couleur et d’une texture ridée comme la paume de la main, à mon avis très belle”* (4).

Column-and-Slab Construction: Unlike its residential works where brick predominates, the public works for Chandigarh will emphasize the use

of concrete. Its use will be studied in such a way that it will help the internal comfort of the buildings, where passive systems of natural lighting and ventilation predominate. In addition, a system of columns and slabs is established, which will be declined in various ways, obtaining different buildings.

Through these five themes, it is possible to discover the complex and fortunate conjunction of romantic thought, according to which architecture resides in eternal principles and immutable laws, with the manifestation of a modern form of production that is heir to the positivism and pragmatism of the 19th century, which demanded the satisfaction of practical needs. I present this series of themes and projects in the hope that the accumulation of examples, design instruments, and their various instances will shed light on the ideas presented and reveal Pierre Jeanneret’s technical eye, providing new generations with a way of looking at technique in order to design.

Notes

(1) “Interview with Jean Prouvé”, AA.VV, *Jean Prouvé: The Poetics of the Technical Object*, (Skira, 2007), 200

(2) Pierre Jeanneret to Le Corbusier, Letter dated October 16th, 1944. Fondation Le Corbusier.

(3) Willy Boesiger (ed.), *Le Corbusier, Oeuvre complète. Volume 4, 1938-46* (Birkhauser, 1995), 130.

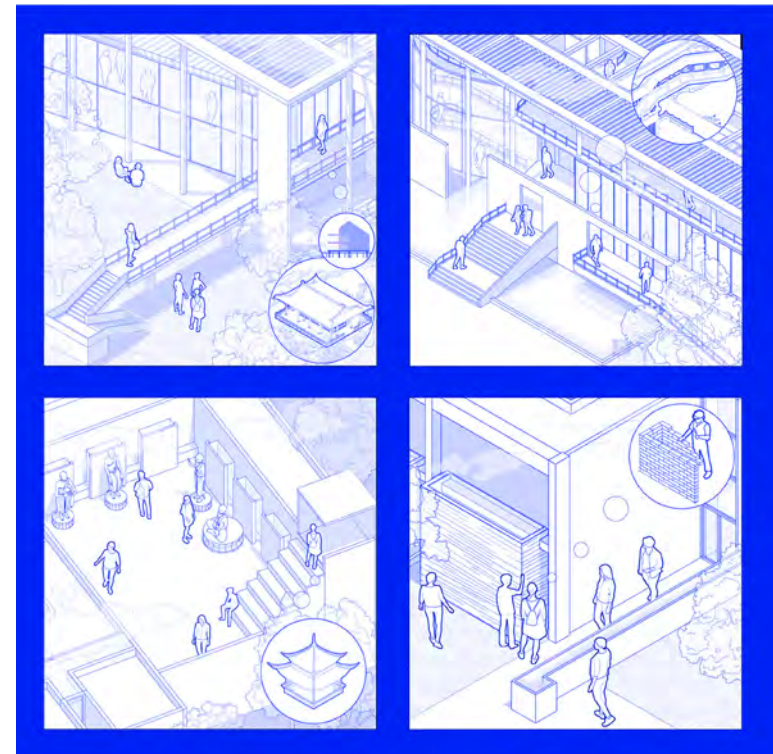
(4) Pierre Jeanneret, “Incidences des techniques locales,” *L’Architecture d’Aujourd’hui*, no. 67/68 (1956): 180.

BEYOND LOCAL IDENTITY. LIU JIAKUN AND WANG SHU'S INTERPRETATIONS OF TRADITIONAL LEGACY

PhD Candidate: Lu Zhaozhan - Supervisor:
Prof. Marco Bovati - Co-Supervisor: Prof.
Cassandra Cozza

Zhaozhan Lu, Beyond Local Identity, 2024.

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Starting from the practice of two pioneering contemporary Chinese architects, Wang Shu, and Liu Jiakun, this research aims to investigate how comprehensions of Chinese architectural identity were informed by their acquaintance with traditional legacy, thus extending these comprehensions to the practices of more contemporary Chinese architects. The re-examination of these practices offers the opportunity to reconsider the core of identity in contemporary architectural design in relation to issues that remain relevant today and in the future.

The relationship between tradition and the present has been an ongoing issue in the development of Chinese architecture, and the introduction of post-modernist theories has provided more possibilities. Against the background that existing Chinese architecture generally presents a loss of identity, the current active architects have shouldered more responsibilities since their architectural professions grew up in a period of diverse thoughts.

The self-construction of the contemporary Chinese architecture identity cannot be separated from the context of cross-cultural discourses. After the reform and opening up and the rising individual architects, most of whom had access to post-modernist architectural theories during their professional studies, had the opportunity to communicate with the world in theory and practice and rejoined the worldwide discourse. Therefore, starting from the practice of two pioneering contemporary Chinese architects, Wang Shu, and Liu Jiakun, this research investigates how comprehensions of Chinese architectural identity were informed by their acquaintance with traditional legacy, thus extending these comprehensions to the practices of more contemporary Chinese architects. The re-examination of these practices offers the opportunity to reconsider the core of identity in

contemporary architectural design in relation to issues that remain relevant today and in the future.

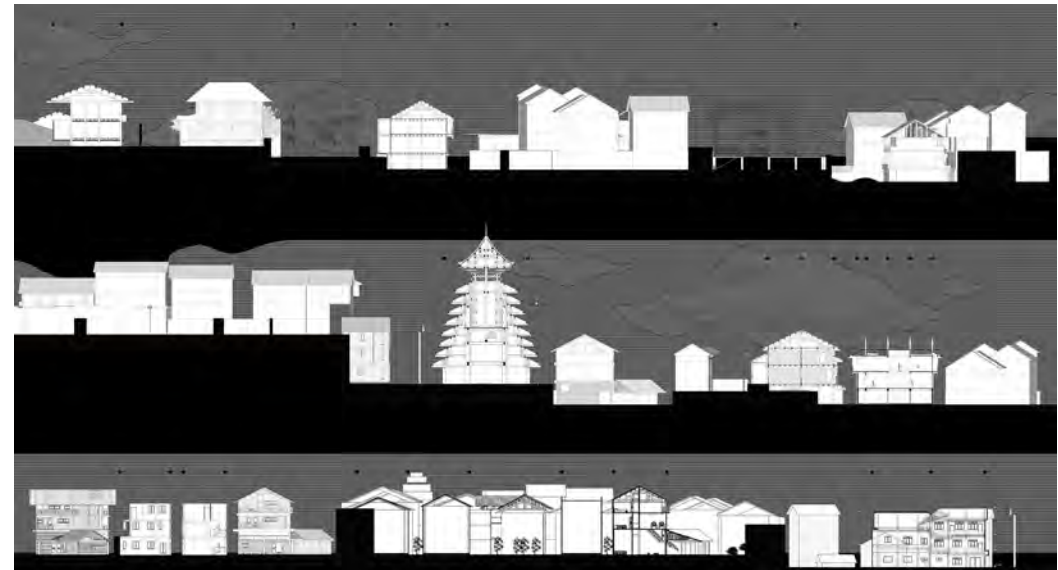
By revealing these Chinese contemporary practices of joining the world discourse and their development trajectory, this research seeks a critical approach to developing contemporary architectural identity through the place in China and to provide reflections on Western-based theories.

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EPIPHANY IN VERNACULAR. ADAPTIVE CONSTRUCTION IN DONG ARCHITECTURE

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Prof. Alessandro Rocca



Adaptive construction research will focus on the continuation and the expansion of the vernacular in contemporary architecture creation from the following aspects:

- The construction site and layout, volume and scale, building materials, and construction technology.
- The development and expansion of tradition, flexibility of architecture space, simplification, and expansion of vernacular elements.

In recent years, we have witnessed an intensification of modernization with destructive effects on the traditional minority settlement. In the environmental crisis of climate change, the increase in risk generates, on the one hand, new vulnerable environments, which will correspond to a growing need for security. On the other hand, global interest in the concept of calling back tradition and the vernacular identity. Instead of replacing the components of a traditional residential structure, the idea of adaptive construction is to continue the local tradition, enacting a process of reactivation to develop a set of strategies for maintaining the vernacular techniques and structures between reservation and innovation. It addresses the protection of vernacular craftsmanship, the footstones of vernacular settlements, their irreducible structure, and the system on which local culture depends. Structures such as Chuan-Dou and Dou-Kong are, in fact, the representation of culture and tradition in Chinese vernacular architecture and the first vernacular techniques to be replaced in the renewal of modernization. Considering a rural revitalization background as a potentially unstable context with vernacular architecture must teach us to learn from the vernacular and local craftsmanship for a project's functional or formal dynamic and its relationship to a state

of update. It discusses the permanence and stability of vernacular architecture, extracting the inherent elements such as traditional layout, materials, techniques, and structures.

Although modernization has caused some damage to traditional dwellings, the relationship between them is not one and the same and can also be complementary. Treating original materials in a modern way can significantly improve their longevity and thermal performance; working with local craftsmen to build new houses from traditional structures allows the new project to blend in with the local climate and landscape to the greatest extent possible, continuing local traditions; selecting old elements from old houses can create new spaces while saving costs.

This research, thus, rather than investigating univocal solutions, aims to shape a range of possibilities that underpin the design of an adaptive construction reflected by the vernacular and prepared to face possible modernization updates.

Vernacular architecture is not merely a passive carrier of social projections but also a creator of human societal and cultural dynamics. "Craftsmanship" emphasizes the significance of bodily/tool craftsmanship and the construction process in vernacular building. Tools are seen here as extensions of the body.

Vernacular Craftsmanship Adaptation

Locally, artisans' work encompasses not only material, linguistic, and intellectual labor but also continuous production or fabrication of bodily perceptions. The labor products of artisans directly impact homeowners' bodies, emotions, and identities, essentially constituting a form of "biopolitical labor" acting upon the body. Furthermore, the construction and use of vernacular architecture entail an ongoing embodied practice, where craftsmanship is not merely a materialized bodily technique but the capacity for perception and action in building within multilayered environments. Thus, the "craftsmanship" discussed here is livelihood-dependent, socially, and bodily labor-oriented, primarily existing as bodily skills. The bodily skills in vernacular architectural construction entail active contemplation of nature, society, culture, and human beings, stemming from the entire relational system formed through the interaction between artisans and their spatial environments, continuously

evolving, differentiating, and strengthening through intergenerational transmission. Bodily skills are constrained by social and cultural contexts while actively contributing to overall socio-cultural transformations. Construction here echoes the positioning of craftsmanship, emphasizing the bodily ontological role in construction and the accumulated wisdom of craftsmanship, akin to the various artisanal endeavors described by Mr. Zhu Qiqian as "the hundred crafts. (1)" This study adopts the concept of "local knowledge (2)" as elucidated by anthropologist Clifford Geertz, wherein the core connotations of the term entail:

- its fundamental function in interpreting culture;
- its interpretation of social discourse flows rather than specific cross-sections or slices;
- adherence to its "narrative" original meanings and articulation in a retrievable discourse form for authentic reconstruction when necessary;
- its descriptive nature in practical activities is microscopic.

Viewing local knowledge from the perspective of builders' bodily/tool craftsmanship, firstly, regardless of the consensus that architecture itself serves as a vessel of human culture, and secondly, the eventual formation of a stable

vernacular architectural type inevitably involves a transmitted experiential knowledge that undergoes a process of communal selection and identification, constituting a social discourse flow closely associated with vernacular architecture. Thirdly, local knowledge encourages the study of construction craftsmanship in "real" contexts, starting from artisans' bodily experiences, which is an aspect deserving special attention in vernacular architectural research and provides a robust methodological approach for interpreting vernacular architecture. Lastly, the application of local knowledge in contemporary local construction practices necessitates attention to minor details, emphasizing the nuances of construction, structure, and processes. The localized knowledge decoded in this study regarding the construction process, construction craftsmanship, and specific choices of vernacular architecture as a cultural carrier is an anthropological investigation focusing on craftsmanship and the construction of vernacular architectural research perspectives based on bodily skills. Simultaneously, it advocates for the exploration of diverse pathways in contemporary local practices based on the revival of craftsmanship. In current research and practice of vernacular architecture, the paradigm shift in construction brings about

dilemmas for vernacular construction, with a tendency for vernacular practices. This study aims to elucidate the significance of "craftsmanship" in vernacular architectural research from multiple perspectives. Simultaneously, it seeks to stimulate more architectural researchers to engage with the agency of "craftsmanship" in addressing issues related to vernacular construction, thereby revealing the localized knowledge embedded in craftsmanship and its position within the disciplinary and knowledge frameworks of indigenous Chinese architectural construction research.

Notes

(1) Qiqian Zhu, *Records of Philosophers* (China Construction Industry Press, 2005).

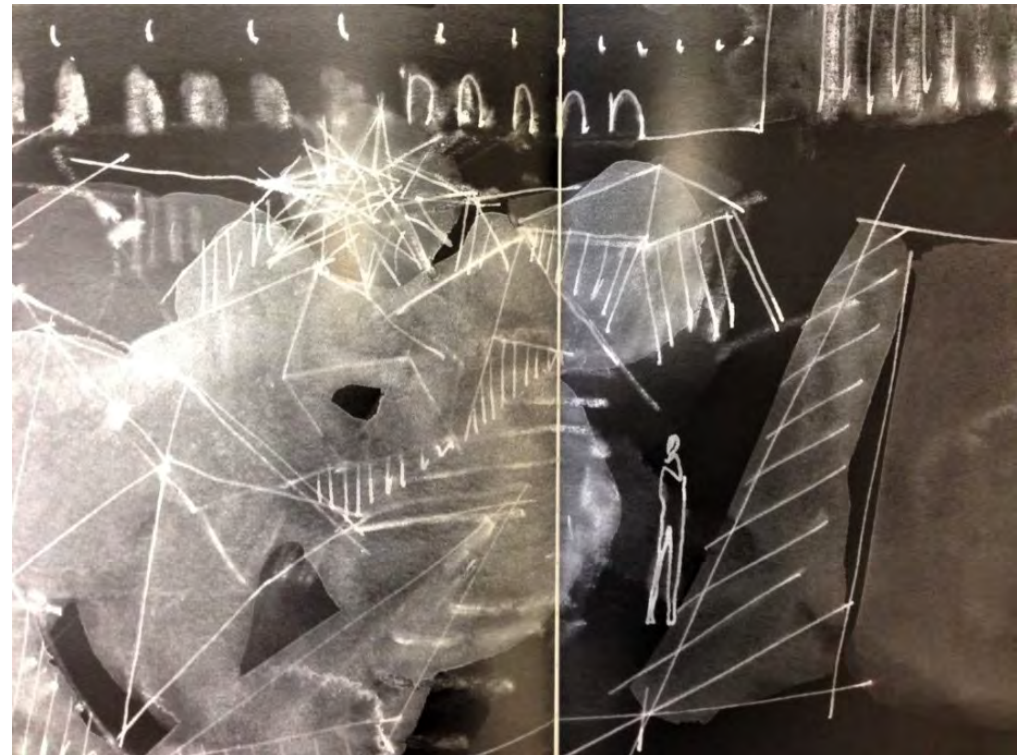
(2) Clifford Geertz, *Local Knowledge: Further Essays In Interpretive Anthropology* (Basic Books, 2008).

AFTER-DARK REGENERATION. LIGHT AS BUILDING AND RELATIONAL MATERIAL IN THE DESIGN OF URBAN SPACES

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Prof. Stamatina Kousidi

Aya Glida, After-Dark Regeneration: Light as Building and Relational Material in the Design of Urban Spaces, 2024.

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The relationship between light and built form has long been a subject of exploration in architectural design research. Although half of our lives happen after dark, research in architectural design has mainly been concerned with daylight and built forms in connection to interior spaces. The architecture of the nocturnal urban setting, and by extension, the role of light in the definition of the latter, has been underexplored, and it is the topic of this thesis.

In particular, the thesis focuses on the role of lighting as a building and relational material. On the one hand, it provides an in-depth exploration of design practices that explore lighting as a tool for after-dark urban regeneration. On the other, it examines how the process of after-dark urban regeneration is combined with placemaking, hence exploring light as relational material. It considers social lighting, an emerging approach that recognizes light as a significant social material, arguing that it can activate connections between a specific urban space and the local community. Hence, the thesis seeks to explore how light may be integrated into the design of urban spaces by exploring the multifaceted relationship between forms of light and built forms, light and spatial sequences, light quality, and urban space in the after-dark context.

The first thesis Premise posits that the relationship between forms of light and architectural forms is multilayered, suggesting a dynamic interplay where light both synergizes with architectural forms and also has the potential to create architectural forms. The second Premise is hypothesized that forms of light in environmental design transcend mere technical considerations, encompassing both performance and poetics. This hypothesis suggests that architects engage with light as a medium of poetic

expression, employing it to create spatial experiences and atmospheres. The third Premise: This hypothesis extends beyond the role of lighting solely on architectural forms and delves into its potential influence on creating meaningful/ attractive/ quality public spaces in the city and promoting urban regeneration. The assumption is that strategically implementing social lighting interventions in the built environment makes it possible to regenerate public spaces After-Dark and, notably, improve their quality.

Research Objectives

- (1) Examine the relationship between forms of light and built forms to understand the themes and strategies that light works in synergy with architectural forms, actively contributing to the creation of architectural forms. This also refers to artificial lighting drawing upon the natural light qualities in order to create a comfortable and visually appealing environment through exploring contemporary seminal theoretical works that explore intersections between natural and artificial lighting, between light and form-giving processes in architecture and between lighting and spatial design.
- (2) Trace the evolution of environmental design and its relationship with light to elucidate the intricate interplay between technical and poetic intentions

Forms of Light

After-dark Setting

Urban Regeneration

in environmental design, particularly concerning the use of light. This includes examining the philosophies and design practices of architects such as Louis Kahn, Tadao Andō, Peter Zumthor, and Steven Holl

(3) Investigate how light contributes to the After-dark regeneration and placemaking process to improve public space quality; this involves analyzing existing literature and case studies and defining the concept of social lighting and its role in this regard.

(4) Utilize the findings from the examination of the relationship between light and architectural forms, and public spaces and the investigation of how light contributes to after-dark regeneration and placemaking processes to inform targeted interventions aimed at enhancing architectural forms and improving public space quality in Tripoli After-Dark. The thesis structure is divided into two main stages:

Stage One

The Theoretical Framework, entails an

analysis of theoretical discourse and architectural practices related to the topic of investigation. This part explores how lighting influences architectural form both visually and functionally. It explores light as an essential part of the architectural environment and the pivotal role that light plays in shaping the spatial experience. The discussion extends beyond considering light as a building material, it also underscores its significance as a material that reflects a unique cultural setting. It explores three specific geographical contexts (Japanese, Scandinavian, and Mediterranean contexts). By examining how light is utilized in different cultural contexts, the thesis seeks to gain diverse insights into how the utilization of light in architecture has been imbued with cultural symbolism, and aesthetics unique to each cultural milieu. As the application case study (Tripoli) is a Mediterranean city, the focus on the Mediterranean context is particularly relevant as it enables us to draw parallels between Tripoli's cultural heritage and the broader Mediterranean architectural tradition. By leveraging this understanding, we can develop interventions that not only enhance the after-dark experience in Tripoli. Moreover, within this theoretical framework, certain architectural practices focus on the relationship between forms of light and architectural forms and

between the structure/design of light, program and space. Additionally, there are case studies that focus on five themes: (1) historical heritage preservation, (2) urban regeneration and renewal, (3) landscape (4) social inclusion, and (5) technology and sustainability, which are closely linked to the application case study. The chosen contemporary design references (case study analysis) provide a comprehensive understanding of the discourse surrounding the relationship between forms of light, architectural forms, and public space as well as the social agency of light. The analysis criteria are structured as follows: (1) form and geometry, (2) materiality, (3) spatial experiences and sequences, and 4) light and shadow.

Stage Two

The practical framework is oriented towards the application of the design experience, solutions, and strategies gleaned from Stage One to involve a comprehensive analysis of Tripoli's city center current situation in connection to the urban fabric, architectural forms, and form of light. The analyzing process for the Tripoli, Libya case study will use a mixed methods approach, which is a combination of the process of urban regeneration, placemaking, and design-driven research, also considering social lighting applications and will be

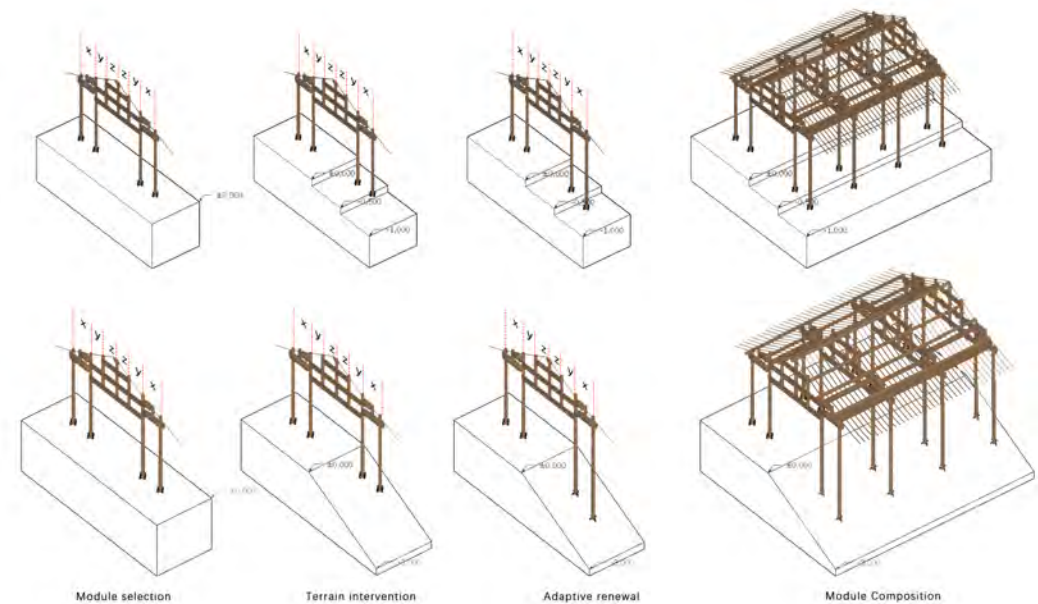
conducted in these steps: (1) identify the public space and target groups; (2) ethnographic and social research (observation, questionnaire, Interviews, documents, and artifacts); (3) evaluate public space qualities; (4) design vision and strategies development.

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SUSTAINABLE DESIGN AND CONSTRUCTION METH- ODS RESEARCH OF RU- RAL MOUNTAIN DWELLINGS FROM A MODULARITY PER- SPECTIVE

PhD Candidate: Ren Rui - Supervisor: Prof.
Ilaria Valente - Co-Supervisor: Prof. Marco
Bovati



Currently, research on the transformation of traditional Chinese architecture lacks consideration of the climate and topography of specific regions. In the process of rural regeneration, many contemporary architects often exhibit a lack of responsiveness to the natural environment, local customs, and architectural heritage. Thus, a model of continuous evolution is needed, whereby lessons from the past inform future evolutions. The introduction of modularity dissects the underlying complexities in the design logic of rural regeneration, trying to optimize current design methods.

The regeneration in declining rural areas and the accelerated reshaping of rural landscapes are enduring discourses worldwide. In China, this discourse has gained theoretical and practical significance with the introduction of the “Rural Revitalization” strategy. On the one hand, scholars advocate for the subjectivity of housing and residents, reconsidering the profound relationship between the subject of housing and the essence of housing and whether the meaning of architecture should point to life and existence. They raise questions about grassroots democracy in modern society and the limited role of architects. On the other hand, the vulnerability of grassroots society in China, the “virtualization” of grassroots communities, and the “non-modern state” of contemporary society have also made the architectural community realize the complex social situation. Therefore, utilizing modular thinking to address the complex problems of rural settlement construction becomes a feasible solution for contemporary rural residents to participate in collective design. But how is it possible to “break apart” a complex system without destroying it? How does one find the tightly connected modules in a welter of interdependencies? And how can the modules be separated from one another? This research aims to explain how

individuals with knowledge can split apart a large design with many innate interdependencies, thereby creating a modular design and task structure. Modules are units in a larger system that are structurally independent of one another but work together. The system as a whole must, therefore, provide a framework—an architecture—that allows for both independence of structure and integration of function. When people developed modular production systems, they adopted the laws that nature uses to create objects and forms: large quantities of units composed of interchangeable modules, division of labor, high standardization, growth caused by adding new modules, proportionate balance rather than absolute precision of scale, and production through replication. Emphasizing the widespread prevalence of modular forms in Chinese history does not negate existing development and changes. The trend towards growth, standardization, mechanization, and increasingly precise replication forms an integrated whole. In the Western value system, replication in art has traditionally been viewed with contempt. Walter Benjamin’s views have been influential, as he boldly claimed that an artwork loses its aura when reproduced through technical means. However, recent research has found that in medieval

Rural Regeneration

Modularity

Sustainability

European art, replication was indeed used to define artistic traditions and even enhance the emotional impact of specific works. Chinese artists have never lost sight of this perspective: mass-produced works can also attest to creativity. They believe that, just as in nature, variation continually emerges from similarities. To uncover the underlying logic of modules, it's necessary to start with an analysis of traditional architectural archetypes, identifying operational elements.

Subsequently, these elements must be analyzed to understand how they form sustainable connections with terrain, climate, materials, and human factors. Subsequently, a modular model can be constructed from three perspectives: space, interface, and node.

The Western Hebei mountain region has been chosen as the case study for this research. The village dwellings in this area possess typicity and significance influenced by climate and terrain. Additionally, due to the climatic and geographical divisions, cultures from

different regions intersect and influence one another in this area. The layout and characteristics of villages in this region reflect a significant fusion of cultures. In the mountainous regions of Hebei, the geological conditions with exposed rock formations have made stone the predominant building material. Furthermore, the vertical cliff terrain has contributed to the inwardness and seclusion of the culture. A blend of longstanding agricultural, postal, secular, and early Ming Dynasty immigrant cultures has persisted here, resulting in the preservation of a significant number of well-preserved stone-wood-framed rural dwellings and settlements. Simultaneously, the selected area is within the discussion scope of territorial marginalization.

The main research question is focused on extracting the design and construction wisdom of traditional architecture in the western Hebei mountainous areas from the perspectives of building form and village tissue and developing a precision practical set of contemporary rural housing design methods.

Sub-Research Question 1

How can traditional rural construction methods be effectively integrated with sustainable concepts and technologies on a global scale, distilling characteristic elements to compensate for the inherent

genetic deficiencies in the revival of Chinese rural areas?

Sub-Research Question 2

How can the methods and mechanisms of expression in mountainous rural design be analyzed from a modular perspective? It involves clarifying the adjustment mechanisms, influences, weights, and combination rules of various hierarchical modules.

Sub-Research Question 3

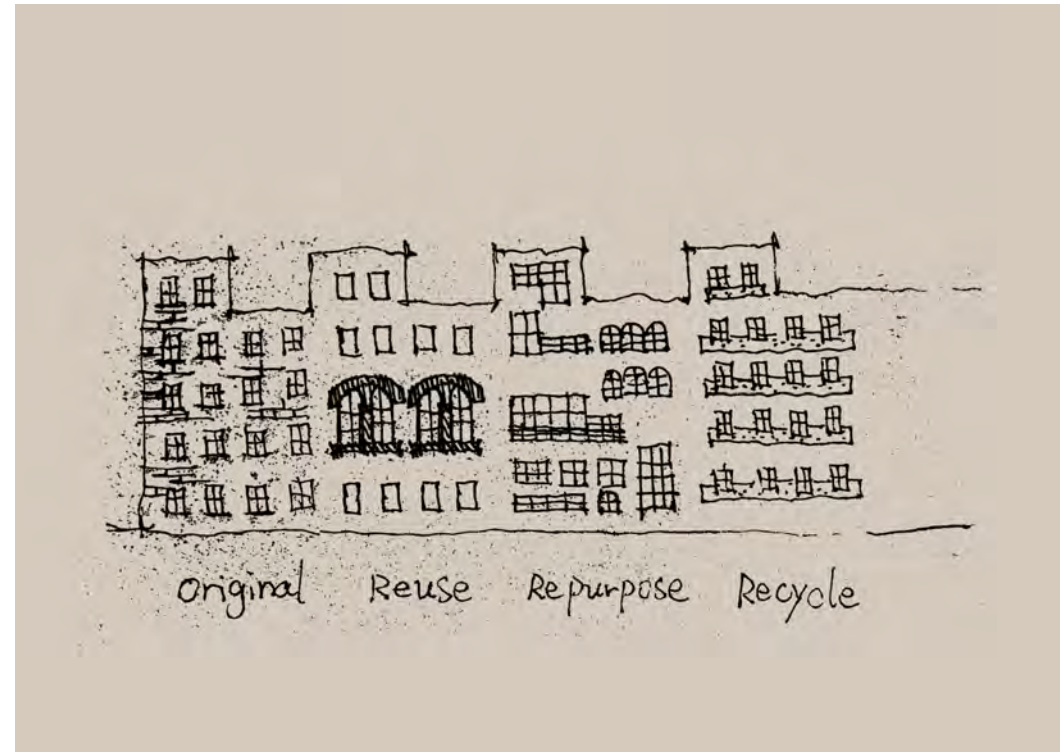
How to organically integrate architectural forms, regional context, sustainable design methods, and technological systems, utilizing a modular perspective to tackle the diversity in form and space in rural construction, select appropriate case studies, and develop contemporary design methods for mountainous rural areas?

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REUSE, REPURPOSING AND RECYCLING MATERIALS WITH UPCYCLING ARCHI- TECTURES

PhD Candidate: Zhang WenQuan - Supervi-
sor: Prof. Jose Maria Garcia-Fuentes



The world today is facing many environmental challenges, and the construction industry is a major consumer of materials. In this context, the demolition and recycling of buildings have become a topic of concern.

Upcycling architecture is a pivotal concept within this framework, reusing or repurposing waste materials or components into buildings of superior quality or utility. This research explores the relationship between different kinds of waste and architecture, including material processing, architecture design, and related sustainability issues.

With the continuous development of human society, the construction industry, as an important part of the social economy, is also constantly developing and changing. However, with the continuous expansion of the construction industry and the increase in construction activities, the excessive consumption of resources and the damage to the environment have become increasingly prominent. According to statistics, the construction industry is the main industry of material consumption, where wasting materials accounts for 65% of all the waste ⁽¹⁾ ⁽²⁾. In this context, waste materials and upcycling architectures are gradually receiving people's attention as a new concept and practice.

The concept of upcycling architecture stems from the re-examination and reuse of historic buildings. For example, in ancient buildings, stone from old buildings is often used for new construction or decoration work, which is called "spolia" and is one of the prototypes of upcycling architecture. Therefore, upcycling architecture is not only a modern concept but also the continuation and inheritance of traditional architectural culture.

Since the turn of the millennium, concerns about global resource shortages and climate change have been given more prominence than cases of environmental pollution. The discarding

of limited resources and the continued increase in energy consumption in order to produce unsustainable products have once again triggered a response from the architecture industry. Demolition may no longer be seen as a depletion of natural resources; instead, the design focuses on generating new architectural resources by demolishing the building and reusing its components and materials ⁽³⁾. Therefore, the first step of building upcycling is the treatment of materials.

Material reuse, repurposing, and recycling are common processing methods in the construction industry. It is important to distinguish the different roles that these three kind of materials play in architectural design:

Reuse denotes that a component is used the same way as before; it retains both its form (geometry) and its function (use category). For example, old door fittings are reused on new doors; Intact bricks that have been removed from an old wall are reused to build a new wall. As the case showed in *Living on Werderstraße* (2019), due to extensive structural defects, the Wilhelminian-era building could not be preserved. However, the historical sandstone elements lead a new life in the parapets of the loggias, and the street façade of the new building keeps its memory alive.

Repurposing denotes that the function of the material has been changed. For

Materials Upcycling Architectures

example, in 2016, architects Philippe Samyn and Partners carefully reused an old window at the EU Council headquarters in Brussels. The EU Council Chamber is surrounded by transparent reusable Windows that combine the diversity of specific cultures, histories, traditional forms, and technologies of European countries to form a protective fence around the conference center. Material recycling entails the dissolution of the form (e.g., by breaking it up or melting it down) and the reuse of the old materials in a similar production process, by which the function of the building material is often retained. For example, brick scraps are remade into sound-absorbing materials and affixed to building facades, and the waste metal is recycled as a waterproof and fireproof material (4). These three methods have applications in circular buildings, but reuse and repurposing are more important than recycling. Upcycling architecture describes the reuse and recycling of used building components or building materials in a

way that yields something of a clearly higher quality. Upcycling architecture highlights the result, which entails a better quality of building than before, like function or aesthetic property, and involves design intelligence. The material treatment of upcycled buildings includes not only the waste itself but also the symbols and memories contained in the building. Therefore, when dealing with waste materials, we need to pay attention not only to their material properties but also to their cultural and artistic values. Not only can resources be saved and reused through the reuse of waste materials, but architectural culture and historical memory can also be preserved and passed on. So, reuse and repurposing are more similar to upcycling architecture, and recycling destroys the traces of material use, making it completely new. The historical traces of materials are exactly what upcycling values are. When the waste material begins to affect the space, the design changes from material to architecture. The impact can be local, such as just a part of the wall or a part of the floor, but their reuse and transformation will directly affect the appearance and atmosphere of the entire building. The design of upcycled buildings requires full consideration of the existing material resources and architectural forms, as

well as the importance of architectural culture and symbolic significance. Designers should see architecture as a multi-generational project, moving from creator to contributor. Therefore, in the design process, we should adopt flexible design methods, make full use of existing material resources, and combine new design concepts and technical means to create architectural works that meet contemporary needs. In order to achieve the purpose of materials, we can take a variety of measures, such as the establishment of material registration, material mining and dismantling, material recycling and storage, the establishment of digital platforms for material trading, and quality assurance. These measures contribute to the sustainable recycling of materials and promote the sustainable development of the construction industry. In the concept and practice of waste materials and upcycling architectures, we can see a new way to save and reuse resources. Through the reuse and regeneration of waste materials, it can not only achieve effective use of resources but also protect and inherit architectural culture and historical memory and promote the sustainable development of the construction industry. Therefore, it is necessary for us to further study and promote the concept and practice of waste materials and

upcycling architecture so as to make greater contributions to the sustainable development of the construction industry.

Notes

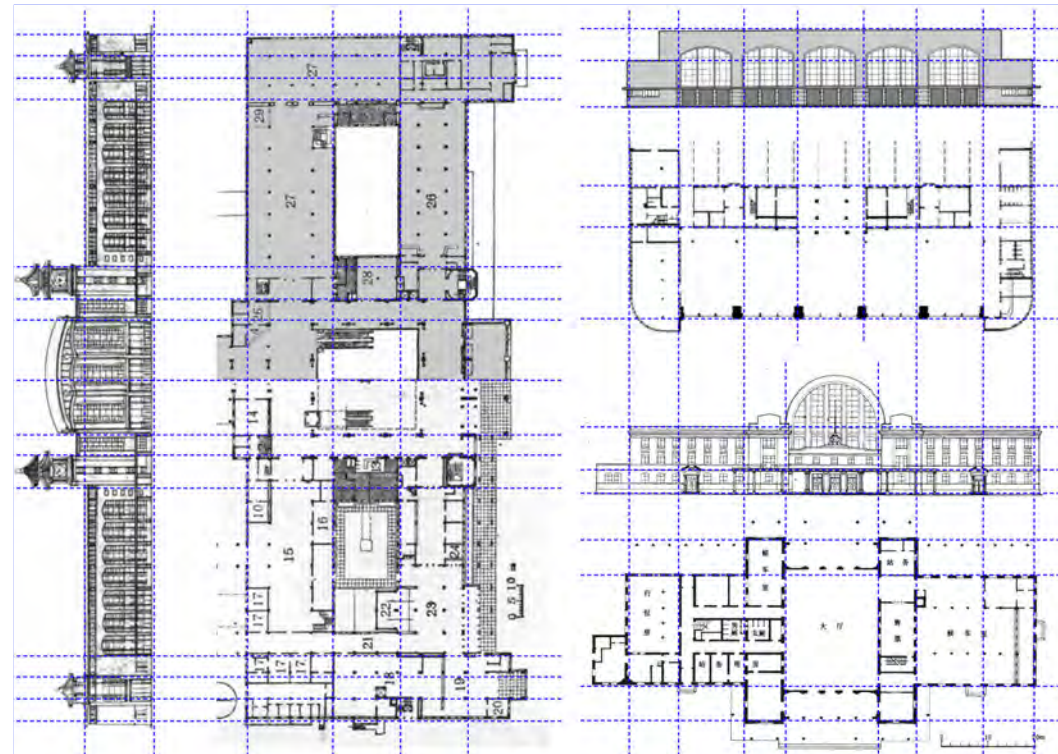
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ESSENCE-FORM-ARCHI- TECTURE: A CRITICAL RE- SEARCH ON THE WORK OF YANG TINGBAO

PhD Candidate: Zhong Yue - Supervisor:
Prof. Maurizio Meriggi

Zhong Yue, Essence-Form-Architecture: Critical Research on the Work of Yang Tingbao, 2024.

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The research starts from the theoretical and practical evolution of the relationship between essence and form in Chinese architectural debate, starting from the typological analysis of Yang Tingbao's composition method and his exploration and innovation in new Chinese architectural form. The tension between the core elements of “essence” and “form” is investigated and deconstructed to ensure an essential role for history and national culture in the further production of architecture.

The architectural debate about the nexus between form and essence in modern China is explained in the book “Architectural Encounters Essence and Form in Modern China”, which reveals the lasting discussion on “modernism” and “nationalism” through the exploration of modernization of architecture in the Chinese context after architects learned the western architectural theory. And Yang Tingbao is one of the representative figures of Chinese overseas students who received the Beaus-Art education in the early 20th, is considered to be one of the earliest and deepest explorers of such issues as the Chineseization of modern architecture and the modernization of national forms. Although most of his works are stylistically varied, they were initially regarded as “eclecticism” because of the classical appearance and the “big roof” rather than typical “modernism”. His advanced composition skills have recently been valued with the publication of his work collection in 2021. From a form-essence perspective, the decorative façade and roof style of his work is only a kind of “clothing of the building’s form”. The universal principle reflected in the rational proportion, from the ensembles to the details, seems to be a long-time neglected aspect in the study of Yang. This research takes Yang’s architectural works as a starting point to investigate,

on the one hand, the essence of his architectural philosophy and explore the formation and evolution process of this composition method: the application of typological methodology and the combination with form. On the other hand, a further discussion will focus on the productive tension between the core elements of “essence” and “form”, which enable to continue and to ensure an essential role for history and national culture in the further production of architecture.

In the short review of the previous study, the relationship between form and essence, in fact, has gone through various transformations in China—for example, from “Chinese knowledge for essential principles and Western knowledge for practical application” to “socialist essence and cultural form” and an almost complete reversal to “modern essence and Chinese form”. Various architectural attitudes toward Modernization have emerged in China since the turn of the twentieth century, each notionally comparable, at least in part, with the trajectory of philosophical positions on culture mentioned above, especially regarding reconciling Chinese essence and modern or Western form. Yang was the first generation concerned about the nationalize of modern architecture, thanks to his appreciation of classical traditions, respect for architectural

Form and Essence Beaux-Arts Architectural Idioma

history, and a high level of competence in delineation learned from Cret (1876–1945) at the University of Pennsylvania, was the most prominent proponents to shift the balance between “essence” and “application” further away from traditional forms, as these merged with a modern Western neoclassical tradition. Furthermore, the later influence of Soviet architectural theory and the advocacy of “socialist content and national form,” or “cultural form and socialist content,” also expressed the conjunction of “essence” and “form”.

Yang Tingbao’s composition methodology and the theoretical origin behind it were repeatedly mentioned in numerous teaching and interview publications in the collection of Yang Tingbao in 2017, fully aligned with the topic”. The exploration of the nature of architectural education”, proposed by Gu Daqing in 2022, which has reignited a wide discussion about the theory of “composition” in China within the context of design absence

risk in architectural debate. Therefore, the research critically reflects upon the work of Yang Tingbao to reconsider the implications of his work regarding the nexus of nationalization-modernization relations and to project what principles we could follow as we move forward in an increasingly pluralistic and diversified world. If we refer to the post-World War II architecture theory, there is no direct link between the universal function requirement and the specific cultural forms. Then, he managed to build a relationship between “Beaux-Art training of Western classical composition method” and his “exploration and innovation in new Chinese architectural form.

The comparative analysis of three railway stations, designed by Yang, concisely shows his expertise in experienced form vocabulary operation skills and the linguistic system behind it. The station building of the Japanese company SMR in Shenyang is inspired by the models of European eclectic architecture. The Beijing Central Station was built with support and advice from Soviet architects and technicians, inspired by International Style and then adopted by re-proposing stylistic forms of Chinese architecture following the Classical principles, and Xiaguan Station in Nanjing characterized as a language suspended between expressionism and a modern transcription of the classic.

To thoroughly access the cases, the theoretical foundation of architectural composition, significantly how it shifted in Yang’s professional career, is required to fully understand his works and further clarify his technique of progressive design elaboration on how to start with an idea and end with a spatial form and pose certain selections among choices of shape and relationship, obliging the designer to take a philosophical stand, which thus generated something that was adjusted to flash into three-dimensions as a pictorial manifestation of the originating idea. A further catalogue of systematic typology will be constructed based on a comparative analysis of cases according to the changing social background and the progressive evolution of Yang’s composition method, which encompasses a range of features involving geometry, location, orientation, and relationship to nearby natural and man-made elements. Based on previous research, meticulous observation and illustrative analysis of categorical cases will be conducted under specific composition methods, from the “elements” of architecture (doors, windows, stairways, courtyards) to their “composition” as a building, from quick, then attentive reading of the program, to sketch plan, then to detailed plan, and finally to a map-like “carpet plan” mobilizing all the means of evocative depiction. In particular, I learned how

ethno-cultural elements are extracted, transcribed, and reconstructed in the process.

This concern for the relationship has manifested itself within architecture, and it is being recognized in his work. The exploration of the relationship between essence and form is multifaceted and ongoing in multiple disciplines. It makes sense that the work of Yang that bridges this multiplicity most effectively serves as the fulcrum around which this research revolves.

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COMPONENTS-DRIVEN DESIGN IN THE ARCHITECTURAL UPCYCLING

PhD Candidate: Zhu Zhengwen - Supervisor: Prof. Josep Maria Garcia-Fuentes



Ansicht S/W

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What is the components-driven design in upcycling? How does it identify and increase the value of used components? How to retain value and ultimately increase value from the process of components being disassembled to reassembly? How is the design thinking it brings different from conventional ways? How does it work during the design process and project construction phase? How does it promote upcycling? Why its research and approaches are necessary?

In the book *Upcycling: Reuse and Repurposing as a Design Principle in Architecture*, upcycling is defined to describe “the reuse and recycling of used building components or building materials in a way that yields something of a clearly higher quality and/or use category”. Upcycling refers to adding value through reuse or recycling rather than looking for residual value in used or leftover components or materials. If people closely review the definition of upcycling established by Daniel Stockhammer and David Koralek in this book, the aim of upcycling is described as focusing on the value increase, and its important implementation object is building components, the existing used ones. It enhances the value of the components through creative reuse so that they can be used in new buildings or spaces. The emphasis on the creative reuse of building components for value increase indicates the emergence of a new design process and approach, a kind of components-driven design in architectural upcycling. Therefore, the question will be, what is it? How is it done? Why is it needed?

The vision to reuse components and attempt to increase their value will revolutionize the general outlook on design. Generally, architectural design is based on the architect’s strong form and material preferences. However,

when the upcycling of components becomes the protagonist, the architect will have to face the fact of how to give way to value enhancement on the stage. A series of issues of value identification and value increases around components will strongly affect architects’ design thinking and design tools. What is the value contained in the component? How to increase its value? At this time, the design does not start on a whiteboard but creatively plays a role in transcending the value of the object in the reuse. What kind of upcycling design thinking should we need?

For example, AFF Architects consciously pursue the components-driven design in upcycling the dismantled rotor blades. Their work goes further on similar upcycling practices like the Wikado Playground in Rotterdam. In their design proposal for the mountain station in Crap Sogn Gion, the new central building will be separated from the old one and designed as an open-plan multi-purpose hall in order to be able to respond resiliently to changing requirements and climatic challenges. The design of this kind of space comes precisely from the upcycling based on the components. Its free plan and the ceiling with maximum support span exactly rely on rotor blades that function as supports. By disassembling and reassembling components, AFF

Upcycling Components-Driven Design Value Increase

Architects demonstrates a new aesthetics from the creative components-driven design in upcycling.

On the other hand, the inversion of the design process begins with the study of components and leads to the development of an architectural proposal rather than the other way around. The value exploration of the form, material, structure, style, sign, and even space of the components determines the design, which means thinking through the project while always ensuring the flexibility of reuse implementation. Giving an element its own creative implementation logic is to surpass its original value, which is also intended to limit the waste associated with construction. Then, what process does a component go through to be upcycled? How do the components upcycling interact with the design? How could architects improve the upcycling process?

In the case of Kopfbau Halle 118 Winterthur, baubüro in situ expanded the existing warehouse by using only

dismantled existing components. The project begins with the collection of materials, with components selected and then measured, inventoried, and cataloged, and continues to evolve as the search for different components progresses. The design was the result of constant considerations: the structure of Hall 118 consists of steel beams that once supported a distribution center on the Lysbüchel site. Granite facades have been converted into slabs in the kitchens, toilets, and balcony arbors, and the majority of the aluminum-insulated windows also originate from the Orion building.

As Stockhammer states, “For the designers of our built environment, treating architecture as project (and the intellectual property) of many generations entails a transformation from creator to contributor. It means rethinking traditional certainties (and single-layered ideas) of modern building and preservation of architecture, and it means posing new questions”. What is the components-driven design in upcycling? How does it identify and increase the value of used components? How to retain value and ultimately increase value from the process of components being disassembled to reassembly? How is the design thinking it brings different from conventional ways? How does it work during the design process and

project construction phase? How does it promote upcycling? Why its research and approaches are necessary? This research will reveal multiple issues of components-driven design in upcycling from multiple levels through a literature review, a large number of case studies, and practical surveys.

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This chapter collects the presentations of the work in progress of the Architectural Urban Interior Design doctoral program candidates focusing on the “Tectonics” theme.

The candidates are in different stages, comprised between the 34th cycle (beginning in 2018) and the 39th (beginning in 2022). Here is the list of the candidates with their cycle:

34 Valerio Maria Sorgini
34 Greta Maria Taronna
35 Gino Baldi
36 Oljer Cardenas Niño
36 Lu Zhaozhan
36 Liu Xiaoyun
37 Aya Glida
38 Ren Rui
39 Zhang WenQuan
39 Zhong Yue
39 Zhu Zhengwen

The epigraph at page 521 is taken from: Kenneth Frampton, Stan Allen and Hal Foster, “A Conversation with Kenneth Frampton”, *October*, Autumn, 2003, Vol. 106 (Autumn, 2003), pp. 35-58