TU Delft

Delft University of Technology

CA2RE+ Delft RECOMMENDATION

Conference for Artistic and Architectural Research & Collective Evaluation of Design-driven Doctoral Training Programme

Cavallo, Roberto; Alkan, Alper; Kuijper, Joran

DOI
10.59490/mg.61

Publication date
2023

Document Version
Final published version

Citation (APA)
Cavallo, R., Alkan, A., & Kuijper, J. (Eds.) (2023). *CA2RE+ Delft RECOMMENDATION: Conference for Artistic and Architectural Research & Collective Evaluation of Design-driven Doctoral Training Programme*. TU Delft OPEN Publishing. https://doi.org/10.59490/mg.61

Important note
To cite this publication, please use the final published version (if applicable).
Please check the document version above.

Copyright
Other than for strictly personal use, it is not permitted to download, forward or distribute the text or part of it, without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license such as Creative Commons.

Takedown policy
Please contact us and provide details if you believe this document breaches copyrights.
We will remove access to the work immediately and investigate your claim.

This work is downloaded from Delft University of Technology.
For technical reasons the number of authors shown on this cover page is limited to a maximum of 10.

CA² RE+DELFT

TU Delft OPEN

Recommendation

Conference for Artistic and Architectural Research & Collective Evaluation of Design-driven Doctoral Training Programme

CA2RE

CA2RE+DELFT

Book of Proceedings

Recommendation

Conference for Artistic and Architectural Research & Collective Evaluation of Design-driven Doctoral Training Programme

Faculty of Architecture and the Built Environment,
Delft University of Technology

The Netherlands, Delft, March 28 – April 1 2022

Recommendation Book of Proceedings
Colophon

CA²RE+ Delft RECOMMENDATION: Conference for Artistic and Architectural Research & Collective Evaluation of Design-driven Doctoral Training Programme

Editors
Roberto Cavallo[1]
Alper Semih Alkan[2]
Joran Kuijper[3]

[1] Delft University of Technology, Faculty of Architecture and the Built Environment, Department of Architecture, R.Cavallo@tudelft.nl, https://orcid.org/0000-0001-6534-120X

[2] Delft University of Technology, Faculty of Architecture and the Built Environment, Department of Architecture, A.S.Alkan@tudelft.nl, https://orcid.org/0009-0003-4233-4033

[3] Delft University of Technology, Faculty of Architecture and the Built Environment, Department of Architecture, J.A.Kuijper@tudelft.nl, https://orcid.org/0000-0003-4323-5267

Keywords
Design-driven doctoral research, design-driven research recommendation, architectural research, artistic research

Published by
TU Delft OPEN Publishing, Delft University of Technology, The Netherlands

ISBN 978-94-6366-660-2
DOI: https://doi.org/10.59490/mg.61

This work is licensed under a Creative Commons Attribution 4.0 International (CC BY 4.0) licence
Copyright clearance made by the TU Delft Library copyright team
© 2023 published by TU Delft OPEN Publishing on behalf of the editors

Design concept, layout, and typesetting
Marko Damiš

Disclaimer
Every attempt has been made to ensure the correct source of images and other potentially copyrighted material was ascertained, and that all materials included in this book have been attributed and used according to their license. If you believe that a portion of the material infringes someone else's copyright, please contact R.Cavallo@tudelft.nl.

Scientific Committee
As mentioned in Section 05, p. 476

Contributors
Sergio Martín Blas, book proposal review
Anđelka Bnin-Bninski, book proposal review

Special thanks to
Michele Puddu, text editing
Mimi Cepic, text editing
Luísa Ferreira Martins, text editing
Szymon Kaniewski, text editing
Lilani Oei, text editing
Nicolette van Dongen, event organization
Nathalie Kooijmans, event organization

TU Delft BK Bouwkunde — Delft University of Technology, Faculty of Architecture and the Built Environment

TU Delft OPEN

Conference hosts

TU Delft

CA²RE in association

ARENA ARCHITECTURAL RESEARCH NETWORK

European Association for Architectural Education
Association Européenne pour l'Enseignement de l'Architecture

ELIA

CA²RE+ Partners

Univerza v Ljubljani

TU Delft

AARHUS SCHOOL OF ARCHITECTURE

KU LEUVEN

POLITECNICO MILANO 1863

TU berlin

UNIVERSIDADE LUSÓFONA

hcu HafenCity Universität Hamburg

NTNU

ARENA ARCHITECTURAL RESEARCH NETWORK

European Association for Architectural Education
Association Européenne pour l'Enseignement de l'Architecture

ELIA

Co-funded by the Erasmus+ Programme of the European Union

Contents

01——Recommendation 12

Roberto Cavallo, Alper Semih Alkan, Joran Kuijper
The CA²RE+ Delft conference in a nutshell
14

Roberto Cavallo
Carrying on Design Driven Doctoral research
18

02——Program 24

03——Keynotes——and Workshops 36

Nathalie de Vries
Research by Design in Education and Practice
38

Kees Kaan
Connected Brains for Collective Knowing
46

Milica Tomić
Art Cannot Be Taught
52

Workshop CA²RE+ Partners Institutions
Presentations and Discussion on Design Driven Doctoral Research
58

Joran Kuijper
Walking Tour Delft
80

Workshop CA²RE+ Delft Participants
Wrap-up Debate on Design Driven Doctoral Research
84

04——Artefacts, Extended Abstracts——and Papers

94

Greta Allegretti
Design Models for the Enhancement of Archaeological Fragile Sites
96

İpek Avanoğlu
Navigating Into a Venture of a Research on an Architecture Without Verticals
104

Nina Bačun
Cinematic Space as Constructed Memory in the Essay Film Bonding Humanity (Perhaps Manifesto)
116

Ana Belčič
Analysing the Socially Enhancing Elements of Space in Four Senior Cohousing Sites
124

Đorđe Bulajić
Composing Images
Architectural Montage as Design-Driven Research Tool
136

Carla Bulone
The Use of Graphene in Building Construction
Potentiality and Questions
142

Jose Carrasco Hortal, Benito García Valero, Francisco Francés García
Floodlands
Landscape Design Experience With Boundary Methods and Lessons One Can Draw From Stories Concerning Rural Backgrounds
152

Enrico Chinellato, Or Haklai
Double Feature
A Design-driven Inquiry into the Counter-practices of World City Monumentality
164

Gianluca Croce, Mariacristina D'Oria
Time-capsule Transcripts
An Experimental Taxonomy of Forms as a Vehicle for a Design Operation
170

Teresa Cunha Ferreira
Atlas of Architectural Design in Built Heritage
Pedagogies from the School of Porto
186

Ana Catarina da Silva Antunes
Tapadas (Royal Forests and Hunting Reserves) of Portuguese Royal Palaces
Resilience Spaces. For a Spatial and Architectural Requalification
192

Marta Fernandez Guardado
Home: Things & Bodies
A Thing-based Exploration Into Personal Space
200

Adrian Fuhrich
Reflexive Palimpsest
Designing Curatorship of Post-war Modernism Architecture
212

Sara Ghirardini
Designing Preservation
Integrating the Architectural Project to UNESCO Tools to Tackle Territorial Fragility: the Tivoli Case as a Pilot Experience
220

Anastasia Gkoliomyti
Towards a Non-neoliberal Design Paradigm
ISHINOMAKI 2.0 – a Network of Grassroots Community Building
230

Stefan Gzyl
Caracas, Departure City
Ethnography of Caretaking
240

Jure Henigsman
Innovations in Prof. Stanko Kristl's Health Space Designs, Their Humanity, and Today's Relevance
250

Maria Høgh-Mikkelsen
Poetic Expressions
Video and Artefact as Phenomenological Reflection in Constructive Design Research
258

Maureen Selina Laverty
Sensory Nourishment
Consciously Crafting Sensations in Clothing Design to Support Diverse Sensory Needs
264

Jiaxi Li
Coastal Ecological Passage (CEP) as an Innovative Nature-based Defense to Tackle Rising Sea Level
270

Claudia Mainardi
Everyday Practice as Paradigm to Study Architectural Contemporary Codes
280

Heidi Sørensen Merrild
Reversible Tectonics
Learnings From the Past
286

Enrico Miglietta
The Materialisation of the Joint
Re-reading the Brion Cemetery Through the Agency of the Drawing
296

Rose-Ann Mishio
Healing Homes
A Search for the Design of Housing to Foster Wellbeing
304

Mar Muñoz Aparici
Design Factors for Cultural Building Activation:
Experiments Between Public Space Theory and Architectural Practice
310

Miljana Niković
Belgrade on Screens
Cut 2: Dis/continuous Location(s)
320

Mariana Pereira Guimaraes
The Evaporative City
Bioclimatic Adaptation and Regeneration Using Water
326

Bogdan Peric
The Hidden Potential of the Dvor
Reshaping Semi-private Spaces in Moscow
334

Marie Porrez
Interiorities, Embeddedness and the Dwelling
342

Kevin Santus
Climate Change and Design Form
Operative Research on the Morphological Role of the Ground Level
352

Sara Anna Sapone
Precision Wildland
Designing Third Landscape Within the Smart City
360

Felix Schmidt-Kleespies
Rule-Based Design of Prefabricated, Hollow Section Plywood Wall Units
370

Renzo Sgolacchia
Housing Migrant Workers
An Exploration of the Rotterdam-Venlo Logistic Corridor
378

Wiktor Skrzypczak
Bodily Movement in Architectural Theory and Its Implications for Spatial Composition
384

Isabella Spagnolo
Sharing Landscape: Beyond the Urban-rural Dialectic.
The FARM
392

Asha Sumra, Arijit Chatterjee
Ecologies of Residue
Material Movement and the Thinness of Things
400

Yağız Söylev
Schools With Future Value
412

Berilsu Tarcan
Exploring a Craft-Design Relationship Through Felting
A Process of Making-with Elements of Traditional and Contemporary Culture
418

Taufan ter Weel
Architectural Plug-In
Explorative Machine for the Sonic Recomposition of Space
426

Georgios Triantafyllidis
Building Information Modelling (BIM) Beyond an Efficiency and Costs' Saving Method.
The Use of BIM as a Mediator Towards Collaboration, Sustainable Design and Design Exploration.
432

Hinnerk Utermann
Talking House
442

Halina Veloso e Zarate
Data-supported Design in Architecture and Urbanism:
The Use of Geospatial Data for Transport Node Design
448

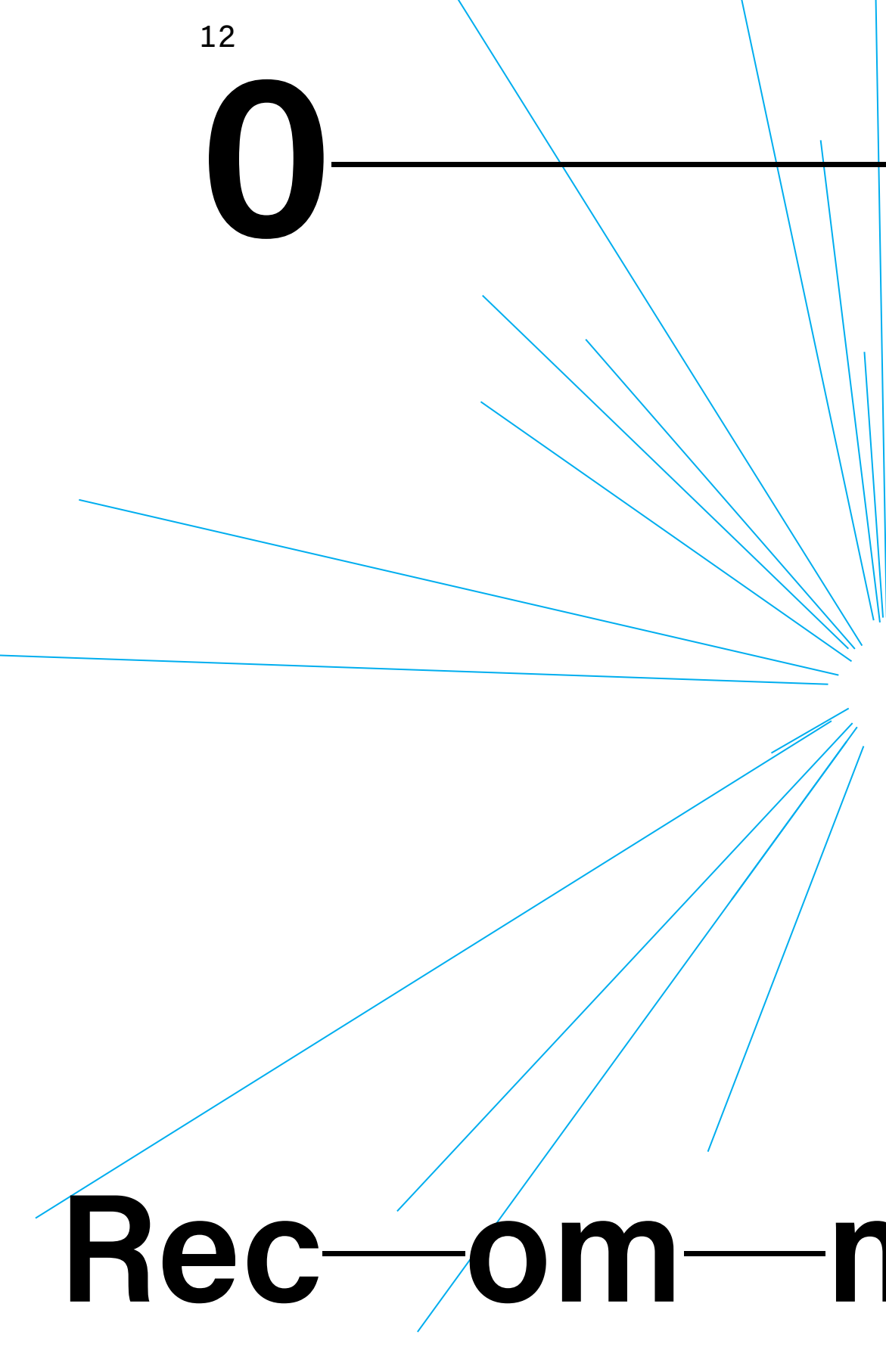
Valeria Wiendl
Schoolyards I The Impact of Architecture on Child Development
Children From 3 to 10 Years Old in Education Spaces in Portugal
456

Xin Xu
Program in Architectural Design of Contemporary Art Museum
Focusing on the Contemporary Art Museum Architectures Designed in Shanghai Central Area since 2010
464

05——Scientific Committee 476

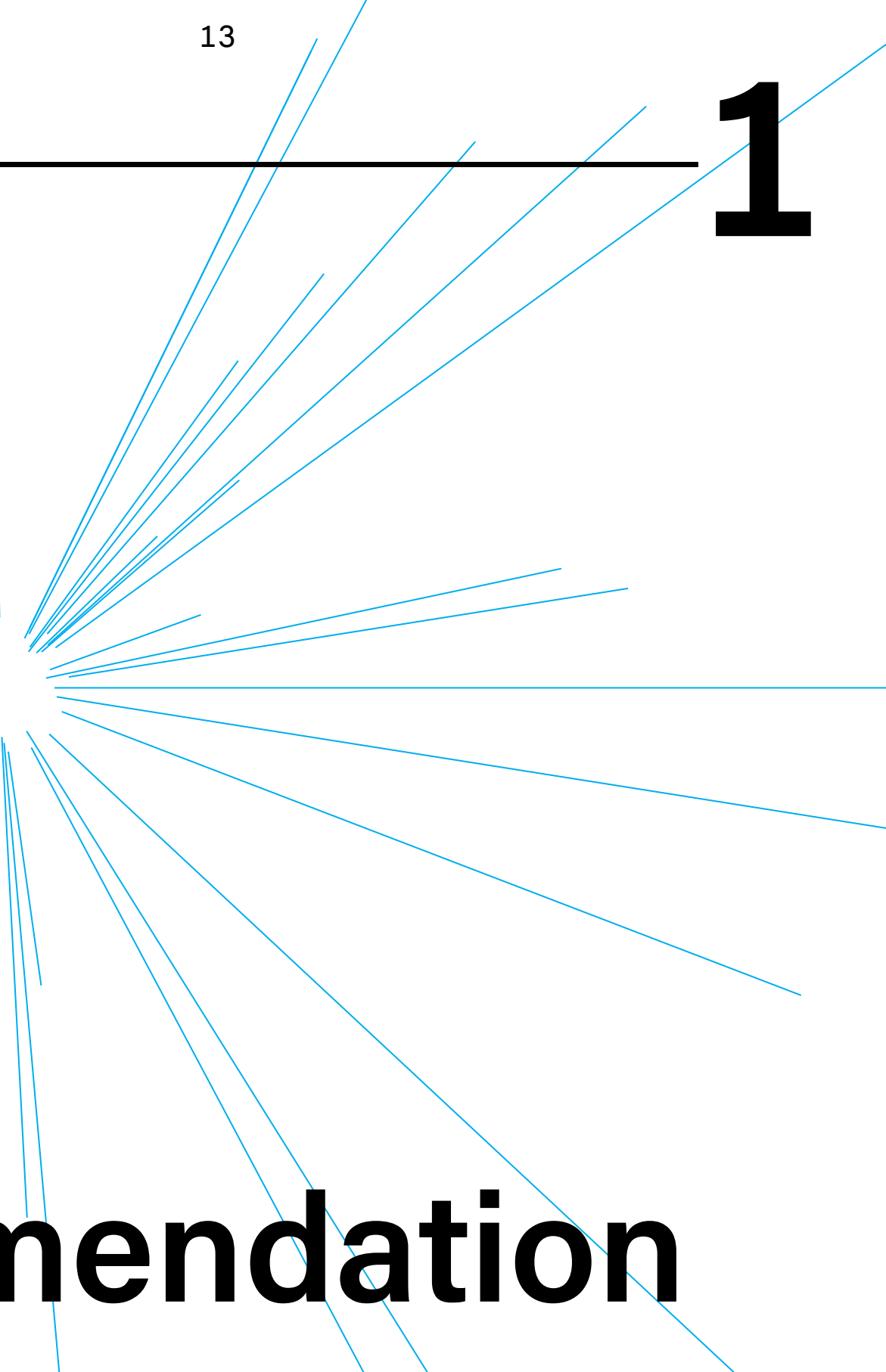
06——Panelists 486

0



Rec—om—m

1



nendation

The CA²RE+ Delft conference in a nutshell

Through its primary vehicle, the conference series, the CA²RE+ project is promoting Design Driven Doctoral research (DDDr) to institutions and other colleagues, strengthening the community of researchers working on the subject. The Faculty of Architecture and the Built Environment, Delft University of Technology, one of Europe's largest architecture faculties, offered the stage for this remarkable conference. The Delft's academic community with its multidisciplinary nature, spanning a wide range of disciplines, delivers an interesting platform for interactions based on the diverse topics and aspects that design-driven doctoral research entails.

The topic of RECOMMENDATION for Design-Driven Doctoral Research is the focus of the event in Delft. The theme explores and builds upon the previous CA²RE+ conference's main matters. OBSERVATION and SHARING are the first two conferences part of the first phase of the CA2RE+ project called STRATEGIES. The second phase of the project named EXPERIENCES consists of the CA²RE+ conferences COMPARISON and REFLECTION. The third and last phase of the project, called FRAMEWORK, includes two conferences on

REFORMULATION and this one on RECOMMENDATION.

An important purpose of the CA²RE+ Delft conference is to examine the results achieved so far attempting to formulate guidelines and recommendations for the establishment, introduction, development, and evaluation of DDDr. Taking advantage of the various experiences, discussions, and issues that occurred during the project, the CA²RE+ Delft provided the stage and opportunity for the partner universities to illustrate their positions and participate in the discussion to actively elaborate on the findings of the entire CA²RE+ network. In particular, we asked one responsible tutor and one doctoral candidate from each CA²RE+ institution to present and discuss their perspectives on DDDr, with a focus on recommendations. This was done mainly during the first workshop planned at the beginning, although in the course of the conference these positions seemed to be incorporated in the work of some doctoral candidates and reappeared in the discussions during the wrap-up workshop on the last day.

The following questions served as the event's thematic framework. Which CA²RE+ institution-wide approaches, tools, techniques,

methods, testbeds, and principles have been established and can be recognized as shared? Can DDDr's diversity be made consistent by adopting a common frame? What distinguishes DDDr from other doctoral research practices? Where do we observe parallels and overlaps with other research practices and fields of knowledge?

The panel sessions serve as the event's main axis, just like in previous CA²RE / CA²RE+ conferences. Local PhD researchers and DDDr research experts exchange their experiences in these sessions. Findings and perspectives brought in by panel members and other attending participants enrich the discussions on each specific DDDr learning/supervision presentation. The CA²RE+ Delft event has been extremely fruitful for the 45 doctoral candidates presenting their research as well as for the other participants, whether online or in person. In addition, and next to the two workshops at the beginning and end of the event mentioned above, the conference included keynote lectures, one of which was given in conjunction with The Berlage, and a walking/talking tour of the city of Delft. The conference has been a unique experience in terms of both content and atmosphere. During and after the event

in Delft, many attendees were enthusiastic and thrilled. Hopefully, this will have a positive impact on the CA²RE / CA²RE+ project's continuation and further development of DDDr.

Please visit the conference website at delft.ca2re.eu for a comprehensive overview of the program.

– Roberto Cavallo, Alper Semih Alkan, Joran Kuijper

Carrying on Design Driven Doctoral research

Roberto Cavallo, TU Delft

Design is de facto a core matter in architecture, and the question of whether it can be considered a scientific activity is a persistent concern in our discipline. In the past decades, various scholars elaborated on this matter, providing several interpretations, definitions, and diverse denominations. However, even though numerous publications, projects, examples, and initiatives support the necessity and values of design in research, including the CA2RE+ project itself, it is evident that conducting design driven research remains an adventurous endeavor, particularly within the context of academic studies like doctoral research degree. This is nowadays the situation in many institutions, where promoting design as a pivotal part of scientific research is still met with skepticism. Therefore, starting from some personal observations and findings, the purpose of this contribution is to raise awareness about some of the 'bears on the road' and outline options for turning these challenges into vantage points to enhance and encourage Design Driven Doctoral research (DDDr) while also addressing a few complications and dilemmas related to design within the framework of scientific research.

Approaching design driven research

Most probably because I'm trained as a designer, I'm used to playing multiple roles simultaneously, and thinking and reasoning from multiple perspectives characterize the way I operate. Reasoning as a designer also serves as the link between many of my activities. However, I don't think this is always happening linearly. As conditions, triggers, inputs, impulses, and a myriad of other factors fluctuate constantly, one of my recurring challenges is to keep focusing on the relevant issue, the most significant aspect, attempting to make it visible, and directing it toward the desired outcome according to the particular case or circumstance. Despite being dependent on a variety of intentions, implications, moments in time, deriving choices, and other factors, the key aspect and the particular case or situation are related to one another. The fact that the primary issue has numerous facets, some of which are more obvious than others, is another recurring fact. Additionally, it depends also on the people involved, their intentions, plans, actions, and other contextual factors. Using images, drawings, diagrams, and other visuals in addition to a rational verbal explanation is a good way to proceed, though, as long as you keep your focus on the central issue. Keeping this preamble in mind, in design driven research, a reflection should begin with the core matter, the project proposition, and the role of design in relation to research. Thereby, embarking on design driven research to reflect on oneself as a designer may be also an effective approach. While the relationship with research ought to ultimately lead to the discovery of the knowledge and its adaptation for transferability, the design driven components may also be personal, motivated by intuition or implicit knowledge. Drawings are also tangible indicators of the creative process. They play a crucial role in a design inquiry, and like writing, drawings serve as essential connections between thoughts, their interpretations, and direct translations into acts.

Academic research environments and the understanding of design in scientific research

The context wherein research is taking place is a key factor. In this respect, some challenges may seem obvious when looking at universities as the places where the majority of doctoral research programs are held. These are institutions where academic knowledge, research traditions, and scientific conventions are rooted. At the same time, universities should encourage experimentation, new ideas, and cutting-edge research. I don't want to begin here a conversation on the regulatory intricacy of universities, however, while discussing doctorates, it appears evident to me that some of their mechanisms and guidelines can frequently be seen as cumbersome, especially if looking at creative and experimental research projects involving non-customary approaches and requiring new pathways of supervision and evaluation.

This is indeed the case of design driven research. It is undeniable that design plays a significant role in architecture. However, design often develops in non-linear ways, and frequently incorporates a variety of aspects as well as subjective viewpoints. Hence, considering design as a legitimate scientific endeavor will, to a certain extent, continue to be contentious for several reasons. Design generally does not adhere to a predetermined and widely accepted set of rules that typically form the foundation of scientific research procedures. On top of that, the dual identity syndrome that is typical of architecture — on the one hand, the practice-oriented design and, on the other, the academic discursive discipline — in some way exacerbates these concerns. Most people think of design as an activity that aims to solve problems and produce a specific product for a project and how it is put into action, which is close to the usual goals of design in professional practice. Nevertheless, it can be also slippery or counterproductive to view design primarily as a means of reaching a specific product and to focus too much on solving problems.

Knowledge must take center stage if design accounts for a research activity. Therefore, engaging in design driven research should entail committing to an *inquisitive use* of design, in which problem-solving does not take the foreground. The inquiry process should allow more experimentation, and each step should be intended to aid in the development of thinking. Consequently, the inquiry's objective is knowledge discovery, which can be transferred and applied to subsequent activities. An inquisitive use of design enhances design as a knowledge-oriented activity by linking various subjects into synergic interconnections and encouraging creative processes that lead to the emergence of new knowledge.

The wider academic community in creative fields is constantly concerned about many of these issues, especially when this variety of questions is challenging the validation and evaluation of doctoral research. To enhance design driven research, particularly at the doctoral level, it is essential to establish and maintain constructive interactions between all research perspectives in architecture and its flanking disciplines, including every form of design or practice in the built environment.

21

Hints on employing design in scientific research and communications modes in Design Driven Doctoral research

Motivation, research questions, relevance, approach and methodology, along with novelty, and transferability are some of the most important general requirements to consider when conducting research, particularly doctoral research. Even though these terms usually correspond to typical steps in research, they should be carefully considered in the context of Design Driven Doctoral research. Design driven research cannot be characterized by univocal and objectified methods of inquiry because design has numerous facets and connotations. Instead, it must be characterized by singularity, own position, situatedness, context-dependency, and the application of specific research strategies and techniques. Additionally, because doctoral research is generally an individual endeavor, all considerations for DDDr must be extended to it as well. Therefore, it is fundamental for DDDr that each doctoral researcher develops his position concerning the aforementioned peculiarities, elucidating its distinct individual range of ways to pursue research. How and where is the researcher positioned? In which context is the research located and in relation to which interlocutors and/or framework? Where the inquiry at stake would have an impact and be relevant? This is also if the research is very specific and with a high degree of singularity. If one follows this path, it should be possible to identify the peculiar aspects that are distinctive for the research at stake within the specific field of inquiry. Following this line of thought, the focus can be on specific design research questions, adopting more open research approaches rather than methodically predetermined ones.

In other words, to define and clarify their positions, DDDr candidates need to first be aware of the things they intend to do or are doing, as well as the context in which they are doing them. For instance, what exactly is the individual researcher's research and/or practice laboratory? Where and when does the researcher or designer formulate his own findings regarding specific parts of the work? In addition, researchers should consider the advantages and disadvantages of presenting and communicating their findings strategically, with a focus on the design driven aspects of their investigations. All forms of communication — verbal, nonverbal, written, and visual — play an important and distinct role depending on the audience, just as they do when presenting a design proposal to peers or clients. The glossary should include specific terms that should be clearly explained, expressing and articulating the various steps involved in these research pathways. As in other types of doctoral research, also for DDDr, the contribution to knowledge and its transferability are the most important aspects. Therefore, in DDDr, some matters can become crucial, including personal ones like one's position, motivation, context, and individual triggers, as well as more external ones like sharing, testing, external transformational input, or the research context.

Literature

Blythe, Richard and Stamm, Marcelo. "Creative Practice Research Glossary". In *The ADAPT-r Creativity book*, edited by Johan Verbeke, 335-348. Brussels: KU Leuven, 2017.

Buchert, Margitta. "Reflexive, Reflexivity, and the Concept of Reflexive Design". In *Dimensions*, vol. 1, no. 1, 67-76, 2021.

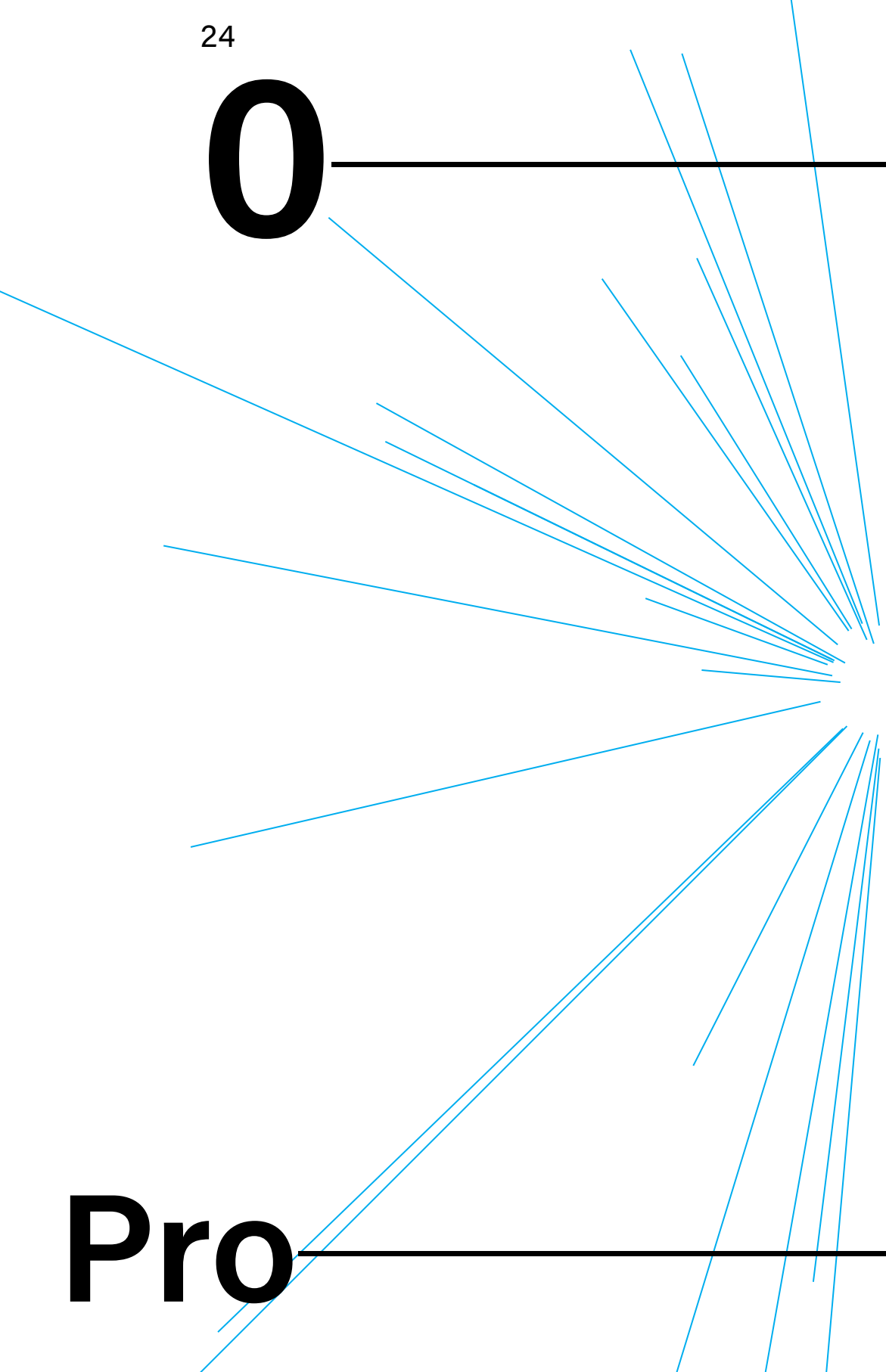
Cavallo, Roberto and Alkan, Alper. "An Expanded Field: Design Research in TU Delft". In *Comparison: Conference for Artistic and Architectural Research Book of Proceedings*, edited by Fabrizia Berlingieri and Francesca Zanotto, 27-33. Siracusa: LetteraVentidue, 2021.

Cavallo, Roberto. "The key issue and its many facets". In *CA²RE / CA²RE+ Hamburg. Conference for Artistic and Architectural Research - Book of Proceedings*, edited by Marta Fernández Guardado and Matthias Ballestrem, 82-85. Hamburg: HafenCity Universität Hamburg, 2021.

Elkjaer, Bente. "Pragmatism: a learning theory for the future". In *Contemporary theories of learning. Learning theorists ... in their own words (1st. ed.),* edited by Knud Illeris, 74-89. London; New York: Routledge, 2009.

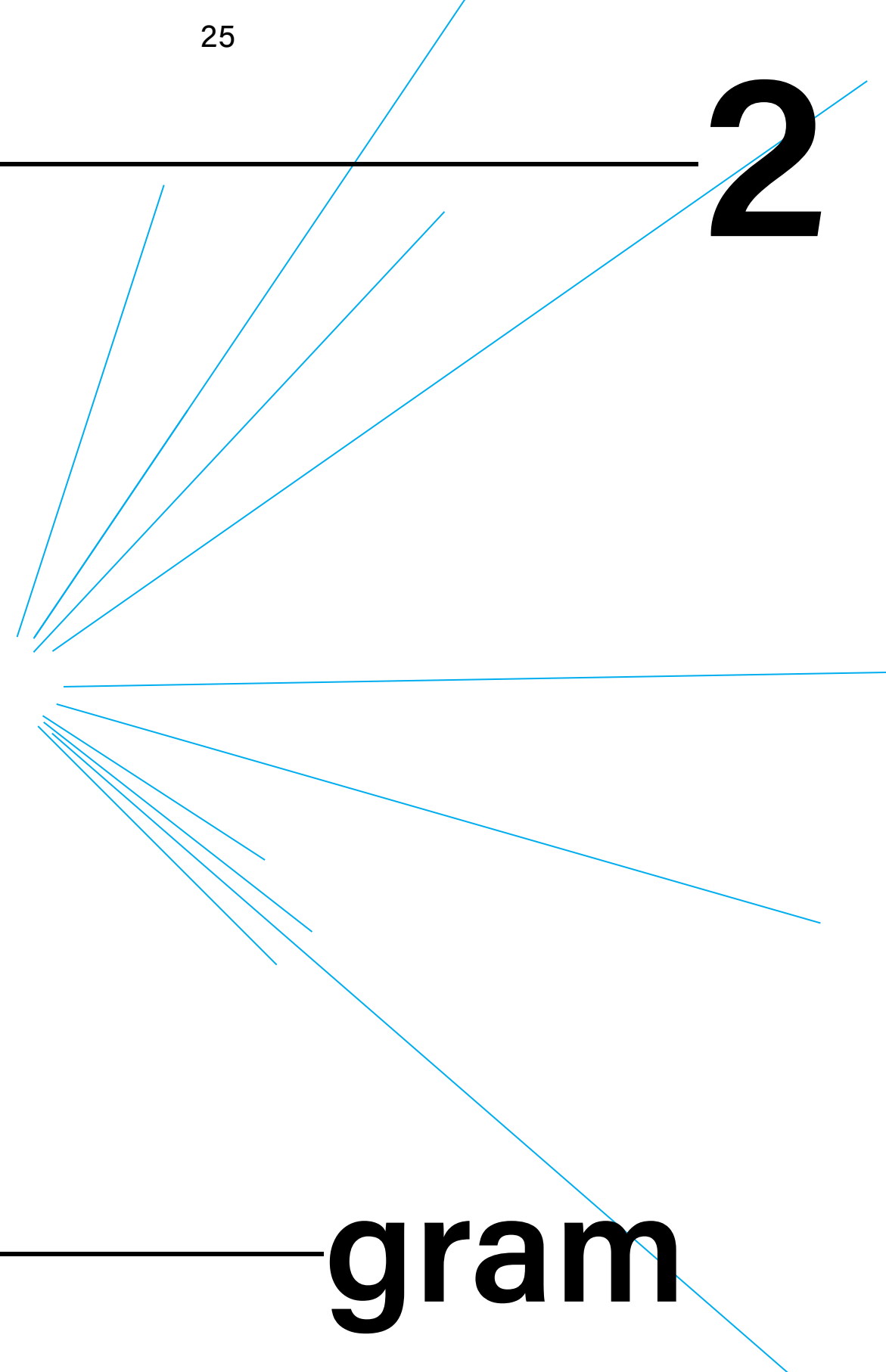
Rheinberger, Hans-Jörg. "Can Scientific Research Be Designed?". In *Against and for Method. Revisiting Architectural Design as Research*, edited by Jan Silberberger, 132-141. ETH Zürich: gta Verlag, 2021.

0



Pro

2



gram

Monday——28 Mar.

09:15 **Registration Desk Open** ———— Berlage Room 2

09:30 **Exhibition Setup (only for presenters needing to set up their material)** ———— ROOM K

13:30 **Conference Opening** ———— Berlage ROOM 1, ZOOM Berlage ROOM 1
Roberto Cavallo, Tadeja Zupančič, Oya Atalay Franck, Jørn Mortensen, Urs Hirschberg

OPENING

Word of Welcome

Roberto Cavallo, chair CA^{2}RE+ Delft [f2f]
Tadeja Zupančič, head partner of CA^{2}RE+ [f2f]
Oya Atalay Franck, president EAAE [f2f]
Jørn Mortensen, vice-president of ELIA [online]
Urs Hirschberg, head and coordinator of ARENA [online]
Roberto Cavallo, programme CA^{2}RE+ Delft [f2f]

14:00 **Workshop CA^{2}RE+ Partners Institutions** ———— Berlage ROOM 1, ZOOM Berlage ROOM 1

WORKSHOP 1

CA^{2}RE+ Partners Institutions:

NTNU Trondheim: Markus Schwai [f2f] + Bjørn Inge Melaas [online]
KU Leuven: Jo van den Berghe [online] + Eva Demuynck [online]
Aarhus: Claus Peder Pedersen [f2f] + Aida Español Vilanova [online]
TU Berlin: Ignacio Borrego [f2f] + Agata Kycia [online]
Ljubljana: Tadeja Zupancic [f2f] + Ana Belčič [online] + Viktorija Bogdanova [online]
Polimi: Fabrizia Berlingieri [f2f] + Enrico Miglietta [f2f]

15:30 **Coffee/tea break** ———— Berlage Room 2

16:00 **Presentations and Discussion, CA²RE+ Partners Institutions** ——— Berlage ROOM 1, ZOOM Berlage ROOM 1

WORKSHOP 1

CA²RE+ Partners Institutions:

Porto: Edite Rosa [online] + Yara Aboasfour [online]
HCU Hamburg: Matthias Ballestrem [f2f] + Marta Fernandez Guardado [f2f]
TU Delft: Roberto Cavallo [f2f] + Taufan Ter Weel [f2f]

17:00 **Word of Welcome** ——— Berlage ROOM 1, ZOOM Berlage ROOM 1
Dick van Gameren, dean Faculty of Architecture, TU Delft

17:00 **Keynote Lecture** ——— Berlage ROOM 1, ZOOM Berlage ROOM 1
Nathalie de Vries; office MVRDV, TU Delft

KEYNOTE

Tuesday——29 Mar.

09:00 **Registration Desk Open** ———— Berlage Room 2

09:20 **Walk-in**

09:30 **Sessions**

Berlage ROOM 1
ZOOM Berlage ROOM 1

Precision Wildland
Sara Anna Sapone

S: Protasoni, Corradi, Longo; P: Ballestrem, Bobbink, Salema

ROOM K
ZOOM ROOM K

Sensory Nourishment
Maureen Selina Laverty

S: Are Øritsland, van Dongen; P: Peder Pedersen, McGarry, Mahall

ROOM BG OOST 490
ZOOM ROOM BG OOST 490

Ecologies of Residue
Asha Sumra, Arijit Chatterjee

S: Jensen, Dayer; P: Bnin-Bninski, Bassanelli, Bogalheiro

10:30 **Sessions**

Berlage ROOM 1
ZOOM Berlage ROOM 1

Building Information Modelling (BIM) beyond an efficiency and costs' saving method.
Georgios Triantafyllidis

S: Riewe; P: Schwai, Borrego Gómez-Pallete, Domingo-Calabuig

ROOM K
ZOOM ROOM K

Bodily Movement in Architectural Theory and Its Implications for Spatial Composition
Wiktor Skrzypczak

S: Ballestrem; P: Pimlott, Wiberg, Venrooij; O: Rosa

ROOM BG OOST 490
ZOOM ROOM BG OOST 490

Belgrade on Screens
Miljana Niković

S: Mahall; P: Bogalheiro, Fusi, Nilstad Pettersen

11:30 **Coffee/tea break** ———— Berlage Room 2

12:00 **Sessions**

Berlage ROOM 1
ZOOM Berlage ROOM 1

Home: Things & Bodies
Marta Fernandez Guardado

S: Ballestrem, Borrego Gómez-Pallete; P: Botas Kenda, Pais, Pimlott

ROOM K
ZOOM ROOM K

Time-capsule Transcripts
Gianluca Croce, Mariacristina D'Oria

S: Corbellini; P: Heinemann, Sohn, McGarry

ROOM BG OOST 490
ZOOM ROOM BG OOST 490

Everyday Practice as Paradigm to Study Architectural Contemporary Codes
Claudia Mainardi

S: Postiglione, Caramellino, Grafe; P: Dubowitz, Gasperoni, Mahall

13:00 **Lunch break** ———— Berlage Room 2

13:45 **Sessions**

Berlage ROOM 1
ZOOM Berlage ROOM 1
Unfinished Thresholds
Mar Muñoz Aparici

S: Cavallo, Harteveld;
P: Gasperoni, Almeida,
Vroman; O: Peder Pedersen

ROOM K
ZOOM ROOM K
Rule-Based Design of Prefabricated Hollow Section Plywood Wall Units
Felix Schmidt-Kleespies

S: Robeller, Stahr; P: Borrego Gómez-Pallete, Aagard, Kuijper

ROOM BG OOST 490
ZOOM ROOM BG OOST 490
Floodlands
Jose Carrasco Hortal,
Benito García Valero,
Francisco Francés García

P: Dubowitz, Cipriani, Delgado

14:45 **Sessions**

Berlage ROOM 1
ZOOM Berlage ROOM 1
The Evaporative City
Mariana Pereira Guimaraes

S: Dessì; P: Schwai,
Cipriani, Hudnik

ROOM K
ZOOM ROOM K
Double Feature:
Enrico Chinellato, Or Haklai

S: Leoni, Borsari, Schrire;
P: Zupančič, Lepratto, Guilherme

ROOM BG OOST 490
ZOOM ROOM BG OOST 490
Poetic Expressions
Maria Høgh-Mikkelsen

S: Brandt, Peder Pedersen;
P: Rosa, Harteveld, Topolčanska

15:45 **Coffee/tea break** ——— Berlage Room 2

16:15 **Sessions**

Berlage ROOM 1
ZOOM Berlage ROOM 1
Reversible Tectonics
Heidi Sørensen Merrild

S: Jensen, Bregnballe;
P: Ballestrem, Juvančič,
Bovati; O: Zupančič

ROOM K
ZOOM ROOM K
Talking House
Hinnerk Utermann

S: Svenungsson;
P: Berlingieri, Pimlott, Venrooij

ROOM BG OOST 490
ZOOM ROOM BG OOST 490
Design Models for the enhancement of archaeological fragile sites
Greta Allegretti

S: Caliari; P: Dubowitz,
Roth-Čerina, Salema

17:30 **Keynote Lecture** ——— Berlage ROOM 1, ZOOM Berlage ROOM 1
Kees Kaan; office Kaan Architects, TU Delft

KEYNOTE

18:15 **Keynote Lecture** ——— Berlage ROOM 1, ZOOM Berlage ROOM 1
Milica Tomić; Contemporary Art Institute, TU Graz

KEYNOTE

30

Wednesday——30 Mar.

09:30 **Walking Tour Delft**
Esther Gramsbergen, Joran Kuijper, Olindo Caso

WALKING-DISCUSSIONS (CITY TOURS)

Appointment directly at the Oostpoort, Delft (10 min. walk from the Faculty of Architecture)

Directions (Google Maps) to the Oostpoort from the Faculty.

Some background information (article in Dutch):
https://www.delta.tudelft.nl/article/wandelen-langs-delftse-hofjes

13:00 **Registration Desk Open** ———— ROOM K

13:30 **Sessions**

ROOM Q
ZOOM ROOM Q
Caracas, Departure City
Stefan Gzyl

S: Schoonderbeek, Staničić;
P: Martin Blas, Pais, Gasperoni

ROOM K
ZOOM ROOM K
Architectural Plug-In
Taufan ter Weel

S: Cavallo, Sohn; P: Heinemann, Telles, Botas Kenda

ROOM BG OOST 490
ZOOM ROOM BG OOST 490
The use of graphene in building construction
Carla Bulone

S: Rogora, Leveratto; P: Vuga, Nilstad Pettersen, Koch

14:30 **Sessions**

ROOM Q
ZOOM ROOM Q
Sharing Landscape: beyond the urban-rural dialectic.
Isabella Spagnolo

S: Bertelli; P: Juvančič, Sohn, Roth-Čerina

ROOM K
ZOOM ROOM K
Spatial narratives in film
Nina Bačun

S: Roth-Čerina; P: Telles, Leveratto, Botas Kenda

ROOM BG OOST 490
ZOOM ROOM BG OOST 490
Program in Architectural Design of Contemporary Art Museum
Xin Xu

S: Salvadeo; P: Pasel, Vroman, Bnin-Bninski

15:30 **Coffee/tea break** ———— ROOM K

16:00 **Sessions**

ROOM Q
ZOOM ROOM Q
The role of Data-supported design in Architecture and Urbanism
Halina Veloso e Zarate

S: Triggianese, Van Ham, Stoter; P: Ballestrem, Altuna Carterina, Aagard

ROOM K
ZOOM ROOM K
Composing Images
Đorđe Bulajić

P: Berlingieri, Alkan, Wiberg

ROOM BG OOST 490
ZOOM ROOM BG OOST 490
The hidden potential of the dvor
Bogdan Peric

S: Rocca, Magni, Grigoryan;
P: Borrego Gómez-Pallete, Salema, Bnin-Bninski

17:00 **Sessions**

ROOM Q
ZOOM ROOM Q

Reflexive palimpsest
Adrian Fuhrich

P: Cavallo, Atalay Franck, Martin Blas

ROOM K
ZOOM ROOM K

Exploring Craft-Design Relationship through Felting
Berilsu Tarcan

S: Nilstad Pettersen, Leigh Edwards, Are Øritsland; P: Domingo-Calabuig, Aagard, Vuga; O: Russell

19:00 **Conference Dinner** ———— Restaurant Huszár

Thursday——31 Mar.

09:20 **Walk-in**

09:30 **Sessions**

ROOM A
ZOOM ROOM A
Schools with Future Value
Yağız Söylev

S: Reuser; P: Zupančič, Harteveld, McGarry

ROOM K
ZOOM ROOM K
Utopian Imagery of Urban Peripheries in the Context of the Anthropocene´s Cultural Concept
Martin Roth, Marcus Kopper

P: Lagrange, Stewart, Lepratto; O: Ballestrem

ROOM BG OOST 490
ZOOM ROOM BG OOST 490
Towards a Non-neoliberal design paradigm
Anastasia Gkoliomyti

S: Tsukamoto; P: Leveratto, Hudnik, Bobbink

10:30 **Sessions**

ROOM A
ZOOM ROOM A
Navigating into a venture of a research on an architecture without verticals
İpek Avanoğlu

S: Şenel; P: Van Den Berghe, Telles, Delgado

ROOM K
ZOOM ROOM K
Designing Preservation
Sara Ghirardini

S: Caliari, Lanz; P: Atalay Franck, Guilherme, Pasel; O: Lagrange

ROOM BG OOST 490
ZOOM ROOM BG OOST 490
Healing Homes
Rose-Ann Mishio

S: Rocca; P: Peder Pedersen, Stewart, Koch

11:30 **Coffee/tea break** ———— ROOM K

12:00 **Sessions**

ROOM A
ZOOM ROOM A
Atlas of Architectural Design in Built Heritage
Teresa Cunha Ferreira

P: Domingo-Calabuig, Vuga, Altuna Carterina

ROOM K
ZOOM ROOM K
Housing Migrant Workers
Renzo Sgolacchia

S: Ciorra; P: Atalay Franck, Lepratto, Bogalheiro

ROOM BG OOST 490
ZOOM ROOM BG OOST 490
Adaptation through design
Jiaxi Li

S: Poli; P: Rosa, Schwai, Lagrange

13:00 **Lunch break** ———— ROOM K

14:00 **Sessions**

ROOM A
ZOOM ROOM A
Climate change and design form
Kevin Santus

S: Valente, Lavagna; P: Triggianese, Guilherme, Bovati

ROOM K
ZOOM ROOM K
Interiorities, Embeddedness and the Dwelling
Marie Porrez

P: Zupančič, Martin Blas, Almeida; O: Schwai

15:00 **Sessions**

ROOM A
ZOOM ROOM A

Analysing the Socially Enhancing Elements of Space in Four Senior Cohousing Sites
Ana Belčič

S: Planišček, Mali, Corlin, Peder Pedersen; P: Van Den Berghe, Koch, Bassanelli; O: Borrego Gómez-Pallete

ROOM K
ZOOM ROOM K

Schoolyards I The impact of architecture on child development
Valeria Wiendl

S: Rosa; P: Lagrange, Pasel, Gramsbergen; O: Berlingieri

16:00 **Coffee/tea break** ———— ROOM K

16:30 **Sessions**

ROOM A
ZOOM ROOM A

The materialisation of the joint
Enrico Miglietta

S: Postiglione, de Curtis, Van Den Berghe, Lagrange; P: McGarry, Altuna Carterina, Rosa

ROOM K
ZOOM ROOM K

Tapadas (Royal Forests and Hunting Reserves) of Portuguese Royal Palaces
Ana Catarina da Silva Antunes

S: de Magalhães Rocha, Salema, da Conceição Marques Freire; P: Pais, Triggianese, Leveratto

ROOM BG OOST 490
ZOOM ROOM BG OOST 490

Innovations in prof. Stanko Kristl health space designs, their humanity, and today's relevance
Jure Henigsman

S: Glažar, Šenk; P: Gramsbergen, Bovati, Almeida

18:30 **Keynote Lecture with the Berlage** ———— Orange Hall, Live Stream Orange Hall
Shohei Shigematsu; office OMA, New York

KEYNOTE

Friday——01 Apr.

09:20	**Walk-in**	ROOM C
09:30	**Workshop CA^{2}RE+ Participants**	ROOM C, ZOOM ROOM C
	WORKSHOP 2	
11:00	**Coffee/tea break**	ROOM C
11:30	**CA^{2}RE Feedback / Wrap-up**	ROOM C, ZOOM ROOM C
12:30	**CA^{2}RE Closing**	ROOM C, ZOOM ROOM C

0

Keynote W

3

es——and
Workshops

Research by Design in Education and Practice

Nathalie de Vries, TU Delft

Keynote

Introduction

Today the role of research inside the practice is gaining more and more importance; investigation and analysis are becoming fundamental in the search for inputs for our designs. Different aspects of the design process are changing rapidly nowadays, and a very important driver of this change is the Digital Construction Organization, which along with most of our tools, have now digital roots. Also, our built environments are increasingly provided with sensors and trackers.

With digital collaboration, the role of the architects, and all the other participants in the building process, is shifting, mostly because of the new ways of collaboration inside of what is often one unique model of the design. Also, there are many issues around the materialization of our designs, therefore, another important topic is to design with materials and methods of the future to achieve future-proof designs and constructions. Materials of the future could as well be materials of the past, we are just now reaching a point where we look much more carefully about re-using materials, but we also must source them and literally keep track of them, which is a whole new way of dealing with materials and buildings. We also look differently at the surfaces of our buildings, now becoming potential energy generators and co2 extractors, not only with solar panels on top of the roofs but also with complete facades, exploitation of wind, and use of passive solutions; this all transforms the way we look at the design and the way we build. Furthermore, our buildings, spaces. and their usage are potentially sources for behavioral data extraction, but it is not so clear yet if the extracted data will become open source or at least accessible for designers. In fact, with architecture also being a part of the real estate industry it is plausible to presume that the significance of data driven design including the economic value of the design will be growing to an extend that goes beyond its cultural perception. Shoshana Zuboff description of the risks of the surveillance capitalist society also includes the built environment.

Consequently, as designers we need to establish validations of qualities of designs that go beyond the merely required function of the building. It may well also start to include the 'immeasurable' aspects of design like cultural values.

One of the most important aspects of designing is, instead of how classic scientific research works, designers usually work towards a a predictable outcome, we want to reach certain goals with our designs, and we have a lot of different methods to get there, we try to investigate and frame this crucial phase of the process that leads to the desired outcome, in a sort of "outcome-driven architecture" way of designing. I refer here to how Kees Dorst describes this process in his publication 'Notes On Design, How Creative Practice Works.' In other words, design is by default always result driven, and created by using 'frames.'

In a way this is self-evident to how we designers always have been thinking about designing; the notion of the prototype is an interesting matter in that sense, the ability of architects to visualize and create possible futures in design is important, but also the entire process of thinking behind it.

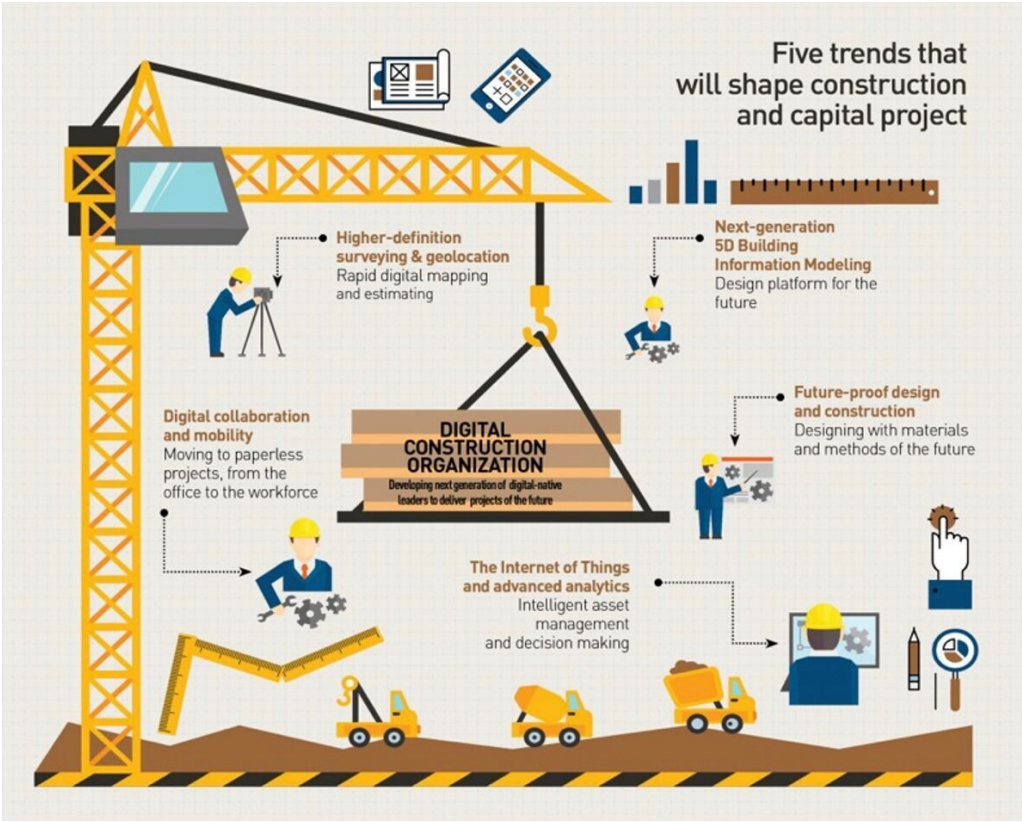


Figure 1: *Digital construction organisation*, image by Subhash Kumar at www.geospatialworld.net

How can we achieve excellent design quality when building processes become ever more determined by economical, ethical, technical, and legal regulations? How do we get a bit of control over the possible outcomes?

Architects of the 19th and 20th century tried to do it by thinking about types, styles and categories, moving towards a standardization of these, but nowadays mono functionality and singularity are no longer drivers of our designs, *hybridity* and multiplicity should become the main key drivers of the architecture and. the built environment. These topics are now at the center of research the Public Building design studio group at the Delft University of Technology, using research-driven design processes to investigate new types of public building solutions. Most public buildings nowadays combine at least two different functions and also should act as catalysts for urban quality. This applies also to buildings with much more limitations, like for example government office buildings. This is important for the city of the future, and buildings for the future, that have to deal with the growing demands of flexibility, density and sustainability, whilst at the same time should contribute to livable cities. We can start to imagine an introduction of more publicness in all buildings, that could invade not only government offices but introduce this notion to commercial architecture as well.

It's a very interesting matter to think about; the identity of the buildings for the public and the state is an important item of research. Do we see



Figure 2: *Rewoven*, project MSc2 Inter-Action Public Building by students Clara Beckers, Marije de Ruijter and Yucheng Li

buildings as entities, created through for example DBFMO (Design Build Finance Maintain Operate) processes that owners can easily write off and resell to the market, or do they get a special identity and purpose in the city and its context because they are made for the public? How do we validate qualities beyond the measurable items? What kind of design research frames can enhance the cultural and esthetical value of purely data driven design?

Public Building MSc2 studio Inter-Action

In this studio researched the renewal of a state government building how different workstyles, levels of accessibility and the public domain can interact in an existing building in the center in The Hague. The project was done in collaboration with the Atelier Rijksbouwmeester (Atelier of the State Architect), who is investigating the future of government real estate.

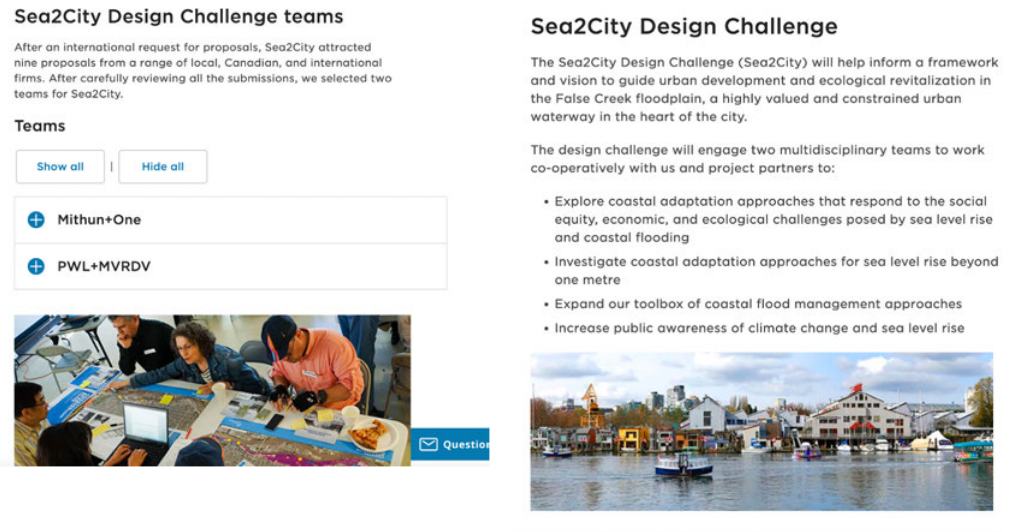


Figure 3: Website Sea2City design challenge, City of Vancouver

MVRDV / research-driven urban design projects: 3 examples

Sea2City design challenge

The Sea2City design challenge has to do with the sea level rising problem in the False Creek floodplain area in the city of Vancouver, Canada. The city's government started to look at this challenge not only just as an engineering problem but also as a true design problem that has to be solved. Hence, after an international request to contribute to thinking about the future, it was proposed to different design teams to take this challenge.

The previsions show that the sea level is going to rise so considerably, that in the future part of the city will become flooded; even now, in certain conditions, smaller parts of the city are already being flooded.

It is a delicate matter we now have to deal with. During the 90s there has been a lot of promotion for building on waterfronts, and now we are starting to see the downsides of that.

MVRDV office, together with local firms, and Dutch engineering firms, are working as a team on this project, exploring approaches that besides the strictly technical problems respond also to social equity, economic and ecological challenges; an approach, as we can see, that applies not only in buildings but also in urban design.

This approach takes also into consideration expanding the toolbox of coastal flood management for the projects to come, and the increase of public awareness of climate change and sea-level rise problems.

Local community and governments, stakeholders and regulators are therefore partners involved in the design process. A special place in the

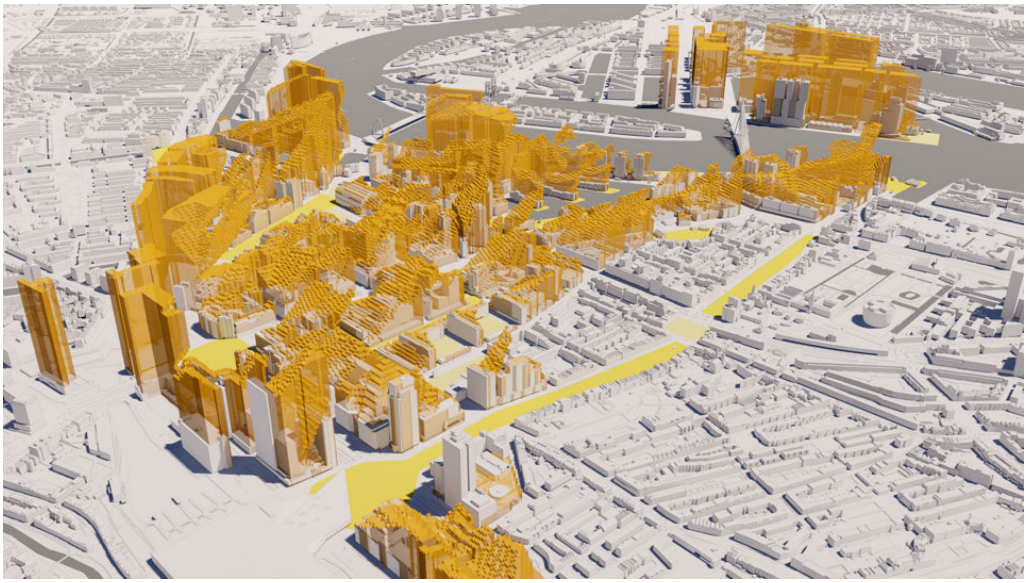


Figure 4: *SolarScape* for Municipality of Rotterdam by MVRDV Next

project is taken by learning from knowledge and getting input from the First Nations.

The concept designs that will result from this challenge won't be built immediately, but will be used as prototypes, and will help to inform the next steps of designs in this framework.

This is a fitting example of how research can be done through the design process, providing knowledge and prototypes to lay the foundation for future projects.

SolarScape

SolarScape is a tool that MVRDV's in-house research and development group "MVRDV NEXT" developed; it is part of a larger series of parameter-based tools called "scapes" that the office is using to think about the densification of cities and analyze many different aspects, to find ways to accommodate more people inside cities pleasantly and harmoniously.

In-depth, SolarScape focuses on the sunlight parameter, developing a computational model of the city that visualizes the behavior of sunlight. This specific tool helps to identify the best solutions for obtaining the maximization of sunlight exposure, considering mutual distancing, orientation and height of the buildings, but also environmental variables such as the number of hours of sun exposure during the day, what time of the year it's been measured, the built environment in the context of the analysis area, etc.

To visualize the best scenario, the tool extrudes the developable plots up to a maximum height and divides them into a 3D grid, analyzing the impact on surrounding sunspots for each of the 3D cells and removing those that would harm their surroundings. Since the process is automated, it is possible to scale it up to the entire city; without the shadow cells,

what is left is a volumetric boundary of a development opportunity towards a city without shadow.

These digital tools can help design and test policies to make cities denser and more pleasant to live in at the same time. In this particular case, we can appreciate how the process of research helps to design a tool to make multiple design proposals in turn.



Figure 5: *Collect and Connect* by HASSELL+ TEAM (Hassel/MVRDV/Deltares/Goudappel-Coffeng, Concept for San Francisco Bay Area 'Resilience by design'

Resilient by Design

The bay area of San Francisco is suffering from different kinds of water-related climate change issues, and it's dealing with a lot of crisis possibilities: the decrease of water during storms from uphill downwards, lack of water in other periods, the bay level sea rise, fires, and the danger of occasional earthquakes.

In this scenario, one of the many challenges is to think on a very large scale in a context where state regulations concerning flooding and water management are absent, and it's instead dealt in a more local scale. As of today, even in a country with such problems, closing off a bay with a dam is not a real option anymore. Instead, an appropriate alternative to that is working closely together with local communities on solving the issues by collecting data and preferences through an app and identifying opportunities sites for creating safe spots. The extra task was to use the public investments also to enhance the local quality of life, especially for communities living in these areas that are also suffering from the high ground princes and cost of living.



Figure 6: Dokk1, Aarhus, Denmark (library, municipal office, exhibition room, station– 2015 arch. Schmidt Hammer Lassen, photos: Adam Mørk

All these matters together brought to a speculative proposal that starts looking at the whole network, improving the infrastructural system, making connections through local communities with special points where one could go up or downhill in case of emergency, depending on the nature of the issue. These points are a combination of connectors and collectors, to improve both the actual water system and the public transport connections for people living in the area. At the same points emergency hubs can be created where people can gather and use as safe places where is possible to escape in a crisis situation via water instead of via the too vulnerable road system.

Part of the approach is also to involve the local communities by creating a catalog and talking about their needs and necessities and what functions they would like to have at these special points in the bay area.

In conclusion, as we can see many things can come together during the design process, crisis management, local governments, engagement of local communities, and so forth, all being part of a more productive and inclusive approach. The project was made with a team from Hassel, Deltares, Goudappel Coffeng and local firms.

Conclusion

A proper summary of this way of thinking is the concept of *multiplicity*, which is also the main conceptual framing of the Public Building group and its design studios at the Faculty of Architecture and the Built Environment, Delft University of Technology. We need to think in a much more multifaceted way about the productive ability of our designs, but we still need a lot of research to better understand how this should work and how it can even become part of the standards that future architects will have to learn or to improve the toolbox of current architects firms to handle the very complex era we are living in, making sure that we enhance the quality of the built environment.

Connected Brains for Collective Knowing

Kees Kaan, TU Delft



Figure 1: Kees Kaan – keynote lecture on Tuesday, March 29th, 2022; photo by Joran Kuijper

Introduction

Recalling a conference he was part of some time ago regarding his positions and findings of research and design, he shows a straightforward overview from the perspective of somebody with an established own practice, connecting it, now and then, with his academic work. What are the challenges in making this connection? What are the questions to be asked?

Research and design

Starting from the general assumption that scientists and academics produce new knowledge based on their research, there is a prejudice concerning designers. It is assumed that no new knowledge is produced during the design process. The main reason is probably based on the preconception that design focuses mostly on imagining future needs and developing products for them, while research deals with understanding and studying the past and present.

A substantial difference between design and research is that – to be proven useful and valid — designs need to be acknowledged by stakeholders and future users in society. In contrast, research knowledge must be based on scientific methods and recognized by peers.

There is also a distinction to be made between *research design* and *design research*; the first can be understood as "the design of research" in a more epistemological fashion; the second is more focused on the research needed during the design process; it could be research about design, or for design.

Research cannot be kept exclusively to academia but must also play a fundamental role in practice. There is an urgency to cross the borders between academia and practice to establish clarity on the relationship between research and design and to find a synergy between them. Gathering knowledge through research work allows us to use the resulting experience to speculate about the future, and architectural design is unavoidably doing just that. Research is an implicit part of design; there is no such thing as doing design without any research or investigation. But what if we knew everything? What if we had immediate and instant access to all existing knowledge worldwide? What effects would this have on our ways of imagining and designing the future? Would it discourage us entirely from trying anything new, or would that access accelerate innovation and improve our work? Would we become perfect architects? Does more knowledge mean better architecture?

The complexity of an architectural project also fuels the need for research inside the design process. An ambitious project always requires a combination of existing technologies and innovation and has the characteristics of a prototype. Although they often use typological knowledge, buildings are seldom entirely new types but mostly a repetition or evolution of something already existing. On top of that, a huge variety of users and their unlimited expectations have to be met. While new technologies and knowledge provide architects with new tools for design, the clients, stakeholders, and society are raising the bar of expectations. They have access to those same tools and knowledge. Therefore, design has to meet higher demands constantly. Buildings are becoming fully integrated products and the next step will be a further automated interaction with its users. The number of stakeholders in the design process is increasing, which means that more expectations must be met and more information must be managed. Today, without the stakeholders' input and support, no project will be feasible; their engagement is essential for decision-making and the release of funds. Typically, all research made as part of the design process is subordinated to the pragmatism of the results needed to propel the design, meaning that the research is not objective and is interrupted as soon as the design decision is reached. Due to this, every project leaves a trace of unfinished, half-done, or sloppy research. Still, there is potential for guidance and collaboration to upcycle this incomplete research and bring it to an academic level.

Today's architectural projects are subdivided by all kinds of team workers from different disciplines. The architects' team is responsible for processing information and explaining the design team's decisions to the stakeholders. The design process is the most intense before going to the site rather than during construction. Many stakeholders must be committed to the project, and simultaneously, the design has to be engineered towards an integrated product. In that sense, the architect's role gradually shifts from "master builder" to "master explainer". The architect

controls the development and direction the design takes by the way he manages the information and explains it (please understand information as drawings, reports, calculations, any medium that describes the project). Therefore, communication (not chatting, but thorough, clear curation and dissemination of information) is key. Incoming information, design team expertise, stakeholders' experience, all this knowledge must be integrated into the project.

Besides the above, another notion is very important.

Today's public and commercial projects are not only products of societal demand but are also investment vehicles for global funds seeking local users to pay for the global system of investments. Developers, contractors and users operate on a relatively local scale, while investors operate globally. Architects are often assuming that developers are calling the shots on what to build, but this is a misconception; in the end, investors are defining and deciding, the ones that push the requirements to the level architects and engineers need to design against; it's their money on the line, so they require certain standards. Ultimately, a building is a local version of a global product that must meet requirements on both scales.

For a while, and by some, the architect's role seemed marginalized and perceived as a more artistic contribution rather than having a grip on the process as the master builder. But architects can reposition in the key role of controlling and managing the information and acting as strategic thinkers. Investment-driven developments require research into different options at the initiative phase; we can call it "pre-design" or "master planning". This phase is vital to lead to an agreement or understanding between the parties involved. Only when a safe understanding between capital and society is in place can a project really start. Architects play an essential role in this particular phase of communication and negotiation. They provide clear and legible designs that serve as vehicles to reach the abovementioned understanding rather than already being a model for the possible future. This is a crucial project phase requiring design support and is not clearly defined in most international standard contractual templates that organize relationships between clients and architects. The phase is about designing the brief for the design. It doesn't exist yet.

There's an enormous potential for new technology here, such as big data, or AI, to support this work.

Let's take Neufert's *Architects' data* as an example; the manual explores the rationalization and standardization of the design methods during the 20th century, and it all fits in one physical book. Now, with new technologies, there's a huge amount of information that cannot fit in one book anymore; we no longer look for standardization, we look for different requirements for different settings, and we need some sort of "intelligent Neufert's manual".



Figure 2: Kees Kaan – keynote lecture on Tuesday, March 29th, 2022;
photo by Joran Kuijper

Conclusion

Today we need to cope with a lot of information while designing, and if we want it to be state of the art, pure humanistic design talent is no longer enough. Of course, experience is important, but we need to access new layers of information/knowledge simultaneously. We might come closer to the actual concept of “knowledge of everything” by connecting many brains. Connecting brains requires ultra-clear lines of communication and exchange of information. I have a hunch that new technologies, big data and AI are based on universal templates. Using those could prove beneficial to this improved communication and collaboration of brains. Design research collaboration between practitioners and academics could establish new models of collecting information and designing.

If humans have a future on this planet, we need to change how we deal with our built environment; we cannot rely on the interventions of individual geniuses anymore. We need a collective effort and all the knowledge in the world to achieve higher standards and better results.

We must change our way of working as architects, not our way of being architects.

Art Cannot Be Taught[1]

Milica Tomić, IZK Institute for Contemporary Art, Graz University of Technology

1————The hereby published text is recordings' summary of the keynote lecture that took place on Tuesday, March 29, 2022, during the second day of the CA2RE+ Delft conference.

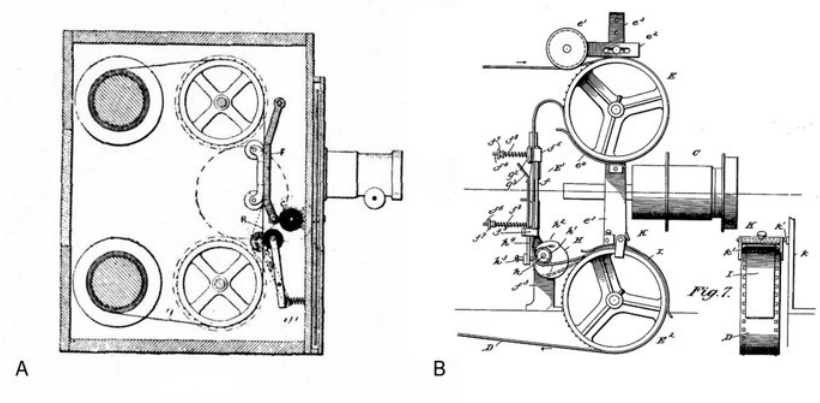


Figure 1:
A) Kinetic Camera. Image retrieved at: https://www.victorian-cinema.net/kinetic.jpg;
B) Drawing of device embodying Latham Loop patent. Image retrieved at: https://commons.wikimedia.org/wiki/Category:Latham_loop#/media/File:Drawing_of_device_embodying_Latham_Loop_patent.jpg

Introduction

The Kinetograph, invented by Thomas Edison, was the very first way films were recorded at the end of the 19th century. At the very beginning, it wasn't easy to get the camera mechanism to run smoothly; due to the tension between the camera gate and the spool it was highly probable for the film to break, so for this reason, film projections, in the beginning, used to be very short.

Then, a very simple invention came to help define the operating character of film technology: *the Latham Loop.* Its function was to isolate the film strip from the tensions by placing an additional stripe in the camera mechanism, thus allowing movies to be continuously projected for more extended periods. At first, this simple yet effective invention was seen as a surplus and unnecessary non-functional accessory, but this little piece, like a hint of freedom, brought together a free thought of art along with technology and mechanized labor. In this sense, I feel that the Latham loop symbolically represents the role of art within the context of technology and science. In the realm of cinema, the Latham loop stands for the inseparability of idea and matter, much like artistic practice and theory.

What can we do to enable this hint of freedom that at first glance looks like an unnecessary act?

It helps if one doesn't look at art from the pure aesthetical aspect of form that artists place on an object itself, but rather to see its expression and state of mind, which manifests through relations while establishing intellectual thinking.



Figure 2: Sans Souci-Four Faces of Omarska, exhibition at the Malta Festival Container Poznań, June 16–25, 2017. Photograph by Maciej Zakrzewski, source Malta Festival Poznań, retrieved at: https://archiwum.malta-festival.pl/artist/milica-tomic/

Education and Research in Art

When artists are teaching, they must be aware that art cannot be taught. The definition of art is in continuous expansion and we never know when and how art will emerge, and from which side it will hit us. Seeking answers to this problem, when I started teaching in an institution, I tried to expose this issue to a wider audience and present teaching-research in art, as a public matter. At first, we started a very simple lecture series hosting many guests from various institutions from different parts of the world. In this context, we articulated the role of the institute and our projects as a crossroads of academics, a window for the university to the public realm, and the missing link between university research and public art institutions. We brought together teaching and exhibiting by organizing research exhibitions as a place of learning and production, and while being in the 'public realm' we were expanding the idea and the definition of the student. Who is a student, and who can become a student?

This was a crucial moment. In order to redefine the concept of the student, we left the university's walls and we were not only giving lectures in public institutions but also dislocating the classroom into the public realm. At the very beginning of my arrival at TU Graz, I was invited to take part in the Steirischer Herbst international festival at Kunsthaus Graz. For my installation I opened a research-learning space for the Master students of my studio, giving them the possibility for random encounters with the exhibition's visitors, questioning the very definition of student. The title of the Master studio was '*Sans Souci: four faces of Omarska.*' It is



Figure 3: Sans Souci-Four Faces of Omarska, exhibition at the Malta Festival Container Poznań, June 16–25, 2017. Photograph by Maciej Zakrzewski, source Malta Festival Poznań, retrieved at: https://archiwum.malta-festival.pl/artist/milica-tomic/

about research that investigates the contemporary types of detention and concentration camps, reflecting their socio-political and urban role in the reproduction of contemporary capitalist society. Students were investigating a field that was still unexplored, where specific types and forms of concentration camps were established during the 1990s Yugoslav wars. We were looking at the urban structures that emerged in the post-war Bosnia and Herzegovina environment, and other cities in which war crimes were not recognized, investigating how new forms of urbanism and sociality are informed by these camps. We observed how architecture and the concentration camps are deeply entangled with everyday urban structures. As such, the camps outlive and continue to endure through the new forms of urbanity, economy, and socialization during the period of the post-war transition.

Taking Trnopolje and Omarska camps as the symbolic loci, the project reflects the crucial social processes conditioning the present state of global societies. In this light, we explored relations between the 1990s Bosnian camps and the refugee camps created in recent years in Jordan, Turkey, and Greece, for Syrian, Iraqi, and Afghani refugees. This soon became an important part of the project, to understand how these types of establishments inform the urban life in the city.

At the *Body Luggage* exhibition at the Steirischer Herbst festival, I presented several research-document models, intended as objects and learning tools which were the starting point for the Master studio. What I mean by 'research-document model' is a multilayered object that contains in itself a certain history. For example, one of these objects was a model of the Omarska concentration camp made for the International



Figure 4: Sans Souci-Four Faces of Omarska, exhibition at the Malta Festival Container Poznań, June 16–25, 2017. Photograph by Maciej Zakrzewski, source Malta Festival Poznań, retrieved at: https://archiwum.malta-festival.pl/artist/milica-tomic/

Criminal Court in The Hague by Zlata Cikota, a woman engineer who took part in designing and building the mining complex of Omarska, during the socialist times, and was later taken prisoner in the camp.

We then started the lecture series, in which the audience was very much involved. Eyal Weitzman gave a lecture that was related to forensic architecture, in which he analyzes an explosion happening in Gaza, looking at the mushroom cloud as a radical transformation of the city's architecture. Lidija Radojević and Dubravka Sekulić gave a set of lectures on societal Yugoslav ownership and privatization processes that were happening during the war. Andrew Herscher's lecture, entitled *Black and Blight,* was about the housing struggle after the neo-liberal turn, brought in relation to Omarska, where the Bosnian and Muslim population is still subjugated and oppressed.

Soon after these lectures, we organized a field trip with the students to the Omarska mining site, analyzing, and understanding the everyday struggle of the local population. The turning moment that opened the deep fieldwork research happened during this visit. Here it is important to point out that nothing changed after the war, everything that was in use in the camp hasn't been replaced. With first-hand experience, during the stay, the students realized that research is not only about doing surveys on a site, looking for documents and findings, and bringing them back to the university, but it is more about the significance of the work they are doing and how the site reacts and responds to it. The field trip was one of the most valuable parts of the research, in which the students learned by experience how uncertainty and impossibilities are incredible sources of knowledge.

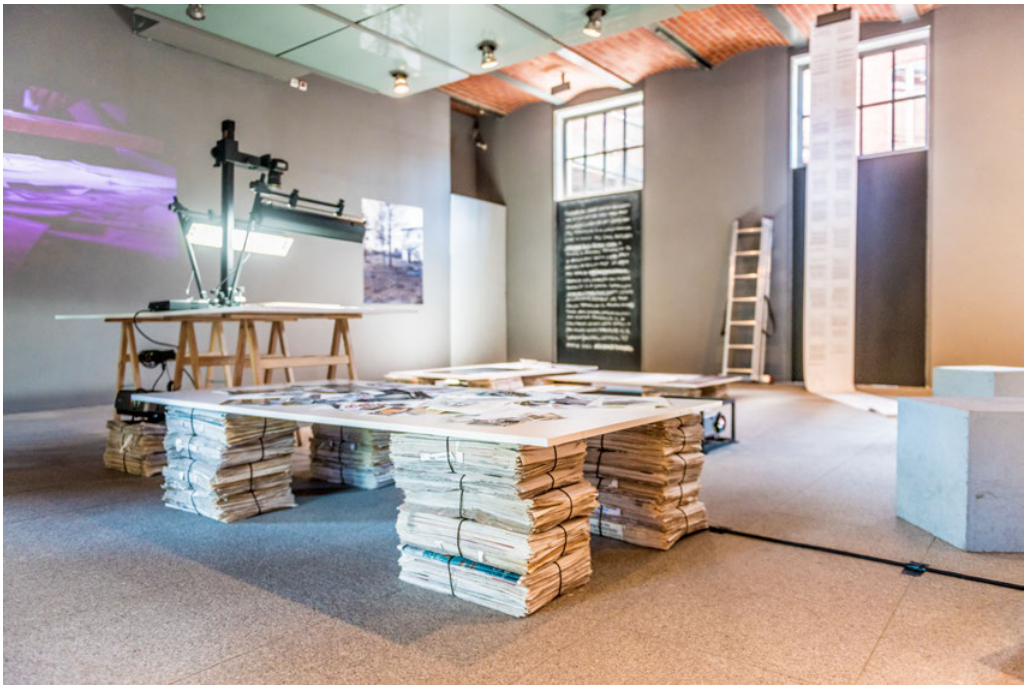


Figure 5: Sans Souci-Four Faces of Omarska, exhibition at the Malta Festival Container Poznań, June 16–25, 2017. Photograph by Maciej Zakrzewski, retrieved at: https://archiwum.malta-festival.pl/artist/milica-tomic/

An important part of this Master studio consisted in reading a selection of books connected to the topic.

We developed a certain methodology for this matter. To read a book, different sections of the chapters were assigned to the students, one per person; they had to read it, and ultimately present it to the others. In this way, to understand the whole book, the students had to rely on each other's knowledge. It was not simply about merely reading the books as much as it was about understanding and capturing what kind of discussions can enable talking about certain topics. After working within the space of my installation, the students also made their exhibitions, not as a part of my work, but coming as their own, as people who really contributed to this project with their own work.

Concluding words

Artistic research, in its full meaning of practice-based research, can only happen outside academia. In this light, I suggest exploiting the space of tension between the impossibility of the only given space that is made for research, namely the university, and the possibility of the 'public realm.' To make it work, we have to create our 'Latham loop,' we have to find the stripe that enables the dislocation from the university and gives us that hint of freedom needed to establish proper practice-based artistic research.

Workshop CA²RE+ Partners Institutions Presentations and Discussion on Design Driven Doctoral Research

NTNU Trondheim

Markus Schwai

Inside the context of Design Driven Research (DDR), it's important to allow disruptions and to take more risks – society today does not want to take risks anymore, we are going in a direction where we want to have results even before knowing what we really want. What can we actually do to change this?

From the perspective of a supervisor, there's a lot of change in direction, it's important to accept that there is a variation from the traditional role we are used to. Several times we have to revisit what is essentially the goal of the research and not focus too much on the resulting presentation, changes could also come parallel to the knowledge production that comes out during the research process. So, in summary, my recommendation is about trying not to focus on describing and certifying the possible outcomes of research, but to rather open up, allowing the unexpected.

Bjørn Inge Melaas

My research is based on urban gardening, and choosing not to limit the scope too much, leading to a process that has been open and intuitive. The framework of artistic research has allowed following the threads I found more interesting without worrying too much about whether or not I was doing something that a PhD candidate was supposed to do according to the traditional standards of research programs. This kind of approach can produce original research and leads to surprising findings, but it is also extremely challenging to navigate and quite risky. However, we need this kind of disciplinary research, we need to try to change the world as we learn about it and we need to risk something to be able to move forward.

Support from supervisors and openness to such explorations is crucial to follow this path.

During my sessions, I and my supervisors discussed themes as diverse as soil biology, geology, planning, political ecology, psychology, industrial agriculture and urban gardening. The role of the supervisor is a challenging task: in every session there is a new thinker, a new field, and a new perspective that is brought into discussion and it is impossible to be an expert in every field involved. To reduce the risk of this kind of research it's important to build a community around the researchers, this means having physical spaces shared with others who are working in the same way, building a community of friends, practitioners and academics in a wide range of fields that could be discussed together, organizing regular events to discuss the different aspects of the project and so on. It is also important to build a framework around artistic or design-driven



Ilens Hage, urban gardening in Trondheim. Part of the artistic research project Ecologies of urban gardening, done by Bjørn Inge Melås, supervised by Markus Schwai

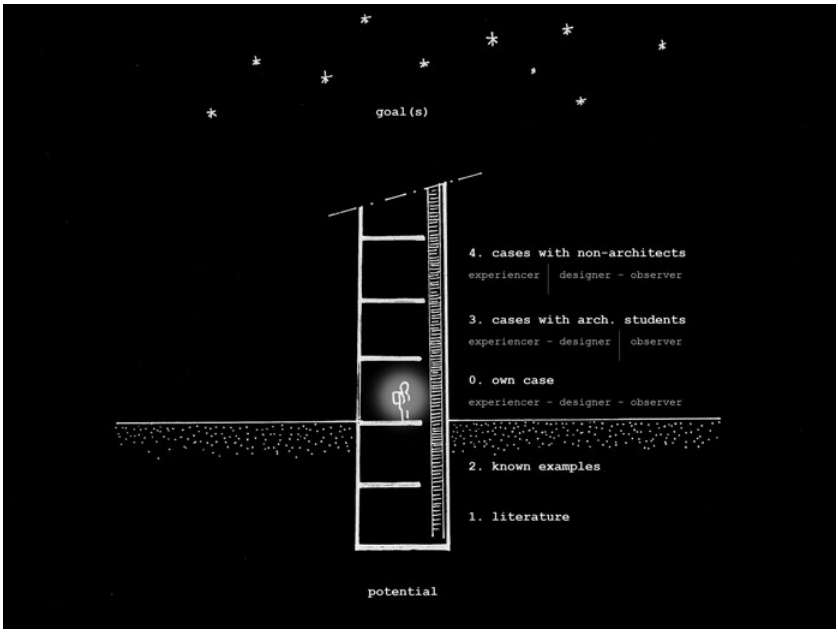
research that makes sure that the nature of the research is understood, and in this sense, the CA^{2}RE network really is a reference point.

I personally think that if this kind of community is not working, there is a risk that the uncertainty of the situation will force researchers into conformity and thereby we will miss out on the innovative potential of research.

KU Leuven

Eva Demuynck

The research project "The embodiment of consolation: unlocking the interaction between mourning drawing and space" aims to uncover how architectural design through drawing can be implemented towards improving the mental well-being of someone in mourning. The research is based on my master dissertation which involved a series of hypothetical interventions in my childhood home, in search of a place to store the urn containing the cremated remains of my father who passed away a few years earlier. Engaging with this personal experience of loss allowed me to discover a social need for a new approach to the design of funerary architecture and to experience the therapeutic potential of architectural design firsthand, thereby giving me sneak peeks of what could possibly be an answer to this question.



Demuynck, E. (2022). Visualization of the current research approach as a multistoried building, allowing for an oscillation between the different research steps and between the different roles of the researcher. [Drawing]. Produced by the author.

Gaining a better understanding of a specific cultural context through personal experience relates closely with auto-ethnographic research. This resonates with a recent book, '*The auto-ethnographic turn in design*',[1] which through a series of essays, conversations and projects, discusses the topic and defines it as a unique form of knowledge production in which the designer is at the heart of the research and tries to make sense of his/her larger cultural context through creative production. So, where auto-ethnographic research relies mainly on the verbal and written reflections of observation made, design has the potential to communicate in a non-verbal way and to actively engage with the studied context instead of merely observing it. This is especially true for architecture, which has an even larger spatial impact than design.

This leads me to my first recommendation: given that Design Driven Research (DDR) is often aimed at developing a better understanding of a certain topic through design, exploring the correspondences between auto-ethnographic and DDR could prove to be fruitful for researchers that base their DDR on personal experiences.

For the 2nd and 3rd recommendations, I have visualized my current research approach as a multistoried building. The first step of the research involved building a deeper foundation for the findings from the master dissertation using a literature study and a study of known examples. During the second step, these findings are implemented in additional case studies with architecture students – also taking an auto-ethnographic approach – and ultimately in case studies with non-architect bereaved individuals.

However, while conducting the research I noticed that it progresses less linearly than I had expected at the beginning, which is why I added

1 – Schouwenberg, L., & Kaethler, M. (Eds.). (2021). *The Auto-Ethnographic Turn in Design*. Valiz.

added a ladder in the building, allowing me to go up and down, to oscillate between the different research steps.

Hence my 2nd recommendation, with which I want to bring attention to the importance of recognizing this non-linearity in DDR and the uncertainty that comes with it.

For the 3rd recommendation, I return to the ladder of the scheme, which is also there as a counterweight for this uncertainty. It offers support when there is a lack of expertise needed to proceed with the research process, for example when I need to take on different roles within the cases (namely that of the experiencer, designer and/or observer). This is why the literature study includes publications from related fields such as bereavement studies or art therapy and also why I often rely on research methods coming from the social sciences (e.g. for interviews, observations, etc.). So the 3rd and last recommendation would be that for these types of research, which include DDR but operate on the border of the discipline, it would be valuable to find ways to include more expertise from other disciplines in conducting and evaluating DDR.

Johan Van Den Berghe

The concept of oscillation, which Eva depicted through the metaphor of the ladder, plays a very important role in the awareness of the concept of PhD research projects.

Do not take the linearity of research for granted, because it is simply not true. This directly connects to the concept of uncertainty that Markus (Markus Schwai, NTNU Trondheim) previously discussed, this is something that needs to be accepted as a given in research projects. There are not so many dogmas in research, it is actually about anti-dogmatic thinking and being open to all incoming signals.

It is also important to point to the empirical nature of research, which means that we need to pay attention to every incoming signal and take it into account, giving it a place in the process, which is not always easy for a researcher. Research can be a very lonesome business, so it is crucial to lean on people from other disciplines who can help mediate possible weaknesses in the margin of your work, and most importantly, make it possible to lean on your supervisor's network, which goes beyond your supervisor alone. Addressing PhD candidates in particular, I would like to recommend leaning not only on your closest supervisor but also on your peers, talking to them and openly sharing uncertainties. A moment of discussion like the CA^{2}RE conferences is a unique occasion to share uncertainties rather than demonstrate certainties, and take the occasion. Junior researchers need to be aware of the fact that there is an extensive network of people around, and that solitude is only instrumental when you need to focus on what you do. Take advantage of the generosity of the network we belong to, feel comfortable climbing the ladder and going up and down as many times as needed for your research, and if you need a grip on the ladder, we will try to give you one.

TU Berlin

Ignacio Borrego

At TU Berlin we are developing a design-driven PhD program, working with 60 PhD candidates.

For me, the design-driven approach is highly relevant in our discipline today. I have been educated as an architect at the Universidad Politécnica de Madrid which is a big institution, and I have also been teaching there for 14 years, in the last 3 years coordinating the PhD program with roughly 400 candidates, and surprisingly, none of them was a design-driven PhD. I always thought it was unfortunate, I had the feeling that, as designers, we were not fully using our skills in the research process to achieve knowledge.

I appreciated the metaphor that Eva (Eva Demuynck, KU Leuven) proposed. One of the aspects that I found more interesting about this "knowledge tower" representation is that in this multi-storied building, literature, references, and known basis were all pictured underground, whereas only personal experience was above.

When talking with Agata Kycia (PhD candidate, TU Berlin) about her presentation we were dealing with the fact that the CA^{2}RE network involves a very wide range of disciplines and topics, therefore it is very difficult to focus on specific knowledge. Here at the CA^{2}RE conference, we talk about many branches of art, architecture, and design. Hence, organizing the presentation in different knowledge fields can be challenging. Even though, going more in-depth about this, I recognize that we do not have so much expertise in the specific knowledge of each presentation, rather than how they are facing the research. The expertise of the panel members is more methodological.

I think this is a place where we talk about methodology, and in that sense, I think it is a very specific topic by itself that has its proper potential. If we use our own skills to produce knowledge, we explore the unknown with design: how do we communicate it afterward? How do we transfer the new knowledge to others? How can we make our discoveries understandable?

I think this is definitely an interesting challenge that we are currently exploring.

My reflection is connected to the topic of the way we do research.

I think that a good starting point for research would be to look closely into those places in which something is not properly working, exploiting that moment of uncertainty to pose to ourselves the questions that are going to stimulate our initial research phase.

Within the CA^{2}RE network, we are not all designers, so this makes me question the nature of the expression *research-by-design* or *design-driven research*. As architects, we have different skills and we use them to

develop new approaches in research, in opposition to scientists, who follow a more strictly scientific path and don't share nor approve our type of approach.

I think that our research method can be reassumed in three phases: observation, representation, and transformation. They're deeply interconnected — when observing you can represent, when representing you are actually observing, and then you can transform. These three phases are not all design-based, the basic concept of design is something that is connected to the concept of drawing. Although they are not the same, we can draw without designing and we can design without drawing, and sometimes drawing can be used also as a creative process that can produce knowledge. However, in that case, I would not define it as *research-by-design* but rather *research-by-drawing*.[1]

1 – This text is a revised transcription of the intervention at the CA^{2}RE / CA^{2}RE+ Delft on March 28th, 2022

Arkitektskolen Aarhus

Claus Peder Pedersen

With the CA^{2}RE network, in a way, we promise to look at the overview of what goes on across Europe, maybe even beyond, in terms of design-driven research. To be provocative, we could say that the organization is not quite at that point yet. There are a lot of different things going on, different interests that are very practice-oriented, programs that other practitioners have already established, and programs that address design-driven approaches which is more focused on career-developing. So there is really a wide range of engagement with this topic and even though we have fruitful discussions and always new nuances of understanding design-driven research, we are not yet in a stage where we can make clear recommendations in terms of promoting research knowledge. We might still be missing a few publications that could change the view. What we have here with the CA^{2}RE network, is a very particular conference format that works between being a learning environment and a more traditional conference program, in which there is the chance to put something at stake, to risk, to discuss also unfinished work in progress all together.

Three recommendations in the form of three questions:

1. How can we build on extended disciplinarity?

One of the most interesting things about the last few CA^{2}RE conferences is that we had people from various artistic backgrounds and that led to many interesting discussions where different notions of creativity and different frames of reference really seemed to elevate the topic in a new way.

2. Is there a challenge in focusing on individual research or design contributions?

We as a network, challenge the very notion of authorship in some ways, though, we carry out a very traditional conference format where mostly young researchers present from an individual viewpoint. Isn't that an old-fashioned understanding of authorship even though we also have researchers and designers who work with different forms of collectiveness and user involvement?

3. Is there a way of extending our network to be better and having post-doctorate and more experienced researchers also present?

Now we might be in a situation where experienced researchers can discuss how they taught PhD students their way inside the design-driven research approach. Wouldn't that require other formats of presentations as well?

Aida Español Villanova

Introduction

My recommendation starts with a book. The title of the book is *'Differences: Topographies of Contemporary Architecture'*, 1996, written by the architect and critic Ignasi de Solà-Morales. The book is a collection of previously published articles by the author. And I believe that some of the ideas are very much relevant to the ongoing discussion of CA2RE. I have extracted 7 notions. These can be read as connected ideas, but also as contradictory pairs.

Topographies

The first concept, topographies, should be seen as an umbrella where the other 6 following concepts are embraced. "The 'Topography' of contemporary architecture is the pursuing of a knowledge of architecture based on its representation. Topography is the representation of a place that reveals the knowledge of the place not as a type or class but as the place itself. Topography is geographical but it can also be architectural. Places are physical but they can also be mental. Such places are particular, singular, and their description should not eradicate their individuality. Topography, then, is the representation of the particular, but it is a form of representation that articulates rather than depicts: it reveals multiple topographies, rather than representing or reproducing one in the manner of a graphic simulacrum." (page 6)

"From a multiplicity of platforms, criticism today can undertake the production of maps or descriptions which, like topographical charts, reveal the complexity of a territory — its form the result of geological agents operating in silence on an apparently immobile mass that is nevertheless cut through by currents, flows, changes, and interactions that give rise to incessant mutations." (page 16)

Singularities

"When we acknowledge that what constitutes the significant core of a given phenomenon is not so much its belonging to a particular genre

or type as its radical singularity, the problem becomes that of the instruments with which we are to recognize the singularity. In recent years historiography has sought to address the delicate question of how to analyze the specific as the specific. This is, from the perspective of philosophy, the problem identified by phenomenology: that of arriving at knowledge of things in themselves on the basis of a science, grounded not in abstract principles but in representation. Rather than imposing a framework, or a categorizing system, upon something, phenomenology seeks to derive a framework from the things in themselves." (page 5 – 6)

Differences

"What makes it possible to delimit the specific conditions of each individual, subject, or work of art are its differences. Knowledge of the same permits only tautology. The possibility of being able to attribute particular characteristics to a given situation or object is founded on difference. Recognition of difference leads to the affirmation of the plural. A plural culture is one that makes of differences its profile, its distinctive outline, its characteristic features." (page 7)

Autonomy

"Joseph Kosuth wrote in 1969 "Art indeed exists for its own sake", formulating the principle of art´s autonomy. The rediscovery of Marcel Duchamp by conceptual artists signified, on the one hand, the disappearance of all reference to anything beyond the universe of artistic products itself and, on the other, the prioritization of the communicative-linguistic orientation in the understanding of artistic activity. The conceptual artist puts the idea before the materiality of the object…What feeds this work is the artists' self-interrogating reflection on their activity as producers of art and on the work´s self-referentiality." (page 75)

Relationships

"The explication of architecture exclusively in terms of architecture itself is a slack excuse, an attempt to deny the evidence of much broader relationships… This is not to assume, however, that reality is stratified, and that for each level of architectonic event there is a corresponding and analogous level in philosophy or art." (Page 7 – 8)

Processes

"Art is not the object: it cannot be identified with an artifact that we appropriate independently of the process by means of which it was conceived and realized. The process is more important than the work of art. More important than the finished, isolated object are the ideas that made it possible. Artistic communication is produced at the moment we are able to understand the object as the result of a structure, as an always provisional state that proceeds from prior studies and that will make subsequent development possible." (Page 75 – 76)

Realities

"Reality will always be more potent than thought." (Page 11)

University of Ljubljana

Ana Belčič

My thoughts and recommendations are very much linked to my personal perception of design and architecture in general. I am interested in the relationship between spatial and social themes and I see the designer as some sort of public servant whose job is to detect design problems, recognize how they affect their surroundings and attempt to solve them to benefit society. We as designers can choose to either work with the system and play by its rules, or to play a subversive stance and object to it through our work and research.

I often see that we are very defined and limited by the way we interpret the world as professionals within our discipline, and this sometimes can prevent us to learn the intricacies that are actually very important in order for us as designers to progress and find better answers to our questions. I have become aware of that when my own work required a multidisciplinary approach, so therefore I suggest looking for recommendations also outside your own discipline, cultivating relationships with non-architects and non-designer as well as speaking with other professionals from different fields as much as possible. It is also important to have some healthy doubts regarding statements that are made by respected others and test the conceptions in the field by getting involved directly whenever possible. I challenge you to observe and test more outside of our field and to work on demystifying design and research topics to non-architects, to have discussions outside our offices, classrooms and conferences. As much as we as designers need to present to each other, it is equally important to get fresh information from outside, and this is the only way our discipline can stay relevant and grow in complexity.

Tadeja Zupančič

Recommendations for hosts, researchers, and panelists, involved in the Design Driven Research field.

To the hosts: take care about the selection of research topics, we have to go for rigorous, relevant and fresh research, which might carry some potential to contribute to knowledge, and even if it's not that obvious yet, we still need to pursue a strict method of selection.

Agreeing with what Claus (Claus Peder Pedersen, Aarhus) said, I also suggest involving more post-doctorate and experienced researchers in the discussion, who could include rigorous research directly from their practices as well as their PhD programs. I suggest providing a variety of places for the events which will lead to a larger variety of communication modes, performativity, and different kinds of discussions. Provide the timeframe needed for immersion into the specificity and singularity of the

situations, otherwise, we will only stay on the surface without enough time.

To researchers: position yourselves. Position yourselves in the context you are working with and in the context of your previous and future work. The audience can't guess what you talked about at your previous conferences if they were not there, don't assume that people know everything about your work, we need some hints about where you are coming from and where you are going.

At last, to the panelists: when presenting material at a conference during the early stages of research, focus on its relevance, and only after that you can begin focusing on the contribution. Sometimes it is difficult to identify where and how we are maneuvering in a cycle of research, but that's what the conferences and the communication are about, finding that all together.

HCU Hamburg

Matthias Ballestrem

The CA^{2}RE network is a family that provides a trustful, inclusive and open environment for the assessment and discussion of doctoral projects, and has always been a key to collecting, sharing, learning and building a considerable amount of data and experience between all the participant institutions.

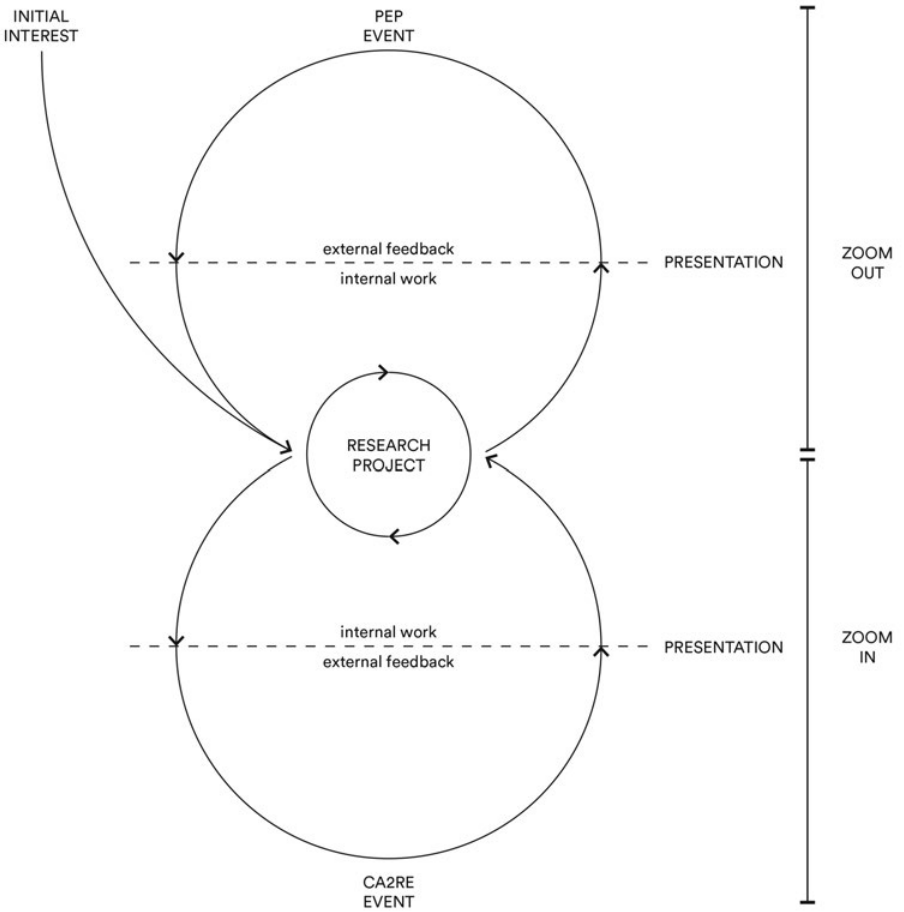
CA2RE	=	FAMILY
OPENNESS	=	DILUTION
ARCHITECTURAL DESIGN	=	PROPOSAL FOR MODIFICATION OF PHYSICAL SPATIAL ENVIRONMENT
DOCTOR OF PHILOSOPHY PhD	≠	DOCTOR OF ARCHITECTURE
FRAMEWORK	=	COMMON MISSION STATEMENT BUILDING A DISCIPLINARY METHODOLOGY

CA2RE+/CA2RE Delft: Recommendation, Mathias Ballestrem, HafenCity University Hamburg, 28. 03. 2022

At a certain point, such openness can easily become a dilution of what really needs to be done. There are two main approaches in design-driven research here inside the CA^{2}RE family. The first one uses design practices techniques and media for researching specific phenomena. The

second one employs original and creative designs as a process of knowledge production and artifacts as a form of knowledge. We already have a title for the first one, which is a PhD, namely Doctor of Philosophy, but we are still missing a title for the second approach. I don't think that a Doctor of Philosophy equals 'Doctor of Architecture'. CA^{2}RE is a unique opportunity to formulate an effective document for establishing this kind of design-driven research in the European scientific landscape. We already know from discussions of policy papers — like the "Florence Principle" on the Doctorate of the Arts or the EAAE Charter on Architectural Research — that this approach carries a great weight inside the public debate on research policies, and we as partners of the CA^{2}RE+ project, have the opportunity to write such a paper.

Building a disciplinary methodology for the 'Doctor of Architecture' would mean narrowing down and agreeing on essential aspects of it — not to exclude someone or narrow down the CA^{2}RE community but rather to fill a gap that we are almost obliged to fill. The CA^{2}RE family can, and will, remain a very open and creative community, but it also needs to impact the European research and funding policies in a way that enhances research possibilities in architecture.



Zoom-out/zoom-in strategy of the combination of the participation in PEP and CA2RE by Marta Fernandez Guardado in 2022 (based on the visual representation of the feedback development of the student project Bunker+ by Joel Berger and Pierre Musy presented at ETH Zürich in WS2020).

Marta Fernández Guardado

My design-based research is a thing-based exploration of personal space for the development of a conceptual and methodological tool to identify and consolidate the personal experience of inhabitation, and it is already in its final stage. To date, I have presented my research in conferences of design-based research a total of six times: three times in the biannual symposium organized by the PEP, Practice-Based Doctoral Program at TU Berlin, and three times in the biannual conferences organized by the CA^{2}RE Community for Artistic and Architectural Research at various European universities.

While the PEP presentations function as regular internal evaluation by the committee that directs the doctoral program at the architectural faculty where I promote, the CA2RE presentations serve as unique external feedback by different members of the wider scientific community of artistic research with expertise in diverse fields and different approaches to design-based research. The alternation of my participation in these two events – PEP and CA^{2}RE – has offered me the possibility to establish a 'zoom-in and zoom-out' strategy that has been extremely helpful for me.

In PEP I present the current status of my work in relation to the overall path of my dissertation journey according to its guidelines. The exercise of reflecting on my current standing position within the full research development means also to discuss aspects that might not be the immediate focus of my concern, but it surely helps me to step out of the small picture of the present moment and reevaluate and reorientate my path to the goal. The PEP members know my research well and have participated in my previous steps, and they continuously and consistently support me towards the end of my journey.

In CA^{2}RE I share the specific aspects in which I am engaged in the moment of presenting from the situation I am immersed. The intense and in-depth examination of one particular aspect of the research question temporarily detaches me from the full map of my trajectory, but it certainly allows me to pause and take the necessary attention and time to resolve a particular struggle that could impede my development. The CA2RE community reacts directly and spontaneously to a limited unresolved section of my work and supports me to attack my current matter of concern from all possible directions.

This personal observation doesn't mean that both PEP and CA^{2}RE do not allow you to share your work from the small or the big picture, but this is the strategy I have found for myself to navigate between these two. In fact, sometimes I have received criticism for either lack of context or lack of detail at these two events but having supervisors who belong to both networks has made it easier for me to articulate them. Thinking retrospectively, I can only encourage other fellow students to explore to the fullest the possibilities of sharing their work also beyond their home institutions in events like CA^{2}RE, and sincerely thank its community for its diversity, immediacy, freshness, and open-mindedness.

Politecnico di Milano

Fabrizia Berlingieri
Jacopo Leveratto
Gennaro Postiglione
Alessandro Rocca

DAStU_ Department of Architecture and Urban Studies

About Community and Contextualization

When preparing the contribution for the Delft conference, we – Fabrizia Berlingieri, Gennaro Postiglione, Alessandro Rocca, and Jacopo Leveratto as the Politecnico di Milano core team, together with Enrico Miglietta – deliberately wrote some individual reflections on preliminary findings and possible trajectories for the CA^{2}RE project. Even without discussion among us, the summa turned out to be a shared perspective on the values of *community* and *contextualization*. I am now presenting them on behalf of the Polimi group.



CA2RE+ in Delft, 28.03.2022, photo by Fabrizia Berlingieri

The CA2RE+ experience had the extraordinary effect of comparing precisely, with the same tools, research-driven research in different schools. The *plural soul* of the CA^{2}RE consortium resulted, over the three years, as a representative sample of the numerous facets that characterize design-driven research: prototyping, self-reflexive practices, critical observation of contemporary phenomena, media innovation, etc. Different approaches for different schools. However, along the way, the main finding is that similarities and differences intersected the consortium geographies in unpredictable ways: sometimes traditions have been respected and enhanced; in other cases, models and references crossed, creating unexpected relationships far from their original place. This cross-fertilization proved how important it had been the effort to establish a common ground between us as a community. This common ground further

sustained a progressive engagement to develop and promote unconventional research paths where the methodological specificity of design-driven research (DDR) could be more clearly formulated. It relates to the consciousness that we, as architects, designers, and artists, are familiar with non-verbal media deriving from an endogenous aspect of our disciplines, that is, to be constantly trained in vision. It is an essential component of our research, the betrayal of which only weakens our contribution to scientific knowledge development.

Indeed, the core of the whole CA^{2}RE+ project has been, as stated in the delivered application, the transfer of design studio behaviors and tutorials to design-driven doctoral research (DDDR) supervision, moving from a typical text-based dialogue to a visual-based experience with shared exchanges around and with drawings and artifacts as moments of mutual learning.

The CA^{2}RE+ project increased the number of PhD presentations and panelists compared to previous CA2RE activities, from which it stemmed out, widening its community of research practitioners (by design/drawing) and improving its network. By applying the didactic approach of design studios to DDDR supervision, the CA^{2}RE+ consortium has managed to substantially advance the doctoral training model from being a support to an experiential learning-through-evaluation experience. Therefore, further actions do not concern the application of replicable protocols. On the contrary, they must insist on the importance of contextualization in DDR training and supervising processes.

Despite the enormous differences among the individual subjects, positions, and tools, coming from diverse disciplinary practices, the supervising processes in this field should encourage candidates to conceptualize research by considering it as a bearer of meaning that can be transmitted, shared, and replicated. It should address evaluation at the balance between personal interest and the topic relevance within the design community, considering that research objectives ultimately remain the observation, critical reflection, and the transformation of reality.

The supervising process should promote innovation in the selection of the subject and mainly in the definition of a specific and contextual process to investigate it. It should encourage looking for a shareable sense of situated rigor that could better respond to a final principle rather than a modal strategy, thus promoting a research philosophy that is open to the evolution and integration of new theories. To do so, the most important thing for candidates, supervisors, and heads of doctoral programs interested in developing and promoting DDDRs, is to find or build a community of reference or a Community of Critical Practices. It is only by establishing an immersive discursive environment and a climate of trust that candidates and supervisors can identify their position within the scientific community. It should stress not only through a projective form of individuation but also by the intersection among different research practices, which could offer a counterpoint to a self-reflective form of positioning through a comparative perspective. The results from CA^{2}RE+ are something we should take care of and nourish. Since it is from the strengthening of this specific Community of Practice, we can enforce the position and role of architectural design culture within the

schools of architecture and more widely within our contemporary design culture. CA^{2}RE-*for* could be the next step toward the trajectory initiated with CA^{2}RE and CA^{2}RE+.

The recommendation is to develop this crossing further, thus strengthening the relationship between professors and candidates from different countries and schools. Beyond expanding its network to even more international audiences, indeed, the next CA2RE should increase educational activities to value our community as a faculty. Intensive courses, workshops, and masterclasses could be the next common ground where professors and candidates from various programs participate, strengthening relationships and exchanging knowledge.

Enrico Miglietta

Politecnico di Milano — KU Leuven

This reflection on the recommendations for the CA^{2}RE+ Consortium stems from genuine individual experience and seeks to draw some insights from it. I have been privileged to participate in the events by witnessing in some way the two sides of the operation, as a presenter starting with the event held in Gent in 2019 (OBSERVATION), and as part of the organizing committee for the Milano 2020 event (COMPARISON), presenting various aspects and moments of my investigation on a total of four occasions.

As a candidate of the Milanese Doctoral School, I can say with certainty that the impact of participating in a multitude of occasions has been critical, both in terms of enriching my doctoral research and my path as a young researcher. The first shift for personal exploration through design came when encountering the research, methods and disciplinary frameworks even just glimpsed during the session at the Faculty of Architecture of the Sint-Lucas School in Gent, then in the other presentations in the different European Schools. In most of the candidates' explorations, and certainly in the more advanced ones, the quality of the research was often flanked by the contamination of methods and strategies, where subjective viewpoints were analyzed via rigorous, often experimental processes, rather than through rigid paradigms, both regarding the strictly architectural discipline and to artistic practices in general.

This invitation to an open, frank, non-judgmental dialogue has produced, at least for me, in the moment of encounter, the possibility of approaching ways of doing research that completely subverted and enriched my initial premises. It also allowed me to become acquainted with affine research developed in a different School, thus leading to an initial series of meetings, then to a research stay, and finally to a joint PhD programme between Politecnico di Milano and KU Leuven, which imbues my research with diversity on multiple layers that I now consider an indispensable prerogative for its conclusion.

As already mentioned, in the wake of the previous notes, I also believe that the possibilities offered by a program of continuous exchange of

perspectives, of frequent peer-to-peer dialogue, should be preserved and continued to be nurtured with increasing intensity.

My first 'recommendation' would be that this CA^{2}RE, or CA^{2}RE-*for*, continue to be a contact zone for researchers, even expanding beyond European borders, and configuring its archive as a repository of knowledge that is kept open and accessible. By shaping itself as a platform for debate on design-driven doctoral research, both physically and virtually, where the skills and interests of individuals and various institutions are brought together, it can continue to strengthen existing ties and build opportunities to create new ones. Secondly, I hope that it will continue to be a point of reference for research in the fields of architecture and the arts that work on the value of the artifact, through the tools of the researchers' disciplines. By offering moments for field-testing of experimental research and studies, it could also promote their development through workshop formats in the individual partner universities. Finally, in order to densify this network of connections, I wish that it will continue to look for ways to facilitate the movement and dialogue of doctoral students and researchers at all levels, through funds and projects designed specifically for this purpose, fostering this fertile contamination of research processes.

Lusófona University of Porto

Edite Rosa

This text follows CA^{2}RE+ Delft workshop speech taken from the contributions of the consortium and of Lusófona University of Porto (ULP), Edite Rosa, and the PhD student, Yara Abastour. It addresses recommendations concerning the three years of the CA^{2}RE+ program and the consortium Design Driven Doctoral Research (DDDr) shared understandings. It covers recommendations for communication with peers, institutions, stakeholders, and PhD students. For this, it adds feedback from the ULP PhD candidate participant as well as findings taken by the representative as an observer from one of the CA^{2}RE+ Delft learning-teachings model sessions composed by participants from other institutions. It closes with some questions for future reflection.

DDDr relevance

The Delft workshop looked back over the three years of the CA^{2}RE+ program in terms of shared achievements. The *consortium* narrowed and added precision for a common definition of Design-Driven Doctoral research (DDDr) and simultaneously embraced existing diversity, opening the scope and forms of operating this research. DDDr is therefore

understood as the inherent nature of the design field (features, characteristics, qualities, properties, attributes) achieving the universal knowledge, objective of a PhD research. Knowledge of the creative fields, explicitly pertinent and original, where findings are described in words, (as transdisciplinary media) but its core lies on direct reference to the means or products of the design practice.

The DDDr relevance resides mostly in its supportive design action-research process that combines theory and praxis to transform a particular experience to give rise to general knowledge, applicable to an indeterminate number of concrete objects, in an inexhaustible universe of design studies.

DDDr is a systematic questioning, a process of rigor, objectively reasoned, and argument-based demonstration with contributions necessary for disciplinary advance, where its procedures and methodology largely determine the reliability level of its achievement and results *"Its reliability is determined by its methodology."*[1]

1 – Archer, Bruce (1995), "The nature of research", Co-design, interdisciplinary journal of design, January 1995.

DDDr methodologies recommendations

DDDr procedures must raise design questions, use design tools, require the search for answers through rigorous systematic demonstration of reasoned design arguments (critical, conceptual, theoretical, and practice) and state of art credits. An open-ended procedure where in the last instance the only reliable design-driven based outcome may be the methodology used. A specific methodology where practice serves as a research object and design instrument.

All scientific and rigorous methods are possible to combine in DDDr however, it often raises more abductive hypotheses, than inductive or deductive ones. Another differentiating feature is the use of specific design tools, used as methods, instruments, or just demonstration techniques.

What stood out from the CA^{2}RE+ events was the diversity of DDDr's research work in content and form. Within all the DDDr works presented, the *consortium* characterized the main set of three existing key parameters of DDDr, APPROACH, METHOD, and TECHNIQUE, as an intrinsic set of procedures implicit for the nature of design research. In short, design practice and design tools serve DDDr as a research purpose recommendable for trustworthy "universal" meaningful design-based results.

DDDr main procedures recommendations for several actors

Although still a work in process, the consortium DDDr's understandings were taken into great account, visible in the events results and number of participants. Some recommendations for the various actors involved were collected.

For the researchers (PhD, post-docs and seniors), to acknowledge the design culture and practice skills experience as necessary although not sufficient for doctoral design-driven research. In addition, the doctoral research data and methods must be rigorous and transparent as well as its knowledge outcomes transferable and transmissible.

For the thesis supervisor, the main concern must be with the trustworthiness of the methodology used and its adequacy to the defined objectives more than with the usefulness of the findings.

To the institutions, to consult the CA²RE+ outcomes, its intellectual outputs, Book 1-Strategies,[2] Book 2-Evaluation[3] and Book 3-Framework[4] that contain the Design-Driven research program results done by internal reviewers, external critics and reporters. Also, to adopt the CA²RE+ learning-teaching model with a similar own monitoring process in the form of a written record to control self-DDDr achievements.

To the institutions and supervisors to consult the CA²RE+ intellectual outputs books, proceedings, database platform, and other recordings which contain the best practices of DDDr works. Recollection of the several events presenter's works and testimonials points of view of the reviewers and external guesses of a considerable number of institutions (11 from CA²RE+ and a large number of outsiders).

Feedback/recommendations from a PhD candidate

During the workshop, our PhD candidate stated the advantages of the CA2RE+ learning-teaching-evaluation model through:

first, the reception of a review of her extended abstract submission to the CA2RE+ call, with important written feedback of her text, with comments, and scores by three senior researchers reviewers (a blind review by independent scientific committee members),

second, stimulating assessments were received at the Delft event session presentation (online) carried out by other different three panel members that also posted written recommendations concerning methodologies and how to address her subject question, to help her think more widely and allow her to percept the scale of her research work. The panel also recommended suitable literature and specific authors experts on the subject under consideration (and even related exhibitions), all endorsements to better shape the research development and results,

the final collective 'wrapping up' as well as the other sessions' presentations also permitted her understanding of similar and different approaches all beyond the umbrella of DDDr, clarifying its understanding and benefits for the field of design.

Recommending the learning-teaching-model

As mentioned above by the PhD candidate, the peer review was carried out in several stages, the main ones being the event presentations sessions of a paper, an exhibition, or an artifact. These sessions, for presentation and feedback, run for sixty minutes and are particularly relevant to ensure design-based research quality and rigor. This learning-teaching model explores education strategies, teaching actions and learning processes that revolve around the field of design, enriching experience for all the players involved.

An assessment practice model structured through an intensive reviewing process with a qualitative goal in the promotion of excellence in research and skill design. The problematics raised at the fellow's research

2 – CA²RE+ Book 1 – Strategies of Design-Driven Research, Claus Peder Pedersen (Main editor), Aarhus School of Architecture, ARENA (Architectural Research European Network Association), EAAE (European Association for Architectural Education), ELIA (European League of Institutes of the Arts), 2021 1st Edition.

3 – CA²RE+ Book 2 – Evaluation of Design-Driven Research, Edite Rosa (Main editor), Publishers COFAC / Lusófona University of Porto, ARENA, EAAE, ELIA, 2022 1st Edition.

4 – CA²RE+ Book 3 – Frameworks of Design-Driven Research of Design-Driven Research, Ignacio Borrego (Main editor), Technische Universität Berlin, ARENA, EAAE, ELIA, 2022 1st Edition.

presentation is where the most challenging points emerge, allowing to frame possible expected outcomes of disciplinary knowledge.

This model is specifically profitable in relation to the distinct features of DDDr, it addresses the aspects of research results communication supported with disciplinary techniques (graphic, performative, and creative tools) and also accommodates the transfer of tacit know-how to knowledge. Another major conquest of this model is how it overcomes the difficulty of integrating the heterogeneity and singularity of the researchers' experiences taking advantage from them.

Acting as an observer in a learning-teaching session

As an observer of the learning-teaching-session "*Bodily Movement in Architectural Theory and Its Implications for Spatial Composition*" significant aspects emerged from the panel recommendations comments, underlining the design research themes that the CA^2RE+ consortium elected as DDDr main parameters namely why, what and how the DDDr approach, method and techniques were used. The main final recommendation of the panel members stressed a clear communication not yet achieved, by the PhD fellow, on the presented spatial design simulations even though the findings were articulated. The panel members recommended clarifying the selection of the most appropriate design tools for the research process. Also, to present the result information to the scientific community with greater integration of media and technological procedures. The assessment role of the panel attempted to bring the presenter closer to the core of the research design results and improve its transmission.

Final future questions: More than why, what, and which DDDr?

Taking into account the established above-mentioned CA^2RE+ sessions and recommendations seems that for the future more than inquiring about *Why* to use DDDr for design fields stands, *What*, which and when of the design-driven research to recommend. By what means of design, with which methodology and tools should the research support, and when is the design process involved? What are the selection criteria, methodologies and techniques, and when to use them and combine them with conventional methodologies?

The answer allows inquiring about the design subject, object, context, reasons, and logical structure, one by one and one in relation to the other, supporting them to achieve design knowledge, outcomes, or main results.



Urban Morphology: Aleppo Informal settlements; image credits Yara Aboasfour

Yara Aboasfour

My PhD thesis topic is "Informal settlements in post-war Aleppo, transformations and possible applied solutions." As a PhD candidate, it is essential to be presenting my study, be informed about relevant research to my study, and gain helpful feedback and comments from academics and colleagues. The email I received from my supervisor Dr. Edite Rosa to participate in this conference was encouraging and a valuable opportunity to expand my knowledge on my topic and others'. After submitting an abstract for the CA^{2}RE Conference, I received very useful comments and reviews about my study, mainly at my initial proposal stage. During the conference, while presenting, I shared my thoughts with the professors and the panelists. Listening to their comments, recommendations, and suggestions has been constructive, which proved crucial for my study.

During my session, three-panel members recommended books to read related to my theme. They suggested connections with experts in the field. They pointed out specific exhibitions to attend that could be insightful for my study — all of this was enlightening, especially at that stage of my research. We also discussed the design-driven approach I will use in my study, including suggesting a methodology for my research and addressing some questions I had not considered before attending the conference. Having presented at the CA^{2}RE conference, I am now proceeding in developing my proposal, and I feel more confident about my study's scale and stage.

TU Delft

Roberto Cavallo

Reconnecting to a matter that has been widely discussed throughout the CA^{2}RE conferences, and also linking to what Fabrizia Berlingieri (Politecnico di Milano) said, a key issue in the design driven research spectrum is the 'interpretation of design.' As matter of fact, many of our colleagues at the TU Delft, as well as in other institutions, intend design mainly as a way of solving problems. To come to a solution, design is often the main vehicle. However, this approach has shortcomings and pitfalls, particularly in nowadays' context, where even the simple act of framing the design problem is very complex and difficult. With things being so uncertain, we are almost obliged to use design as a way of inquiring, to better understand what the problems at stake are exactly. To go for a more inquisitive use of design and drop the problem-solving in the background is something we should do upfront, also in the way we teach design courses — both at the bachelor and master levels.

Operating in this way, we also have the possibility of considering things that are in the first place not included in the given design briefs.

Another issue that was already pointed out during previous discussions at CA^{2}RE, is the non-linearity of design processes, sometimes being really unstable, and this is something important to understand and take into account. When it comes to PhD research, there are conventional ways of putting forward motivation, research questions, relevance, approach, and methodologies, but this is not something that can be simply applied to design driven approaches, which need non-objectified ways of clarifying these steps; in each design driven research, there is a degree of singularity, context-dependency and use of specific strategies and tools. Being aware of these aspects can be an additional asset for the ones undertaking a design driven PhD. With a network like CA^{2}RE, we can strengthen each other and learn from each other's way of working — every one of us has a singular and unique research environment. It is paramount to get grip on design as such: what kind of design are you intending? What are your design tools? What are you adding as knowledge? These questions can be enclosed in the act of designing and in the mechanisms that go along with it. Therefore, all types of communication — verbal, non-verbal, written, and visual — should be monitored and observed carefully, those are the features that we can truly trust. Terms and concepts such as *hidden premises, saying /showing distinction, evidencing claims, experiential knowledge,* or *transformative triggers*, come to the fore, facilitating expression and articulation of the various steps that such types of research journeys entail.

Taufan ter Weel

The CA^{2}RE team, also thanks to Roberto Cavallo, encouraged me to take my own interdisciplinary artistic aspirations seriously, so I started looking at my research work not only through a theoretical viewpoint but really commencing to incorporate the practical and artistic experience into the research process. The work I do falls in-between disciplinary boundaries, in general terms, between architecture and sound; it is about the role of architecture in the context of sound art. This means that I had to acknowledge that transversal processes really cut across different disciplines and fields, and sometimes, even rearrange existing hierarchy structures. For example, how digital technologies actually transform fields, institutions and disciplines. This aspect cannot be addressed only through very rigid and inductive reasoning, some problems are just too complicated and too uncertain to be addressed with established procedures. These motives should somehow also support the reasons for my artistic research, to be able to look beyond the direct application of theory.

Walking Tour Delft

Joran Kuijper, TU Delft

Workshop



A certain urge to go and truly see where you are is always a feeling that comes over me when I am in a place I do not know. Interestingly enough, I have known Delft for more than fifteen years, and for most of that time I was also a resident. So basically, for me, I didn't really feel like there's anything new to see — I know the city. But I also know that this is different for the participants of the CA^{2}RE+ Conference.

Together with my colleagues Esther Gramsbergen and Olindo Caso — long-term Delft residents — we put together a route through Delft to get to know the city better.[1] The walk focused on the characteristic *hofjes*, on how Delft as a 13th century settlement is anchored in the landscape, and its squares and monuments. Seen through that lens, I found out that I know Delft, but in a different way than I assumed: I know Delft as a resident.

1 – The Walking Tour Delft took place in the morning of March 30th, 2022.

We, CA^{2}RE+ participants, all have an affection for the built environment, therefore, I also view the city from that perspective. But that is more of a passive experience that slumbers in the background during daily activities as a city's resident. With both perspectives in mind, I took one of the two groups and showed them the city, accompanied by a folding booklet with historical city maps and architectural analysis drawings.

The result was a relaxed trip along the urban features and architectural amenities of Delft. We started the by visiting two *hofjes*: century-old unique urban and architectural typologies of a courtyard surrounded by houses with their front door to that courtyard. Wealthy private individuals founded these 'courtyards of charity' — dating back to the 14th century — for poor elderly people. The *hofjes* are still inhabited today.







We continued walking. The first major expansion around 1350 in the east of the city center exactly follows the former drainage ditches in the peat landscape. These canals are perpendicular to the first canal dug in Delft around 1200: the *Oude Delft* (*Old Delft*). Delft therefore owes its city map and spatial structure to an artificial drainage system that existed long before Delft was a city.

We ended our walking tour at the *Prinsenhof* (*The Court of the Prince*), now a museum dedicated to national history. In the second half of the 16th century, this former Catholic *Sint-Agathaklooster* was taken into use as a court by Prins Willem van Oranje, while revolting against King Philip II of Spain and the Catholic clergy. In 1584 William of Orange was murdered in the Prinsenhof. As a leader of the Revolt, he is now seen as the founder of the new Dutch state and honored as *vader des vaderlands* (*father of the fatherland*). Among other locations in the city, this square and monument owes Delft its important role in our national history.

Along with sharing my own experiences as a former resident, not only did the group get a new perspective on the city, but so did I. And when we returned to the faculty, I was suddenly overcome by a certain feeling — this urge to take another good look at where I am.



Literature

Canon van Nederland, from https://www.canonvannederland.nl/

Rutte, Reinout (2010): »Een Unieke Hollandse Grachtenstad? De Ruimtelijke Ontwikkeling van Delft in Vogelvlucht.«, in: Jaarboek Delfia Batavorum, issue 20. Delft: Historische Vereniging Delfia Batavorum.

Wilms Floet, Willemijn (2021): Oases in de stad: het hofje als architectonisch idee. Rotterdam: nai010 uitgevers.

Workshop CA²RE+ Delft Participants Wrap-up Debate on Design Driven Doctoral Research

Reasons to be Cheerful with Architectural PhDs and Research

Peter Russell

Institute for Future Human Habitat Studies, Tsinghua Shenzhen International Graduate School

Looking at the educational landscape right now, the first thing to say is that there is hope.

This is based on observations made on architectural and engineering education in the past few years. One of these observations is that engineering education in Europe has (finally) discovered project-based education, using it as a method of investigation and research in higher education, especially in masters' programs. This is a very promising step and we (the architects in the room) need to be careful not to point out that we have done this for over 200 years. Instead, as a community, we should encourage the engineering educators to keep proceeding, in order for them to benefit from this didactical idea and to be on our side, as it were. The value of project-based education is the core of the design studio and all disciplines can benefit from the synthesis inherit in its methodology. This trend is not limited to engineering. There are a few significant examples elsewhere that are worth mentioning.

At the University of Southern California (USC) in Pasadena, a program has been created which is affectionately known as a *Bachelor of Disruption*. This is a combination of music, arts, coding, and business studies. Funded by two music industry moguls, the program seeks to empower the next kind of cross-over minds that will use technology to change the entertainment industry. More recently, the *Morningside* centre was established at MIT. The Morningside Foundation has granted 100 million US dollars to set up a design-based STEM program at MIT's Architecture Faculty. This too is a cross-cutting place to encourage students of science, technology, engineering and maths (STEM) to embrace creative process to make the leap to new discoveries. Thirdly, it is worth noting that Tsinghua University has established a satellite campus in Shenzhen in the heart of China's "silicon valley." The Tsinghua Shenzhen International Graduate School is a university which has no faculties; only loosely structured institutes. The faculty are all part of the larger institution and are working to create bespoke Masters and PhD programs in which the curriculum is determined by the students themselves. The programmes are named engineering, architecture, and other classic

masters' program names, but the content is cross-border, the methodology is project driven, and the classes are interdisciplinary in nature.

These are just a few examples to demonstrate that we are finally arriving at a point where the design-driven approach is taking roots worldwide, and that giving the power to the students looks to be the motor to stimulate, perpetuate and propagate this model of innovation.

With that as a backdrop, here is a list of 10 reasons to be cheerful and hopeful about architectural research, especially the PhD work addressed at this conference. These principles apply to much of the architectural education community and especially to the CA^{2}RE+ network. We count down the reasons or rules to be cheerful, thus:

10 Do not apologize for being a designer. Everything is designed, including research. On the other hand, do not hide behind the non-linear and inductive logic of design. Take at face value the valid criticism that something that cannot be reproduced is tenuous to label as 'research'. Design has both positive and negative aspects.

9 Do not celebrate the creative process as something special; it's not new and it's not special. New things are created every day, so when you make something, whether it's a collage, a film, or a building, it is not so special since there are thousands or millions of them made of being made. Research is not about that. When you're presenting, the creative process that helped arrive at a conclusion is not as important as the describe what the conclusion means.

8 Be rigorous, both with yourselves and with your work. It is, and was, a choice to do a PhD, so expect to be asked to be precise. Carrying out a PhD needs a commitment to contributing new pieces of knowledge, so be prepared to explain what those new pieces of knowledge are.

7 Respect the difference between research, experimentation, and exploration. These are three different things, and each one has its place and value. Each one also raises different expectations. Don't interchange them and be careful when you describe what you do. (See Number 8).

6 To the explorers; collect, and bring back your maps, your journals, your diaries, the artifacts, and document them for others to receive and perhaps eventually let them derive some insights from your records.

5 To the experimenters; record. Even if you're not in a fixed scientific research program and you are just going to do an experiment then record it anyways. Record the conditions that you have done the experiment in, when you were doing it, and what happened afterward. This will allow someone else to make evaluations of your work, even if you decide not to.

4 Embrace openness. We need to be open, especially to the hardliners who question our methods, and we have to be able to withstand that. Undertaking a PhD implies a kind of entrance into the scientific community, and completing a PhD is the doorway to getting your own funding. For that reason, it is a carefully guarded doorway. Once through it, you will not need a professor anymore, and this is a privilege, but the price of that is also being open to the hard questions.

3 Enjoy simplicity. Don't let cleverness get in the way of communication. You can present at a conference as though you are presenting to a layperson. You don't have to be clever to present here and presenting is not about proving you are clever. Simple words often convey what you have to say.

2 Don't use "how questions". How questions can't be answered with any rigor because any answer to 'how' can't be tested to see if it is the best answer. You are not going to learn anything from a "how" question. Be more focused on suggesting *how* to get an answer rather than just presenting the question. It's understandable to ask "how" when you're at the first stages of your PhD, but if you are presenting here, you should be telling us how you are arriving at the answer to a "Why?" or "Is it..?" question.

1 Be tough. When you're presenting to the audience, the first thing you should present is your biggest weakness. You are among friends here. We won't try to shoot you down, but we might shoot down a premise: big difference. In fact, we are trying to help you. You can be confident that in a group like this you can say that you're stuck and you can ask for some advice. If you are open and vulnerable you will receive the help that you need. People in the audience should also ask hard questions as being nice is not going to help the presenter and can sometimes result in essentially giving no feedback at all. As Karl Popper has written, only the attempt to negate a proposition will determine its validity, so we should try to negate things, not reinforce them. If the proposal can withstand that, it is a robust and valid proposition!

—

These ten reasons, rules, or pieces of advice are something we all intuitively know but need to remind ourselves of each day, each month and especially at each conference. It applies to the newest members of the research community as well as the most seasoned researchers among us. The opportunities in the coming years are certainly there for architectural research to play an important role in finding solutions to global challenges, but only if we as architects are prepared to accept the rigour and responsibility of research. But, with that, we have many things to offer and many reasons to be hopeful and cheerful.

Wrap-up debate on Design Driven Doctoral research[1]

1 – The hereby published texts contributions are the recordings' summary of the debate that took place on the morning of Friday, April 1st 2022, the last day of the CA²RE+ Delft conference.

Halina Veloso e Zarate

PhD candidate Faculty of Architecture and the Built Environment, TU Delft

In relation to Peter's (Peter Russel, Tsinghua Shenzhen International Graduate School) point about the 'how questions', I would like to say how relevant it is to actually explain the creative process to others, especially within interdisciplinary PhDs. The question of 'how' a design is born could be necessary since it is not completely clear how we should contribute and cooperate with experts from other fields that are trying to be complementary and provide their resources. To be more concrete, my PhD research stands between urban studies, urban data sciences, and architecture, so, when I have to face the topic of the application of urban data in the design process, I cannot really do it from a data scientist's point of view, but the data scientist is also not designer, so if they cannot access to some information through the 'how questions' of how we actually interpret the data they provide for us, they cannot improve and provide better data.

Roberto Cavallo

Faculty of Architecture and the Built Environment, TU Delft

Responding to Halina (Halina Veloso e Zarate, TU Delft), I would like to say: that's exactly the problem. The need to ask these 'how questions' works only in one direction — the design process is also important and the people handling the data are not holy, and data isn't either.

We need to search for a meeting point between different disciplines. To use one of your words, *application*, sometimes always applying things to your designs does not bring you anywhere, maybe it brings you closer to the solution, but here we try, in a way, to use design also to problematize things. We could ask ourselves, where are the things where data is shaking, misleading, or not hitting the point?

Anđelka Bnin-Bninski

Faculty of Architecture, University of Belgrade

I have the impression that we are interested in engaging interdisciplinarity, but I would say that I have noticed more than once that actually *reinventing* and *unlearning* how we design things and how we approach design can actually be quite valuable, not only for our discipline but for other disciplines as well.

I would say that the creative process in architectural design is something really rich and specific, and I won't consider it a closed system.

Ignacio Borrego

Faculty of Architecture, TU Berlin

Within the CA^{2}RE network, we are not all designers, so this makes me question the *research-by-design* or *design-driven research* denominations. As architects, we have different capacities and we are using them to underline a new research approach, in opposition to scientists, who follow a more strictly scientific path, that don't share nor approve our type of approach.

I think that our skills can be argumented with observation, representation, and transformation, I think they're interconnected. When you're observing you can start representing, when you're representing you're observing and you can transform it. They feel different but they are connected, and I think that these three phases are not all design-based. The basic concept of design is something that has a connection with the concept of drawing, although they're not the same. We can draw without designing and we can design without drawing but sometimes drawing can be used as a creative process that can produce knowledge, still, I would not call it *research-by-design* but rather *research by drawing*.

Matthias Ballestrem

Hafen City University Hamburg

I have noticed that in between panels, during informal conversations, the same recurrent topics always come up, in which we usually don't totally agree with each other about the specific definition of design-driven research. Within the CA^{2}RE+ network, we still have this discrepancy to solve, and this directly reconnects to my statement—*openness leads to dilution*—made during the workshop contributions. It is completely fine to accept that we all have different understandings in terms of approach, but we have to formulate it somehow, we have to put together a definition that is going to be visible and tangible in order to understand what we are doing and also to facilitate new proposals and development for future programs.

Liselotte Vroman

KU Leuven

Reflecting on what Matthias said (Matthias Ballestrem, HCU Hamburg) I struggle a lot in finding what design-driven research specifically means in my particular case, and I question myself about what part of my research is actually 'design-driven.'

I think it's just a matter of trying to be clear about what you define as design-driven research. During the recommendation part of this CA^{2}RE event, I tried to address this question by asking the participants to write what design-driven research meant to them, and as a result, you can appreciate different understandings of it. It could be useful, as a network that is focused on this type of research, to collectively frame what design-driven research means for the organization.

Nina Bačun

PhD candidate, Faculty of Architecture, University of Zagreb

Coming from an industrial design background and having practiced design for 10 years before starting a PhD research, I can really appreciate how it has been crucial for my research work to have already been practicing for years. One interesting aspect I could underline is that, as a practitioner, it's been hard for me to understand why I did things the way I did. I wasn't fully aware of what I was doing, and it has been really interesting during my research to develop some awareness concerning the steps I follow during the work I do as a practitioner. I also think that since presentations are a fundamental part of research, these kind of events like CA^{2}RE conferences, could be more experimental about the way of presenting, which I noticed is usually standardized.

Fabrizia Berlingieri

Politecnico di Milano

I think that in comparison to previous CA^{2}RE conferences, this one, in particular, showed a more focused atmosphere and a stronger awareness from the PhD candidates, asking very specific questions about framed moments of their research. I think this is the first time in the history of the CA^{2}RE conference, that we saw this awareness bringing the students to take the chance to propose questions instead of remarking on their certainties. Regarding the different positions about what design-driven research is, we are aware that we, as a network, have a plural soul, and because of that, there are unavoidable differences.

I think that there is also a problem with understanding the design culture that is behind each school. For example, if you talk about 'research-by-drawing' in Italy, we give for granted that *drawing* is *design*, because we have a culture that is based on this very concept, and therefore there's no need to even discuss it. On the other hand, here in this context, we necessarily find ourselves discussing it. It is useful for the PhD candidates of

our school, Politecnico di Milano, to encounter other approaches and to take away something from this experience. With our PhD candidates, we recognized within our school that some lines are growing in different dynamics and directions, maybe more experimental than the traditional way we do research, and I think that this is one of the points of this network, to take our culture to a new stage.

Lidia Gasperoni

Faculty of Architecture, TU Berlin

Navigation is one of the key topics of the design-driven research debate — navigation between fields, between different research cultures, and also navigation in your own research.

Criticism is also such an important matter to address, in the sense of motivating participants to be really critical and to open up discussions. One of the interesting topics that have been touched on during this conference is *openness*, but also *less controlled navigation*, which is a part of scientific research in many disciplines. In my own panels, there was a lot of talk about the concept of *linearity*, namely how research could be both linear and not, in relation to the starting hypothesis. Therefore, we had a discussion about this idea, and I tried to motivate participants to develop experimental research in which the method itself is an experiment, whose results are not known yet, especially during the initial phase. On the content side, we could also implement this kind of criticism, which is an essential part of non-linear research, trying to use this approach also in the artistic and architectural field, to question it, implement it and defend it at the institutional level. Methodology is the core question of this kind of research, and very briefly I'd like to outline the input of design-driven practices. I think it could be really interesting to discuss more how artistic and architectural research generates really innovative matters to allow a better understanding of other topics that are often shared with other disciplines.

Ana Belcic

Faculty of Architecture, University of Ljubljana

Sometimes, the most difficult thing in design-driven research is to differentiate it from what is only our usual way of designing — what is just 'normal' data-gathering or academic research that could be done in other fields and what is the sweet spot of design-driven research that we are struggling to get to, that makes our work both scientific and unique to our field? It's not only about being creative and trying out new things. On one hand, we have our own methodology of work and it is correct to say that sometimes the mere act of drawing can be considered research and can be extremely valuable. For instance, drawing allows you to really focus on what you are looking at and requires the development of new questions and new knowledge, the same goes with prototyping and experimentation. I always have this internal doubt, and I question myself: is this design method being used because it will help me solve an

important question, or am I using it just because I am comfortable with it? And if so, is it bad?

I am still haunted by what my mentor once said to me when I was in a design studio during my master's: "don't fall in love with your design". Now I agree with that sentence, and it is helpful to keep it in mind to avoid getting stuck in your own vision, also in research. I think it's good to have some peer review and to be able to figure out what is actual research and what is only exploration, and of course, exploration could be a good precursor of research, but maybe we need to clarify this difference for ourselves.

This is why the context created in events like CA^{2}RE is so valuable to me, because we can really appreciate different viewpoints and different schools of thought and we can therefore refine our methods to get closer to the design-driven research methodology that we are trying to develop.

I think this is really the way we can improve our field and give new tools to the people who are practicing and find something we can really give to the discipline. It is brilliant to have this network that helps us through the journey we are in.

Peter Russel

Tsinghua Shenzhen International Graduate School

I am coming to a strong positive sense of potential in this meeting, and I'm determined to don't let this be yet another conference without concrete conclusions. When I moved to Germany and started teaching Computed Architectural Design, me and other colleagues had a lot of problems when we submitted our proposals to the research council because they were reviewed by a group called *Bauinformatik*, made of civil engineers who were very algorithm-driven. So, if we would submit proposals about the use of computers to enhance design processes, they would always get shut down. Hence, we decided to establish a group called the *Architektur Informatik* and we met twice a year for several years. After a while we invited the German Research Council to sit with us and see what we were about. Within 5 years, we have been able to establish 'Architektur Informatik' as a keyword, and if that showed up in a research application, then that was the group of peers to review it.

I am currently writing a PhD program for Tsinghua, in Shenzhen, and the core question is: *what would make a difference between a regular PhD in history or civil engineering and what you're proposing?* The rigor that I'm asking for is necessary, because if we can establish the rules to what defines what is design-driven research and what is a regular PhD then we can create a suitable peer group for the reviews. It will take some time but if we continue to be explicit and consistent with what the rules are to be in this domain, then we have the potential to establish that this is the peer review group for the kind of projects that we've been seeing in events like this. The wind is now blowing in our direction, especially from civil engineering or other groups where design teams recognize our valid contribution to advance knowledge.

My appeal is to take what's been said in this and the previous CA^{2}RE conferences and draw out of it a 'manifesto.' It's not going to be perfect nor permanent from the beginning, but if there's at least a general agreement on the base rules for what is in the design-driven research domain and what is not, then there's the potential to be recognized and make a difference.

Sergio Martin Blas

Faculty of Architecture, UPM Madrid

One can appreciate that there is never total consensus during our discussions, this is something to be glad about because disagreements are necessary to produce fruitful discussions. From my position, I was interested in analytical interventions, so I would like to follow those lines. The design-driven research is just a methodological approach, but maybe this approach could also have an impact on the definition of what research is — at least on the protocols that we sense as too rigid or oppressive. In this sense, I would like to also think about what is, in my opinion, worth saving from the definition of research, the core of it. It is necessary to stress the collective dimension of research, the condition of shared knowledge, the possibility of building from the knowledge made by others and making the knowledge we produce available for others to build on it, by making it explicit and easy to communicate.

Going back to the concept of openness, it has a very different sense than the one we often intended. If openness refers only to the personal subjective discourse of our group, this is taking us in the opposite direction, to closure, and being open only inside our work or inside our inner community but being in fact closed to the collective dimension of research.

0

Extended Al and Pape

4

Artefacts
bstracts

ers

Design Models for the Enhancement of Archaeological Fragile Sites

Greta Allegretti, Politecnico di Milano

Final doctoral stage

Supervisor: Pier Federico Caliari, Politecnico di Torino

Architecture, Heritage, Design

Abstract

The research defines new solutions for the valorisation of heritage, moving from an approach based mainly on conservation, to a more active one. In particular, the research answers two critical aspects related to the UNESCO orbit: firstly, the current tools for protection and management don't include actual architectural projects on heritage, secondly, some sites can significantly suffer this absence of a design attitude. These sites are identified as the archeological areas located in *fragile* territories. With the intention to design solutions that understand the specificities of the sites, but which shall also be useful to many sites, the research identifies three profiles of fragile territorial contexts and archaeological areas. The final output, the Design Model, is obtained thanks to the in-depth study of each profile, which is conducted through a pair of UNESCO sites, one used as *case study* and the other as a *sandbox*.

DDR statement

The Design Driven approach is part of the research project in terms of content, methodology for its ultimate objective. Starting from the premise that at the time being the architectural project is not part of the UNESCO instruments for the protection and management of heritage, the research is focused on the creation of a new tool – the Design Model – capable of filling this gap. Besides the requirements of being integrated and multi-scale, the new tool is asked to be architectural. Architectural design is, in fact, recognized as the ideal tool to gather all the elements that orbit around a UNESCO site, combining its territorial characteristics, the main resources and actors, the specificities of heritage, its needs and its potential. Furthermore, a significant part of the research is structured into two phases – a more theoretical one (the analysis of Case Studies) and a more operative one (the use of the Sandboxes) – and all the results are directed to the elaboration of the design tool: the Design Model. In this process, that leads from a framework of knowledge to the development of a new tool, every element plays its role in the construction of the Design Model. Therefore, it is possible to say that design, intended both as a process and as a result, gives identity and shape to every aspect of the research project, molding its general scheme, directing its efforts, producing the final results.

Paper

The research *Architecture and UNESCO Buffer Zone* has its final objective in the development of Design Models for the enhancement of archaeological sites, moving from an approach based predominantly on protection and safeguard, to a more practical and operative one, founded on the use of the architectural project as a tool for valorization. The study stems from two main considerations related to the UNESCO scenery and to the archaeological heritage. The first one is that by now UNESCO tools for the protection and management [1] – mainly Buffer Zones and Management Plans– don't comprehend active designs on heritage. The second one is that some sites – those that can be considered «fragile sites» – suffer more than others for this lack of design attitude. Fragility,

in this thesis, is considered an extremely variable and critical condition but also a resource: understanding fragility means understanding the specificities of the territory and, possibly, of the hosted heritage.

Archaeology, in particular, is identified as a particularly vulnerable entity. Archaeology is subject, in fact, to a double fragility. The first, of the material, is mostly linked to the concept of risk [2] and to the possibility of archaeological remains to suffer damage and degradation due to external factors and events. The second can be defined by its identity or essence and is linked to the mechanisms of fruition of archeological sites, to its position and role in contemporary life. These mechanisms depend on the relationship that exists between the site and its context and on the use that is made of the ruin, from tourism to the hosting of events, from didactical activities to more contemplative approaches. The archaeological sites located in fragile territories are therefore the main target of the studies conducted through this research. With the aim of elaborating projects and defining design actions – but also being aware that fragility can take many different forms – the research carries out a *profiling operation* of the territory. In this way, the infinite variability of fragility conditions is categorized into three different profiles, characterized by different levels of *density*.

In this thesis, the concept of density is interpreted as the ratio between the unbuilt and built areas and as an indicator of whether or not, or how an area can be object of intervention; for these reasons, it is chosen as an optimal criterion for the definitions of the profiles of territorial contexts. In this direction, the First Profile is characterized by a *low-density* territorial context, the Second and Third Profile, respectively, by *medium-density* and *high-density*. For each profile, the research intends to work on both theoretical and operative levels. Firstly, the research investigates the three profiles of fragile sites with three case studies, selected among the International Call for Projects on archaeological areas organized by *Accademia Adrianea di Architettura e Archeologia*, leading to the definition of three Layouts of design actions, one for each profile. Secondly, within each profile, the Layout is applied onto a specific Sandbox (a 'test' site) in order to elaborate the related Design Model.

Each profile is then studied by a pair of archaeological sites, in which one is the case study – that provides the theoretical and knowledge framework – and the other one is the Sandbox – that corresponds to the application and actual use of the results. The first profile is studied through the analysis of the *International Call for the Grand Villa Adriana* (2018), used as Case Study, and the UNESCO site *Archaeological Area of Agrigento* as Sandbox. In this profile, fragility is mostly related to a condition of profound inactivity and stasis, determined by the fact that heritage seems to be disconnected from its territory, in a relationship of mutual indifference. The second profile chose the *International Call for the Acropolis of Athens* (2020, postponed due to Covid-19 restrictions) as Case Study, and the UNESCO site S*yracuse and the Rocky Necropolis of Pantalica* as Sandbox. This profile is characterized by a strong local system, composed of archaeological, cultural, urban and landscape attractions, but also by a significant unexpressed potential; fragility, here, is related to the 'missed opportunities' and stems from the gap that exists



Figure 1: The conflictual relationship between the Valley of Temples in Agrigento and the surrounding urban and industrial fabric. Photography by Ilias Nissim.

between the current situation and the possible one. Finally, the third profile is analyzed via the *International Call for Via dei Fori Imperiali* as Case Study and to the much wider UNESCO site *Historic Centre of Rome, the Properties of the Holy See in that City Enjoying Extraterritorial Rights and San Paolo Fuori le Mura* as Sandbox. In this case, the fragility is related to the saturated condition of the site – in which relationships, objectives, stakeholders, visitors and citizens intersect and overlap – and to the confrontation between the life of an active contemporary city and that of its heritage.

In order to make more explicit the process that leads from the Case Study to the Sandbox and, finally, to the Design Model, the study of the First Profile is chosen to clarify the different phases and actions.

As previously mentioned, within the territorial context of the First Profile and specifically in that of Villa Adriana there is not an actual network of services or activities and, for this reason, the archaeological site is object of 'fast tourism'. The interest of visitors, in fact, is directly focused on Villa Adriana and on Villa d'Este (the second UNESCO site in the Tivoli area); tourists are rarely aware of the history and identity of the surrounding landscape, which has attracted travelers and artists from all over the world for centuries. In their defense, today it is hard to see that beautiful panorama depicted in hundreds of watercolors and paintings, heavily assaulted by the construction of the modern and contemporary city. In this complex framework, the strongest point of the Call [3] is to give importance to the understanding of the territory and its dynamics, adopting a multiscale approach towards the context and the site, also creating a network of new polarities and activities to support them. The in-depth analysis of the competition notice led to the extrapolation of the Layout of design actions, which is structured in three sections. The first section is dedicated to the formulation of some *questions* about the territory, while the second section is addressed to the definition of a set of *strategies* resulting from the requests of the Call; the third one collects some *design criteria* that gathers the different suggestions and indications contained in the competition notice. This Layout, extrapolated from the Case Study of the First Profile, is to be confronted with the corresponding Sandbox: the Archaeological Area of Agrigento.

The application and the Layout constitute the preliminary phase for the elaboration of the Design Model. Through the Layout resulting from Villa Adriana, in fact, it is possible to conduct a wide investigation on Agrigento, on its heritage and its territory, understanding its weaknesses and its potential. For example, the questions about territory (first section of the Layout) highlight the most critical ongoing dynamics, such as the invasive presence of the viaducts in the landscape and the sprawl of the modern city. But they also clarify which are the strong and primary relationships between heritage and nature, like the one with the sea or that with the mountain ridge. All this information creates a framework of knowledge about the site, that anticipates the setup of the strategies (second section) and the research of possible references for the design criteria (third section).

The most significant phase for the elaboration of the Design Model is its drafting, which is based on the meeting of three requirements, also named *identity and operational principles* because they explain both its objectives and peculiarities: the Design Model must be integrated, multiscale and architectural. It must be *integrated* into the regulations currently in place. About Agrigento, the reference is to the UNESCO tools, its Buffer Zone and its Management Plan, but also to the local development plans. It must be *multiscale* towards the territory and the site. Following the example of the Call for the Grand Villa Adriana, three scopes are outlined around and within the Archaeological Area Agrigento, each one characterized by different objectives and vocations, from the wider topics of infrastructure and landscape to more specific actions related to the monumental complex. Finally, the Design Model must be *architectural*. The architectural project, and the architectural approach, allows to handle any part of the area – from infrastructure to landscape, from new buildings to the precise monument – designing practical and real solutions. To answer this requirement, the research illustrates the solution in the format of the Call for Projects and their competition notice. In this way, in fact, it is possible to program a set of interventions and instructions that, altogether, compose a wide project for the site and its territory, but also leaving to the designer the possibility to interpret the various themes. The *Call for Agrigento* follows the three-scope structure, assigning each one its design topics, from those related to mobility and accessibility through the area, to some landscape design, leading to some interventions more directly related to the archaeological heritage.

According to this last consideration, and in order to show how the Design Model effectively handles, progressively, the territorial context, the UNESCO site itself and its specific monuments, the multiscale scopes and the corresponding design topics are reported below.

The first scope is represented by a wide area around the Core Zone of the UNESCO site, almost coinciding with the totality of the Buffer Zone, and it takes the name of 'the system of natural infrastructures.' In fact, in front of an incoherent relationship between the archaeological and rural landscape with the streets and the traffic of the surroundings, the project wants to refer to the natural directions and traces of the landscape. Among these are the rivers (formerly called Akragas and Hypsas), the direction towards the sea, the rocky system on which the ancient



Figure 2: Opposite linear traces in the Valley of Temples territorial context: the mountain ridges with the ancient fortification system and the modern viaducts. Photography by Ilias Nissim.

fortifications rested. In this area, in which the relationship between archaeology and natural territory is central, the main objectives include the environmental redevelopment of the landscape (especially through the recognition of the natural elements of the area), the infrastructural reorganization of paths and accesses to the site and to its 'attractions.' Consequently, the design topics of Scope 1 are fully dedicated to the realization of environmental and infrastructural reform. The road system is rethought through some key actions, including the decommissioning of a viaduct (that strongly impacted on the landscape) and its transformation into a 'green way', walkable on foot, by bicycle, or by electric shuttles. The system of shuttles and bike-sharing is set, in particular, on the provision of two interchange hubs at strategic points of entry to the park and the creation of a visitor center, strategically located between the historic center of Agrigento and the Valley of the Temples. The idea is to free the Park from the vehicular traffic and to set a network of attractions along the new paths, that valorizes not only the UNESCO site but also its territory.

The second scope, named 'Archaeological Park of Agrigento' has the vocation to create a park of a purely agricultural matrix that constitutes an element of medium between the territory and the real monumental complex of the Valley of the Temples. This park has its northern limit in the historic center of Agrigento, the south in the monumental complex of the Valley of the Temples, east and west in the two rivers. Given the approach to the archaeological area, the objectives of Scope 2 are mainly related to what are called themes of 'micro-infrastructure', through the development of different degrees of viability within the Archaeological Park of Agrigento, and of 'micro-landscape', drawing some natural and agricultural spaces within the area. The planned operations concern, therefore, the reduction of traffic in the area and the development of minor itineraries that lead to the discovery of the agricultural landscape and the archaeological heritage, also through the improvement of the entrances to the area.



Figure 3: The Valley of Temples in Agrigento, Temple of Concordia, and its primal relationship with the sea. Photography by Ilias Nissim.

The third and last scope is dedicated to the 'Sacred way and its indelible beauties', that is to say the enfilade of temples on the mountain ridge, in an intermediate position between the city and the sea. In Scope 3, where the focus is directed to the archaeological heritage, the main objectives are those of its enhancement, both through the solution of some criticalities pointed out in the area, and through interventions that strengthen the visiting experience. To the first type, corresponds, for example, the 'suturing' action between the Garden of Kolymbethra (adjacent to the enfilade of temples) with the Tempio of Hephaestus, currently separated by a railroad track. To the second one, instead, corresponds the musealization of the area of the ancient Porta Aurea and the systematization of some surfaces along the Sacred Way, to be transformed into terraces that, from the archaeological site, open up onto the landscape, reaching the sea.

The Design Model, or rather, the entire process that leads to its formation, can be an important resource in methodological terms – as it provides an outline that allows to move from theoretical aspects to more projectual ones – but also in relation to the actual operations of use and enhancement of sites. Thanks to the combination of the three requirements – integrated, multiscale and architectural – and resulting from the application of a Layout based on the understanding of territory and heritage, the Design Model provides an effective approach to fragile sites, capable of including their difficulties and transform them in opportunities for valorization. The output of the research is therefore configured as a new tool that can be used in accordance with those already present and active on the sites, but defining a directly operational approach, thanks to the translation into specific themes, active at different scales. At the same time, starting from a base that is rooted in the mechanisms of fragility and in the characteristics of the territory, it defines the centrality of this framework of knowledge for the processes of valorization. The study of territorial contexts and site identity, together with a strong design approach, are the cornerstones of the Design Model. A deep understanding of the site and its context is fundamental for its real valorization, as well as the definition of concrete design actions, that must be directly linked to the heritage and its territory.

1 UNESCO (1977–2021), Operational Guidelines for the Implementation of World Heritage Convention. Paris: World Heritage Centre, pp. 33–37.

2 Ferroni, Angela Maria, Cacace, Carlo, (2004): Carta del rischio: la vulnerabilità archeologica, http://www.icr.beniculturali.it/documenti/allegati/Vulnerabilita_archeologica.pdf.

3 Basso Peressut, Luca, Caliari, Pier Federico edited by (2019): Piranesi Prix de Rome. Progetti per la Grande Villa Adriana, Roma: Accademia Adrianea Edizioni in Edibus.

Navigating Into a Venture of a Research on an Architecture Without Verticals

İpek Avanoğlu, Istanbul Technical University



Intermediate doctoral stage

Supervisor: Aslıhan Şenel, Istanbul Technical University

Drawing, Vertical, Spatial narrative

Abstract

This paper investigates my conversation with personal drawing projects developed as part of my on-going PhD research titled 'an architecture without any verticals: an allegorical venture into problematizing the vertical.' My research is an allegorical inquiry to explore and encounter the critically informed, half-imaginary spatial knowledge of 'an architecture without verticals.' Engaging with the theoretical positions of Bloomer, Irigaray and Cixous, I speculate on the act of pushing the limits of the language in process of problematizing the vertical. By methodological explorations through the acts of writing, drawing and reading, my research navigates into an alternative drawing practice, through which a personal venture from storage to inner hand, from inner hand to dogs, flies, excavation and wax models seeks for imaginative knowledge of an architecture without verticals.

DDR statement

Common to the design driven research projects, my research project defines a process of learning from making. In my research, I make through drawing, model-making, allegorical writing and misreading. The process of making offers me openings of tacit articulations of knowledge from a network of personal associations. I argue that this process bears resemblance to a venture into 'waves' of sea where I cannot easily separate one wave from another (fig. 9). Design driven research strategically provides access to my own medium of knowledge. It, thus, opens up spaces in practice and theory for personalized tools of learning. This way, a design driven research project subverts top-down learning processes and offers an alternative immediacy to knowledge.

This alternative immediacy to knowledge evokes Cixous's discussion on "*getting to know seeing-with-the-naked-eye.*" [1] This immediacy cares for and open space to personal experiences in exploring critical knowledge in academic work.

1 Cixous, Hélène (2001): »Savoir«, in: Cixous, Hélène/J. Derrida, Veils (Ed.), Stanford, California: Stanford University Press, pp. 1–16. (Original work published in 1998 by Editions Galilée).

Paper

This paper investigates my conversation with personal drawing projects developed as part of my on-going PhD research titled 'An architecture without any verticals: an allegorical venture into problematizing the vertical.' My research is an allegorical inquiry to explore and encounter the critically informed, half-imaginary spatial knowledge of 'an architecture without verticals.' I argue for the possibility of 'an architecture without verticals' engaging with the theoretical positions of Bloomer, Irigaray and Cixous and speculate on the act of pushing the limits of the language in process of problematizing the vertical. [1] [2] [3] By methodological explorations through the acts of writing, drawing and reading, my research navigates into an alternative drawing practice where the multifold

inclusion of the inner-hand, ventures into an imaginative knowledge of an architecture without verticals. Through an embodied knowledge of tactile experiences and manual practices, the drawing projects inquire explorations of the simultaneity of interior and exterior, devising a personal drawing narrative on imaginative verticals.

I am intrigued by the idea of 'an architecture without verticals', drawn into its impossible narrative in implication of a possible way to liberate architecture. Acknowledged as inevitable parts of architectural design practice due to the upright body and production of spatial enclosement, [4] verticals are long criticized to be appropriated instruments to elaborate a spatial order based on separation, dominancy and hierarchy. [5] [6] [7] The consequent separation of inside and outside, private and public associates strongly with the confinement and the assignment of the female body to the private interior. [8] [9] Within this regard, I learn from Bergren who argues for the 're-swallowed' female creativity, in desire to re-gain 'swallowed' creativity without the interference of dominant male language. [10] I care about the question of an architecture without any verticals as a possible way to re-swallow architecture.

I speculate that spatial narratives of verticality, when re-swallowed, surpass the pre-conceived knowledge on verticals in architectural practice. An act of re-swallowing verticality is therefore suggested as a critique on, and subversion of the basis the vertical elements and dimension are handled, and not exclusively as to erase the vertical dimension. I am reminded by Torre and Birkby of the ways feminist approach re-offer verticals, proposing the term "open-ended walls" that enable producing multifunctioned spaces that trespass distinctions between private and public, inside and outside; [11] or playing with the idea of personal spaces and rethinking them as gathering spaces in which the presence of vertical elements delineates no boundaries. [12] In her conversation with Luisa Muraro, Irigaray questions what verticality may signify as a right for women, and seeks for its subverted meanings. [13] In this regard, the question of the research, formulated speculatively as an architecture without verticals, proposes to problematize verticality and push the limits of spatial narratives of verticality. It entails the absence of pre-conceived knowledge on vertical architectural elements, rather than flattening out the world.

The consecutive drawing research projects, *Dalina storage house* and *A half-imaginary land of an imaginary consulate on a days'trip*, experiment strategically with the use of allegory and coordinate a play with invented and existing narratives of a site, exploring within their half-imaginary lexicon [1 – 6]. Acquiring multiple meanings through a simultaneity of verbal and visual languages [14] and playing with the order of the language, [15] an allegorical method is used in this research as a way to subvert the traditional understanding of vertical in architecture through a state of playfulness. Within this regard, I propose to relate the use of allegory to ficto-critical writing (-drawing, -reading) practice. In-between fiction and fact, [16] ficto-criticism bears a double writing, which I argue to be in conversation with the use of allegory in my drawing projects.

Navigating this research project, I learned to pass through associative, evocative, and personal ways of producing knowledge. The use of

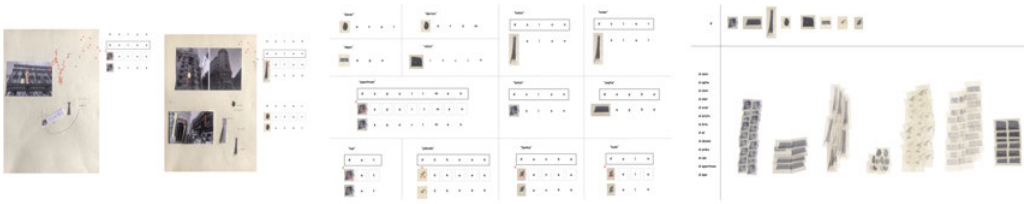


Figure 1

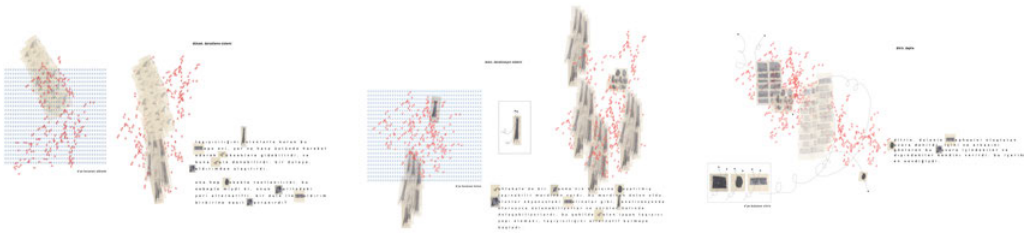


Figure 2

allegory in architectural design is considered a way to articulate misfit knowledge. Rendell argues that Bloomer's way of playing with language in her allegorical practice brings forward the 'inappropriate' in architectural design practice. [17] Nicholson devises allegory for the 'unthinkable' in architecture and Darden proposes the use of allegory for the 'reverse' architecture. [18] [19] In this research, through the use of allegory, explorative acts of writing, drawing and reading, invent multi-misreadings and pose the question of an imaginative knowledge of an architecture without verticals.

Invented multi-misreadings of verticalities 1: Navigating from storage to inner hand

The drawing research project titled *Dalina storage house* is proposed as an allegorical architectural project to search for a re-narration of Aksaray-Karaköy route, a site in historical part of Istanbul, Turkey, as an half-imaginary urban spatial scenario without verticals [1] [2]. I begin from my observation that many of the abandoned spaces on this route are employed as storage spaces as a result of settled trade network in this area. Exposed through the transparency of the windows, storage unsettles the spectacle of the facade, filling the emptied spaces inside the buildings as a container where cargos wait stacked to be put in manual lines of transportation within the field. I contemplate, through drawing, storage as a subverted way of using the vertical dimension in space. Exploring through systematic plays on textual order of words and images from the site, the project generates a half-imaginary and invented lexicon composed of verbal and visual, as a device for the site to re-swallow itself [1].

The half-imaginary lexicon is applied iteratively in re-narrations of the existing site [2]. By transportation within the trade network, I am introduced to the act of carrying and associatively to the inner-hand as its corporeal organ, which I investigate, by drawing and model-making, as a peculiar space that bears interior and exterior qualities simultaneously [3]. In this way, I am reminded of an unusual case of

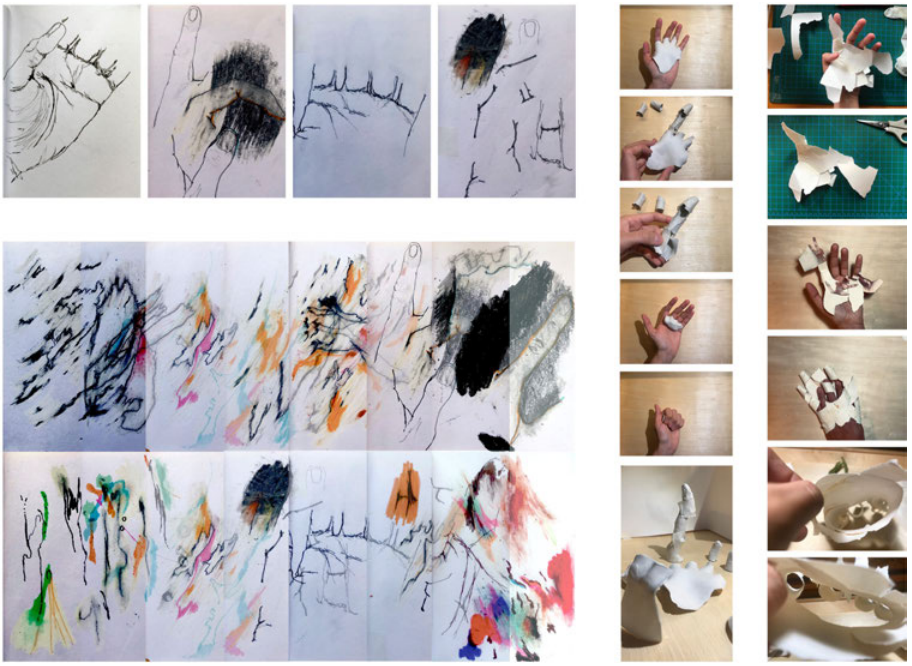


Figure 3

unconfined interiority within the route's iterative re-narrations. I propose to pursue the spatial knowledge of the inner-hand as a question of an imaginative knowledge of an architecture without verticals.

Invented multi-misreadings of verticalities 2: Navigating from inner hand to excavation, dogs, flies, wax models

The drawing research project, *a half-imaginary land of an imaginary consulate on a days'trip*, is produced at a day-trip at the archeological site, Aşağıpınar Höyük in Kırklareli, Turkey. Beginning from my experience of the site through the untouchable excavation, friendly dogs, impudent flies and scary wax models, the inner-hand inquires the imaginative knowledge of an architecture without verticals via drawings. The project acquires a family of ambiguous ficto-critical figures as a personalized site-specific language of an architecture without verticals [4]. The lexicon of figures and the re-narration of the archeological site speculate for a peculiar imagination of the spaces of an architecture without verticals [5] [6]. Re-narrated through the embodied knowledge of the hand, an architecture without verticals is posed as a question where more than one imaginative vertical collapses onto each other in order to blur the boundaries between interior and exterior, private and public, tangible and intangible.

Departing from the first drawing project, that leads my way towards a discovery of inner hand as an imaginative knowledge of an architecture without verticals, the second drawing project is a journey specifically navigated by the creative body of an inner hand. In this journey, I am reminded of "*getting to know seeing-with-the-naked-eye.*" 20 "*She hadn't*



Figure 4

realized the day before that eyes are miraculous hands, had never enjoyed the delicate tact of the cornea, the eyelashes, the most powerful hands, these hands that touch imponderably near and far-off heres. (...) She had just touched the world with her eye, (...). Violent gentleness, brusque apparition, lifting eyelids and: the World is given to her in the hand of her eyes." 21 I associate the state of "*seeing-with-the-naked-eye"* 22 with the act of re-swallowing proposed by Bergren, in terms of re-gaining own creative body (eye, hand, ...). 23 In this context, I care about the involvement of my inner hands as my navigators that bestow me a 'naked-eye.'

Guided by my inner hands, I enjoy attaining a spatio-temporal and personal knowledge of unrecognized narratives of the site, voiced by my own connection to dogs, flies, excavation and wax models. Abandoning canonical knowledge on the site through revealed archeological ruins and traces, the words *dog, level, trespass, follow, hand* deliver the basis of this project's half-imaginary lexicon, proposed with regard to site-specific attributes of dogs, flies, excavation and wax models. These attributes are specifically accounted for their capacity to offer subversions of verticality.

Combining together Bloomer's discussion on the text as a woven entity and a scripted construction, and Haralambidou's arguments on the tendency of allegorical architectural drawings to interrupt conventional architectural notation system, I devise operations in an allegorical skillset to be applied to both verbal and visual playing with the textual construction of drawings. 24 25 Identifying with my experience at the site, inner hand's haptic abilities to rub and smear, conform as the architectonic operations to be applied on the textual construction of the drawings. Explorations of drawing with pastel together with pencil on paper and of carving out linoleum are attempts to both re-enact the haptic experience on drawing material and to search for alternative spatial narratives by means of their material qualities [7] [8].

Figure 5



Figure 6



Figure 7



Figure 8

The following writing seeks to explore spatial narratives of the half-imaginary site as an architecture without verticals, re-narrated through the acquired half-imaginary lexicon *bog (dog), bevel (level), bresspass (trespass), bollow (follow)* and *band (hand)*:

In this venture, a consulate becomes a bonsulate. A bog should not be maybe understood as a dog itself. A bog, bears warm-hearted moves of the hair. A bog, is the dog itself in a way, yet within the relations of this venture, we know it as a bog. A bonsulate, on the other hand, is definitely not like the consulate itself, it has more than one, at least two tails. I notice that the bonsulate carries a long string along, this string opens up around the bonsulate, can be dragged on the ground. It is easy to give shape to this string. A bonsulate can carry out the act of brespassing. The act of brespassing, is like the act of trespassing, yet it is not trespassing itself, it bears the celebration of coming together.Within this journey, a hand becomes a band. A band, is like an inner hand, it is both inside and outside. And a bollow is like a follow, yet they are not the same thing, when in state of bollowing, one can never tell who is after who. Me, the bonsulate and the bog bollow each other in a playful state in this half-imaginary land [7] [8].

The drawing research projects introduced to me a critique of the canonical production of verticals in architectural drawing practice by venturing into an interiority-informed drawing practice. The inquiry of the inner-hand unsettles the boundary and questions the content of architectural drawing. The architectonic operations to rub and to smear, attempted by materials of pastel combined with pencil, voice unconfined interior spatial qualities. Drawing through the acquired families of ambiguous ficto-critical figures as site-specific lexicons of an architecture without verticals, poses a question on spatial contents of empirical notation. Opening this personal drawing practice to others, as in the intrinsic act of translating from drawing to spatial knowledge, is a matter of on-going discussion in the research project.

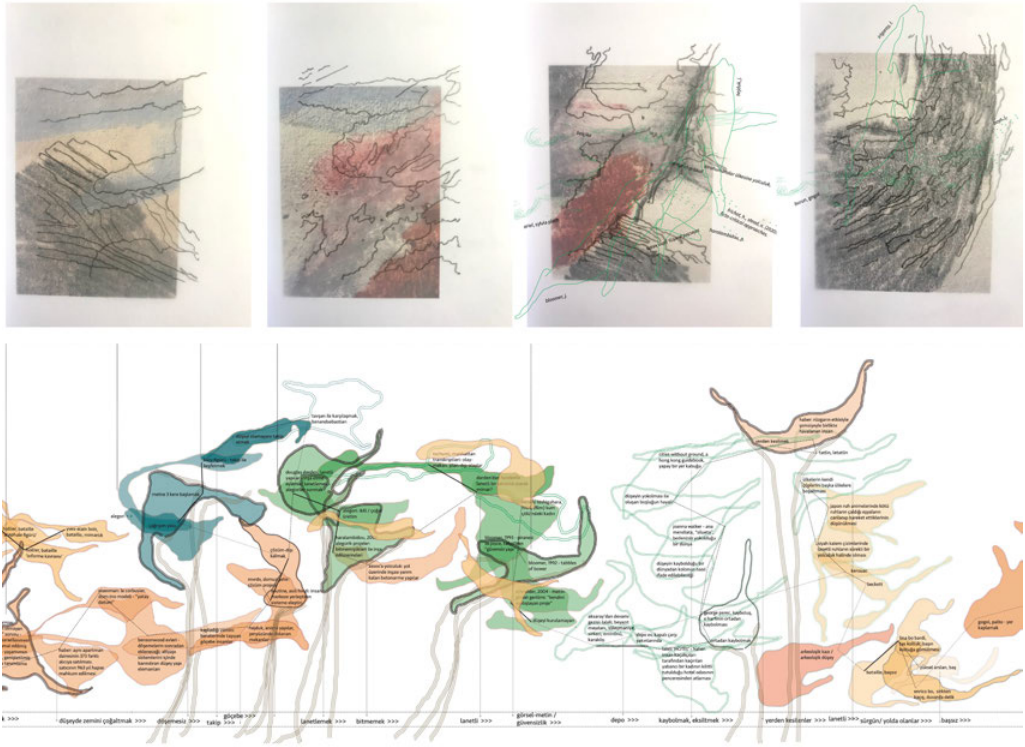


Figure 9

1 Bloomer, Jennifer (1993): Architecture and the Text: The (S)crypts of Joyce and Piranesi. New Haven, London: Yale University Press.

2 Irigaray, Luce (2007): Je, Tu, Nous: Toward a culture of difference. London: Routledge Classics. (Original work published in 1990 by Editions Grassets & Fasquelle).

3 Cixous, Hélène (2013): »A Kind of Magic«, in: Paragraph Volume 2, issue 36, pp. 161–188.

4 Leatherbarrow, David (2000): Uncommon Ground: Architecture, Technology, and Topography. Massachusetts: The MIT Press.

5 Koolhaas, Rem/Vreisendorp, Madelon/Zenghelis, Elia/Zenghelis, Zoe (1972): Exodus, or the voluntary prisoners of architecture. Socks Studio, https://socks-studio.com/2011/03/19/exodus-or-the-voluntary-prisoners-of-architecture/

6 Tschumi, Bernard (1996): Architecture and Disjunction. Massachusetts: The MIT Press.

7 Lambert, Léopold/Moodley, Roanne (2020): On the physical violence of architecture. E-flux, https://www.e-flux.com/architecture/confinement/359904/on-the-physical-violence-of-architecture/

8 Agrest, Diana (1988): »Architecture from without: Body, Logic, and Sex«, in: Assemblage issue 7, pp. 28–41.

9 Grosz, Elizabeth (1994): »Women, Chora, Dwelling«, in: ANY: Architecture New York issue 4, pp. 22–27.

10 Bergren, Ann (1994): »Dear Jennifer«, in: ANY: Architecture New York issue 4, pp. 12–15.

11 Torre, Susana (1981): »Space as Matrix«, in: Heresies #11: Making Room: Women and Architecture volume 3, issue 3, pp. 51–52.

12 Birkby, Phyllis (1981): »Herspace«, in: Heresies #11: Making Room: Women and Architecture volume 3, issue 3, pp. 28–19.

13 Irigaray, Luce (2007): Je, Tu, Nous: Toward a culture of difference. London: Routledge Classics. (Original work published in 1990 by Editions Grassets & Fasquelle).

14 Haralambidou, Penelope (2007): »The Fall, The Allegorical Architectural Project as a Critical Method«, in: Rendell, Jane/Hill, Jonathan/Fraser, Murray/Dorrain, Mark (Eds.), Critical Architecture, Oxon, New York: Routledge, pp. 225–236.

15 Bloomer, Jennifer (1993): Architecture and the Text: The (S)crypts of Joyce and Piranesi. New Haven, London: Yale University Press.

16 Frichot, Hélène /Stead, Naomi (2020): »Waking Ideas from Their Sleep: An Introduction to Ficto-critical Writing in and of Architecture«, in: Frichot, Hélène/Stead, Naomi (Eds.), Writing Architectures: Ficto-Critical Approaches, London, New York: Bloomsbury Publishing, pp. 11–24.

17 Rendell, Jane (2012): »Tendencies and Trajectories: Feminist Approaches in Architecture«, in: C. Crysler, Greig/Cairns, Stephen /Heynen, Hilde (Eds.), The SAGE Handbook of Architectural Theory, London: SAGE Publications, pp. 85–97.

18 Nicholson, Ben (1992): »The Grit and Grist of Thinking the Unthinkable House«, in: Research in Phenomenology issue 22, pp. 12–22.

19 Darden, Douglas (1993): Condemned Building: An Architect's Pre-Text. New York: Princeton Architectural Press.

20 Cixous, Hélène (2001): »Savoir«, in: Cixous, Hélène/J. Derrida, Veils (Ed.), Stanford, California: Stanford University Press, pp. 1–16. (Original work published in 1998 by Editions Galilée).

21 Ibid.

22 Ibid.

23 Bergren, Ann (1994): »Dear Jennifer«, in: ANY: Architecture New York issue 4, pp. 12–15.

24 Bloomer, Jennifer (1993): Architecture and the Text: The (S)crypts of Joyce and Piranesi. New Haven, London: Yale University Press.

25 Haralambidou, Penelope (2007): »The Fall, The Allegorical Architectural Project as a Critical Method«, in: Rendell, Jane/Hill, Jonathan/Fraser, Murray/Mark Dorrain, Mark (Eds.), Critical Architecture, Oxon, New York: Routledge, pp. 225–236.

Cinematic Space as Constructed Memory in the Essay Film Bonding Humanity (Perhaps Manifesto)

Nina Bačun, University of Zagreb



Intermediate doctoral stage

Supervisor: Mia Roth-Čerina, University of Zagreb

Architectural montage, cinematic space, spatial narratives

Abstract

'Spatial narratives in film' research relies on the perceived potential of the 'instrumental role of cinematic architectural space,' its impact on the narration of film, and its influence on real architecture and urbanism. In other words cinematic spaces are not passive, they tell us stories with spatial manipulation, sometimes contrary to the usual understanding of architecture. The relationship(s) between architecture and film are seen as tools for critical exploration of architecture. Certain montage practices became a fundamental instrument for understanding modern space and architecture in the twentieth century, thus the word 'montage' has been examined and used both as moving image practice and spatial practice. Previous research has offered insufficient attention, especially since consequences of the links between architecture and cinema might be seen in architecture that is extensive and imaginative, as well as lead to novel readings of architectural space.

Artefact

The early outcome of the design-driven research *Spatial narratives in film* is transpired into the essay film *Bonding Humanity (Perhaps Manifesto)*. The essay film questions how to reconstruct, help one to embody, or overwrite one's own memory of space. It was created by deliberately rearranging, reorganising and juxtaposing fragments from New Yugoslav Film – *Black Wave Film* – and its cinematic heritage related to the interaction between collective spaces and their use.

I was second to last of Tito's Pioneer generation, a child raised on a Yugoslav socialist myth, a collective 'unconsciousness.' Now as a part of a 'transition generation', I would like to understand more clearly the 'uncertain collective memory' we all live with, even now in a (post-)Yugoslav context, through the lens of specific cinematography of Yugoslav Black Wave, and its relation to our physical and mental landscapes. Therefore, in the essay film *Bonding Humanity (Perhaps Manifesto),* personal, social and political contexts intersect into a dialogic narrative form that advances possibilities for new interpretations. At the same time, the voiceover manifesto is manoeuvred to evoke or recover personal trajectories, as well as collective memories, as fragments. The fragmentary structure of our memory can be easily compared to the way cinematic architecture is usually presented.

Since there is no classical linear narrative, fragments of memories in this essay film are linked together by 'elliptic montage.' Images are treated as found objects – a compilation of found footage. Some images are based on associative values, while others are not. Because our experience of the present, to a large degree, depends on our knowledge of the past and the way we memorise it, it is important to be aware of the role of memory in our experience of space. Especially for human memory, which is spatial, and since spaces 'talk.' Humans build monuments to recall events and experiences, thus architecture has always been one of the ways of inducing memories.

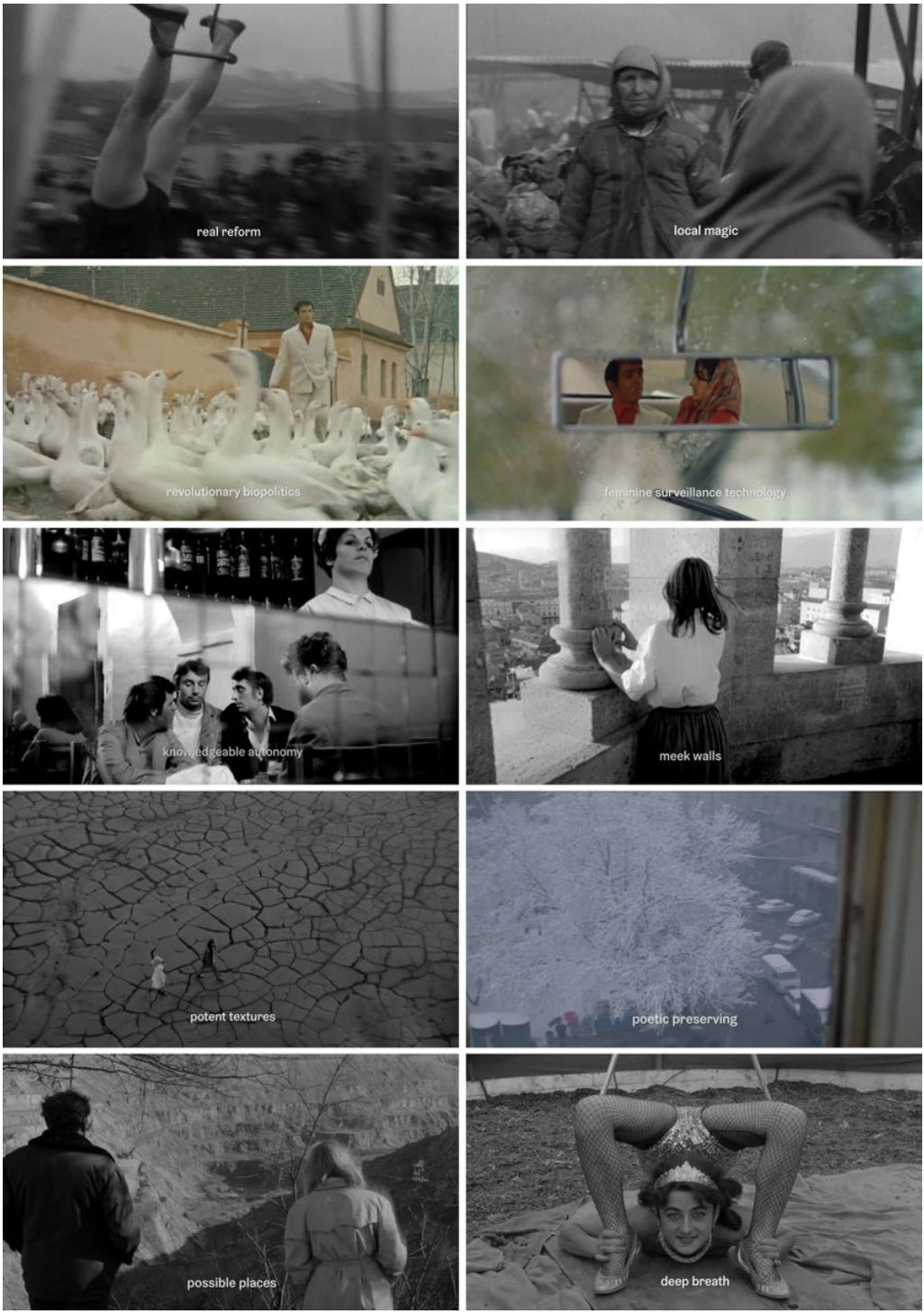


Figure 1: Bačun, Nina (2021/22) Bonding Humanity (Perhaps Manifesto) – A film essay. Various films. Used with the permission of the owner of the rights Avala Film Way, Belgrade, and Hrvatski Filmski Savez, Zagreb.



Figure 2: Bačun, Nina (2021/22) Bonding Humanity (Perhaps Manifesto) – A film essay. Petrović, Aleksandar (1961) And Love Has Vanished, original title: Dvoje. Used with the permission of the owner of the rights Avala Film Way, Belgrade.



Figure 3: Bačun, Nina (2021/22) Bonding Humanity (Perhaps Manifesto) – A film essay. Mimica, Vatroslav (1967) Kaja, original title: Kaja, ubit ću te!, Jadran Film Zagreb. Used with the permission of the owner of the rights Sergio Mimica.

Within *Bonding Humanity (Perhaps Manifesto),* architecture and actions that complete cinematic spaces, or better define them, are used as triggers for inducing memory by 'constructing' it. Perhaps it is now urgent to question the role of nostalgia today. If nostalgia is about the 'repetition of the unrepeatable,' as well as 'materialisation of immaterial,' [1] and its paradox lies in this fundamental ambivalence, as Svetlana Boym states, can it be used as a tool for retrieving our collective memory once architecture's relationship with memory has been revealed? How could nostalgia – a sentiment – be seen as a critical thinking tool, that enhances or/and

enriches our reflection of the past? Can we experience nostalgia toward spaces, which never materially existed?

The vocal part of the essay film is shaped by the use of 'linguistic montage' made out of a network of 'verb adjectives.' Words are linked together to yield a new meaning, an open, closed or hyphenated compound. The logic is the same as with the images, they are edited in the way that some compounds are associated with images, while others are not. Altogether, images, text, dramaturgy of text and sounds are associated in a whole with the assumption of 'ideal' heterotopia – environment(s), inhabited and activated with human and/or 'nonhuman' in various ways. The Manifesto subtly expresses the mental and physical environments we inhabit, (un)consciously, in our memories. Because of the relativity of all relationships, it is impossible to know if there is an 'ideal,' what that would be, or what it would bring. For that reason, the word 'perhaps' seems to be the most accurate term.

Another important question is how to appropriate space(s) with music? What is the role of the sound in bringing back the memory of space? How do we memorize space(s) through the way they sound?

In deconstructing collective from the individual perspective, this essay film, also speaks of a specially constructed memory built of cinematic spaces, with a suggestive clue that spaces, be they real or imagined, are not neutral, nor passive. One can understand that cinematic spaces are a strong tool for shaping one's memories, and in that sense, they should be abolished or nursed with care. And even though we do not share the same language with our environment, somehow, we are constantly trying to give spaces a human voice. We could even speak about the 'poly-perspectivism' of spaces, particularly cinematic spaces, because they carry, at the same time, their own story and the story we imprint onto them. Additionally, different people imprint different meanings onto spaces. The question is how to create a mutual language with the environment which could carefully construct memory to be a helpful tool? How can this method become a tool for exploring not only cinematic spaces, but physical architecture?



Figure 4: Bačun, Nina (2021/22) Bonding Humanity (Perhaps Manifesto) – A film essay. Makavejev, Dušan (1965) Man is Not a Bird, original title: Čovek nije tica (film). Used with the permission of the owner of the rights Avala Film Way, Belgrade.



Figure 5: Bačun, Nina (2021/22) Bonding Humanity (Perhaps Manifesto) – A film essay. Makavejev, Dušan (1965) Man is Not a Bird, original title: Čovek nije tica (film). Used with the permission of the owner of the rights Avala Film Way, Belgrade.



Figure 6: Bonding Humanity, Perhaps Manifesto poster by Nina Bačun and Sven Sorić.



Figure 7: Bačun, Nina (2021/22) Bonding Humanity (Perhaps Manifesto) – A film essay.

In our vernacular reality nowadays, our memories are being constructed again and again with the use of montage, as technology thinks, works and memorizes for us. By merging film attributes, such as editing of images, sound and montage, with architectural representation, a film essay can be perceived as an architectural drawing, as well as being read as a phenomenological space. Involving the form of the essay film as a tool for creative exploration. By blurring the boundaries between architectural and urban investigation and cinematic experimentation, one is able to discover and question the borders of an uncertain past, acute present and desired future. Using a portrait of the past to say something about the present, having in mind that it's subject –a patchwork of decontextualized memories– be they artificial or authentic, personal or historical, is something to be nursed.

RECOMMENDATIONS

1 Embracing uncertainty, embracing vigour.

2 (Re)inventing the creative process by 'unlearning.'

3 Finding the balance between subjective and collective dimension of research, if conducting interdisciplinarity.

4 (Re)questioning the role(s) of design and designer within the research.

5 Being aware that method can sometimes be 'dreadful' for the creative process and explorer's intuition.

6 Taking the role of an *amateur,* from time to time.

Analysing the Socially Enhancing Elements of Space in Four Senior Cohousing Sites

Ana Belčič, University of Ljubljana



Final doctoral stage

Supervisors: Anja Planišček, University of Ljubljana; Jana Mali, University of Ljubljana; Anne Corlin, Aarhus School of Architecture; Claus Peder Pedersen, Aarhus School of Architecture

Senior housing, cohousing, social

Abstract

In today's rapidly ageing society, it's becoming increasingly important to develop more diverse, non-institutional and community-based housing architecture for older people. Research shows that maintaining strong social networks helps people maintain health and cognitive ability. Therefore, the need for developing old-age housing solutions that can be socially enhancing is not only a matter of providing comfort but can also contribute to overall health and wellbeing. Looking at architecture as a stage for encounters, we can assume certain features can be socially enhancing, whereas others can be neutral, inconsequential or even hinder social contact. The paper looks at identifying socially enhancing elements of architecture in the case of senior cohousing. This is done by consulting literature and the subsequent evaluation of four different sites found in Denmark. The results show how the interaction of different socially enhancing elements can produce various results, hoping to assist decision-making for planners in the future.

DDR statement

The research was conducted by observing four senior cohousing communities in Denmark through three different methods of investigation. The first was architectural observation, including gathering floor plans, situation maps and conducting photoanalysis on site. The second was engaging the residents in a user diary exercise where they were asked to draw their path trajectories throughout the week, to mark and describe what social interactions they experienced within their community. They were also asked to sketch and write down how they use their private units on a blank template of their floor plan. The third method was to hold a focus group that allowed the cross-referencing of the data gathered from the previous two approaches and determine what observations were correct, partially inaccurate or needed additional explanation. They were also asked about how they have chosen to adapt the spaces to their own needs and what they are looking to change or upgrade in the future. The follow-up analysis combines the use of photos, drawings, diagrams, textual analysis and reflection. Through using the method of drawing and re-drawing some of the sites in different styles and perspectives, the abstract architectural elements can become easier to identify. What emerged through the analysis of the socially enhancing elements documented on-site, is the complexity of their influence not only on the users, but on each other. It is not only the separate architectural elements, working independently in space, but their interaction, that is the deciding factor in making a space socially reinforcing or not.

Paper

Architecture provides the stage for social interaction, potentially supporting the formation of relationships between people, or reinforcing withdrawal, separation and segregation. Nowadays, with the shifting of traditional family and community systems, loneliness is becoming an increasing problem, especially for our rapidly ageing population. In Europe, people over 65 years of age now comprise one-fifth of the population[1] and are arguably the most prone to feeling isolated due to wavering ties with

their working environment, grown-up children and other contacts. Additionally, the currently prevalent old-age housing solutions, such as retirement homes, are becoming outdated due to their tendency for being overly institutional, often detached from the general urban tissue, isolating, expensive, as well as limiting in terms of the resident's personal agency. My work focuses on developing an alternative to the institutional accommodation of older people. I aim to develop architectural solutions for autonomous, yet socially integrated, community-based ageing where people can reside with a group of like-minded individuals of their own choosing. Alarmingly, loneliness can accelerate ageing and contributes to the development of disease, while maintaining social ties has been shown to have a positive effect on health and retaining cognitive abilities in old age. Having a limited social network can be linked to a higher probability of overall (premature) mortality in older adults.[2] It is therefore not only a matter of optimising comfort, but of forming healthy environments for a rapidly growing elderly population.

As architects, we can investigate how social interactions and space are related in order to attempt to influence social behaviour. In *The Hidden Dimension*, Edward T. Hall[3] discusses how, for example, park benches arranged back-to-back inhibit conversations, while chairs placed around a table, such as in sidewalk cafés, or traditional train compartments, help conversations start. He uses these examples to derive the notions of *sociopetal* and *sociofugal* architecture. *Sociopetal* architecture supports social contact, whereas *sociofugal* architecture hinders it. Various authors also make similar observations on the effects of spatial features on human conduct, including Gehl,[4] Whyte,[5] Cullen,[6] and Hertzberger.[7] However, research in design aimed towards supporting social interaction has so far mostly been focused on highly public, inner-city environments, although some studies in the residential context can be found. In this research, I attempt to investigate the *communal* space within senior cohousing communities. Here, *communal* refers to shared spaces that are primarily used, as well as managed and maintained by the resident community members, not the general public.

Jan Gehl[4] acknowledges that architecture can not directly influence social activities, however, it can affect the possibilities for meeting, seeing and hearing people by making it possible to meet casually, to be with others in a relaxed, undemanding way and maintain established contacts easily. Whyte[5] also notes that there is a close connection between the qualities of space and the activities it hosts. Gehl[4] further explains that poor quality spaces mostly only support a minimum of necessary, unavoidable activities. When the quality of spaces is increased, the necessary activities take part just as frequently as before, but optional activities also begin to occur if there is a good place to stop, talk, sit, eat, play or do other things. For an activity to occur, there must be an opportunity for a starting event, an initial stimulus that can be accommodated by the spatial setting.[4] But what are the conditions that can induce starting events?

Despite the different perspectives taken by the authors, common themes could easily be extracted, such as the appropriate distances, sensory, atmospheric and quality demands on the environment. A starting event can be as little as seeing someone approaching and feeling compelled to exchange a greeting and start a conversation. The spatial conditions for this event can include, for example, sharing a common pathway or approaching within sight of the observer, being close enough to speak without shouting, and ideally in a comfortable location that can support prolonged stays. As explained in terms of sociology, when a behaviour is rewarding, it will be reinforced. When it is not, it will be extinguished. Additionally, if the cost of the behaviour is too large, causing fatigue, it will also not take place repeatedly. The greater the reinforcement, the more often the behaviour, affecting the cohesiveness of the group in question.[8]

The main observation is that a space needs to be not only physically, but most importantly – *socially comfortable*.[5] *Socially comfortable* spaces are the ones that allow for choice and contact regulation to take place easily and can support the birth of spontaneous, casual contacts, contributing to the development of personal relationships between residents, enhancing solidarity and communal responsibility, therefore mitigating the sense of loneliness and isolation

My investigation looks at how specific, *socially enhancing* elements of architecture, as described by literature, can work in the case of senior cohousing to provide a communal space of opportunities for social starting events and prolonged use. Williams[9] describes the features that influence social contacts in cohousing communities as *design for social interaction* in her paper where she studies two (mixed-generation) cohousing examples, which also helped guide some of my research design. My goal was to test the prospective architectural elements indicated in the literature by researching the user's experience and use of the space. The senior cohousing communities that were investigated in my case are all located in Denmark. The four sites were chosen due to their diverse spatial characteristics and differing contextual settings to ensure a good comparison between the various types of compositions and attributes. The research involved visiting the sites and observing them from the perspective of an architectural researcher, as well as engaging the users in experimental exercises to try and obtain a less professionally contaminated overview of how the spaces are being perceived and used.

The following data analysis was comprised of three levels of criteria, regarding the scale and type of information. The criteria were based on the research done by Williams,[9] while also relying on the concepts observed and tested by Gehl[4] and Whyte.[5] Level one was focused on the wider scale of each of the sites, looking at its context, the site layout, building morphology, building density and the proximity between buildings, especially regarding the shared space of the common house. Level two looked at the site from the viewpoint of the positioning and properties of the private units. The semi-private spaces that create a connection

between the private and common areas were also investigated, as well as the sightlines to and from the various types of areas. Next, the common areas and shared pathways and parking organisation were looked at. Level three was focused on micro-locations. This includes ambient comfort, sensations and opportunities for personalization. Here is where my research found some aspects of communal living that have not been looked at in the literature. The sensation of other people's presence, such as seeing someone's light on, hearing someone's movement through the walls and seeing if they have picked up their newspaper or not, has emerged as a new category. These elements contributed to the overall sensation of communality and solidarity.

Initial Assumptions

The literature[4 5 9] indicates various examples of good practice that can be seen as an "ideal" way of planning for enhancing social conduct. Mostly, it is preferable to ensure small groups of inhabitants to prevent feelings of isolation or anonymity. Jan Gehl[4] explains that residents in small communities are more quickly and more effectively able to organize themselves for group activities and to solve mutual problems. He further recommends the buildings are to be ideally placed in inward-facing clusters "like friends around a table". Williams[9] also finds this layout preferential to, for example, longitudinal ones. Ground-floor buildings are seen as best due to the fact they can have an immediate connection to the outdoor common spaces. Parking is to be placed on the edges of the community to avoid the common areas being consumed by traffic. Additionally, the common areas should be centrally located and ideally, a variety of common areas should be available for different uses. Shared pathways are important to facilitate casual meetings, and a gradation of privacy via semi-private buffer zones helps people move comfortably from more private to communal situations. Personalisation opportunities in these transitional areas help people express ownership, character and interests. Short distances are of course a preference to ensure not only accessibility but also visual contact and easy communication. Finally, when it comes to elderly people, there is a lot of talk about "downsizing" that appears in all sorts of media articles, strategies and publications of various kinds. The assumption is often made, that the older you get, the less space you need.

The Findings

Regarding downsizing, most inhabitants of the sites claimed that they still preferred spacious apartments (mostly from 80 m^2 up to 150 m^2 per unit) and that for them, it is not preferable to have a smaller space, but a space better adapted to their needs to make it more manageable.



Figure 1: *The investigation sites*



Figure 2: *Egebakken layout, section and typical views. Architectural drawings by Ana Belčič, based on source images by Vandkunsten Architects.*



Figure 3: *Egebakken investigation of shared pathways and semi-private areas. Site map by Ana Belčič, based on source images by Vandkunsten Architects.*

Egebakken

At the Egebakken, the fan-shaped distribution of the pathways leading to the ground floor private units affects how many people you can expect to meet, dividing the flow into separate longitudinal streets. Another factor is the fact this site does not have a common parking lot. People can drive up to their units and therefore don't have as much chance for spontaneous parking lot encounters.

Interestingly, the community has made the nearby forest a part of their social space that accommodates spontaneous meetings. Therefore, the context of the site can sometimes work to supplement some weaker features of the site. Here, it provides the inhabitants with a shared pathway and a secondary outdoor common space for them to enjoy.

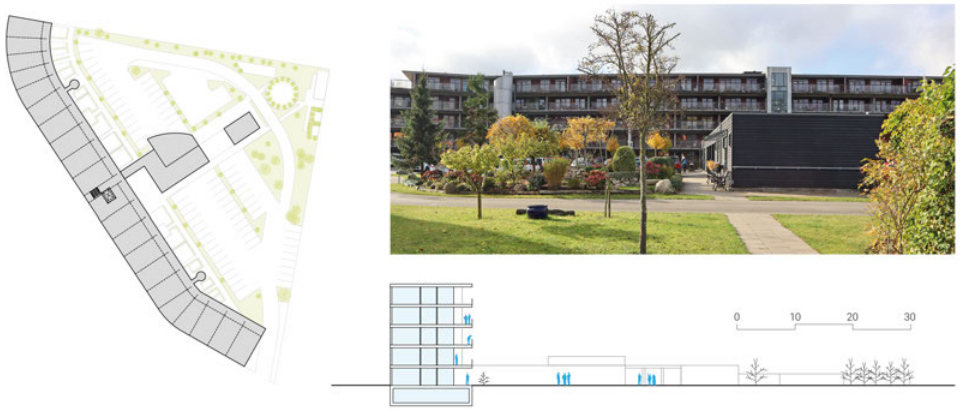


Figure 4: *Sonnesgården layout, section and typical view. Architectural drawings by Ana Belčič, based on source images obtained from Aarhus municipality, Denmark.*

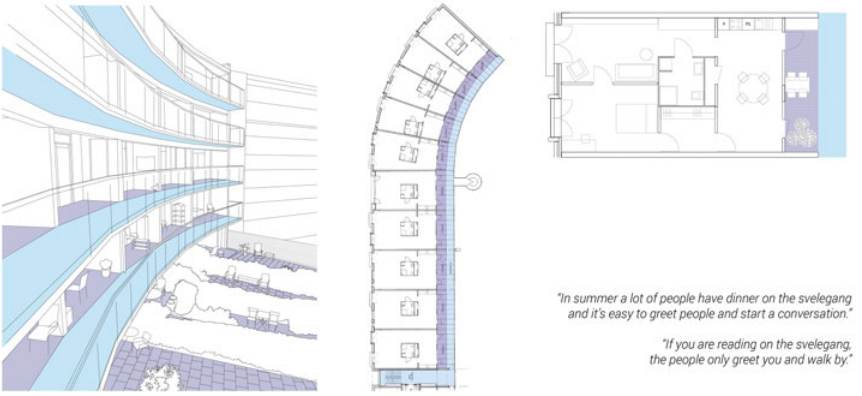


Figure 5: *Sonnesgården investigation of shared pathways and semi-private areas. Architectural drawings by Ana Belčič, based on source images obtained from Aarhus municipality, Denmark.*

Sonnesgården

The Sonnesgården community is located in the centre of Aarhus, a very different, more urban location than other sites. Interestingly, the apartments were the smallest of the lot (about 70 m^2), but the fact they are located centrally meant that the inhabitants have accepted that as a fair trade-off. Despite the size of the community (having about three times more inhabitants than the other ones) and the fact that it is a large, multi-storey building, certain architectural features still make it function as a socially enhancing structure.

The most important is the fact that the common entrance to the entire building is directly through the main space of the common house, which allows for many spontaneous meetings and engaging in ongoing activities. The common house is a typical part of senior housing communities in Denmark and usually includes a common kitchen and multi-purpose space. From the common house, the corridor leads to a single common

staircase that condenses the flows of inhabitants from various floors into one communication shaft.

The most interesting part of the building is the *svelegang* – the covered, outdoor access balcony that leads to individual units. The entrances to the units attach to the *svelegang* via concave niches that form semi-private spaces. According to the inhabitants, this is a very social space that allows for many casual meetings that can grow into longer-lasting events. The *svelegang* also acts as a very intense common pathway. The appropriate distance between the passer-by (about 3 meters) and the person potentially sitting in the niche is also an important factor, facilitating immediate engagement, but also providing the choice not to engage. Therefore, the space provides easy contact regulation and is therefore seen as socially comfortable.



Figure 6: *Sundbakken layout, section and typical view.Architectural drawings by Ana Belčič, based on source images by Pluskontoret arkitekter.*



Figure 7: *Sundbakken investigation of sightlines.*

Sundbakken

At Sundbakken, the site is comprised of two-storey (ground + 1st floor) buildings. The assumption could be made that the units on the top floor that have less access to the immediate common area on the ground, would be less socially accommodating.

It turned out not to be true – the upper floors have access balconies that allow for the residents to have good observation points, therefore allowing for unobstructed sightlines and making visual contact with others. The balconies also allow the people on the top units to communicate by waving or calling across to the people on the other side.

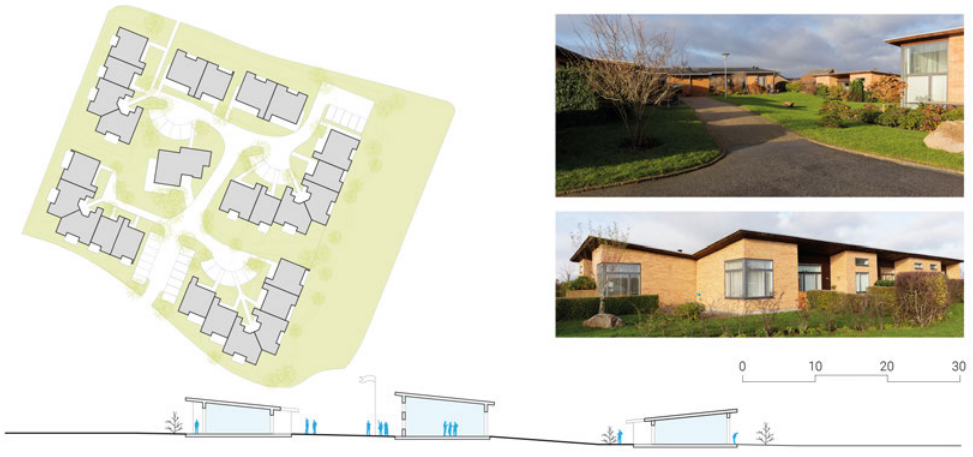


Figure 8: *Tanderparken layout, section and typical view. Architectural drawings by Ana Belčič, based on source images by Arkitektfirmaet Frost Larsen.*

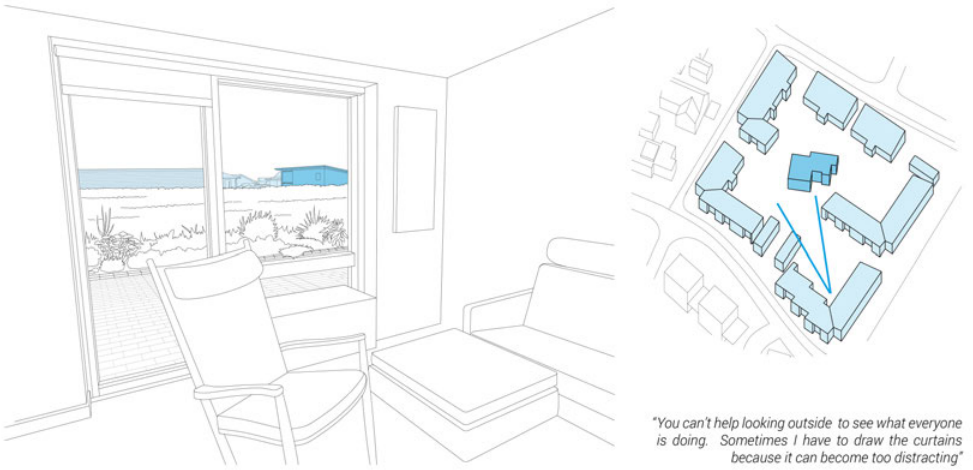


Figure 9: *Tanderparken investigation of sightlines. 3D site map by Ana Belčič, based on source images by Arkitektfirmaet Frost Larsen & Max Pederson (2015).*

Tanderparken

The Tanderparken site has a layout of ground floor buildings arranged around the central common house, as well as separating the site into four clusters that can form more intimate interior courtyards where the gradation of privacy is gradual.

Corner units in particular form intimate semi-private spaces in front of their units while still having a good view across the community. There, the ability to also hear your neighbour and feel them through a common wall has been mentioned as something that promotes feelings of solidarity and safety.

The analysis of research outcomes shows that some architectural elements can have the opposite effect to those described in literature when

interacting with other elements or appearing in different contextual frames. Therefore, it has been noted through the observation of four investigation sites, that we should not only look at these elements separately but consider the possibilities for their interaction. In contrast to the usual proposal to stick to small groups, it was observed that larger groups can work just as well (or better) if there is enough density and opportunities to interact to avoid isolation and feelings of anonymity. It can also be established that the site's composition is important, but other elements: shared pathways, common spaces and views of other people's activities can override its effects. Therefore, if an inward-facing cluster structure can not be achieved due to building site constraints, other factors can be used to establish desired effects.

This can potentially help us navigate planning in non-ideal or restricted circumstances, where not all recommendations can be followed completely. With a better understanding of each element's role and potential, an optimal effect can be achieved towards forming comfortable, socially reinforcing spaces. This is how as architects, we can contribute to help reduce loneliness and isolation for our ageing population.

In my case, the intent is to use the acquired data as a way of informing the mass customisation methodology for transforming underused housing in ageing neighbourhoods into socially enhancing, community-based ageing environments. The proceeds of the investigation, however, can be used to inform various types of residential architecture where the objective is to enhance social contact and foster group solidarity.

1 Statista Research Department (2021): Population size of citizens aged 65 and years in Europe. Statista, https://www.statista.com/statistics/611783/population-size-of-over-65-s-in-european-countries

2 Barnes, T. L./Ahuja, M./MacLeod, S./Tkatch, R./Albright, L./Schaeffer, J. A./Yeh, C. S. (2022): »Loneliness, Social Isolation, and All-Cause Mortality in a Large Sample of Older Adults«, in: Journal of Aging and Health, volume 34, issue 6–8.

3 Hall, Edward, T. (1966): Garden City. New York: Doubleday.

4 Gehl, Jan (2011): Life between Buildings: Using Public Space. Washington DC: Island Press.

5 Whyte, William, H. (1980): The Social Life of Small Urban Spaces. New York: Project for Public Spaces.

6 Cullen, Gordon (1961): The Concise Townscape. London: Architectural Press, Elsevier Ltd.

7 Hertzberger, Herman (2005): Lessons For Students Of Architecture. Rotterdam: nai010 Publishers.

8 Homans, George, C. (1958): »Social Behavior as Exchange«, in: American Journal of Sociology volume 65, issue 6, pp. 597–606.

9 Williams, Joanna (2005): »Designing Neighbourhoods for Social Interaction: The Case of Cohousing issue«, in Journal of Urban Design volume 3, issue 10, pp. 195–227.

Composing Images Architectural Montage as Design-Driven Research Tool

Đorđe Bulajić, Politecnico di Milano

Initial doctoral stage

Architectural Montage, Images, Research Tools

Abstract

The main goal of this research project is to propose a new seeing of architectural montage which is strongly motivated by the framework of the newly formed field of study in research by design community – design-driven research. The reason for this research stems from the fact that in architectural historiography, in which montage first appeared in the late 1960s and early 1970s in the work of Italian historian and theoretician – Manfredo Tafuri, architectural montage has been mostly presented as a purely representational technique, neglecting its other potentials. With the recent development of the design-driven research framework, architectural montage has gained an extremely important new role in architectural discipline. Therefore, the main hypothesis of this research is that architectural montage is not exclusively a representational technique, rather it is a research tool that can produce knowledge within the architectural discipline.

Extended abstract

I am kino-eye. From one person I take the hands, the strongest and most dexterous; from another I take the legs, the swiftest and most shapely; from a third, the most beautiful and expressive head – and through montage I create a new, perfect man.[1]

Montage is an omnipresent topic in contemporary culture. Although it is considered a film technique nowadays, it emerged out of avant-garde artistic practices in the first decades of the twentieth century, primarily from the circle of Berlin Dadaists. Radical in their idea to change the bourgeois society and the inherited, traditional, established art forms of that society, torn between the communist East and the capitalist West, the Berlin Dadaists developed a new aesthetics based on dialectics, fragmentation, and juxtaposition, in which techniques such as montage played a fundamental role. However, since the beginning of the 20th century, montage took different forms in various artistic disciplines and "*the juxtaposition of photographic elements became, through adaptation and analogy, a primary compositional principle in all artistic media*."[2]

Much like in other artistic disciplines, montage has taken a significant role in architecture too. Ever since the first photomontages of Mies van der Rohe, which he submitted with his brother Ewald in the 1910 competition for a national monument honouring Bismark, the first chancellor of unified Germany, the immense potential of this technique in architecture has been continuously growing. Although Mies, Le Corbusier, El Lissitzky, László Moholy-Nagy, Kazimir Malevich and other montage pioneers used this technique in slightly different ways, "*in its first architectural use, photomontage was a representational tool that allowed an image of a hypothetical building to be grafted onto photograph of the real site, lending greater credence to an imagined form through a relationship to the urban context.*"[3] However, about 100 years later, after the myriad of montage practices in architecture discipline including radical practices from the

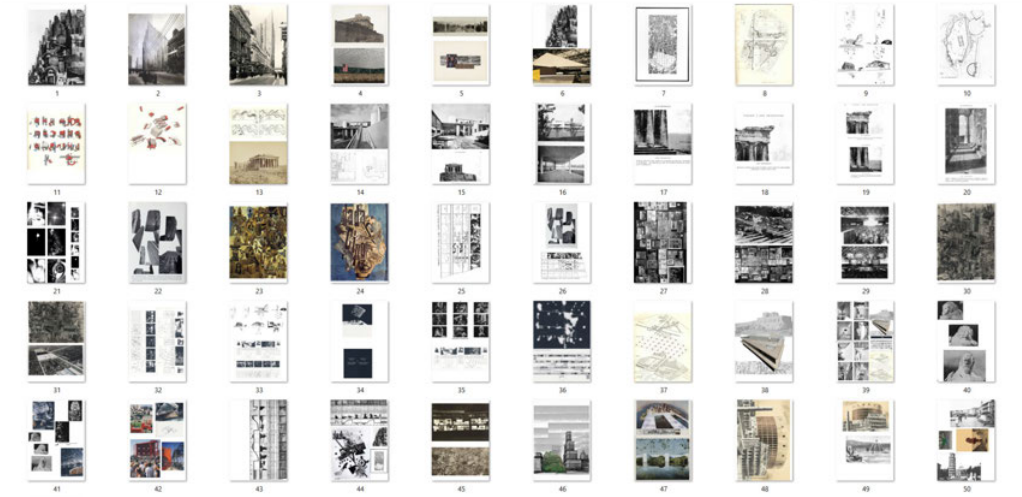


Figure 1: The Atlas of the Research



Figure 2: Cinematic Montage

1960s – Superstudio and Archizoom, Hans Hollein, Peter Cook and Archigram, and more contemporaneous – Bernard Tschumi, Rem Koolhas, Luca Galofaro, Tatiana Bilbao, Cruz Garcia and Nathalie Frankowski (Wai Think Thank), montage cries for redefinition and reconceptualization in architectural design and research.

In architectural historiography, montage first appeared in the late 1960s and early 1970s in the work of Italian historian and theoretician – Manfredo Tafuri. In "*Teorie e storia dell'architettura*" (Theories and History of Architecture), Tafuri deals with the topic of architectural criticism and investigates a deep contradiction between the avant-gardes and experimentalist architecture. Moreover, Tafuri mentions the architectural assemblage, which he defines as one of five distinct types of architectural experiments. In the chapter called "*Architecture as Metalanguage: The Critical Value of the Image*", citing Bruno Zevi, he addresses the semantic problem of architect's research instruments, which represents the focal point of this research project: "*You can use words to write a poem, or just to tell a story or to criticise an event. It is the same with painting. You sing and you can speak. Modern art criticism has been able to show that many painters were really not artists but critics, great critics who used the medium of words to express not their feelings but their ideas. And it is the same with architecture... The challenge for us, in the next few years, will be to find a method by which historical research can be done with the architect's instruments... Why not express architectural criticism in architectural forms instead of in the words?*"[4]

Therefore, this research project aims to examine the possibility of a critical study conducted through images and through architecture. The main goal of this research project is to propose a new seeing of architectural montage which is strongly motivated by the framework of the newly formed field of study in research by design community – design-driven research. More precisely, the aim of this research project is to investigate the enormous potential architectural montage has in this theoretical framework. The reason for this research stems from the fact that in architectural historiography, architectural montage has been mostly presented as a purely representational technique, neglecting its other potential. With the development of the design-driven research theoretical framework, montage gained an extremely important new role. Consequently, the working hypothesis of this research is that architectural montage is not exclusively a representational technique, rather it is a research tool in the architectural discipline.

This particular paper aims to discuss one possible way of employing the montage technique as a design-driven research tool. The proposed montage represents the *image of the research.* Similar to the architecture of Notre Dame at Le Puy or St. Front at Périgueux, where we can identify historically different and distant codes (they contain various architectural elements from the 5th to the 19th century), the image of the research is a composite image which includes all kinds of images that were part of the research process – images from different disciplines, different periods, different sources, authors and formats, images in colour or monochrome, images of images, images of drawings, diagrams, buildings, cities and landscapes, images with different meanings. Individually, every fragment of this image has its own meaning – the knowledge that is embodied in the image. However, as Tafuri states: "*If the work, in fact, contains more than one meaning at the same…if it is nothing but a proposal or a challenge to linguistic conventions, then the critic is, of course, compelled to develop, to multiply further, to freely (or almost freely) reassemble the metaphors and the signs that are woven, available and open, in the work itself.*"[5] Montage produces meaning by combination and juxtaposition of these metaphors, signs-images, which means that the meaning resides in the way the elements are brought into relation with each other.[6] By working on these images through the technique of montage – by resizing, erasing, cutting, tearing, gluing, and superimposing them, new knowledge is created. That knowledge is created by the juxtaposition of these images, as Juhani Pallasmaa underlines: "*montage creates a dense non-linear and associative narrative field through initially unrelated aggregates, as the fragments obtain new roles and significations through the context and dialogue with other image fragments. The ingredients suggest varying origins and histories and the implied discontinuities provide suggestive shifts and gaps in the narrative or the logic of the image.*"[7]



Figure 3: The Image of the Research

In conclusion, this paper aims to open a debate about design-driven research that includes montage as a research tool. Architectural montage works with images and by combination and juxtaposition of various images tends to create new knowledge. Therefore, this research attempts to share new insights about montage thinking in the architecture discipline, which is strongly influenced by newly formed design-driven research.

Lastly, due to enormously helpful discussion that followed fruitful comments made by the panel members at the conference – Fabrizia Berlingieri, Katrina Wiberg and Alper Semih Alkan – this research will try to contemporise the proposed design-driven research procedures in the future. In fact, as this experiment was based on design procedures that were done solely by hand, or on mechanical reproduction of images, further research in the field will focus on a contemporary montage which works with digital or post-digital reproduction of images.

1 Vertov, Dziga (1984): Kino-Eye: The Writings of Dziga Vertov. Berkeley: University of California Press.

2 Stierli, Martino (2018): Montage and the Metropolis: Architecture, Modernity, and the Representation of Space. New Haven & London: Yale University Press.

3 Ibid.

4 Tafuri, Manfredo (1980): Theories and History of Architecture. London: Granada Publishing.

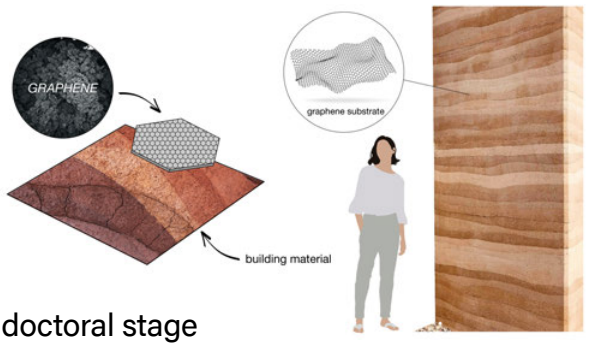
5 Ibid.

6 Ibid., p. 2.

7 Pallasmaa, Juhani (2011): The Embodied Image: Imagination and Imagery in Architecture. West Sussex: John Wiley & Sons Ltd.

The Use of Graphene in Building Construction
Potentiality and Questions

Carla Bulone, Politecnico di Milano



PhD Executive – intermediate doctoral stage

Supervisors: Alessandro Rogora, Politecnico di Milano; Jacopo Leveratto, Politecnico di Milano

graphene, experimental research, architectural prototyping

Abstract

The research topic revolves around the experimentation of graphene, a bi-dimensional material discovered in 2004 at the University of Manchester, which promises to revolutionize the scientific world at different multidisciplinary levels. From a global perspective, the research focuses on the descriptive and critical study of graphene as a high-tech, performing, versatile material with interesting potential to investigate its scientific knowledge from a theoretical point of view. In detail, this material study will verify the graphene implications in building construction and its plausible effects on architectural design, through design experimentation and in the laboratory, by prototyping a graphene-based application together with raw earth as a building material. The research evolves within a bipartite configuration and operates between Academia and the business company, contributing to the increasingly synergistic dialogue between the two fields of action and combining resources and scientific knowledge for shared purposes.

DDR statement

As this is exploratory research, material experimentation represents the driving key for prototyping an innovative graphene-based material, thanks to the design. The application of graphene also means an experimental input for industrial, scientific advancement in the orbit of the PhD executive (industrial doctorate). Currently, the tools and methodology are being defined through which it will be possible to introduce architectural design as a driver of experimental material research. In other words, the development of a graphene-based material and raw earth as a building material will be the empirical-industrial "pretext" on which to leverage to put design-driven research into play. Design and prototyping will be the epicenter of the experimental constellation.

No less important, this research also faces an experimental stage in the laboratory, and it will be this phase that will give added value to the research topic. In this sense, design-driven research acquires meaning, operating at the limit between theoretical and practical, trying to draw a border that is as blurred as possible. The experimentation with a graphene application in architecture will also allow me to gain direct experience between the reflective moment and the practical moment and undertake a multidisciplinary path. Interdisciplinarity, in my case between architecture, chemistry and materials engineering, can represent the appropriate aspect to offering a rich and varied contribution to the academic community.

I consider the design-driven approach a hybrid activity that combines the reflective part of research with the practical act of drawing and representation, generating a multifaceted configuration. This configuration can be challenging, but both components will probably enrich the result in an original way. Different models of knowledge production can coexist in the same process, said Prof. Johan Van Den Berghe, so the design-driven

strategy has the potential to elevate research to a higher level of awareness.

Graphene: a frontier material

Graphene is a material that ignites the imagination of researchers and fascinates the entire scientific community since, right from the start, it represents the emblem of the possibilities of research. With its extraordinary features, in a very short time, it won the *ad honorem* title of "wonders material", opening a new historical era in the scientific progress of two-dimensional materials. The uproar aroused by graphene has been recorded precisely since 2010, following the awarding of the Nobel Prize in Physics to the two scientists of the University of Manchester, who isolated it, for the first time, from its constituent: carbon. The two physicists, Andrei Gejm and Konstantin Novosëlov, thus attested to the existence of a material that seemed to be a chimera until then. The study of graphene potential and its possible uses has never stopped from that moment. The empirical confirmation of graphene's existence has revolutionized the Physics world by influencing many other sciences and scientific disciplines like wildfire, including architecture. At the same time as the award of the Nobel Prize, the nanomaterial jumped to the headlines, exciting scholars, entrepreneurs, universities, and institutions. For instance, the European Union invested a billion euros in graphene research in 2013, establishing the Graphene Flagship, a new form of a joint and coordinated research initiative on an unprecedented scale that connects academia and industry.

Due to its exceptional physical properties, graphene can be used in a multitude of applications in different sectors: from engineering to medicine, from electronics to the energy industry. Graphene opens the way to a new era of high-performance materials, which heralds a future in which material performance will play an increasingly crucial role in more industrial fields, in relation to the urgent environmental issue we are experiencing.

State of the art and case studies

Building construction has also acknowledged the entry of graphene into its field of action. At the industrial level, there are already many types of graphene-based products on the market, such as self-repairing cement and the one that improves thermal insulation; anti-rust paints to protect steel or graphene-based mixtures for building 3D printing. For the most part, these are products that exploit the excellent physical properties of graphene, used as an additive, to enhance the performance of the primary building materials of our time [1].

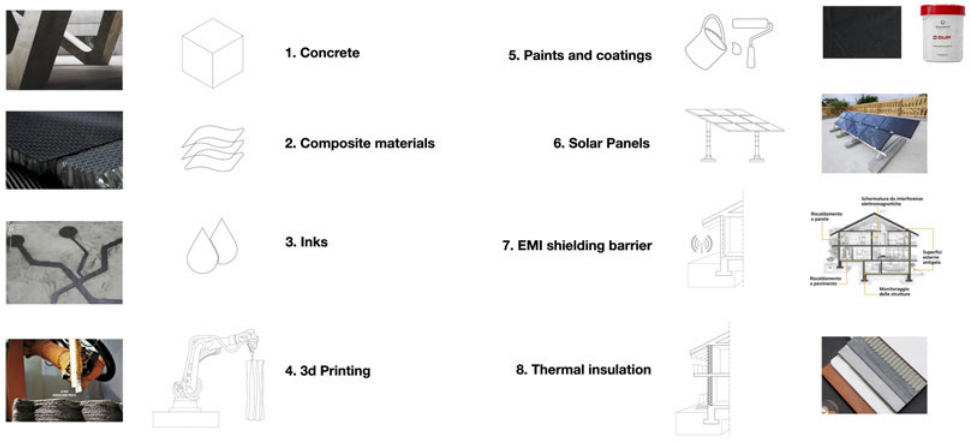


Figure 1: Graphene-based application and experimentations in building construction and architecture. Graphic representation. (Credits: Carla Bulone)

On the academic front, the most relevant projects come from the IaaC – Institute for Advanced Architecture of Catalonia – which being a Fab Lab, has produced a series of architectural projects as design-driven experiments between 2016 and 2019. [2]

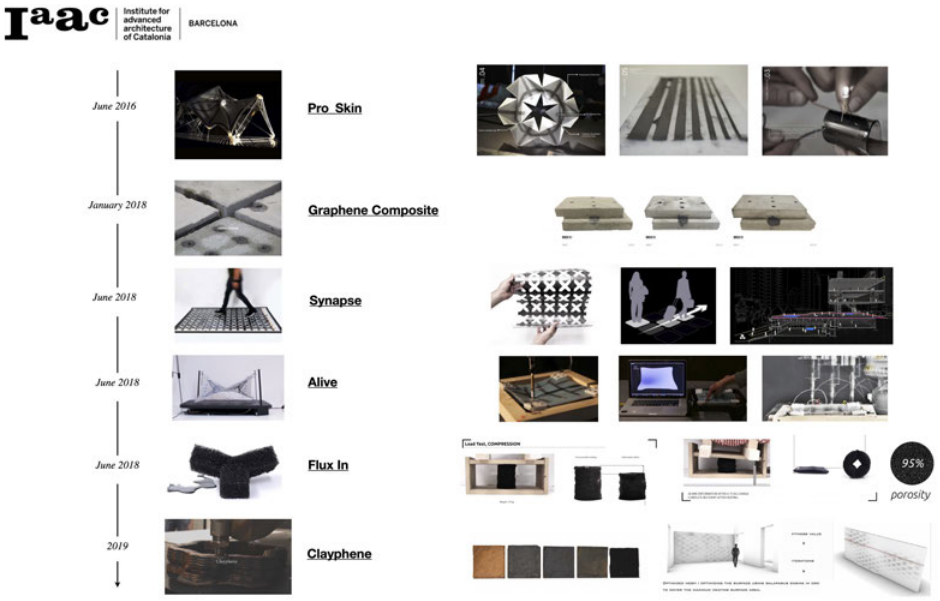


Figure 2: Projects with graphene by Institute for Advanced Architecture of Catalonia – IaaC . Graphic representation. (Credits: Carla Bulone)

Combining theoretical knowledge, design, and empirical experience, the IaaC projects examined are excellent design references on the topic under consideration, helping to reduce the distance between the architectural project and contemporary design needs, between thought and the product. In this sense, projects such as "Synapse", "Pro_Skin," "Graphene Composite," "Clayphene," use the material experimentation of graphene to develop alternative architectural solutions projected toward

the future of architectural practice. Some of these projects are based on the design of smart materials and intelligent interfaces that are digital and physical at the same time, embedded into the materiality of the architectural prototype.

Research positioning

Following the references of the Spanish Institute, the research aims to fully understand how material experimentation, in this case with graphene, can influence design. By prototyping an architectural project, new uses and potentialities of current building materials can be defined, improving and innovating traditional architectural materials or designing new ones. The topic of materiality is the thematic focus of the research, on which the entire experimental activity has evolved up to now, starting from the use of nanomaterials in architecture in contemporaneity.

In a document dealing with nanotechnological innovation in construction industry, Hanus and Harris (2013) establish that the application of nanotechnology can considerably improve the performance of traditional construction materials such as concrete and steel; while Ashby et al. (2009) present an introduction to the design of nanomaterials and nanotechnology from an approach of engineers and architects with an evolutionary perspective for nanostructured materials with protective applications in art and historical-heritage buildings. This work takes the context of design and the architectural or engineering approach into account to enable the right selection and assessment of the most suitable nanoproducts to solve certain problems in buildings and infrastructure, encompassing construction volumes, sort of building and construction components as well as environmental aspects, building processes, modulation, design flexibility, workforce and costs of the project.[1]

Therefore, this functionalistic approach, from problem to solution, applied to the final product, as a product of nanotechnology can be, is it not, in the same way, a design activity? At first glance, it would seem that the proliferation of nanomaterials in building construction is not part of Architecture, or rather "making architecture". In my opinion, however, the so-called "correct selection and evaluation" of the nano-products mentioned above, suggested by Ashby and co-authors, is an integral, if not fundamental today, part of the design activity of an architect as a civil engineer. The choice of the most suitable material for that specific context and function falls within the "critical and sensitive" decision-making and design sphere to which the designer is called to respond. Works of great recognition and architectural value, such as the architectures that characterized the rationalism movement in the last century, would lose their iconicity if they had been designed with different materials. In other words, and referring to the contemporary world, today the designer, architect or engineer, compared to the past, have at their disposal an almost unlimited range of material alternatives, in terms of the multitude of artificial materials (composite materials, ceramic materials, PCM phase change materials, etc.) and the increase in new and higher performing construction products on the market. Therefore, what really makes the difference is how the architect selects the range of material possibilities

of the project and “puts them together.” It is up to the designer to make use or not of a highly technological material, as the object of this research can be, to achieve a purpose, an objective, to solve a problem. It is up to the designer to understand if and how to use it once the extensive decision-making and design activity are over, including, among other assignments, the economic feasibility project with the evaluation of the client's budget, appraisal activities, cost-benefit analysis, and more.

Method and tools

The research method was basically divided into two key moments: the theoretical part, characterized by the qualitative method, and the experimental part. During the theoretical phase, in addition to the literature review and data collection, it was necessary to introduce a market analysis on graphene to understand which market segments and products are the most promising. Downstream of this, a clearer overview of the possible developments of a graphene prototype in architecture has emerged, excluding design paths that would not have brought significant progress to scientific research. In this regard, framing the most encouraging field of action has shown that the reference market segment is related to green building. The topic of environmental sustainability in architecture is, in fact, a collateral issue of the research, closely linked to the material development of the graphene application. A hypothesis for approaching the objectives of environmental sustainability in architecture could be to put the relationship between Project and Material back at the center, in which the performance of the materials acquires a priority value.[2]

Therefore, following a methodological approach made up of a first review of the main literature about the use of graphene in architecture, market and feasibility analysis and the involvement of experts from different disciplines, such as chemistry and materials engineering, the research focused on the hypothesis of improving the performance of a natural building material. Based on the degree of the graphene technological advancement recorded in architecture to date, the choice of the "killer application” fell on the use of graphene as an additive in addition to raw earth as a building material, still in use for hundreds of years. Furthermore, raw earth is experiencing a period of flourishing rediscovery by architects who choose it for projects also of great visibility, such as Expo Milano 2015 [3] and Expo Dubai 2021, [4] confirming that this ancient construction technique has never been abandoned and, at the same time, choosing it as a valid material alternative to more polluting materials such as cement and concrete.

The resultant of this experimental approach will give birth to a new raw earth-based material with enhanced characteristics compared to the starting one. According to the initial predictions of the stakeholders involved, the addition of graphene will enhance the physical properties of the raw earth by virtue of a performance improvement. [5]



Figure 3: Morocco Pavilion for the 2015 Milan Expo by Oualalou+Choi



Figure 4: Morocco Pavilion for the 2015 Milan Expo by Oualalou+Choi

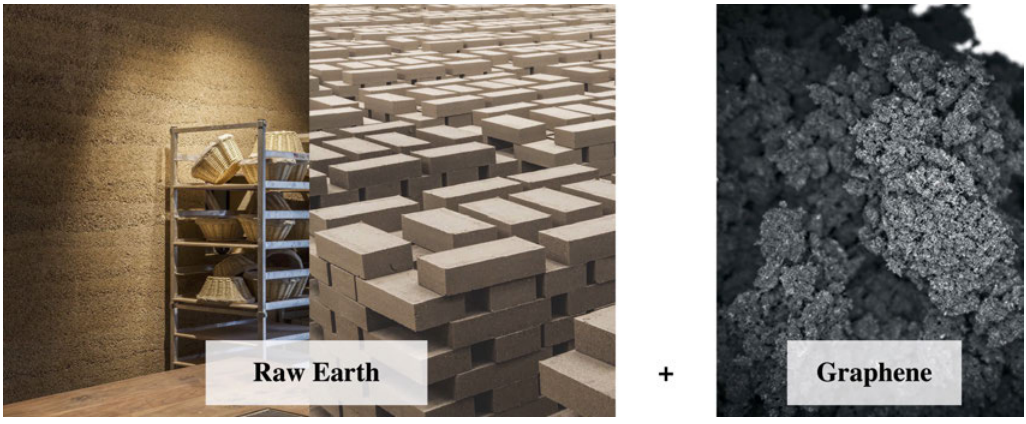


Figure 5: On the left raw earth (rammed earth and adobe), on the right graphene flakes. (Credits: Carla Bulone)

The material experimentation

The graphene masterbatch, a special water-based dispersion, is being tested together with three types of raw earth – ABS, T2 and TC – the most common types used today to obtain the optimal compositional mixture in terms of expected results. The tests are taking place at the Department of Chemistry, Materials and Chemical Engineering of the Politecnico di Milano, under Prof. Giovanni Dotelli's guidance and in cooperation with the raw earth expert Prof. Sergio Sabbadini – both Professors affiliated with the Politecnico di Milano – while the graphene masterbatch was produced by the graphene manufacturer GrapheneUp, a leading European company and strategic partner of the present research. As an expert in nanotechnology and graphene, GrapheneUp supports the research activity through its knowledge of the experimentation of various graphene applications in different fields. His recent experience in the construction industry supports the idea that, already from the first tests, it will be possible to obtain quantifiable performance benefits. Preliminary tests have already started at the end of February 2022 and concern standard test protocols for new additives and earth characterization. While in March, a series of key tests began, mainly concerning the performance investigation of some physical properties.

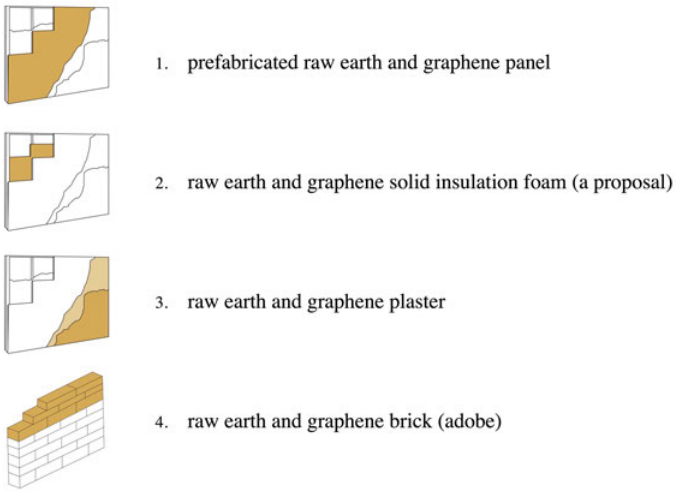


Figure 6: Graphic representation of the hypotheses on the graphene research application. (Credits: Carla Bulone)

The testing phase will be followed by a phase of evaluation of the results, from which the limits of the research and the consequent purposes will be established once the framing of the material evaluation has been completed, the type of graphene-based material product developed will be defined exhaustively. However, some application hypotheses have already emerged at a preliminary stage. [6] At the same time, a set of tools and a methodology are being defined as the critical reading key to the experimental project. The introduction of the design-driven research approach, together with the prototyping activity, will be crucial and decisive for a valuable contribution. Some of the tests that will be performed

in the laboratory are exploratory tests (such as the one on electromagnetic shielding) that arise spontaneously from the pure scientific spirit of the researchers involved. We do not yet know if some tests will be decisive or crucial; however, the research topic offers the opportunity to investigate new frontiers and open up new avenues for reflection. As the book suggests, *The new architecture of science: learning from Graphene* (Kostya S. Novoselov, Albena Yaneva, 2020),[3] the graphene discovery sparked researchers' enthusiasm, encouraging them to push beyond the limits known and studied so far.

Objectives

In conclusion, the research activity, through the study of graphene, aims to achieve the following objectives:

- contribute to the development of scientific research on the use of graphene in architecture;
- develop an industrial, architectural prototype with graphene as an outcome of the PhD executive;
- create an unpublished *compendium* on graphene and architecture that can be interpreted as an introductory guide for future research on the subject.

With regard to the latter objective, intended as a further research outcome, the creation of a digital platform is being considered, conceiving as an open source in which to redirect, collect, and welcome scholars and researchers who work in the same research field. On the other hand, it may attract the interest of entrepreneurs who want to invest in this graphene application prototype.

Moreover, a final objective comes up regarding the impacts of developing a graphene application in architecture. In other words, the research also wants to encourage a more conscious use of non-renewable resources in architecture, to favor a rethinking of the entire supply chain of raw materials for the livelihood of the construction industry. And finally, the research aims to urge a return to the use of poor building materials to offer a contemporary interpretation by revisiting it as a precious resource, in line with recent promotion activities to safeguard and protect our ecosystem. One of all, Space Caviar is a collective of activists, researchers, and architects who, under the guidance of Joseph Grima, is proposing the Non-Extractive Architectures project, which became an exhibition program in Venice during the 17th Architecture Biennale, and then a book entitled *Non-Extractive Architectures: On Designing without Depletion.*[4] A multicultural and ambitious project for a new approach to Architecture based on long-term reflections, the use of material resources and the integration of community values in the construction industry.

1 Hernández-Moreno, S./Solache de la Torre, S.C. (2017): »Nano – Technological Products in Architecture and Construction«, in: HOLOS, issue 2 , pp. 34–51. https://doi.org/10.15628/holos.2017.5497

2 Sposito, C./Scalisi, F. (2019): »Natural Material Innovation. Earth and Halloysite Nanoclay for a sustainable challenge«, in: International Journal of Architecture, Art and Design, p. 59-72. https://doi.org/10.19229/2464-9309/572019

3 Novoselov, Kostya S./Yaneva, Albena (2020): »The new architecture of science: learning from Graphene (with Sir Kostya S. Novoselov)«, in: World Scientific Publishing Co. Pte. Ltd. https://doi.org/10.1142/11840

4 Space Caviar (2021): Non-extractive Architecture: On Designing without depletion volume 1. Moscow: Sternberg Press/V-A-C Foundation.

Literature

Antonelli, P./Tannir, A. (2019): Broken Nature XXII Triennale di Milano. Milan: Electa S.p.a.

Baldev, Raj/Van de Voorde, Marcel/Mahajan, Yashwant (2017). Nanotechnology for Energy Sustainability volume 1. New York: John Wiley & Sons Inc.

Fontaine L./Anger R. (2009): Bâtir en terre: Du grain de sable à l'architecture. Paris: Belin/Cité des sciences et de l'industrie.

Nardi, G. (2001): Tecnologie dell'architettura. Milan: Maggioli Publishers.

Wypych, George (2019): Graphene: Important Results and Applications. Toronto: ChemTec Publishing.

Graphene Flagship (2021): Annual Report 2021. Graphene Flagship, https://graphene-flagship.eu/r...

Hernández-Moreno, S./Solache de la Torre, S.C. (2017): »Nano – Technological Products in Architecture and Construction«, in: HOLOS, issue 2, pp. 34–51. https://doi.org/10.15628/holos.2017.5497

Novoselov, Kostya S./Yaneva, Albena (2020): »The new architecture of science: learning from Graphene (with Sir Kostya S. Novoselov)«, in: World Scientific Publishing Co. Pte. Ltd. https://doi.org/10.1142/11840

Di Sia, Paulo (2020): Handbook of Smart Materials, Technologies, and Devices: Applications of Industry 4.0. Madrid: Springer Nature Publishers, pp. 1-20.

Rogora A./Lo Bartolo D. (2013): Costruire Alternativo. Materiali e tecniche alternative per un'architettura sostenibile. Milan:Wolters Kluwer Italia S.r.l.

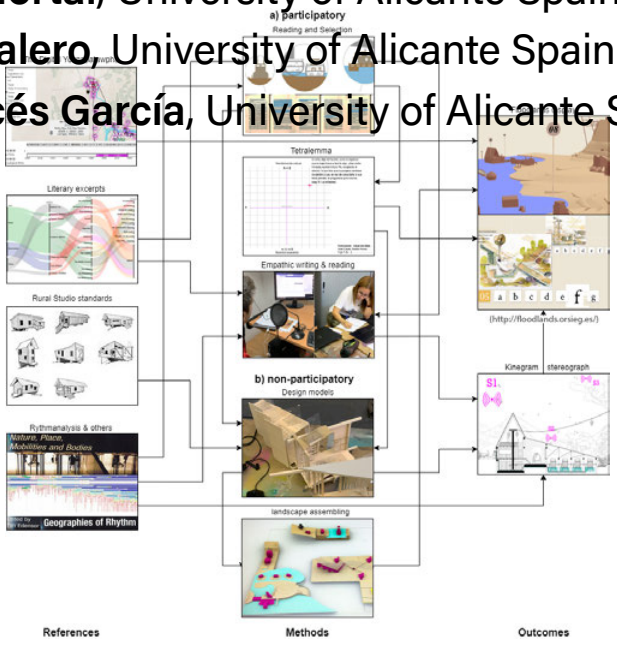
Space Caviar (2021): Non-extractive Architecture: On Designing without depletion volume 1. Moscow: Sternberg Press/V-A-C Foundation.

Sposito, C./di Scalisi, F. (2013): Terracruda e nanotecnologie: Tradizione, innovazione sostenibilità. Milan: Arachne.

Sposito, C./Scalisi, F. (2019): »Natural Material Innovation. Earth and Halloysite Nano clay for a sustainable challenge«, in: AGATHÓN: International Journal of Architecture, Art and Design, pp. 59-72. https://doi.org/10.19229/2464-9309/572019

Floodlands Landscape Design Experience With Boundary Methods and Lessons One Can Draw From Stories Concerning Rural Backgrounds

Jose Carrasco Hortal, University of Alicante Spain
Benito García Valero, University of Alicante Spain
Francisco Francés García, University of Alicante Spain



Senior Researchers

New rural, kinegram, empathic writing

Abstract

Inspired on Yoknapatawpha's space-time creations, "Floodlands" is an effort performed at the University of Alicante (Spain) to emulate Faulkner and other authors' complex univers (spatial elements, characters, dates, human roles...) and the result of the concoction of all the narratives used to inspire a group of students to find landscape solutions to issues of adaptation, coexistence and controversies detected in the literary texts.

This research collaborative project participated by sociologist, language and architecture students deals with the new rural and with architectures sensitive to global warming. The first aim was to obtain a set of architectural designs for a fictitious valley in the Southeast of Spain to establish a series of rules for harmonious coexistence with natural landscapes having eco-villages as the basis of our ideal. The second aim was to visualize the social relations and atmospheres expressed in the projects, as if it were almost an embodied (visual) experience.

DDR statement

This work has multiple derivatives, procedures that are partly participatory and that learn from certain theories, for example, the rhythmanalysis of social geography (Lefebvre 2004). However, it is more of a design experience based on creative processes that progress thanks to the debates and procedural activities, detecting some stages that could be assimilated to a design-driven research:

Each design is a readable process from the perspective of interpretive communities (Fish 1980): its layers of graphics, writings and other virtual & analogical outcomes allow understandings that will depend on the subjectivity, culture, state of mind of the person who participates.

Each design focuses on visual and haptic properties (e.g. a map, a model or a drawing) that work on aspects that facilitate a rapid adherence of the participant to any of the roles included in the social and environmental controversy.

The tetralemma technique is a method that emphasizes the ambiguities that the participant will encounter in the future life, for example, the role of the user in relation to the designer or the possibility to understand a statement from a non-binary perspective.

In addition, the ways of labeling, naming, recording, ordering the topological and geographic spaces within the Floodlands viewer (http://floodlands.orsieg.es/), demonstrate that certain research (theoretical) outputs appear after a field work or a workshop is completed.

Paper

Context

The countryside can be understood as an essential space ensuring humanity's demographic and resource equilibrium. It can thus be likened to that landscape of hope observed by Rem Koolhaas in which new forms of sustainability are achieved through collaboration with robotics or artificial intelligence (Koolhaas 2020). The countryside is the main

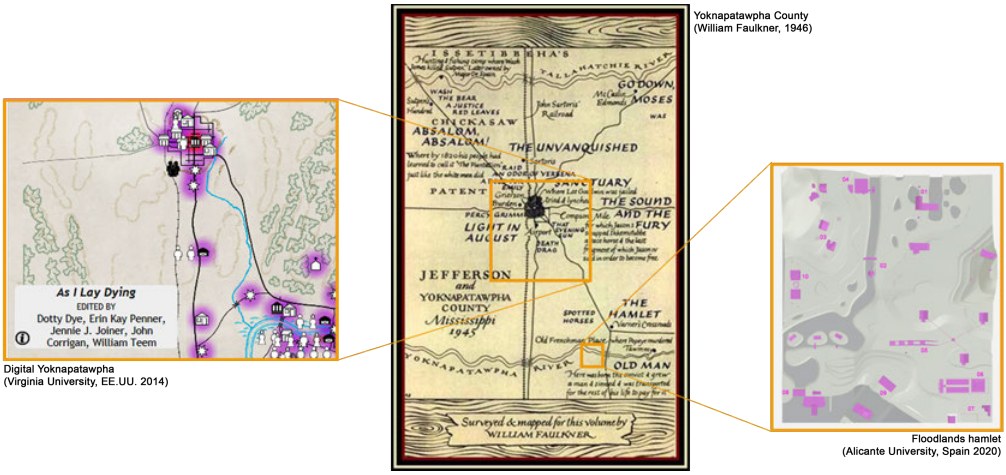


Figure 1: Space-time chartographies: University of Virginia's The Digital Yoknapatawpha (left); Faulkner's map (center); created landscape during this research, from top (right)

object of study of multiple academic disciplines. The latter range from spatial and territorial approaches to urban perspectives and to geographical economics, where territories absorb the unequal and asymmetric flows of goods, services, people, etc. between countryside and city. But what do we find fascinating about rural landscapes today? Is it the contrast they offer with urban experiences? The feeling of fascination usually has a positive connotation (desire, attraction or mystification) but it also rests on the tension between what we are seeing and what we are undergoing (Schmid 2011, 7).

Yoknapatawpha was the imaginary land conceived by William Faulkner to place his stories and tales. The first map of this fictitious territory was published on the last pages of his work "Absalon, Absalon!" In 1936. "The Digital Yoknapatawpha" was created by the junction of scholars on Faulkner's works and technologists at the University of Virginia in 2014 and consists of numerous diagrams and interactive cartographies that map each and every of Faulkner's tales, including very exact parameters that filer the display in which the information is presented (page numbers, chronologies, families, social hierarchies, events, places, etc.) [1].

Goals

The immersive qualities of the selected narratives are transformed into an immersive interface in which the student (like any visitor) can explore the possibilities of the narrative emerged after their work, scrolling horizontally in the diagrams designed to visualize the story and listening to the same to the voice of a narrator which gives life to the characters in the story as the visit continues. In this sense, "Floodlands" is a virtual landscape that highlights one of the main coordinates of any narrative: the importance of space, whose transposition with real spaces is unavoidable as the flux between reality and fiction unfolds, in an analogue way to the flux between fiction and the body of the reader thanks to the effect of mirror neurons and their role in embodied simulation.

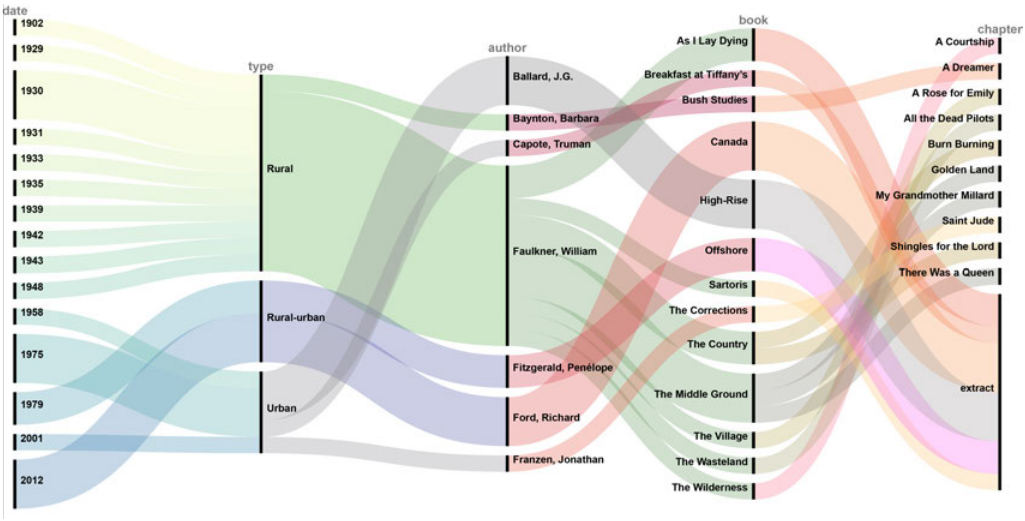


Figure 2: Alluvial diagram with literature selected for the case studies. Author of the diagram: Jose Carrasco

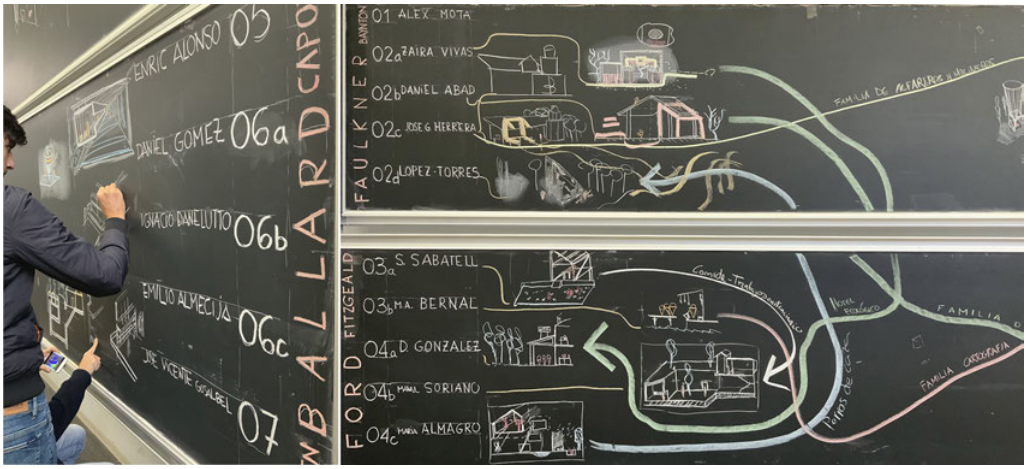


Figure 3: Workshop to agree on possible partnerships between projects (bottom). Author of the image: Jose Carrasco

Method

Boundary methods close to the non-representational theory were our vehicles to share perspectives among the involved disciplines:

A Selected literary fictions from Anglo-Saxon literature evoke spaces, experiences and times that concluded with empathic writing exercises. Many of these fictions were set in the rural world – such as Yoknapatawpha County, by William Faulkner – or in atmospheres described as barren, in-between or unexplored (Hines, 1997). [2] While Yoknapatawpha was the imaginary county conceived by Faulkner to contextualise his stories, the students' proposals were also situated in a fictitious land, comparable to a flood plain of the Bajo Segura river (Southeast Spain); [3] [7]

B Rural Studio, a program of Auburn University created by Samuel Mockbee to assist the population in West Alabama, was our place to

learn about design standards with minimal ecological footprints and maximum climatic adaptation; [4]

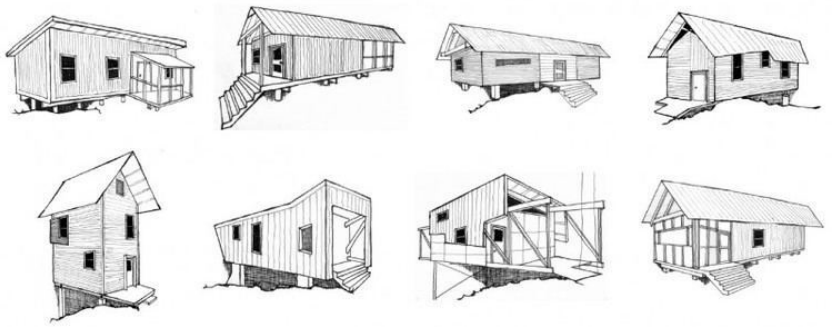


Figure 4: Rural Studio Projects 2005–2009. (https://www.lifeofanarchitect.com/the-rural-studio-the-20k-house/)

C The tetralemma was our sociological technique to fix the transition between literary excerpts and ecovillage goals. This technique serves to dismantle false dilemmas found in the literary source, as a method of annotation and debate of arguments; [5] [6]

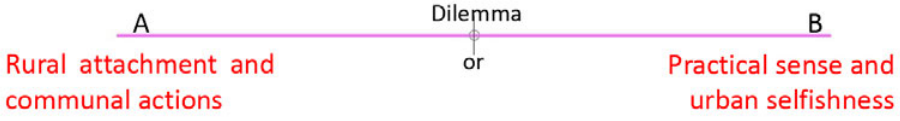


Figure 5: Dilemma (sample) for case study –a–. Each working group selected 3–8 dilemmas from de excerpts.

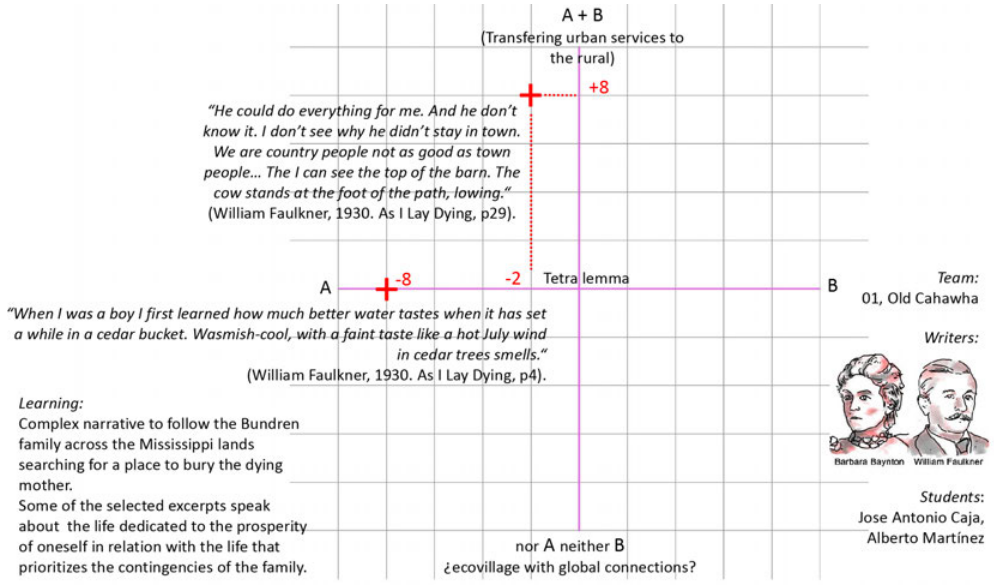


Figure 6: Tetralemma (sample) for case study –a–. Layout of the debate about de dilemma, and arrangement of excerpts in relation with coordinates: A, B, A + B or nor A neither B. –). See description of the project inside http://floodlands.orsieg.es/, #1.

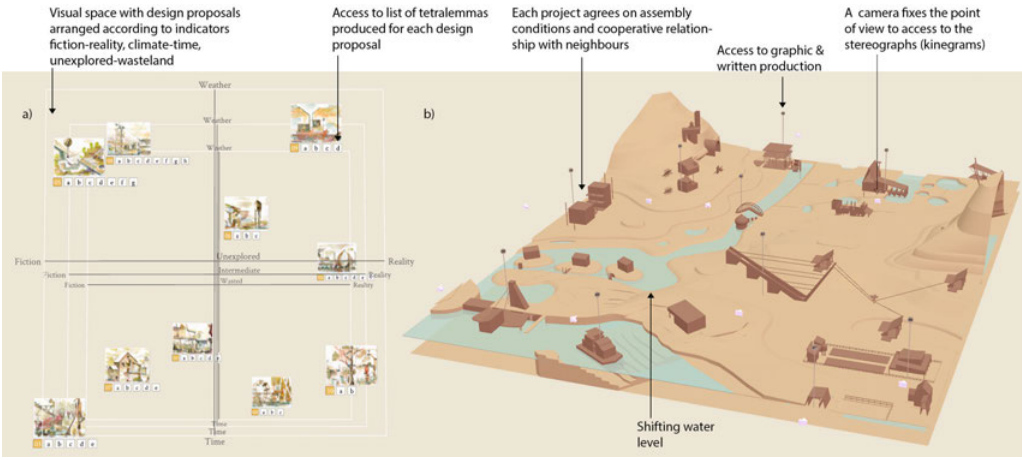


Figure 7: Two interfaces to access to research project spaces at http://floodlands.orsieg.es/

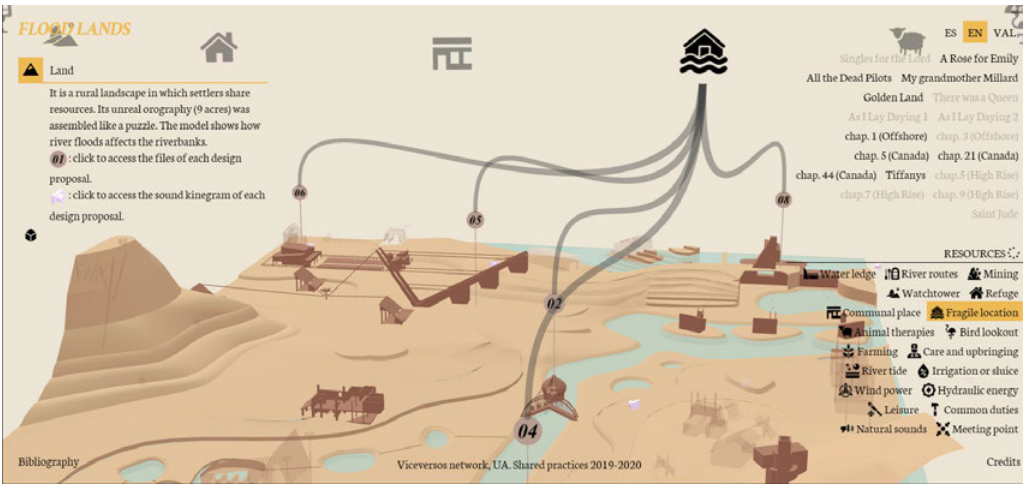


Figure 8: Resources. Another way to select a case study.
Authors of the image: Jose Carrasco and Sergi Hernandez

D One of the elements in the final tasks of students is the design of a narrative whose style had to be inspired in the authors' ones. For that, students were introduced into the theories of embodied simulation as explained by the neurologist Gallese: the resulting narratives have to include words, meaning, motion or sensation. For example, as the study of mirror neurons has demonstrated, reading motion verbs activate the brain areas devoted to motion (Gallese 2019).

E Kinematic graphs (kinegrams) were added to understand the way new settlers inhabit the virtual landscape. Each kinematic graph is a sensory resource in which two transparent surfaces explain the design proposal along the virtual valley through a foreground and background, inspired by zoetropic and stereographic techniques, arranged in parallel and vertically in the Rhinoceros vector space. These surfaces are invisible until a camera (viewpoint) is clicked, triggering a transition into perspective mode. Once inside the dynamic picture, one can freely move around, immersed in a binaural soundscape with a voiceover that synthesizes a moment in the lives of the project's protagonists (Lefebvre 2004, Edensor 2010). These images emphasize the circularity of ordinary

landscape actions, rhythms, rhetorics or recurrences "...without a conscious awareness, people perform everyday life alongside others, consequently defining the order, pace, and rhythm of places, and as a result the aesthetic temporal uniqueness of Fitzroy Square..." (Wunderlich 2013 p.389). [7] [8]

Results

"Floodlands" uses two different ways of showing the general production. The first is a topological presentation, in which a scatter-graph position is proposed with respect to Fiction/Reality, Climate/Time and Barren/In-between/Unexplored vectors, which pay tribute to the categories underlying the order in which William Faulkner arranged his Collected Stories (Faulkner 1950). The second is a topographical display, showing the territory that was created in each project according to the managed resources, and which were subject to a fluctuating water flow as well as pacts of proximity that were defined during the sessions.

The fascination for the new rural landscape was approached from an experimental perspective. The adopted viewpoint was the subjective vision of a character or narrator taken from a literary fragment, from which typological solutions would later be extracted. In this sense, this work advanced a new resource in Social Research Techniques capable of complementing a life story, that ethnographic technique based on progressive conversations which focused on learning from key characters (informants) in order to address a social phenomenon.

Case Studies

A **Old Cahawba** (see #1 at the website)

Literary sources and empathic techniques: As I Lay Dying (William Faulkner 1930 pp. 75 – 154) and A Dreamer (Bush Studies, Barbara Baynton 1902). Faulkner's story is a multiperspective tale in which different members of a family build the coffin of Addie Bundren and her posterior burial. Baynton's Bush Studies subverted the ideal of bushlands and wild spaces are idyllic places. The women protagonists of these stories embody the challenges of life in rural spaces, where civilization is hardly present. *Landscape design*: it consists of a house divided into a millhouse by a river, and a part for wood and rope workers. This adaptation is inspired in a dismantled and relocated project by Rural Studio: St. Luke's Church in Old Cahawba (Alabama). *Climate adaptability*: The rain season determines the river flow, and consequently the time in which the mill is active. *Short story*: "An exhausted raven decides to perch on the highest point of a curious structure. From there, the whole valley can be contemplated. The first thing calling for its attention is an artifact continuously spinning by the river..." (excerpt). *Literary analysis*: this tale describes the space and landscape from the viewpoint of a raven flying around the area. It is the very raven which is able to think and distinguish the dangerous events and elements of interest at the beginning; also it is the character of the story discovering how this aggressive clime is killing the

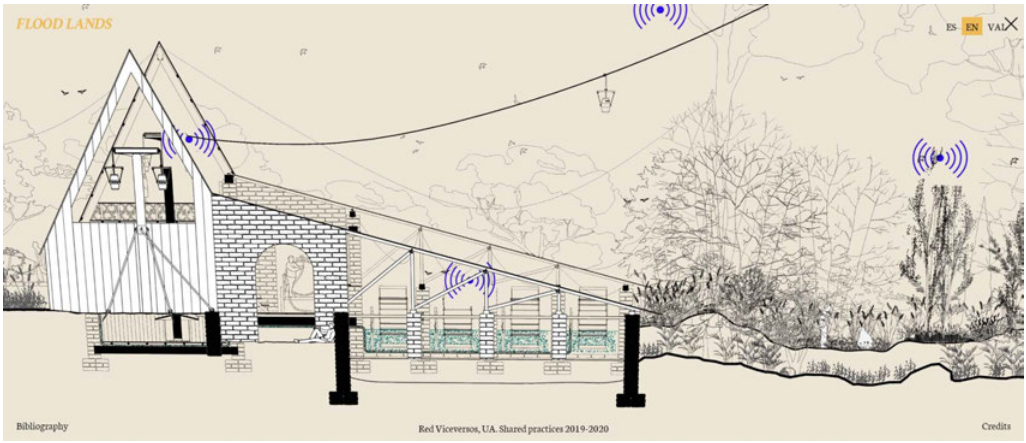


Figure 9: Kinegram for design proposal (case study –a–), following some Samuel Mockbee (Rural Studio) sustainable practices. Authors of the drawing: Jose Antonio Caja and Alejandro Mota, students

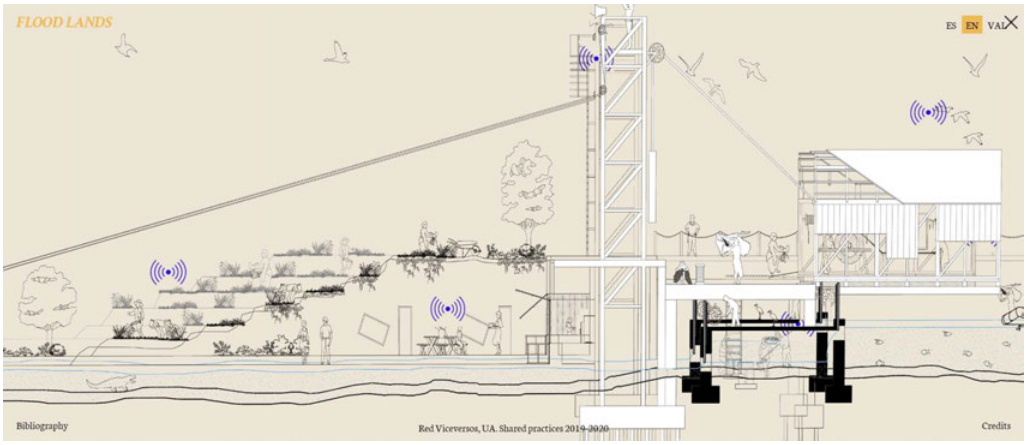


Figure 10: Kinegram for design proposal (case study –b–). See description of the project inside http://floodlands.orsieg.es/, #8 Authors of the drawing: Samuel Sabatell and Manuel Soriano, students

most fragile species, starting with birds. The end of the story is open, but it suggests an omen of unlucky events. As a modernist work, Faulkner employed in As I lay dying one of the most popular techniques of this period, the 'stream of consciousness'. Thanks to this technique, the barrier between the character and the reader is weakened, as the text presents directly the thoughts of the characters without the mediation of a narrator, having exactly the same effect than the interior monologue. [9]

B **Confined Islands** (see #8 at the website)

Literary sources: Offshore (Penelope Fitzgerald 1979); Canada (Richard Ford 2012). *Landscape design*: This is an area of forced worked labour in the village, whose use depends on the decisions made by the local justice. It consists of a set of islands with adapted dwellings, working fields (rice fields, mussel factories) and spaces for workshops of fluvial utilities. *Climate adaptability*: It is the most vulnerable space, a small delta in the river mouth. High and low tides are used for the crop and harvest cycles and for the mussel factories. *Short story*: "Today has been like any other day in the detention centre. Every step I took increased the gulls' voices more and more. And the noise of the sea. For me, being placed on an

island was the only good thing of the room were I was detained…" (excerpt). *Literary analysis*: *Canada* has a simple and clear style that eases the immersion of the reader in the life of Parsons, following the neuroesthetic hypothesis that non-elaborated or foregrounded language enables the immersion of the reader in the story (Jacobs 2015, p. 7). On the contrary, *Offshore*'s narrative technique is zero focalization, as the story is presented by an omniscient narrator who knows everything about the story. As in "A Dreamer", the narrative drives a sympathetic experience towards the characters, as their challenging life conditions and the tough events they undergo are directly presented (see # 8 at the website) [10].

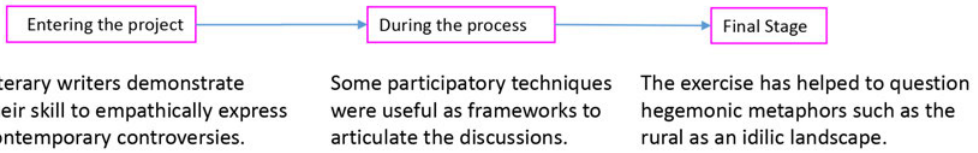


Figure 11: Key findings during the learning experience. Author of the diagram: Jose Carrasco

Discussion

Floodlands' translates into visual language the different analysis. It works as a data repository for all the production. Floodlands is an interface in which the visitor can explore the possibilities of the designs and narratives and use the taxonomies that order all the production: one can select authors, date of the story, empathic and sociological properties by label.

The new country duties speculate with the implementation of communal benefits, trying to create social bonds and observing natural rhythms. Dwellers of this community are families and other humans inspired by the literary excerpts. As in Faulkner's tales, this research wants to offer a multiperspective on how settlers deal with rural dilemmas, making us rethink our relation with Earth. [11]

The selected stories originally illustrated how country life was not always more humane than city life or that coexistence with domesticated species or the use of natural resources did not always unfold according to urban observers' interpretations. In addition, the *reading and analysis* exercises led students to identify with one or several characters and to a creative proposal on how to reconstruct countryside spaces.

The architecture students positively valued their access to the characters' inner experiences and perceptions. Despite their fictitious nature, these figures illustrated the historical value of the concerns and worldviews of the societies belonging to the published works' temporal period. We believe that such an opening to the characters' inner experiences plays a fundamental role because they cannot be accessed via common historical data or statistics, only in literature. We must remember that these future architects will need to project not only spatial, social or economic problems, but also the emotional and cultural issues that people may have in general. Through this practice, future landscape architects were able to access that level of situations in which they could imagine contemporary statements and make design proposals.

Some other answers in the questionnaire given to the participating students were referred, for example, to the objective of designing in a fictitious landscape that would later provide keys to understanding the globalized world; or to the use of literary content to generate new perspectives about the rural and about the current post-covid-19 situation. [12]

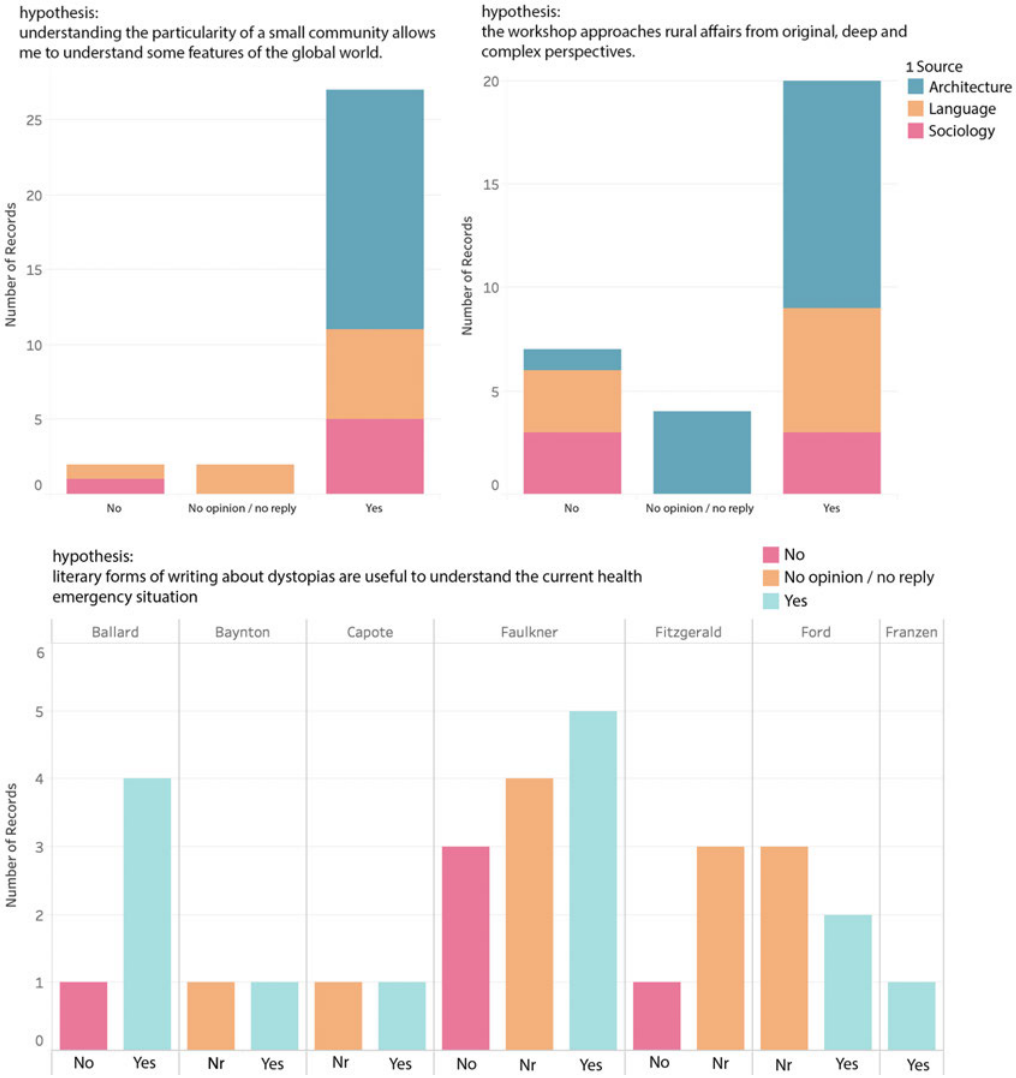


Figure 12: Some graphs in relation results of the survey on the educational experience.

Acknowledgements

Floodlands is a sample of emergent pedagogy conducted by members of "Viceversos" and "Architectural Projects: critical pedagogies, ecological politics and material practices" (https://proyectosarquitectonicos.ua.es/investigacion/grupos-de-investigacion/) at the University of Alicante (Spain). Floodlands viewer was an original idea by Jose Carrasco and Sergi Hernandez, as a second opportunity to work on a transmedia interface after "Migrant Matters" project http://migrantmatters.orsieg.es/. Floodland's code was written by Sergi Hernandez (https://orsieg.es/).

Literature

Edensor, Tim (2010): »Indroduction: Thinking about Rhythm and Space«, in: Edensor, T. (Ed.), Geographies of Rhythm. Natures, Place, Mobilities and Bodies. London: Routledge.

Faulkner, Williams (1950): Collected Stories. New York: Penguin Random House.

Fish, S. (1980): Is there a Text in this Class? The Authority of Interpretive Communities. Cambridge: University Press.

Gallese, Vittorio (2019): »Embodied simulation. Its bearing on Aesthetic Experience and the Dialogue Between Neuroscience and the Humanities«, In: Gestalt Theory volume 41, issue 2, pp. 113–128.

Jacobs, A.M. (2015): »Towards a neurocognitive poetics model of literary reading«, in Willems, R.M. (Ed.), Cognitive Neuroscience of Natural Language Use, Cambridge: University of Cambridge Press.

Hines, Thomas (1997): William Faulkner and the Tangible Past: The Architecture of Yoknapatawpha. Berkeley: University of California Press.

Koolhaas, Rem/AMO (2020): Countryside A Report. Cologne: Taschen.

Lefebvre, Henry (2004): Rhythm analysis: Space, Time, and Everyday life. London: Continuum.

Schmid Heiko et al. (2011): Cities and Fascination. Beyond the Surplus of Meaning. London: Ashgate.

Wunderlich, Filipa, M. (2013): »Place-Temporality and Urban Place-Rhythms«, in: Journal of Urban Design, volume 3, issue 18, pp. 383–408.

Double Feature A Design-driven Inquiry into the Counter-practices of World City Monumentality

Enrico Chinellato, University of Bologna
Or Haklai, The Hebrew University of Jerusalem

Initial doctoral stage; practice-based research

Supervisors: Giovanni Leoni, University of Bologna; Andrea Borsari, University of Bologna; Pierpaolo Ascari, University of Bologna; Dani Schrire, The Hebrew University of Jerusalem

#

monuments, world city, counter-practice

Abstract

This contribution will discuss the counter-practices of monumentality in the context of the so-called world city. As part of our ongoing practice-based research on the current role of monuments and memory-work, the study employs a design-driven approach to the inquiry of the topic at hand by presenting a fictive site-specific temporary intervention in the city of Tel Aviv as case study, called "Double Feature" (2020).

DDR statement

Design-driven research not only aims at reconfiguring the relations between research and design, theory, and practice, but it also has the potential of promoting an immediate practical relevance within multiple communities and rapidly changing contexts. Our research uses a design-driven process to explore and unfold aspects of the interaction between a critical action and the arts, in the context of spatial theory and under the current view of world cities. This inquiry draws from a fictive design action in the public space to discuss the cultural and political aspects of monumentality and memory in the city. In other word, the design-driven research acts as a recommendation for a shift in the idea of practising memory in public space. The design action understood monumentality as a pedagogical action, projecting a renovated sense of memory agency across disciplines – spatial and artistic.

Extended abstract

Since the 1980s, the discussion around monuments and memory has been at the centre of contemporary culture, an ubiquitous presence that significantly impacted the conception, perception, and use of the built environment – especially the public space – across the spatial disciplines and the arts. If, as Andreas Huyssen[1] wrote, it is true that "*today we think of the past as memory without borders rather that national history within border*" and that "*memory is understood as a mode of re-presentation and as belonging to the present*", this – he continues – suggests that "*our thinking and living temporality are undergoing a significant shift, as modernity brought about a real compression of time and space yet also expanded horizons of time and space beyond the local*".[2] From this observation, we recall the phenomenon of the global city[3] – earlier introduced by Patrick Geddes with the notion of *world city*,[4] and later elaborated by Peter Hall:[5] a transition from the city as the godly image of the world to that of many nodes structural to a network of dislocated centres of global financial power depending on flows. This phenomenon, where cities adjust their identity to that of the world city, wishing to conform their image to the global model while still retaining their local specificities, led to a problematic "anxiety of representation",[6] as the city still attempts to *projecting* authorised, dominant wholeness – a *status quo*. Accordingly, with the desacralisation and dissolution of the concept of the city as a physical, social, political, and economic whole, globalisation also brought to the fore a critical shift in understanding the carrier of memory *par excellence*, i.e., the monument, as well as in monumentality itself and how it is practiced. As is argued, the emergence of new forms of memorialisation through "weak" practices,[7] or *counter-practices*, of

monumentality seems now well suited to address the complex, fluid, and conflictual nature of the world city. Notions such as James E. Young's *counter-monument*,[8] Jochen Gerz's *anti-monument*, or Mechtild Widrich's *performative monument*[9] have already moved the discussion away from the sole monistic conception of reality as permanent and fixed, breaking historical master narratives by returning the obligation of memory-work from the monumental immovable form back to the citizen.

Drawing from these premises, the study will articulate the discussion through a critique of one typical example of a monument of the world city, the Azrieli Center in Tel Aviv. To do so, we will present a recent unrealised work called "Double Feature" (2020), which is part of our ongoing practice-based research on the current role of monuments and memory-work. The Azrieli Center is a mixed-use complex of skyscrapers built in 1999. The design of the three towers composing the Center consists of a 170 meters high extrusion of simple geometrical shapes – a circle, a triangle, and a square – cladded by a white-and-blue gridded facade. Its construction, initiated by the real estate tycoon David Azrieli – after whom it is named – drew from the expectations of the local specificities of the "little Tel Aviv" as a high-raked world city. Acting as a "world trade center" and reflecting the aggressive uprising of private urban entrepreneurialism at the dawn of the 21st century, the skyscrapers complex presents all the classic tropes of the monument-form in its founding vocabulary of positioning, location, material, form, and rhetoric.[10] Recent urban scholarship discussing the phenomena of the global city highlighted the "significance of tall building sites as a nexus of power made visible."[11] Indeed, we can argue about their role as monuments in that, by acting as "vertical storytellers",[12] "they most eloquently narrate the chronicle of the built form as well as the social, economic, and political trajectories of cities",[13] while also telling us about the "power relations between those who rule and decide and those who are subordinated, excluded, and marginalized",[14] which are condensed in their material and aesthetical features.

Evidence of this can be found in the very early planning of the Center. The story of its controversial genesis extended over almost ten years of disputes between developer David Azrieli and architect Eli Atti, who originally designed the complex as Shalom Center. However, it is especially the competitive rhetoric used in its design statements, which "emphasizes the irrational quest for height and fame",[15] that signaled the clear will of its initiators to create and establish a permanent "marker"[16] of Tel Aviv's future – that of the city as global. Moreover, since its early construction the Center stark visibility has often been used to project statements and images, as well as advertisements, onto its facades during commemoration of national events. Today, the three towers seem to have entered the collective memory, representing one of the most iconic symbols of the city skyline – a *world city monument*.

As a counter-practice of monumentality, our design-driven fictive action "Double Feature" articulates as follows. First, we discursively analyze the monumental features of the Azrieli Center through the coordinates of visibility, aesthetics, and use. Although their verticality would seem to imply a condition of distance, inaccessibility, and apparent exclusion from the



Figure 1: Top view of the full-scale representation of the Azrieli Center façade on Rothschild boulevard [Credits: the Authors]

city's life at the street level, the towers' presence cast an eloquent visual narrative of the city's desired future: its "entry into the upper echelons of the global economy."[17]

Working with the notion of projection, we then extract the literal representation of the towers' gridded pattern. By metaphorically countering the symbolic act of raising the monument with its direct opposite, that of its fall, the typical façade of the Azrieli Center is flattened, rendered ephemeral, and horizontally projected. This specific action draws its reasoning from notable examples of practice of counter-monumentality, such as the work of artists Krzysztof Wodiczko and Shimon Attie, among many. In this sense, artistic interventionism in the urban space operated through ephemerality, offers us a way to move from an affirmative practice of monumentality – that of dominant permanence, clarity, and unity – to an interpretive and thus political one, aimed at questioning the power of monumental signification in public space.

Accordingly, this ephemeral representation is finally performed into a new encounter at the street level by being spray-painted full-scale on the ground surface of one of Tel Aviv most lively public spaces: the Rothschild boulevard. [1] Despite being a dominant protagonist in the city narrative and everyday life, on a spatial and social level the street is perhaps the best expression of counter-monumentality, because of its restless transient nature that tends to erase monumental hierarchical



Figure 2: Imaginary scene of the intervention during its daily use [Credits: the Authors]

orders. The act of *walking on a monument* [2] brings a critical action through direct bodily understanding while still being playful, allowing people to walk, sit and cycle on it until it eventually disappears. [3] The temporality of this encounter promotes a materialized conscious process of rewriting alternative official narratives by introducing a conflict – i.e., the projection of multiple narratives on top of each other – dissolving the fixity of memory-work and monumental histories.

To conclude, on the one hand, the planning and construction of the Azrieli Center was an act of pre-enactment[18] of Tel Aviv as a world city; on the other hand, through our fictive intervention, our design-driven study was aimed at pre-enacting a different approach to monumentality. In other words, a recommendation for a shift in the idea of practicing memory in public space. This would understand monumentality as *a pedagogical action*: broadening its significance by projecting a renovated sense of agency of memory, especially across disciplines – spatial and artistic.



Figure 3: Top view of the intervention showing its gradual disappearance over time [Credits: the Authors]

1 Huyssen, Andreas (2003): Present pasts: Urban palimpsests and the politics of memory. Stanford: Stanford University Press, p.4.

2 Ibid.

3 Sassen, Saskia (1991): The Global City: New York, London, Tokyo. United States: Princeton University Press.

4 Geddes, Patrick (1915): Cities in evolution: An introduction to the town planning movement and to the study of civics. London: Williams & Norgate.

5 Hall, Peter (1966): The world cities. New York: McGraw-Hill.

6 Vickery, Jonathan (2012): »The past and possible future of counter monument«, in: The Monument and the Changing City Symposium, p. 351.

7 De Sola-Morales, Ignasi (1997): Differences: topographies of contemporary architecture. Cambridge: MIT Press, p. 57.

8 Young, James E. (1992): »The Counter-Monument: Memory against Itself in Germany Today«, in: Critical Inquiry volume 2, issue 18, pp. 267–296.

9 Widrich, Mechtild (2014): Performative Monuments: The Rematerialisation of Public Art. Manchester: Manchester University Press.

10 Vickery, Jonathan (2012): »The past and possible future of counter monument«, in: The Monument and the Changing City Symposium, p. 351.

11 McNeill, Donald (2005): »Skyscraper geography«, in: Progress in Human Geography volume 1, issue 29, pp. 41–55.

12 Charney, Igal/Rosen, Gilad (2014): »Splintering skylines in a fractured city: High-rise geographies in Jerusalem«, in: Environment and Planning D: Society and Space volume 6, issue 32, pp. 1088–1101.

13 Ibid., p. 1090.

14 Ibid., p. 1090.

15 Ford, Larry R. (2008): »World cities and global change: observations on monumentality in urban design«, in: Eurasian Geography and Economics volume 3, issue 49, pp. 237–262.

16 Atti, Eli (1989): The Shalom (now Azrieli) Center Tel Aviv Israel, Eli Attia, https://eliattiaarchitect.com/more-about-2.html#pd-shalom-center-p2 from March 3, 2022.

17 Ford, Larry R. (2008): »World cities and global change: observations on monumentality in urban design«, in: Eurasian Geography and Economics issue 49(3), pp. 237-262. p.253.

18 Marchart, Oliver (2019): Conflictual Aesthetics: Artistic Activism and the Public Sphere. Germany: MIT Press.

Time-capsule Transcripts An Experimental Taxonomy of Forms as a Vehicle for a Design Operation

Gianluca Croce, University of Trieste
Mariacristina D'Oria, University of Trieste



Collective research developed within the PhD career
Supervisor: Giovanni Corbellini, Politecnico di Torino

Time-capsule, taxonomy, futurarcheology

Abstract

The perception of a contemporary era dominated by the looming threat of one or more catastrophes brings out the awareness of the need to preserve our existence traces, away from their probable disappearance and the possibility of their space-time transmission. Our research aims to investigate the concept of “time-capsule” in its most disparate forms, highlighting how, in its principles of protection, conservation, and communication and its spatial configurations, there are relationships of continuity and contiguity only apparently random. The purpose of establishing a genealogy of the formal relationships between different objects – such as an Etruscan tomb or a bunker from World War II – is to demonstrate how the diverse functional needs end up coinciding in the recurring use of some primary forms, sometimes even as a result of their assemblage.

Artefact

Intro

The perception of a contemporary era dominated by the looming threat of one or more catastrophes brings out the awareness of the need to preserve our existence traces away from their probable disappearance: hence the need to question ourselves on how to address this issue in architectural terms.

Our research aims thus to investigate the concept of the "time-capsule" in its most disparate forms, highlighting how, in its principles of protection, conservation, and communication and its spatial configurations, there are relationships of continuity and contiguity only apparently random.

Let us start with the proper notion of time-capsule: "a container used to store for posterity a selection of objects thought to be representative of life at a particular time" (A. Dehim's The Century Safe, Centennial Expo Philadelphia, 1876). Although this concept is purely modern, the idea of preserving and transmitting the physical traces of our temporal and spiritual passage is a recurring aspect in the history of humanity and, therefore, of architecture.

The purpose of establishing a genealogy of the formal relationships between different objects — such as an Etruscan tomb or a bunker from World War II – is to demonstrate how the diverse functional needs end up coinciding in the recurring use of some primary forms, sometimes even as a result of their assemblage. Therefore, the aim is to offer a formal repertoire as a tool for the design of a contemporary time-capsule that is in itself, in its architectural configuration, a sort of formal compendium or, more specifically, a "time-capsule of the time-capsules of history."

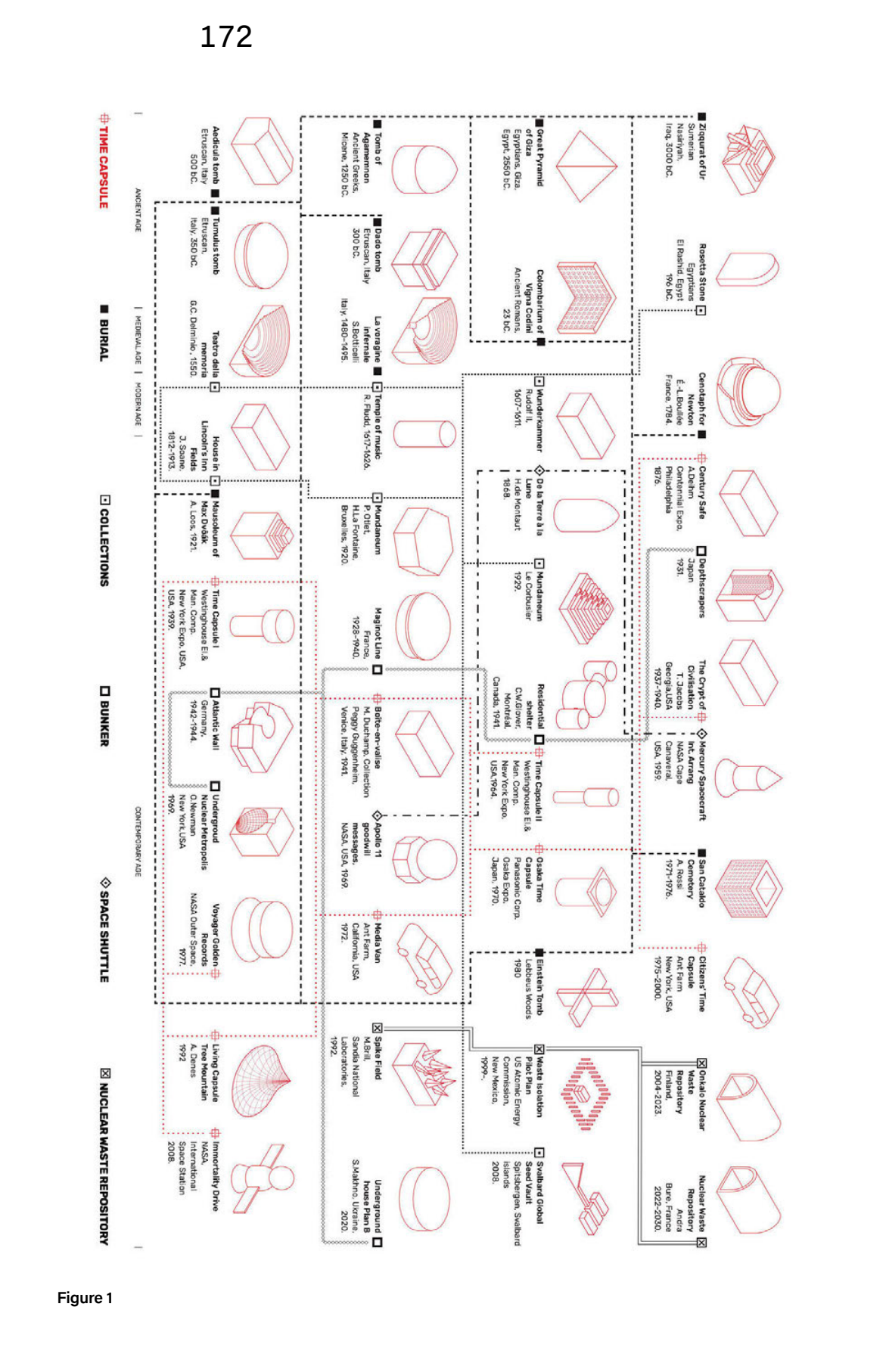

TIME CAPSULE
BURIAL
COLLECTIONS
BUNKER
SPACE SHUTTLE
NUCLEAR WASTE REPOSITORY
ANCIENT AGE
MEDIEVAL AGE
MODERN AGE
CONTEMPORARY AGE
Ziqqurat of Ur
Sumerian
Nasiriyah,
Iraq. 3000 bC.
Rosetta Stone
Egyptians
El Rashid, Egypt
196 bC.
Cenotaph for Newton
É.-L. Boullée
France. 1784.
Century Safe
A.Dehm
Centennial Expo.
Philadelphia
1876.
Depthscrapers
Japan
1931.
The Crypt of Civilisation
T. Jacobs
Georgia,USA
1937-1940.
Mercury Spacecraft
Int. Arrang
NASA Cape
Canaveral,
USA. 1959.
San Cataldo
Cemetery
A. Ross
1971-1976.
Citizens' Time
Capsule
Ant Farm
New York, USA
1975-2000.
Onkalo Nuclear
Waste
Repository
Finland.
2004-2023.
Nuclear Waste
Repository
Andra
Bure, France
2022-2030.
Great Pyramid
of Giza
Egyptians, Giza.
Egypt. 2560 bC.
Columbarium of
Vigna Codini
Ancient Romans.
23 bC.
Wunderkammer
Rudolf II,
1607-1611.
Da la Terra à la
Lune
H.de Montaut
1868.
Mundaneum
Le Corbusier
1929.
Residential
shelter
CM.Grover,
Montreal,
Canada. 1941.
Time Capsule II
Westinghouse El.&
Man. Comp.
New York Expo.
USA.1964.
Osaka Time
Capsule
Panasonic Corp.
Osaka Expo.
Japan. 1970.
Einstein Tomb
Lebbeus Woods
1980
Waste Isolation
Pilot Plan
US Atomic Energy
Commission.
New Mexico.
1999-.
Svalbard Global
Seed Vault
Spitsbergen, Svalbard
Islands
2008.
Tomb of
Agamemnon
Ancient Greeks.
Micene, 1250 bC.
Dado tomb
Etruscan, Italy
300 bC.
La voragine
infernale
S.Botticelli
Italy, 1480-1495.
Temple of music
R. Fludd, 1617-1620.
Mundaneum
P. Otlet,
H.La Fontaine,
Bruxelles, 1920.
Maginot Line
France.
1928-1940.
Boîte-en-valise
M. Duchamp. Collection
Peggy Guggenheim.
Venice, Italy, 1941.
Apollo 11
goodwill
messages.
NASA, USA. 1969.
Media Van
Ant Farm.
California, USA
1972.
Spike Field
M.Brill.
Sandia National
Laboratories.
1992.
Underground
house Plan B
S.Makhno. Ukraine.
2020.
Aedicula tomb
Etruscan, Italy
500 bC.
Tumulus tomb
Etruscan,
Italy. 350 bC.
Teatro della
memoria
G.C. Delminio, 1550.
House in
Lincoln's Inn
Fields
J. Soane.
1812-1913.
Museum of
Max Dvořák
A. Loos, 1921.
Time Capsule I
Westinghouse El.&
Man. Comp.
New York Expo. USA.
USA. 1939.
Atlantic Wall
Germany.
1942-1944.
Underground
Nuclear Metropolis
O.Newman
New York, USA
1969.
Voyager Golden
Records
NASA Outer Space.
1977.
Living Capsule
Tree Mountain
A. Deines
1992
Immortality Drive
NASA.
International
Space Station
2008.

Figure 1

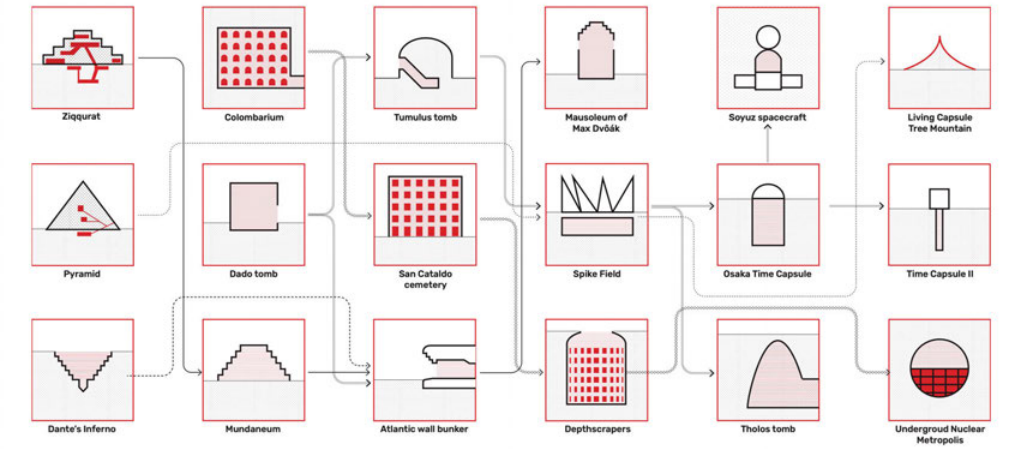


Figure 2

Retracing a taxonomy

The taxonomy of time-capsules traces an inhomogeneous and disconnected set of devices and architectures that differ in dimensional and functional terms but which share the definition of a container object intended to protect its content and transmit it to different space-time dimensions. Within this set of objects, six categories are recognizable: tomb, archive, bunker, time-capsule proper, spaceship, and nuclear waste deposit. [1]

The reduction of the devices analyzed into pure forms, or of their assemblage, therefore suggests that the shape of the object considered a "time-capsule" must necessarily present itself as a recognizable element, even when this consists of a monolithic or a simple parallelepiped. Especially in some examples, distant in space and time that share the same formal configuration, this defines a transversal and universal need for the symbolic recognition of the container that conveys the message. [2]

Container

The aim of transmitting the architectural message to a distant and uncertain future forces us to think about the container by referring to the taxonomy we have produced. If each "time-capsule" is often in itself an assembly that derives from other archetypal forms of further spatial configurations of different time-capsules, our transcripts repeat this operation, declining the symbolic spatial repertoire of the taxonomy according to the different critical and paradoxical conditions of the places in which they are located.

Content

The time-capsules offer a selection of specific or disparate objects of a particular civilization or illustrious person. We, as architects, have the idea of preserving architectural projects and theories that have been related, directly or indirectly, to crises and disasters to transmit their memory. The spatial organization of the archive is declined, within our sequence of transcripts, in an exploratory process through different spatial and performative qualities.

Materials

Having to hypothesize an object that can preserve its contents indefinitely and choose a significant material, each time-capsule is materially designed in concrete. Given the ability of concrete to assume the imprinted form, this lends itself to becoming not only the container of the archive but the material of the archive itself. Therefore, each archived element is not separated from the container but is an integral part of it, through its reproduction, partial or total, in real or reduced scale, in negative or positive. In this way, we set ourselves the goal of choosing a durable, purely architectural medium, but we also intend to sever the traditional separation between container and content, meaning and signifier. We are also aware of the fragility of materials defined as lasting: the idea of their degradation and slow and inexorable destruction, especially of the outer part of our time-capsules, is an integral part of that inexorable process that involves all things. Therefore, the time-capsules are also designed to turn into ruins for the archeology of the future.

Contexts

Our time-capsule transcripts are located in symbolic and extremely different contexts. The choice of each of them derives from its peculiar condition of urban fragility or environmental disaster. In this way, we decline and explore the potentiality of our taxonomy within Venice (Death in Venice), Yucca Mountain (Sacred Toxicity), Mirny mine (Diamonds are a dead's best friend), China-Kazakhstan border (Hyporborea's gate), and Cujubim (Savage Hades). [3 – 13]

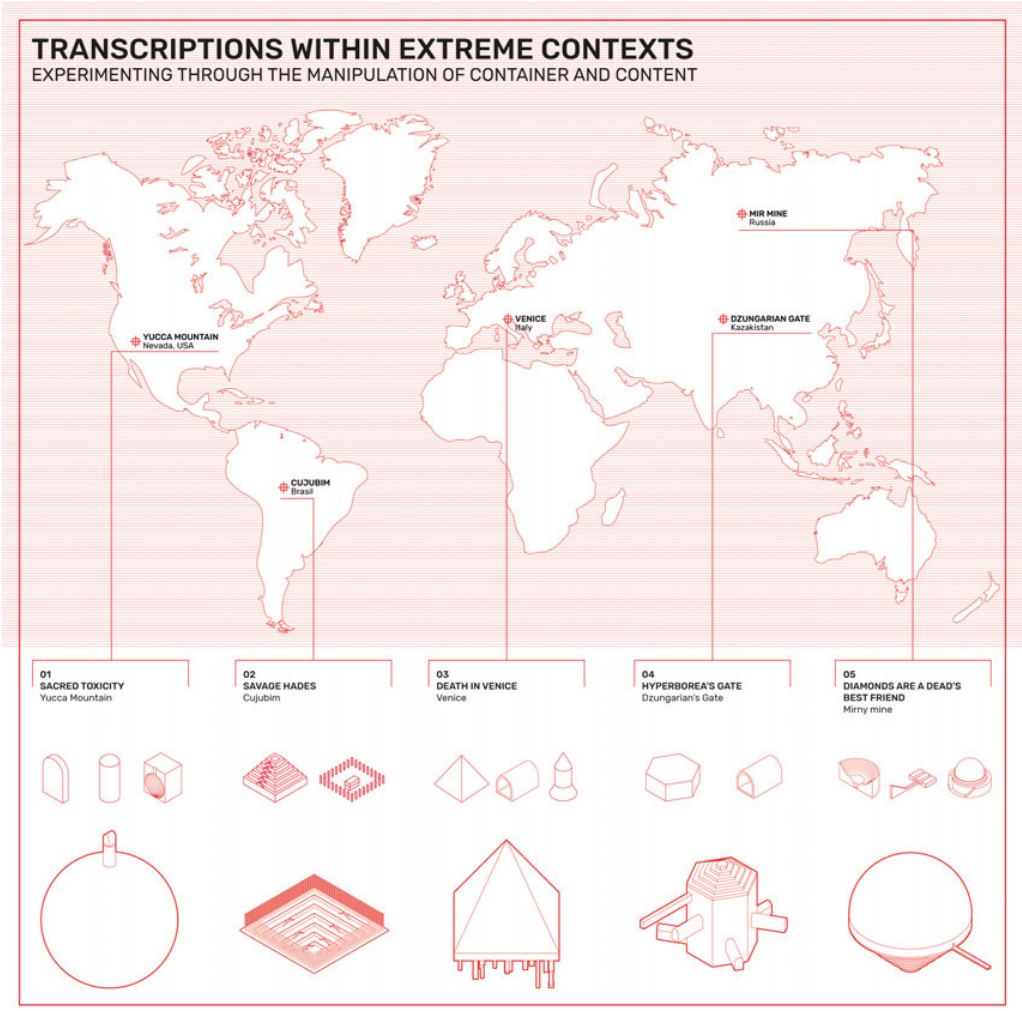

TRANSCRIPTIONS WITHIN EXTREME CONTEXTS
EXPERIMENTING THROUGH THE MANIPULATION OF CONTAINER AND CONTENT
YUCCA MOUNTAIN
Nevada, USA
CUJUBIM
Brasil
VENICE
Italy
MIR MINE
Russia
DZUNGARIAN GATE
Kazakistan
01
SACRED TOXICITY
Yucca Mountain
02
SAVAGE HADES
Cujubim
03
DEATH IN VENICE
Venice
04
HYPERBOREA'S GATE
Dzungarian's Gate
05
DIAMONDS ARE A DEAD'S BEST FRIEND
Mirny mine

Figure 3

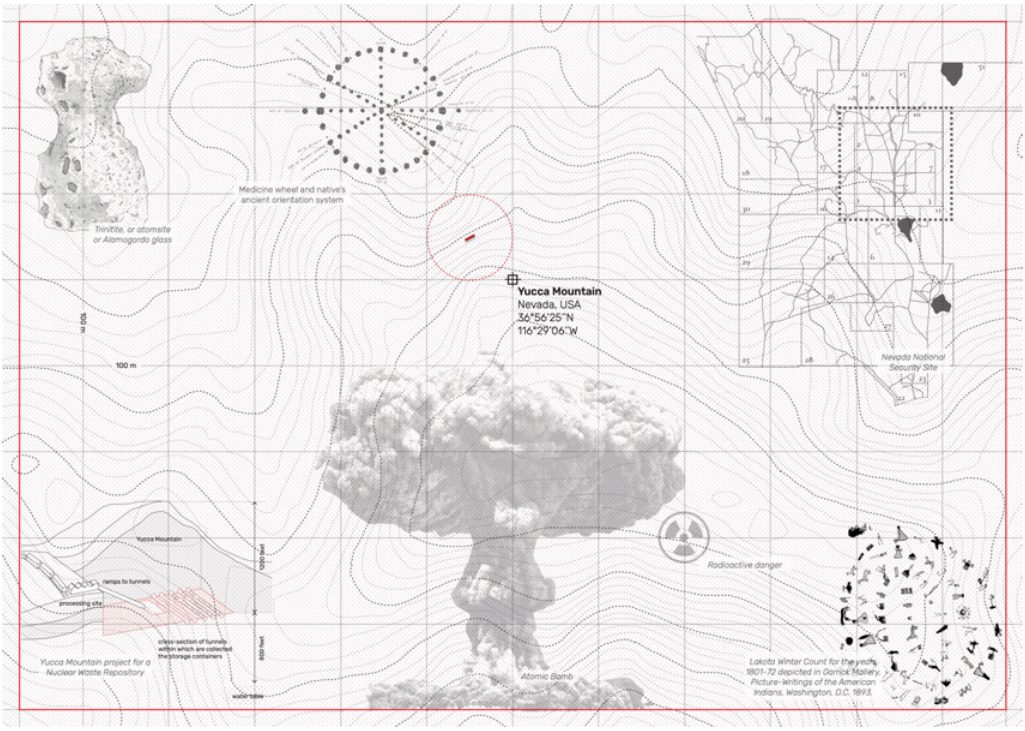

Trinitite, or atomsite
or Alamogordo glass
Medicine wheel and native's
ancient orientation system
Yucca Mountain
Nevada, USA
36°56'25"N
116°29'06"W
Nevada National
Security Site
100 m
100 m
Yucca Mountain
ramps to tunnels
processing site
cross-section of tunnels
within which are collected
the storage containers
1,000 feet
1,000 feet
water table
Yucca Mountain project for a
Nuclear Waste Repository
Atomic Bomb
Radioactive danger
Lakota Winter Count for the years
1801-72 depicted in Garrick Mallery,
Picture-Writings of the American
Indians, Washington, D.C. 1893.

Figure 4

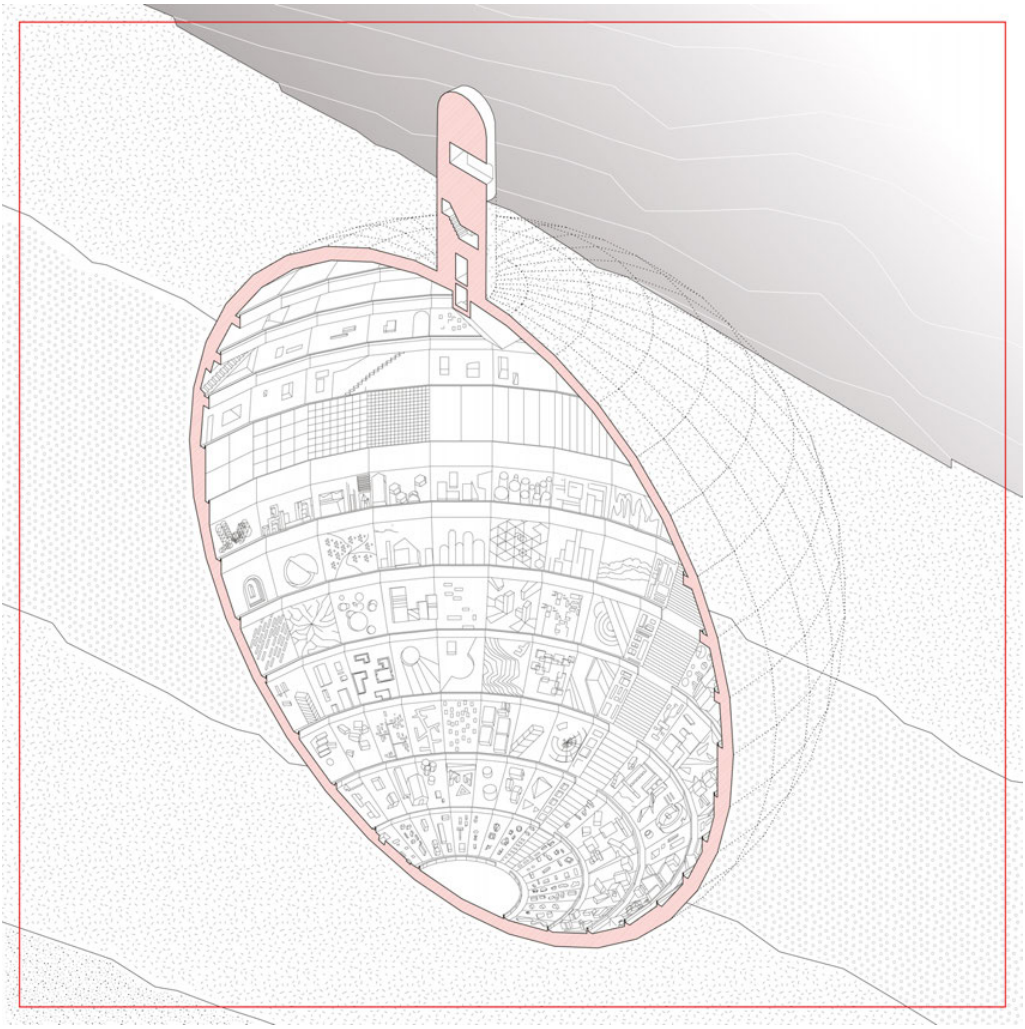


Figure 5

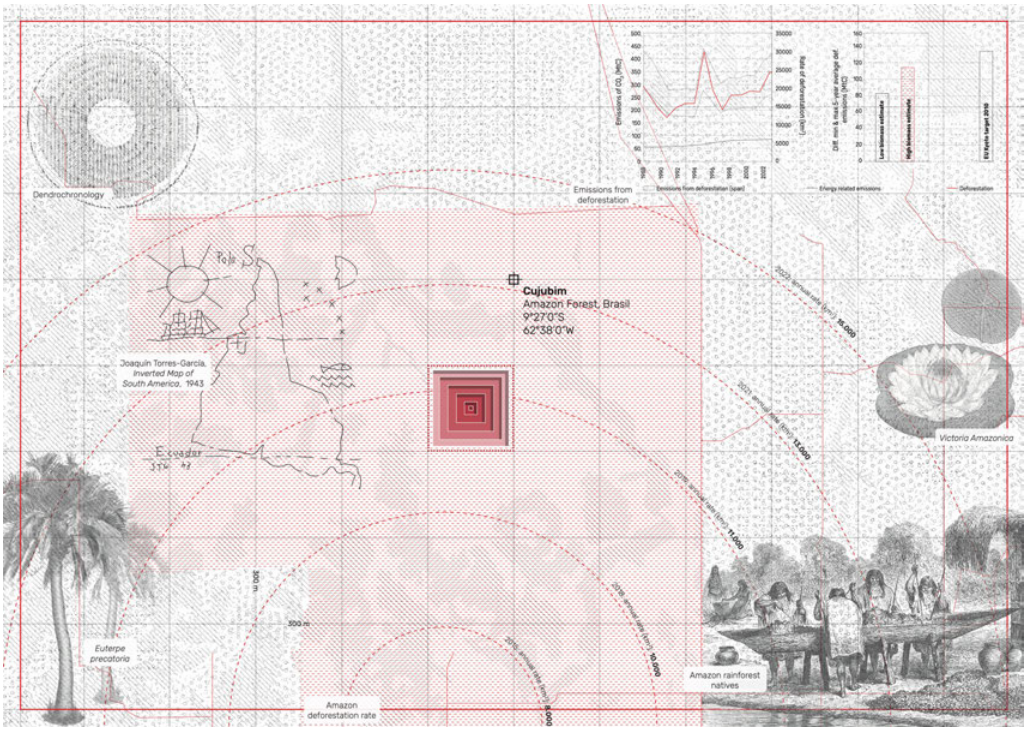

Dendrochronology
Emissions from deforestation
Cujubim
Amazon Forest, Brasil
9°27'0"S
62°38'0"W
Joaquin Torres-García,
Inverted Map of
South America, 1943
Victoria Amazonica
Euterpe
precatoria
Amazon rainforest
natives
Amazon
deforestation rate
300 m
200 m

Figure 6

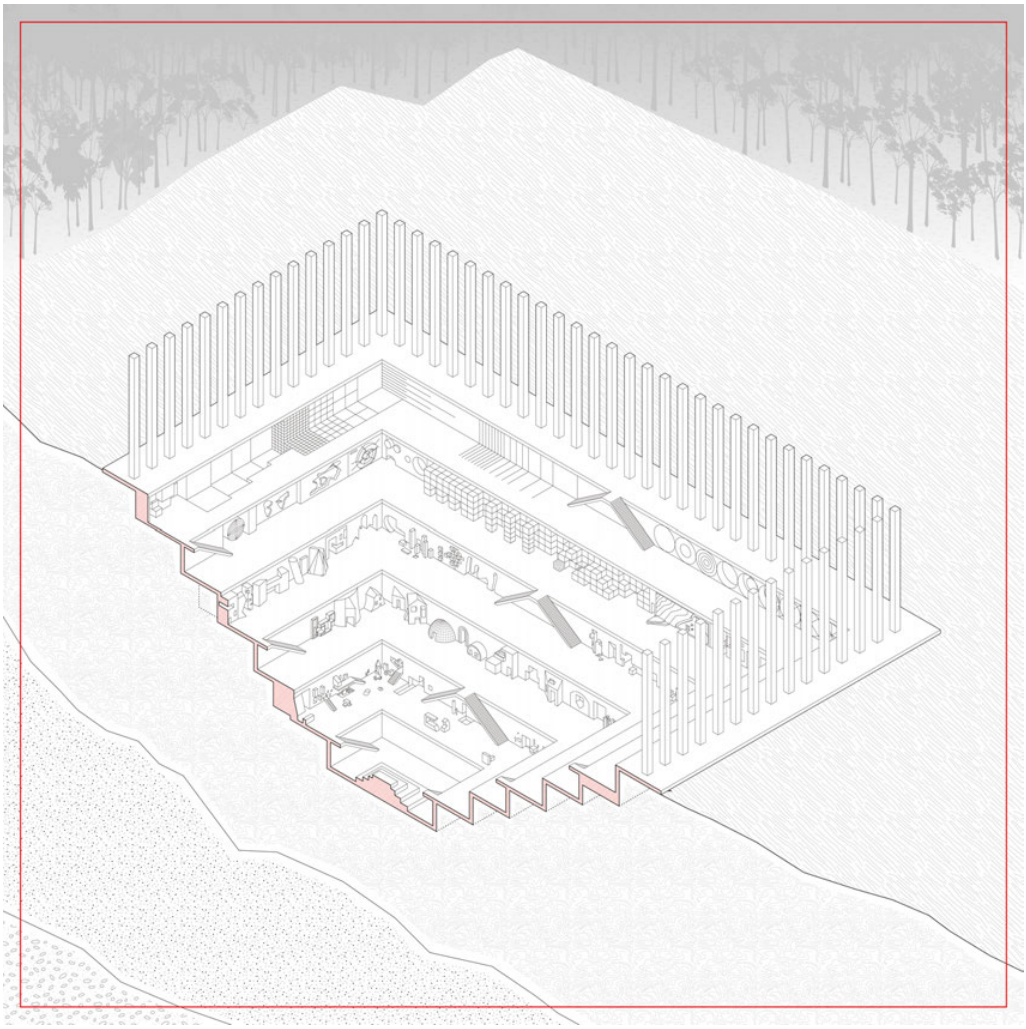


Figure 7

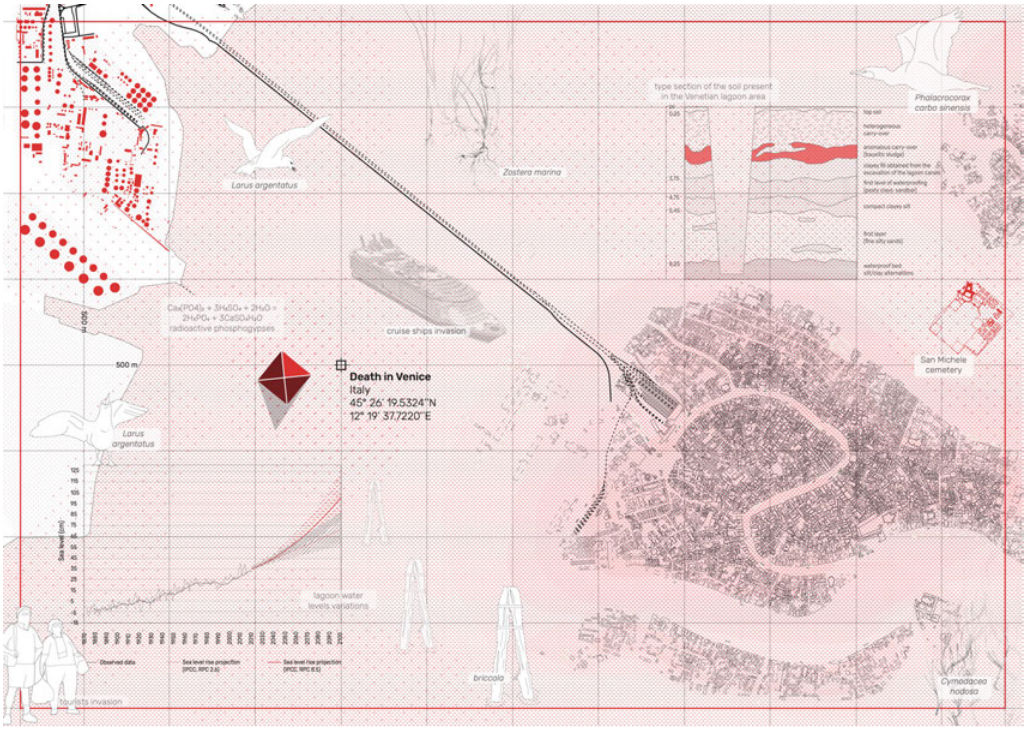

type section of the soil present in the Venetian lagoon area
Phalacrocorax carbo sinensis
Larus argentatus
Zostera marina
cruise ships invasion
Death in Venice
Italy
45° 26' 19.5324"N
12° 19' 37.7220"E
San Michele cemetery
500 m
Larus argentatus
lagoon water levels variations
tourists invasion
briccola
Cymodocea nodosa

Figure 8

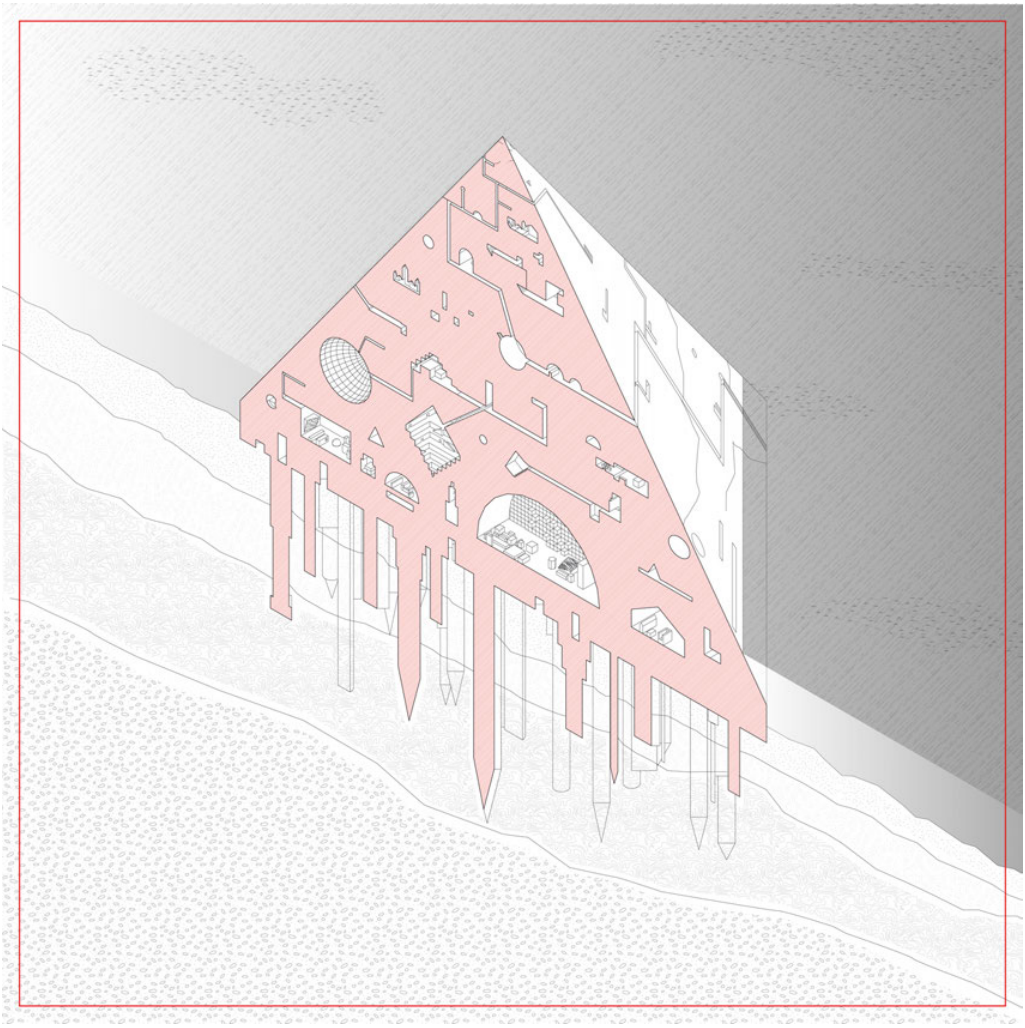


Figure 9

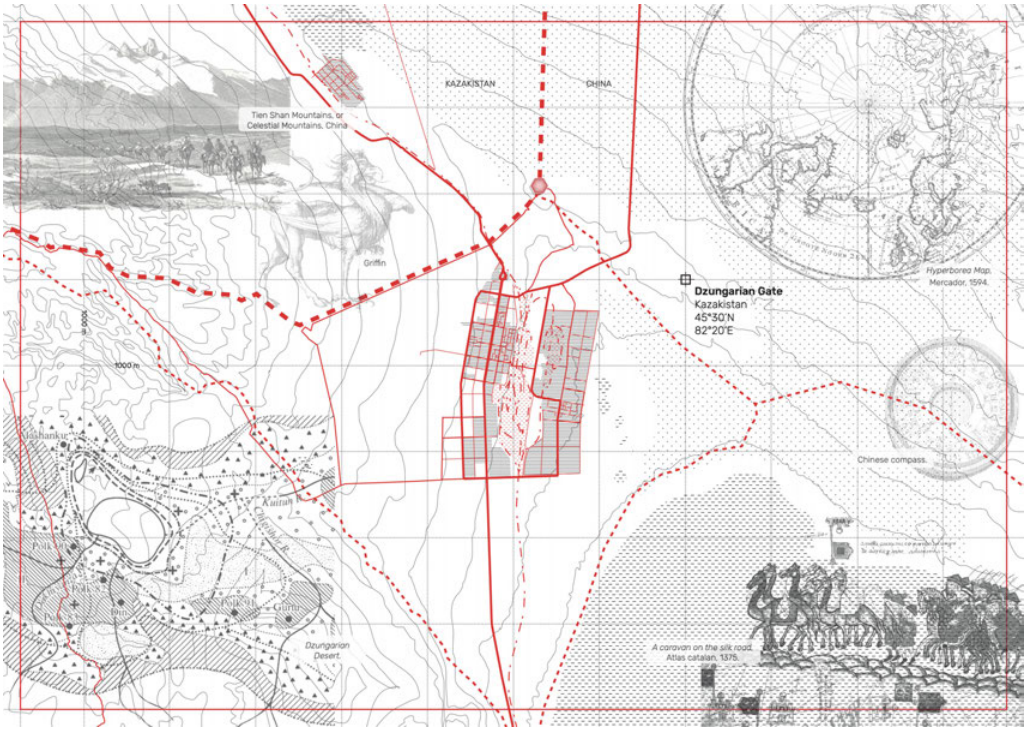

KAZAKISTAN
CHINA
Tien Shan Mountains, or Celestial Mountains, China
Griffin
Dzungarian Gate
Kazakistan
45°30'N
82°20'E
Hyperborea Map. Mercador, 1594.
Chinese compass.
A caravan on the silk road. Atlas catalan, 1375.
Dzungarian Desert
1000 m

Figure 10

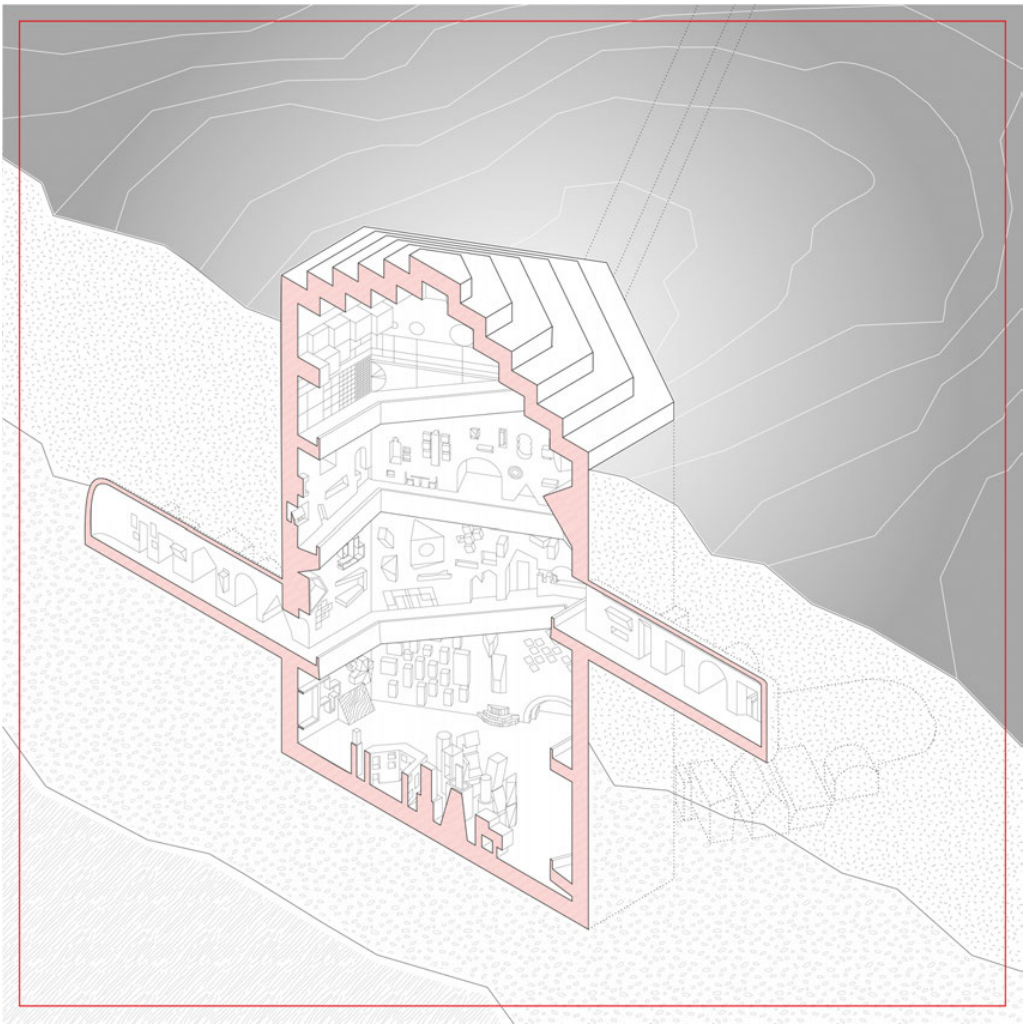


Figure 11

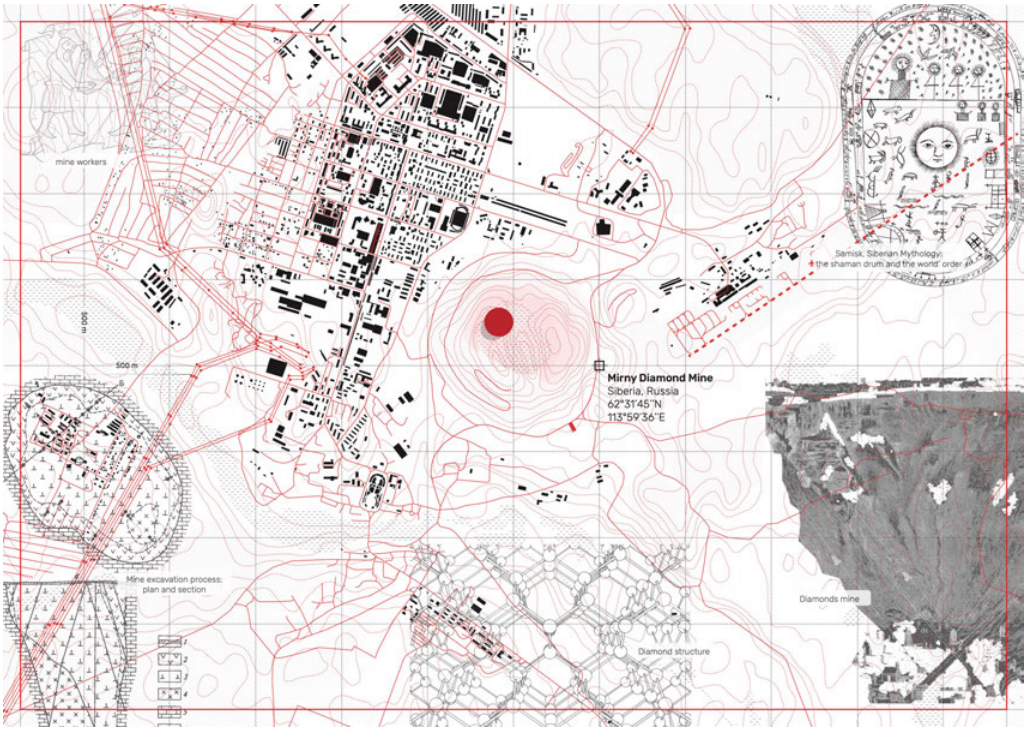

mine workers
500 m
0
Mirny Diamond Mine
Siberia, Russia
62°31'45"N
113°59'36"E
Samisk. Siberian Mythology:
the shaman drum and the world' order
Mine excavation process:
plan and section
Diamonds mine
Diamond structure

Figure 12

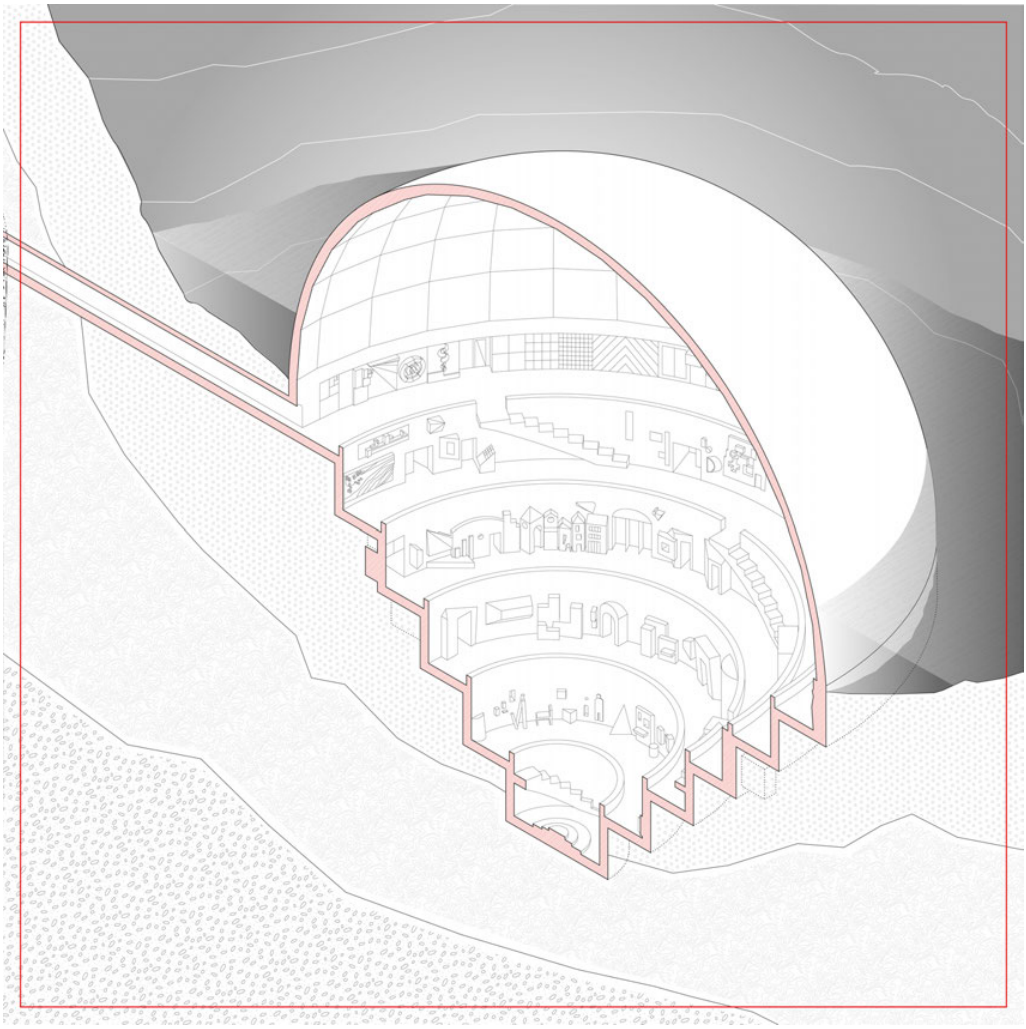


Figure 13

Atlas of Architectural Design in Built Heritage
Pedagogies from the School of Porto

Teresa Cunha Ferreira, Faculdade de Arquitectura da Universidade do Porto e Centro de Estudos de Arquitectura e Urbanismo

Architectural Design, Built Heritage, School of Porto

Abstract

The Design Driven Research project "Atlas of Architectural Design in Built Heritage: contributions from the School of Porto" (H-ATLAS.Porto) aims to introduce a new and deeper knowledge of selected interventions in the built heritage carried out by School of Porto architects, by documenting the whole process (before, during, after) and not only the final result, as it is common practice in specialist publications. This new perspective is supported on crossed methodology based on the analysis of information currently scattered across public and private archives, on the collection of oral memories at risk of being lost, on *in situ* observation and on the use of drawing as privileged research tool. Hence, H-ATLAS.Porto intends to fill the above-mentioned gaps and disseminate systematic and technical documentation of reference works that may constitute pedagogy for the future practice of architects.

Extended abstract

The current global condition of unprecedented consumption of resources, marked by the cycle of continuous demolition-replacement of construction, has irreversible cultural, environmental and social consequences, also aggravated by natural disasters and climate change. As stated in the UN 2030 Agenda for Sustainable Development (UNESCO 2016) the conservation, reuse and enhancement of architectural and urban heritage is not only a cultural aim, but also a social, ecological and economical demand. However, in the fields of urbanism/architecture/construction, there is still greater investment in new constructions, instead of reusing, enhancing and maintaining existing built heritage as a key resource for sustainable development and for endorsing local identities and collective memories. Also, despite some attempts (ICOMOS, 2019), there is still a lack of international theoretical and methodological frameworks of reference heritage design practices to counteract those strategies. Concurrently, knowledge is scattered, particularly about the last few decades, when scientific and technological advances have created new possibilities for architectural heritage design.

Portugal is no exception, there is a large exceedance of new buildings and the conservation sector is sharply under the European countries. Moreover, despite its long historical stratification and its 3,811 listed properties, there are no systematic studies about architectural design practices in cultural heritage in the last decades. While there are some studies about the history of conservation in Portugal from the late 19th century to the end of the dictatorship (1974), no global critical and technical documentation has yet been produced about the intense activity of interventions on architectural heritage in the last forty years. In 1980, the creation of IPPC (Portuguese Institute of Cultural Heritage, answerable to the Ministry of Culture), marked a key moment in the public policies of cultural heritage management in Portugal and the affirmation of contemporary architectural design in cultural heritage (Aguiar et al., 2019). What is currently missing is a systematic compilation of processes and

methods for architectural heritage design that allows for their translation into pedagogical use and improved practices in the future.

In this context, the Design Driven Research (DDR) project “Atlas of Architectural Design in Built Heritage: contributions from the School of Porto (H-ATLAS.Porto) arises from architectural design practices produced by School of Porto architects, including such renowned figures as Fernando Távora, Alvaro Siza, Eduardo Souto Moura and Alcino Soutinho, among others, who left an important legacy and pedagogy in intervention in pre-existing buildings (Ferreira 2018). However, this knowledge has hitherto been scattered and with 'design memories' at danger of being lost over time. Therefore, H-ATLAS.Porto strives to compile, systematize and disseminate these representative practices and thereby improving future teaching and practice on architectural heritage.

The so-called “School of Porto” is an indisputable reference in the national and international context and was originally associated with the Fine Arts School of Porto (presently Faculty of Architecture of the University of Porto). It appears firstly nationally applied with the sense of architectural tendency (Figueira 2002) and internationally coined by Kenneth Frampton (Frampton, 1991) after having previously included Álvaro Siza in the restricted group of architects that embody the designation of critical regionalism (Frampton 1980). With exceptions (Ferreira 2018; Castañon et al. 2019; Fantini 2021; Castañon 2022, among others) the School of Porto has been mostly studied from the point of view of new constructions or in monographic publications with no specific focus on the process of intervention in pre-existing buildings. Thus, H-ATLAS.Porto will be an opportunity to create deeper knowledge on reference practices on built heritage, as well as lay the foundations for a future Atlas of Architectural Design in Portugal. Through the analysis of primary and secondary sources, the research project will inventory and inquiry into architectural heritage design projects of different generations of architects that have marked the praxis of the School of Porto.

Description and Methodology

H-ATLAS.Porto intends to fill the gap in the communication of interventions on built heritage that are generally limited to only illustrating the final results of the work, correspondingly omitting the entire process of research, survey, design and site construction, and therefore only ever unclear and of little assistance to designers. However, as Carlo Scarpa acknowledges, "*the 'final solution' is not always as important as the 'critical points' that are solved during the project and on the construction site*" (Scarpa 1984). In this context, H-ATLAS.Porto intends to provide a novel perspective by delivering a narrative on the history of the design process: pre-existence and previous studies, design strategy, design reports, drawings of different design stages, building site, construction details, critical reception, and new/old comparative illustrations.

The research methodology is based on the cross-referenced analysis of 'documentary evidence' (documentary and bibliographical research, interviews) and 'physical evidence' (in situ observation, analysis and

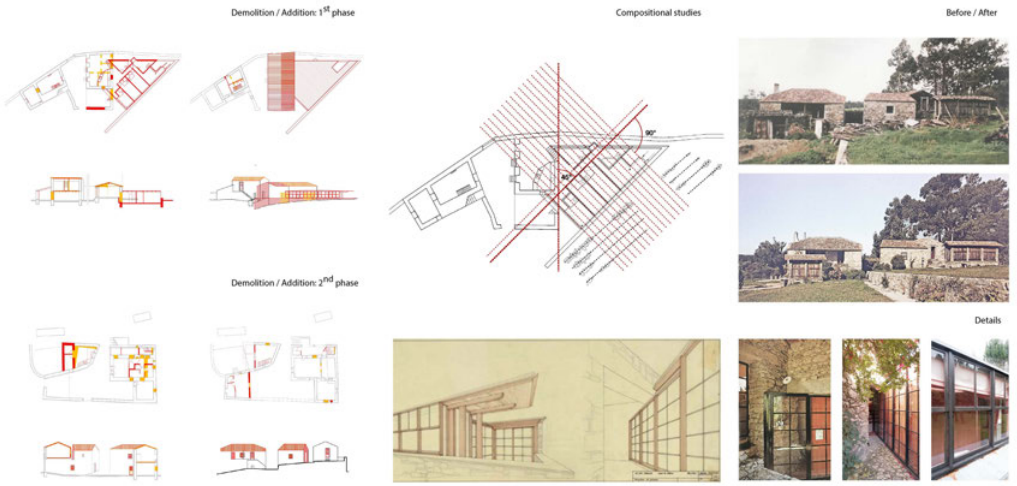


Figure 1: Alvaro Siza, Casa Alcino Cardoso, 1971 (drawings by Eleonora Fantini)

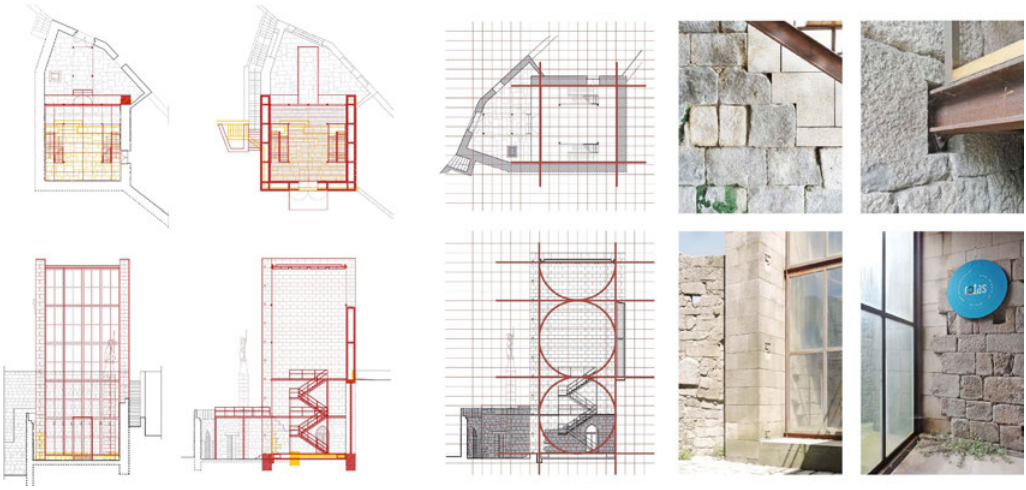


Figure 2: Fernando Távora, Old City Council (Casa dos 24), 1995–2004 (drawings by Eleonora Fantini)

interpretation of the works). Adopting drawing as a research tool, graphic contents are produced, including reds and yellows (essential for any deep understanding of the transformations effectively carried out in the pre-existence), interpretative schemes of the construction phases and of the compositional and geometric principles in the relationship between new and old, and even of the analysis of constructive details.

As any work of architecture results from the collective inputs of different participants and not just a single author, this project includes interviews with several design and building specialists (collaborators, clients, critics, etc.), whose testimonies return precious information on the conception, design and construction processes. Furthermore, this novelty and contribution are further highlighted by a critical contextualization, which allows for its positioning against the state of the art in this field of knowledge.

The selection of the works presented is based on a combination of several criteria: works that are more representative of the intervention practices in the built heritage (but with new sources and interpretive perspectives) and less publicized or unpublished works.

H-ATLAS.Porto integrates the collaboration of Master's and PhD students and will undertake the dissemination of novel graphic documentation (drawings, photos, schemes, details) through a web platform with interactive mapping, virtual tours, before-after visualizations and other collaborative digital tools. This platform will foster dialogue between researchers, students, institutions, and the broader virtual and local communities.

Aknowledgements

The author acknowledges Eleonora Fantini and David Castañon for the imagens and construbutions for the research project. The study is co-financed by the European Regional Development Fund (ERDF) through COMPETE 2020 – Operational Programme for Competitiveness and Internationalisation (OPCI) and by national funds through FCT, under the scope of the POCI-01 – 0145-FEDER-007744 project, 2020.01980.CEECIND and FCT Project EXPL/ART-DAQ/1551/2021.

Literature

Aguiar, José/Pernao, João/Ferreira-Cunha, Teresa (2018): »Arquitetura, Património e Projetode Reabilitação«, in Fundo Nacional de Reabilitação Urbana issue 88.

Dimitrova, Elena/et al. (2019): European quality principles for EU-funded interventions with potential impact uponcultural heritage. Manual. Paris: ICOMOS.

Fantini, Eleonora, (2021): Patrimonio storico e progetto nell'architettura portoghese. Riflessi dellacultura italiana nell'opera di Távora, Soutinho e Siza. Phd Thesis. Bologna: Universitá di Bologna.

Ferreira-Cunha, Teresa (2018): »Conservation of 20th-century architecture in Portugal. Thelesson of Álvaro Siza«. In Tostões, A./Koseli, N. (Eds.) Proceedings 15th International Docomomo Conference in Lisboa/Ljubljana, pp. 338–344.

Figueira, Jorge, (2002): Escola do Porto: Um Mapa Crítico. Coimbra, Portugual: Edarq.

Frampton, Kenneth, (1980): Modern architecture: a critical history. London: Thames & Hudson, Oxford University Press.

Frampton, Kenneth, (1991): »In search of a laconic line. A note on the School of Porto«, in the 4th International Alvar Aalto Symposium.

Ordoñez-Castañón, D./ Ferreira-Cunha, T./Baetia-Sanchez, S. (2020): »Intervention on vernacular architecture: The lesson of Fernando Távora«, in: ISPR Archives pp. 123–130.

Ordoñez-Castañón, David/ Távora, Fernando (2022): La modernidad enraizada: contibuidad e innovacion como principios de intervencion en la arquitectura tradicional. PhD Thesis. Bilbao: University of the Basque Country.

Scarpa, Carlo, (1984): Interview by Dal Co, F. & Mazzaroli, G. – Carlo Scarpa: 1906–1978. Milan: Electa.

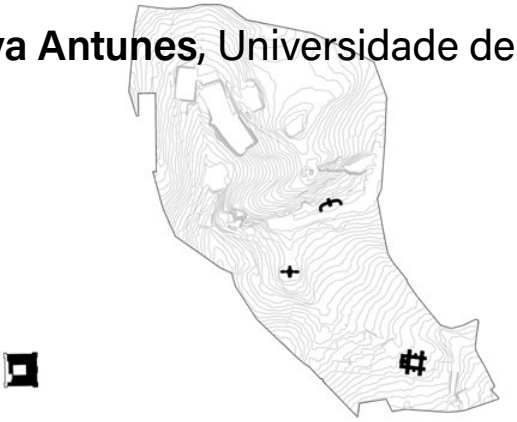
Siza, Álvaro (1995): »Construir uma Casa«, in Llano, Pedro/ Castanheira, Carlos (Eds.) Obrase Projectos:Centro Galego de Arte Contemporânea. Spain: Electa, p. 61.

UNESCO (2016): Culture: Urban Future, the Global Report on Culture for Sustainable Urban Development. Paris: UNESCO.

Tapadas (Royal Forests and Hunting Reserves) of Portuguese Royal Palaces

Resilience Spaces. For a Spatial and Architectural Requalification

Ana Catarina da Silva Antunes, Universidade de Èvora



Initial doctoral stage

Supervisors: Altino João Serra de Magalhães Rocha, Universidade de Èvora; Sofia Salema, Universidade de Èvora; Maria da Conceição Marques Freire, Universidade de Èvora

Architecture, Heritage, Landscape

Abstract

The scope of the research focuses on a critical and speculative reflection of the monumental, cultural, architectural and landscape set of the Tapadas (Royal forest and hunting reserves) of Portuguese Royal Palaces, in Portugal.

The object of study are the cultural sites that were royal residences, which have Tapadas, such like Mafra, Ajuda, Necessidades, Queluz and Vila Viçosa.

These sets have played and continue to play a fundamental role in society, at the historical-cultural, ecological and social levels.

Developing itself in the interdisciplinary fields of architecture, approaching complementary areas such as heritage and landscape, this research will enable a reflection about how to empower these cultural sites, in order to stimulate our society reflection about adaptative reuse or even landscape design integrating climate action, and yet how an artistic intervention in historical landscapes like these, could mean a positive discourse around public realm.

DDR statement

This research, apart from analyzing the history, function and form that characterize the cultural sites of Tapadas, along with the observation of the site, place and program, integrates design speculation as a methodology to discover new uses for these spaces.

Each different site is being currently studied in terms of its main elements already mentioned, in the perspective of the synthesis of each landscape.

A set of different typologies of programs will be defined as an answer to the current needs of the communities. Each program will be the base for the design of each site independently, thus resulting in multiple preliminary studies that will be validated by several stakeholders and users.

The definition of the program includes evaluating the suitable uses for the main buildings, eventually new edification could be considered, and also if appropriate to speculate events or artistic installations that could happen on the Tapadas.

The optimum program will be the one that responds best to each site morphology, conservation, social and cultural aspects, identity and relation with the context, and also the one which is seen by all stakeholders and users as the most appropriate.

Conclusions will be draft from the experience of designing and will reflect the relevance of Design Driven Research approach, methodologies, techniques and tools employed in my research project.
Since the main topic of the conference is RECOMMENDATION, it challenges me to reflect on how my conclusions could also be used as recommendations for potential stakeholders and users in these landscapes.

The **scope** of the research focuses on a critical and speculative reflection of the monumental, architectural and landscape value of the cultural site of the Tapadas (Royal forest and hunting reserves) of Portugal Royal Palaces, Portugal.

Developing itself in the interdisciplinary fields of architecture, approaching complementary areas such as heritage and landscape.

The **object of study** is the monumental sets that were royal residences, which are important cultural sites with Tapadas, such as Mafra, Ajuda, Necessidades, Queluz and Vila Viçosa [1].

These cultural sites with Tapadas have played and continue to play a fundamental role in society, at the historical-cultural, ecological and social levels, but they still lack an integrative study that could connect the three dimensions of time (past, present and future) and also could benefit from the interdisciplinary view of architecture and its relationship with the place and the landscape,

After a comparative analysis, relating the geographic location and the main elements of the cultural sites, through drawings and photography, the research on the revitalization of the built and landscape heritage, will have a design, conceptual and speculative character, relating the cultural, architectural, artistic and landscape heritage.

Within the scope of the research described, the elaboration of the **state of the art** must be plural and interdisciplinary, summoning all the potential stakeholders and users of these territories, promoting the artistic and cultural aspects and valuing nature in the cities.

From a historical and epistemological point of view, research/state of the art will convene studies that relate botanic to architecture; the landscape with the erudite; art with literature.

Regarding **the relevance** of the research context, it fits into the fact that the demands of modern life today, in cities, leads to the need for a balanced management between built-up areas (housing) and green open spaces. The Tapadas, as classified cultural sites, have a high potential for consolidating the ecological and cultural/social structure, which allows preserving the cultural memory and collective identity, constituting their requalification an opportunity to enjoy them and maybe to bring more green and leisure areas to the city where culture ideas could take place. It should be noted that communities start to be increasingly attentive to the value of these sets, noticing a growing adhesion of public participation in the reflection about the management of their future, a situation that can be noticed in the case of Tapada das Necessidades.

After visiting these Tapadas it's possible to observe degradation in some of the main buildings and natural structures, and lack of security, as a result, it's very urgent to deal and prevent the misusage of these cultural sites.

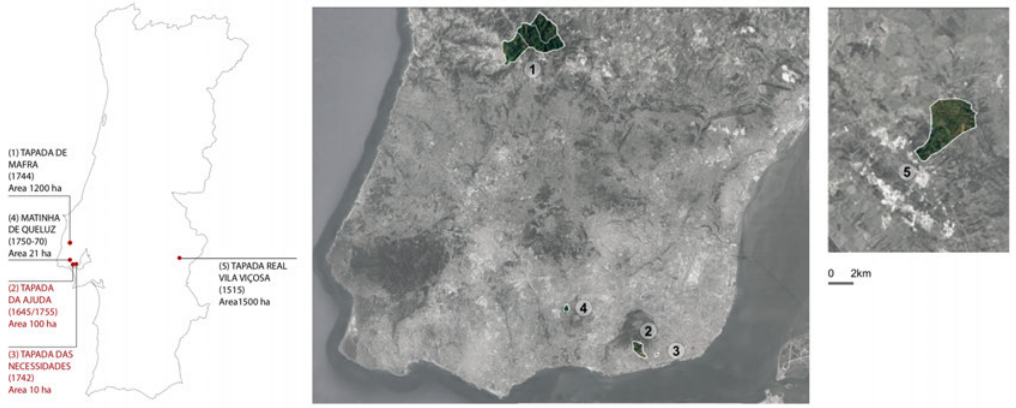


Figure 1: Case studies location in Portugal, designed by Ana Catarina Antunes, in 2021.

Regarding the **aims of the research**, the present study has as its **main goal**:

1 Conduct to a critical and speculative reflection on The Tapadas of Portuguese Royal Palaces, in order to assess their heritage value (architectural and landscape) and their design potential, testing prospective strategies.

And as **specific objectives:**

2 To characterize and understand these cultural sites (Palaces and Tapadas), in the temporal (historical-cultural) and spatial context in which they were created.

3 Analyze how the Royal Palaces and their Tapadas (Royal Forest and Hunting Reserves — spaces for leisure and nature conservation) relate to the context in which they are inscribed today;

4 Conceive and test intervention, design and management strategies that value this heritage and its relationship with the City today;

5 Define an (architectural) program for the object of study, which can be characterized by these aspects: Rhizomatic, experimental, ephemeral, performative and requalifying.

In relation to **the state of the present research**, it's in an early stage, although two objects of study are already being analysed: The Palace and Tapada das Necessidades, and the Palace and Tapada da Ajuda [2].

The main buildings of the Tapada da Ajuda were studied and redesigned with the aim of producing an article for a magazine, in order to bring attention to the architecture of this monumental set, where the main buildings are characteristics from the 19th century, such as neoclassical buildings and a building made from iron and glass [3] [4] [5].



Figure 2: The context of Tapada da Ajuda and Tapada das Necessidades in the city of Lisbon, designed by Ana Catarina Antunes, in 2022.



(Legend: 1 - Botânical Garden of Ajuda, 2 – Royal Palace of Ajuda, 3 - Tapada da Ajuda)

Figure 3: Tapada da Ajuda and the Monumental Set of the Royal Palace of Ajuda, redesigned by Ana Catarina Antunes, in 2021, made from the original city plan of Lisbon, published by João C. Bon de Souza, and J.F.M Palha, in 1875.

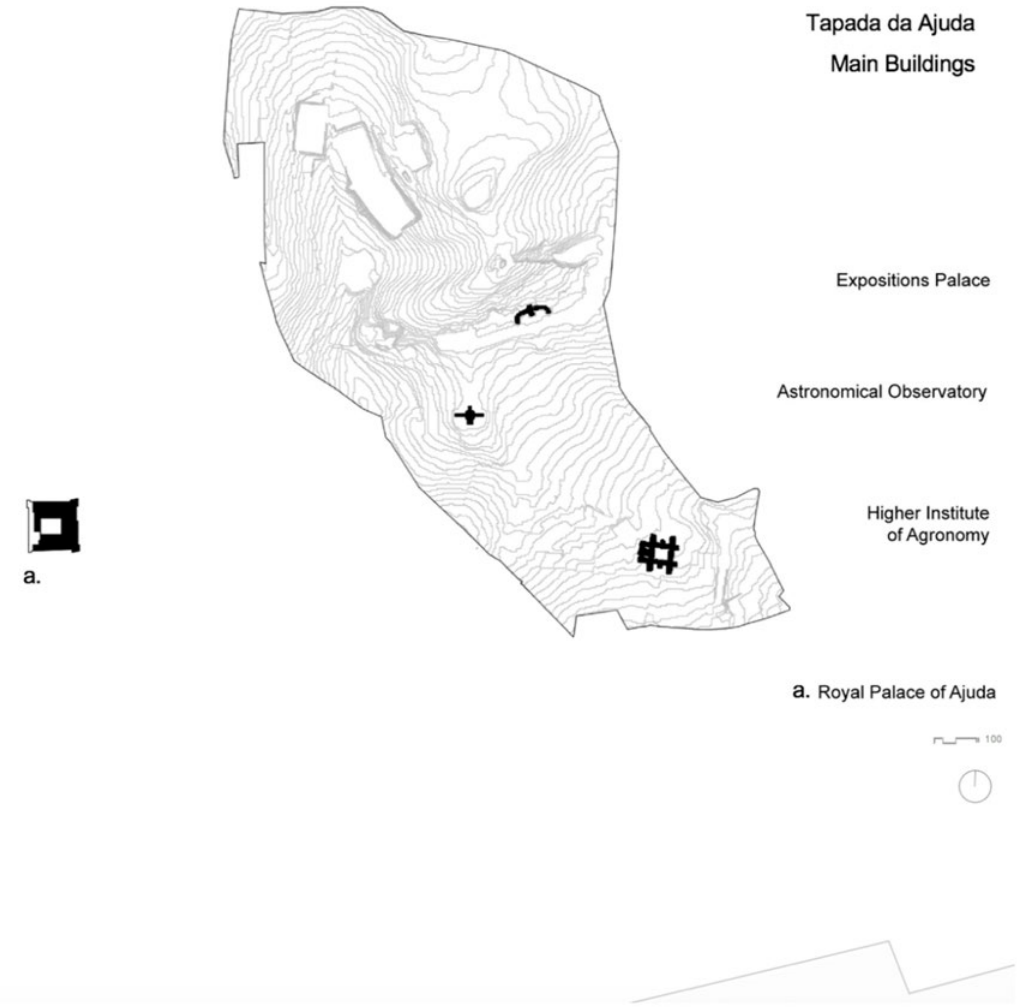
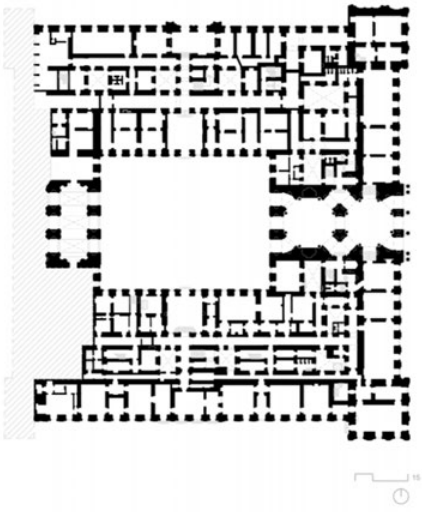
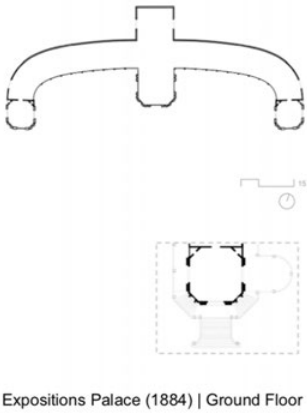


Figure 4: Main Buildings of the Tapada da Ajuda and the Royal Palace of Ajuda, redesigned by Ana Catarina Antunes, in 2022.



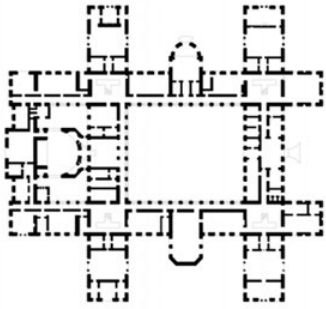
Royal Palace of Ajuda (1795-2021) | Ground Floor



Expositions Palace (1884) | Ground Floor



Astronomical Observatory (1861) | Ground Floor



Higher Institute of Agronomy (1911-1917) | Ground Floor

Figure 5: Main Buildings of the Tapada da Ajuda and the Royal Palace of Ajuda, redesigned by Ana Catarina Antunes, in 2022.

With the evolution of the research, the questions about how to recognize and measure the main values of these cultural sites, lead to the understanding of the importance to enquire about their main stakeholders and potential users.

The present **research is scheduled to occur along three phases:**

The **initial phase** of the research, it's intended to gather information in order to answer the objectives mentioned in the number (1) and (2). And for that, it will be done:

- An historical analysis made through the bibliography, expositions attendance, interviews with the entities who manage the main buildings and the Tapada.
- Interpretation of the place and the landscape of the Tapadas of Portugal Royal Palaces, through a comparative analysis of the main characteristics/elements between all of the selected Tapadas, which will lead to more deep and specific research of the case study that will be developed in the second stage of the research. These syntheses or

interpretive analysis of the object is also encouraged to be made with photography, drawings, videos or even sound (silences and noises).

- Identification of the cultural and heritage value of each cultural site, supported by a review about the evolution of the heritage concepts and through their recognition and also by surveys about the values of the cultural site. It's aimed to validate recognized values, by interviewing stakeholders, potential users, specialists and researchers involved in the studies about these monumental sets. It will be a good practice to visit all the sites, understand the demand of its users by an inquiry, or through a workshop/event in the Tapadas, integrating the community ideas of the cultural and heritage value of the cultural site, in order to cross this subjective analysis, with the bibliography.
- Analysis enhancing the potentials and revealing the weaknesses of each Tapada, in order to help to choose the object of study that will be deeply analysed in the stage two of the research.
- All the points mentioned, should be continuously enriched with questions that emerge with the design driven research techniques of speculation of new realities for the site.

In the **second phase of the research**, seeking the development of a methodology or analysis approach and an achievable way of intervention, it is considered pertinent that the main efforts should be focused on the study of at least one cultural site, aiming that the design-driven research methods can be later replicated to the analysis and intervention of the other cultural sites. In order to concretize it:

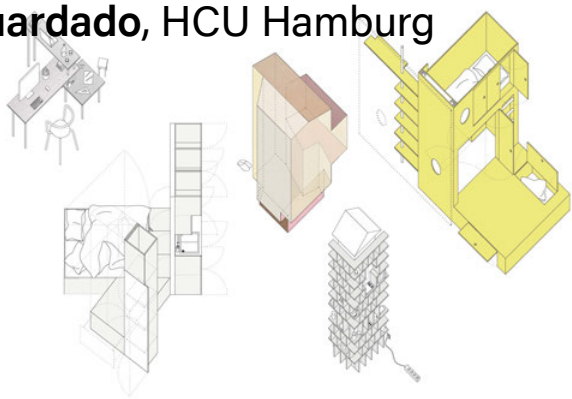
- It will be analyzed national and international examples of interventions that value heritage and landscape in cultural sites (Royal Palaces and Tapadas) and also Landart interventions will be studied.
- Using Project tools as a way of research to answer the questions and the objectives (3), (4) and (5) of the research, trying and testing intervention proposals with graphical materials.
- Considering the questions that a design-driven research will naturally generate, the phase one of the research should be continued too.

In the **last phase of the research**, it is intended to analyze the results, as well as reach the appropriate conclusions, through:

1. Presentation of the conclusions and reflections of the study carried out, through the final writing of the document (doctoral thesis);
2. Production of two scientific documents resulting from the conclusions of each phase of the research;
3. Production of an exhibition and/or small documentary (audiovisual) of 15min;
4. Presenting at International Conferences and writing articles for important Magazines;
5. Organizing an event in the Tapadas, that could bring together experts and people who care about these cultural sites;

Home: Things & Bodies
A Thing-based Exploration Into Personal Space

Marta Fernandez Guardado, HCU Hamburg



Final doctoral stage

Supervisors: Matthias Ballestrem, HCU Hamburg; Ignacio Borrego Gómez-Pallete, TU Berlin

personal space, experience of inhabitation, domestic objects

Abstract

We live among, together and through things. They live with us at home and create a home where to live, allow us to construct our identities and participate in society. As we spend time with objects, they embed in our everyday, melt in our routines and disappear, becoming hard to perceive and evaluate. It is only when an object breaks that it asserts itself as 'thing', as a material and social entity with relational and performative qualities that can collaboratively transform the experience of home.

Through design work that combines phenomenological approaches to more-than-human experience and new materialist perspectives on the entities at work in a phenomenon, my proposal aims to formulate a thing-based conceptual and methodological tool for the identification and consolidation of the personal experience of inhabiting, so it can be celebrated and shared.

Extended abstract

"As from when does somewhere become truly yours? Is it when you've put your three pairs of socks to soak in a pink plastic bowl? Is it when you've heated up your spaghetti over a Campingaz? Is it when you've used up all the non-matching hangers in the cupboard? Is it when you've drawing-pinned to the wall an old postcard showing Carpaccio's Dream of St. Ursula? Is it when you've experienced there the throes of anticipation, or the exaltations of passion, or the torments of a toothache? Is it when you've hung suitable curtains up on the windows, and put up the wallpaper, and sanded the parquet flooring?"

—Georges Perec, Species of Spaces, 1974.

When does a house becomes home? Perec does not have the answer, but whether it is through occupation, use, ritualisation, identification, experience or personalisation that a space becomes one's own, what he is sure of is that human engagement with space depends on the relations with the things that are there. (Perec 2001).

We live among, together and through things. They live with us at home, and create a home in and from where to live (Bachelard 1983). The everyday mediation of our objects allows us to construct our identities and to participate in society. They are not merely value holders or functional devices; they are crucial entities for understanding social practices, which requires "*the intrusive investigation of the particular and diverse ways in which this intimate relationship is being developed*" (Miller 2001, pp. 1 – 23). Reflecting on our things gives us the chance to reflect on our lives. The material culture within personal space is reckoned as both problem and solution: daily habits reproduce prejudices and social conventions, but they are also an opportunity for revolution and transformation (Highmore 2010, pp. 226 – 228).

As we spend time with objects, they embed in our every day, melt in our routines and disappear, becoming hard to perceive and evaluate. "*As*

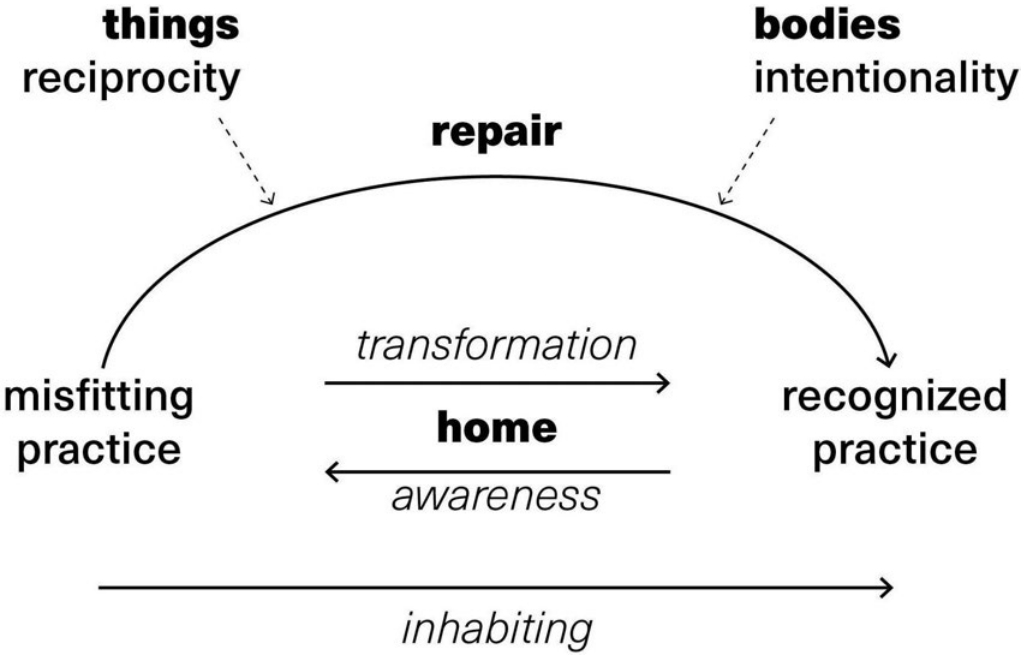


Figure 1: Diagram of the tool. Marta Fernández Guardado (based on Fig. 1.2 in Boccagni, Paolo. "Migration and the Search for Home: Mapping Domestic Space in Migrants' Everyday Lives." New York: Palgrave Macmillan US, 2017.)

they circulate through our lives, we look through objects, but we only catch a glimpse of things" (Brown 2004, p. 4). It is only when an object breaks that it asserts itself as 'thing', referring to a particular subject-object relation rather than to a particular object (what it does rather than what it is), manifesting its 'thingness' as material and social entity that can be approached through its relational and performative qualities.

The closer our things are to us, the more we shape them, while being shaped by them (Bachelard 1983, Miller 2001, Brown 2004, Latour 2007). Things are neither what we think they are, nor are they fully autonomous. They exist in constantly shifting networks of relationships with other not-only-human materials, defining social situations together. This means that things have the agency to "*authorize, allow, afford, encourage, permit, suggest, influence, block, render possible, forbid and so on*" (Latour 2007, p. 72); they invite affordances but also compel. Therefore, "*if design is a form of making things, it is also a means for shaping agency*" (Atzmon and Boradkar 2014) – and at home, for shaping lives.

My thesis begins with a historical study of western domesticity, that reveals the vital role of objects, not only in the specification and production of domestic space, but also in the invention and perpetuation of socioeconomic models beyond it, and moreover, in the manifestation, critique and transformation of these from personal space. Over time, different meanings of objects appear, helping us to understand the precise ways in which the reception, accommodation and use of things produce home: ritual, identity, memory, family, comfort, status, order, function, style, transgression, satisfaction, saturation... and the return to ritual in times of (post)pandemic.



Figure 2: Defne, Christoph and Ela. Project by Pretty Something (Marta Fernández Guardado and Diogo Passarinho). Photos by Philipp Jester.



Figure 3: Matthias. Project and photos by Marta Fernández Guardado.

My proposal arises as a counter-action to the current tendency towards sameness, shortage and detachment from domestic space of the social individual, in a time when it starts to become clear that there are fewer reasons to build, and more reasons to make better use and enjoyment of what we have. I therefore seek to adapt and transform existing dwellings by working with the relationships, scale and arrangement of things, in order to activate social processes of engagement with space and avoid static solutions. My goal is not to redefine standards but to develop individual solutions, which will surely relate to others, not by generalisation but from the acknowledgment of a diversity of identities and ways of living.

From a phenomenological perspective (which defines the relationship of the body we inhabit with other bodies and things as defining and transforming the experience of home) and following new material and topological approaches (ANT, Thing Theory, Sociology of Space… – supposedly at odds with the first one – focused on the relationships between more-than-humans and their agencies), I aim to formulate a thing-based conceptual and methodological design-tool for the identification and consolidation of the personal experience of inhabiting through the development of 'domestic repairs.'

I define 'repair' as an arrangement, mending or reconstruction, understood in relation to the concept of 'affair', related to an inappropriate affection and intimate relation between coinhabiting entities. For me, a 'domestic repair' is a design intervention that, albeit with breakages, manages (with few resources and standard components) to accommodate a current need or desire in a non-ideal but successful way, alluding to the specific dispositions and abilities of the entities involved, and at the same time, making the particular need or desire clearly manifest, so it can be celebrated and shared with others that enter the relation.

The notion of 'domestic repair' is built up through my experience as inhabitant and architect, studying and reflecting on history, theory, methods and practice, along with a series of design cases in which I work on specific domestic scenarios. There, I document misfitting people-things interactions, and I translate them into design interventions that produce a 'repair' [1]: the rearrangement of a material and social setting that recognizes, supports and communicates a previously-misfitting set of events and practices to create home.

The first design case "Defne, Christopher and Ela" explores the object and its agency. It is a furniture piece that translates an animated family life into an object-based material setting that redefines the familiar social situation [2].

The second design case "Matthias" investigates the substance, making and becoming of a thing, defining the notion of 'domestic repair.' It is a spatial intervention that follows the direct observation of an old oven being used as improvised storage and transforms it into a shelving skin. It embraces the observed human behaviour while underlining the inherent logic of the original shelf, strengthening their mutual engagement [3] [4].

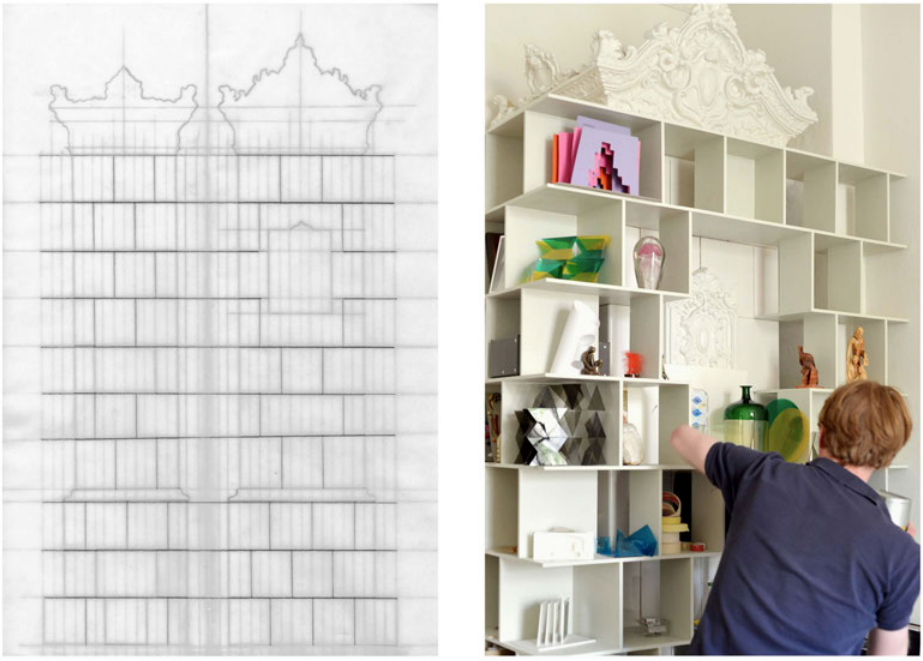


Figure 4: Matthias. Project, drawings and photos by Marta Fernández Guardado.



Figure 5: Marta. Project and drawings by Marta Fernández Guardado.

The third design case “Marta” provides the necessary tools for accessing networks of thing-body relations. It is an apartment renovation based on the exploration of the territory of my bed-room. Through the use of line-drawing as a relational medial practice, I trace the sequences of associations of the social-material network where I am immersed, and design a new assemblage that reconstitutes it. I study the relations of the bed to other things and spaces, and re-position it at the very entrance of the flat, enhancing their collaboration in order to produce a new home [5] [6].

The fourth design case “Lorza” delves into the material structures of experience by capturing and transforming the intimate ways we relate to objects. It is a spatial installation that connects worn-out domestic textiles with personal memories, in order to investigate the universal notion of one’s home as a space for thing-body intimacy and care in a phenomenological way [7] [8].

The fifth design case “Inga and Petri” establishes a method for rearranging thing-body relations into ‘domestic repairs’ and their evaluation. It is an apartment renovation based on the documentation of the shared-parenting routines of a father and his child. The entry wardrobe is transformed into a kid’s room that works as a performative spatial device for conciliating wants and responsibilities among family members with very different needs for independence and care [9] [10].

The design, execution, comparison and evaluation of these five cases structure my learnings and enable the formulation of the sought-after tool, which aims to open a relational research path into the contribution of the material world of objects to the personal experience of inhabiting through thing-based production of personal space.

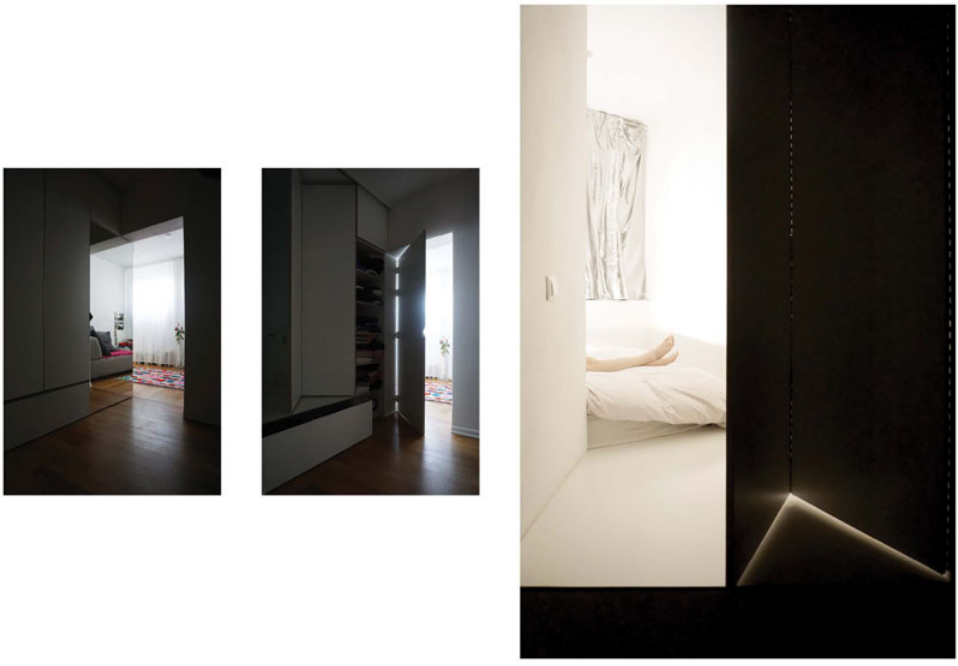


Figure 6: Marta. Project and photos by Marta Fernández Guardado.





Figure 7: Lorza. Project by Marta Fernández Guardado and Matthias Ballestrem. Photos by Marta Fernández Guardado.





Figure 8: Lorza. Project by Marta Fernández Guardado and Matthias Ballestrem. Photos by Søren Svendsen.



Figure 9: Inga and Petri. Project and drawings by Marta Fernández Guardado (drawing on the left based on Inga's drawing).



Figure 10: Inga and Petri. Project and photos by Marta Fernández Guardado.



QUOTES
Image 2020-05-12 at 17:19
Inga loves to hang out here next to my studio. She really likes to sit between doors and the possibility of being on her own at the same time that she is hanging around in the same space as me.
**Talk 2020-06-07 at 00:48:39*
What I really like from our old apartment is what we did with the doors. The living room was open, and the kitchen was inside in a corner, and we connected it to Inga's bedroom with a small door. She was always sitting and playing there. She likes to have her privacy, but not all the time. Sometimes she closes the door a little bit more, sometimes a little bit less. She can be between rooms and connected. The door is a social space in a way. (...) She can spread from one room to another because the space at the door is always free. Anyways I don't use the space at the door, and I can walk over her without bothering each other.
CONCEPTS
Adult-free space, connectedness-separation, in-between.
CODES
Door thresholds and annexed areas are adult-free areas that can be temporarily appropriate.
Doors allow the regulation of connectedness and separation, articulating domestic space and family time with others beyond.

QUOTES
Image 2020-05-20 at 11:15
She likes to hide and play with windows and doors. This is an image from yesterday when she started exploring the inbuilt closets in the new house.
**Talk 2020-05-19 at 00:39:13*
She would like that a lot. Now I feel almost sorry to take the wardrobe of the bedroom out. We were playing in the apartment and she put me inside and she said: 'you have to be here now, I go to the other one, and you come and visit me'. She said the bedroom is my place and that spot is hers. She loves to hide in those if she knows that I will pass by sooner or later and take something from there. The entrance wardrobe is perfect for that.
CONCEPTS
Occupied space, appropriation, connectedness-separation.
CODES
Wardrobes and cupboards are kid-size big objects and small spaces that can be recognized and appropriated (even if occupied by other's belongings), providing privacy but assuring eventual contact, especially if they are connected to circulation areas.

QUOTES
Image 2020-05-21 at 11:53
Here is a house Inga built today using the washing machine door and bathroom door as flexible walls. I was invited to have coffee at hers.
**Image 2020-06-07 at 17:40*
The kinder garden in our block is really fun. It actually reminds me to her washing-machine house.
**Talk 2020-05-27 at 01:06:51*
I feel that what is very important for her is that she feels that she has a space that is hers. It can be quite compact. I don't want that she is hiding in her room and doing everything there, I think it is good that there is interaction in between us, that most of the things happen together but she still has a safe corner where she can go. She does not need a lot, but some kind of corner under or inside, and the rest can be more open, and more generic. That is what she does when she plays; she creates corners here and there.
CONCEPTS
Temporal left-over, appropriation, skills.
CODES
Doors and other swinging elements can define temporal spaces as adult-size left-overs and potential kid-size hubs.
Holes and openings of different sizes at different heights provide different levels of connectedness, trigger the imagination and the use of the body in different ways, and help to develop new creative and physical skills in relation to space.

QUOTES
Image 2020-06-25 at 12:27
Inga says that she wants a door so she can hide in here"
**Image 2020-05-10 at 11:07*
Everything is quite random because when i moved to Oslo i had to quickly buy stuff second hand. She has a bed that is quite similar at her mother's, but actually much higher so there is space for her to stand under. I think she prefers to sleep up, once she said that the monsters will never get so high up there, but on the floor they can enter the bed.
**Talk 2020-06-07 at 01:08:03*
What we have now is really improvised. There is little space under, the space is a bit too low and she can't really be standing there anymore. There is a thin mattress and we read there every evening. We go there together and I am also laying there and I read to her. I have to lay down because there is no comfortable way to sit, it is too small, but it is still very nice. I hope it continues happening; hopefully we will read together for many more years.
CONCEPTS
Horizontal layering, continuity, safety.
CODES
Bunk structures define two stories that connect differently to the space where they are placed: the space underneath can expand and provide independence while ensuring care and togetherness (ideal for an active state); the space on top can contract and provide protection while ensuring view and safety (ideal for a passive state).

QUOTES
Image 2020-06-10 at 10:20
Inga's understanding of space!
**Talk 2020-05-07 at 01:00:30*
Also, when we are in the living room, we are mostly doing things together –I mean with each other. Even if she is playing in the carpet and I am reading, we are there with each other, in the same space. How can she feel that we are still together when we are actually not with each other?
CONCEPTS
Place-making, horizontal layering, togetherness.
CODES
Carpets, seat and tables define different horizontal layers of space that relate each other, overlapping time but not space.
Textiles and superficial treatments can be directly transferred to help to navigate in a new context.



QUOTES
Image 2020-08-19 at 22:24
And there is the window before painting it:
**Image 2020-05-09 at 15:02*
I went to the apartment today and made some measurements and this is how it looks. Inga helped me to measure, especially those that required climbing.
**Talk 2020-06-07 at 01:10:35*
Inga loves to climb up and sit there, to look through the window and also at the room from up there.
CONCEPTS
Horizontal layering, view, quietness.
CODES
Windowsills create lifted counters and seats with a privileged view towards the room and the outside, inviting quietness.

QUOTES
Image 2020-06-21 at 11:54
This is the second place at her room where she plays more often.
Image 2020-05-10 at 11:14
She likes to play on the blue bench and pretend that she is cooking and preparing stuff.
**Talk 2020-05-07 at 01:09:15*
She now has an old low bench where she puts things and plays as if it would be a kitchen.
**Talk 2020-05-23 at 00:27:00*
I think that having a step under the bed can be nice as a playing room. When she plays, she uses a step or a bench as a kitchen, and sometimes as a kiosk where she sells me stuff.
CONCEPTS
Multipurpose space, double orientation, negotiation.
CODES
Adult-size steps and seats (naturally empty) are kid-size counters and tables (naturally occupied), multiplying their possibilities of use, while demanding a more flexible understanding of tidiness.

QUOTES
Image 2020-07-17 at 19:42
This is now.
**Talk 2020-05-27 at 01:09:15*
My chair can work as her table, a place where she can do things.
**Talk 2020-05-19 at 01:52:04.*
This is actually a very nice corner. The living room is quite big, but it is not huge. It is a nice place to sit, read and hang out. It would be a pity to lose it. I wonder how could we do something there that she feels is for her and that I can also use comfortably.
**Talk 2020-05-23 at 20:47*
Maybe another option would be to place my bedroom in the living room and Inga in the big bedroom. Then there is no need for making it hers... But it is crazy to put Inga alone in the big bedroom, and when she is not there, again, it would be empty.
CONCEPTS
Multipurpose space, territories, negotiation.
CODES
Adult-size objects and spaces can potentially be used differently, but as long as they have been clearly made for adults, they will be only temporarily appropriated, and vice-versa about kids' Combining elements for different generations creates ambiguous settings. Adding a different generation element to a setting activates processes of negotiation.

QUOTES
Image 2020-07-05 at 17:42
Inga made her house all by herself. She says she wants a facade like this for her house."
**Talk 2020-06-19 at 00:21:34*
It will somehow look like a tiny building. It makes me think about her models of her house. She needs to recognize her house. We have to think about the openings, balancing soundproof and airflow.
**Talk 2020-07-04 at 01:19:18*
Her room now is yellow, and her carpet has some yellow too. For her it is a kind of symbolic thing. Normally when I ask her to choose a color, she usually chooses rose, but in this case she wants yellow. I think it is for safety because she knows she goes to a new place but if she keeps the yellow there will be something familiar, not everything will be completely new, exactly the same way as her carpet will still mark her territory.
CONCEPTS
Representation, composition, materiality.
CODES
Models and samples explore the composition and materiality of the house as an object on its most basic level, as a tangible, perceptible entity, subservient to the subject's emotional and physical needs.

QUOTES
Image 2020-08-19 at 22:24
Prototyping the room!
**Talk 2020-08-18 at 00:31:39*
In order to fall asleep, Inga needs quietness and half-light, but neither complete silence nor darkness. Every night I go with her to bed and scratch her back until she falls asleep. She still does not fall asleep alone, and if she wakes up completely isolated, she freaks out. It would be great if I can do that and after, sit in the living room and do something else without waking her up, but she still can feel that I'm around if she wakes up. I don't know what that means, but she needs both.
CONCEPTS
Experience, atmosphere, affection, connectedness-separation.
CODES
Prototypes with ordinary objects further the development of a relation with the new object through lived memories and experiences, slowly desensitizing the separation of the object-subject relation towards a thing-body relation, and accelerating processes of 'homing'.



QUOTES
Image 2020-08-28 at 22:24
The beams.
**Image 2020-08-28 at 17:50*
Inga's reaction when she saw the structure.
**Talk 2020-07-04 at 01:18:20*
By the way, we already went to the construction site and I explained Inga how her room will be, and she was very excited. She was making coffee for me in the structure downstairs and I was cooking in the kitchen, and then she said: 'now you have to make coffee for me and I make food for you'. The connection between her space and the kitchen is very nice and direct. I also explained her how to go up and that she will get two rooms instead of one!
CONCEPTS
Experience, appropriation, understanding.
CODES
The first encounter with the spatial structure complicates the previous object-subject division, but once inside, the feeling of distrust vanishes. Its ability to provide a unique experience dispels the need for full objectual understanding, which would be required in the case of clearer types.

QUOTES
Image 2020-09-11 at 21:42
Inga cleaned her house today and I was not allowed to help.
**Talk 2020-09-02 at 00:16*
We are already living here in the middle of the construction site. It is a huge mess, but luckily Inga enjoys it. The structure is ready and the carpenter starts covering it tomorrow morning. She is already hanging around there all the time, even when he is working.
CONCEPTS
Exploration, care, maintenance.
CODES
The involvement in the construction process contributes to a conscious appreciation of the qualities of the design.

QUOTES
Image 2020-09-10 at 17:46
Inga is actively using her room.
**Talk 2020-09-21 at 00:43:02*
Before she was sleeping with me in my bed, but as soon as her box was ready, she wanted to move there, even before the platform was built and all the tools were still around. She instantly made it hers, opening and closing the doors and deciding when and how could I access or not. They offer her a lot of possibilities that she now explores giving a lot of different imperatives. (...) The first time she entered the room, she closed all the doors and prohibited me to enter. After a while, she ordered me to do it, sit down and switch off the light. After that, it has been a little bit back and forth.
CONCEPTS
Possibilities, self-expression, exploration.
CODES
Flexible partitions and multiple circulations aids the active intended adaptation of the design according to particular temporal and social needs.

QUOTES
Image 2020-09-17 at 17:47
She uses the platform as the backyard of her house in a way.
**Talk 2020-09-21 at*
I think she still likes the color, but I am too careful to ask. I am afraid that if I ask now, she will say she would say she wants more rose. I actually bought a pair of rose sheets for the mattress underneath the platform. For me to use it I have to pull it out, rotate it and lift it, but she just has to lift the platform hatch and she can enter and hide there, like the inside wardrobe or behind the washing machine.
CONCEPTS
Identification, in-between, adult-free space.
CODES
The readable transfer of documented qualities from previous settings maintains old routines while transforming them.

QUOTES
Image 2020-09-09 at 17:09
**Talk 2020-09-21 at*
She is growing up fast, but also I have the feeling that in the old apartment her room was too isolated. It was a dark backyard, and the shadows were a bit scary. Sometimes she woke up and wanted to come with me, but now I feel she is more in control.
CONCEPTS
View, quietness, safety.
CODES
The contrast of the dark niche with the bright room underlines and strengthens the relation while asserting the choice of location.



QUOTES
Image 2020-09-21 at 11:59
Someone is chilling.
**Talk 2020-09-21 at*
She enters the apartment and her carpet is already here so her room is already here. She does not have to cross other taller spaces, so they stay tidy. The epoxy floor is very durable and easy to clean, and resists all her plays, but if she is calmer, she goes inside, to the platform, or to rest upstairs.
CONCEPTS
Address, adjacent spaces, atmospheres.
CODES
The fluid limits of the room, starting in the entrance and penetrating in a gradient of decreasing intensity, require the will to explore the sequence of spaces.

QUOTES
Image 2020-10-14 at 14:23
Sunday games.
**Image 2020-10-08 at 15:41*
Sun hitting the floor and reflecting into the kitchen.
**Talk 2020-09-21 at*
For me it is really nice. I can see all through and the view from the kitchen is really nice. The height of the bed cuts a little bit the window, but I still can see a lot. And now that the platform is here, she can also look outside without needing me to lift her up; the other windows are too height but in this one she has another relation with the outside. (...) She can climb or use it as a sort of table. For me it is also possible to sit and look to her doing things in the platform. The platform is perfect because this is the sunniest spot of the apartment.
CONCEPTS
Continuity, view, prospects, backdrops.
CODES
The articulations of the different fragments in a continuous sequence act as social mediator.

QUOTES
Image 2020-10-13 at 19:03
Inga cleaned her house today and I was not allowed to help.
**Talk 2020-09-21 at*
Quite often I am cooking and she is here and we are totally connected with all open. She is sitting on the floor or on the platform making puzzles or reading. Other times she closes the door towards me and keeps it open to other side, but mostly we have it quite open. Towards the evening, maybe because of the feeling of the sunset light, she likes to close the doors and be here by her own. (...) It is suddenly nice that both mattresses are here, one up and one down. There are so many different constellations that is also possible to let her play it out and decide how she wants to use them. It is not yet fixed.
CONCEPTS
Possibilities, self-expression, design-expression.
CODES
The design is not a blank room for any possible scenario but a specific artifact with several specific possibilities from which to choose.

QUOTES
Image 2020-09-16 at 17:49
My home studio. There is a beautiful light in this spot.
**Talk 2020-09-21 at*
I have been working mostly here in the platform. It is sunny and cozy. I have been switching between kitchen and here. If I want to read and concentrate, this is the best place to be. Now it is really hitting this point, until 19:00 or so. And I don't know if you ever saw, but I have neighbors quite close, and if you sit in the middle of the living room, they see you, but not if you sit here.
CONCEPTS
Extension, negotiation, other's appropriation.
CODES
The fading sequence of overlapping horizontal spaces with specific qualities boosts the emergence of secondary user's new routines.

QUOTES
Image 2020-10-03 at 22:42
Home cinema in the new room.
**Talk 2020-09-21 at*
This platform works really well for laying around with pillows, but it is really intimate in a way. It is perfect to lay down and watch a movie for example. It works with people you really know well, but not for a regular visit. I hope the sliding door works as a separation and it helps to keep the living room tidy. If there is a mess, I can close it and I don't have to deal with it, but if I want, I can clean it and use the platform as living room.
CONCEPTS
Other's appropriation, new routines.
CODES
The support of secondary users' life eases their engagement with the design.

Figure 11: Project and photos by Marta Fernández Guardado.



Figure 12: Project and photos by Marta Fernández Guardado.

Literature

Perec, Georges (2001): Especies de espacios (Species of Spaces), Barcelona: Montesinos.

Bachelard, Gaston (1983): La Poética del Espacio (The Poetics of Space), México: Fondo de Cultura Económica.

Miller, Daniel (Ed.) (2001): Home possessions: Material Culture Behind Closed Doors, Oxford: Berg.

Highmore, Ben (2010): Ordinary Lives. Studies in the Everyday, New York: Routledge.

Brown, Bill (2004): »Thing Theory«, in: Brown, Bill (Ed.) Things, Chicago: The University of Chicago Press.

Latour, Bruno (2007): Reassembling the Social: An Introduction to Actor-Network-Theory, New York: Oxford University Press Inc.

Atzmon, Leslie /Boradkar, Prasad (2014): »A Design Encounter with Thing Theory«, in: Design and Culture, volume 2, issue 6, pp. 141–152.

Reflexive Palimpsest Designing Curatorship of Post-war Modernism Architecture

Adrian Fuhrich, HCU Hamburg

Initial doctoral stage

Supervisor: Paolo Fusi, HCU Hamburg

reflexive design, post-war modernism, spatial ressources

Abstract

Eight theses of a ‘reflexive palimpsest’ are the beginning of a more profound reflection on the further development of the post-war modern architecture as a nowadays increasingly disappearing but still existing heritage. Probably more than other layers of building culture, this period has become a stony manifestation of a discourse that can be described as unfinished. In this sense, post-war modernism, in its discontinuity as a process, forms a fertile breeding ground for research about permanence and transiency of space and its reinterpretation in a present of recurring social upheavals.

Furthermore, its theoretical debate is nowadays well known and described but our generation as young architects are challenging with a premotion of a strongly required protection but also a need of transformation into a polyvalent future. A design driven research shall apply the architectural tools as a curation of permanent and impermanent spaces and structures.

DDR statement

The mentioned demands for a greater reflection on the universal project of post-war modernism have been set out and are well known in the theoretical context and debate. But for the transformation into the public discourse there is often a lack of visions and images that oppose the established preconceptions and thought patterns. One aim of this work is to give new images to the dialogue between the architectures of post-war modernism and the visions of resilient architectural systems and spaces, which preserves the existing buildings and their conceptual content and character but transforms them into a future. To this end, the work is divided into phases. After a general reflection about the post-war modernism as a project and process there will be an investigation of office and administrative buildings of large cities in Germany and the West European context. A systematical and polythematical survey of three selected exemplary study cases will be the foundation for the following design process.

The design phase is divided into different stages and tools which simulates different scenarios of usage, adoption and transformation. In that consequence every study case generates different building designs for the same structure. This simultaneity has the objective of an overlapping summarizing final model which includes different layers of programmatic, structure, space, layers of time and its engravings, appropriation and its perception.

8 theses on the reflexive palimpsest

1 The reflexive palimpsest is an inherent part of our constructed world and thus of our socio-cultural narrative.

2 The reflexive palimpsest is both the inside as well as the outside of the architecture and polysemantic therein. It explores spaces, constructions, inherent levels of appropriation as well as its traces of use and engravings.

3 The reflexive palimpsest values neither a zeitgeist nor the building material resource, but develops from the conceptual content of the space.

4 The architect of the reflexive palimpsest is a design curator and not a conservator.

5 The architecture of the reflexive palimpsest is always polyfunctional and is not bound to a building type, but is founded on the conceptual content and its experiential potential.

6 The reflexive palimpsest contains and explores both the permanent, and the fluid of architectural space

7 The architecture of the reflexive palimpsest is not committed to the actual state, but to the space of possibility between permanence and transformation.

8 The architecture of the reflexive palimpsest is an analysis and experiment at the same time, thereby overcoming thought patterns, restrictions and attributions.

The post-war modernism as medium

"by giving priority to what is unloved, disastrous or unfinished"[1]
Anne Lacaton & Jean Philippe Vassal, 2015

The above statement of intent formulated by Pritzker Prize winners Anne Lacaton and Jean-Philipp Vassal seems to be still relevant today in times of increasing political demands for more regulatory climate and resource protection. Recent events such as the Corona pandemic have also proven to have had a direct impact on the very heart of our city: they have accelerated the influence of digitalization on our work and the place of consumption has shifted to digital space. The Western European urban center, and thus its artefacts, are moving in an increasing field of tension from a rising polyvalent pressure to change. Due to their often prominent context in the city center, office and administrative buildings from the post-war modern era are particularly important as architectures that shape the cityscape. If they are not placed under protection as monuments, they are often poorly accepted as 'anonymous' witnesses of reconstruction and as functionalist, technical images of a 'second destruction'.[2] [3] [4] [5] In addition, the deliberate aesthetic and spatial architectural language of the time with its generic and transitory spatial concepts, is supposedly at odds with current design views of an evolved, condensed urban landscape and an individualized social will to express.

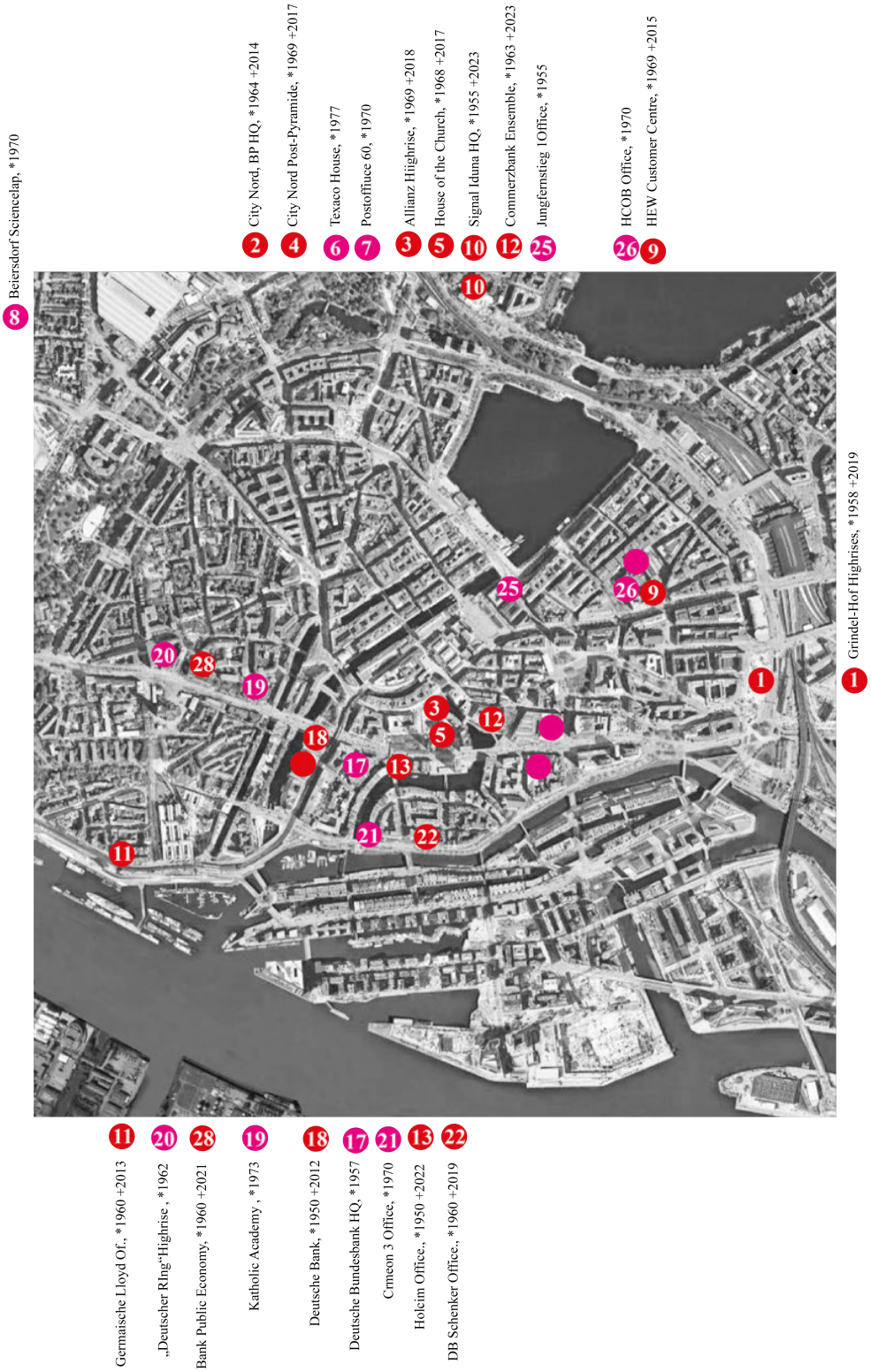


Figure 1: Post-war architectures in Hamburg – destroyed and in danger.

Technical deficiencies of the existing buildings, as well as the enormous pressure to exploit inner-city properties, have subsequently led to the advanced demolition or reshaping of these contemporary witnesses. In her 2018 research paper "*Der Glaube an das Grosse in der Architektur der Moderne*" (The Belief in the Great in Modernist Architecture), author Sonja Hnilica called for there to be a new reflection on the legacy of large-scale structures away from demolition, in the sense of a rediscovery of their universal qualities.[6] The sociologist Jürgen Habermas appropriately described post-war modernism as an 'unfinished project.'[7]

According to Ulrich Beck, a rediscovery could lead to a 'self-transformation' and 'detachment' of the first modernity into a second, in that its contours and principles must be discovered and shaped.[8] The current transformation of our world of work, as well as where and how we live and consume in the future, offers an expanded space for discourse that goes beyond typological attributes and encompasses the universal qualities of spaces, thereby freeing itself from aesthetic taste prejudices – and thus renegotiating its permanence as a value [1].

Reflexive (polysemantic) palimpsest

The Finnish architect Juhani Pallasmaa named the emerging palimpsest of building-period levels and 'layers of appropriation' as a "*slowing down of reality (...) to create a background of experience for grasping and understanding change*".[9] Furthermore, the Berlin architect Thomas Burlon saw the dilemma of form-finding solved in the continuation to build, since this enabled a 'complex pragmatism'[10] without a will to form. According to this, it is possible to go beyond the Venice Charter and the classical task of monument preservation and to understand that there is a new chance for longevity of architectural systems in the sense of a curatorial continuation of building as a polysemantic palimpsest, in which all those acting preserve their own signature, but act in interplay with the existing structure.

If the architect sees themselves as a creator of future transformations, appropriations and thus generations, the new building becomes only the first stage of transformation and the preservation of an original state the exception. On the first level, the architect becomes a reflexive curator who decides on the permanence or transience of the existing structure [11]. Here, its individual components are not given the same continuity. The system can be supplemented, elements questioned or reprogrammed, and a distinction made between permanent and fluid parts.[12] Consciously, there must be a greater show of understanding the spatial concepts of the time beyond purely structural-physical parameters – independent of the conservation of monuments. In the second level, a structural and constructive analysis of the architecture as well as of the materials found and their history, increasingly becomes – in the sense of the word – again the craftsmanship understanding of the design process. For this, experimentation serves as a means of fiction as well as research, which can be described here as 'reflexive design.' The choice of tools is then generated from the potentials or constraints of the existing space

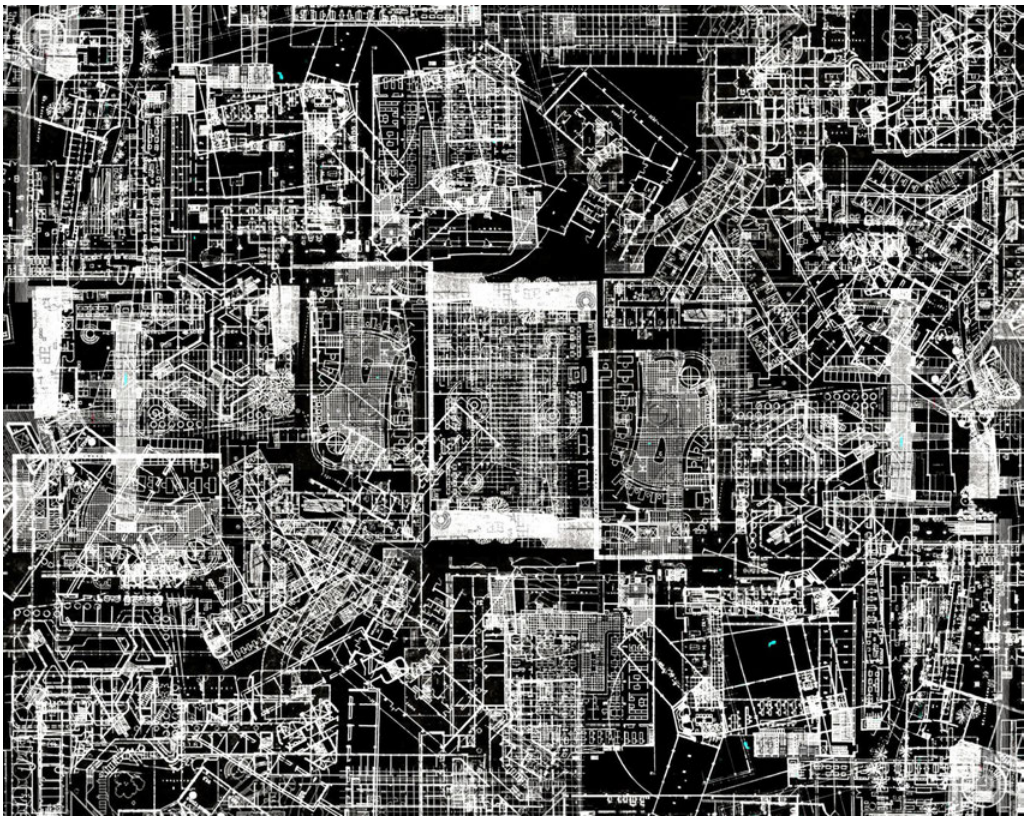


Figure 2: The urban palimpsest.

and these must be used to question current standards, thus also becoming a laboratory of typological border crossings. Such an explorative approach thus also requires an examination of existing building law standards – such as regulated distances between buildings, fire protection or building physics – in order to be able to evaluate them more stringently under the premise of increased resource conservation.

The public judgement on preservation or demolition, value or building sin, potential space or 'non-place' is shaped by images and visions offered to society. Although the current practice of architectural competitions shows that the discourse on preservation and appreciation of the existing seems to be changing – also due to the demands for more climate and resource protection – the existing often remains an 'evil' to be accepted or is 'over-formed' in terms of design, as mentioned above. In Hamburg alone, office architecture from the post-war modern era from 1945 to 1975 is spread throughout the city center and will be available for change in the short to medium term. Each of these has space resources of 3,500 to over 25,000 square meters of gross floor area.[13] If this potential is not used, but demolished, future generations will ask us why we did not use the opportunity of a dialogue with the planners of the 'hated' architectural heritage to find a consensus that would allow each built contemporary structure to retain its place in the diversity of the urban world. [2]

3 phases of the DDR

phase 1 – In the first phase an analytically reflexive foundation will be formed in which the chosen medium of post-war modernism as a project as well as its protagonists will be presented and thus the generic, transitory spatial concepts examined. In addition, the first analysis of development lines will be compared with a second analysis of the realized spatial and construction concepts of the post-war buildings. This comparison is intended to bring the original spatial ideas into line with the realized spatial structures in order to uncover consistencies as well as inconsistencies in the existing structures. This will be complemented by a discourse analysis of the current urban building type "*Space without Typology*" and an investigation entitled "*The Search for the Permanence of Space*", which will conclude the theoretical part.

phase 2 – In the second phase, the proposed reflexive palimpsest will be prepared. For this purpose, three exemplary existing buildings will be selected and arranged. The basis in each case is a basic investigation of the history, structural development, development of use within the urban context, as well as an analysis of the construction materials and a survey of the building structures.

phase 3 – This will be followed by the working phase of the design process. Here, several drafts will be created for each study object.
In each case, different scenarios based on varying spatial programs and thus predicted future usage models will lead to different spatial requirements that could be implemented within the existing structure. The tools that will be used here are sketches, floor plans and sections in various

scales, 3D models, physical models, and in particular perspective sketches and collages. The next step will be to superimpose one's own ‘parallel’ designs. This will allow dissonances and contradictions of the scenarios, but also parallels and recurring structures and patterns to be recognized and evaluated. Consequently, the scenarios can be adapted again and thus brought into an initial context. On the basis of the previous scenarios, a final polyfunctional and polysemantic ‘generation-model’ or ‘appropriation-model’ will be created. The resulting final designs for the three study objects will be further elaborated and constructively deepened. The medium will again be drawings in the scale 1:500 up to 1:20, physical models and, in particular, visualizations and perspective collages. [3]

1 Blakely, Shantel/Prosky, Benjamin (2015): »The incidents – freedom of use« Lacaton, Anne/Vassal, Jean-Philippe (Eds.), The incidents – freedom of use Cambridge: Harvard University Graduate School of Design, Sternberg Press, p. 13.

2 Baus, Ursula/von Buttlar, Adrian/Fiertheuer/Franz-Gisbertz, Olaf/Jacobs,Bernd/Kuhn, Gerd, Scheuermann, Ingrid (2014): Wüstenrot Stiftung. Zukunft derVergangenheit. Die Erneuerung von Gebäuden der Baujahre 1954 bis 1979. Stuttgart, Zürich: Karl Krämer Verlag, p. 28.

3 Durth, Werner (1986): »Deutsche Architekten, Biografische Verflechtungen 1900-1970«, in: Zürich (2001), Karl Krämer Verlag Stuttgart, pp. 9–21.

4 Gisbertz, Olaf (2012): »Nachkriegsmoderne Kontrovers, Positionen derGegenwart«, in: Berlin, Jovis Verlag GmbH, pp. 30–76.

5 Reicher, Christa/Tietz, Jürgen/Utku, Jasemin (2017): »Big Beautiful Buildings,Die Nachkriegsmoderne im europäischen Diskurs«, Dortmund: Verlag Kettler, pp. 7–85.

6 Hnilica, Sonja (2018): Der Glaube an das Große in der Architektur derModerne: Großstrukturen der 1960er und 1970er Jahre. Zürich: Park Books, p. 233.

7 Hillmann, Roman (2011): Die erste Nachkriegsmoderne, Ästhetik undWahrnehmung der westdeutschen Architektur 1945-63. Berlin: Michael Imhof Verlag, p. 56.

8 Beck, Ulrich/Giddens, Anthony/Lash, Scott (2019): »Reflexive Modernisierung,Eine Kontroverse«, in: Frankfurt am Main: Suhrkamp Taschenbuch Verlag, p. 27.

9 Meyhofer, Dirk (2005): »Bauen für die Ewigkeit«, in: Brandeins Wirtschaftsmagazin issue 03/05, Hamburg: brand eins Verlag GmbH & Co oHG, p. 83.

10 Rellensmann, Luise (2016): »Weiterbauen. Denkmalschutz ohneDenkmalpfleger«, in: Baunetzwoche issue 439 Berlin, Baunetz Media GmbH, p. 17.

11 Bahner, Olaf/Böttger, Matthias/Holzberg, Laura (2021): »Sorge um den Bestand«, in: Zehn Strategien für die Architektur, Berlin: Jovis Verlag, p. 63.

Designing Preservation Integrating the Architectural Project to UNESCO Tools to Tackle Territorial Fragility: the Tivoli Case as a Pilot Experience

Sara Ghirardini, Politecnico di Milano



Intermediate doctoral stage

Supervisors: Pier Federico Caliari, Politecnico di Torino; Francesca Lanz, Northumbria University

UNESCO buffer zones, heritage territoriality, heritage design

Abstract

The research investigates the potential contribution of a design-based approach to the current institutional UNESCO safeguard tools concerning the relation core/territory, challenging the conservative role of *buffer zones* that lead to stalemate situations in terms of territorial development, especially in the Italian context. Through the analysis of case studies, a methodological approach is developed that focuses on the one hand on the use of design tools for the assessment of heritage-related territories (*cognitive framework*), and on the other hand on the use of design actions in the management strategies for valorisation (*interpretation framework*). These tools are tested on the relevant experimental case of Tivoli, seat of two major World Heritage sites, as a pilot experience of integration of design tools in safeguard and management strategies for the solution of territorial fragility in complex heritage-related contexts.

DDR statement

A research based on the cultural heritage debate is naturally committed to the idea of interdisciplinarity: not only in the traditional archaeology/architecture confrontation, but in the wider possible extents, from philosophy and human sciences to economics and technology. But, as architects, we should not forget that architecture is fundamentally design-based, and therefore a doctoral research in architecture should always deal with the practice of design. Even in the most academic works, the role of design is to interlace the tangible and intangible aspects of space. Design are the actions through which we understand, analyse, interpret and think space, and in this research they are crucial both in terms of topic and methodology.

Starting from the consideration that heritage-related territorial fragility is fundamentally due to the lack of care, of use, of transformation, the centrality of the idea of architecture as a practice of spatial care makes design experiences the main object of investigation.

At the same time, the relation between heritage and its surroundings concerns deeply the spatial relations involved, which can be better investigated and transformed through design tools, both analytical and projectual. Different tools are used for different research sections: in the *cognitive framework* the design analysis is interlaced with the direct experience of places, reporting it through graphic and visual elaborations (photo assembling, mapping, sketching); in the *interpretation framework* design tools are used in a proactive way, at different scales and detail, in continuity with the design practice but at the same time re-organising general research contents.

The research aims at bringing a contribution to the international debate on the relationship between cultural heritage and territoriality,[1] exploring the potential of design tools for helping tackle the challenges related to issues of territorial fragility in UNESCO *buffer zones,* namely the areas surrounding a UNESCO designated heritage, with specific concern on the Italian situation, starting from a given opportunity of deepening personal knowledge, as national policies are currently stressing cultural heritage valorisation for the economic recovery of the country.

In the last twenty-five years, the debate on the topic has been developing mainly under the influence of, on one hand, an academic critical approach to heritage values, which has shifted the attention from the static idea of heritage as material artifacts that testify a past, to a more complex vision of heritage as a 'cultural practice',[2] and on the other hand, the institutional response to these arguments, developed mainly by UNESCO and other international organisations. This resulted on the ground in a widening of the heritage vision from the spotlight on single monuments, including territorial perspectives and immaterial connections in management strategies.[3]

Within this framework, that has resulted in an increasing formal inclusion of territorial dynamics in heritage practices,[4] the research critically explores the role of the main tools implemented by UNESCO for the management of the relation between heritage *core* and its surroundings.

In particular it draws on the consideration that the more recent institution of *management plan* (compulsory for any WHL site since 2004), theoretically fostering the inclusion of local dynamics and actors in valorisation policies, is dramatically conflictual with the older institution of *buffer zone*, which defines a passive respect area aimed at excluding external threats for the preservation of heritage integrity. While management plans are object of a wide institutional literature, the role of buffer zones has never been accurately defined,[5] and even though their conception has significantly changed over the years in the nomination dossiers, in practice they are little more than areas marked on a map, with an overlapping of limitations that often lead to territorial stalemate.

Moreover, none of these tools, though involving different disciplines and expertise, consider design and architectural transformations in the development of strategic interconnections between heritage sites and their surroundings. The inefficacy of UNESCO safeguard tools, reflected in local policies through a rigid mechanism of constraints, often affects the physical state of heritage-related places, resulting in conditions of marginalisation, lack of spatial care, isolation of heritage sites.

The focus of the research is on the Italian situation, not only for the prominent number of sites inscribed in the World Heritage List, but also for the importance given to cultural heritage valorisation for national recovery and development policies: in 2006 a specific law was promoted (L77/2006), establishing annual funds for safeguard and valorisation of UNESCO enlisted sites, with specific concern for the drafting and implementation of management plans. The results of the first ten years since the promulgation of that law have been reported in the publication "*White Paper L.n.77/2006*", which emphasises a growing need of

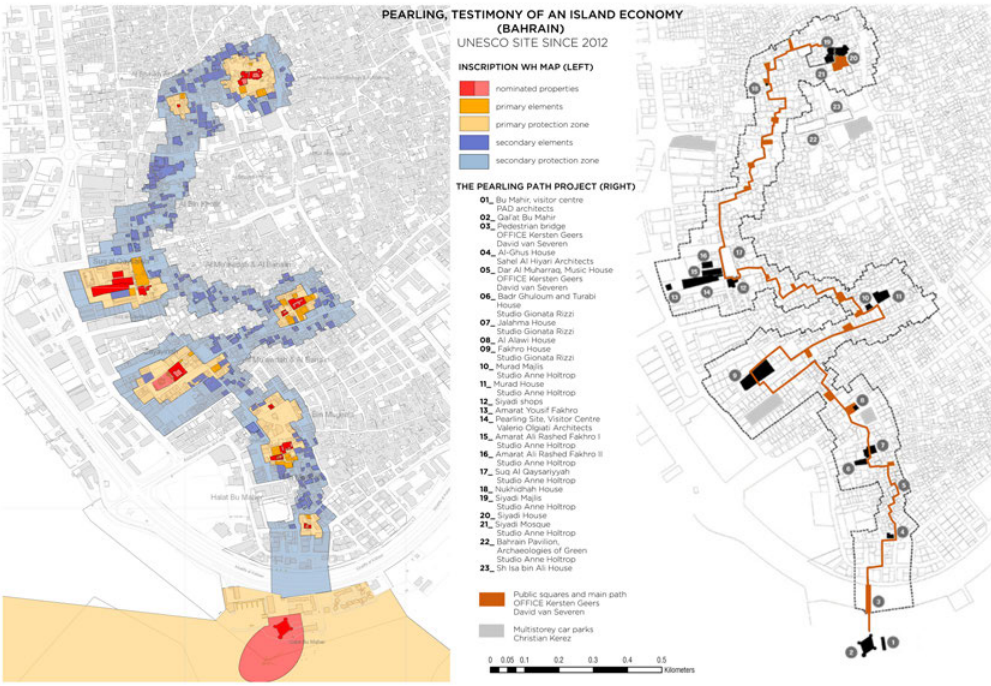


Figure 1: The pearling path, Bahrain. Visual synthesis of the case study. Graphic elaboration by the author based on official UNESCO documents and on the map from: Bernhard Schultz "Valerio Olgiati in Bahrain", Domus 1042, jan 2020

territorial reconnection, but without any contribution of architectural systemic design. Conversely, architecture can be a key factor to investigate and lead the territorial management related to human activities, given its disciplinary attitude for space transformation.

The general research goal is therefore to define the potential role of design in the solution of the dichotomy between abstract strategic planning and heritage territorial reality, identifying architecture as the main practice of spatial care. Design has been chosen as the interpretation key for an architectural investigation on the spatiality of territorial relations between heritage and its surroundings.

The idea of "architecture as therapy of the space",[6] far from the demiurgic connotation of designers as almighty healers, is related to the recognition of the ethic role of the project in the transformation of the space we live in, and to the relational and social aspects of every modification of the environment. Thus, the focus on the design process as architectural tool for guiding territorial transformation is not a self-referred practice: the interconnection with social and economic disciplines is fundamental to understand the local dynamics and specific needs.

Though criticizing the current role of UNESCO safeguard tools, the research aims at working at the problem from the inside, focusing on a main question: which design tools can be integrated to existing UNESCO management and preservation processes? And how can they contribute to the solution of the territorial heritage-related stalemate?

Due to the extremely different conditions of every heritage site, it wouldn't be realistic to look for universal answers, and the search for

general, top-down solutions for the heritage management, even in the limited national context, has already been proven inefficient.[7] Especially when it comes to architecture and planning, there are no solution that start from the universal to get to the particular; there is always a specific case, which as such must be analyzed, and which will then produce an optimal solution for that case, and perhaps procedures that can also be generalized to others.[8]

This consideration leads to the development of a research methodology based on the assessment of specific experiences, extrapolating relevant features from a wide range of case studies and then experimenting a scientifically structured design strategy on a practical case. Therefore, after the literature review necessary to frame the topic in its different aspects, a selection of two sets of international reference case studies is investigated, and an "experimental lab" case has been chosen to test the implementation of previously identified design actions.

The first set of references, called "methodological case studies", searches for successful design examples – or, better, *traces of design* – within the official implemented UNESCO safeguard tools of *buffer zones* and *management plans*. These, help defining the structure and the sequence of design integration elements: the *cognitive framework* (analysing the territorial features of the site through the architectural lens in order to establish effective criteria and characters of the buffer zone) and the *interpretation framework* (defining a multi-scale set of spatial actions aimed at integrating general strategies with an effective controlled territorial transformation). [1]

The second set of references, called "design case studies", investigates experiences in which architecture acts in transforming the surroundings of heritage sites in order to create new opportunities and significance, independently from their inscription to the WHL.

Tivoli, the case selected as "experimental lab" is particularly relevant in the Italian framework for several aspects. The municipality hosts two UNESCO enlisted sites, Villa Adriana and Villa d'Este, and a third one in the tentative list, Villa Gregoriana, which attract hundreds of thousand visitors every year, but in a quick tourism dynamic that ignores their territorial context [2] [3]. The ministerial Istituto Autonomo di Villa Adriana e Villa d'Este unifies the two UNESCO sites under the same management institution, that has been working on the development of a wider cultural system, including other nearby historical sites with promotional and marketing actions. Each of the two sites, inscribed separately in the WHL in 1999 and 2001 respectively, has its own buffer zone, defined with unclear criteria, that lies in a frozen state of non-care, while neither of them has a real management plan yet. Currently, a conjoint management plan is finally being drafted; it will involve the context of the two major sites through the proposal of a conjoint buffer zone system. In 2018, an international scientific design consultation promoted by a non-profit academic organisation explored the possibilities and limits of the development processes in Villa Adriana buffer zone through design actions, fostering a new debate on the role of architecture in these areas.



Figure 2: Villa Adriana, *core zone* vs *buffer zone*. Ph. Federica Pisacane, Sara Ghirardini



Figure 3: Villa d'Este, *core zone* vs *buffer zone*. Ph. Agnese Perrone, Sara Ghirardini

All these factors contribute to define the Tivoli case as the ideal experimental field for the introduction of architectural multi-scale actions within the already existing UNESCO system: the specific goal of this research section is actually the experimentation of design-oriented tools integrated with the UNESCO management structure, in order to foster heritage valorisation through positive planned territorial transformation.

Informed by the previous research sections, the "experimental lab" is split into two phases, derived from the previously analysed methodological case studies, that are subsequent and with specific outputs each.

The *cognitive framework*, intended as an architectural investigation on territorial features, integrates existing documentation and official risk assessment with the direct experience of places: it is based on the *promenadology* theories by sociologist L. Burckhardt,[9] with the aim of highlighting the human-scale, slow-paced aspects of the relation between heritage and its context, through photographic report of surveys, mapping and sketching. The holistic experience is completed by an investigation on the morphology and topography of the area, but also on the features that define its historic, landscape and architectural value, as well as

social and economic identity. This research phase had the specific goal of (re)defining the buffer zone(s) for Villa Adriana and Villa d'Este, with explicit criteria related to the awareness of places and territorial scopes for transformation/preservation. However, the practical experience brought out the inadequacy of the official and traditional buffer zone implementation, highlighting the necessity of a new heritage-related territorial scope definition that acts as a preliminary step for the valorisation design strategy. [4]

The *interpretation framework* specific output is a design-oriented annex to the new management plan, structuring a concrete process for the controlled territorial development and heritage valorisation coordinated with the strategic social, cultural and preservation policies of the main official document. Preserving the territorial vitality as well as the heritage values, the multi-scale project starts from a general masterplan of the whole buffer area, underlining some main reconnective design actions and defining some punctual architectural intervention of primary and secondary enhancement. The definition of a hierarchy of interventions is essential, both in space and time: they are meant to act as guidelines and trigger for further spontaneous transformations, so the interpretation framework must have a good degree of flexibility and possibility of adaptation to subsequent developments. The project takes on a narrative role, it aims at "revealing another text layer", using an expression borrowed from the *landscape restoration* theories.[10]

The connection with the strategic goals identified institutionally in the management plan and derived from the territorial knowledge at different levels, allows the development of an innovative tool for the integration of landscape and architectural transformation in heritage preservation policies, aiming at a mutual exchange and support between heritage and territory.

The last research section will deal with the assessment of the Tivoli experience, with particular attention on the transferability of the results and the potential application of the design approach on analogous cases, even in an international context. As already argued, the specificity of each place, both in terms of heritage values and territoriality, makes it difficult to define general rules for the management and interpretation of the *core-surrounding* interconnection. Acknowledging this, UNESCO tried to avoid in official documents specific indications for the definition of buffer zones and management plans; this produced a great uncertainty and vagueness in the implementation of these safeguard tools. On the other hand, some State Parties (such as Italy) have tried to establish more standard guidelines for the drafting of management plans, creating a bureaucratic entanglement that scatters funds and resources without reaching tangible, long-term results. Learning from the criticalities of too general or top-down, standardized solutions, the research aims at extrapolating from a relevant specific case a pilot design experience developed in collaboration the management system, as a further step towards a flexible methodology that could be adapted efficiently to other similar cases.

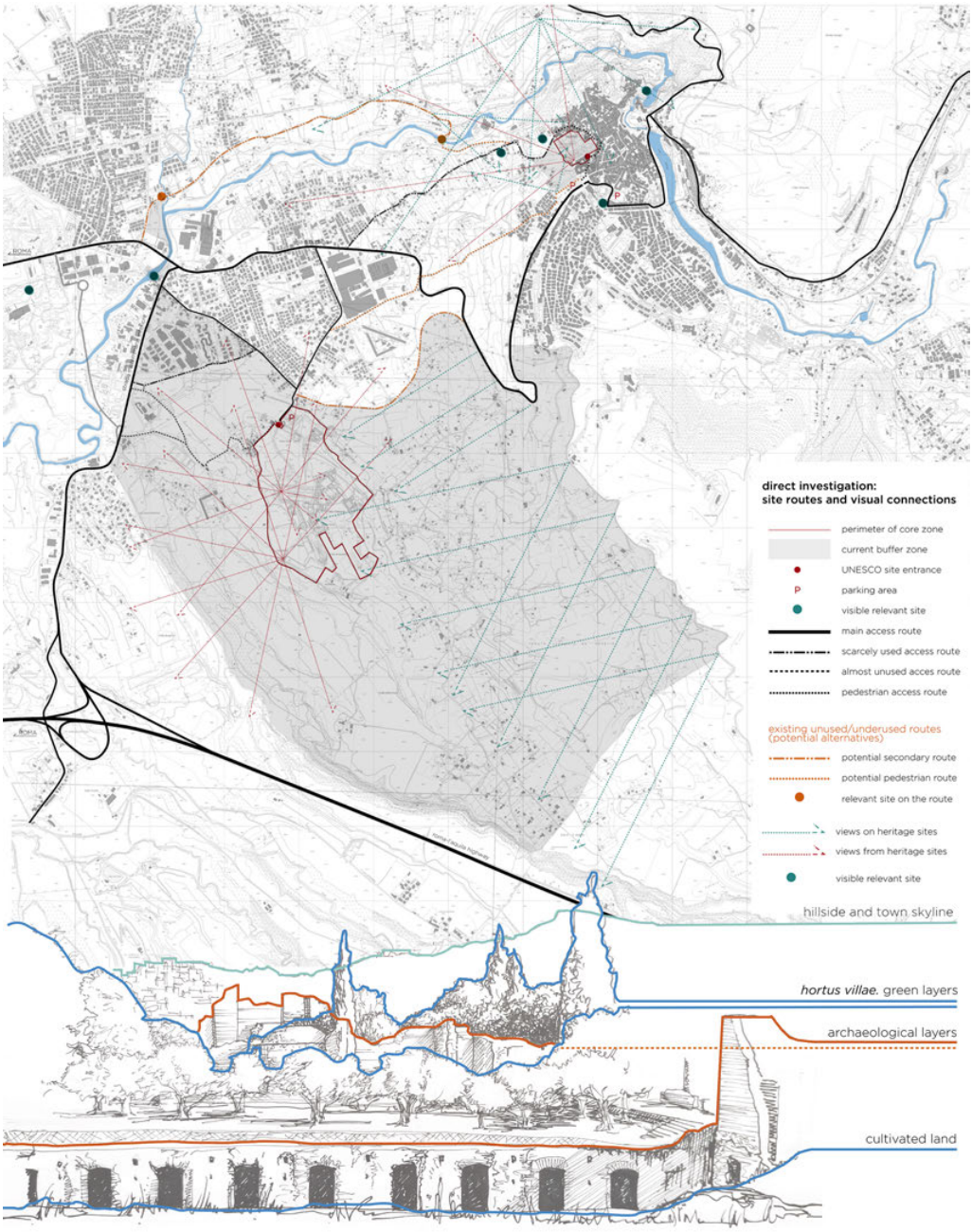


Figure 4: Tivoli experimental lab / cognitive framework: mapping and sketching some results of the direct survey.

1 The term “territoriality” is here intended in both its meanings, according to the Collins English Dictionary: 1. the state or rank of being a territory; 2. the behaviour shown byan animal when establishing and defending its territory.

2 See the works of Smith, Laurajane (2006): Uses of Heritage. London: Routledge; or Labadi, Sophia (2013): UNESCO, cultural heritage and outstanding universal value: value-based analyses of the World Heritage and Untangible Cultural Heritage Conventions. London: Alta Mira Press.

3 The topic is widely discussed in UNESCO manuals, conferences and papers, such as: UNESCO (2013): Managing Cultural World Heritage. Paris; Martin, Oliver and Giovanna Piatti (ed.) (2009): World Heritage and Buffer Zones. Paris: UNESCO World Heritage Centre.

4 De La Torre, Marta (2005): Heritage Values in Site Management: Four case studies. Los Angeles: Getty Conservation Institute.

5 In the current Operational Guidelines for the Implementation of the World Heritage Convention, unchanged on the topic since 2005, a buffer zone is defined as “an area surrounding the nominated property which has complementary legal and/or customary restrictions placed on its use and development to give an added layer of protection to the property. This should include the immediate setting of the nominated property, important views and other areas or attributes that are functionally important as a support to the property and its protection.” (art. 104)

6 Emery, Nicola, (2007): Progettare, costruire, curare. Bellinzona: Edizioni Casagrande.

7 AA.VV. (2018), Legge n.77/2006 Libro Bianco. Soveria Mannelli, Italy: MiBACT, Rubbettino editore.

8 Calabrese, Omar (1988): »Renzo Piano. Pompei, progetto per la città deltesoro«, in: Umberto, Eco/Augusto, Graziani/Piano, Renzo/Federico, Zeri (Eds.), Le isole del tesoro. Proposte per la riscoperta e la gestione delle Risorse Culturali. Milano: Electa, p. 109

9 Burckardt, Lucius, (2019): Il falso è l'autentico. Politica, paesaggio, design,architettura, pianificazione, pedagogia. Macerata: Quodlibet.

10 Purini, Franco, (1991): »Un paese senza paesaggio«, in: Casabella, 575–576, Milan: Electa, pp. 40–47.

Towards a Non-neoliberal Design Paradigm ISHINOMAKI 2.0 – a Network of Grassroots Community Building

Anastasia Gkoliomyti, University of Athens



Initial doctoral stage

Supervisor: Yoshiharu Tsukamoto, Tokyo Institute of Technology

#

care, architecture, Japan

Abstract

The research focuses on community-driven guerilla interventions following the Triple Disaster or 3.11 to generate a new conceptual framework for design to include repair. The first part of the research criticizes the neoliberal project's limited scope and failure to include a bigger picture of worldly processes. The second part of the research explores architectural practices that took place in Ishinomaki, a city in the Tohoku region of Japan that suffered a massive blow following the disaster, namely: 1. Ishinomaki IRORI, 2. Ishinomaki Bookshelf, and 3. Recovery Bar. The methodology of the research consists of interviews, literature review as well as ethnographic and visual observations to support the analysis. The research concludes that disaster can become an opportunity for "non-neoliberal projects" to emerge where the direction of institutions is led by design-based research and not vice versa.

DDR statement

The projects are selected for their focus on maintenance and repair and are articulated to establish a design methodology of repair, while reframing disaster as an opportunity for new non-neoliberal networks to emerge. This research is attempting to elucidate architecture's broader design response-abilities that supersede the architectural object and can encompass ways in which architects can orchestrate design in a Harawayian "sympoietic care" ethos. It is informed by the case of ISHINOMAKI 2.0, the grassroots movement that emerged directly following the disaster of 2011 and its activity in three different projects, namely: 1. Ishinomaki IRORI, 2. Ishinomaki Bookshelf, and 3. Recovery Bar. The methodology of the research consists of interviews, literature review as well as ethnographic and visual observations to support the analysis followed in the future by community network drawings made by the author. Through this selection of projects, the scope of design can be seen to be expanding further than material considerations into community-led practices.

Paper

Introduction

The research focuses on community-driven guerilla interventions and architectural responses to the disaster that occurred in Japan following the Great East Japan Earthquake in the Tohoku region, otherwise known as the Triple Disaster or 3.11. The purpose of this approach is to generate new theories and frameworks for conceptualizing and representing design, its scope and to instigate a direction for educational reform that begins to separate from neoliberal market prerogatives. The first part of the research formulates a critique of the neoliberal project, commenting on previous design's limited scope and failure to include a bigger picture of worldly processes that do not only entail growth and value engineering, but also worldly broken-ness.[1] The second part of the research explores architectural practices that took place in Ishinomaki, a city in the

Tohoku region of Japan that suffered a massive blow in the triple disaster.

Methodologically, the research follows Joan Tronto,[2] and Maria Puig de la Bellacasa's[3] call to pivot from Latourian matters of concern[4] to matters of care, giving foreground stage to the largely overlooked dimension of community-led repair as a distinct mode of commoning and a way of designing a new operating framework in the urban realm. In 2017, Professor of Geography at Memorial University Josh Lebowski, associate Professors Max Liboiron, Arn Keeling and Professor of Anthropology at the University of Calgary, Charles Mather started deliberating on the potential notion of a spatial consideration of repair, using the term 'Repairscapes'.[5] Positioning maintenance and repair into the design thinking realm after being directly inspired by Steven J. Jackson's "*Rethinking Repair*",[6] they draw the extension of Jackson's statement from STS into geography and spatial anthropology.[7] Building on that gesture, the research is pondering on design implications for repair.

The projects are selected for their focus on maintenance and repair and are articulated to establish a design methodology of repair, while reframing disaster as an opportunity for new non-neoliberal networks to emerge. These, can be networks of production of architecture, community networks and relations between the city and the countryside. By commenting on such occurrences this research is attempting to elucidate architecture's broader design response-abilities that supersede the architectural object and can encompass ways in which architects can orchestrate design in a Harawayian 'sympoietic care'[8] ethos.[9] It is informed by the case of ISHINOMAKI 2.0, the grassroots movement that emerged directly following the disaster of 2011 and its activity in three different projects, namely: 1. Ishinomaki IRORI, 2. Ishinomaki Bookshelf, and 3. Recovery Bar. The methodology of the research consists of interviews, literature review as well as ethnographic and visual observations to support the analysis.

Part A. Reevaluating the Architectural Project: Post-disaster community design in Japan

Design practices' inherent forward-looking has been chronically sidetracked in the 20th century, diminishing speculation within architectural design thinking.[10] As architectural researcher Ana Jeinić posits, from socio-material pressures that arose following the criticism of the Fordist model to the unsustainability of carbon driven industries, speculation skepticism kept growing as dystopian visions in the 1960s and 70s became prominent, bringing stagnancy in architectural imagination. That trend kept intensifying with the neoliberal turn that led to design thinking catering to market-oriented reforms.

Design studios that ought to be the space where speculative ideas about contemporary urban issues could be explored, ended up "giving free-market ideology a physical form".[11] That is what Jeinić describes as the

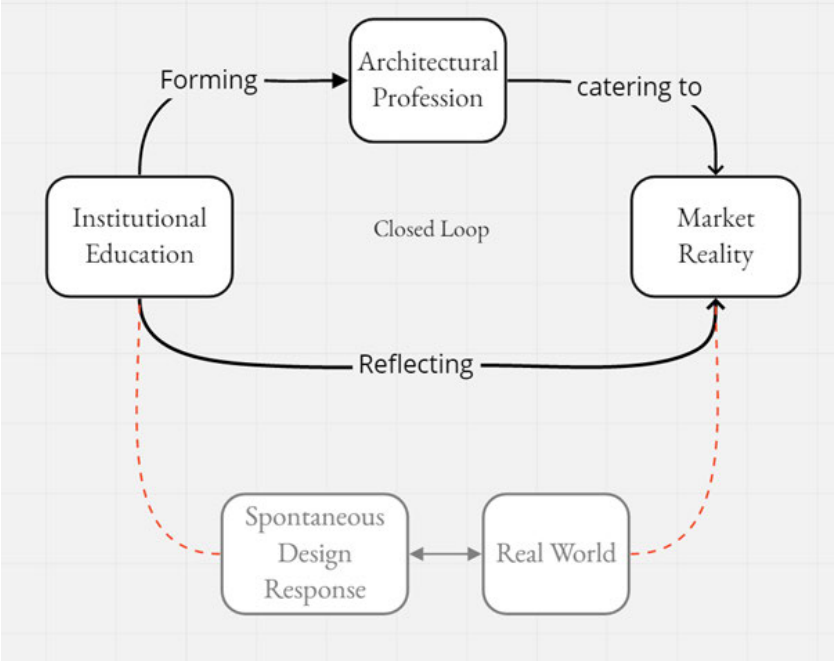


Figure 1: Professional, Institutional and Design Dis-entanglement with the Real World

"neoliberal project". Some aspects of neo-liberal design include value engineering through contract limitations, standardization protocols, public-private partnerships all of which make business the most important factor in construction – this is where the design outcome's fate is out of the hands of architects. All the above have led to what Daniel Davis calls professional 'disintermediation.'[12]

It seems that architecture primarily sits in the realm of abstraction. There is rarely a moment of impact with the real world, and that is the malaise of the neoliberal architectural project. Most of the current stakeholders within the profession and academia assume that the industry is strong enough to be led from within, not identifying the external forces that have made architectural decision-making irrelevant. In this context, architectural education's paradigm is outdated as long as it keeps perpetuating typical patronage relationships of architect and client, rather than exploring the organic formation of design responses to 'real-world needs.' [1]

Following series upon series of natural and man-made disasters that the 21st century has witnessed, the ongoing global pandemic has made clear the 'fragility of forms of life against others,' the rigidity of our systems, the crashing of our markets, and the failure of architecture to be relevant in the reordering of our world. The question now is, how to 're-entangle' architectural design? When existing structures collapse following disaster, design itself is establishing a new structure to operate within it. Design as real-world response is always in a process of organically re-inventing itself to cater to the needs of the world. New knowledge is produced about the world through the act of designing and captured in a timely fashion by design-based research. Disaster can become an opportunity for 'non-neoliberal projects' to emerge where the direction of institutions is led by design-based research and not vice versa.



2



3



4

Figure 2: July 2012 - Ishinomaki Book Aid - One Box Used Book Market Event (courtesy of Kuniyoshi Katsu – Katsu Studio)

Figure 3: Community Building with local organizations and residents during a building workshop event (courtesy of Kuniyoshi Katsu – Katsu Studio)

Figure 4: Community Building with local organizations and residents during a building workshop event (courtesy of Kuniyoshi Katsu – Katsu Studio)

Part B. Towards a Non-neoliberal design paradigm: ISHINOMAKI 2.0 – a network for grassroots community building

I. Ishinomaki Bookshelf

ISHINOMAKI2.0 is a general incorporated association based in the city center of Ishinomaki, having as its mission statement to transform the town to 'the most interesting town on earth' (Personal communication with Katsu Kuniyoshi, January 2022). Following the disaster, the organizing members of ISHINOMAKI 2.0 together with Ippokoten Hon Sentai, an organization that has been delivering books to book lovers in the affected areas collaborated to create "*Ishinomaki Machi no Hondana*" a joint project to provide a community book-reading space. The project started in July 2012 in which there were events to collect books from people who had nowhere to store them anymore, as their houses had been destroyed, or from people that were not severely affected and wanted to volunteer their belongings for the sake of those worse off.

For two days "*Ishinomaki Book Aid — One Box Used Book Market*" and "*play bookstore*" were two events where individuals would bring a cardboard box of books. [2] At the closing symposium of those two events, an idea was born to set up a 'community space with books' in the city center. In July 2013, and with the support of "*Hope & Home*", a reconstruction support project by eight housing magazines, a self-building workshop led by Satoru Hatakeyama and a plastering workshop led by Shuhei Hasado were held, and the project was completed with the participation of staff, local residents, and people from outside the prefecture [2] [3]. The Ishinomaki Town Bookshelf is now open every Saturday, Sunday, and Monday. It is a space where anyone can browse freely and borrow books to read at home. The library has a collection of approximately 2,000 books, including used books as well as new books available for purchase.

II. IRORI (Interaction Room Of Revitalization and Innovation)

Established in December 2011, IRORI Ishinomaki was transformed and renovated by the local community from a garage damaged by the tsunami [5] to an open shared office. [6] [10] In 2016, IRORI underwent further refurbishment and a large scale face-lift to become a multi-purpose cultural facility with a coffee stand and a working space. From a classroom to a movie theatre, to a social laboratory, IRORI can be used for a wide range of purposes. It is a flat and timeless platform for people of different walks of life, from within or from outside, to gather, connect and inspire each other. IRORI serves as the town's lobby, playing an active role in networking the local community with visitors, and a symbol of community volunteering after the tragedy of 2011.



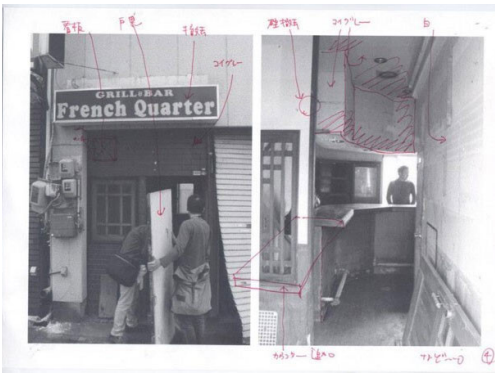
5



6



7



8



9

Figure 5: Garage damaged by the Earthquake and Tsunami (courtesy Kuniyoshi Katsu, Katsu Studio)

Figure 6: Design of IRORI (courtesy Kuniyoshi Katsu, Katsu Studio)

Figure 7: Destroyed Dining Bar, Ishinomaki, March 2011 (courtesy Kuniyoshi Katsu, Katsu Studio)

Figure 8: Sketch on the train from Tokyo to Ishinomaki – Keiji Ashizawa (Source: https://colocal.jp/topics/lifestyle/renovation/20160720_77733.html)

Figure 9: Community DIY – Recovery Bar, Ishinomaki (courtesy Kuniyoshi Katsu, Katsu Studio)

III. Recovery Bar

A previously operating dining bar ended up suffering damages, being flooded to the ceiling. [7] In a matter of 3 days following the disaster the space was renovated with the cooperation of "*Ishinomaki Laboratory*" to create a new space for both local and foreign volunteers to gather to exchange information. The walls are covered with pictures of the master's thoughts and feelings, creating a unique place for exchange. The bar characteristically operates on a 'one-day owner system' where anyone can become a shopkeeper, and it is also used as a place for PR. It has become a one-of-a-kind place where customers from all over the world come to meet the charming daily masters who have various backgrounds. The Ishinomaki area has connected with many people through various opportunities, including the Recovery Bar. Sketches completed on the train on the way from Tokyo to Ishinomaki were used by local volunteers [8] and designers from far and wide used impact drivers and paint to complete the work. With the attitude of using everything that could be used at that time, even screws from washed-up road signs the bar was completed in a spirit of solidarity [9] and turned on its light in an otherwise destroyed dark street.

Conclusion

Part of understanding how the world breaks down comes from understanding how the world is connected. On-going, budding speculation has as its counterpart broken-world thinking, bringing with it the corresponding design research for such a world. In this context, repair is emerging as a necessary design thinking skill. By focusing on architectural responses to disaster in Japan, following the Tohoku Triple Disaster of 3.11, design thinking that departs from real worldliness and brokenness was explored to show design's extended response-ability towards mutual assistance and solidarity. Through repair practices, communities can reinvent, appropriate, and create urban commons by stitching together previously broken private and / or public resources, creating porous spaces that take on the effort to reimagine the city that has been destroyed.[13] The creation of unauthorized paths through the volunteer activities of relief[14] in the Tohoku area challenged established notions of design and revealed the limitations of design thinking to include all aspects of the world we live in, and particularly the processes in which the world breaks down and is stitched back together.

As a result of the above positioning, the research pointed to an expansion of the architect's agency in our broken world to bring forth an extension of 'scope of design' to include 'repair design' for 'worldly ongoingness.'[15] Citizen-led repair initiatives in Ishinomaki that collectively created new relationships ephemerally or permanently in the urban realm re-established the configuration of existing production, consumption, and discarding networks differently than previously instructed by the neoliberal model. As existing neoliberal approaches do not put emphasis on potential disastrous events, when such occurrences take place there exists an opportunity for alternative networks to emerge to fill up the



Figure 10: IRORI (courtesy Kuniyoshi Katsu, Katsu Studio)

gaps of the neoliberal model. These alternative networks can be argued to be operating in a 'sympoietic care' spirit as seen in Tohoku's guerilla initiatives.

1 Cephas, Jay/Marjanovic, Igor/Miljacki, Ana (2022): Pedagogies for a Broken World, JAE Online, http://www.jaeonline.org/pages/pedagogies-broken-world#/page2/ from March 14, 2022. "For broken-world theorists such as Steven J. Jackson, Shannon Mattern, and Achille Mbembe, breakdowns reveal the real limits and fragility of the world. Such bold and raw recognition of the fragility of and prospects for the world—firmly situated within a specific historical moment—is fundamental for the necessary adjustment, reframing, and fixing of it. Indeed, seeing the world for what it is enables recasting our characterization of it: from "broken" into "unfinished," from narratives of progress to tactics of resistance and care. Architecture serves as not just the stage for such breakdowns but, at times, as the very means through which social ideals and their challenges are constructed and disseminated."

2 Joan Tronto, (1993): Moral Boundaries: A Political Argument for an Ethic of Care. New York: Routledge.

3 Marí a Puig de la Bellacasa, (2017): Matters of Care: Speculative Ethics in More than Human Worlds, Posthumani. Minneapolis: London University of Minnesota Press.

4 Latour, Bruno (2004): »Why Has Critique Run out of Steam? From Matters of Fact to Matters of Concern« in: Critical Inquiry volume 30, issue 2, p. 225. https://doi.org/10.2307/1344358.

5 Lepawsky, Josh/Liboiron, Max/Keeling, Max (2017): »Repair-Scapes 56« in: Continent – R3PAIR VOLUME, issue 6.1, p. 56–61.

6 Jackson, Steven (2014): »Rethinking Repair«, in: Media Technologies (MIT Press), pp.221–39.

7 Mattern, Shannon (2018): »Maintenance and Care«, in: Places Journal, issue 2018, pp. 1–31.

8 Haraway, Donna J. (2016): Staying with the Trouble: Making Kin in the Chthulucene, Experimental Futures. Durham: Duke University Press. p. 37.

9 Gkoliomyti, Anastasia /Tsukamoto, Yoshiharu (2021): »Post-Disaster Memoryscapes: Architectural Mediums as Practices of Care« in: Ardeth – Burn-out, issue 8, pp. 77–91.

10 Mitrovic, Ivica/Auger, James (2019): Ana Jeinic: The tendency to read the potential of 'salvation' into disaster is questionable in many respects. Speculative Edu, https://speculativeedu.eu/interview-ana-jeinic/

11 Hatherley, Owen (2017): The Architectural of Neoliberalism by Douglas Spencer review – privatising the world. The Guardian, https://www.theguardian.com /books/2017/jan/12/the-architecture-of-neoliberalism-douglas-spencer-review

12 Davis, Daniel (2019): What 'The Future of Professions' reveals about the Future of Architecture. Daniel Davis, https://www.danieldavis.com/future-of-the-professions/

13 Franco Berardi, (2020): »Beyond the Breakdown: Three Meditations on a Possible Aftermath« in: E-Flux Conversations, pp. 1–5.

14 Petrossiants, Andreas (2001): »The Art of Mutual Aid« in: Net Worth, pp. 159–96.

15 Haraway, Donna J. (2016): »Introduction«, in: Staying with the Trouble: Making Kin in the Chthulucene, Durham: Duke University Press.

Caracas, Departure City Ethnography of Caretaking

Stefan Gzyl, TU Delft



Initial doctoral stage

Supervisors: Marc Schoonderbeek, TU Delft; Aleksandar Staničić, TU Delft

departure city, emigration, architectural ethnography

Abstract

The deterioration of living conditions in Venezuela has triggered a migratory crisis of unprecedented proportions. More than 20% of Venezuelans have fled the country since 2014. While the refugee crisis and the emergent diaspora have been the focus of aid and research, the local impact of emigration remains largely unexplored. Locally, emigration manifests itself as an ever-growing and distinct vacancy. This vacancy is managed through relational, interdependent, and dynamic practices of caretaking that transform spaces and social life, implicating local actors in migration processes.

The research project examines caretaking in its reproductive and creative role with regards to belonging, citizenship, and the city in a context of departure. As emerging practices create new architectural and urban conditions, space becomes a vehicle for observing cultural transformations, economies, forms of solidarity, and activism that connect migrant and non-migrant actors in novel ways.

DDR statement

Design is not a straight line from A to B. Following Nelson Goodman, one can compare design to hunting. As such, what counts is "not the kill but what is learned from the territory explored."[1] Herein lies a possibility for design-driven research. My research aims to conceptualize Caracas as a unique instance of departure city. It will observe, gather, and document how caretakers' practices transform vacant spaces, resulting in new sites for social life, economic opportunities, forms of solidarity, and implicating locals in migration dynamics. Initially, the project will cover a broad territory, immerse, explore, meander, retrace its steps, focused on moving through, not arriving at. It will chart a course and constantly revise it through findings, reflecting on local experiences of departure through architectural ethnography and expanding on the tools used to describe them. Later, it will catalog these findings into an assemblage composed of multiple and contrasting parts. Understanding design as both a process of choosing and an act of synthesis that can approximate disparate elements, the project hopes to preserve the open, fluid, and manifold readings of what is essentially a shifting, uncertain reality.

Questions I hope to address are: Shifting the focus from product to process, what does the research produce along the way and what is the knowledge contained there? How have others approached this question? How can drawings, photographs, plans or maps come together to produce knowledge about the world? If design can make creative leaps, how to ensure these don't result in knowledge gaps or 'leaps of faith'?

1 Goodman, Nelson (1978): Ways of Worldmaking. Indianapolis: Hackett Publishing.

Abstract

As a result of a complex crisis, more than six million Venezuelan citizens have left the country since 2014. Presently, 20% of the population is abroad. The scale and speed of this exodus has drastically changed living conditions within the country, resulting in an ever-growing and distinct vacancy. The management of vacancy by local actors has set in motion new practices of caretaking that revolve around the preservation of patrimonies left behind.

This paper aims to sketch out the context and framework of the research project and share preliminary findings on instances of vacancy and its management by local actors, framing them within the aim of the research project: to document caretakers' role in reshaping the built environment of the city. As caretaking produces new architectural and urban conditions, space becomes a vehicle for observing emergent economies, social practices, forms of solidarity, and activism that interconnect migrant and non-migrant actors. The central issues the paper wishes to address – in the form of questions at this early and fluid research stage – are methodological: What is the best way to document everyday actions of caretakers, the resulting spatial transformations of these actions, and their implication in migratory dynamics? Can design-driven research open new possibilities for understanding fieldwork as an act of design, shifting the focus from the product to the process as a source of knowledge?

Introduction and research framework

Since 2014 Venezuela has been immersed in a complex political, economic, and social crisis. The rapid deterioration of a conflict marked by economic decline, political instability, state-led repression, high crime rates, and infrastructure collapse has triggered a migratory crisis of unprecedented proportions. At least six million Venezuelans – 20% of the population –have fled the country. The Venezuelan migratory crisis is the third largest in the world after Ukraine and Syria. This exodus has created an extraordinary pressure on neighboring countries, which have scrambled to accommodate the influx of immigrants, and produced a diaspora that plays an increasingly important role, both economically and symbolically. While these facets of the migratory crisis have been the focus of international aid and academic research, the local impact of emigration remains largely unexplored. Nevertheless, the utter speed and magnitude of this exodus are transforming life *within* the country, arguably creating another manifestation of the crisis that is experienced locally.

Any account of the Venezuelan crisis would be incomplete without considering the wide and profound impact of emigration, from the loss of human capital to the contraction of the economy, the restructuring of families, or the emergence of new avenues for the exercise of democratic practices, citizenship and social life. The void created by emigration has both symbolic and spatial connotations. Symbolically, it has produced a society that lives in a permanent state of "mourning" over the loss of those who have left.[1] Spatially, emigration has resulted in a distinct and



Figure 1: Single-family houses are converted into restaurants, entertainment venues, yoga schools, or cafés. As these transformations are illegal, signs of transformation are disguised. Image credit: Stefan Gzyl

ever-growing vacancy. This vacancy, however, is rarely equal to abandonment (understood as the breaking of ties or giving up rights over property). On the contrary, maintaining local property preserves migrants' symbolic ties to the country, extends the possibility of return, and safeguards a sense of citizenship and belonging. It also questions the finality of international migration and the unidirectional nature of exchange across international borders, typically framed as a one-way flow of economic remittances to local families. Vacancy, in turn, is actively managed through activities that not only preserve – as a suspension in time – but also reinvent spaces. Vacancy is thus folded into the dynamics of everyday life, where it sustains livelihoods and economies, supports new forms of solidarity, ensures social continuity and cultural renewal, and triggers processes of urban transformation. Caretaking-as-management-of-vacancy reframes ordinary spaces and actions as it implicates non-mobile populations in the dynamics of emigration. Moreover, as a means to relate to others and to the built environment, caretaking "extends beyond the activities from which it arises, generating a stance (or standpoint) toward 'nature,' human relationships, and social institutions."[2]

The research frames Caracas as a "departure city", a place "fundamentally shaped by emigration."[3] The concept of departure city describes the impact of emigration on cities in post-conflict and post-socialist countries in Europe where labor migration and political instability have produced unique urban and architectural transformations. Its proponents have argued that studying the urban impact of migration from the points of view of 'arrival' and excludes essential aspects of a two-way, non-linear process that also transforms places of origin. The departure city also moves beyond growth-shrinkage oppositions and points to a more complex situation in which the apparently conflicting forces of outward migration, population growth and urban development coexist and

reinforce each other *within* a city. While research on the topic has been limited to "the European periphery", authors have called for the need to expand "the scale and scope of the departure city in its manifold realizations [through] empirical work."[4] This research presents an opportunity to probe the concept beyond the European context and as a contemporary urban condition.

The research aims to observe, document, and visualize caretaking practices in their role in reshaping the built environment. In examining spatial transformations through the lens of emigration, they will come into focus as processes of co-production that actively involve 'absent' others, undermine conventional procedures of architecture and planning, and are infused with symbolic values and creative potential. This prompts subsequent research questions: Does caretaking offer clues for broader forms of cooperation as a relief from the crisis? Does it point to new modes of spatial production that displace the architectural project? What is the role of various actors (citizens, activists, architects and planners) in this process? How do transnational networks manifest locally, creating a distinct instance of translocality? If vacancy constitutes a new starting point for urban and social regeneration, what knowledge can we extract from it that is relevant in other contexts?

The Caretaker

The dissertation will center on the figure of *the caretaker*, a unique character who inhabits the departure city and manages the vacancy created by emigration. Caretaking refers to relational practices based on mutual dependency and trust "by which order and meaning (...) are maintained and transformed, human value is preserved and extended."[5] In an urban context characterized by infrastructural collapse, service shortages, distrust, and loss of human capital, caretaking practices have come to the forefront, exposing actions that are normally hidden from view and producing new spatial and programmatic conditions. As caretaking practices gain relevance, mundane actions are infused with a meaning that transcends practical considerations and repositions local actors within their own environment, since the preservation of a "thing" is also the protection of the "negotiated order that surrounds it."[6] In this sense, caretaking is a creative act, it plays an active role in the transformation of the built environment and cultural renewal. As it is enacted everyday "through practices of mutual aid and solidarity, sharing resources, de-privatizing spaces, undoing the separation between public and private", it can open new "horizons of possibility" amid a growing crisis. [7] While these practices have been documented in press, film, and literature, a detailed account of caretaking as it relates to the broader picture of departure city remains open to inquiry, especially in its social and spatial consequences.[8]



Figure 2: Party lights, temporary structures, plastic furniture, and artificial grass: Vacancy has become the latest site for the withdrawal of social life from public space and its replacement with controlled environments. Image credit: David Ogaya / Streat Market

Preliminary findings.

Through interviews, literature review, and real estate data analysis, the research has carried out a preliminary search for instances of vacancy. This search has pointed to distinct practices of caretaking, including the preservation of life, maintenance and repair, simulation of occupancy, temporary inhabitations, adaptation and repurposing, and citizen activism. This search has also led to preliminary conclusions and opened further questions. These conclusions are:

Vacancy ≠ Ruin. Emigration produces a specific form of vacancy that is different from abandonment. Vacancy sustains livelihoods and economies, transforms spaces, and supports new forms of habitation, solidarity, community engagement, and social encounter.

The management of vacancy implicates local actors in the dynamics of emigration. This involvement can recast emigration as a shared experience and one that can bring "potential migrants, and immobile home communities and families" into the focus of migration research.[9]

Vacancy is a feature of the crisis. Its management is a way to convert it, to extract a utility from it or to find a footing amid unstable conditions. The means for achieving this are the same ones that shape other interactions of daily life, where the boundaries of legal/illegal, formal/informal, here/there are systematically blurred.[10]

Negotiating vacancy upends established norms and procedures. As illegal transformations of domestic environments generate urban pressure, they prompt a reaction of planning authorities, exposing the limitations and relevance of the mechanisms that regulate urban development and professional practice.

Vacancy is quantifiable. However, initial findings point to an inconsistency between the quantitative dimensions of vacancy and its experience across various domains. For example, caretaking as a simulation of occupancy can disguise the fact that 50% of homes in an area are effectively empty, while streets in the neighborhood are desolate.

Vacancy begets vacancy. Vacancy results in a city that is double empty, because of emigration and by further abandoning the public realm. In this sense, caretaking practices are not innocent, they play a role in the transformation of the spaces they act upon the spaces they neglect. The counterpart to the increasing withdrawal from the public sphere are two parallel processes: the emergence of enclaves as controlled urban environments, and a residual, uncared-for city.

Methodological questions

As stated above, the central methodological question is how to document caretaking, *capturing* not only the spatial or programmatic conditions that it produces but the practice itself, the everyday actions and routines that, in a context of departure, are imbued with symbolic meaning and entangled in migratory dynamics.

Through immersive fieldwork, the research aims to: 1) document caretakers' engagement with vacant spaces through daily actions at various scales and register subjects' views and ideas while performing these, 2) examine cross-border exchanges between caretakers and migrants, with a focus on information exchanged, platforms employed, and the possible networks created through the involvement of intermediaries and third parties, and 3) quantitatively measure the impact of caretaking on the built environment (occupancy rates, use changes, density, etc.) Subjects of interest include neighbors, relatives caring after or residing in properties, real estate agents, NGO staff, entrepreneurs, as well as local architects and planning authorities. The fieldwork will limit itself to a small sample area of the city where several instances of vacancy can be examined.

The initial methodological stance of the project, through architectural ethnography, aims at combining two distinct toolsets that can complement each other in the field. On one hand, resources such as interviews, conversations, mental maps, and photography can record caretakers' viewpoints, register interactions with everyday objects and spaces, and their performance of daily tasks. On the other hand, architectural means like plans, sketches, diagrams, and maps, will aid in visually reconstructing scenes and paths, recording spatial transformations, situating daily actions as they intersect various domains (domestic, public, digital) and scales (intimate, urban, transnational). Taken together, this integrative toolset aims to simultaneously expand on the means employed to



Figure 3: In informal settlements, homes left behind by migrants are turned into kitchens for children, classrooms, and other community facilities. Image credit: Alimenta La Solidaridad

describe everyday lives of subjects and include dimensions diminished or absent in architectural representation.

Methodologically, the project builds upon Momoyo Kajima's approach to architectural ethnography in its aim "to draw the world from the standpoint of daily life."[11] As Michael Taussig has sensibly pointed out, "to draw is to apply pen to paper. But to draw is also to pull on some thread, pulling it out of its knotted tangle or skein, and we also speak of drawing water from a well."[12] Taussig's understanding of drawing and his upholding of the "raw material of observation" as a valid form of knowledge about the world brings forth a second methodological question, related to fieldwork as a phase where data is either collected for later interpretation, or one where the means of collection constitute a form of knowledge, since observation and documentation are in themselves imbued with subjectivity and interpretation. If design is essentially "a question of choice" and a project is a tool for synthesis,[13] an approach to fieldwork-as-design refers not only to the planning ahead of a course of action –as one would 'design' an experiment in a lab – but also to an approach that conceives gathering information as a form of 'drawing' – as an act and as a 'bringing out.' Thus, fieldwork could be a systematic process of visualization and of *selective disentanglement* of relevant features. In this way, the distance between process and product could be not only shortened but also short-circuited, as the gathered material would remain open to multiple possibilities of assemblage.



Figure 4: Flea markets have become a common way to sell goods to pay for the costs of emigration. An abandoned gas station, once a symbol of the car-based suburban expansion of the mid-20th century city and of Venezuela as an oil nation, has become the site for this type of informal activities. Image credits: Stefan Gzyl

CODA: Excerpts from the paper presentation

This paper was presented at CA^{2}RE Delft on March 30th. The presentation was intentionally structured in such way that led to questions and comments that focused on methodological aspects. In this sense, it is worth reproducing here some relevant comments and questions. Professor Sergio Martín Blas pointed to the risks and challenges of the project. First, in the use of drawing as a medium detached from the harsh realities it may encounter and portray. How to preserve the crudeness, ugliness of the research object in the drawing? Second, the risk of producing the work of an amateur ethnographer. For this, a suggestion was made to bring other architects' work into the research, as relevant precedents (beyond Kajima) exist. Professor Lidia Gasperoni pointed out the need for methodological precision and a need to bring into sharper focus that which the project will document. Professor Maria Rita Pais pointed out the need to produce drawings and to draw conclusions from these as well, referring to several relevant precedents. The questions and comments from this presentation have set the ground for further precision in the object of research as defined by the methodology, and for possibilities of expanding the discourse on architectural ethnography through a unique methodology that the project will like have to produce.

1 Torres, Ana T. (2021): Luces y sombras del país de hoy. La Gran Aldea, https://lagranaldea.com/2021/08/24/luces-y-sombras-del-pais-de-hoy/ from August 24, 2021

2 Sara Rudick, as cited by Virginia Held. See: Held, Virginia. (2006): The ethics of care: Personal, political, and global. Oxford, New York: Oxford University Press, p. 36.

3 König, Jonas (2016): Pristina: Departure city? Eurozine, https://www.eurozine.com/pristina-departure-city/

4 König, Jonas/Vöckler, Kai (2018): »Departure City: The Diaspora as Urban Developer«, in: Parangolé, issue 1: Motherland.

5 Jackson, Steven (2014): »Rethinking Repair«, in G. Tarleton, G./Boczkowski, P./Foot, K. (Eds.), Media Technologies: Essays on Communication, Materiality, and Society. Cambridge: MIT Press, pp. 221–239.

6 Graham, S./Thrift, N. (2007): »Out of Order: Understanding Repair and Maintenance«, in: Theory, Culture & Society volume 3, issue 24, pp. 1–25.

7 Blanco, Elvira (2021): »Enchanted Commons and Politics of Possession: A Reading of Jorge Thielen Armand's La Soledad«, in: A Contracorriente – Una Revista De Estudios Latinoamericanos, volume 20, issue 2, p. 6–24.

8 For films, see: Thielen, Jorge (2016): La Soledad; Rodríguez, Anabel (2020): Once upon a Time in Venezuela; Sipp, Thomas (1999): Hotel Humboldt. For literature, see: Sainz, Karina (2019): La Hija de la Española. Spain: Penguin Random House; El Tercer País (2021): Escribir Afuera, various authors. For press, see: Phillips, Tom (2018): The Fallen Metropolis: The Collapse of Caracas, the jewel of Latin America. The Guardian, https://www.theguardian.com/cities/2018/dec/18/the-fallen-metropolis-the-collapse-of-caracas-the-jewel-of-latin-america

9 Robertson, Shanti (2015): »The Temporalities of International Migration: Implications for Ethnographic Research« in: Castles, S./Ozkul, D./Cubas, M. A. (Eds.), Social Transformation and Migration. London: Palgrave Macmillan UK, pp. 45–60.

10 This reading of the crisis transcends economic or political aspects and centers on dislocating, inexplicable, or absurd experiences, in the face of which individuals lose frames of reference and a capacity for action See: Mbembe, A./ Roitman, J. (1995): »Figures of the Subject in Times of Crisis« in: Public Culture volume 7, issue 2, pp. 323–352.

11 Kaijima, Momoyo (2018): »Learning from Architectural Ethnography«, in: Kaijima, Momoyo (Ed.), Architectural Ethnography, Japan: Slader, Yu Iseki, TOTO Publishing, pp. 7–14.

12 Taussig, Michael (2011): I Swear I Saw This: Drawings in Fieldwork Notebooks, Namely My Own. Chicago, University of Chicago Press.

13 Meredith, M./Sample, H./Aravena, A./Schafer, A. (2010): MOS interviews Alejandro Aravena, in: PRAXIS, issue 11/12, pp. 16–31.

Innovations in Prof. Stanko Kristl's Health Space Designs, Their Humanity, and Today's Relevance

Jure Henigsman, University of Ljubljana

Initial doctoral stage

Supervisors: Tadej Glažar, University of Ljubljana; Peter Šenk, University of Maribor

Resilient Healthcare buildings, Design methods and approaches, Healing environment

Abstract

Despite their rapid development in the 20th century, the architectural profession often overlooked hospitals. They are ignored partly because of their complexity and the unpleasant unease that the feeling of a hospital gives us. We do not want to be admitted to them until we are ill, but we also want to be near them.

The development of the so-called Modern Hospital as we know it today was the result of international cooperation. The pressure on hospitals was further accelerated by high immigration to the cities and knowledge learned in the First World War. The rapid development of social infrastructure accelerated dramatically after World War II. Technological developments led to new hospital designs even more rapidly to meet the needs of the military and experts in medicine.

Prof. Stanko Kristl, a well-known Slovenian architect, has designed several projects of buildings for healing around the world from the 1970s to the present day. His buildings are intelligent and flexible. He has used several approaches and methods that he developed to design them. All his buildings have integrated humanity that was new in the time when they were constructed. These innovations are still admired and taken as examples today, even if they are not very well known in detail.

Today, the elements of Kristl's design are only very superficially known, especially in the design of healthcare buildings. We need to ask ourselves again what today's hospital buildings have to meet and offer. Do the health buildings we are building today meet the future needs for which they are built?

DDR statement

In my doctoral dissertation, I will use Design Driven research to explore the methods and principles of humane design of healthcare buildings that Prof. Stanko Kristl used in his process. By comparing the study in the time-angle, I will try to identify the innovations in his building designs and extract his methods. Those can serve as a foundation for designing humane and adaptable structures for healing. Only these can enable us to face the challenges of constructing healthcare buildings today, as one of the most complex buildings in which technological and humanistic disciplines intersect.

A significant advantage of my research is access to essential information. Through direct contact, interviews and discussions with Prof. Kristl, I have access to an understanding of the lead author and designer whose approaches I am trying to analyse. The second part is the persistence of his works, which I visit and explore their use, adaptations and resilience over time. Also significant are the users, among whom I can communicate and analyse their subjective experience of the space that has been created for their work.

Despite their rapid development in the 20th century, the architectural profession often overlooked hospitals. They are ignored partly because of their complexity and the unpleasant unease that the feeling of a hospital gives us. We do not want to be admitted to them until we are ill, but we also want to be near them.

The development of the so-called Modern Hospital as we know it today was the result of international cooperation. The pressure on hospitals was further accelerated by high immigration to the cities and knowledge learned in the First World War. During this time in the profession, various congresses and groups emerged. Most know is CIAM. Architects of medical buildings formed the IHA (International Hospital Association) (Willis, Goa and Logan 2019). The rapid development of social infrastructure accelerated dramatically after World War II. This included health infrastructure, which was included in Europe's post-war recovery programme. Technological developments led to new hospital designs even more rapidly to meet the needs of the military and experts in medicine.

As one of the federally organised Yugoslavia republics, Slovenia was one step behind international development until the 1970s. The decision to build a modern specialised hospital in Yugoslavia was crucial for our region. Prof. Edvard Ravnikar invited Prof. Stanko Kristl to work on the hospital project.

Germany was an important example for Slovenia at that time. In addition, Denmark and Sweden. Several meetings and congresses on hospital construction (IHF, WHO, DKI) were held in Europe and beyond, where Prof. Kristl gained good international connections and state-of-the-art knowledge for hospital design.

Approaches

I will focus on some of the approaches to designing healthcare buildings. These approaches add architectural value to make a healthcare building humane and pleasant for users. The methods are closely linked to the analysis of the buildings designed by Prof. Stanko Kristl.

Adaptability-based approaches to design

Buildings intended for medical treatment are subject to constant change and adaptation, mainly due to the continuous advances in treatment modalities.

Hospital-related studies and projects deal with various topics and approaches, usually presenting solutions in response to problems of staff functioning or patients admitted for treatment or care.

A review of the development of such buildings over the last hundred years shows that hospital projects have primarily addressed issues of functionality, i.e. the spatial and technological organisation and the technological requirements for the functioning of the programme within them (Schirmer and Meuser 2006).

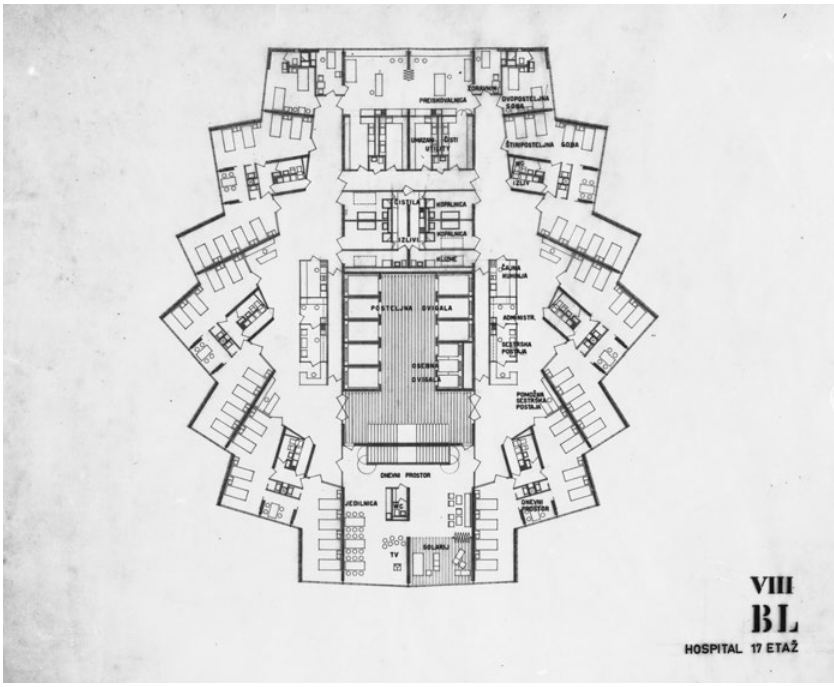


Figure 1: Stanko Kristl, 1962, Innovative design of the hospital floor plan, technical hand drawing

The complexity of the modern hospital has required specialised knowledge. After whom the Friesen concept is named, Gordon Arthur Friesen was one of the first hospital technologists. He emphasised the adaptability of the facility to the programme and the integration of all support services and distribution (Nevit 1968).

Approaches to planning based on co-therapeutic effects

Treatment facilities, which include hospital buildings, health centres, nursing homes and post-operational care, should be designed as spaces for psychological and emotional recovery in addition to the primary function of treatment. Their co-therapeutic effect has been demonstrated many times in other studies (Ulrich 1984; Marcus/Barnes 1999).

Despite rapid technological advances, hospitals have remained relatively detached from the external space and the proven co-therapeutic effects on patient treatment. While many other typologies have implemented this knowledge, the examples in hospitals are rare. It is essential to recall the example of the sanatorium for lung patients in Paimio by the architect Alvaro Aalto and the unrealised project of the Venice Hospital by the architect Le Corbusier.

Even though Mies van der Rohe did not build any hospitals, it is essential in this context to draw attention to an article in the journal Modern Hospital, where he points out the importance of south and east orientation of ward and points out a misunderstanding of economic rationalisations in hospital design (Whitcomb 1945).

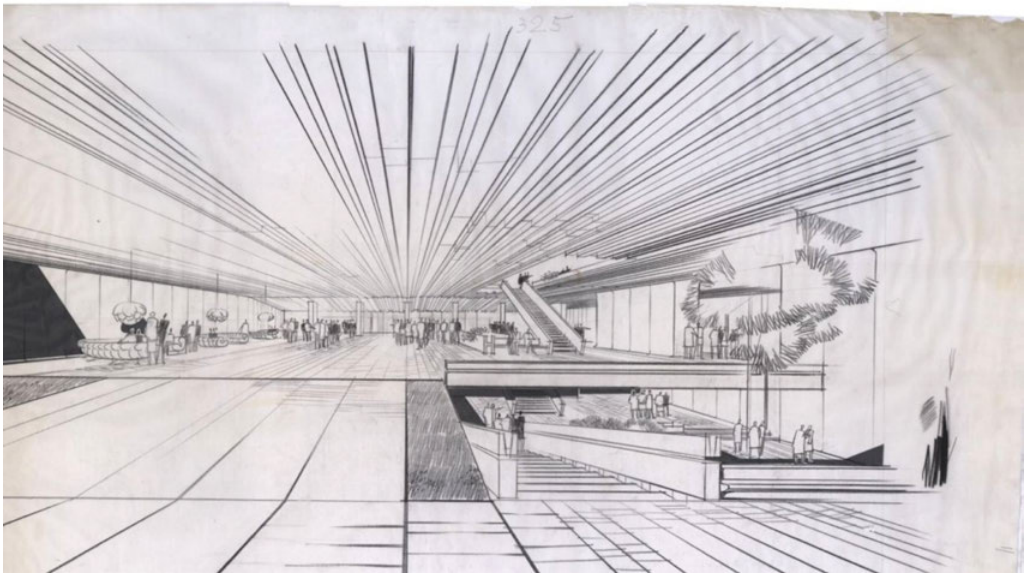


Figure 2: Stanko Kristl, 1967, Entrance hall UKC Ljubljana, technical hand drawing

Approaches to planning based on work organisation

Due to the primary function of healthcare buildings and hospitals, several rules are usually applied to the organisational design concept. All of these rules are directly connected to hygiene. At the end of the 19th century, the situation in urban hospitals was catastrophic. The findings of Florence Nightingale, a nurse, that many more people died in hospitals than in-home care because of hygiene were shocking (Monteiro 1985). Innovations in the spatial organisation followed the developments and findings of the profession. The separation of unclean and clean routes, the grouping of related programmes and the optimisation of staff routes influenced the spatial design of facilities. The military and field experience (triage, priority treatment, safety control) was also enormously influential.

Comparison and projects by Prof. Stanko Kristl

When Prof. Dr Lavrič entrusted the task of designing the new Ljubljana Hospital to Prof. Edvard Ravnikar, he invited his assistant, Stanko Kristl, to participate. They approached the task pragmatically, research-oriented, due to their lack of experience. The agreement to dedicate more time to research was crucial. Thanks to good political connections (Prof. Dr Lavrič was a personal physician and friend of president Tito), the group had the opportunity to follow world developments and new professional links. They learned and tried to design a hospital such as Yugoslavia had not yet known.

Prof. Stanko Kristl and his team received the first award soon after research started. They received the prize for the design of the ward at the IHF Congress of the World Health Organization (WHO) in Paris in 1963. The bed tower was designed with the shortest staff routes, while all rooms have good quality natural light and sufficient privacy despite the multi-bed rooms. This is just one of the proofs of the intensity of the team's work and their follow-up of the world profession.

Parallels to the University Medical Centre project in Ljubljana can be identified in the patterns of hospital development at the time. Prof. Kristl designed this hospital, and later others, according to principles and principles similar to those that prevailed in the 1970s. Nevertheless, through the evolution of the project and the technical complexity of the building, he was able to incorporate critical ideas that were new for the time.

After discussions with Prof. Kristl, I have concluded that the lack of knowledge at the start of the work was an advantage, enabling them to contact foreign experts directly. Very important was also close contact with the medical staff in the clinics. The dialogue between the architects and the medical staff allowed for ongoing adaptation of the designs and, at the same time, encouraged the medical staff to consider changes in their working process.

Prof. Kristl notes that most approaches to hospital design are strictly utilitarian and technical. I found two critical methods of his empathetic understanding of human need and psychology about buildings designed for healing which were essential for the projects in Ljubljana and Izola health buildings and plans for Mostar, Dubrovnik, Novi Sad, Samobor and Kuwait.

The first principle is the blurring of the hospital boundary. This is reflected in the design of the spaces inside the building and before entering it. In this way, the entrance space of a hospital becomes similar to the entrance to any other public building. The building is also lower towards the entrance, and the facade has pleasant warm colours. He treats the lobby as an extension of the square, and he put many carefully selected public programmes that would otherwise be found on the ground floors of buildings in the city centre.

Furthermore, the waiting areas are designed with elements and materials that encourage a feeling of warmth, intimacy and distraction for the patient when thinking about his illness. Staff workstations and offices are increasingly hidden but still well lit with distant views, most often outside. The particular choice of colours calms the users and, at the same time, provides an orientation in the building.

The second principle is his tendency towards optimisation. He designed the emergency room as a common ward for all medical disciplines, where the patient is brought in straight from the "street". Despite the two dominant principles of operating ward design at the time, he "reworked" the way the anaesthesiology disciplines worked, bringing them into dedicated rooms next to the operational theatre. This solution reduced the need for staff and the simultaneous performance of anaesthetic preparation and surgery. Mentioned before, he designed a bed ward, which was already recognised in congress in 1963.



Figure 3: Janez Kališnik, 1976, Department of Internal Medicine First Aid UKC Ljubljana, Slovenia

Despite the complexity of the design of this type of building, I recognise the extreme relevance of the designs developed by architect Stanko Kristl. Despite the trend towards densification and the construction of compact healthcare complexes, already in the 1960s and later, Prof. Kristl introduced several principles on how these buildings, despite their complexity, can be very humane and adapted to the function they have to fulfil.

Today, the elements of Kristl's design are only very superficially known, especially in the design of healthcare buildings.

Today we are designing and building differently. We need to ask ourselves again what today's hospital buildings have to meet and offer. Do the health buildings we are building today meet the future needs for which they are built?

Literature

Brambilla, Alberto/Rebecchi, Andrea/Capolongo, Stefano (2019): »Evidence Based Hospital Design. A literature review of the recent publications about the EBD impact of built environment on hospital occupants' and organizational outcomes« in: Annali di Igiene Medicina Preventiva e di Comunità issue 31(2), pp. 165–180. https://doi.org/10.7416/AI.201...

Cama, Rosalyn (2009): Evidence-Based Healthcare Design. New Jersey: Wiley.

Graaf, R. de (2017): Four walls and a roof. The complex nature of a simple profession. Cambridge: Harvard University Press.

Groat, L./Wang, D. (2002): Architectural Research Methods. New York: John Wiley & Sons.

Guthknecht, T./Zurich, E. (n.d.): Houston, we have a problem! Rocket adjustments of Health Facility Design in times of new pandemics 1. Neglecting infection threats: A blindspot (in health facilities) during pandemics. The Lancet, https://www.thelancet.com/jour... January 9, 2022.

Harris, D. D. (2009): »Building a Safer, Healthier and More Efficient Hospital«, in: Cama, R. (Ed.) Evidence-Based Healthcare Design, p. 288.

Jiang, Shan/Verderber, Stephen (2017): »On the Planning and Design of Hospital Circulation Zones: A Review of the Evidence-Based Literature«, in: HERD: Health Environments Research & Design Journal issue 10(2), pp. 124–146. https://doi.org/10.1177/193758...

Joseph, A./Quan, X./Keller, A. B./Taylor, E./Nanda, U./Hua, Y. (2014): »Building a knowledgebase for evidence-based healthcare facility design through a post-occupancy evaluation toolkit«, in: Intelligent Buildings International, volume 6, issue 3, pp. 155–169.

Monteiro, Lois (1985): » Florence Nightingale on Public Health Nursing «, in: American Journal of Public Health issue 75(2), pp. 181–186

Nevitt, Joyce (1968): The Gordon Friesen concept of hospital design : a symposium. St John's: Association of Registered Nurses of Newfoundland.

Schirmer, Christoph/Meuser, Philipp (2007): Hospital Architecture: General hospitals and health centres. British Columbia: Page One Publishing Inc.

Sulfana, Balkees/Raghunath, Athul/Jayakrishnan, Devadeth/Muhammed, Ejas/Sajan,Evana /K,Nandakishore (2021): Paradigm Shift in Healthcare Architecture, https://www .researchgate.net/p... from January 9, 2022.

Sunder, W. (n.d.): Planning and design of hospitals subjected to scrutiny. Can our hospitals respond quickly and flexibly to the growing demand for ICU beds? https://irp-cdn .multiscreensit... from January 9, 2022.

Ulrich, R.S. (1984): »View Through a Window May Influence Recovery from Surgery«, in: Science, volume 224, issue 4647, pp. 420–421.

Verderber, Stephen (2010): Innovations in Hospital Architecture. London: Routledge. https:// doi.org/10.4324/978020...

Wagenaar, Cor/Mens, Noor (2019): Hospitals: a design manual. Basel: Birkhäuser

Whitcomb, Mildred (1945): »Only the patient counts: Some radical ideas on hospital design by Mies van der Rohe«, in: Modern Hospital issue 64(3), pp. 65–67

Willis, Julie/Goad, Philip/Logan, Cameron (2020): Architecture and the Modern Hospital: Nosokomeion to Hygeia. London: Routledge.

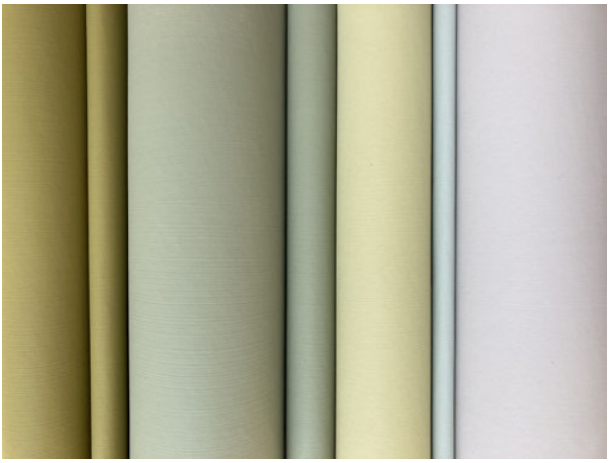
Wischer Robert, & Hille Rau. (1988): Das Friesen-Konzept für das Krankenhaus und für das Gesundheitswesen von morgen. Stuttgart: Krämer.

Wischer, Robert/Riethmüller, Hans-Ulrich (2007): Zukunftsoffenes Krankenhaus – Ein Dialog zwischen Medizin und Architektur. Germany: Springer. https://doi.org/10.1007/978-3-...

Yoon, Eunji/Lim, Yeonghwan (2020): »A Study on the Connection between Nature and Architectural Space in Le Corbusier's Venice Hospital Project«, in: ARCHITECTURAL RESEARCH issue 22 (4), pp. 113–122. https://doi.org/10.5659/AIKAR....

Poetic Expressions Video and Artefact as Phenomenological Reflection in Constructive Design Research

Maria Høgh-Mikkelsen, Design School Kolding



Intermediate doctoral stage

Supervisors: Eva Brandt, Design School Kolding; Claus Peder Pedersen, Aarhus School of Architecture

personal colour, phenomenological description, epistemic things

Abstract

With this contribution to CA²RE|CA²RE+DELFT, I wish to discuss if and how variations of phenomenological descriptions can contribute to the process of theory-creation based on the designer's own lived experience with her craft, and discuss how transmission of knowledge might take other forms than written or spoken words. From my doctoral research 'Exploring an experimental and material-based colour design practice,' I present two alternative examples of phenomenological descriptions; first a short video articulating my reflection on a design process and second, a series of relief-like artefacts expressing the analysis of a colour palette – not through words but through form and material. Can we as design-researchers accept and acknowledge artefacts as 'epistemic things' and phenomenological descriptions in various forms as means for investigation and communication in our research? Will these alternative forms of expressions be able to stand on their own or must they always be followed up by lingual explanations?

DDR statement

Being an experienced designer, the obvious choice of research methodology for my PhD is 'Constructive Design Research' which is characterised by the researcher using design methods, experiments and artefacts as drivers for knowledge production [1]. I engage in design processes, not as an objective observer looking from the outside and in, but as a designer, deeply involved with all my expertise and emotional reactions. As a consequence of the personal involvement, part of the research documentation shifts from a third-person perspective referring to the designer as *she* to a first-person perspective referring to the designer as *I*. This position triggers a sceptical view on the design-researcher's unconscious actions and biases, but also enables a rich insight into real designing experiences. Tim Ingold[2] has problematised the separation between the theory of a discipline and its methods and argues that to build a theory of a practice we must study *with* the practice. In line with Ingold's thinking, I have become a researcher in my own practice placing myself between two positions: that of the designer designing and that of the researcher researching the designing. This *in-between* position is conflict-ridden as the design-researcher must be 'accountable' to both the field of design and the field of research,[3] meaning that she must do both *design* on a high level and *research* on a high level and not just go for the "...more convenient positions on either side: to choose between theory *or* practice..."[4] In my PhD project I experiment with this *in-between* position and explore how to apply artistic design methods in my research.

1 Koskinen, I., Zimmerman, J., Binder, T., Redstrom, J. & Wensveen, S. (2011) Design Research through Practice: From the Lab, Field, and Showroom. Waltham: Morgan Kaufmann/Elsevier

2 Ingold, T. (2013) Making. Anthropology, Archaeology, Art and Architecture. London: Routledge

3 Krogh, P.G. & Koskinen, I. (2020) Drifting by Intention. Four Epistemic Traditions from within Constructive Design Research. Zürich: Springer

4 Redström, J. (2017) Making Design Theory. Cambridge, MA: The MIT Press. Page 14

With this contribution to CA²RE|CA²RE+DELFT, I wish to discuss if and how variations of phenomenological descriptions can contribute to the process of theory-creation based on the designer's own lived experience with her craft, and discuss how transmission of knowledge might take other forms than written or spoken words.

Being a hybrid of both designer and researcher brings out questions of epistemological character: What do I know about my design practice? How do I express what I know? How do I share my knowledge with others? And can I claim my knowledge to be theory? These fundamental questions play a central role in my PhD project, with which I have set out to investigate how Itten's notion of colour harmony[1] and Böhme's notion of atmosphere[2] may influence a colour design process respectively. I have concluded the first of four experiments: 'Personal Colour', whose purpose is to bring out an awareness of one's personal colour preferences in order to understand one's biases when designing colour combinations for other people. Part of the experiment is conducted by myself in the studio, my findings are then tested with students and finally, insights are compared to statements from professional colour designers collected in interviews. In this presentation, I concentrate on how I have used a phenomenological approach to reflect my own design experiments in the studio and how my findings are communicated in a poetic form: as film and artefact.

Phenomenology is one of the twentieth century's most dominant philosophical schools formed by great thinkers such as Edmund Husserl, Martin Heidegger and Merleau-Ponty. The philosophy is concerned with phenomena as they appear to us and has given us new knowledge of perception, consciousness, embodiment, intersubjectivity and much more. Phenomenology does not provide us with a fixed methodology that we can apply directly in design research but it presents us to a certain state-of-mind, enabling us to explore lived experiences in the life-world. Nevertheless, Max van Manen[3] has described a possible methodological phenomenological approach that is widely used in qualitative research in the field of health care. Although providing a set of instructions, Manen also reminds us not to deviate from phenomenology's goal of *description* into science's goal of *explanation*. He states: "As in poetry, it is inappropriate to ask for a conclusion or a summary of a phenomenological study. To summarize a poem in order to present the result would destroy the result because the poem itself is the result. The poem is the thing. So, phenomenology, not unlike poetry, is a poetizing project; it tries an incantatory, evocative speaking, a primal telling, wherein we aim to involve the voice in an original singing of the world."[4] Influenced by this line of thinking, I cautiously propose that the phenomenological description can be poetic expressions, not only communicated through words but also through other means such as film or artefact.

In my PhD project, I have experimented with various forms of phenomenological descriptions; written essays, video essays and artefacts. In this the first experiment 'Personal Colour', I have used the written essay as a reflection on the process of creating a personal colour palette, guided by van Manen's procedure for phenomenological writing in which he suggests the following steps: A: Turning to the Nature of Lived

Experience, B: Existential Investigation, C: Phenomenological Reflection and D: Phenomenological Writing.[5] To write in a style that allows emotional expressions, personal observations, memories and existential reflections are much aligned with the actual action of designing colour combinations, filled with curiosity and joy and an ongoing conversation with the material. The writing process is not only scribbling down random thoughts, but a thorough investigation into the phenomenon of, in this case, selecting personal colour, and in its own right as poetic practice it contains a rigour equal to that of a scientific investigation.

For this presentation, I show two alternatives to the *written* phenomenological descriptions. The first phenomenological expression is a short video essay, produced as a stop motion film based on images from the actual selection process with an excerpt of the written essay as voice-over. The content of the film is similar to the content of the written essay, but sound, moving images and aspect of time are now enriching elements in the communication of the experience to another person.

The second phenomenological description is the most abstract of the two. In this, I express myself not through words, but entirely through my medium as a designer: form and material. Where the phenomenon investigated in the film was the *designing* of the personal palette, the phenomenon investigated through the artefact is the experience of the final colour palette. After creating the palette, I did two analyses to understand its nature. The first analysis was based on Itten's notion of harmony, providing me with a set of recommendations on how to create a harmonic colour combination. Itten is easily followed methodically and offers me a vocabulary of concepts to describe the colour palette with words like 'complementary', 'saturation', 'value' etc. However, these words are not describing the actual expression of the palette and one still has no answer to what mood the colour combination communicates or generates. The second analysis was based on the philosophical concept of atmosphere. I was interested in experiencing and describing the colour palette, not through technical terms but through adjectives in order to grasp the atmosphere or mood of the palette. I 'turned to the nature of my lived experience' of the palette and used the following words to describe the impression I got: *formal, old, friendly, passive, dry, soft, feminine, quiet, reserved, serious* and *warm.*

As part of the analysis, I wanted to communicate my findings not only through a list of words, but in a richer form, equal to the phenomenological essay, which is often compared to poetry. I was guided by architect and professor Nicolai Bo Andersen's phenomenological method.[6] Andersen has been inspired by van Manen's procedure for phenomenological writing and has created five steps for what he calls a 'phenomenological method for architectural investigation, description and design': A: Experiencing an Architectural Phenomenon, B: Investigating the Architectural Phenomenon, C: Hermeneutical Reflection, D: Describing the Architectural Phenomenon, E: Architectural Phenomenological Re-Presentation. Andersen acknowledges drawing and form-giving as methods for investigation into a phenomenon and for description of the phenomenon. His method for investigation is not concluded by the phenomenological description but the method allows the architect to move



1



2





3



4

Figure 1: The design-researcher in the studio is both designing and researching.

Figure 2: Still-image from the video essay: *Today I select favourite colours,* available at: https://kolor.dk/today-i-select-favourite-colours-a-phenomenological-essay-and-film/

Figure 3: Left side: Analysis of colour combinations from the personal colour palette using Itten's notion of colour harmony. Right side: Analysis of the personal colour palette using adjectives and words of emotions.

Figure 4: The artefact as a phenomenological description

further and make a phenomenological *re-presentation* using visual and tactile means of expression. The idea of visual reflections as equal to written reflections is resonated by Rheinberger's ideas of 'epistemic things.' Coming from the field of molecular biology with a classical scientific tradition and not art, it might seem almost paradoxical that Rheinberger points out how artefacts are embedded with knowledge.[7]

So, the second phenomenological description I present is an artefact, an epistemic artefact, a carrier of knowledge. Through an experimental process of engaging with the colours from the palette, I created a series of relief-like artefacts. By adding form and light in a certain manner, the expression (formal, passive, dry, soft etc) is amplified: A graduation between light and dark versions of the specific colour brought forward by the curved paper, the exposition of the irregular texture of the brushstrokes, the vertical rhythm and variable width in the column-like composition. These elements together describe the mood or atmosphere of the palette, they become a poetic expression of the phenomenological description.

Through this work, I found several questions interesting to explore further in my PhD project. Can we as design-researchers accept and acknowledge artefacts as 'epistemic things' and phenomenological descriptions in various forms as means for investigation and communication in 'Constructive design research'? Will these alternative forms of expressions be able to stand on their own or must they always be followed up by lingual explanations? And how do we balance poetic expressions and scientific explanations in the inconvenient hybrid position of being both a designer and a researcher?

1 Itten, Johannes (1977): Farvekunstens Elementer. Subjektive oplevelser og objektiverkendelse som vejledning til kunsten. Denmark: Borgens Forlag.

2 Böhme, Gernot (2018): The Aesthetics of Atmospheres. London: Taylor & Francis Ltd.

3 Van Manen, Max (1977): Researching lived Experience. Human Science for an Action Sensitive Pedagogy. London: Taylor & Francis Ltd.

4 Van Manen, Max (1977): Researching lived Experience. Human Science for an Action Sensitive Pedagogy. London: Taylor & Francis Ltd.

5 Van Manen, Max (1984): » Practising Phenomenological Writing«, in: Phenomenology + Pedagogy, issue 2(1), pp. 36–39.

6 Andersen, Nicolai B. (2018): »Phenomenological method – towards an approach to architectural investigation, description and design«, in: Lorentsen Elise/Torp Kristine (Ed.), Formation. Architectural Education in a Nordic Perspective, Copenhagen: Architectural Publisher, pp. 74–95

7 Rheinberger, Hans Jörg (1997): Toward a History of Epistemic Things. Synthesizing Proteins in the Test Tube. California: Stanford University Press.

Sensory Nourishment Consciously Crafting Sensations in Clothing Design to Support Diverse Sensory Needs

Maureen Selina Laverty, Norwegian University of Science and Technology

Initial doctoral stage

Supervisors: Trond Are Øritsland, Norwegian University of Science and Technology; Pauline van Dongen, Eindhoven University of Technology

#

autism spectrum, inclusive design, clothing design

Abstract

Clothes are the most intimate artefacts that touch our skin. Our moving bodies are shaping and being shaped by what we wear. The sensations that unfold inevitably influence our well-being, whether we are conscious of it or not. As designers we are always crafting sensations. However, existing design practices do not always allow space for the conscious consideration of their impact.

My ongoing practice-based PhD research collaborates with people on the autism spectrum, with heightened sensory responses, who can become overwhelmed by these sensations. I will present initial insights from wardrobe studies with my participants. These are insights into how they want to feel in their clothes: physically, emotionally and socially. I will also introduce thoughts on how I will uses phenomenologically design driven research to explore how we can consciously craft kinaesthetic-dialogues through a soma design process.

Extended abstract

Clothes are the most intimate artefacts that touch our skin. They mediate almost all of our interactions. Every day our moving bodies are shaping and being shaped by what we wear. The sensations that unfold during this dynamic mutual shaping inevitably influence our well-being, whether we are conscious of it or not. My ongoing practice-based PhD research collaborates with people on the autism spectrum, with heightened sensory responses, who can become overwhelmed by these sensations. The project sets out to explore how fashion designers can design everyday clothing for sensory nourishment. As designers we are always crafting sensations. However, existing design practices do not always allow space for the conscious consideration of their impact. Through phenomenological design-driven research I will explore fashion design processes that craft sensations, through bodily-material experiences, that support the wearer's well-being.

Clothing is a powerful medium given its inherent immediacy and intimacy. Yet its contribution to the wearer's well-being is often overlooked because they have become so ingrained in our mundane everyday life. Therefore clothing's transformative potential is relatively untapped. This potential was evident in a 5-month pilot project, from September 2019, in which I developed a therapeutic textile with people on the autism spectrum. I observed that for some participants, with heightened sensory responses, the sensations generated from their clothing's materiality can be overwhelming: its textures, its construction, the inhibiting manner in which it moves with their body. It was concluded that fashion must attend more carefully and explicitly to autistic sensory experiences with clothing; its potential to disable and, more importantly, enable the wearer. This is the motivation for my practice-based PhD research.



Figure 1: Garment-led interviews

At the core of the problems in dominant fashion design practices is that the visual language used and static conception prioritises the *seeing* of clothing over the *feeling* of them. This ignores what Höök calls a designer's great responsibility to care about "the kinaesthetic-tactile experiences we build into our systems (…) sometimes causing pain, sometimes causing pleasure."[1]

Theoretically, my research takes a phenomenological approach to get to the essence of these lived experiences. We make sense of our world through our bodies. We use design to shape our world. Our bodies are also continually shaped by those designs: they encourage certain movements, aesthetic experiences, practices and responses, while discouraging others.[1] Pauline van Dongen describes the wearing of clothes as "a reciprocal expression"; our moving bodies are constantly shaping and being shaped by what we wear.[2] Richard Shusterman's somaesthetic theory describes how "the beauty of our movements and of the environments to which our actions contribute are how a person derives their "energies and significance."[3] In other words, the sensations that arise from these reciprocal expressions influence the wearer's well-being. Therefore, it is vital that the wearer's lived experiences with clothing are examined in order to understand how the future designs we craft can support their well-being.



Figure 2: Kinaesthetic-tactile-sonic dialogue with coat

The methods that I will use in my practice-based research are heavily inspired by Höök's soma design methodology which places the moving body at the forefront of the design process.[1] The moving body and the materials it interacts with are considered as active agents in an assemblage.[1 4] Both agents continuously act on each other. They have the potential to fight against each other or "harmonize- aesthetically and somatically" to support the person's well-being.[1] In addition, the soma design process embraces the mind-body connection and its contribution to well-being. It acknowledges that our muscles, sensory organs, nervous system, emotions and empathetic engagement with others are all connected.[1]

Within the field of HCI, Höök encourages the exploration of these connections through four reflexive prompts. Through the lens of fashion design practices, I have reinterpreted those prompts to frame the four phases of my project. Firstly, *Lived Experience* consciously explores the inherent qualities of clothing materiality with my participants. *Slowing Down* examines the effects those material qualities have on their moving bodies: physically, emotionally and socially. The dynamic mutual shaping that continues between the material qualities and the moving body is complex, therefore, *Iterative Testing* is required to consciously craft supportive bodily-material dialogues. Finally, *Mutual Shaping* evolves within the user's everyday life with the design. The design is never finished; the user finds new meanings, social contexts change, the material itself wears. My intention is to expand upon Höök's methodology to facilitate a more inclusive and participatory design process.



Figure 3: Perfomrative engagment with garments

Still in the first phase of my project, I am presently exploring how my participants and their existing clothing speak to each other. I deploy wardrobe studies centred around garment-led interviews and participant-led performative engagement with the garments.[5] Skjold explains that this establishes a dialogue that includes the participant's sensory experience of dressing and secondly negates the need for a professional fashion vocabulary.[6] I consider my participants as the experts of their lived experiences, they have dynamic kinaesthetic-tactile dialogues with their clothing every day. My role as a design researcher is to translate their dialogues through my expertise in clothing materiality, fabric composition, and how clothes are constructed. My knowledge helps me probe deeper into the qualities and details of the clothing that causes them pleasure or discomfort. I am cultivating my participants' somaesthetic sensibilities as well as my own.

This collaborative dialogue between experts through clothing will continue into the iterative design development phases. A participant described how their clothes "either become my best friend through adventures together or an insistent enemy that I can't wait to shake off when you get home." Like any friendship or conflict, these relationships evolve over time as the wearer and clothing mutually shape each other. I intend to utilise the time and space that my PhD allows to map these changes with a focus on their effect on the participants' well-being.

Inclusive design is often talked about in terms of providing everyone with access to the same physical experiences but it often misses opportunities to provide the same emotional experiences. A fashion design practice that consciously crafts sensations through considered bodily-material experiences could provide a real opportunity to design inclusive emotional experiences that support the wearer's well-being. Bruggeman



Figure 4: Wardrobe Studies

writes that "many bodies and materials in fashion need to matter more. They need more love, care and attention."[4] People on the autism spectrum, with heightened sensory responses, would benefit from this love, care and attention. However, I do not approach their needs as special but rather amplified universal needs. Autistic experiences are the starting point of my research but I believe that the application of the insights gained can have a wider benefit for all wearers of clothing. The amplified sensory experiences of people on the autism spectrum also need to matter more. They have always had to develop great self-awareness around the sensations that can disable and enable their well-being. Fashion has a considerable amount to learn from them. All wearers of clothing can benefit from sensory nourishment.

1 Höök, Kristina (2018): Designing with the Body: Somaesthetic Interaction Design. Massachussets: MIT Press.

2 Van Dongen, Pauline (2019): A Designer's Material-Aesthetics Reflections on Fashion and Technology. Arnhem: Artez Press.

3 Shusterman, Richard (2008): Body conscious-ness: A philosophy of mindfulness and som-aesthetics. Cambridge: Cambridge University Press..

4 Bruggeman, Daniëlle (2018): Dissolving the Ego of Fashion: Engaging with Human Matters. Arnhem: Artez Press.

5 Fletcher, Kate/Klepp, Ingun, G. (2017): Opening up the Wardrobe: A Methods Book. Oslo: Novus AS.

6 Skjold, Else (2018): »Making sense of dress: On sensory perspectives of wardrobe research«, in: Artifact: Journal of Design Practice issue 5(1), pp. 4.1–4.15.

Coastal Ecological Passage (CEP) as an Innovative Nature-based Defense to Tackle Rising Sea Level

Jiaxi Li, Politecnico di Milano

Intermediate doctoral stage

Supervisor: Matteo Umberto Poli, Politecnico di Milano

#

sea-level rise action, landscape ecology, urban resiliency

Abstract

This paper explores how urban and landscape design in coastal metropolises can effectively address the threat of sea-level rise by using Coastal Ecological passages (CEPs) to integrate landscape ecology and disaster hazard reduction with urban design. Through the identification and the design of four kinds of coastal ecological passages, a passages' network will be formed to district the city, and the resilience districts framework will be formed accordingly. This subdivision strategy is designed to facilitate systematically putting resilience measures in place, thus improving sea-level rise disaster resiliency.

This paper details a design strategy on the macro scale, which generates a master plan of 'CEP's network' to identify a 'resilience districts' framework for the city of New York. The research culminates with a generalizable urban planning and design framework for protecting critical infrastructure, 'thickening' regional soft systems, and turning the coastal delta metropolitan area into a resilient sponge.

DDR statement

For urban spatial design research related to sea-level rise without many existing studies, I believe the methodology of "From Experimental Design to Theory" will have great potential. In addition to a literature review of the theory, this research studies and analyzes the projects under construction, competition projects, theoretical design. Then, the "resilience zone" theoretical model is used as the basis for the experimental design practice of three cities: New York, Hong Kong, and Tokyo. The theory will be further extracted, formed, and solidified by proposing, analyzing, and solving the difficulties and problems encountered in practical design, i.e., resilient coastal urban space design strategies in response to sea-level rise.

Paper

Abstract

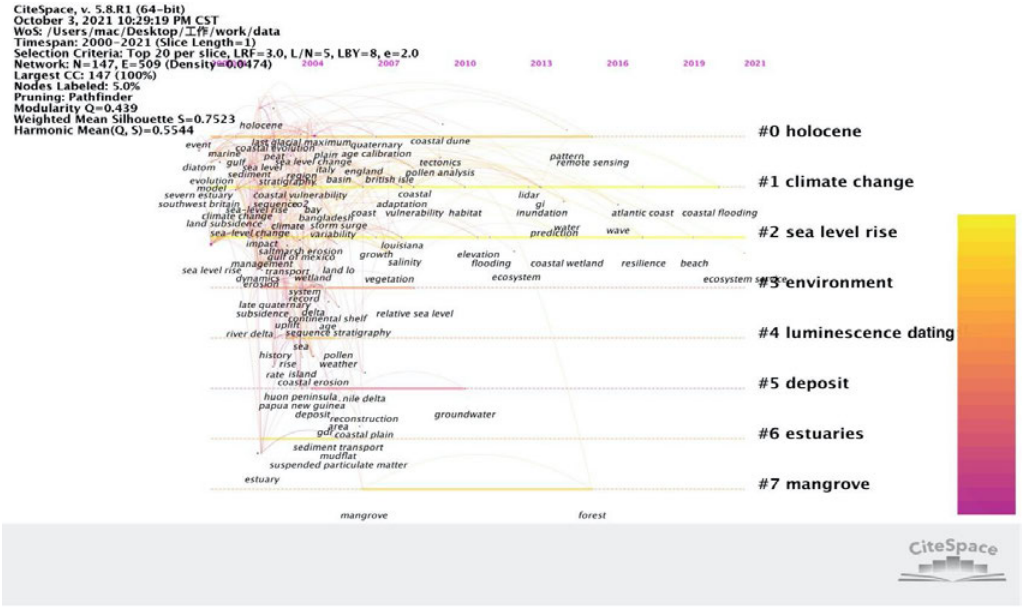
Sea level rise (SLR) due to climate change is and will continue altering the world's coasts, which are the most densely populated and economically active areas on earth and home to highly valuable ecosystems. This research explores how urban and landscape design in coastal metropolises can effectively address the threat of sea-level rise by using Ecological passages (nature-based solution) to integrate landscape ecology and disaster hazard reduction with urban design. Through the identification and the design of four kinds of coastal ecological passages (CEPs), (i.e., Coastal defense ecological passages; Thick zone edge ecological passages; River ecological passages, and Transportation ecological passages), a passages' network will be formed to district the city, and the resilience districts framework will be formed accordingly. This subdivision strategy is designed to facilitate systematically putting resilience measures in place,[1] thus improving sea-level rise disaster resiliency.

This analysis details a design strategy on the macro scale, a master plan of 'CEP's network' to identify a 'resilience districts' framework for the city of New York. The research culminates with a generalizable urban planning and design framework for protecting critical infrastructure, 'thickening' regional soft systems, and turning the coastal delta metropolitan area into a resilient sponge.

1. A review of contemporary coastal adaptation to SLR: from mitigation to resilience

Climate change imposes enormous challenges to coastal metropolises.[2] Among the literature review from different built environment sectors, the current sea-level rise response research is mainly concentrated on the macro-scale of conceptual proposals in the urban planning section and on the micro-scale of a set of toolboxes focused on flood resilient and adaptive designs. However, a limited understanding of design strategies that integrate conceptual urban planning models into landscape design prototypes or synthetic landscapes to address sea-level rise action was found across the sectors reviewed. That's to say, there remains a need for consideration of how the designs, or processes, can be better integrated into the current practice of landscape architecture and production of the built environment.[3]

Articles with keywords "Coastal area" and "sea-level rise" on WOS are over five thousand in total, but most of them are not from spatial design fields. Through the quantitative analysis of all the above papers, In the figure of the keyword timeline, it can be seen that in recent years, the attitude towards coastal areas was from "management" by 2004, "reconstruction" by 2007, to "resilience" by 2016.



Quantatitive analysis of 5,513 articles: Keyword timeline

From grey to hybrid: coastal defense

The Contemporary coastal adaptation has experienced two stages: coastline defense upgrading and design framework from the coastline to inland. In general, from mitigation to resilience. Two types of gray infrastructure are built to protect coastal areas from marine flooding: passive and active defenses. These are designed for natural hazards of a certain magnitude, ensuring greater protection within a capacity, which means artificial defense structures could not function if the intensities of natural hazards were beyond their thresholds.[4] Therefore, the 'nature-based' strategies are researched to replace the traditional 'hard' approaches over the last three decades: wetlands, mangroves, coral and oyster reefs, etc. However, the hybrid way has attracted more attention worldwide as there are still some weaknesses of 'nature-based' solutions.[3] What is more, dealing with the sea level rise still needs to prevent land subsidence. The Sponge City Theory toolkit for rain-flooding management can mitigate the land subsidence, such as rain gardens, sink green area, seepage pavement, etc.[4]

From the coastline to inland

Articles with keywords "Coastal planning" and "Sea-level rise" on WOS are only 106 in total, while 2012 was an inflection point for research in this field where the number of studies increased gradually. The massive increase in research after 2012 is due to some global climate catastrophes that have risen significantly in recent years. The representative Sandy Hurricane disaster-hit many countries in 2012 – 2013 and affected 24 states in the United States. Many coastal metropolises were severely affected. After the disasters, professional practitioners realized that design must be considered from coastline to inland to achieve adequate protection and adaptation. Therefore, many studies and competitions were initiated, such as *Rebuild by design*. Many frameworks for coastal adaptation to these Impacts have been proposed. In these theories, Ecological planning has proven to be effective in improving urban resilience. The landscape of the Toms River-Barnegat Bay ecosystem in New Jersey is a proof-of-concept,[5] showing that collaborative design can improve the ability of shore regions to recover from storms and sea-level rise if it uses a broad concept of the shore's ecological and geomorphological structures. "Resilience districts" Theory offers the appropriate decision-making unit (DMU) to analyze, design, and implement fair resilience strategies. Each of these districts is operated by deploying a spatial strategy that responds directly to its particular set of challenges.[1]

In conclusion,

- compared to the traditional grey coastal defense, ecological collaborative design is proven to be effective in improving the ability of shore regions in many regions to recover from storms and sea-level rise;
- studies of Coastal protection are multidisciplinary, including coastal defense engineering, ecology, landscape design, etc. are mostly concentrated in their own fields, and the study of integrating multi-field research

in spatial design still needs to be studied; – The review of contemporary coastal adaptation to SLR shows that there is a lack of a master planning design support tool that can be generalized on similar areas, providing planning and design guidelines for the implementation of adaptation design that aid in improving region's resilience to tackle hazards by sea-level rise. This research aims at filling in this gap.

Macroscale: A proposed 'ecological coastal passages' network

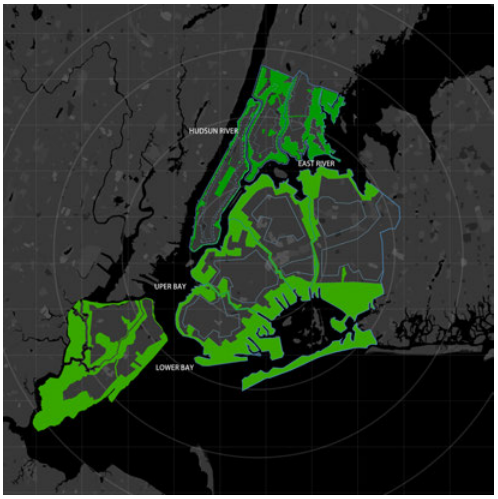
This part details a macro-level design approach for the CEP network, using New York as an example. The CEP network combines potential ecological and geomorphological structures with existing spatial characteristics at the macro level. [1] Connected potentially with fragmented open green spaces and based on the existing urban morphology, the CEP forms a system of buffers to the transportation system and critical infrastructure. Under the premise that priority can be given to protecting critical infrastructure and roads after a disaster, ecological passages can be exploited to absorb the impacts of floods and storm surges, enhancing the city's resilience and capacity to withstand disasters.

Design Phases

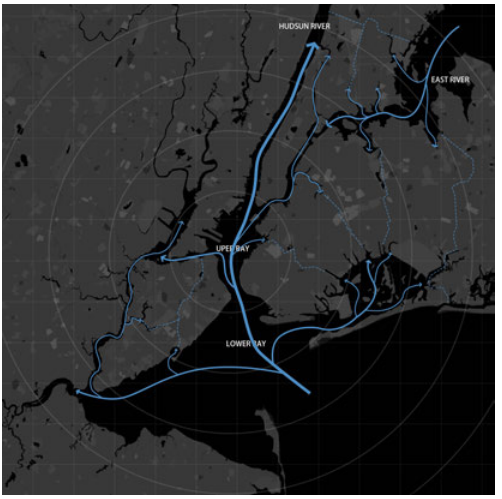
A. Urban Vulnerability Points/Areas at risk: Use urban morphology and urban vulnerability analysis to map vital infrastructures and points to 'protect' the city from the hazards.

Infrastructures, including Transportation and energy supplies, are the vital baseline for post-disaster assistance and reconstruction and are also fragile elements. Those are the primary objectives of the CEP network to protect by providing buffer zones. While wastewater treatment facilities are essential to treating the watershed's wastewater and stormwater before it flows into the bay, they can pose a threat if flooded. Ten of the city's fourteen wastewater treatment plants released partially treated or untreated sewage into the water during Sandy, and nearly half of the pumping stations keeping the city's stormwater and sewage systems moving were out of service due to power failures. According to the Facility Registry Service (FRS) datasets from the Environmental Protection Agency, wastewater, power plants, hazardous waste sites, pollutant discharge sites, bulk storage facilities, toxic chemical sites are taken into consideration, such as Jamaica Bay Water Pollution Control Plant, Motiva Long Island Terminal, Allied Aviation Fueling Facility, etc.

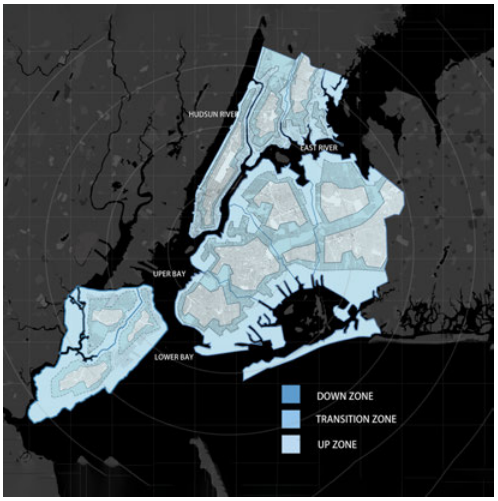
The transportation infrastructure includes major intra-city arterial roads, inter-city highways, railway tracks, etc. Transportation ecological passage should be built to increase the resiliency of train lines and roadways to prevent negative economic impacts on the communities that rely on them and ensure evacuation routes to coastal locations, including the



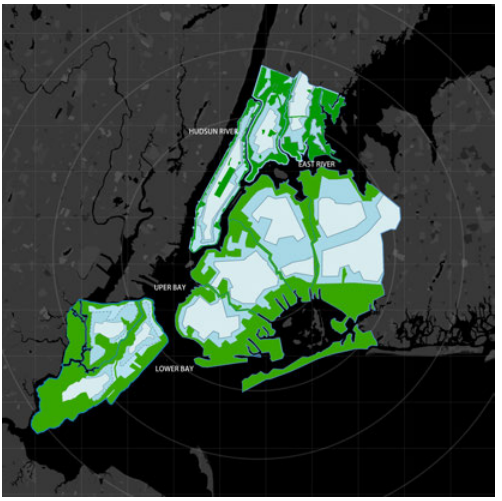
1



2



3



4

Figure 1: The proposed network of ECPs in New York City

Figure 2: The outline of proposed New York ecological coastal passages schematically

Figure 3: Tiered resilience districts defined by ECP

Figure 4: Tiered resilience districts with all kinds of ECP

Rockaway Peninsula, remain accessible prior to a severe storm. The possible actions are combing the vegetation on both sides, raising the road height, or setting green-gray embankments on both sides of the road to protect the transportation infrastructure.

The vital transportation infrastructure map collation's sources are from New York State National Geospatial Data Assets (NGDA), NYC Metropolitan Transportation Authority (MTA), Open Street Maps (existing runways), Regional Planning Association (proposed runways), Department of Urban Planning (NYCDCP).

Thus, "Map of Urban Vulnerability Points/Areas at risk" can be identified from transportation infrastructure, critical (energy plants, medical institutions, food storage, signal stations), hazardous infrastructure (wastewater treatment plants, power generation facilities, and fields of oil storage tanks), vulnerable neighbors (poverty, vehicle access, number of residents with disabilities, English fluency, prevalence of children and seniors).

B. Projected Hazards' risk

Understanding the probability and potential impacts of future flooding can provide policymakers, planners, and designers with a projection of a probabilistic future that encourages actionable adaptive design strategies, despite indeterminacy. I take the projected risk of storm surge, tidal cycles, flooding. Data is from NYC Flood Hazard Mapper.

— For example, where one should park a car so that it is not impacted by a hurricane

— Encourage planned retreat and ecological restoration of higher-risk areas that are likely to be permanently inundated

C. Urban morphology

Urban morphology: linear spaces (roads, etc.), scattered green areas, fragmented open spaces, topography, etc.

The construction of the CEP network leverages the city's existing linear spaces (roads, etc.), fragmented green spaces, scattered open spaces, topography, and natural ecosystems to reduce the reliance on hard infrastructure and human intervention for a less costly and low-impact-development CEP framework. Figure [2] shows a scheme of proposed ecological coastal passages.

Four types of ecological passages

1 'Transportation ecological passages' enhance evacuation potential and the ability of vulnerable populations to reach health care centers during severe storms or disruptions and transfer density to less vulnerable areas;

2 'coastal defense passages' are hybrid coastal defenses of nature-based coastal revetment and protective constructions(walls, dams, dikes);

3 'River ecological passages' reconceive the shore connecting the beach to the inland;

4 'Thick zone edge ecological passages' combine hard and soft infrastructure, leveraging opportunities that capitalize on existing linear features such as highways and rail corridors. Coupled with hard structures (walls, dams, dikes, and stairs), soft protective infrastructure such as earthworks (terraces, mounds, and berms) would be built parallel to the coastline;

Proposed resilience districts

Once the network of CEPs has been identified, resilience districts will be formed accordingly. Figure [3] shows the tiered resilience districts in New York.

Once the resilience districts have been identified, they will be sub-divided into three distinct zones. [4]

Proposed ecological resilience districts

Combined with the toolbox at the micro-level, different GI approaches are used for different points on the CEP. Figure [5] shows the master plan of the final CEP network in New York City.

3. Conclusion

The review of contemporary coastal adaptation to SLR shows a lack of a master planning design support tool that can be generalized on similar areas, providing planning and design guidelines for the implementation of adaptation design that improves the region's resilience to tackle hazards brought by sea-level rise. This research filled this gap.

Compared to the traditional grey coastal defense, ecological collaborative design is proven to improve the ability of shore regions in many regions to recover from storms and sea-level rise. The theory of metropolitan 'resilience districts'[1] offers the appropriate decision-making unit (DMU) to analyze, design, and implement fair resilience strategies. However, how to scientifically set the boundaries of the resilience districts and guide the implementation of the design of the city-scale? The theory of Ecological coastal passages strategy can be a potential answer.

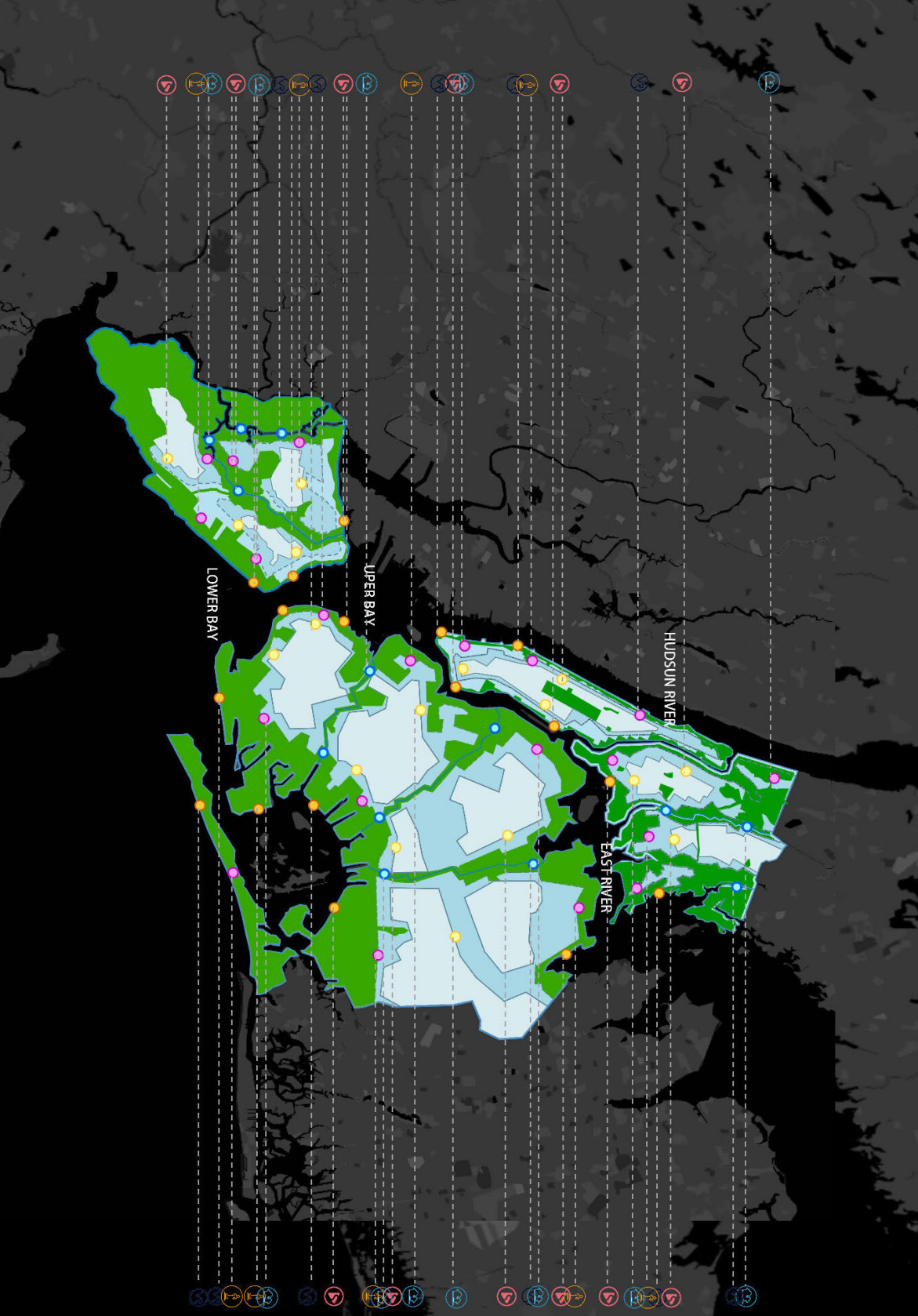


Figure 5: Master plan of the CEP network in New York City

1 Berger, Alan M./Wilson, Michael/Susskind, Jonah/Zeckhauser, Richard J. (2020): »Theorizing the resilience district: Design-based decision making for Coastal Climate Change Adaptation«, in: Journal of Landscape Architecture issue 15(1), pp.6–17.

2 Tessler, Zachary/ Vörösmarty, Charles J./ Grossberg, Michael D./Gladkova, Irina/ Azeinman, Hannah/ Syvitski, Jaia/ Foufoula-Georgiou, Efi (2015): »Profiling risk and sustainability in coastal deltas of the world«, in : Journal of Science issue 349, pp. 638–643.

3 Hürlimann, Anna C./Nielsen, Josh/Moosavi, Sareh/Bush, Judy/Warren-Myers, Georgia/March, Alan (2022): »Climate change preparedness across sectors of the built environment – A review of literature« in: Environmental Science and Policy volume 128, pp. 277–289.

4 Foti, Enrico/Musumeci, Rosaria E./Stagnitti, Martina (2020):): »Coastal Defence Techniques and Climate Change: A Review« in: Rendiconti Lincei. Scienze Fisiche e Naturali issue 31(1), pp.123–138

5 Saleh, Firas/ Weinstein, Michael P. (2016): »The role of nature-based infrastructure (NBI) in coastal resiliency planning: A literature review«, in: Journal of Environmental Management issue 183(3), pp. 1088–1098.

6 Tu, Xianming/ Tian, Tina (2015): »Six Questions towards a Sponge City —Report on Power of Public POLICY: Sponge City and the Trend of Landscape Architecture«, in: Landscape Architecture issue 3(2), pp. 22–31.

7 Burger, Joanna/O'Neill, Karen M./Handel, Steven N./Hensold, Brie/Ford, Gina (2017): »The shore is wider than the beach: Ecological Planning Solutions to sea level rise for the Jersey Shore, USA«, in: Landscape and Urban Planning issue 157, pp. 512–522.

Everyday Practice as Paradigm to Study Architectural Contemporary Codes

Claudia Mainardi, Politecnico di Milano



Intermediate/final doctoral stage

Supervisors: Gennaro Postiglione, Politecnico di Milano; Gaia Caramellino, Politecnico di Milano; Christoph Grafe, Bergische Universität Wuppertal

everyday practice, ethnography, tacit knowledge

Abstract

This paper intends to illustrate a specific part of the PhD project. More precisely, as part of the international network "TACK: Communities of Tacit Knowledge: Architecture and its ways of knowing" led by ETH, each researcher has been asked to develop an ethnographic investigation for a few months in an architectural office – decided a priori by the doctoral board. – The purpose of such secondment finds reason in the idea to reinforce the relationship between theory and practice and, more explicitly, disentangling the so-called "tacit knowledge," central theme of the PhD program itself: a concept first formulated by Michel Polanyi to refer to that knowledge that we own but that we have difficulties making explicit.

To sum up, the paper aims to illustrate the secondment's investigation mode and its crucial role in the research: acting as a pilot case, this served to identify a methodological blueprint to apply with other case studies identified within the project.

Artefact

The practice-based secondment at Onsitestudio[1] started in September 2020. At that time, the Covid-19 pandemic seemed to give a respite. The intention was to use the investigation as a pilot case to identify and test a methodology that could be repeated with other practices. The definition of a model could, in fact, allow to extract a corpus of consistent sources and therefore facilitate the comparison between different ways of practicing architecture.

Unaware of what could have happened, the initial idea was a five-months ethnographic research[2] divided into three phases: a first one made of observation – behind the scenes – to gain awareness and formulate a position; a second one of interaction, in which once I had acquired a certain awareness of the dynamics of the study, I would have moved on to confrontation through interviews and surveys with different actors; and a third in which I would systematize the data collected in the two previous phases.

The first two months actually went according to plan. I attended the office twice a week and followed the in-progress activities: site visits, internal and external meetings with clients, archive investigation, day-to-day observation of the office routine and design processes, but also collateral activities such as lunches and coffee breaks – which in hindsight turned out to be among the most important moments in which anecdotes and a more intimate dimension of the office dynamics emerged. [1]

From the very beginning, the objective was not to follow a project vertically but rather to move transversally, attending as many different activities as possible. The research, in fact, interested in the studio's method and approach, aimed at observing both the actual design process and the subjects that influence it, i.e., to name a few: the office space, the



Figure 1: Excerpts from onsitestudio in-person ethnographic investigation held from September 2020 to February 2021.

positioning of the studio within the larger spectrum of the discipline, the background of principals and employees, their relation with the academia, the communication with clients, consultants, and a general audience, and the networking or the system of recurrent collaborations with whom they relate.

Since the end of October, the pandemic situation has worsened, and the restrictions imposed by the Italian government led Onsitestudio to close the office by transferring the activities online. [2]

At that moment, Onsitestudio decided that it would not reopen until spring.

At that moment, I understood that the characteristics of flexibility and adaptation to the contingencies of ethnographic research should have been implemented more than ever.

At that moment, the methodology necessarily had to change.

No more social interaction. The web-cam has become the only intermediary and a window into the private lives of employees, collaborators, and clients. An office email was created for me to keep track of activities and connect anytime with whomever I wanted. No more two days a week defined a priori, but total freedom of action to the point of having experienced following several meetings simultaneously. I have been very kindly copied several times in internal and external emails to guarantee a greater understanding of the process; and I was given the credentials to access the online server to keep abreast of the various projects'

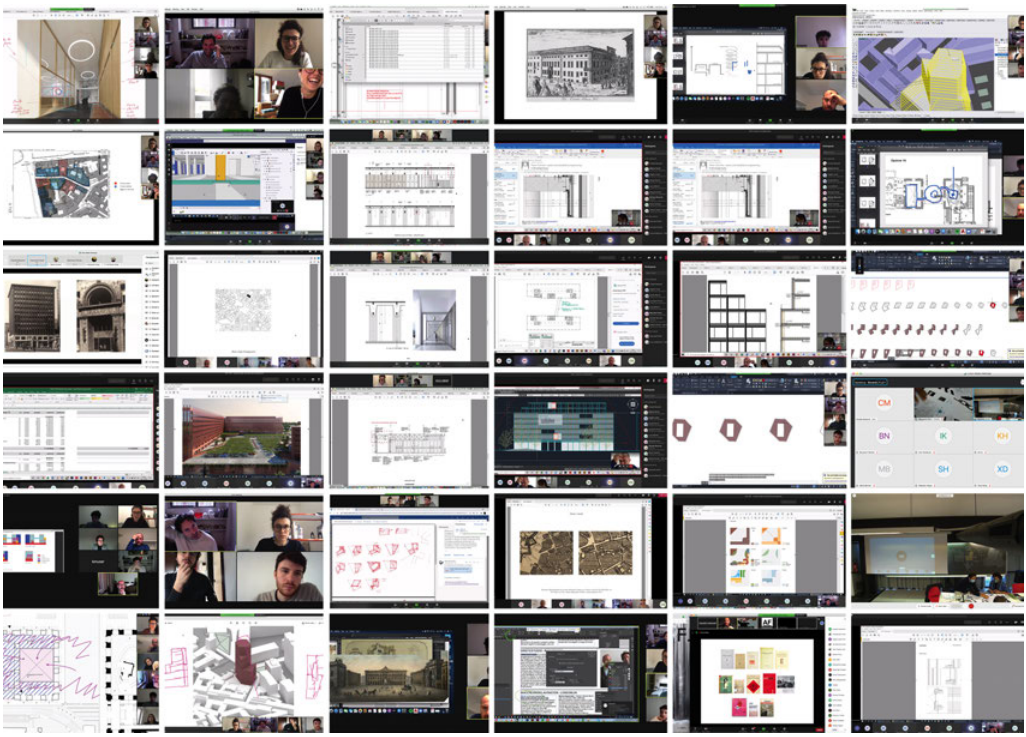


Figure 2: excerpts from onsitestudio digital ethnographic investigation held from September 2020 to February 2021.

progresses and work organization, besides being allowed to analyze the past projects placed in the 'archive' folder.

The access to the server was of great help to understand the firm's working method.

It has let tacitly emerge, among others: a transparent, horizontal, and non-hierarchical structure in the design process, with folders equally accessible to everyone – from the directors to the interns – favoring an active part in the design process from anyone; – a prevalence of urban projects and office buildings for private clients, real-estate companies, and corporations; a recurrence of historical references with a particular interest in post-war Milanese architecture –adopted either in the design process, in their writings, or in the communication of their work; – a representation that reminds an in-between Swiss and Milanese schools[3] attitude; and recurrent collaborations –both with consultants and architects– based on shared similar agenda and interests, outlining the networking within which the office operates.

With hindsight, I also realized that my practice-based background has tacitly influenced and helped manage the investigation. Angelo Lunati and Giancarlo Floridi – Onsitestudio's principals – and I already knew each other before starting the investigation. To better say, until September 2020, we never introduced ourselves, but we were aware of our respective activities: their office and Fosbury Architecture, my collective of design and research. Angelo and Giancarlo have been teaching for years at the Politecnico di Milano, where I studied, they have been professors of some of my colleagues, and we share common

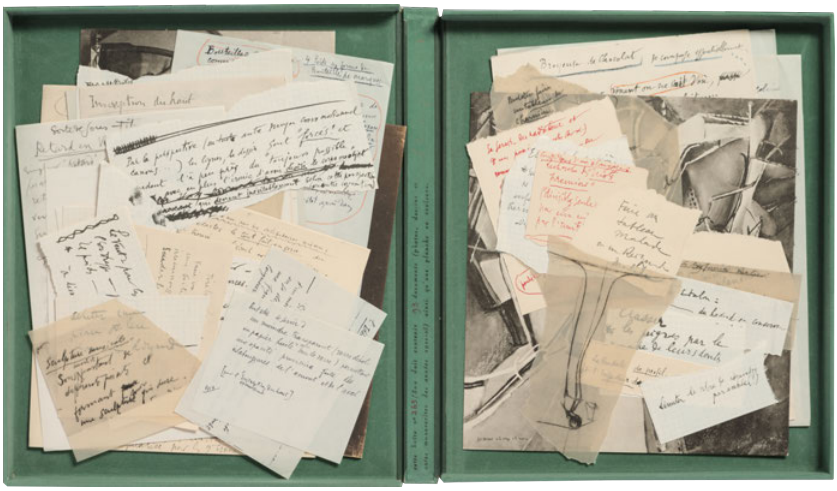


Figure 3: Marcel Duchamp, The Green Box, 1934 © Succession Marcel Duchamp/ADAGP, Paris and DACS, London 2021.

acquaintances. I didn't know the details of their work; nevertheless, the shared networking gave me an idea ofthe *milieux* they belonged to. An intuition that was confirmed since the beginning of the investigation through tacit but consolidated codes among practitioners, such as, to name a few, the graphic character of drawings – both in terms of design and graphics – the type of references, the interests, and the issues raised.

While on the one hand, my practice-based background[4] implicitly directed what to look for to achieve the final purpose (i.e., investigating the codes and conventions that characterize the design process of a studio); on the other hand, I had to make a great effort to make explicit aspects which until now I had reflected upon in my daily practice, but not in analytical terms. I.e., I never wondered about the reason of a particular reference. Still, I knew that looking at specific ones rather than others could reflect belonging to a certain network, and a clear positioning within the discipline at large.

To sum up, my personal embedded knowledge combined with the ethnographic research made possible to identify in detail the various elements interfering in their design process.

In order to systematize the investigation, the collected results and the pieces of evidence have been combined into a draft publication.

Inspired by Marcel Duchamp's *Green Box* [3], the envelope – ocher in color as one of Onsitestudio's dominant palette hues – has been used as a container for heterogeneous and differently characterized materials – from primary sources to edited contents – to guarantee multiple reading levels. The main product contained is a fanzine structured in the form of a *glossa* enriched with a series of marginal notes in textual and iconographic form.

Without any radical ambition, the only reason for conceiving and designing this fanzine was the need to let emerge the complex and implicit aspects of a multi-layered investigation whose study could become an essential instrument for both architects and critics. Relevant to the point

that I believe such analysis could be proposed as an integral part of the curricular work experiences that academies require to students. It could be a valuable tool for pupils to assess their work experience in the making and constitute a tool of first-hand sources for researchers whose study orients towards practice and critique.

More in the immediacy, this seems a suitable instrument for the reflection, investigation, and transmission of the other practices identified by the research. As a sort of publication series – one per case study – this could enhance comparison[5] between them, an aspect on which the research places importance as it is considered capable of strengthening the peculiar characters and codes that distinguish the implicit knowledge of each.

Yet, some open questions are still to be deepened. I.e., as typical of ethnographic processes, the surveys can't be defined a-priori, on the contrary, they will be shaped and restructured based on each case's needs and availability. This could mean that some offices will offer more openness and flexibility, while others less. In this perspective, if the data and starting conditions are not the same, does it still make sense to think about comparison? Also, what narrative tone should be used? What if it changes as a way to reflect an additional aspect embedded in each office's distinctive way of working? Finally, how should my auto-ethnographic[6] experience as a designer be – or not be – reflected in each of these stories?

1 Milan-based architectural firm led by Angelo Lunati and Giancarlo Floridi: http://www.onsitestudio.it/.

2 Yaneva, Albena (2009): Made by the Office for Metropolitan Architecture: An Ethnography of Design, Rotterdam, NL: 010 Publisher.

3 Which, among other characteristics, are recognizable by very clean, black and white wireframe drawings, desaturated collages, and carefully-made maquettes.

4 Practicing both as employee in various offices – ranging from Rem Koolhaas' OMA/AMO to Stefano Boeri's Multiplicity.lab passing through the Het Nieuwe Instituut, MVRDV and The Why Factory, among others, – well as with my collective Fosbury Architecture.

5 Werner, Michael/Zimmermann, Bénédicte (2006): » Beyond Comparison: Histoire Croisée and the Challenge of Reflexivity «, in: History and Theory issue 45(1), pp. 30–50. https://www.jstor.org/stable/3...

6 Chang, Heewon (2008): Autoethnography as Method. Walnut Creek, California: Left Coast Press.

Reversible Tectonics Learnings From the Past

Heidi Sørensen Merrild, Aarhus School of Architecture

Initial doctoral stage

Supervisors: Thomas Bo Jensen, Aarhus School of Architecture; Anders Christian Bregnballe, Aarhus School of Architecture

tectonics, circularity, carbon balance

Abstract

This research project examines the definition – and hopes to provide a deeper understanding – of "reversible tectonics" as a sustainable driver in architecture by exploring an acute selection of a premodern building tectonics and reflects upon its possible design translations. Aiming at a new expression in architecture based on reversible solutions and a circular use of traditional materials adapted to the reality of today's construction techniques. Reversibility, durability and functionality defining the cohesive, tacit language of premodern buildings. Reversibility as the capacity to imagine materials, elements and components within a larger cyclical perspective of architecture, whether endless reuse or natural degradation.

DDR statement

Selected, revisited collections and principles from pre-modern buildings are introduced as practical tests (mock-ups) in the design process. The mock-ups must be seen as practical tests in the design process, which must investigate and develop methods and concepts for the principles of reversibility, and thus an understanding of lifespan/courses in relation to resources, tectonics and ecology.

It's a practice-based research approach, in the Project, using Research through Design (RtD) as a method. RtD is an approach that focuses on design processes and makes it possible to explore, articulate and develop the 'silent knowledge' that unfolds in architectural practices.[1] Selected RtD method are relevant in design and architecture because theory and concept development are tied to a material in the form of drawings, models and mock-ups. The theory incorporates the reflective forms of practice of architecture and stands outside these through critical evaluation. This project is based on a design driven research that involves materials research, development work and tectonic experiments, which are used to investigate how material properties, tectonics, detailing can qualify a reversible architectural (tectonic) discourse.

1 Dunin-Woyseth & Nilsson, 2012

Extended abstract

This research project seeks to create tectonic quality, being readable, and thereby creating clarity, not only in present tectonics but also in how it will allow architecture to adapt over time. The concept of tectonics covers an expanded understanding of 'construction technique' – aesthetic and artistic preferences by virtue of its familiarity with the concept of 'techne'.[1] This is a challenge to the way we think about architecture today, where the architecture often becomes a flat canvas, unable to unfold tectonic layers. The tectonic becomes static and offers little ability for change, alteration and adaptation over time. Instead, the research seeks to explore architecture that engages and creates a connection to the world, a future that revolves around a gradual illumination of all the connections that are needed to preserve our existence.

The research strives towards an architecture, as a continuous exchange with nature, being obliged to give something back, not only in architectural quality but also as objects and materials. The philosophy of nature and radicalism, points to the 'non-Anthropocene' aspect, where we must learn how to 'be' ecological, a principle of the way we are connected to nature and the ability to interact with 'the other,' i.e. other than man. This consciousness cannot take the form of knowledge within the conceptual framework of man, a Procrustean which sets boundaries, or an artificially invented measure towards creating sustainability.[2]

By making things, giving them physical presence, and framing them from different contexts, architects are able to attain knowledge on many levels. The Italian philosopher, contemporary of Descartes, Giambattista Vico, posed the thought that "one can only know what one makes." By making things, giving them physical presence, seeing them from different angles and framing them from different contexts, architects are able to attain knowledge on many levels. The tinkerer breaks, disassembles, and opens up something in order to see and understand its logic. Breaking can be revelatory. It can also be creative if it operates as critical removal, alteration or strategic demolition or disassembling. Set within this conceptual framework, the project starts from the disassembly and reassembly of a traditional Norwegian pre-modern house, a Nordlandslån[3] The project seeks to learn about reversible tectonics by dismantling, replacing, repairing and reassembling the existing condition, made through a series of exercises. The project will eventually unfold and rethink the existing typological building and new additions in more contemporary architectural design in models and drawings.

The learnings from exploring this Nordlandslån, estimated to be 150 years old, moved, adapted and changed over time, talks about a craftsmanship rooted in nature. The local natural grown spruce, reveals a slow growth in a harsh climate, giving its durability. The tectonic, is an example of optimal use not only in terms of recourse but also an understanding of the local growth conditions and possibilities, using the geometry of trees in a natural way. The moss (Hylocomium splendens) grown in symbiosis with the tree, is used in the wooden connections, stacking and tightening the logs, and it also functions as an antiseptic material.

The Nordlandslån is built in layers, with an understanding of lifetime span, durability and inherent values in the materials, using different techniques for different functions, only using the massive wood logs where the highest comfort is needed. The additive way of connecting the wooden units is done in an optimal and sharing way, knowing the local climate and living conditions. Its geometrical form and size and heavy roofing are defined by an understanding of wooden properties, context and gravity with no anchoring – just stacking and connecting. Traces of decay on the surface of the wood are mainly superficial, revealed when repairing and redoing pieces. The tectonics of this log house have been developed over hundreds of years, it seems to hold a certain rigidness to its system – one would have to know the system, being able to make qualified variations, changes and modifications.

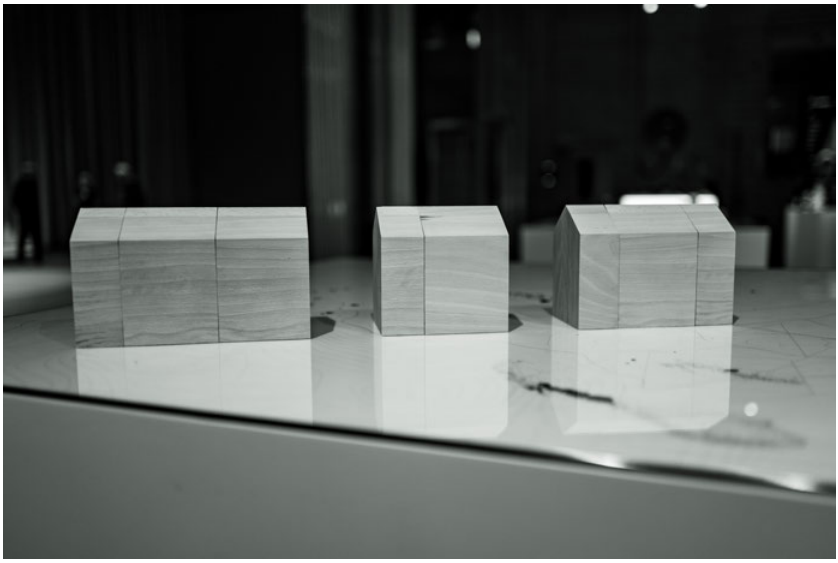


Figure 1: Additive
Additive, add, join or connect is a fundamental principle in the Nordlandslån. The building is made over time by adding, joining and connecting individual wooden units and even subtracting at a later time. This pre-modern building typology is done with a deep understanding of the local context – a longhouse with a narrow geometry, translating local resources and adapting to the harsh climate in Beiarn, Salten. Dwelling or habitation units are built and added one by one, family by family as the village expands or at a later point dissolves and the units are moved and reconnected in another place. All under one skin, a sacrificial layer, a thin cladding of wooden boards.

Buildings come from nature, they are nature with a precise form. Concrete, stones and bricks are elements shaped through labor, as artificial artifacts but they decay and can be left in nature as ruins or natural forms. Clay has been used for hundreds of years and is a resilient and reversible material and as a building material earth or clay has in its original form a low impact on the environment. The tree is a different living being anchored in the ground. Through its characteristics, the tree allows us to envision a new space of references. We find memory in motions, it captures, draws and encodes data from the surroundings. It has potential for growth (size, volume), respiration (carbon balance), flows(of sap) growth (photosynthesis), cohabitation (insects, organisms) and attachment (the earth) – a point of life.

Can we, through the additive, stacking and connecting[4] values I have identified in the current exploration of a traditional Norwegian building, revitalize todays tectonics and create architecture as a second nature?

Concrete and bricks are rigid materials with a high impact on the environment, clay is resilient with a low impact, trees withhold a carbon balance. Skin, trees, soil and buildings are all sensitive to the effects of pollution and climate change – everything is connected by the climate. Can we define reversible tectonics with a carbon balance in mind?

The exhibition I'm currently setting up offers very few answers and even more questions, at this early stage of the research. The aim is to share the PhD work in process and if possible identify potentials by critical assessments and open discussions. The work unfolds the process of making, making things, giving them physical presence as mock-up 1:1

and models. It explores and learns about reversible tectonics by dismantling, replacing, repairing and reassembling existing conditions of a Nordlandslån in 1:1. The exhibition shows how tectonic grows, deforms and exists within a range of variations with focus on the additive, stacking and connecting materials, components and elements. This abstract includes a presentation which unfolds these 3 aspects as reversible tectonic, connecting to the "point of life" – a circular thinking.

I find it relevant to explore and define the three values, Additive, Stacking and Connecting, not only the words, origin but also how this relates to making communicated by photos. The following texts is to be understood in relation to the photos.



2



3



4



5

Figure 2: Resources
The tree is a different living being anchored in the ground. The tree is an ecosystem and it combines scales through reiteration and fractal development. The tree depends on a relationship with the ground, its substrate but also other organisms that surround it, including humans. Just like that, exchanging carbon and oxygen is involved in the world in a global way as well. The point of life is not an organism that is closed around itself, on the contrary, it contains the world. The dark old log shows a growth of about 100 years or more and wildly grown, the light new wood on the top reveals a fast growth, about 20 years in a plantation with optimal conditions for fast growth but with less interior qualities.

Figure 3: Connecting
By understanding the tree and its properties we are able to bind or tie parts together, codependent pieces creating a whole. A network of trees or wooden beams defining a geometrical form and size just by gravity - no anchoring and just connecting. I like to add connection to another understanding and exploration. A connection that is a global understanding of the resources and our connectedness with the other – other than humans. The value layered in the tree – the point of life, and seeing the potential of buildings as a second nature.

Figure 4: Absorption
The moss (Hylocomium splendens) grown in symbiosis with the tree, a detail another fractal organism with a different scale compared to the three but a point of life too in a local and global setting, depending on all other human and non-human organisms on the exterior climate conditions. In the structure, it works as an absorber of moist, air, movements and changes over time

Figure 5: Roof
The simplicity of the roof is rooted in geometry and gravity. This together with the main tectonic – stacking. The roof covering in this housing typology is typical turf or local slate – thereby contributing with a certain load as an important factor of the hole. Also the slope of the roof is responding to the length of the wooden stock – a connectedness with the growth and local Forrest of this context.



6



7



8



9

Figure 6: Head
The knowledge and craft of the laftehus or loghouse the log as different parts referred to as body, neck and head. The body creates the stability, the neck is the connection, interlocking the logs together and the head is the lock for movements by the user or surroundings. The head is also the weakest point in this framework, also most exposed. Later typologies of this craftsmanship also consider this weakness to ensure a long durability.

Figure 7: Stacking
The tectonic premise of stacking is found in many materials and processes of creating materials – take the haystack, a large pile of hay, grain, straw, or the like, larger at the bottom than the top, sometimes covered with thatch roof. Through its characteristics, it allows us to envision a new space of references like the trees. The stacking, subtracting minimum "meddraget" of the logs makes it possible to add one unique log on the top of the other and make them connect. This simple framework allows changes over time within the overall framework and network.

Figure 8: Framework
The logs, the trees from root to top are used, mirrored, stacked and connected, a maximum use of the origin of the trees and at the same time quite valuable considering the number of trees needed for one unit. This is understood in the overall design, using this framework only where high comfort is needed, considering the insulation value of the material. The system adds up – meaning no matter how the trees are shaped in the forest, they are unique but have the same exterior conditions, creating the overall connectedness in the design of the log houses framework. understanding the local growing conditions and possibilities, using the geometry of trees in a natural way. The tectonics of this log house have been developed over hundreds of years, seem to hold a certain rigidness, being able to make variations, changes and modifications.

Figure 9: Minimum
Decoding the logs allows an understanding of the past and its exterior conditions, and shows how time has allowed for interior values and qualities by the exterior conditions. The surface of the trees or logs conditions might show decay and root but going deeper beyond the surface reveals a robustness created by time, growth – the exterior conditions. Not possible to replace also a reason for taking away as little as possible. A minimum impact.



Figure 10: Repair
The framework allows for repairing or renovation of each individual log by lifting or dismantling the system. Not a simple work but allows for change and optimization and future use of the units.

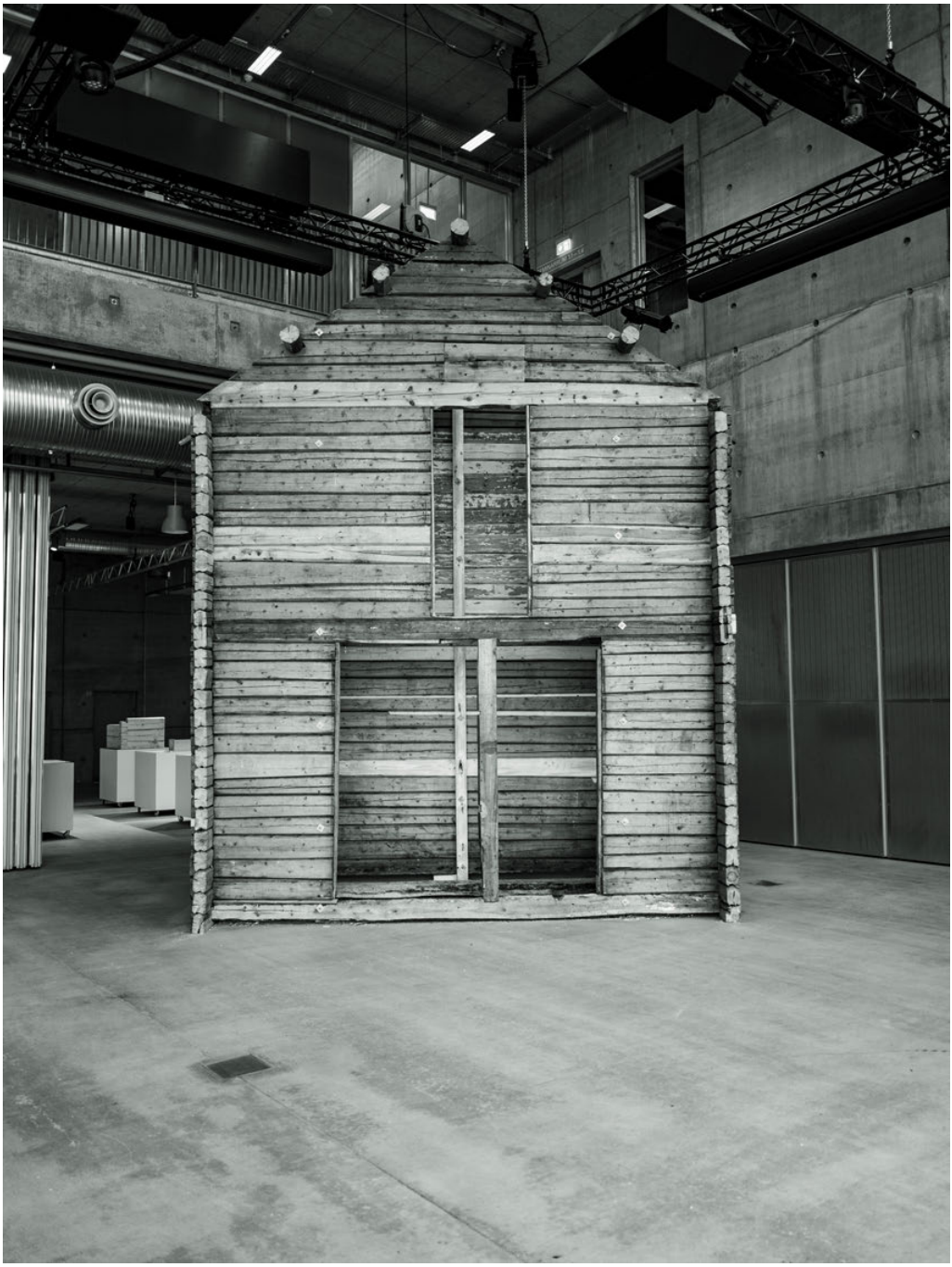


Figure 11: Section
The overall system by stacking and connecting logs. A unique kind of parts, making the hole with robustness and adaptability still being approx. 150 years old, have been moved twice in the local area and now transported, repaired, and reassembled again for a possible future translation.

1 Greek for arts and crafts, trans. Martin Heidegger (1999).

2 Timothy, Morton (2012): The Ecological Thought.
Massachussets: Harvard University Press, pp. 28–33.

3 Nordlandslån Beiarn, Salten, Norway; The building type is housing and has a characteristically low upper floor with almost square windows just below the cornice. It is with minimally unnecessary details and most often without windows on the short sides, especially on the so-called weather side, the side that is most exposed to wind. Nordlandslån has been rebuilt, reassembled and redefined many times, often with a varying number of housing units within the building body. The tectonics of this historical knowledge and craft is often referred to as body, neck and head.

4 **Additive:**
Additive coming from Late Latin additivus, added, annexed, also from past Latin addere meaning to add to, join, or attach. Additive is characterized by, relating to, or produced by addition.
Connecting:
1. Connecting coming from Latin connectere meaning "fasten together," from con-"together" and nectere, "bind". Con- coming from co-, taken as a living prefix meaning "together, mutually, in common," and used promiscuously with native words as codependent. Ned- from nectere, Indo-European root meaning, to bind or tie. It forms all or part of; annex, annexation, connect, connection, denouement. Net meaning netting, network and mesh.
2. Connected, from French connexer and from Latin connexare, a supposed frequentative of conectere. Connecter meaning to establish a relationship also meaning, awaken meaningful emotions.
Related words are connected, connecting, connectedness.
Stacking:
Stacking from English, stack, stacke, stakke, stak, from old Norse stakkr "a barn; haystack; heap; pile." From Germanic stakkaz, a barn, rick, or haystack. From Proto-Indo-European steg, a pole, rod, stick or stake. Cognate also with Icelandic stakkur, a stack and in Swedish stack, a stack, in Danish stak, stack and in Norwegian stakk meaning stack. Stack is decribes as, A large pile of hay, grain, straw, or the like, larger at the bottom than the top, sometimes covered with thatch.
From Online Etymology Dictionary, https://www.etymonline.com.

The Materialisation of the Joint Re-reading the Brion Cemetery Through the Agency of the Drawing

Enrico Miglietta, Politecnico di Milano

Final doctoral stage

Supervisors: Gennaro Postiglione, Politecnico di Milano; Annalisa de Curtis, Politecnico di Milano; Jo Van Den Berghe, KU Leuven; Thierry Lagrange, KU Leuven

#

architectural joint, materiality, design attitude

Abstract

Starting from the investigation of three works, exemplary of a way of proceeding through the fragment, the research intends to demonstrate how interpretative analysis can extract essential principles for the design of the new. Following a rationale of *passionate criticism*, it sees in the work on the material carried out by Carlo Scarpa, Sigurd Lewerentz and Juliaan Lampens the possibility of 'drawing' insights that are still relevant to the work of architecture. Observing their buildings through full-scale drawings, it is possible to speculate how the projects were conceived (and built) starting from a reflection on the minimal elements of architecture and on the expressive value embedded in the materials.

The joint can thus become, if not only observed as an element of connection of disparate elements but as an agent of the design process, a form of transcendental scheme, through which we can reorganise a reflection on the whole process.

Artefact

This exploration of drawing artefacts is positioned within an ongoing doctoral research through design. Starting from the investigation of three works – exemplary of a way of proceeding through the fragment – the research aims to demonstrate how interpretative analysis, understood as the analytical disassembly and synthetic reassembly of the constructions, can extract a series of essential principles for the design of the new, according to a principle of *passionate criticism*[1] that sees in the particular work on the material carried out by architects such as Carlo Scarpa, Sigurd Lewerentz and Juliaan Lampens the possibility of 'drawing' insights that are still relevant for the work of architecture.

In particular, the observation of Carlo Scarpa's Brion Cemetery is proposed as a paradigmatic example of a *way of seeing* and a *way of doing*. The visit to the architect's work is a bodily and emotional experience, through which we are guided by the medium of detail. By breaking down the work into its fragments, and observing them through a full-scale redrawing, we can speculate how the project itself was conceived (and built) out of reflection on the minimal elements of architecture and the expressive value somehow embedded in the used materials. From the refined decorative elements in bronze, sacred and non-sacred furnishings, to the exposed concrete walls and foundation elements overflowing into the water, whose formworks can be seen as works of 'cabinetry', the project reveals obsessive care for each element, and the non-existence of elements subordinate to the general composition, but rather a poetic intention originating from them. If we take a close look at a certain number, analysing the relationship between material definition and geometric constitution, we can begin to glimpse how the work's vectorial intentions have their point of onset starting from the joints, from those structures that relate different components, materials or uses of the project. In these, it is possible to find a condensation of principles, from musings on the measure-module to complex symbolic stratifications and meanings, which form the complex stratigraphy of the whole, and therefore its internal coherence precisely from the scale of the tangible.

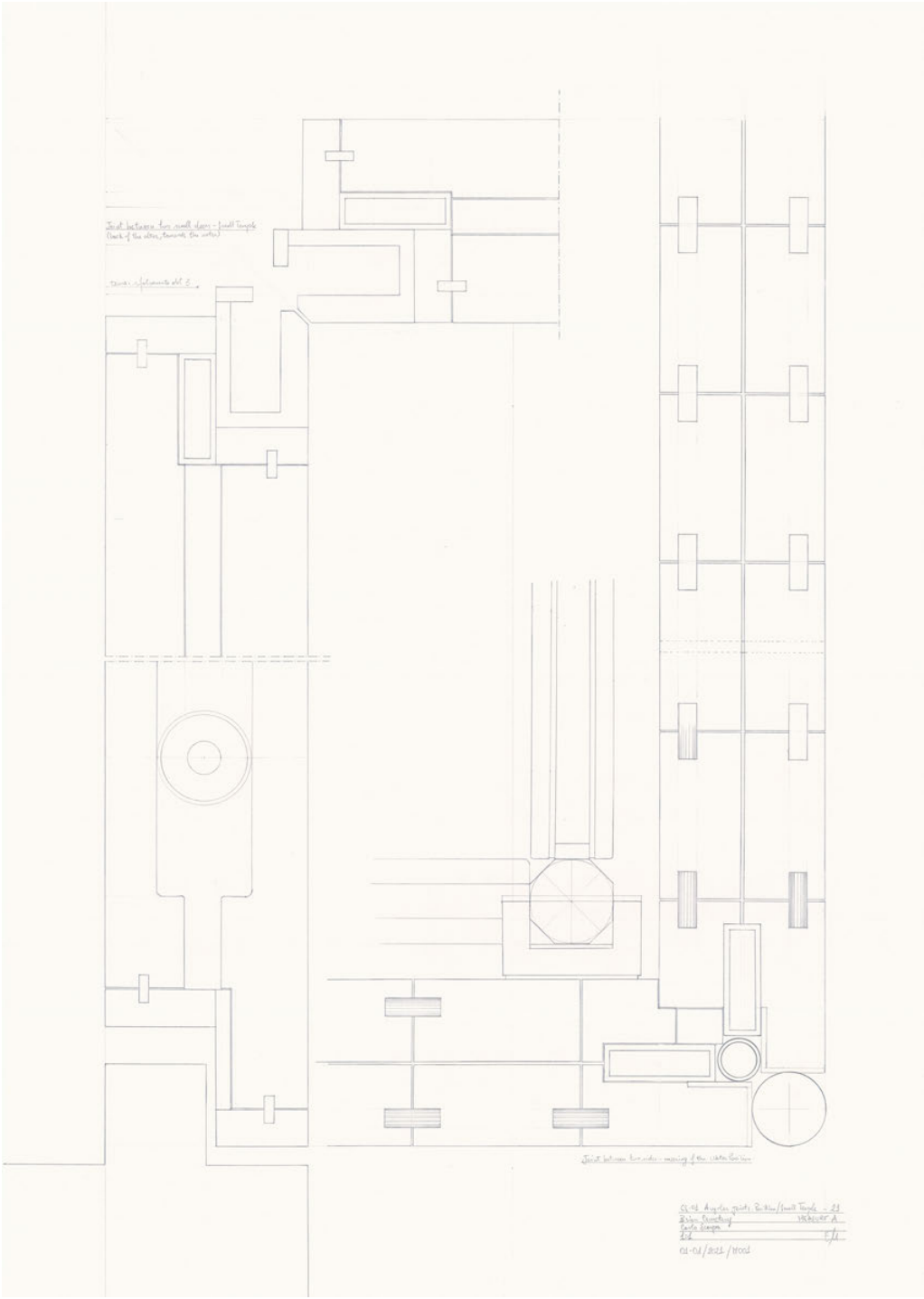


Figure 1: Brion Cemetery. Junction between orthogonal sides of the crowning and with the panels of the velarium (Meditation Pavilion), comparison with the 'water gates' behind the altar (Tempietto). Drawing by Enrico Miglietta. Pencil on paper, 700 × 500mm, scale 1:1

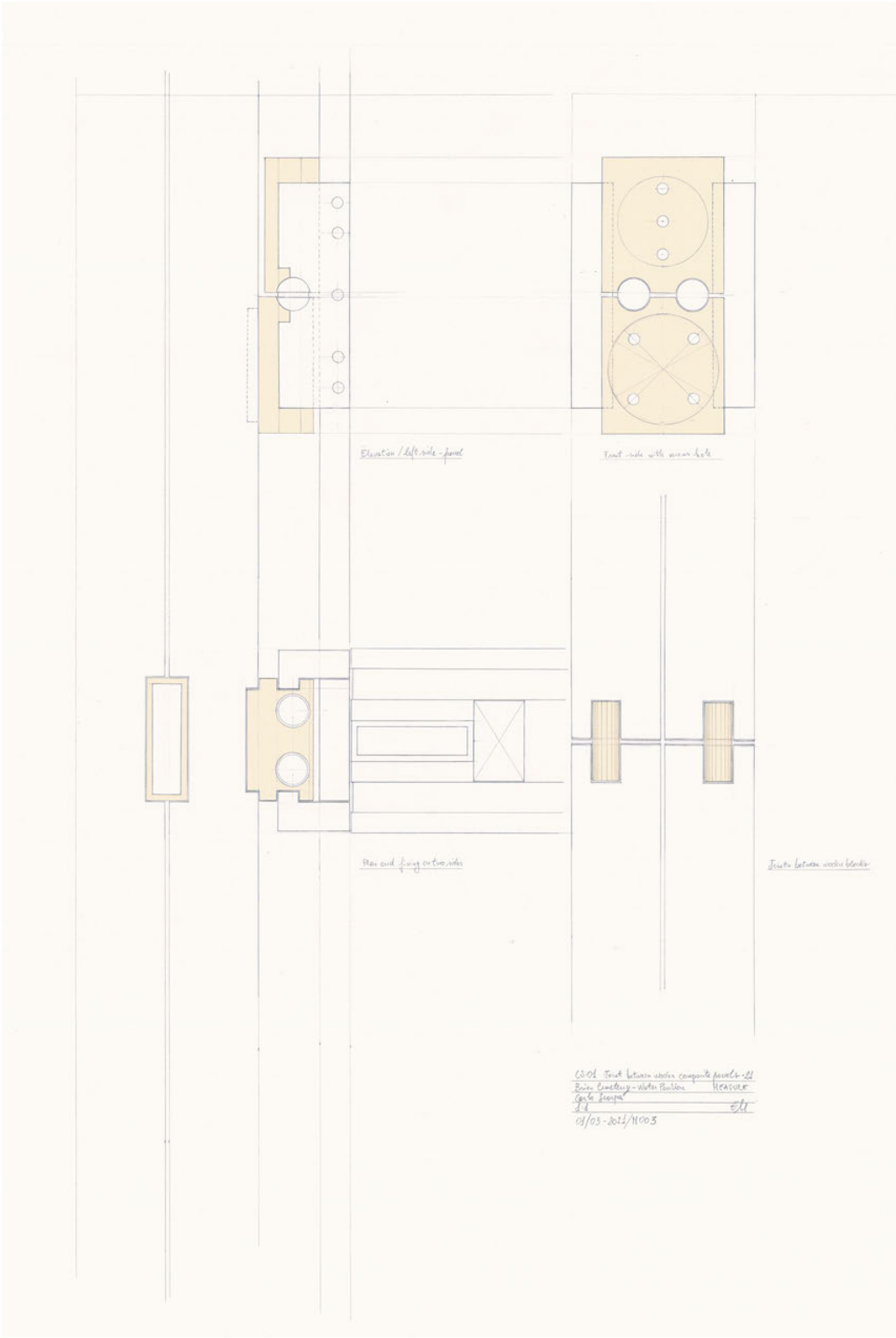


Figure 2: Brion Cemetery. Junctions between panels on the same plane (Meditation Pavilion – crowning). Drawing by Enrico Miglietta. Pencil on paper, 700 × 500mm, scale 1:1

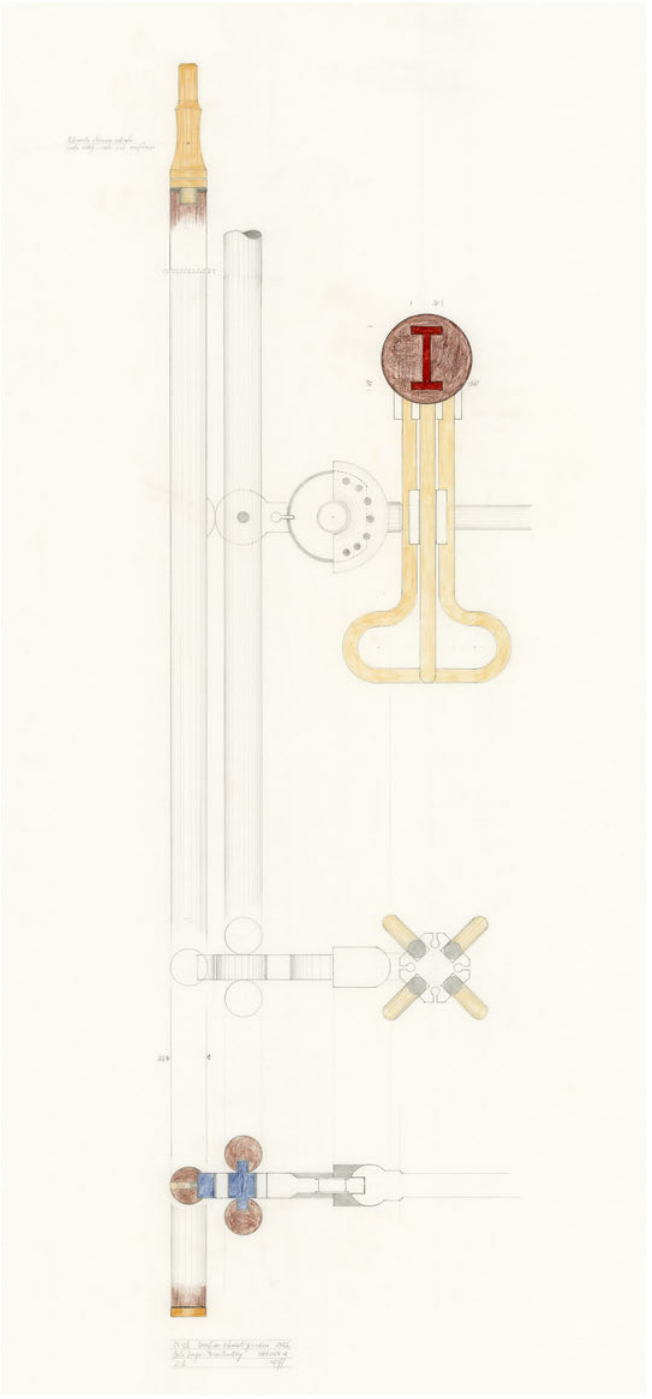


Figure 3: Brion Cemetery. Structure of the crucifix and connecting elements between the wooden rods (Tempietto). Drawing by Enrico Miglietta. Pencil and coloured pastels on paper, 930 × 430mm, scale 1:1

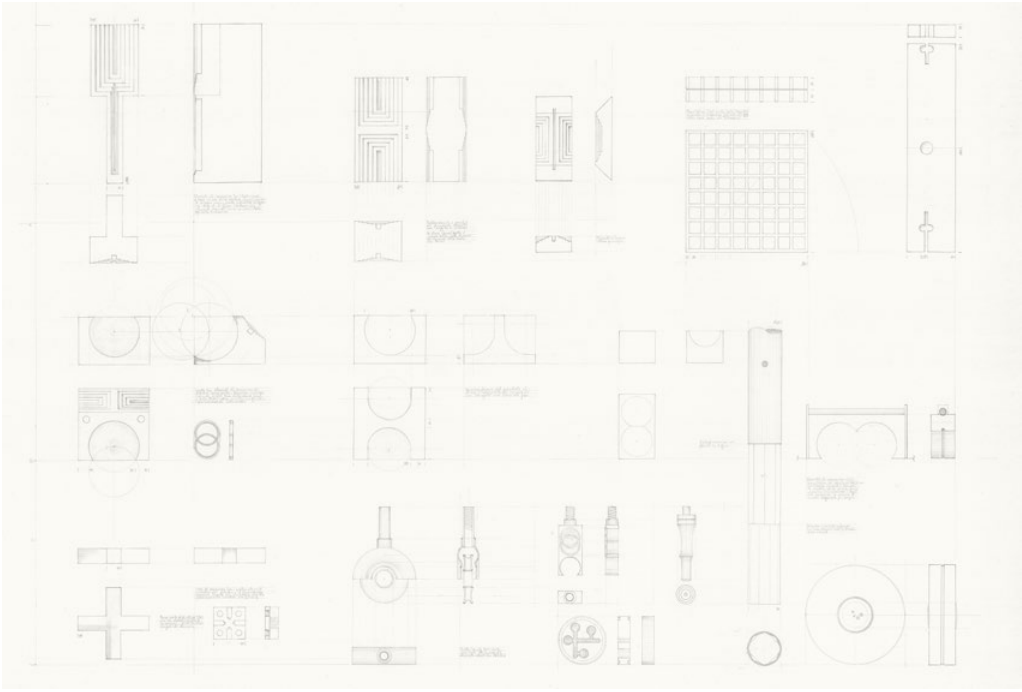


Figure 4: Brion Cemetery. Abacus of joining elements at full scale, materialised as autonomous entities. Drawing by Enrico Miglietta. Pencil on paper, 1285 × 875mm, scale 1:1

Thus, by shifting the inquiry from single objects to partial systems, we can physically describe that series of operations aimed at defining the vectors according to which architectural space is articulated. Proportional or *analogical* systems are derived as sets of rules for the combination of parts that make structures intelligible, beginning to reveal in most cases a secret harmony made up of tracings, regulating figures of the different stratifications of the project. The nature and points of onset of the latter are thus interrogated through the logic of the drawing, in which the structure is stratified through components that should each time verify the mereological correspondence between the part and the whole. In the Brion Cemetery, the relationship between construction and representation is brilliantly resolved. The redesign of a section is permeated by vectorial intentions always aimed at resolving the joints, the mouldings, showing extraordinary tension in each one. The construction does not work from a general scale to the particular, but reverses the process, presenting itself as a systematic stratification of 'moments' in the cyclical time of the project, remeasured through an elaborate use of geometry as an ordering element. It shows a constant search between constructed and perceived form, in which the constant "manipulation of discrepancies" is the method used to achieve expression.[2]

The joint, observed as a singularity within the architectural organism – to say it a la Mandel'štam – "breaks the reins of time" and, as a supra-historical and supra-cultural element, defines the intelligibility of the whole of which it is part, making explicit the character of the work, its cipher. In the same way, it sets in motion that "playful game" of fragments and figures,[3] a constellation of gestures that embody artisan experiences, historical and aesthetic dimensions.

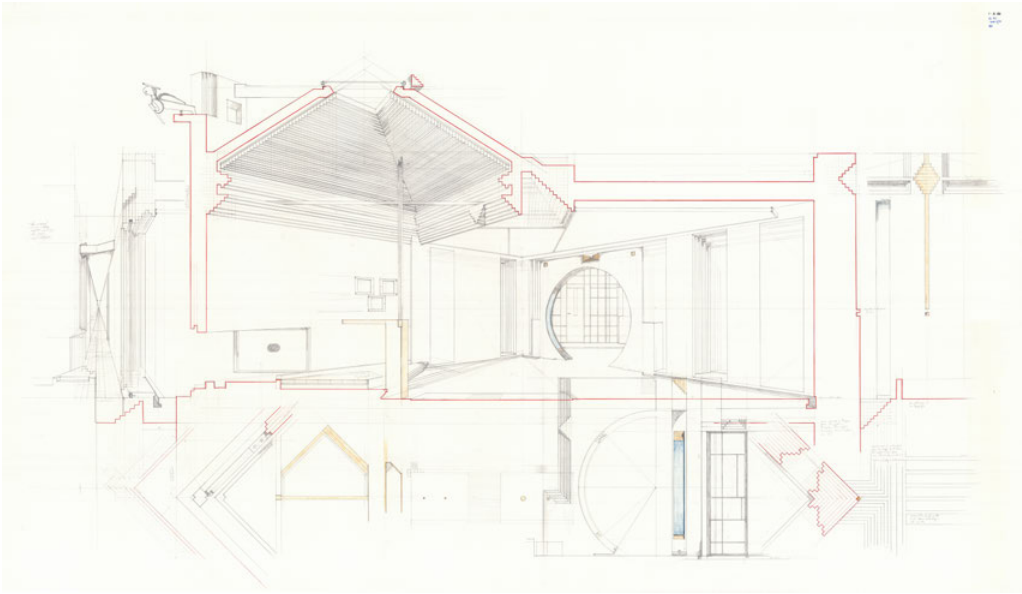


Figure 5: Brion Cemetery. Diagonal perspective section of the Tempietto. Drawing by Enrico Miglietta. Pencil and coloured pastels on paper, 1800 × 1000mm, scale 1:10

If the research process reveals some findings that can be seen as 'embedded' in the work, at the same time it outlines some potentialities inherent to the drawing methodology defined for the investigation, and the one employed by Scarpa (through the reading of the original drawings). In fact, starting from the full-scale drawing obliges a reflection on the physical and constructive qualities of the materials: in the correlation between different elements it is necessary (or at least desirable) that they are linked by more or less complex relationships, as well as for the assembly, that their position is determined by precise correlations. From the outset, this produces an awareness of production and construction processes, which are, together with the definition of a calculation system and beyond arid technological reasoning, design themes that make it possible to give expressive value to the specific potential energy of the employed resources.[4]

The joint can thus become, if not only observed as an element of connection of disparate elements but as an agent of the design process, a form of transcendental scheme, through which the reflection on and stratification of the project can be organised. The implementation and development of the practice of *critical sequential drawings*[5] (cyclical practice of hand-drawing, reflection and critical questioning of what the drawing shows, how it was made, and how it can be improved) and of *chronological drawings* (production of drawings that reflect on the relationships between the phases of the site, its logic, and their relationship with the production of architectural poetics) allow the theoretical reflection to be accompanied by practical tools for the development and control of such a project, and thus the definition of a personal reflective practice.

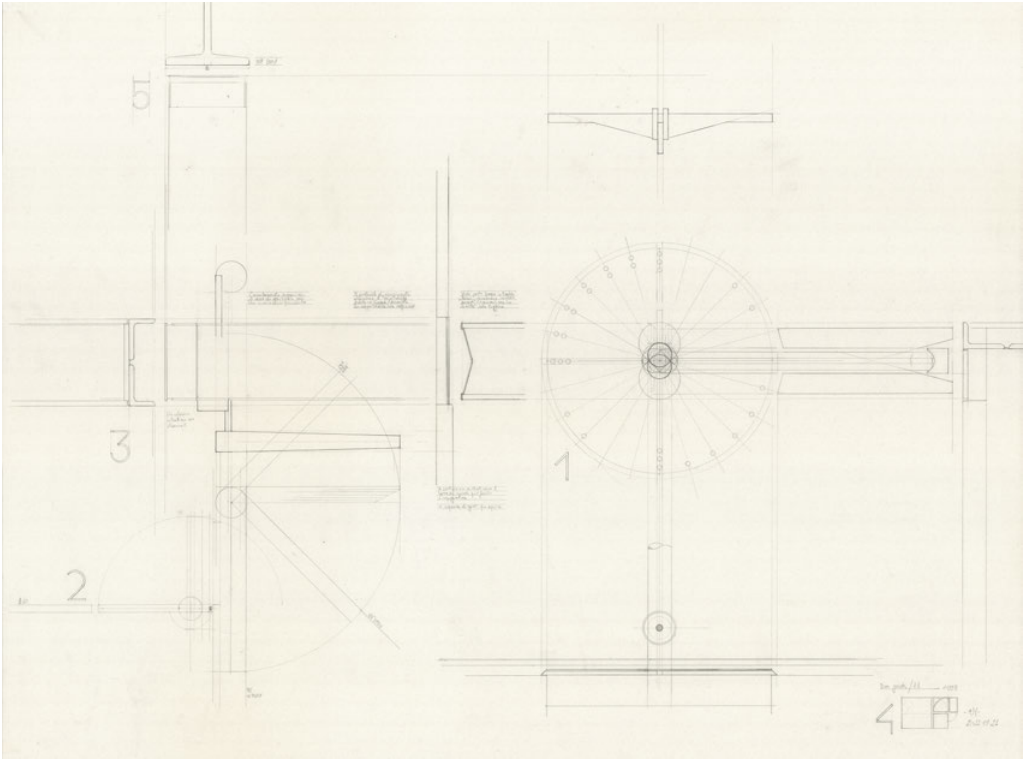


Figure 6: Research by Design. Door joint and pivoting mechanism (own design). Drawing and project by Enrico Miglietta. Pencil on paper, 1000 × 760 mm, scale 1:1

1 Cf. De Fusco, Renato (1999): »La storiografia è progettazione«, in: Op.cit. issue 104, pp. 5–13.

2 Frascari, Marco (1983): »The Tell-the-Tale Detail«, in: Deely John N./Lenhart Margot D. (Ed.), Semiotics 1981, Massachussets: Springer, pp. 325–336.

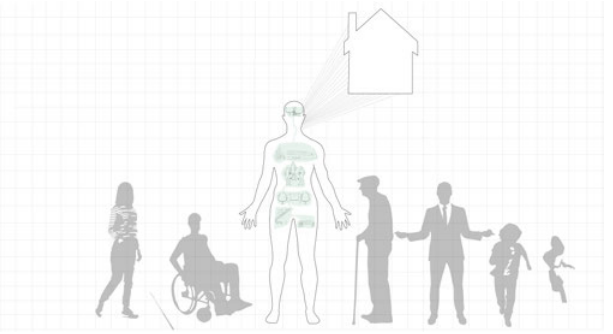
3 Cfr. Tafuri, Manfredo (1984): »Il frammento, la "figura", il gioco. Carlo Scarpa e lacultura architettonica italiana«, in: Dal Co, Francesco and Mazzariol, Giuseppe (Ed.), Carlo Scarpa 1906–1978, Milano: Electa, pp. 72–95.

4 Rogers, Ernesto N. (1997): Esperienza dell'architettura. Milano: Skira.

5 Critical sequential and chronological drawings methodologies are based on the studies carried out by Johan Van Den Berghe (2013) and the KU Leuven Faculty of Architecture Research Group "The Drawing and the Space".

Healing Homes A Search for the Design of Housing to Foster Wellbeing

Rose-Ann Mishio, Politecnico di Milano



Intermediate doctoral Stage

Supervisor: Alessandro Rocca, Politecnico di Milano

#

Wellbeing, Housing, Architecture design

Abstract

Europeans are approaching ageing and disability as a collective crisis in an era where the housing design is not child-friendly or promoting wellbeing, therefore what kind of homes should we design and build? Although housing typologies like carehomes, retirement homes, co-housing and intergenerational housing are being explored, they focus on aspects of wellbeing or do not include all people in design considerations, thus is incomplete. The position taken for this research is that architectural design of homes must go beyond building codes and preventing ill-health into one that considers all ages and abilities, and nudges towards wellbeing for a resilient future. The aim is to search for 'how' to design for wellbeing for all, to foster ageing in place, inclusivity and healthy living. The research is structured into six phases: desk research, surveys and interviews with architects and designers, design workshop and recommendations through an architectural design toolbox.

DDR statement

The research is an investigation into how to design homes for wellbeing for all irrespective of age and health status in response to a resilient future. The investigation begins from a historical review of housing projects of how pioneering architects have designed for wellbeing in the past (from the 1900s till date). It situates itself in this context by defining a 'new' research hypothesis of designing homes for wellbeing in the modern era. To introduce the hypothesis, it starts from theoretical research of both external and internal disciplines on the kind of architectures documented to foster wellbeing. The identified architecture's design principles and theories are then studied, mapped out and reformulated to identify the key concept of design. To identify current and practical key themes of designing for wellbeing, it uses an evidence-based approach where it identifies key themes that are common to the medical sciences, psychology, sociology, and architecture for a thorough reflection on the three aspects of wellbeing: physical, mental, and social wellbeing. Thus, the sciences give a justification and explanation to the architectural components and quality required for wellbeing. The research continues by delving deeper into the key themes through case studies and literature where it will reflect on wellbeing through the architectural qualities identified. It intends to then make recommendations based on the reflections of the key concept and key themes to suggest how to design and combine qualities of architectural elements in housing to promote wellbeing for all.

Ext. abstract

Homes and wellbeing

Attention to designing for wellbeing has grown tremendously in the past decade,[1] and this is not only due to the spiralling ageing demographics[2] which has given cause for attention to 'designing with care' especially in Europe, but also the increasing societal need to address wellbeing in a sustainable way toward a better quality of life which has been made evident in the United Nations Sustainable development goals (SDG's),

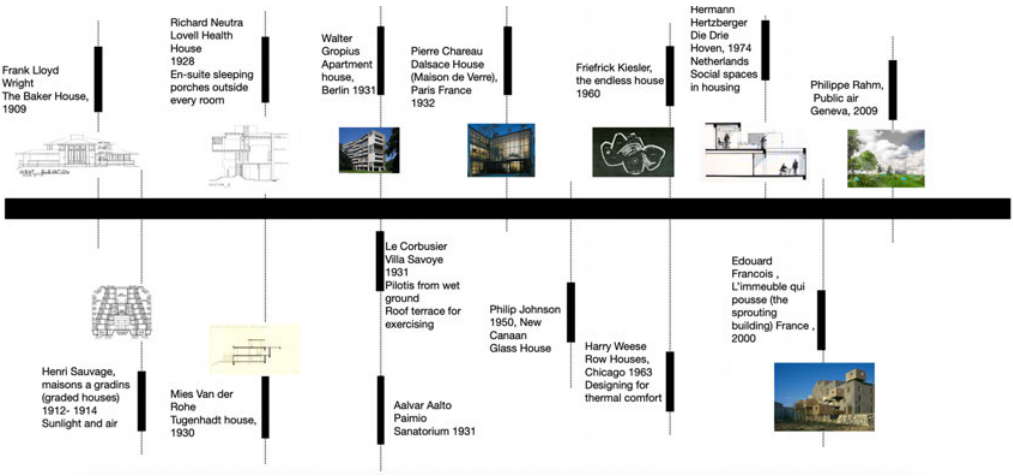


Figure 1: Pioneering architects on housing and wellbeing

specifically SDG 3, 10 and 11, which refer to good health and wellbeing, reduced inequalities and sustainable cities and economies.[3] The urgency of addressing the design of the home arises from the sky-rocketing care homes and facilities for the elderly,[4] the need to foster ageing in place,[5] the unsuitability of home designs for the disabled,[6] children and teens[7] the shared need for healthy living and last but not the least, the social responsibility of architects and designers who design these environments. But how do we design for everyone in a way that fosters holistic wellbeing? In Architecture, wellbeing as a concept is a cultural fact. Architects over the years have incorporated the notion of wellbeing in a bid to improve the quality of life through spatial means [1] Indeed, the word wellbeing has seen an evolution of its meaning through the years and architecture has obliged accordingly to accommodate these definitions. All 'changes' in architecture have been geared towards the wellbeing of man. Today, wellbeing in architecture doesn't only refer to 'comfort', but encompasses the architectural design to support the health of all people, considering the physical, mental, emotional and social effects of the occupant of the building.[8] In the quest to design homes for holistic wellbeing, the research poses these dire questions:

1 How do we design buildings that foster holistic wellbeing for everyone?

2 How can these traits be replicated in the design of the future home?

Hypothesis: The theory of Healing Spaces and therapeutic Architecture

An initial search on how to design for holistic wellbeing for all brought forth the concept of Healing spaces from both external disciplines like medical sciences, philosophy and human ecology to internal disciplines like design and architecture. Although it is difficult to define healing spaces because of the different definitions given by the diverse fields of research, the baseline is how these spaces are able to create ambiences to promote physical, mental and social wellbeing ie mind, body, spirit and relationships with others – holistic wellbeing, and also being accessible

by the frail and disabled. The very definitions, theories and principles of these spaces answered to a method of designing for wellbeing that answered the research's quests and thus were studied, analyzed, and articulated into a framework to help frame the thinking process. Although various logics were identified in literature, what was pertinent to the research were the design characteristics [table 1]. A further observation and reflection were done on selected case studies of healing architectures/spaces through redrawing and texts [2].

'Logic'	Concept	Design Characteristics	Impact	Sources	Year
Ecological	○ Biophilia(affiliation of Human and living things/ lifelike processes) ○ Sustainability	○ Presence of Nature ○ Emulating nature in design ○ Green-blue architecture ○ protects the environment ○ Daylight	○ Mental well being ○ physical wellbeing	○ Gesler W. ○ Salingaros N. ○ Forsyth A. ○ Sternborg E. ○ Schaller B. ○ Zahedi M. ○ Voinescu A. ○ Jencks C.	○ 2003 ○ 2015 ○ 2018 ○ 2010 ○ 2012 ○ 2017 ○ N.d ○ 2015
Physiological	○ Medical	○ 'Healthy' materiality of building envelope ○ Movements / active participation of man and architecture ○ aethetics	○ physical wellbeing	○ Thompson A. ○ Hassan Z. et al	○ 2004 ○ 2018
Sociological	○ Man as a social being	○ spaces of human-to-human connections ○ in-between spaces	○ Mental well being ○ social wellbeing	○ Hertzberger H. ○ Schaller B. ○ Jencks C.	○ 1991 ○ 2012 ○ 2015
Technological	○ Technology	○ telemedicine ○ use of technology to support independent living ○ virtual connections with people	○ Mental well being ○ social wellbeing	○ Van Hoof J.	○ 2017
Spiritual / cultural	○ Affiliations	○ spaces of social interaction ○ atmosphere of sacred	○ Mental wellbeing ○ Physical wellbeing ○ social wellbeing	○ Gesler W. ○ Schaller B.	○ 2003 ○ 2012

Table 1: Unpacking 'logics' of healing architecture

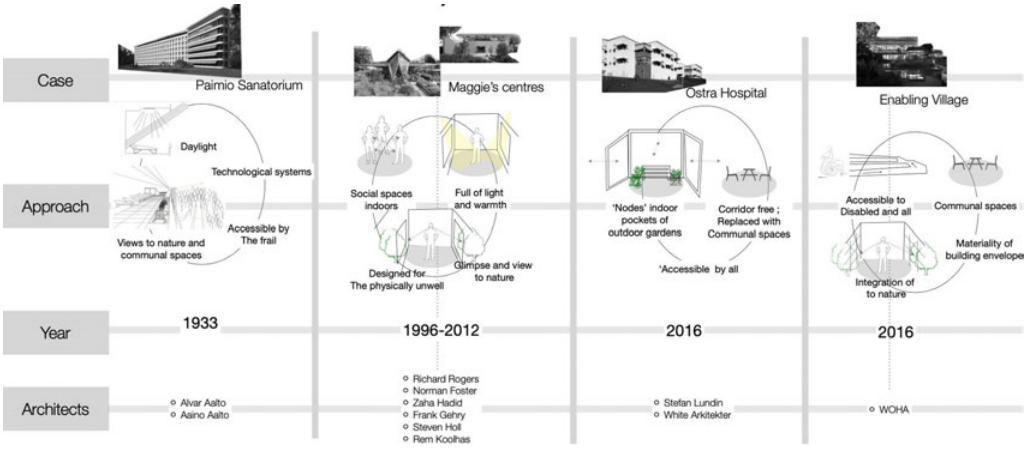


Figure 2: Analyzing case studies of healing architecture

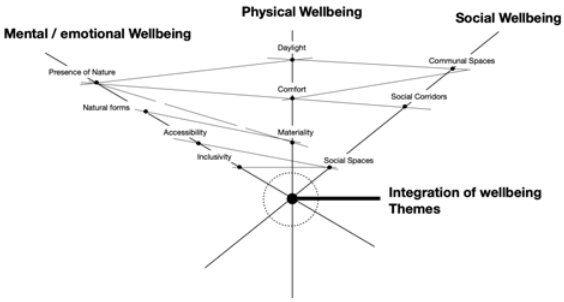


Figure 3: Reformulating analysis of case studies

Recommendation: Defining key themes and design concepts

Taking cue from the initial theoretical and case studies research, the project continues by proposing a key design concept – **integration** deduced from the analysis and reflection of the case studies [3]. It also produces the seven key themes of designing for wellbeing for the research by reformulating the themes derived from the theoretical research to set up the path for a recommendation of a design approach [4]. The key themes are identified from common themes across interdisciplinary research of medical sciences, psychology, social sciences, and architecture. This is done to have a justification of themes relevant to physical, mental, and social wellbeing to be sought out in architecture design. Thus the elaboration of these key themes will form from the basis of the design aspect of the research. The research continues by delving deeper into case studies and further literature based on the key themes: **Daylight, nature, comfort, accessibility, inclusivity, sociability, and materiality**.

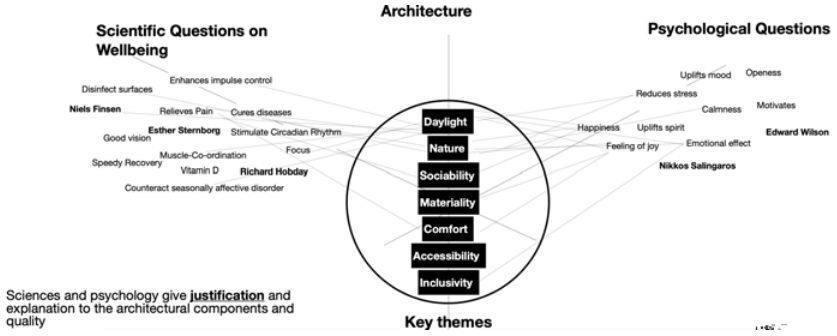


Figure 4: Defining the key themes of the research

Methodology

As an exploratory research, the methodology employed in the research is extensive to reach a wide scope of possible solutions. As such, the research is structured into phases addressing the question of "how to design homes that foster holistic wellbeing for all". The research begins

with scientific literature (Phase I). Here, the scope of scientific literature is wide, taking into consideration scientific papers, articles, books, lectures and conferences on the theme of the research from both external and internal disciplines. External disciplines being all fields outside architecture and design, specifically medical sciences, social sciences and psychology, and internal fields being architecture, interior design, design and landscape architecture. The research explores the kind of architecture that is viewed from the other sciences as one that promotes holistic wellbeing for all. It highlights the design criteria of such architecture and analyses some cases cited by the literature to develop key themes of the research. Although the research focuses on the design of homes, Phase I is open to other building typologies to seek out how architecture design fulfils the theme from other perspectives and disciplines. In Phase II, the scope is limited to internal disciplines. Here, case studies on the theme are analysed by reviewing only multi-family housing designs. The selection criteria of the cases are limited to Europe and the states, and the time frame is placed within the 21st century. The critical reflection on the analysis gives rise to the key design concept of the research – integration. Based on these suggestions, the research theory is born – the integration of key themes. The research continues with a delve into the seven key themes identified, with recommendations on why and how the integrations of these key themes can be a possible solution to designing for wellbeing. The future phases of the research will involve a series of surveys and interviews with architects and designers to have a comparison and wider extent of practical and radical contributions to designing housing in the modern era that nudges holistic for wellbeing for all. It will conclude with a design phase through recommendations of a design toolbox, and a design workshop.

1 Peters, Ann/Cain, Rebecca (2020): Designing for wellbeing: An applied approach, New York: Routledge.

2 United Nations (2017): World Population prospects: 2017 revision. UN-iLibrary. https://www.un-ilibrary.org/co... from August 2021.

3 United Nations (2016): Sustainable Development Goals. United Nations Department of Economic and Social Affairs Sustainable Development, https://sdgs.un.org/goals from September 2021.

4 McLaughlin, Tricia/Mills, Anthony (2008): »Where will we live when we get older?«, in: Quality in Ageing: Policy, Practice and Research issue 9, pp. 15–21.

5 Byles, Julie/Mckenzie, Lynette (2012): »Supporting housing and neighbourhoods for healthy ageing: Findings from the Housing and Independent Living Study (HAIL)«, in: Australasian journal on Aging issue 33, pp. 29–35.

6 McKinlay Douglas Limited/Etain Associates (2006): Housing Needs for People with Disabilities in the Bay of Plenty and Lakes Region. New Zealand: McKinlay Douglas Limited.

7 Ro, Christine (2019): The major cities being designed without children in mind. BBC Generation Project. https://www.bbc.com/worklife/a... from September 17, 2019.

8 American Institute of Architects (n.d): Design For Wellbeing. AIA. https://www.aia.org/showcases/...

Design Factors for Cultural Building Activation: Experiments Between Public Space Theory and Architectural Practice

Mar Muñoz Aparici, TU Delft

Initial doctoral stage

Supervisors: Roberto Cavallo, TU Delft; Maurice Harteveld, TU Delft

Public Space, Architectural Design, Cultural Building Activation

Abstract

In late modernity's context of uncertainty and change, humans seek common ground to interact and negotiate common meanings. Because cultural buildings host the negotiation of collective cultural definitions, they can be a tool to counteract urban challenges by strengthening public life and public values. Nevertheless, this poses a challenge for architectural practice to uncover the design factors that can activate the agency of cultural buildings in the public sphere. This research aims to elucidate which design factors affect public life through design interventions in existing cultural buildings. After presenting the conditions of publicity –visibility, accessibility and appropriation – the author tests how they can affect public life by using design as a research methodology through actual spatial interventions such as the one realized in the makerspace of Bibliotheek Gorredijk (the Netherlands). Finally, the paper concludes with recommendations for the architect's role in cultural building activation.

DDR statement

The separation between theory and practice, academy and profession or ideas and reality varies according to the field of expertise. In medicine, for example, published research informs the daily doings of doctors, and real-life cases support academic research. In the built environment, theory and practice often separate ways once students complete their education. The knowledge permeability from theory to practice is eminently focused on architecture's material reality – how it is built – and not its immaterial conception – how it is conceived. Dialogues between speculation and application are especially relevant in the case of public buildings because they embody abstract collective meanings. Public buildings are where citizens construct their common definitions of democracy, inclusion, beauty, or accessibility. Therefore, its intentional design presents opportunities to transform urban realities. Researching how theory can inform public building design could improve design's processes and results, therefore impacting in the city.

In this research, design-driven methodologies are the umbrella where methods belonging to theory and practice meet and interact. Combining theoretical literature review, case study, co-creation and spatial interventions and their associated tools ensure relevance and applicability to both theory and practice. Design is here the common research platform that lands the theory and abstracts the practice. Disentangling their common and uncommon codes and languages will open new ways to conform productive cross-recommendations.

Cultural Public Buildings as Public Life Containers

Public buildings are the physical container of the public sphere and therefore embody social constructs. To understand how design could affect a building's agency one must attempt to understand its entanglement with society. Public space design rarely absorbs the theoretical public space notions presented by philosophers or sociologists. There is enormous potential for integrating public space theoretical findings into architectural practice.

The current doctoral research explores the spatial design factors that can activate public life in an existing cultural building. Given their power to catalyse collective meanings, cultural buildings are a paradigmatic example of public buildings and therefore public life. [1] Museums, libraries, theatres, or music halls host the spatial collective negotiation and definition of art, literature, music or heritage. For this reason, testing public life theories on their grounds will allow extrapolating the findings to other programmed public spaces. The translation of abstract notions into specific spatial interventions will ground the theory and make it more accessible to mainstream design practice, eventually initiating dialogues between public space theory and building design practice that could contribute to better living environments.

With the final objective to discover the design factors that can activate public life, this exploration began with a review of writings and practices with a particular take on public life. The lessons learned and knowledge gaps found between public space theory and design practice formed the research hypotheses tested in the design experiments. [2]

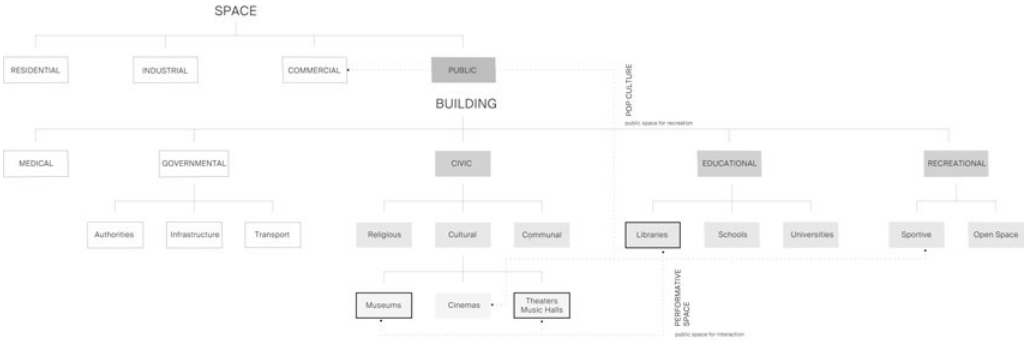


Figure 1: Public Building Classification: from land to interior. Made by the author.

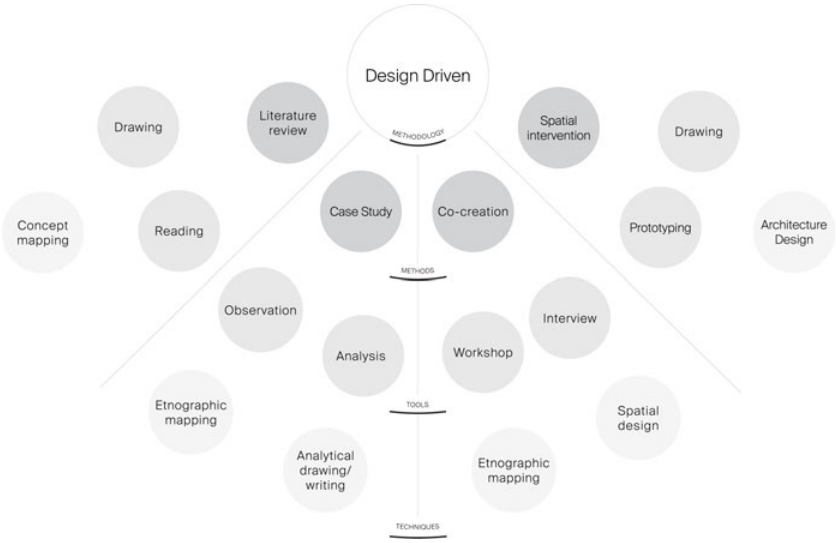


Figure 2: Design Driven Methodology: Methods, Tools, and Techniques. Made by the author.

Conditions of Publicity: to be and to be seen

Common knowledge often assumes that public buildings are all buildings publicly funded. This definition is partial and dated. Bauman defined our late modernity era as *liquid modernity* where the only constant is change, reference points are always shifting and so do the limits between the public and private realms.[1] What now is an office space could become a gallery in a few hours. Public space floods and retreats from all areas of physical and digital life. Therefore, contemporary public buildings are those permanently or temporarily engaged in the public sphere. To be engaged in the public sphere, spaces must respond to the following Conditions of Publicity:

- *Visibility:* appear in the public sphere.
- *Accessibility*: open for use by citizens.
- *Appropriation*: allow for clear and independent use.

For example, even though a community centre might be accessible to citizens and give them the chance to freely engage in public life, if it is not visible it will not be active in the public sphere. If people are not aware that it exists and that they can access it, they will not partake in it. Lacking these conditions will result in underuse, civic rejection, exclusion, or even public building disappearance.

Altering publicity conditions in a public building can activate their agency in the city and positively influence public life. The question is then how design can influence these conditions in an existing context.

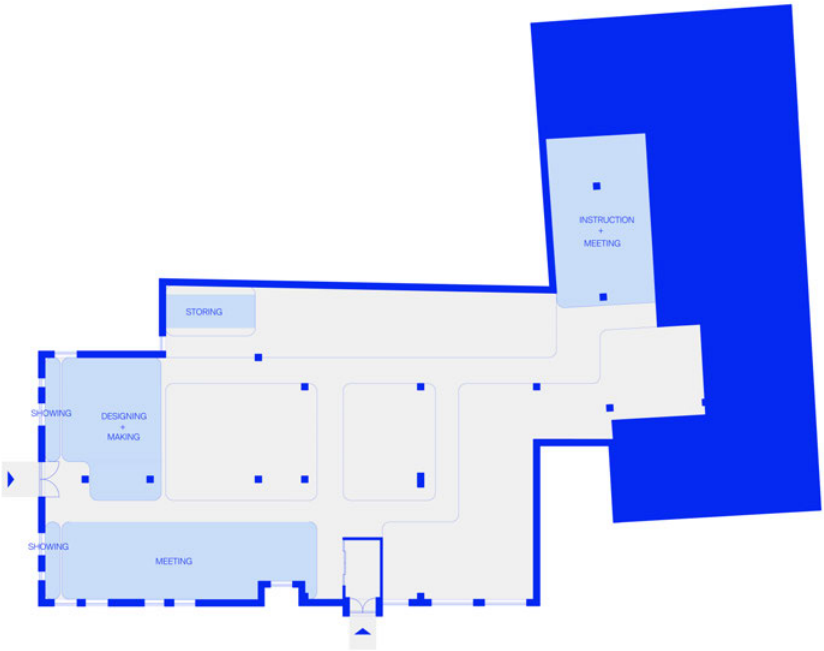


Figure 3: Public Sphere Activation. Bibliotheek Gorredijk. Made by the author.

Making public life: activating libraries as community spaces

In the United States, Denmark or the Netherlands libraries are shifting from knowledge consumption to knowledge production spaces. The implementation of spaces for citizens to invent, create or produce – *makerspaces* – has proven to revive the social importance of libraries by approaching it to different social groups such as children, elderly, unemployed or migrants. Yet, the spatial implications of the introduction of a new program within an existing institution are under-explored.

During a year-long collaboration with the National Library of the Netherlands, the researcher-designer worked with libraries aspiring to imagine, implement, and build a makerspace. Using design methodologies, the research has explored what are the design factors influencing the introduction of public programs aiming to strengthen to public life. Working simultaneously with four pilot libraries endowed the research with many opportunities to test the hypotheses on public life design factors. In particular, the case of Bibliotheek Gorredijk presented important learnings on the unexplored potential of spatial interventions to activate the agency of public buildings. The case study process followed the following steps: observation, co-creation, design, realization, observation, validation, reflection, iteration. [2]

When presented with the challenge to introduce a new programme in a cultural building – in the current case of makerspaces in libraries – the first step is to assess the existing situation. Furthermore, to produce socially relevant spaces, design must draw on collective intelligence.[2]

One cannot design for a community without the community. Therefore, the case study design departed with a co-creation process involving the library's employees, users, and partner organizations during group workshops. The insights from the workshops combined with the researchers' observations and analysis influence spatial advice with an emphasis on strengthening the makerspace's public condition (visibility, accessibility, and appropriation). The spatial advice – rather than a final design – proposed a layout to activate the makerspace's agency in a library including its most relevant functions. [3] The spatial advice transformed through co-creation into a series of spatial interventions aiming at activating the makerspace's agency within the library and the city. [4] [5]

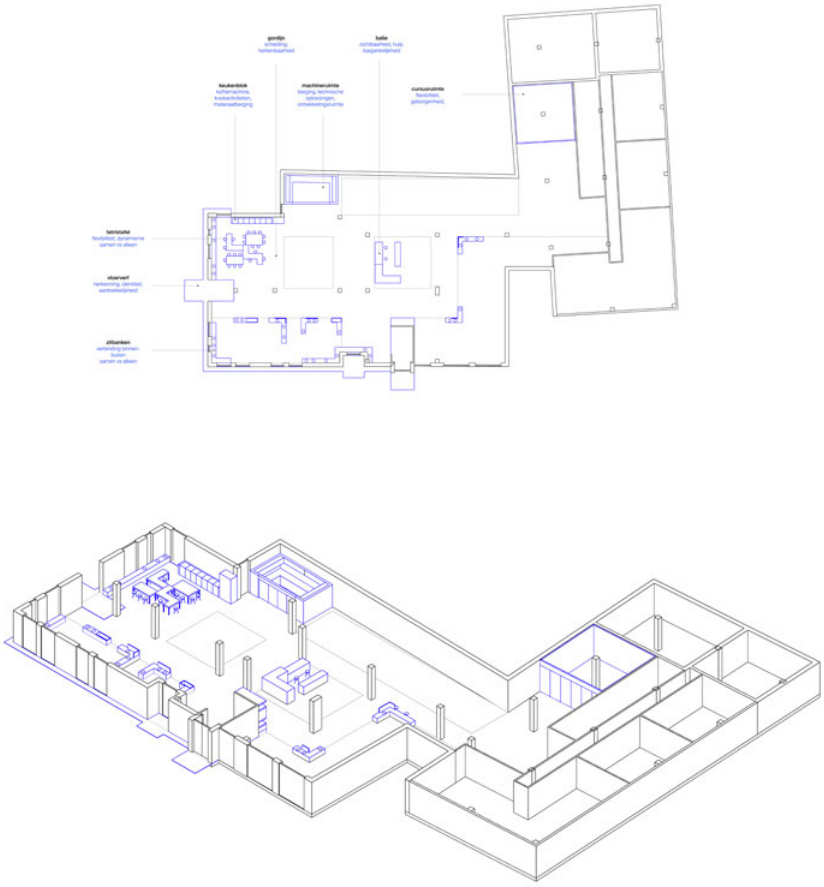


Figure 4: The Coffee Machine as a Public Life Activator. Bibliotheek Gorredijk, NL.

In the spatial advice creative process to strengthen the publicity condition of makerspaces in libraries, some early conclusions appeared regarding the design factors that can influence them. The traditional architectural design approach to activating the public conditions tends to be reductionist. *Visibility* is reduced to its physical connotations and solved by abundant use of glass. Yet, for public buildings to be effectively engaged in public life they should appear in the public sphere and become part of the public opinion both physically and digitally. When designing *accessibility*, architecture tends to make direct connexions – ramps, revolving doors, glass facades – yet the liminality process of moving from a private individual to engaging in public life requires a more

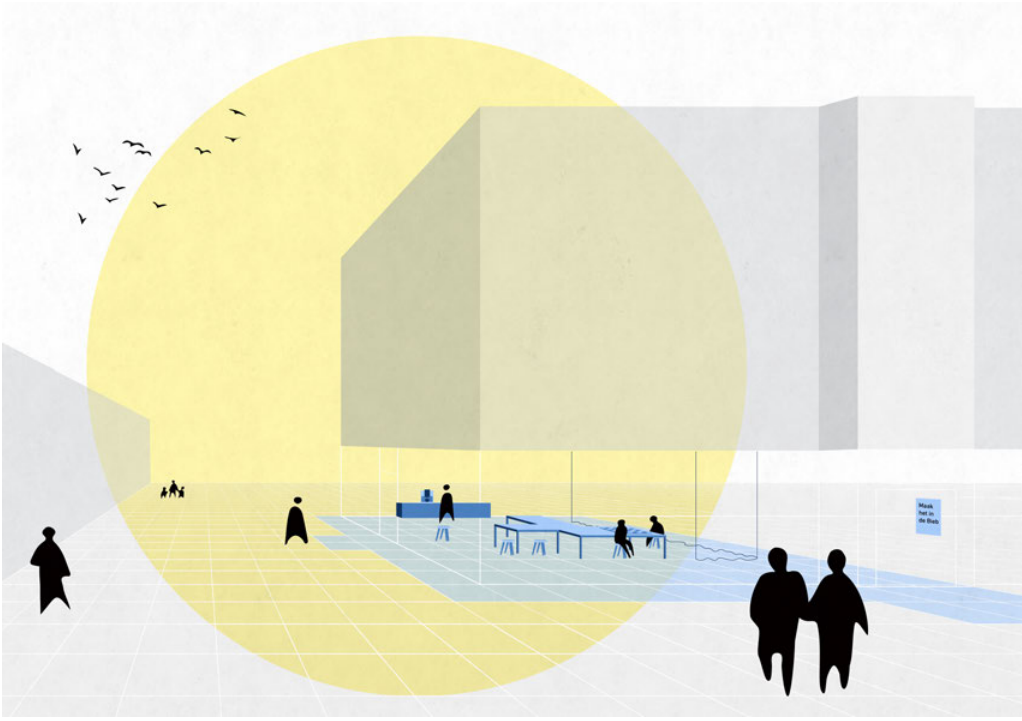


Figure 5: Spatial Activation Concept Drawing. Bibliotheek Gorredijk, NL.

complex approach. The same goes for *publicity* which tends to fall under the communications department's responsibilities (branding, communication, identity) overlooking its ethical-esthetical relevance.[3] Lastly, while public buildings' success is closely related to their programming, overdetermined spaces restrict their use and do not last the test of time. Finding a balance between *indeterminacy* and clarity to "create conditions and provide possibilities" provided space for interaction, ownership and community forming.[4]

Making Coffee as an Act of Public Life

Out of the pilot libraries, the one in Gorredijk presented interesting results on what are the design factors that contributed to its public activation: [6]

- Following the spatial advice, the makerspace location shifted closer to the building's façade – and therefore the villages' high street – increasing its visibility and presence in the public sphere;
- Hanging posters in and around the library with one-liners about what a makerspace is, raised publicity about its existence and made it indirectly visible;
- Selecting machinery and activities that were relevant to the community ensured for a quick spatial appropriation;
- Placing a secondary building access closer to the makerspace gave it an "own address" and eventual independent use (appropriation and accessibility);

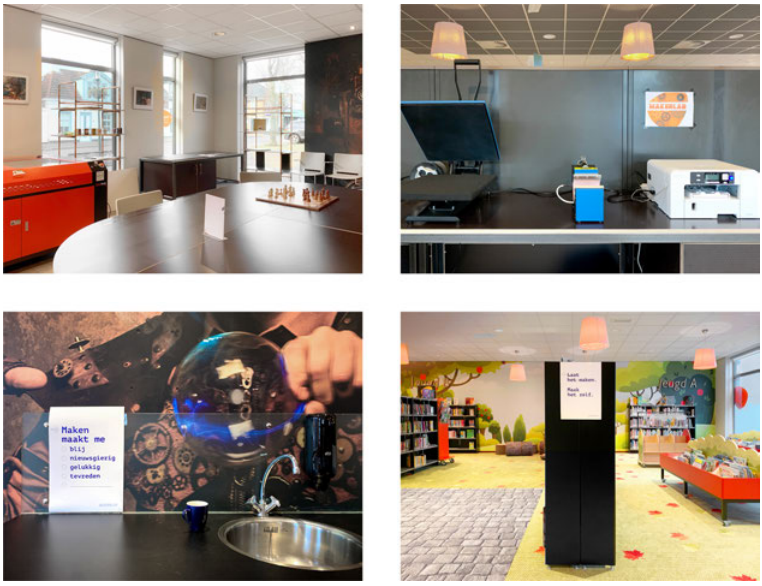


Figure 6: Spatial Interventions Realized in Bibliotheek Gorredijk, NL.

- Placing a curtain around its perimeter allowed for the makerspace to blend into the library and the public sphere or enclose itself, creating a threshold of publicity;
- A modular table allowed for different settings improving the space flexibility and some level of indeterminacy;
- Placing the machinery (3D printer, laser cutter, sublimation) and shelves containing the making products towards the street (visible) raised interest and motivated eventual appropriation;
- Considering interior furnishing as an extension of exterior public space blurred the indoor-outdoor division and enlarged the public sphere threshold, the boundary of public life;
- The interior finishes were purposedly left unfinished, to incite making action and spatial ownership.

Because it works in real contexts, experimental design-driven research can deploy unexpectedly. Letting go of conceptual a priori overdetermination and embracing empirical "multiplicity" – or the uniqueness and interconnective complexity of all things –,[5] architectural design can provide fruitful solutions for contemporary wicked problems. When observing the finished interventions in Gorredijk, the biggest spatial success was one beyond architectural knowledge: users had placed a coffee machine in the middle of the makerspace. They had appropriated it.

Sometimes the only design intervention necessary to attract public life is a coffee machine. While visibility and accessibility are fundamental for a cultural program to work, the spark often resides in the user's spatial appropriation, like the humble gesture of offering free coffee. The trigger of placing a familiar affordance – a coffee machine – within an area of unknown possibilities – machines and tools for manual creation – was proven to be a successful strategy to introduce new public life capacities. And it showed how much architectural design can learn from observing public life.



Figure 7: Coffee Making within Makerlab Bibliotheek Gorredijk, NL.

Conclusions and recommendations

The spatial interventions proposed for the makerspace in Bibliotheek Gorredijk attempted to expand the understanding of what architectural design can do for public life. Shifting the focus of design practice from only aesthetics to ethic-aesthetics matters, the proposals attempted to activate the space departing from public needs and not an a priori program of requirements. In the makerspace case study, it became clear that to influence public life through the introduction of a new program, architect's needs a diverse set of architectural skills. The role of the designer-architect made room for the mediator-, the facilitator-, the advertiser-, the activist-, the artist- or the consultant-architect. Being a public architect for the common good challenges mainstream *savoir-faire*.

The realized experiments confirmed the conditions determining spatial publicity –visibility, accessibility, and appropriation– and proved how spatial interventions enhancing these conditions can influence public life. Recognising these factors as applicable to architectural design practice enlarges and deepens the understanding of the connection between public building design and public life. Instead of considering public life as a design effect, this project demystifies it by breaking it into design factors. The design experiments testing the factors and the conclusions extracted from them could enrich the architectural design toolkit.

When designing public buildings, architects are not designing an object but an embodiment of society. Thus beyond their ordinary tools and skills – drawing, modelling, constructing – they must embrace the responsibility of designing how humans live together and interact. To do so, it is important to understand how human interaction – public life – works and what are the design factors affecting it. These factors are often intangible and exceed what is understood as "architectural knowledge." In other words, to find the common ground between architectural practice and public space theory there needs to be an expansion in what is considered architectural design skills. And yes, sometimes that might imply placing a coffee machine.

1 Voogdgeert , Robert (2015): Zygmunt Bauman: Liquid Modernity revisited. YouTube. https://www.youtube.com/watch?... from July 8, 2015.

2 Perry, Chris/ Hight, Christopher (2006): »Collective intelligence in design«, in: Architectural Design issue 5, pp. 5–9.

3 Guattari, Félix (1995): Chaosmosis: An Ethico-aesthetic Paradigm. Indiana: Indiana University Press.

4 Sennett, Richard/Sendra, Pablo (2020): Designing Disorder: Experiments and Disruptions in the City. London: Verso Books.

5 Deleuze, Gilles/Guattari, Félix (1988): A thousand plateaus. London: Athlone.

Belgrade on Screens Cut 2: Dis/continuous Location(s)

Miljana Niković, HCU Hamburg

Intermediate doctoral stage

Supervisor: Mona Mahall, HCU Hamburg

Belgrade, Discontinuity, Film

Abstract

The project "Belgrade on Screens: Visions of Continuous Discontinuities" explores Belgrade's urban transformations through moving images. Cities being self-paced to their built environment, architectural discontinuities refer to disruptions, losses, and traumas caused by wars, inner conflicts, or political decisions. However, while film cutting essentially constructs continuity, filmmakers use discontinuous editing to emphasize emotional response by atypical shot-arrangements. Affecting collective memories, films articulate and manipulate the image of a town and its inhabitants.

Therefore, how do cinematic effects and scenography manifest Belgrade's discontinuities? How do audiovisual media impact our cognitive awareness of a city? Do they produce new interpretations or generate any misconceptions?

Developed with a theoretical background, the first phase is an archival investigation within genres showing decisive historical urban gaps in the 20th century. Collected data will be analyzed, before being re-used for the second part of the research, an immersive video-collage.

DDR statement

After isolating all relevant scenes from two selected movies – "Before the War" (d. Vuk Babić 1966) and "Before the Truth" (d. Kokan Rakonjac 1968) – the previous experiment implied new compositions through a direct transformation of chosen excerpts in a video editing software program. Encouraged to continue experimenting with scenography as soon as possible, the aim is now to discuss a spatial construction and pursue the testing in that direction. Therefore, some key locations will be placed in a virtual 3D model and/or interactive map that will allow a deeper understanding of reproduced dis/continuities through the film excerpts.

The methodology will be based on recommendations following the first test "Cut 1: Before the War / Before the Truth" previously shown in Ljubljana (September 2021). This consists of preparing a very clear structure to begin with as a basis: a simplified and shortened list of movies to consider, as well as their respective excerpts. After having established a clear database, the main goal will be to create a dialogue of the chosen excerpts through a set of spatial connectors. It is in that second part of the 'making-of' that design-driven strategies will arise. Indeed, during "Cut 1," it became quite evident that the creative phase is totally unpredictable in regards to initial ideas or detailed concepts. In other words, once the database is set, surprising decisions may form a set of surprising results.

Virtual does not mean unreal

During Ljubljana's event, the 2-channel video collage "Cut 1" was intended to be presented live, but as I was not able to attend physically, I showed the audiovisual work online. For Delft too, I initially imagined a multi-channel video installation as exhibited in situ, but once again, I had to participate virtually. This aspect changes the conception of my next experiment, but in a way, it also challenges the entire research. What if I take this opportunity as a chance to establish a flexible method of revealing dis/continuities in several continuous (thus, complementary) versions? – Yes: the bodily experience will be now postponed once more, but perhaps this transitional step is necessary to truly orient the final project. Furthermore, as an exercise, it will be important to see if the results can have more than one outcome and if these outcomes can generate one organic entity as some 'continuous' research to extend 'continuously.' One could imagine a set of different approaches, including the virtual results within the physical reality. Precisely this idea of a "long-term" project occurred informally right after the previous CA^2RE+ discussion. A very helpful recommendation indeed, as I am almost certain to pursue the same topic even after achieving the doctoral degree.

Current phase and regular recommendations

After Hamburg (March 2021) and Ljubljana (September 2021), it is clear that the focus of this particular research topic is still vague, or not strictly determined yet. Defining 'dis/continuities' seems to be the biggest challenge, precisely because it is the main topic. So, what are exactly these dis/continuities? How can we detect them, and once detected, how can we reveal them? Do we even want to reveal them, or would it be more appropriate to re-appropriate them? This questioning is a continuous vicious circle: if we want to re-appropriate the audiovisual material, how can we do that without damaging the original film? How can we protect its primary significance? Do we even want to protect it, or rather create a new image, as an independent and recontextualized entity?

Understanding 'recommendation' as an advice or a suggestion, it is important to continue with some of the recurrent questions and guidance points. For the upcoming event in Delft, it is time to test the relation between the space and the moving images. As I will use the format of online meeting, the scenography of the potential video installation can be conceived either as a 3D model or a new (spatial) video.

In Ljubljana, the first audiovisual fragment entitled "Cut 1" was a 15min 2-channel collage mainly composed of two films – "Before the War" (d. Vuk Babić 1966) and "Before the Truth" (d. Kokan Rakonjac 1968) – with inserted parts of "The City" (d. Kokan Rakonjac 1963) as a connector between the two other films. During the making of [1], but also after the discussion with the panelists, some stimulating ideas involved aesthetics and film techniques. One of the personal obstacles or hesitations was due to copyright uncertainties, as well as the moral and ethical questions

of ‘misusing’ an author monumental chef d'œuvre. A detailed overview on the entire reflection and its outcomes can be read in the previous extended DDr contribution for the proceedings.

In Delft, it will be therefore critical to reverse the method by freeing oneself from certain constructed limits as barriers or excuses which are blocking the process of design-driven experimentations. The most accurate example is the problem introduced in both of the previous panels: copyright issues. If we completely ignore this problem by assuming that the work will be strictly used for academic research and not be monetized, we can fully focus on the actual experiment. One of the consequences will also be the quality of the audiovisual material, as it may not be extracted from the original digitized files. But even this possible lack of high resolution can add up different visions, textures, and layers. Moreover, a seemingly ‘destructed’ material can be understood as incomplete fragments of the collective memory, slowly fading away or being distorted.

With such a sudden self-liberation, creativity is more likely to have enough room for unexpected angles. If “Cut 1” was trying to identify the multiple dis/continuities by classifying them by pairs of dual confrontation (interior/exterior, crowd/individual, day/night, etc.) “Cut 2” can identify only one location by a more extensive series of film extracts. Out of 116 films selected in the initial analysis (Bachelor thesis from 2013), 17 films represent an important portion of collective memories, from the cultural, historical, and sociopolitical points of view. [2] Out of these 17 achievements, 16 are showing the square of Terazije (the chosen chronotope of the doctoral thesis). Terazije, situated in the historical city-center of Belgrade, has many faces and could be seen from many perspectives. We can count some essential symbols (landmarks) situated on Terazije, such as the Fountain, the Hotel Moskva, the Palace of Albania, the underground pedestrian crossing, etc. In a way, Terazije is not only one single location, but a continuum of locations (or ‘scenes’) that generate it as a whole.

Approach

Accordingly, if we ‘place’ Terazije in spaceeither now via a virtual model, or in the reality given by a physical exhibition room in the future research phase(s) – how can we create its dis/continuous auras and stories through a coordinated scenography of the moving images? With this method, new questions will arise, namely the chronology of the images. Chronology does not have to be related to the year of filming, but also the year that is supposed to be pictured, such as in historical movies. Of course, the position of the visitors (or viewers) will also be considered, as the camera and frame will be the eye, and the motion will give a sense of the pace or rhythm of the movement in the understanding of the space. Therefore, the selection process will probably give a higher priority to the images shown from a pedestrian point of view. The images showing rooftops or a general overview above the buildings might rather be considered for the function of contextualization. A further reflection will be

followed towards the interior/exterior combination. By taking the facades as the limits of the chronotope, we might deprive the square of its reality (life) and only see it as a set design or décor.

Another point to remember (already mentioned in Hamburg) is that Terazije has a replica in the modernist part of the city: New Belgrade. Ironically, this dislocated version has also a history of dis/continuities due to political post-transitional changes. This dualism brings an additional layer of plurality: being identical does not imply that the same space is the same space. Finally, unlike "Cut 1" where there was an interaction between the actors (characters) between them – via dialogues, conflicts, personal stories [3] – "Cut 2" will be more oriented towards scenes where the characters use a specific place, studying their relationship to a point of space-time stage or their behavior within an urban background.

As announced in the DDr statement, it is crucial to start preparing a database of clips as a pool of moving images, for an easier overview and clear selection – as rational as possible, following strict rules, to 'secure' the creativity and freedom in the experimental phase. According to the list in-progress shaped after research done up until now throughout my studies [2], the most appropriate examples will be considered. For now, out of 29 movies showing Terazije, 17 from this list are subjectively considered as relevant for this research. Once we analyze the exact number of scenes showing Terazije for each of these 17 movies, it will be easier to re-evaluate their importance. Most probably a second round of selection will have to take place, for a sharper focus.

Remaining questions and new recommendations

We talked about the urge to find out to whom this topic is addressed, and to start experimenting with audiovisual materials for a better understanding of the selection process and assembling of images. Although "Cut 1" has been presented partly to test who might be the audience, this crucial question remained unanswered. Today, it is still ambiguous to predict or control the main target, even if this should be resolved as soon as possible. As doctoral research is shaped in an academic framework, PhD candidates are expected to propose the purpose of their topic. It is therefore evident how the relevance and its universality (applicability) affect the methods to be applied.

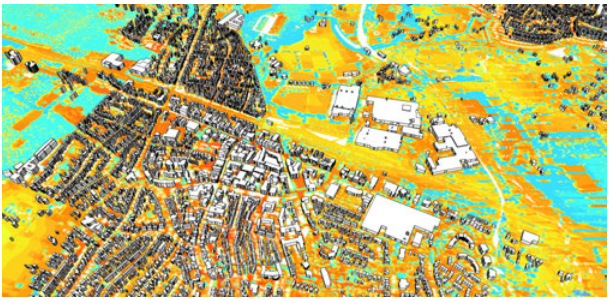
Nonetheless, what if we take recommendations as a support, or a background that allows us to have a vision, but do not prevent us from maintaining them in a second level of priorities? Recommendations are absolutely always welcome, but the authors (designers) should remember to be convinced themselves by their goals and methods. Of course, escaping the essence of the problem does not mean ignoring it. The suggestions are perhaps a set of instructions that we can pursue progressively. For instance, in Hamburg, a question related to the video installation's scenography emerged. This same question was, again, part of the discussion in Ljubljana. In-between these two events,

scenography was not forgotten or deleted. The task was simply directed towards an audiovisual product (content). This step-by-step approach is all the more interesting as it is relatively self-imposed by the time that we have at our disposal, especially for those who do not have the possibility to consecrate themselves completely. This is also partially why not all well-intended and pertinent recommendations can be taken into account immediately. The researcher also needs to be patient and let ideas float before fixating them.

Finally, one of the recent recommendations concerns the nuances between the terms 'cognitive awareness' and 'phenomenology' – both concepts being key notions to determine the essential motive of this research, and both having to do with psychological as well as philosophical fields of knowledge. Consequently, they will both be dissected and seriously scrutinized, for a better understanding of the accumulated experiences and experiences to stimulate within the project.

The Evaporative City Bioclimatic Adaptation and Regeneration Using Water

Mariana Pereira Guimaraes, Politecnico di Milano



Intermediate doctoral stage

Supervisor: Valentina Dessì, Politecnico di Milano

Water-cooling, Neighborhood, Microclimate

Abstract

The proposed paper highlights preliminary steps of an ongoing doctoral thesis, developed in the context of a European Commission's Horizon 2020 innovation programme conducted in partnership with the industry, which aims to define strategic urban water use guidelines that can help alleviate the heat stress in neighborhoods located in different European climate regions. To achieve it, it also evaluates the effects of urban morphology (density, geometry, surface cover) on microclimate (air temperature, solar radiation, relative humidity, wind direction, and speed). The focus is to understand water cooling solutions synergies for master planning solutions. Although the block and neighborhoods are understood as part of a city system and cannot be dissociated from its context, a closer look is necessary when undertaking microclimate studies. The different allocation of such systems in the city allows us to investigate the contribution and combined local effect in reducing outdoor temperatures in response to the UHI effect.

DDR statement

The global and local nature of climate change forces us to think on scales. On the macro scale of cities, several studies, and theories such as urban metabolism helps advance systemic notions such as sustainable cities and development. On the other extreme, in buildings design and performance, a lot of effort has been put to make buildings smarter, biophilic, and healthier. The scale in between, the neighborhood, remains a mostly unexplored topic. Nevertheless, it is fertile ground to test innovative solutions and synergies in a design-driven approach. It is small enough to investigate urban design solutions, envision hypotheses, propose, test, and evaluate. It is also within the limit to perform not-so-complex environmental analysis and simulations using thermal and hydrodynamic software. Regarding stakeholder involvement, it has the potential to mobilize a local community in participatory dynamics. It is also easy to involve outsiders and specialists alike in issues they relate to. Given all these interesting aspects, the third part of the thesis "The Evaporative City: Bioclimatic Urban Regeneration Through Water" uses three neighborhoods located in different European climates and countries to test and re-test potentialities and synergies of water-cooling designs based on fountains, mists, and ponds. Evaluation is carried out with experts' inputs and thermal simulation software (ENVI-met 5). The design and combination of these solutions are assessed with the goal to equip design professionals and related professions, in different European climate zones with guidelines on how and where to best place these solutions in public spaces, thus providing RECOMMENDATIONS to create positive design knowledge,[1] foster livable places and promote both climate adaptation and mitigation.

1 Lenzholzer, Sanda (2010): Designing atmospheres: research and design for thermal comfort in Dutch urban squares. PhD Thesis.

The present extended abstract highlights preliminary steps of an ongoing industrial doctoral thesis, developed in the context of the European Commission's Horizon 2020 innovation programme (SOLOCLIM-EU) conducted in partnership with the industry, which aims to educate, supervise, and train six Early-Stage Researchers (ESRs) on generating microclimate solutions that can respond to urban overheating[1] in outdoor environments throughout a Ph.D. Program developed inside the practice. The programme is divided into three work packages (WP): Vegetation (WP-1), Water (WP-2), and Responsive Systems (WP-3). The solutions within each cluster are examined at two scales: the streetscape, i.e., the interface of buildings and their outdoor environment, and the larger scale of the urban block, neighborhood, and city-scale. The principal methodology of all three WPs is "Research Through Design" (RTD) supported by rigorous analysis as appropriate for the different scales (such as microclimate simulation software, geoprocessing using satellite images, and spatial analysis using GIS software). The Thesis titled "The Evaporative City: Bioclimatic Urban Regeneration Through Water" is part of the WP-2 at the neighbourhood scale and seeks to redefine the use of water systems such as fountains, water mists and small ponds, in neighborhoods located in different European climate regions.

Designs and plans delivered now by design, planning, and engineering need to incorporate a microclimate-sensitive approach that can respond to shifting extremes (too hot, too cold, too dry, and too wet). However, apart from the need for new solutions, the industry currently lacks expertise. On the academic side, some of this body of knowledge is also lacking research. The use of vegetation in cities, for example, is well known to reduce the Urban Heat Island (UHI) effect. Still, there are remaining questions about the proper allocation of green in cities to have an optimal effect. Little is also known about the efficacy of water-based interventions to the urban microclimate such as misting systems, evaporative cooling of facades, sprays, fountains, water walls, etc., in relation to the surrounding urban fabric and when applied broadly in the city.[2] [3] [4] 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 liveability.

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. The two main effects are the high thermal mass of water and evaporative cooling, due to the evaporation process. A lot of energy is needed to convert liquid water to vapor, and this energy 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 (F), and misting or fog systems (M). 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. In Figure 1, nine contemporary design projects were linked to "water interactions" and to "water cooling



Figure 1: [SWIM] (P) Biotop Pool – Ooze, Source: https://nl.bio.top/references/public-natural-pool-uk-art-project Accessed 07/03/2022, Biotop company / Commercial; [PERFORM] (F) Desio – Openfabric, Source: http://www.openfabric.eu/projects/desio-centro-desio-italy/ Accessed 07/03/2022, Photo credits: Daniele Pavesi; [TRANSIT] (F) Grotestraat – OKRA, Source: https://www.okra.nl/projecten/grotestraat-nijverdal/ Accessed 07/03/2022, Photo credits: Thomas Klomp; [SHELTER] (M) - Air Tree Ecoboulevard - ECOSISTEMA URBANO, Source: https://ecosistemaurbano.com/eco-boulevard/ Accessed 07/03/2022, Photo credits: Emilio P. Doiztua and Roland Halbe, https://5osa.com/218; [SIGHTSEE] (M) Miroir d'Eau - Michel CORAJOUD, License: Creative Commons Attribution-Share Alike 3.0 Unparted license., Author: Blaue Max, Source: https://commons.wikimedia.org/wiki/File:Bordeaux_-_Juillet_2012_(85).JPG Accessed 07/03/2022; [MANAGE] (P) Tåsinge Square – GHB, Source: https://www.publicspace.org/works/-/project/j075-refurbishment-of-tasinge-square Accessed 07/03/2022; [PLAY] (F) Bellamyplein - Jakoba MULDER, Source: https://bellamystraat49.nl/ Accessed 07/03/2022; [LISTEN] (P) Morske orgulje - Nikola BAŠIĆ, License: Creative Commons Attribution-Share Alike 2.0 Generic license., Autor: Ben Snooks; Source: https://bluehealth.tools/51-2-copy-copy-copy-2-copy-14/ Accessed 07/03/2022; [CONTEMPLATE] (F) Water traces - Atelier DREISEITL, Source: https://www.dreiseitlconsultin..., © 2021 DREISEITL consulting GmbH | Imprint | All Rights Reserved

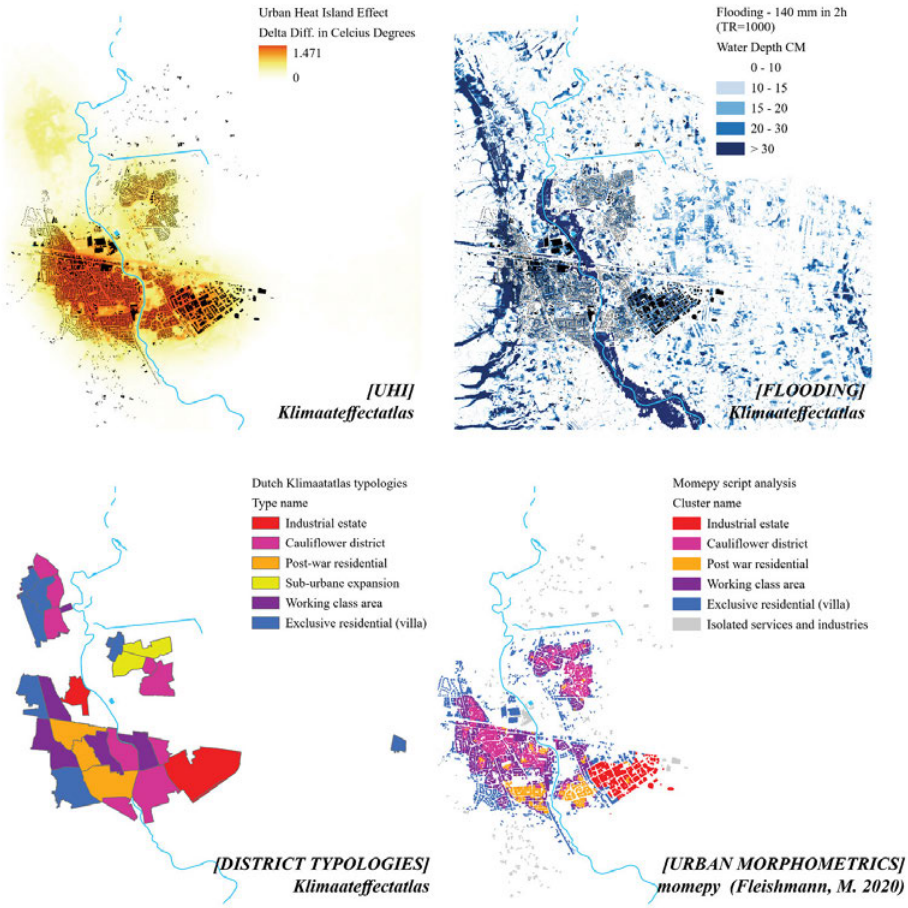
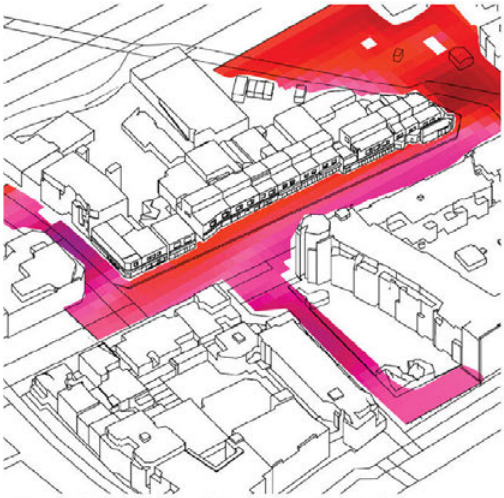


Figure 2: Sources: https://www.klimaateffectatlas.nl/nl/gebruik-van-de-atlas. Organization and design: Mariana P. Guimarães

principles." These projects constitute the preliminary steps in the research and one of its products: a catalogue of references containing a description of the project and the microclimate benefits provided by the water cooling features. The situation before and after the introduction of water is simulated using ENVI-met software to estimate gains in thermal comfort such as air temperature decrease, mean radiant temperature, and wind speed. An example is the Grotestraat in Nijverdal, The Netherlands – an intervention project from the Dutch Landscape office OKRA Architects, highlighted in Figure 3. This project puts together rain gardens, bioswales, fountains, and splashes. Fountains are remarkable elements in several cultures and carry enormous symbology. Nowadays they became key elements to urban revitalization because can at the same time engage citizens and provide respite during heatwaves. The way they are now conceptualized is key to achieving a more sustainable urban water management. The new Grotestraat addresses both heat and flooding through a water and climate-sensitive design.

The Grotestraat is almost unique because there's a gap of cases that purposefully addresses multiple instances. The announced climate crisis upon us is widely advertised but it is surprising how little the design discipline, and especially the design of cities, devotes to thinking about the way architecture interacts and influences climatic processes.[5] The issue seems to be two-fold: technical and scalar. First, thermal and microclimate analysis demand specific knowledge and software that is out of reach to most architects. Second, it requires to be seen in multiple scales. The Urban Heat Island (UHI), for example, is expressive on the city scale, but to address it, solutions happen in the very small scale of buildings and squares and need to resolve not only environmental concerns but also livability, disuse, and equality. A view from the city allows to identify local hot spots (literally as hotter areas in city and also as problematic spaces), as Sofia Dona poses in the text "Moving from the Macro to the Microscale in the Anthropocene,"[6] the UHI problem is not enough faced from the small scale, spaces must be also integrated into a network of medium and large-scale green corridors to generate continuous masses of plants, pedestrians, and breezes, to be more effective physically and collectively.

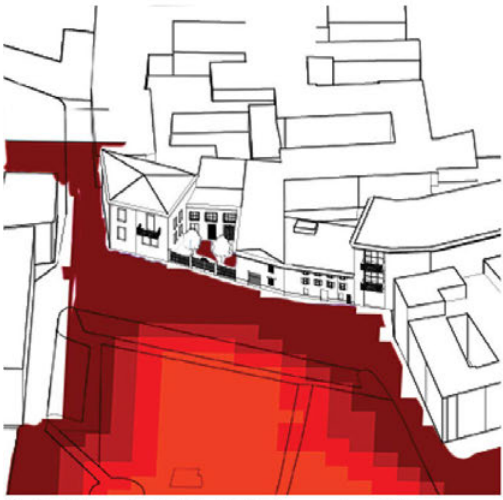
With the goal to generate a design decision support system (DDSS) regarding urban planning, design, and policy guidelines for implementation of the water systems in the masterplan scale, or the neighborhood, the thesis was divided into four main parts: the Block, the City, the Neighborhood and Guidelines. In the Block scale, several ENVI-met simulations are performed in 'test-bed' blocks selected from urban morphometric analysis for European cities in three different climate zones (Milan, which has hot Mediterranean summers, Rotterdam, with cold oceanic summer and Madrid, located in arid hot summer climate). Data such as temperature, humidity, and wind speed are also collected on the field with a mini mobile station to gain insights into the human scale of the "testbed" blocks. In the City scale, morphometric analysis using momepy Python script[7] is combined with GIS spatial analysis and heat and flooding vulnerabilities to gather insights into water-cooling aptness in these cities (see Figure 2 maps for Nijverdal as reference for studies in the City scale). Results from Block and City together inform the Neighbourhood



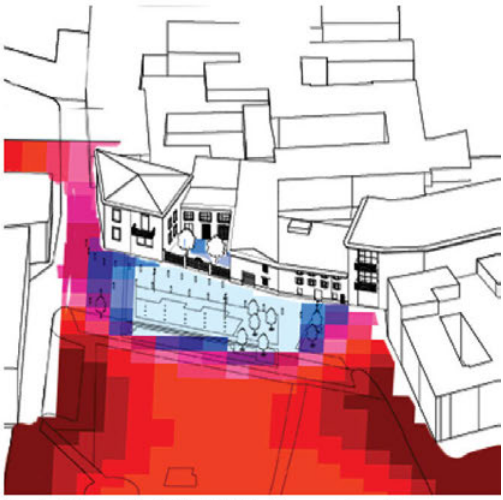
Nijverdal / Grotestraat / Air Temperature Before



Nijverdal / Grotestraat / Air Temperature After



Desio / Parco degli Alpini / Air Temperature Before



Desio / Parco degli Alpini / Air Temperature After

25 °C 30 °C

Simulations of Potential Air Temperature for Baseline 0 and Scenario 1 (case studies)
ENVI-met 5.0 / 14.00 / 23/6/2018 / k = 1.2m

Figure 3: © ENVI-met 5.0. Organization and design: Mariana P. Guimarães

study: quantitative results are used to test and simulate toolkits of solutions in this scale, that are re-assessed together with a group of experts in an iterative design process (RTD). Lastly, Figure 3 also brings the question of different cultural relationships communities might have with water by placing side by side a small-town project in the Netherlands and one in northern Italy.

1 Santamouris, Mattheos (2020): »Recent progress on urban overheating and heat island research. Integrated assessment of the energy, environmental, vulnerability, and health impact«, in: Synergies with the global climate change, Energy and Buildings issue 207, pp. 1–28.

2 Steeneveld, G.J./Koopmans, S./Heusinkveld, B.G./Theeuwes, N.E. (2014): »Refreshing the role of open water surfaces on mitigating the maximum urban heat island effect«, in: Landscape and Urban Planning issue 121, pp. 92–96.

3 Cortesão, João/Lenzholzer, Sanda/Klok, Lisette/Jacobs, Cor/Kluck, Jeroen (2017): »Creating prototypes for cooling urban water bodies«, in: ECLAS Conference 2017 Proceedings single issue, pp. 349–364.

4 Sun, Ranhao/Chen, Liding (2012): »How can urban water bodies be designed for climate adaptation?«, in: Landscape and Urban Planning issue 105 (1–2), pp. 27–33.

5 Chiri, Gianmarco (2018): Climatica: Forma Urbis (Back to Basics). Milano: LISTLab.

6 Dona, Sofia (2018): »Moving from the Macro-to the Microscale in the Anthropocene«, in: Wolfrum Sophie (Ed.), Porous City: From Metaphor to Urban Agenda, Boston: Birkhäuser, pp. 198–199.

7 Fleischmann, Martin (2019): »momepy: Urban Morphology Measuring Toolkit«, in: Journal of Open-Source Software issue 4 (43), pp. 1–4. https://doi.org/10.21105/joss....

The Hidden Potential of the Dvor
Reshaping Semi-private Spaces in Moscow

Bogdan Peric, Politecnico di Milano



Intermediate doctoral stage

Supervisors: Alessandro Rocca, Politecnico di Milano; Camillo Magni, Politecnico di Milano; Yuri Grigoryan, Moscow Institute of Architecture

Semi-private space, liquid space, dvor

Abstract

The research explores the semi private spaces between the housing units in the Moscow periphery called *dvor*. The work is focusing on the model of open space generated by the specific architectural conditions during the Soviet standard housing period. The *dvor* has become an outcome of the mass construction, shaping a unique open space environment whose contrasting characteristics generated distinctive fusion between public and private, with no precise boundaries.

The goal of the work is to establish the study of a *dvor* as an architectural typology fulfilling the knowledge gap in the research of the public space. The design driven approach is based on a variety of utopian projects enabling to simulate contrasting social and physical relations of *dvor* and its *liquid space* characteristics. These imaginary scenarios raise a number of questions acknowledging the problems and fragilities of the *dvor* typology in a hypertrophied form as under the magnifying glass.

DDR statement

The idea of the *design driven research* is fundamental for the architectural studies, as the drawing represents a universal language of the design disciplines. However, I strongly believe that design is not only a tool of communication, but also a meaningful method of investigation and analysis.

The *design driven research* can be compared to the scientific laboratory studies, involving experiments of different kinds. Starting from the considerations and strategic hypothesis, this tool allows the architect to simulate various scenarios, exploring the proofs and consequences.

In my case, I am studying the typology of an open space using the advantages of this approach in order to describe the meaning of the unique semi private spaces established between the residential buildings in Moscow called *dvor*.

Generally, the typology studies are based on drawings, dealing with plans, sections and the geometrical shapes. In my research, I decided to start working with the hypothesis assumptions designing utopian projects in order to raise the research questions and illustrate the imaginary social relations.

The *design driven research* allows me to create different scenarios and simulate the several "realities" supposed to draw the useful conclusions in terms of the quality and the potential development of *dvor* typology.

The *design driven research* becomes a starting point of my work, able to invent a nonlinear vision of the subject of study. The graphical visualization of the assumptions enables to comprehend the research questions and dig deeper into their definition, therefore helping to explore the architectural qualities of selected typologies.

The research explores the semi-private spaces between the housing units in the Moscow periphery called *dvor*. The work is focusing on the model of open space that was generated by the specific architectural conditions during the Soviet standard housing period starting from the mid 50s. The *dvor* has become an outcome of the mass construction, shaping a unique open space environment whose contrasting characteristics generated the distinctive fusion between public and private.

This historical phenomenon gives us an extraordinary lesson on the use of the space between the buildings and opens a new perspective on the development of open space typologies. It is nevertheless important to draw the line, and define a clear difference between the accessible public space and the more intimate semi-private character of the *dvor*.

In order to understand the *dvor* it is important to investigate the development of these spaces, and analyse the impact of the standard housing typology evolution on the open space.

Historically the *dvor* was conceived as an additional space behind the house for animal farming, but in course of time evolved into a complex typological variety of outdoor spaces defined by the semi-private condition. The space between the buildings was mostly formed as the light well, without any design for the specific functions.

After the revolution, the soviet architectural practice was based on four generations of standard housing experiments,[1] which gave the possibility for the development of specific urban conditions, establishing the new typology of public spaces.

The *dvor* became a space for social interaction, defined as a threshold space, and usually associated with leisure and daily activities. It could be described by the term of a “common space” used by Stavros Stavrides,[2] distinguishing it from the public and private and suggesting the definition of a *dvor* as the site open to the public in which the rules do not depend on prevailing authority. Indeed, the forms of use of the *dvor* are more often imposed by the self-organisation of the inhabitants representing their idenity.

The objective of the work is to define the qualities of the *dvor* in order to determine the architectural design tools: the applicable device that allows developing projects with quality space between the buildings. The idea is to dig into the structure of these spaces, analysing the *dvor* as a complex architectural typology.

The starting point for this research is the morphological analysis. After the thorough studies of the Moscow urban fabric, it is possible to define the three main categories of the *dvor* in terms of their shape and permeability: open, closed and semi-open. [1]

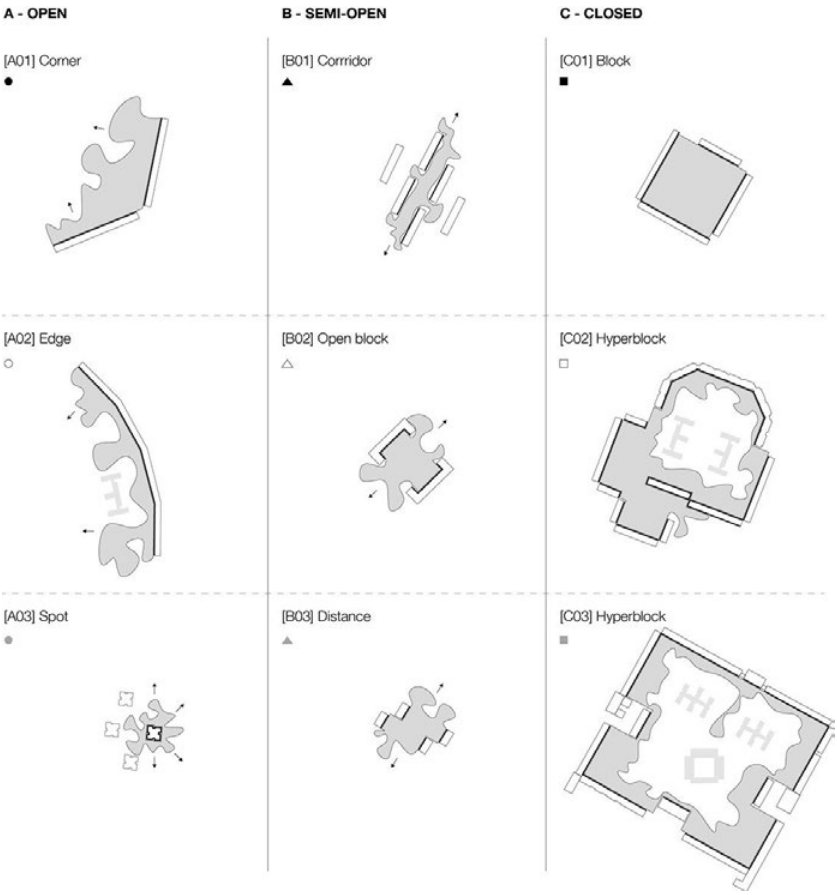


Figure 1: Dvor typologies, by author

Unlike the western model of private and public, *dvor* is defined by a *liquid* structure becoming a transitional space between the private building and the very public street. The perception of its limits is strongly defined by the daily routine along with its physical limits. [2]

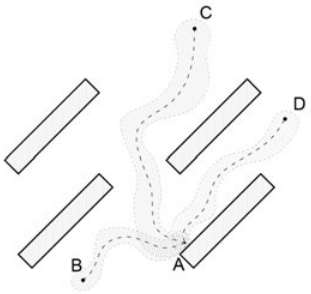


Figure 2: Limits of the *dvor*, by author

From the scientific point of view, there have been numerous studies about the typological development of the housing units from the Soviet period, but there are no sufficient studies about the open space – *dvor*, which created a peculiar knowledge gap in the research of the public space.



Figure 3: Existing context, by author

The true meaning of the research is to examine the *dvor* from the critical point of view and read its architectural context by means of design-driven approach.

The semi-private characteristics of the *dvor* represent the unique quality of the space between the buildings. Therefore, this research is focusing on understanding the important architectural issues related to the physical aspects of the *dvor* such as the questions of subjective perception of its limits and the disproportion of scale.

The vast territory of the space between the buildings represents an under-designed living environment used by the inhabitants, becoming a valuable common space for daily activities with a flexible structure. These particular spatial conditions of the *dvor* give a significant potential for the future development both for the residential housing and general construction of the city.

The goal of the research is to establish the study of a *dvor* as an architectural typology by means of research-by-design methodology composed of several consistent steps. The idea is to define the physical qualities of *dvor* typology and illustrate the potential of the Soviet period open space heritage in Moscow.

The work can be divided into two main parts:

Realistic – *Learning from the dvor* and utopian – *"What if?" scenarios*

The starting point of the research is based on the analysis of the actual condition – reality, through the typological study of the *dvor*, defining the specific morphological characteristics and their relation to the context by means of the precise case study selection.

This part of the work is focusing on the fragilities of these spaces, investigating the relation between architecture and society, as well as the physical impact of the *dvor* on the living environment.

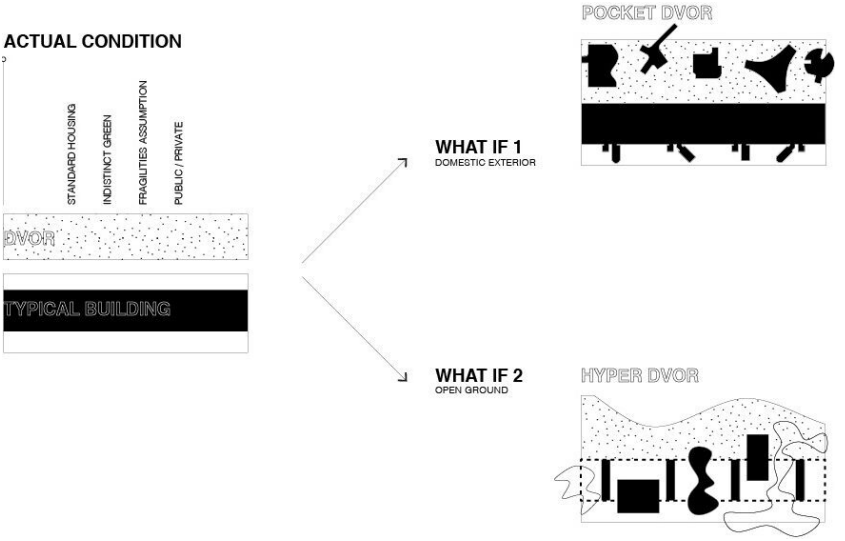


Figure 4: What if diagram, by author

It is important to focus on the quality of the semi-private space and define its role through the understanding of the meaning of the *liquid space* – transitional public space with no precise boundaries and defined by subjective perception.

The actual condition study is subsequently divided in two principal approaches. One, based on the idea of *walking through*, which illustrates the atmosphere and explores the geometrical aspects of the *dvor* such as the dimensions, distances and proportions. This step is efficiently represented by means of photographical report aiming to communicate the subjective perception of the borders and the general open space structure from the inside of the living environment.

The other approach is based on the *view from the top*, focusing on the examination of the maps, the documentary drawings and the archives related to the development of each selected case study. The meaning of this important step of the research is the development of the analytical drawing background in order to gather and synthesize the existing knowledge and information about the *dvor*. [3]

This preliminary work is crucial in order to illustrate the current spatial condition of the *liquid space* between the buildings and investigate the potential problematics and fragilities related to the *dvor* typology.

The second step of the work is related to the experimental design analysis called "What-if?" The idea is based on architectural research-by-design approach similar to the scientific laboratory studies by means of experiments. This method focuses on the imaginary considerations and hypothetical scenarios in search of proofs and consequences. [4]

Each alteration of the open space condition generates a new 'reality' establishing the dialog between the buildings and a different typology of open space, shifting the limits of *dvor*. Each of the suggested visions explores a different architectural meaning of the semi-private condition.

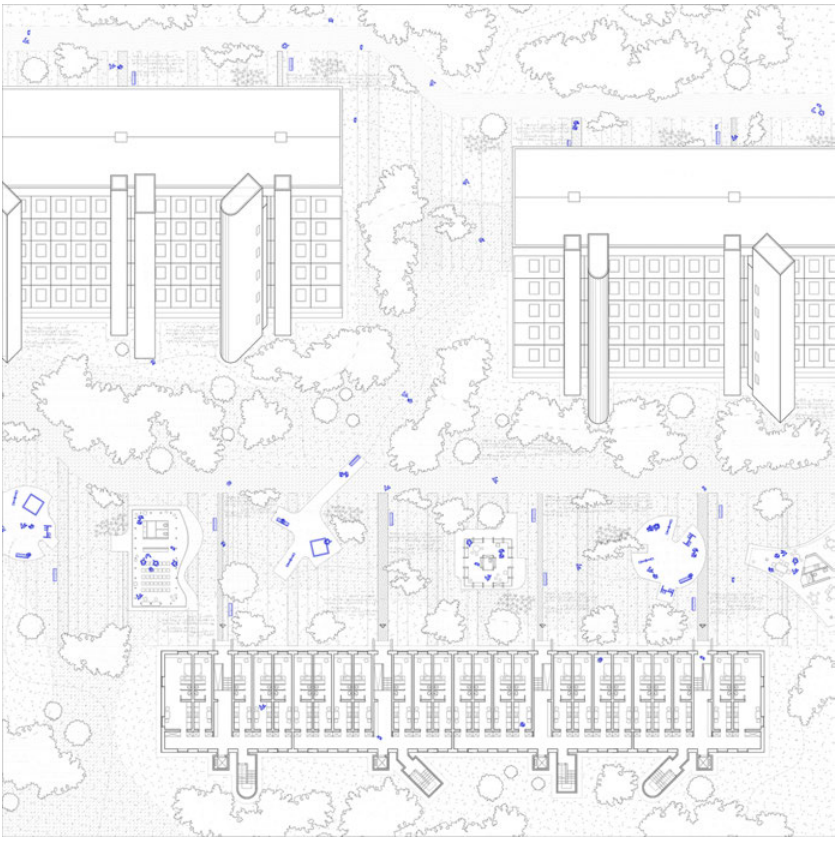


Figure 5: What if 1, top view, by author

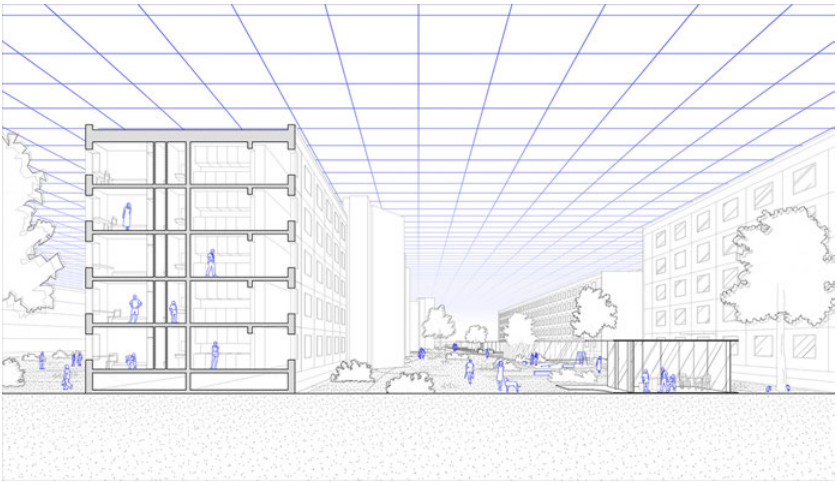


Figure 6: What if 1, perspective view, by author

The utopian design ideas enable to simulate contrasting social and physical relations in order to emphasise the potential qualities of *dvor* and the *liquid space* characteristics. A variety of these imaginary scenarios raise a number of research questions helping to acknowledge the problems and fragilities of the *dvor* typology in a hypertrophied form as under the magnifying glass. [5] [6] [7] [8]

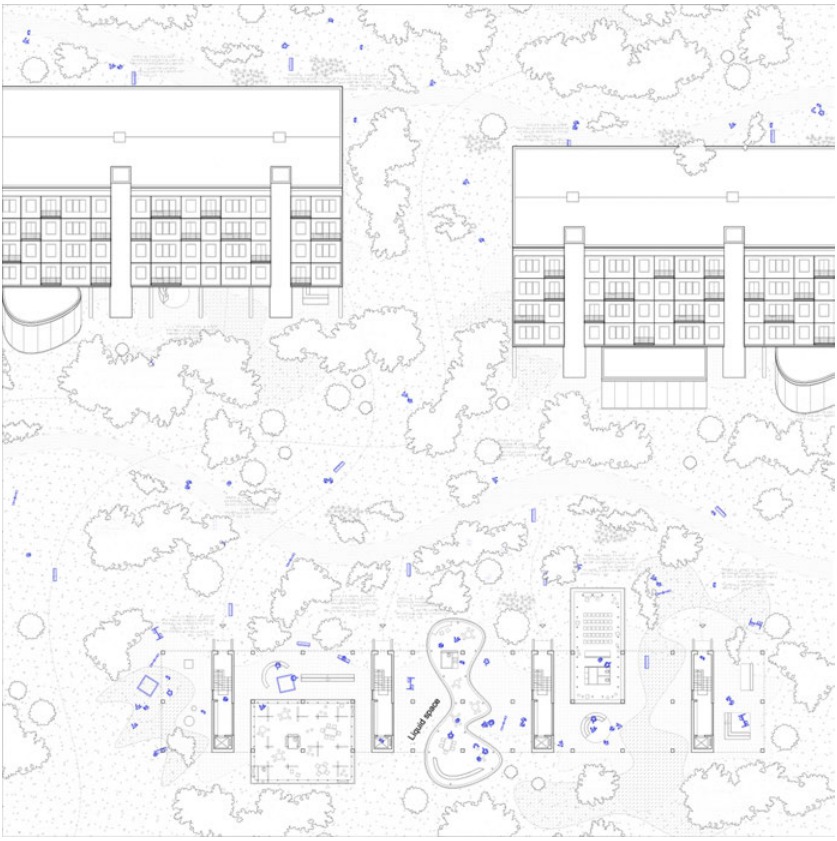


Figure 7: What if 2, top view, by author

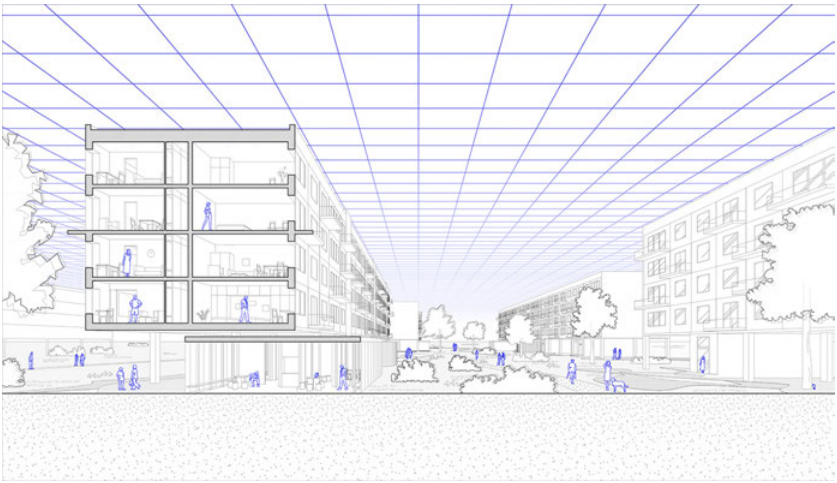


Figure 8: What if 2, perspective view, by author

1 Meuser, Philipp/Zadorin, Dmitrij (2015): Towards a typology of soviet mass housing: prefabrication in the USSR 1955–1991. Berlin: Dom Publishers.

2 Stravrides, Stavros (2016): The city as Commons. London: Zed Books.

Interiorities, Embeddedness and the Dwelling

Marie Porrez, KU Leuven

Doctoral application

immersive drawing techniques, interiority and embeddedness in dwelling, drawing as research driver

Abstract

This paper elaborates on early research which is a dialogue between the theme of *Drawing* and the theme of *Interiorities* and *Embeddedness* in relation to *Dwelling*. By studying six carefully chosen characters through immersive drawing techniques, the meaning of interiority and embeddedness in architecture is critically questioned. On the one hand, an in-depth study of these characters led to the description of *three Interiorities* tied to *Embeddedness*: the interiority of dwelling, the interiority of the landscape and the interiority of memory. On the other hand, the intense drawing sessions led to a clear description of the agency and meaning of the architectural drawing within the design process, which elaborated *four Drawing methods*. The insights gained from thorough research of *drawing* and *interiority and embeddedness* come together in the constructed place of withdrawal or refuge as my own mental space charged by memory and the embeddedness of the landscape.

Artefact

This paper further elaborates on early research which is a dialogue between the theme of *Drawing* and the theme of *Interiorities* and *Embeddedness* in relation to *Dwelling*.

By studying six carefully chosen characters, the meaning of *interiority* and *embeddedness* in architecture is critically questioned. The characters are selected based on their relation to dwelling, interiority and their embeddedness in landscapes. Some of them are personal, some are coincidental findings and some are purposefully chosen painters. To begin with, personal characters are examined, such as my grandparents' house, my childhood environment, and my former home. Due to their nostalgic nature, these places can become almost imaginary or idealised after their the loss, which makes them interesting subjects to study the interiority of dwelling and memory.[1] Secondly, coincidental findings like a 17th century watermill and a white homestead are beautiful examples of how architecture searches for a sense of (spatial) interiority and how they are embedded in the landscape.[2] Thirdly, for understanding the themes of interiority, embeddedness and dwelling, two paintings from northern renaissance painters are studied — *Interior of a house with a seated woman* (c. 1654) [1] by Jacobus Vrel (c. 1630 – c. 1680)[3] and *The Census at Bethlehem* (1566) [2] by Pieter Bruegel the Elder (c. 1525 – 1530 – 9 Sept 1569).[4] Their paintings are highly interesting to comprehend the spatiality of these themes. Whereas Jacobus Vrel captures the domestic inside of the home in a very intimate way,[3] Bruegel depicts how the landscape can absorb everything and how man and *dwelling* are embedded in the landscape.[5] It is hard to see the landscape without the people in it, they are part of it and determine each other. He displays life in the beauty of its triviality and in that way, everydayness becomes timeless.[6] By bringing these diverse characters together,



Figure 1: (Painting) Vrel, J. (1654). Interior of a house with a seated woman [Painting]. Museo Thyssen-Bornemisza, Madrid, Spain. http://www.essentialvermeer.com/dutch-painters/vrel_d.html

different insights are gained regarding the main themes. Confronting these insights and bringing them together results in a critical whole.

By analysing and anatomizing these characters or protagonists through immersive drawing methods, the aim is to understand what elements are important in relation to *dwelling, interiorities* and *embeddedness*. Detailed drawings of these characters are the ultimate instrument to research and comprehend. It forms the central method in the research and proves to be very fertile for the process. The exposed qualities and strengths of the characters, regarding interiorities and embeddedness, and the insights generated by them, come together in a new entity. Within this process, these characters are translated and they interact with each other. What is then developed, is an architectural embodiment of these. Their strengths and sensitivities are expressed through the construction of a shelter or refuge, a place of withdrawal. A new entity offers



Figure 2: (Painting) Bruegel the Elder, P. (1566). The Census at Bethlehem [Painting]. Koninklijke musea voor Schone Kunsten van België, Brussels, Belgium. https://www.fine-arts-museum.be/nl/de-collec-tie/pieter-i-bruegel-de-volkstelling-te-bethlehem

alternative and innovative conclusions on the theme of dwelling, interiority and embeddedness. This process defines the true core of this research as a specific Design Driven research (DDr) approach to identify, uncover and lead to new insights and entities.

On the one hand, this study led to the description of three *Interiorities* tied to *embeddedness*: the interiority of dwelling, the interiority of the landscape and the interiority of memory. Firstly, dwelling is inseparable from who we are as human beings. As humans, we feel the need to dwell and therefore build ourselves a 'place' to dwell in. This need goes back to the essence of human existence, it gives meaning to our 'being' and to the forgetfulness of it and the homelessness we might feel.[7] [8] This makes the essence of dwelling something internal and therefore an interiority. Secondly, the surrounding landscape as well can have strong qualities that enhance the sense of interiority. Nestling into a landscape is crucial in the feeling of embeddedness.[9] A landscape with a strong interiority can be very decisive for this feeling, therefore the search for a place to dwell and withdraw begins with the search for a landscape that enhances it. A landscape that is capable of absorbing all that lies in it, that makes one feel embedded and enclosed. And finally, the third interiority is memory. Memories are internal experiences, inherent to one's past and shaped by who one is. Therefore, like dwelling, memories are linked to one's *being*.[1] By remembering places or fragments of landscapes closely known to us, the memories are given a spatial translation and places can become highly internal. By deploying these interiorities of dwelling, landscape and memory in the construction of a new place, this place immediately becomes loaded with qualities of interiority.

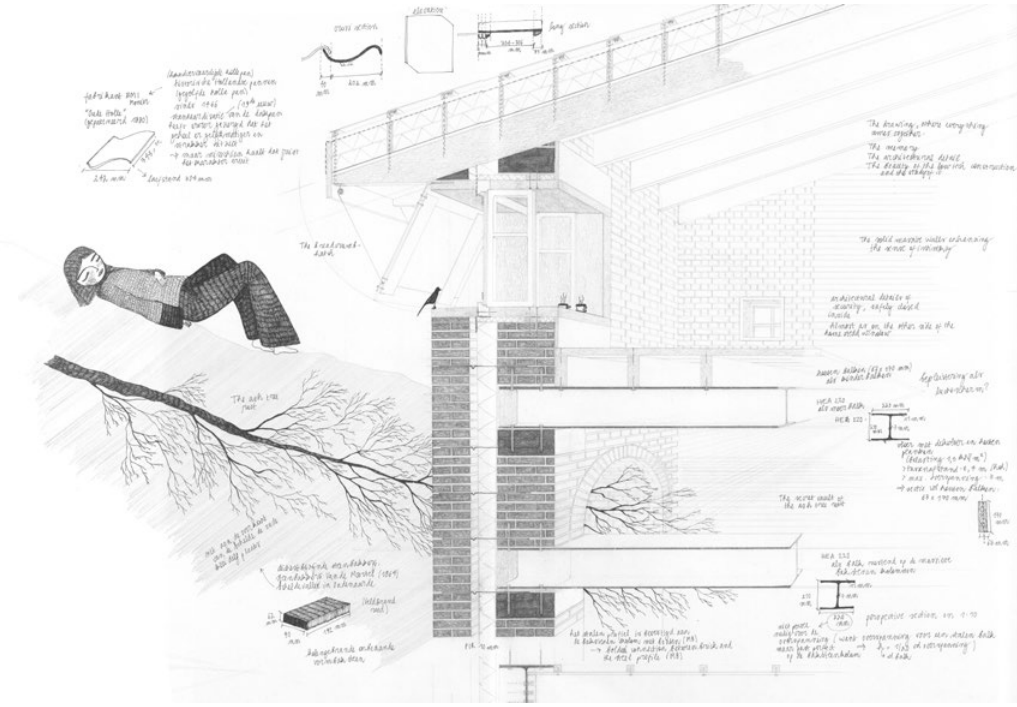


Figure 3: (Drawing) Porrez, M. (2021) Annotated drawing: *Through the hatch and the vault* scale 1:10 - 500 × 350 mm



Figure 4: (Drawing) Porrez, M. (2021) Atmospheric Perspective: *Landscape of memory* 1000 × 700 mm

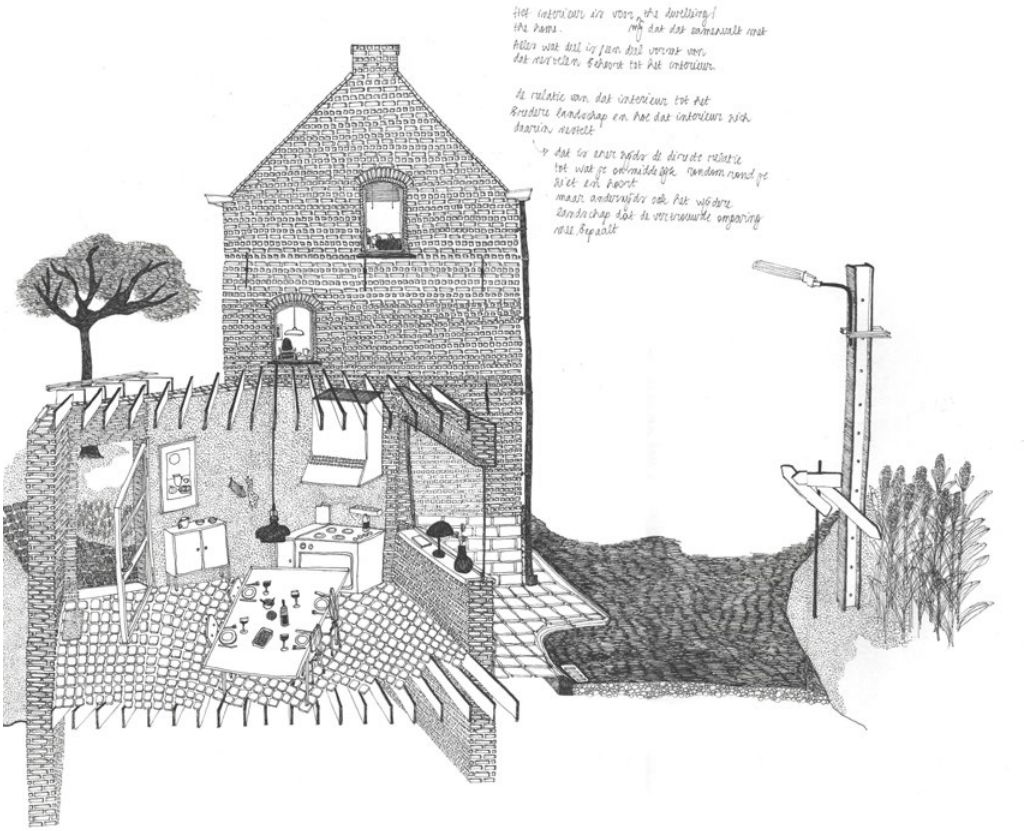


Figure 5: (Drawing) Porrez, M. (2021) Atmospheric Perspective: *Childhood home* 420 × 297 mm

On the other hand, the intense *drawing* sessions led to a clear description of the agency and meaning of the architectural drawing within the design process. Four *Drawing methods* were elaborated – Annotated Drawing, the Atmospheric Perspective, Critical Sequential Drawing[10] and the Perspective Section. *Annotated Drawing* makes material presence become more explicit yet tangible through verbalisations. [3] *The Atmospheric Perspective* thrives on memory as a driving force for demonstrating and imaging inhabitations of landscapes and spaces. [4] [5] *Critical Sequential Drawing* forms an in-depth and ongoing exploration of the drawn. [6] [7] And finally, *the Perspective Section* unlocks the nature of a space and reveals its details. In addition, the *Perspective Section* is detached from the use of one unified perspective; different elements can be traced to different vanishing points. [8] Instead of using a strict one-point perspective, something is developed that goes beyond the representative. It becomes more than just a depiction of one moment in time – multiple moments converge.[11]

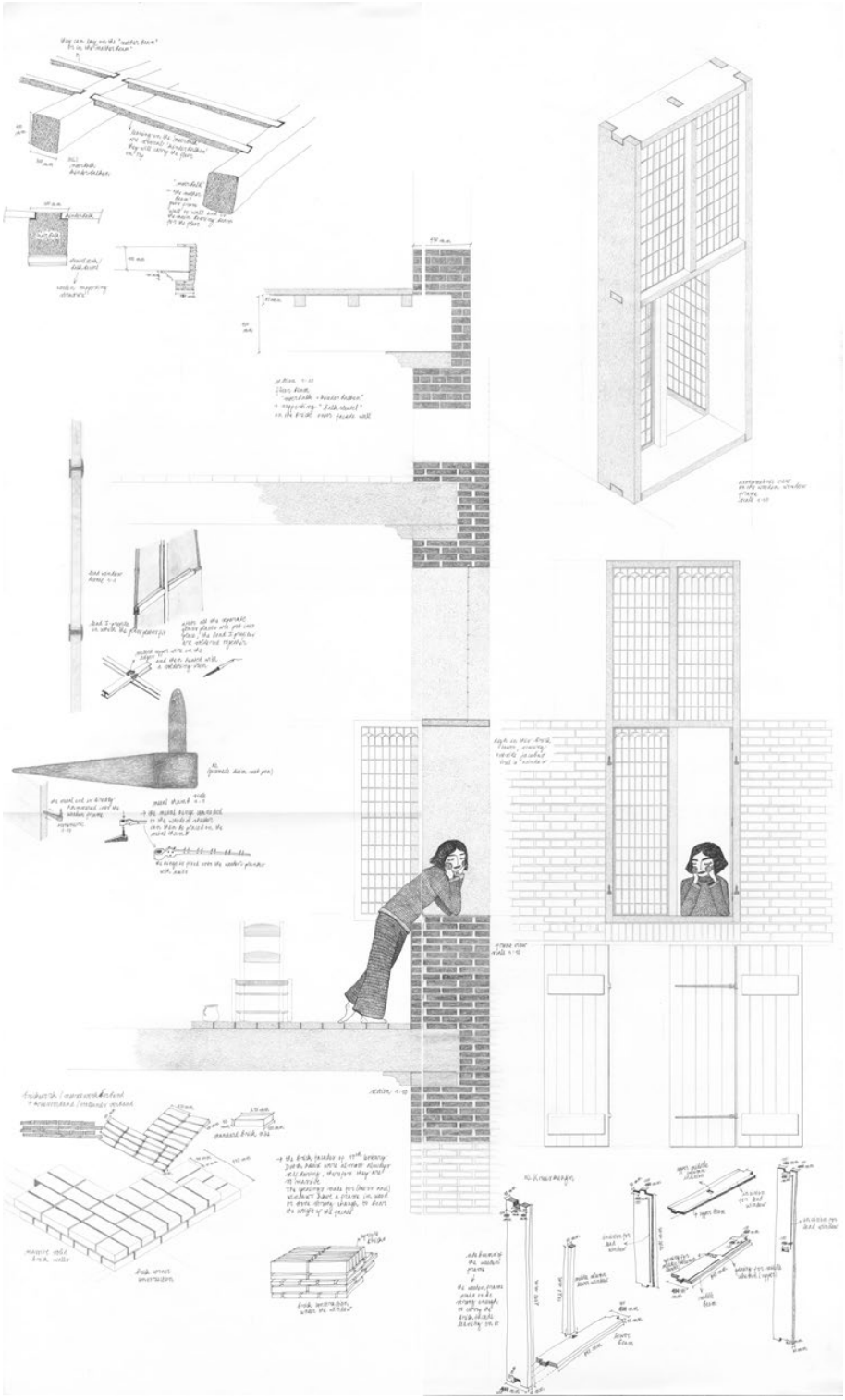


Figure 6: (Drawing) Porrez, M. (2021) Critical Sequential Drawing: *Study of Jacobus Vrel's window* scale 1:1 / 1:10 – 1000 × 600 mm

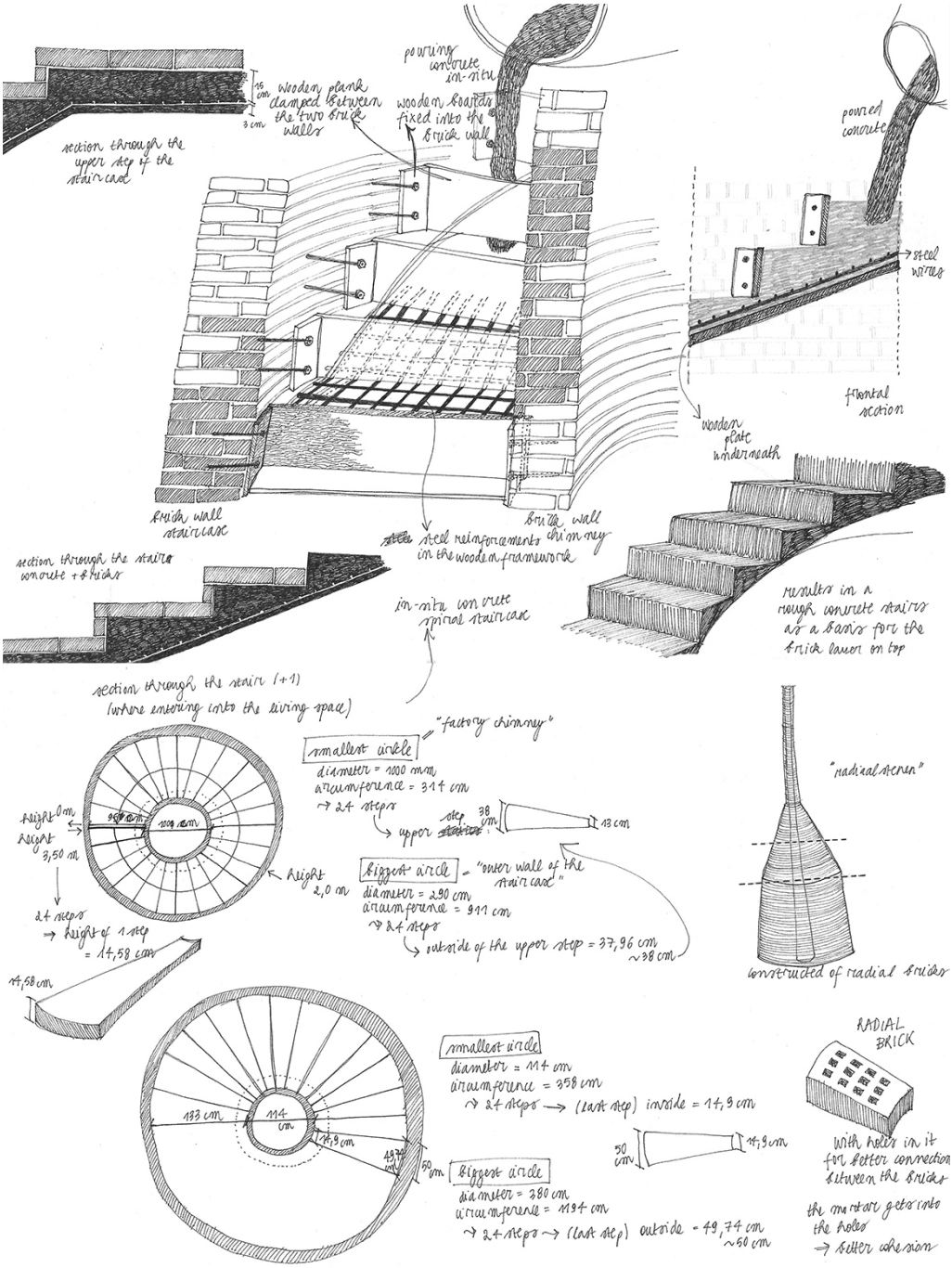


Figure 7: (Drawing) Porrez, M. (2021) Critical Sequential Drawing: *Research of the staircase*
420 × 297 mm

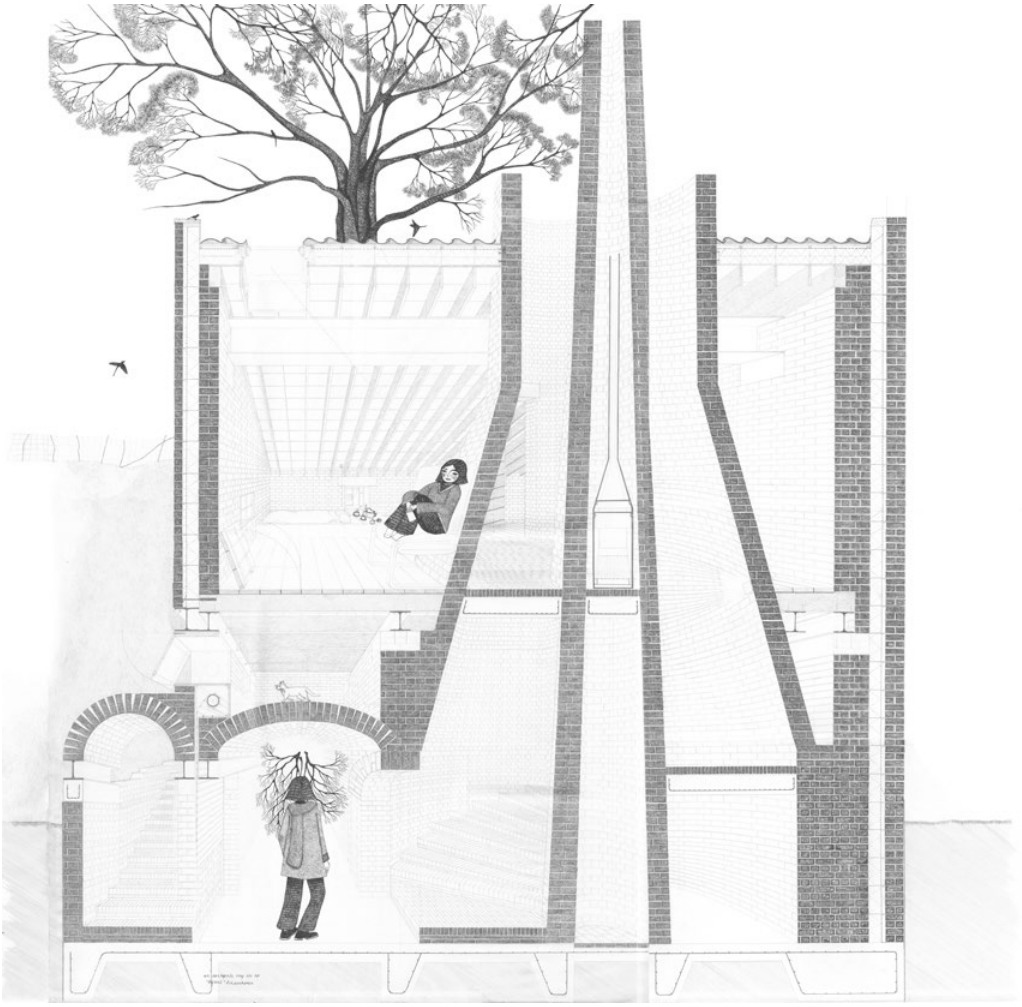


Figure 8: (Drawing) Porrez, M. (2021) Perspective Section: *Constructed place of withdrawal*
scale 1:10 - 1000 × 1000 mm

The insights gained from a thorough research of *drawing* and *interiority and embeddedness* come together in the constructed place of withdrawal (a refuge) as my own mental space charged by memory and the embeddedness of the landscape. But the space goes beyond the imaginary. It is, in my regard, highly important to go far in the materialisation of the imagined. In this way, a new 'real' is created that incorporates both the feasibility and the mental space. It is precisely this achievability of the actual making that gives the imagined more strength.

This paper led to a doctoral research proposal aiming for continued research and understanding of the landscape and its immanent qualities for which the insights of early research form a starting point. This doctoral proposal seeks to develop drawing methods that identify the intangible properties of the landscape and, through the drawing, make them tangible to the beholder. The drawing serves as the key to unlock the landscape with the aim of leading to a better understanding, so that future interaction with the landscape involves a higher sensitivity to its immanent properties.

With the aim to offer the beholder new perspectives on these themes and to sense the interiorities, to feel embedded in them and experience them. To explore the narrative space and to inspire an architecture beyond the physical, where the poetic image of intangibilities and construction emerge together yet start to merge.

1 Altman, Irwin/Low, Setha M. (1992): Place Attachment. New York: Springer.

2 Molenechos (2020, September 7): Kasteelmolen. Https://www.molenechos.org/mol...

3 Rybczynski, Witold (1987): Home: A Short History of an Idea. London: Penguin Books Ltd.

4 Müller, Jürgen (2020): Bruegel. The Complete Paintings. Cologne: Taschen.

5 Vermeylen, August (1953): »Pieter Bruegel de Oude als schilder van landschappen«, in: Vermeylen, August (Ed.), Verzameld werk van August Vermeylen III. Antwerp: Manteau, pp. 427–444.

6 Gyselen, Gaby (1969): »Pieter Bruegel de oude en het landschap«, in: Vlaanderen issue 103(1), pp. 30–38.

7 Heidegger, Martin (1951): Bauen Wohnen Denken. Stuttgart: Klett-Cotta Verlag.

8 Kavanaugh, Leslie Jaye (2006): »The Ontology of the dwelling«, in: Hauptmann, Deborah (Ed.), The body in Architecture, Rotterdam: 010 Publishers, pp. 94–112

9 Norberg-Schulz, Christian (1980): Genius Loci, London: Academy Editions.

10 Van Den Berghe, Johan (2021): »Critical Sequential Drawing: a drawing method to close the gap between the Poetic Image and its Material Presence«, in: Stoà Journal Dipartimento di Architettura Università degli Studi di Napoli Federico II issue 2(2), pp. 168–179.

11 Beke, Eva/ Lagrange, Thierry/ Van Den Berghe, Johan (2019): Perspective Drawing. The Drawing and The Space. http://thedrawingandthespace.i...

Climate Change and Design Form Operative Research on the Morphological Role of the Ground Level

Kevin Santus, Politecnico di Milano

Intermediate doctoral stage

Supervisors: Ilaria Valente, Politecnico di Milano; Monica Lavagna, Politecnico di Milano

Morphological studies, nature-based solutions, circular economy

Abstract

The broad context in which the research moves sees an increasing depletion of resources, where the climate emergency is weighing on the built space and society. These conditions affect the work of the architects, who have to deal with technics and strategies, often technologically driven. The research aims to investigate the morpho-typological dimension of the project, looking at the changing design conditions and impacts related to the implementation of strategies such as the circular economy and nature-based solutions, thus exploring the relationship between climate-related technics and spatial modification. Specifically, the research focuses on the ground level as a typological element that could have a central role in relating climate change issues, working in the relation between the building and the city. This is studied looking at its possible reformulation due to the climate stress events, relating the issue of the form as the primary object of study.

DDR statement

The Design-driven approach is essential to deepen the design knowledge and understanding the formal implication of climate change, specifically regarding how technical tools and strategies could impact the design practice.

The research considers multiple case study analyses not to compare them; instead, it provides the possibility of structuring a single set of cross-case conclusions. This enables a deep design and formal study to understand better the design logics that can be perceived only through a design-driven perspective. The design practice's critical inquiry consisted of direct observation, scheme drawings, images analysis, essential to structure the case study critical analysis.

Starting from the aforementioned method, research by design has been used as a practice of empirical reflection concerning the aesthetic and formal implications of using nature and reuse strategies within the project. These assumptions are then exemplified in schematic drawings that could serve as initial study regarding the morphological role of the basement in projects related to climate change. Moreover, a critical interpretation of these schemes is essential to frame the possible reformulation of the typological element of the basement.

Thus, theoretical research is conducted as a parallel critical observation of the practice, observing the alteration of the built environment regeneration, deepening the design process and results. Therefore, the Design-driven approach highlights the methodological usefulness of the procedure, in which it is considered a cognitive and investigative tool. Indeed, it shows its necessity for the architectural research that should deal, in its very essence, with the concreteness of the designed world.

The issue of form and aesthetics in climate change

Climate emergency is pushing for a reconsideration of design practice, where the enhancement of resilience and sustainability is necessary to reduce carbon emissions due to the building process and make the space able to resist climate hazards. Nevertheless, nowadays, this objective is often achieved through a technical approach.[1] Indeed, current urban agendas and practitioners are implementing circular economy and Nature-based solutions that act as drivers for adaptation and mitigation of climate change, relating the open space and the built fabric. This is the result not only of a general will, rather it represents a technical answer fostered by international policies such as the ongoing "European New Green Deal" and the related documents such as COM/2020/98[2] and COM/2020/662,[3] respectively related to a renewed roadmap for the built environment panorama, to implement circular logics in building construction and promoting the greening of buildings, calling for more attention to the whole project's life cycle.

Starting from this background, considering the current state of the art, circular economy and nature-based solutions could be framed as technical strategies for rethinking the built environment at various scales, setting a series of different solutions and approaches. [1]

The research takes part in this changing panorama of the built environment, without focusing on the technical specificities of these tools, rather investigating how the morpho-typological dimension of the project is changing, focusing on the spatial impacts related to the implementation of circularity and nature-based solutions, thus exploring the relationship between climate-related technics and spatial modification. Indeed, the current climate breakdown is producing a growing onset of risks and damages to the built environments,[4] and more in general on people's life.[5] Floods, rainstorms, and heat island effects are immediate effects of tangible climate change. They require a reflection related to the urban space, how to redesign it, which material use, and which typological elements could be implicated in this climate-related transformation of the project.

As architects, we should not only relate technics to avoid climate-hazards, but we should also recognize which are the possible spatial modification of the project. Because of that, to understand not only the quantitative impacts of the project but also its qualitative result, it is considered important to have a morpho-typological reflection on the theme of the ecological transition. As written by Kenneth Frampton: "There is no manifest reason why environmentally responsive and sustainable design should not be culturally stimulating and aesthetically expressive. Sustainability and its implicit aesthetics ought to be rightly regarded as a prime inspiration to enrich and deepen our emergent culture of architecture, rather than as some kind of restriction upon [...] the fullness of its aesthetic and poetic potential."[6]

From Frampton's words appears a concern related to the way we are facing the issue of the environmental crisis. Adaptation and mitigation are

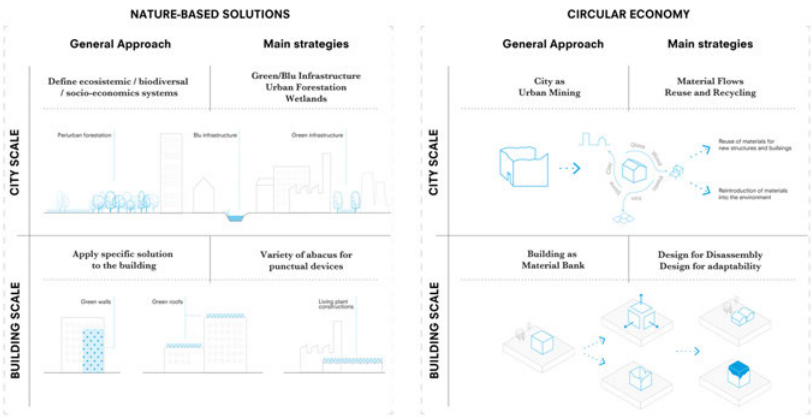


Figure 1: Set of actions at the various scales related to Nature-based solutions and circular economy, mainly seen as technical approaches.

necessary strategies to implement in the practice, but how these are shaping the design answer is still vague.[7] Investigating this issue establishes an aesthetical discourse but is also impactful in understanding the image of the city of the future. Therefore, to examine this topic, the research started to investigate the role of the form in this new design condition, considering the morpho-typological issue as a result and driver of the entangled relationship with the environment. Thus, emerges the question of how architecture could go beyond environmentalism and technological determinism,[8] to structure a new design narrative attached to the very issue of architecture: to give shape to our needs and space.

Tools and methods

The doctoral research is developed through a highly design-driven approach, essential to structure a discourse regarding the contemporary design production, to understand better the influence and spatial impacts that climate adaptation and mitigation strategies are producing. The selected cases refer to the last decades' regeneration processes, considered to enhance urban resilience, rethink neglected built contexts, and contrast the continuous and limitless usage of resources for new urban expansions.

The analysis set a series of interpretative categories to analyze the case studies, chosen in the European context, at an intermediate scale, to deepen the design actions on the building object and its possible connection with the context. The climate-related strategies considered are, on the one hand, circular approaches related to reuse practices, where the ground level could represent a key element in containing the consumption of new land and reducing the depletion of the resources[9] reusing already existing structures. On the other hand, the study focuses Nature-based solutions applied to ground reclamations and greenery interventions. The ground, especially in urban areas, represents a crucial issue. Often depleted and polluted, it is an essential resource for a safe urban environment, hosting human activities, and counteracting climate

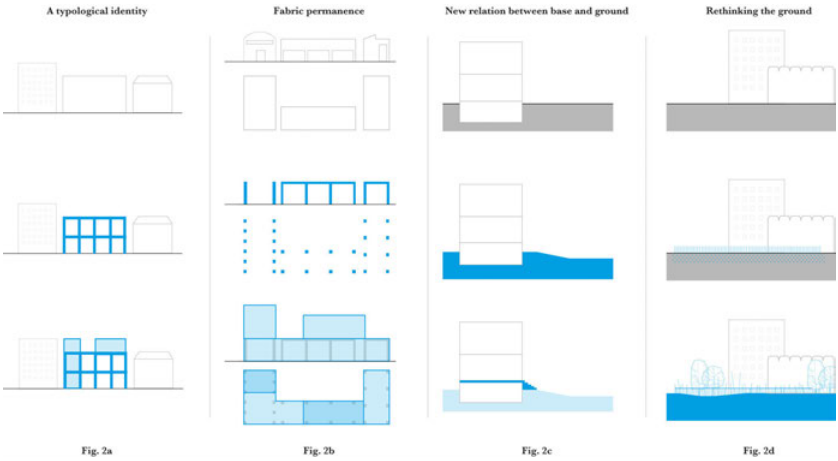


Figure 2: Representation of morpho-typological modification.

hazards. Because of these reasons, regeneration projects usually act on it, applying nature-based as technical tools to reclaim the soils, or to increase the number of trees in urban areas. Nevertheless, from a design perspective, we should reconsider how we design through nature, framing the role of ground-design in a broader sense, not only focusing on the number of plants we are planting. Indeed, operating with the ground means establishing the relationship between humans, building and open space.[10] In this perspective, a renewed importance could be addressed to the ground level, as a level that connects the building with the city.

Subsequentially, the investigation starts from the collection of case studies, of which only some will be reported and analyzed. The analyzed projects provided a set of solutions from which starting to question the aesthetic/formal values of the tools applied, so understanding the ontological and cultural features addressed.

The ground level as urban design challenge

The new global condition of climate threat imposes to apply effective climate-proof strategies, to adapt the urban environment and help mitigating the effect of carbon emissions. Because of this undeniable necessity, the projects are increasingly developed through strategies that highly affect the project's image. This issue set a further need for the design field: a deeper understanding of the role of the project in this new climate condition.[11] We could argue that circularity and nature-based solutions could imply a reconsideration of the conception and configuration of the design practice; nevertheless, to understand them over their technological representation we need to interpret them upon their spatial role in the project.

The first reflection could start from the circularity, considering the long-lasting tradition of reuse. Focusing on the intermediate scale, the research defines *reuse* as a form of architectural regeneration able to entangle the building and the city, revealing the relation between the site



Figure 3: The practice of reuse is related to the long-lasting culture of formal permanence. The figure relates the permanence of the Theatre of Marcellus, in Rome, in which, despite the modification, it's still recognizable the formal identity of the architecture.

and the surroundings in its formal features. With this perspective, the research identifies the bearing structure of the building as the core of a possible typological permanence, also limiting the carbon emission in reuse processes.

In Shenzhen, a recent project worked with a similar attitude. The project, by ARCity Office, focuses on the reuse of a former industry, where the existing bearing structure has been maintained as an unmodified element of the new project. This action contained the carbon emission that could derive from the demolition process and think the new design action within the previous building form. Indeed, this decision acted on the typological identity of the building [2a], which remains an urban element in the fabric. The ground level became the place where the project could shape more modification, enhancing its urban relation, working with the ground in implementing greenery spaces. Then a subsequence of artificial grounds took place in a vertical layering of the building, creating a dynamic space for a new urban garden. Hence, the architectural project here proposed is close to an act of repair[12] more than reshaping, where the circularity could work in a perspective of design for longevity, revealing the possibility of regeneration to consolidate the morphological and typological identity of the building, rethinking the practice starting with what we have.

Similarly, in the Netherlands, the project redevelopment of Klaprozenbuurt neighbourhood by the BETA office, operates a regeneration of a former industrial site, with a sensibility in maintaining the bases as elements of permanence of the previous fabric structure. [2b] In these terms, the reuse of the structural elements defines a potential stratification of pre-existing architectures, connecting the practice to a sedimented imaginary visible in the permanence of the form. [3]

Moreover, this open to a reflection of the transformation of industrial sites without demolishing them, but rethinking the spatial relationships among the fabric. With this perspective, the ground level could be considered the floor in contact with possible climate risks, requiring forms able to resist extreme events or prolonged climate stress.

From this statement, spatial responses could vary in many different forms, elevating the ground floor, working with the external ground section, implementing drainage solutions, and others.

In the city of Doetinchem, the Dutch studio De Urbanisten started in the 2009 to work on the masterplan development of the neighborhood

Iseldocks. This project, which is still ongoing, focuses on a typological work, visible in section, between the building and the ground design, to define a spatial resiliency to water flood risk. [2c] The office worked on redefining the connection between the building level and the urban one. Here the project acts on the spatial relation of the ground level, where the need of avoiding the water risk during possible floods is solved by rethinking the house levels, creating a shift between the urban external level and the housing one.

On the other hand, exploring the design manipulation of ground levels means not only taking into consideration the building's base, but also the urban ground. Often depleted and polluted, it is an essential resource for a safe urban environment. Thus, the ground could be framed as a typological element to connect the urban scale and the plot. Many projects are working in this direction, contributing to a renewal of the urban landscape, where acting on the ground means using nature for a renewed coexistence between nature and the city. For example, looking at projects such as De Ceuvel by Space&Matter in Amsterdam, or Bottière Chenaie by Atelier de Paysages Bruel Delmar in Nantes, we can perceive the display of a renewed picturesque idea of nature within the modern city. Here, nature could enhance soil reclamation and, at the same time, produce unexpected forms of the urban landscape, as displayed in the project of De Ceuvel [2^{d}]. In this perspective, the greenery action reshapes the artificial spaces into a new urban wilderness, creating a new ecological reservoir for the city and implementing a romantic idea of wild nature. [4]

Operating on the ground level seems to be an open exploratory field, where manipulation of the space could produce a new syllabus for the design agenda, in its spatial, cultural and aesthetic traits.

Looking at these projects, the design challenge of climate-change modification seems to open a set of different possibilities. On the one hand, the circularity could work on a subtle idea of the permanence of the architectural form. Reusing, so repairing, means working on an idea of duration, re-discovering a relationship of permanence between the built fabric and the city. Design for longevity means not only to curb the emission derived from demolition processes, but also to state a fabric permanence of the city, where the regeneration is not necessairily aimed at changing the urban elements, but rather to consolidate them, also through an ecological lens.

On the other hand, nature-based solutions open to a broader discussion of a new urban sensoriality[13] of the project, where a renewed closeness between the minerality of the city and the naturalness of the ground could produce a new image of the urban landscape.

To conclude, the reflection regarding the morpho-typological aspects opens to a discussion on the possible formal and ontological meaning that climate-related technics have on the contemporary project. Indeed, if the transition toward a more resilient built environment is necessary, it should be addressed not only through a quantitative lens but also by considering the cultural and morphological implications.



Figure 4: Nature as picturesque aesthetic of wilderness. The collage traces a connection between "Capriccio con rovine classiche ed edifice" by Canaletto (1719) with some details of De Ceuvel by Space& and Bottière Chenaie by Atelier de Paysages Bruel Delmar, showing an idea of a pervasive nature in the city.

1 Hawkes, Dean (2008): The environmental imagination. Technics and poetics of the architectural environment. London-New York: Routledge.

2 European Commission (2020): COM 98, A new Circular Economy Action Plan. For a cleaner and more competitive Europe. EU Monitor. https://www.eumonitor.eu/93530... March 11, 2020.

3 European Commission (2020): COM 662, A Renovation Wave for Europe —greening our buildings, creating jobs, improving lives. Brussels.

4 Wilby, Robert (2021): «A Review of Climate Change Impacts on the Built Environment», in: Built Environment issue 33(1), pp. 31–45. DOI: 10.2148/benv.33.1.31

5 Fabian, Lorenzo/Bertin, Mattia (2021): «Italy Is Fragile: Soil Consumption and Climate Change Combined Effects on Territorial Heritage Maintenance», in: Sustainability issue 13(11), pp. 1–19. https://doi.org/10.3390/su1311...

6 Frampton, Kenneth (2011): «Urbanization and Discontents: Megaform and Sustainability», in: Sang Lee (Ed.), Aesthetics of Sustainable Architecture, Rotterdam: NAi/010 Publishers.

7 Vidler, Anthony (2010): «Whatever Happened to Ecology? John McHale and the Bucky Fuller Revival», in: Architectural Design issue 208, pp. 24–33.

8 Turan, Neyran (2019): Architecture as measure. Barcelona: Actar Publishers.

9 Cheshire, David (2016): Building revolutions. Applying the circular economy to the built environment. Newcastle upon Tyne: RIBA Publishing.

10 Peleman, David/Ronner, Elsbeth/Corte, Martina B./Viganò, Paola (2022): «Exploring the Soil: Not a Sentimental Journey», in: OASE The project of the soil issue 110, pp. 4–15.

11 Calder, Barnabas (2021): ARCHITECTURE: from prehistory to climate emergency. London: Penguin book.

12 García Germán, Jacobo (2012): Estrategias operativas en arquitectura. Buenos Aires: Nobuko.

13 Zardini, Mirko (2021): «Toward a sensorial urbanism», in Anja Schwanhä ußer (Ed.), Sensing the city. A Companion to Urban Anthropology, Berlin: Birkhäuser, pp. 141–153.

Precision Wildland Designing Third Landscape Within the Smart City

Sara Anna Sapone, Politecnico di Milano

Intermediate doctoral stage

Supervisors: Sara Protasoni, Politecnico di Milano; Emilia Corradi, Politecnico di Milano; Michela Longo, Politecnico di Milano

Smart city, Informal landscape, Railway yards

Abstract

In the context of a Smart City, shifting from its traditional narrative, technology may be intertwined with nature to preserve biodiversity and manage the reclamation of the abandoned spaces, where spontaneous nature thrives. To do so, is proposed the concept of *Precision Wildland*, thus similarly to what is done with precision agriculture, the informal landscape is mapped, managed, emphasized and ultimately tested in a precise context, the one of railyards redevelopment.

The need for reconsidering this practice is given by the increasing relevance around Europe of former closed-off sites, habitats for undisturbed nature, now open for redevelopment interest.

The end goal is to elaborate a proposal that promotes an open-end result, not pushing for a precise outcome but with a precise approach towards the existing, adjusting and reacting to the unfolding of the site's development. To achieve this it is deemed crucial the understanding of the site condition and changes through the aid of digital technologies and tools.

Ultimately is proposed a redefinition of the redevelopment process and design, avoiding the complete destruction of existing nature during the construction phase and allowing instead the coexistence of spontaneous nature and formal design, defining their interaction in the in-between spaces and foreseeing different degrees of intervention and ways to design with the unexpected.

DDR statement

Operating in the context of the DDr approach, the research starts constructing a precise framework that dialogues with design in a manifold way, going back and forth between the theoretical level and its manifestation in physical experience and design programs. It's considered crucial the multidisciplinary of the work, being a theme in between different fields of study.

To represent this journey a research map is composed, [1] constantly adapting and changing to host the new findings, like a city or a circuit where everything is interconnected.

The research advancement presented above shows a development in the proposed research also thanks to the recommendations received in the previous CA^{2}RE event held in Ljubljana.

The proposal presented there, at that time at the initial stage, could greatly benefit from the debate and suggestion given by the panel members and the audience.

In particular, were received and implemented enlightening contribution on how to harvest the peculiar biodiversity of railway nature and some reflection on the way we can use technology to deal with it and what information is relevant to feed the Smart city network. It was especially paid attention to the chosen testbed, railyards, with compelling

arguments and suggestions and on how to exploit their peculiar "innate" intelligence.

The research moreover aims to build further on this international approach with a planned research stay in the next months, thanks to the idea league scheme, at the chair of Landscape of TU Delft. This will allow to draw a comparison between different scientific background, the dutch and Italian one, allowing also the research to define test beds in the Netherlands.

Focus the lens – Core of the research

In the context of a Smart City, shifting from its traditional narrative, technology may be intertwined with nature to preserve biodiversity and manage the reclamation of the abandoned spaces, where spontaneous nature thrives. To do so, the concept of *Precision Wildland* is proposed, thus similarly to what is done with precision agriculture, the informal landscape is mapped, managed, emphasized and ultimately tested in a precise context, the one of railyards redevelopment.

The need for reconsidering this practice is given by the increasing relevance around Europe of former closed-off sites, habitats for undisturbed nature, now open for redevelopment interest.

The end goal is to elaborate a proposal that promotes an open-end result, not pushing for a precise outcome but with a precise approach towards the existing, adjusting and reacting to the unfolding of the site's development. To achieve this, it is deemed crucial the understanding of the site condition and changes through the aid of digital technologies and tools.

Ultimately is proposed a redefinition of the redevelopment process and design, avoiding the complete destruction of existing nature during the construction phase and allowing instead the coexistence of spontaneous nature and formal design, defining their interaction in the in-between spaces and foreseeing different degrees of intervention and ways to design with the unexpected.

Search for Meaning – State of the Art and Framework

The research operates within a given frame, the one of the Smart City. For this reason, the initial effort was to outline and understand the key characters of this approach, looking at the contemporary debate whilst using a precise angle, the one of landscape architecture.

In a nutshell, we can say that is an urban strategy where traditional physical grids and public services are improved through digital systems and new technologies, managing the use of resources and enhancing the processes' sustainability.[1] The components of this network are interconnected and regulated by protocols that collect and react to flows of data, dealing with problematic conditions while forecasting future outcomes.[2]

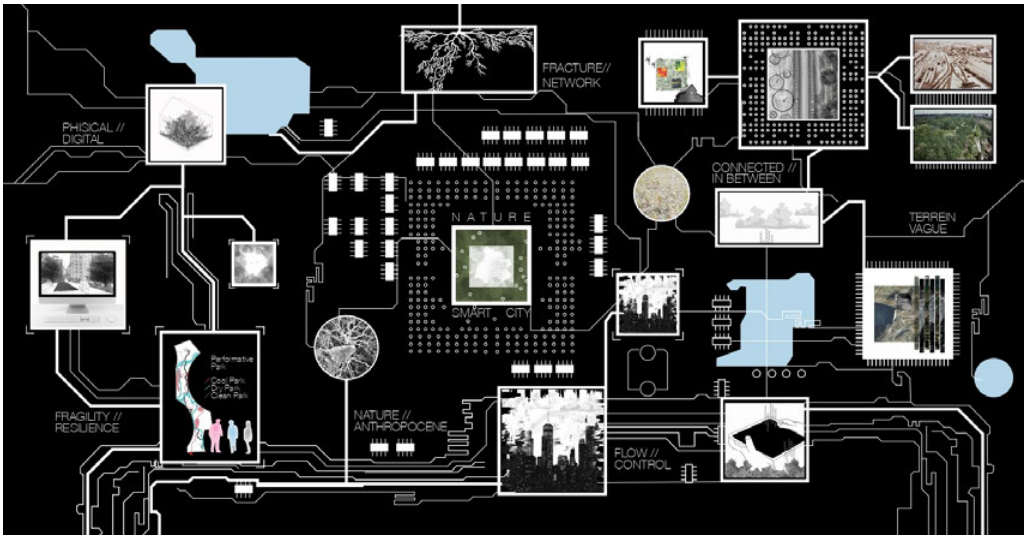


Figure 1: Research map, synthesis of the research key-topics, drawing by author

However, looking at it from the design perspective, is evident that the Smart City narrative[3] was traditionally mostly shaped by political and economic interests, dealing more with strategies than site-specific intervention, more with advertisement than actual change.

In light of this, the research tries to question this trend, largely made of processes optimization, proposing a new paradigm that intertwines technology and nature. Technology is understood as the cornerstone underlying the smart city. Historically it was seen as a tool for humans to fulfill necessities and separate themselves from their environment. Today is both a material and immaterial entity that shapes physical and digital environments.

At the same time, it was briefly outlined how we use and understand nature. Traditionally discerned as untamed wilderness, productive entity and garden and nowadays as performative[4] and informal nature.[5 6] Ultimately is underlined the relevance of a specific type of nature for the contemporary city, the third landscape.[6] This fragile and changeable entity, which thrives in places of abandonment, may preserve habitats, and holds ecosystem service. Moreover, it also pinpointed how contemporary research shed light on the idea of a natural "network".[7] Plants are not understood anymore with a Darwinian outlook as competitive entities but as part of a network that through chemical signaling aims to preserve the wellbeing of the habitat.[7 8] Therefore the technological network may communicate with the biological one to understand and react to its needs, as "constant and bidirectional extension between the animate and inanimate beings".[9]

Given its premises and the previously outlined state of the art, the scientific frame considered roughly regards theories and writings from the 1980s onwards.

This choice is due to the compresence in the theoretical debate since those years of reasoning both on the Smart City as urban strategy and the interest on informal nature.[10]

In the same years is also relevant how theories and design experiences dealing with the revitalization of railyards were central for the scientific debate.

Positioning – The Research Attitude

From the outline of this theoretical frame, it's defined this concept of "Precision wildland."

In this process, similarly to what is already done with precision agriculture.[11] the use of technology allows to collect and react to the information provided by the third landscape to serve specific needs.

The coexistence of wildland and city may imply constant and dynamic monitoring of these unstable and fragile patches.[7] Thus, wildlands are seen with a design approach, looking at their biodiversity, aesthetic value, management, and rule through the Smart City tools.

Ultimately the research tries to react to the given idea of what a Smart City can and should do, investigating a precise field of interest to narrow its scope. For this reason, a precise test-bed typology is at the core of the study, railyards, due to the innate "intelligence" of the railway network and the spontaneous pockets of wildland that may inhabit it. In addition to that, its peculiar characters create a compelling design testing ground: the structure of the soil (slope, materiality, cabling underneath), the presence of spontaneous nature (unique combination of seeds transported by the trains)[12] and the dynamic of two opposite systems (linear/monodirectional line of the rail opposed to the mutable pockets of nature).

At the same time, the need to rethink the reclamation practice of these specific sites is given by the increasing relevance around Europe of former closed-off areas, habitats for undisturbed nature now open for redevelopment. Following construction and economic priorities, often rich natural ecosystems are destroyed along this process. For this reason, it is stressed the need for an alternative redevelopment practice, which may consider, integrate, and enhance the existing value of the site in its design and redevelopment.

The end goal is to elaborate a proposal that promotes an open-end result in the practice of railyard reuse, not pushing for a design outcome frozen in time but with a precise approach towards the existing, adjusting and reacting to the unfolding of the site's development and natural growth. In this sense, there are already several design experiences, like the Gleisdreieck park in Berlin,[13] where the former railyard is transformed into a successful urban park. However, building on these experiences, the research explores how technology could prove to be an added value, supporting designers and developers in understanding the complexity of the existent condition and ensureing verifiable processes. In addition, there is the idea that technological tools may accompany these inherently unpredictable processes, constantly adapting to them to achieve the wished result.



Figure 2: Atmospheric image of the informal landscape in Railyards, drawing by author



Figure 3: Example on current redevelopment in Milano Porta Romana. Historical image, state of abandonment, construction site and future development. Pictures published on https://blog.urbanfile.org/2020/05/20/milano-scalo-romana-il-punto-della-situazione-per-lo-scalo-ferroviario/, https://scaloportaromana.com/articoli_video/demolizione-edificio-via-lorenzini-angolo-via-ripamonti, and https://scaloportaromana.com/wp-content/uploads/2022/01/Dossier_Scalo_PortaRomana_2021_DEF_WEB_Singole.pdf

The question of the interaction with time is crucial: climatic, natural, and anthropic events are not always predictable,[14] so the process needs to be adaptable and variable.

The goal is to react and predict different scenarios using a system of sensors and actuators, that read and forecast the needs of a wider territorial network.[2] The process doesn't follow a straight line but accepts to reassess it previsions and follow the flow of events unfolding amidst informal nature.

Concurrently, technological means may allow the development of invisible projects, not absent but unseen, making their outcomes blend into their landscape, drawing from the character of the place. Recognizing and narrating the informal landscape for its hidden value, may also prove to be relevant for day-to-day management and be economically beneficial.
Ultimately is proposed a redefinition of the redevelopment process, carried out without completely destroying existing nature during the construction phase, and allowing instead the coexistence of spontaneous nature and formal design, defining their interaction in the in-between spaces, foreseeing different degrees of intervention and ways to design with the unexpected.

On scale and impact – How theory becomes design

The research tries to deal with a challenging issue in the contemporary debate, the reclamation of abandoned sites. It looks at them through an unusual paradigm, the one of wilderness in combination with technological means. The ambition is to have an impact on the processes of renewal of abandoned spaces, not only from a theoretical standpoint but

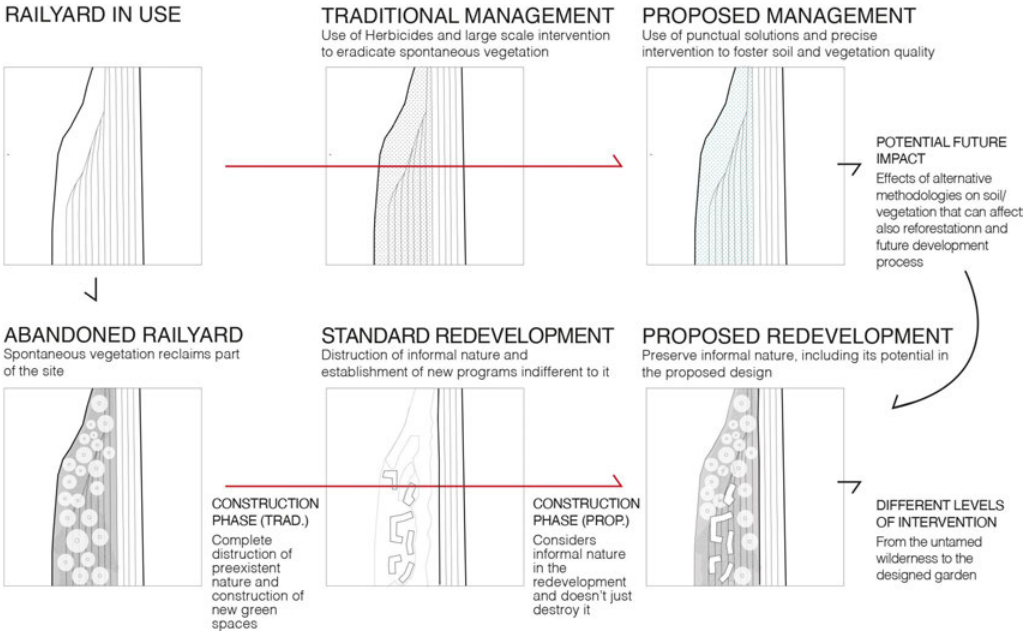


Figure 4: Schemes to confront the current redevelopment of the railway and proposed approach. Image by the author

deeply rooting the research in a design-driven approach, striving to define a methodology applicable to real design scenarios.

This investigation is inherently experimental and, due to its nature, it's deemed impossible to reference it to a single design experience. It will rather look at a "matrix of case studies", to search for interference between different design and artistic experiences that deal with the paradigm nature-technology in a manifold way. Some of the key-topics in this regard are the ways to design with nature, mapping and reacting with sensors to the environment, remediation processes, storytelling, and representation of nature through technology. Both the technical aspects of the reclamation practice and the more experiential ones will be considered. One case study won't provide alone all the answers, but the selected system of projects may help to draw conclusions and shed real insights to shape an effective methodology, feeding into the proposed methodology.

In addition to this, the research will pose a set of precise inquiries to various interlocutors, scholars, and experts from different fields, questioning the design, economic and ecological relevance of the way it proposes to manage and maintain railway's wildlands. The idea is to root the research in the practice, to comprehend the processes behind the design of railyards and the way spontaneous nature is treated according to different usage scenarios. Moreover, a comparison between different county's outlooks will be proposed, to reflect on the European attitude toward this issue.

To complement this, the research will define precise test beds, railyards with specific characteristic and relationship to their territorial network, to inform the proposed methodology through a design-driven approach. The chosen sites are located in contexts of urban pressure, where the

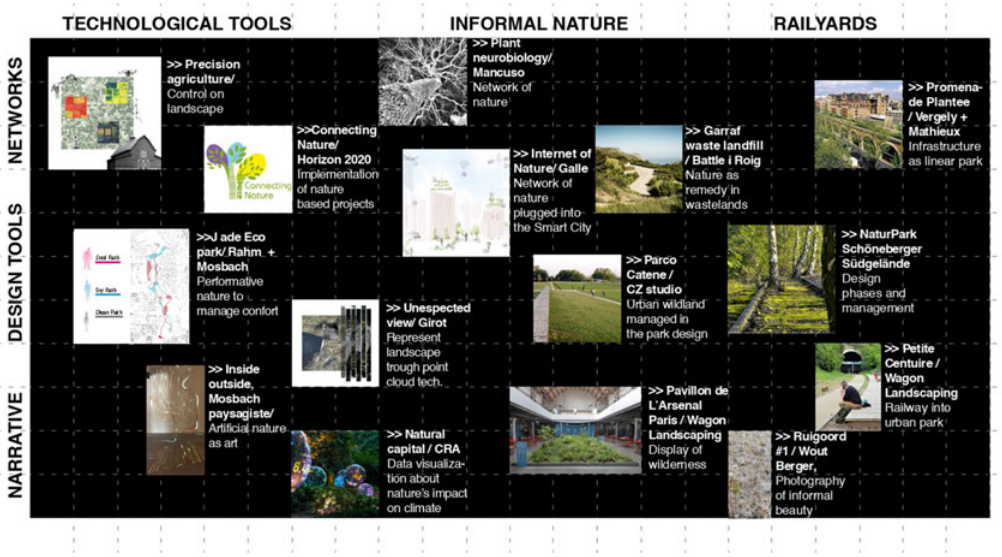


Figure 5: Case Study Matrix, drawing by the author

impact of transformations is potentially greater, and in the European context, closely knit network with territorial continuity, interested by several past and current instances of redevelopment. One case will look at the German context, interesting as forerunner experiences of inclusion of informal landscape in public spaces. Another will be in the Italian context, to study how to redevelop after years of abandonment and potential issues with ongoing reclamation processes. The third will look at the Dutch context, interested by the overall planning and realization of the high-speed network, that will free large railyards near urbanized areas; the latter may offer an instance on how to guide the process even before the redevelopment stage to favor spontaneous nature to thrive.

The comparison between the cases may stress the different ecological output according to diverse management and usage of the railyard, highlighting the spatial effects on the preexistence of spontaneous vegetation possibly introduced by the design practice.

In a nutshell, the research strives, looking at the redevelopment of railyards, recognize, maintain, and use informal nature, both along the construction process and in the final outcome, through the aid of emerging technological tools and the perspective of landscape design.

1 Boorsma, Bas (2017): A New Digital Deal: Beyond Smart Cities. How to Best Leverage Digitalization for the Benefit of our Communities. Holland: Uitgeverij Boekscout.

2 Ratti, Carlo/Claudel, Mattiew (2017): La città di Domani: come le retistanno cambiando il futuro urbano. Turin: Einaudi.

3 Lisdorf, Anders (2020): Demystifying Smart Cities: Practical Perspectives on How Cities Can Leverage the Potential of new Technologies, New York: Apress Media – Springer Science + Buisness Media New York.

4 Stagakis, Stavros/Chrysoulakis, Nektarios (2019): Think Nature: Nature-Based Solutions Handbook in EU Horizon 2020 research and innovation program.

5 Girot, Christophe (2016): Topology and Landscape Experimentation (filmed at the New summit on landscape architecture and the future). YouTube, https://www.youtube.com/watch?v=aWnslcJoZlk

6 Clement, Gilles (2005): Manifesto del Terzo paesaggio. Macerata: Quodlibet.

7 Galle, Nadine/Nitoslawski, Sophie A./Pilla, Francesco (2019): »The Internet of Nature: How taking nature online can shape urban ecosystems«, in: The Anthropocene Review issue 6(3), pp. 279–287.

8 Mancuso, Stefano (2017): Plant revolution. Milano: Giunti editore.

9 Ratti, Carlo/Belleri, Daniele (2020): »Verso una cyber-ecologia/ towards a cyber ecology«, in: AGATHÓN – International Journal of Architecture, Art and Design, issue 8, pp. 8–19. https://doi.org/10.19229/2464-9309/812020

10 Metta, Annalisa/Olivetti, Maria L (2019): La città selvatica. Paesaggiurbani contemporanei. Melfi: Libria.

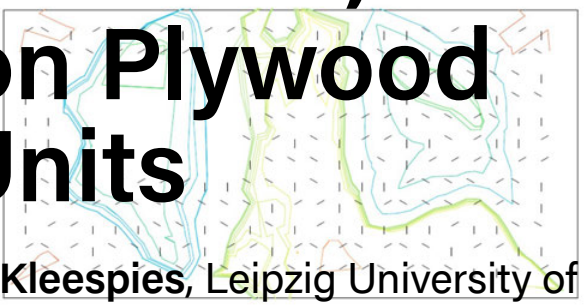
11 Falzarano, Pasquale (2018): Agricoltura di Precisione, pubblicate le Lineeguida nazionali. Agriregionieuropa anno 14 n°53, https://agriregionieuropa.univpm.it/it/content/article/31/53/agricoltura-di-precisione-pubblicate-le-linee-guida-nazionali

12 Clement, Gilles/di Salvo, Andrea (2010): Elogio delle vagabonde: erbe,arbusti e fiori alla conquista del mondo. Roma: DeriveApprodi.

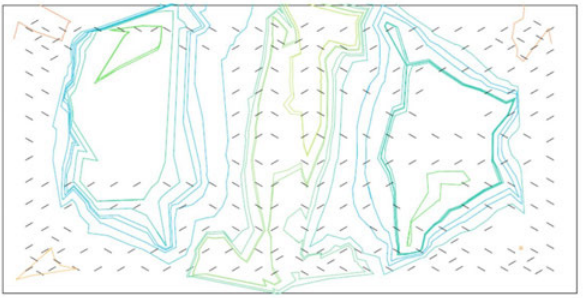
13 Kowarik, Ingo (2015): »Gleisdreieck: how Urban Wilderness Became Possiblein the New Park«, in: Gleisdreieck Park. Berlin issue August, pp. 224–229. doi: 10.14361/9783839430415-025

14 Balducci, Alessandro/Chiffi, Daniele/Curci, Francesco (2020): Risk andresilience. Socio-Spatial and Environmental Challenges. Switzerland: PoliMI Springer Briefs Springer Nature.

Rule-Based Design of Prefabricated, Hollow Section Plywood Wall Units



Felix Schmidt-Kleespies, Leipzig University of Applied Sciences



Intermediate doctoral stage

Supervisors: Cristopher Robeller, Bremen City University of Applied Sciences; Alexander Stahr, Leipzig University of Applied Sciences

rule-based design, digital fabrication, dowel-connections

Abstract

The subsequent project investigates to which extent panels can be spaced and simultaneously connected by means of dowels. The relationships between the position and alignment determining parameters are expressed in specific dowel formations. These were made visible and examined in relation to their appearance. The principle is particularly relevant in timber construction and can be considered in the context of Konrad Wachsmann's theories on the influence of tools and industry on contemporary architecture. One central aim of the work is to break down the standardization that characterizes timber construction in particular and that industrialization has brought about. In this context it is investigated how the new construction method contributes to reducing the material requirements of timber constructions while increasing its design range.

DDR statement

The current investigation on dowel patterns originates within the confines of design driven research (DDr). Although its design outcome might have to be covered due to fire safety regulations, the patterns created by the dowel ends were initially conceptualised out of an artistic interest and the potential they offered. From an aesthetic point of view, however, it would be desirable to make them visible and readable. The project may lay the groundwork for yet unknown future applications of the construction principle, in which the patterns might remain uncovered.

In contrast to classical research in applied science, this project does not try to solve an observable, yet known problem, but to change a future situation by exploring an assumed design problem and putting it to the test. Conjecture is carried out in practice and the research is executed through delineation of unexplored design patterns or interrelations between them. During the research process the design problem and its solution is co-evolving.

In graphic terms the DDr process applied here equals a spiral movement. The subject approaches an assumed problem by adding information to a design and then reconsiders the resulting design under the former criteria, to check whether it still matches the initial concept or if the initial concept of the design problem needs a reformulation in order to concretise a possible objective of the study. The researcher is passing through various cycles of cognitive processes instead of moving forward in a linear fashion by dividing an existing problem into several sub-problems until the matter seems solvable.

Paper

ABSTRACT. The subsequent project investigates to which extent panels can be spaced and simultaneously connected by means of dowels. The relationships between the position and alignment determining parameters are expressed in specific dowel formations. These were made visible and examined in relation to their appearance. The principle is particularly relevant in timber construction and can be considered in the context of

Konrad Wachsmann's theories on the influence of tools and industry on contemporary architecture.[1] One central aim of the work is to break down the standardization that characterizes timber construction in particular and that industrialization has brought about. In this context, it is investigated how the new construction method contributes to reducing the material requirements of timber constructions while increasing its design range.

SETTING. The dwindling availability of resources is one of the central issues in building technology.[2] Another is the continuous increase in building efficiency and complexity that demands faster design processes and therefore the need for digitally-assisted decision-making.[3] [4] In order to meet this challenge, new solutions in the field of architecture are urgently required.[5] A promising tool in managing the complexity of various design parameters so far has been integrated design concepts, which can balance priorities or help highlight design problems. Based on these, the presented work aims to illustrate and analyse the respective advantageous states of various constructive configurations of a newly developed form of wood-based construction and thus establish an architecturally higher-quality and resource-efficient alternative to conventional timber construction.

As the main renewable building material, wood-based construction was always going to be at the core of any further consideration. In the context of building with wood and timber, one of two prevalent construction methods is mainly utilized: The material-intensive solid construction (*Mass Timber*) method and the timber frame construction method. Both can be prefabricated in factories to increase efficiency within the construction process. The corresponding manufacturing processes are increasingly based on numerically controlled systems that can follow uniform movement patterns as efficiently as non-uniform movement patterns. The latter in particular increases the possibility of implementing heterogeneous, requirement-based wall structures. This was shown by *Beyreuther* who reduces material requirements of mass timber walls by dispersing their inner layers.[6]

Based on these statements and on the premise that the consumption of resources in wood-based construction would be further reduced, a third construction method was conceived, mainly derived from architectural observations. The construction method reverses the load-bearing behavior of the established timber frame construction by activating the surface layers (directed Laminated Veneer Lumber panels) of the structure as primary load-bearing structure, and connecting them with a secondary load-bearing layer of cylindrical wooden dowels arranged at skew-whiff angles to each other. [1] The resulting hollow space in between the panels serves as insulation layer that can be filled with diverse materials. Based on the principle of the varying assembly vectors of the dowels restraining each other, the concept was named *Interlocking Dowel System* (IDS).

Similar research on glueless connections of sawn timber boards and dowels using interference fits was carried out by *Thoma*. The core of that project was the systematic investigation of the swelling and shrinkage behavior of wood caused by the varying conditions of ambient

humidity.[7] While the same connection type is applied here, the IDS is focused on coplanar connections of two-dimensional wall-segments in order to generate an enclosed and insulated architectural space. It makes full use of wood as a material and eliminates the use of any metal connectors, which in turn has the potential to improve recyclability, eco-balance and the thermal insulation properties of the building elements. Interlocking wood-based structures are also investigated by *Robeller* et al. and *Bucklin* et al.[8 9] However, the use, distribution and placement of the dowels in an interlocking system is a wholly new approach to constructing wall elements when compared to conventional design and fabrication methods.

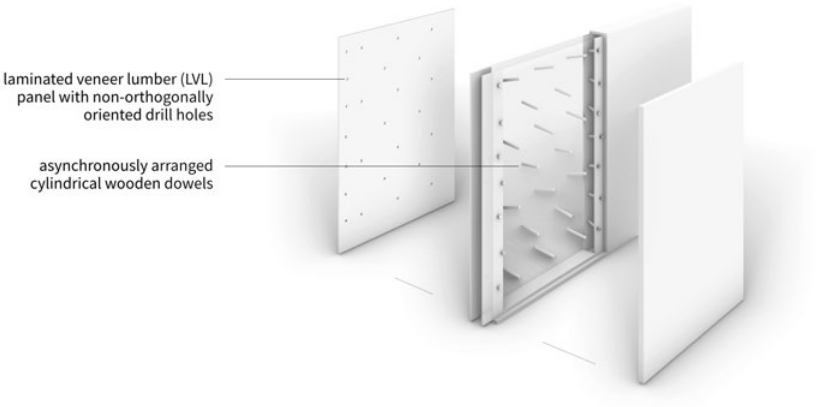


Figure 1: Construction principle of an IDS element ; image: Felix Schmidt-Kleespies

From an architectural viewpoint, it is important to demonstrate that the proposed construction method allows for a wide range of possibilities when collocating window and door openings of different shapes and sizes in the outer shell of a design. Only proven in theory so far, the system has the novelty of being easily scalable when compared with timber frame construction. Additional advantages of it are that the exposed wood surfaces of the support structure do not require any further boarding and that it demonstrates greater resource efficiency than conventional construction systems due to it not depending on any solid wood cross-sections and additional covering, further increasing its social relevance.

FOCUS. From a constructive viewpoint the design outcome of IDS elements is so versatile, that it will take a lot of effort to substantiate it in its entirety. Although numerous desirable influencing factors can easily be defined, the correlations between them remain to be verified. For example, the arrangement and orientation of the dowels have a major influence on the natural frequency and thus the structural properties of the wall. Simultaneously, they also affect thermal conductivity, sound transmission and the external appearance of the structure. On the manufacturing side of things, relevant parameters such as maximum and minimum angles of inclination of the CNC-machining influence the alignment of the dowels. [6] In accordance with constructive aspiration of the project, individual influencing factors were categorised into three groups in the following order of importance (1) *structural*, (2) *manufactural*, (3) *æsthetical*.



Figure 2: Favorable distribution of a specific dowel variation for the mid-section of a load-bearing wall panel (left); sideview of the specimen (right); image: Felix Schmidt-Kleespies

By taking full advantage of current technological capabilities, variable composite constructions can be fabricated. It was assumed that denser, heterogeneous and non-linear dowel distributions would perform better than homogeneous distributions in terms of load distribution. If so, that would facilitate a random, non-linear arrangement of wall openings as well as scalability of IDS. The following describes an approach to develop a concept for a stress-dependent element-related distribution of the dowels.

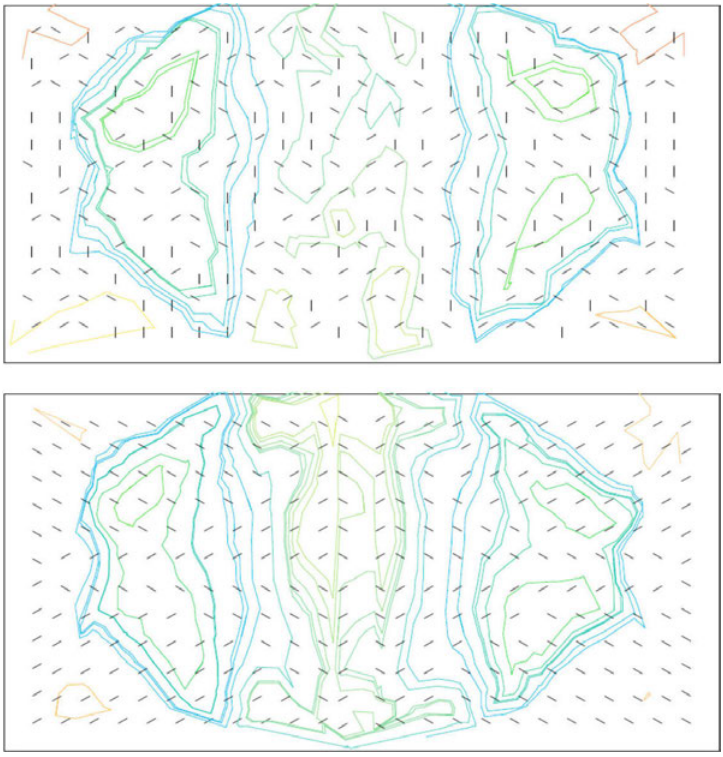


Figure 3: Force field lines in a simulation of a unilaterally fixed wall element with window opening on the basis of randomly arranged dowels (top) and of a clustered and directed dowel distribution (bottom); illustration: Felix Schmidt-Kleespies

METHODS. First, a basic model was created, in which multiple dowels with three varying kinds of longitudinal orientations were evenly distributed using an orthogonal grid with 10cm spacing. A first demonstrator was implemented to take any restrictions due to limitations of the production line into account. [2] A dowel inclination angle of 14 degrees and the wood species (beech) were specified. During the simulation [3] several models with random homogeneous dowel arrangements applying the Perlin noise function and using the same grid were generated and then compared to the base model. It was determined that the natural frequency of the wall with an ordered clustered arrangement of dowels was higher than with random arrangement.

Following that, global factors such as the influence of loads occurring due to different wall positions (in the overall structure) were examined on the model. In order to generate different reasonable dowel patterns, different variations of edge elements as well as those located in the middle of an overall structure were initially modeled with a significant amount of varying heterogeneously oriented dowel positions and their performance was compared with that of a regular clustered distribution. Favorable dowel patterns for certain load-cases were documented and provided the basis for training an AI in further processing.

In order to examine convenient dowel distributions within IDS elements that contain wall openings a new wall with a rectangular cut-out in an asymmetric position was modelled. Then a previously simulated load case was applied to a randomised dowel distribution and its corresponding force fields were generated. [5] The next step was to arrange the dowel distribution in a way that clusters of 3 – 4 differently oriented dowels were moved from lower stressed areas to ones with higher values. Dowel distributions adjusted in this aspect performed marginally better than the rigid random patterns even when the overall number of dowels was noticeably reduced. The resulting model was then constructed to ensure its manufacturability. [4]

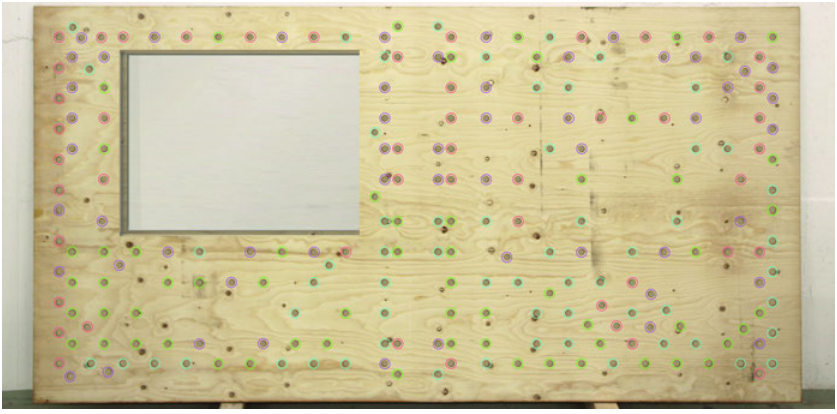


Figure 4: Collage of favorable distribution of a specific dowel variation for the mid-section of a load-bearing wall panel with window opening; image: Felix Schmidt-Kleespies

CONCLUSION. Using the example of the innovative, interlocking construction principle of wooden panels, it is possible to consider different dowel patterns and implement them based on the different design requirements. It was ascertained that a heterogeneous dowel distribution

in the elements can positively impact their performance and properties. To this end, dowel connections that are particularly suitable for prototypical construction as well as different dowel patterns programmed for specific load cases were documented. [2] Applying load-customised dowel patterns enables the uncomplicated retroactive adjustment of existing wall openings without to revisit any detailed planning processes. This enables a wholly new approach to the design of the outer shell of timber-based constructions.

From an architectural point of view, the greatest requirement is to now further develop the concept in order to incorporate as many of the influencing factors as possible and to define a rule-based design framework incorporating those factors in order to help planners discover other unforeseen dowel patterns. However, an optimal arrangement of dowel positions taking into account several parameters, has been arduous to specify so far. A possible solution would be to specify density zones in which the minimum number of dowels is specified but their exact arrangement is left to the designers. Therefore, further research focusing on an algorithm based mathematical model, that determines correlations between these influencing factors and combines them in enhanced dowel patterns is necessary.

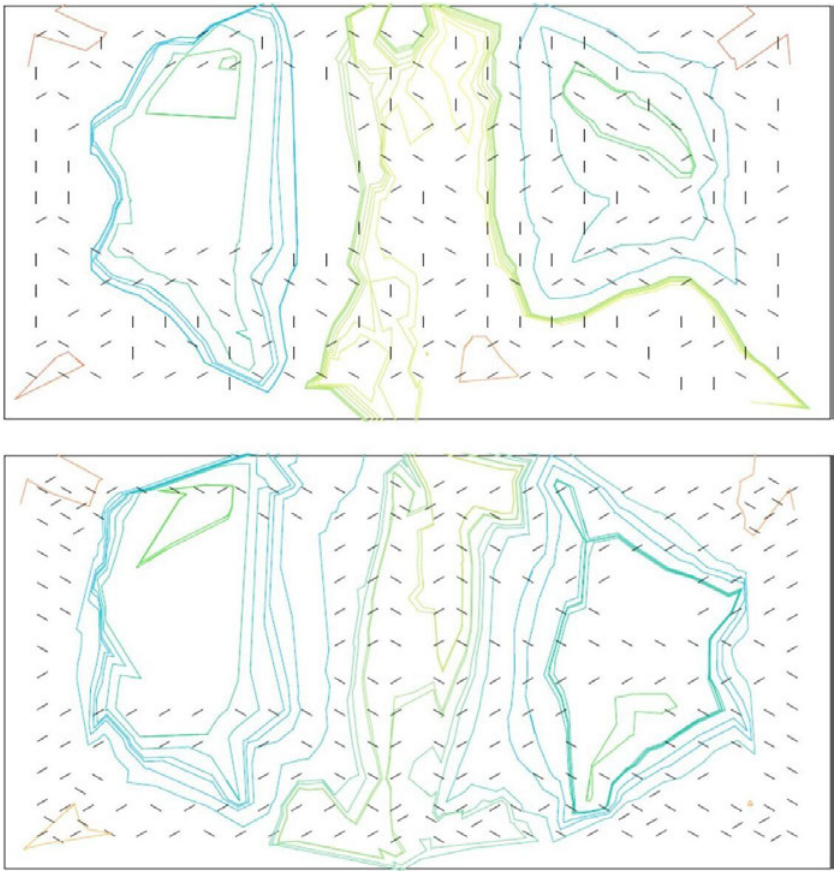


Figure 5: Force field lines in a simulation of a unilaterally fixed wall element with window opening on the basis of randomly arranged dowels (top) and of a clustered and directed dowel distribution (bottom); illustration: Felix Schmidt-Kleespies

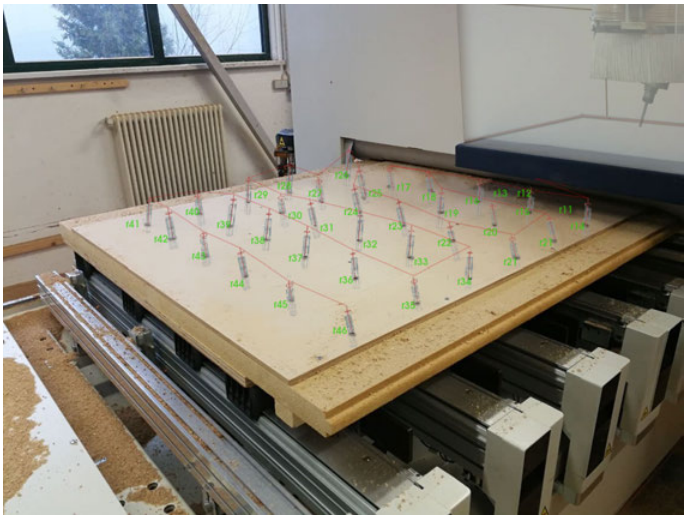


Figure 6: Test specimen with homogeneous dowel arrangement during production; image: Felix Schmidt-Kleespies

1 Wachsmann, Konrad (1962): Wendepunkt im Bauen. Hamburg: Rowohlt.

2 Weidner, Stefanie/Mrzigod, Alexandra/Bechmann, Roland/Sobek, Werner (2021): »Graue Emissionen im Bauwesen – Bestandsaufnahme und Optimierungsstrategien«, in: Beton- und Stahlbetonbau issue 116, pp. 969–977.

3 Sandberg, Marcus/Johnsson, Helena/Larsson, Tobias (2008): »Knowledge-Based Engineering in Construction: The Prefabricated Timber Housing Case«, in: ITcon issue 13, pp. 408–420.

4 Hensel, Michael/Menges, Achim/Weinstock, Michael (2013): Emergent Technologies and Design: Towards a Biological Paradigm for Architecture. Abingdon: Routledge.

5 Schwinn, Tobias (2021): A systematic approach for developing agent-based architectural design models of segmented shells: towards autonomously learned goal-oriented agent behaviors. Stuttgart: Institute for Computational Design and Construction, University of Stuttgart

6 Beyreuther, Todd (2018): Next Generation CLT: Mass-Customization of Hybrid Composite Panels Emerging Workflows/Techniques/Design Protocols for Carbon-Neutral Buildings.

7 Thoma, Adreas/David, Jenny/Helmreich, Matthias/Gandia, Augusto/Gramazio,Fabio/Kohler, Matthias (2019): »Cooperative Robotic Fabrication of Timber Dowel Assemblies«, in: Leopold, Cornelie/Robeller, Christopher/Weber, Ulrike (Ed.) Research Culture in Architecture: Cross-Disciplinary Collaboration, Basel: Birkhäuser, pp. 77–88.

8 Robeller, Christopher/Weinand, Yves (2017): »Constraint-aware design for assembly, for the first integrally attached Timber Folded Plate lightweight structure, covering a column free span of 20 meters with only 45 millimeter thick CLT plates«, in: Nagakura, Takehiko/Tibbits, Skylar/Ibanez, Mariana/Mueller Caitlin (Ed.), ACADIA 2017 | Disciplines + Disruption., United States: Association for Computer Aided Design in Architecture (ACADIA), pp. 492–501.

9 Bucklin, Oliver/Menges, Achim/Amtsberg, Felix/Drexler, Hans/Rohr, Angela/Krieg, Oliver D. (2022): Mono-material wood wall: Novel building envelope using subtractive manufacturing of timber profiles to improve thermal performance and airtightness of solid wood construction. Energy and Buildings Volume 254, https://www.sciencedirect.com/science/article/pii/S0378778821008811

Housing Migrant Workers
An Exploration of the Rotterdam-Venlo Logistic Corridor

Renzo Sgolacchia, University of Venice



Intermediate doctoral stage

Supervisor: Pippo Ciorra, University of Camerino

workers' housing, architecture of logistics, borderlands

Abstract

The research investigate the unobserved topic of workers' housing located within the Rotterdam-Venlo corridor, a strategic trajectory of the global logistics. Mobility and housing of labourers are studied as "analytic borderlands," a theoretical tool developed by Saskia Sassen that suggests to look at overlapped global and local operations. The purpose is far greater than describing the most obvious and conspicuous aspects of capitalist exploitation, such as the speculation of real estate developments of logistics, and it aims to shift the interest from production to producers, namely the migrant workers. Disclosing contexts where migrant flows are less tangible and visible, the larger questions guiding this research revolve around the relationship between the rigorous regimes of logistics, the implemented strategies of corporates, and the bottom-up tactics of migrant workers.

DDR statement

In their article *Ecologies of Migration* (Sohn, Cordova Gonzalez 2019), the authors argue that conventional problem-solving design studios simplify the complexity of "borderscapes." While typological models exclusively rely on the linearity of space and time, they suggest the topological approach aiming to read the border as a "dynamic entity," and analyse "human and non-human agents and subjectivities" and "other logics of movement."

Rather than exclusively focusing on physical objects and aiming to understand complex social and spatial phenomena, my approach is based on field research and has a multidisciplinary character in order to closely study the logics that regulate the non-linear flows of labour and understand the nature of workers' dormitories. The comparative analysis of selected case studies and the activities of mapping, drawing, filming and interviewing, are the essential tools to fully understand the bordering practices and transformative processes involved.

The heterogeneity of research activities opens up the possibilities to find new problems and questions. Beyond mere strategies for fixing problems, this extensive approach aims to understand how the architecture of labour migration works within the most developed European corridor.

Extended abstract

In this period of global health emergency, the flow within the endless trajectories of global logistic corridors has become the main worldwide concern to continuously sort essential goods to the urban population and provide materials for industrial production. Within the corridors' space, millions of people live and work.

According to Clare Lyster in her book *Learning from Logistics*, the space of circulation has generated "new urban fields" at transnational scale and extended beyond the oceans.[1] Similarly, Rem Koolhaas in the article *The Cut*, focused on the "new forms of urbanisation" that have particularly emerged in the worldwide countryside with an "immense proliferation of

boxes," referring to the large-scale buildings of warehouses and data centres.[2]

Especially during the interwar period, the space of circulation played a crucial role in shaping modern cities. In particular, the Socialist City was organised according to the alignment of functions within a unique infrastructural network, what one could define as a logistic corridor *ante litteram*. Theorised by Nikolay A. Milyutin in his book *Socgorod* (Socialist City), the functional-assembly-line system aimed at optimising the plan of the industrial cities, and connecting these hubs at a territorial and national scale.[3] This plan was configured according to an unrestricted linear growth, linking various industrial poles along major lines of transportation and communication, facilitating the flow of goods from distant regions, reducing to a minimum the movements, and accommodating workers in a linearly developed residential zone parallel to the productive zone.

Since the 1970s production and labour have become fragmented among international networks, supply of goods and mobility of people became both crucial. Contemporary global logistic corridors have a dual nature, as infrastructural connections and also "operational processes." According to Giorgio Grappi, a "corridor is a political entity" that facilitates for instance customs practices across several national borders to move goods and workers, but also contributes to the formation of new borders along transportation lines and nodes of global flows.[4] Productive zones and residential zones of workers are mainly dispersed, clustered and confined within frontier zones along corridors.

Despite the interest in how logistics is urbanising the world with mere productive spaces and distribution of commodities, and how the workforce is exploited to maintain this perpetual flow, it remains unobserved *how* logistics workers move from abroad and *where* they are accommodated within corridors.

Due to its size, development, and the presence of more than six hundred employment agencies, the Rotterdam-Venlo logistic corridor can be considered an emblematic case to study the nature of the residential zones of logistics. The Dutch Government defines "EU migrant workers" as a large community of four hundred thousand people arriving in the Netherlands from Central, Eastern and Southern Europe.[5] Recruited directly from abroad and through online platforms, this workforce seems to live in a parallel society. Migrant workers mainly reside segregated in remote sites such as specifically-designed labour camps and hotels, or former holiday parks and military bases, mostly located next to highways.

The organisation of production exceeds the strict confinement of productive and management sites and regulates the mobility and housing of flexible migrant workers. Rather than temporary and spontaneous solutions or the result of uncoordinated strategies, workers' recruitment and workers' housing are accurately and logistically structured by a network of companies external to production, the international employment agencies. Analogously to the companies that worldwide ships and distributes goods, these logistical actors optimise the use of spaces of existing infrastructures and vacant sites.



Figure 1: Collage *The Control Room of Logistics,* by Renzo Sgolacchia

The centralised control practiced by logistical actors organises the dispersed activities along corridors. Echoing the military origin of logistics, the residential zones are comparable with military camps. The employment agencies do not only operate to move workers from abroad and store them in corridors, but also provide transportation to the workplaces, and discipline this flexible workforce by the strict regulations of labour camps and labour hotels. Playing the dual role of landlord and recruiter, the employment agencies usually convert workers into debtors, for instance when the rent expenses exceeds the wage, or can evict them at the expiration of the working contract. Migrant workers are a representative case of the twofold character of the "borderlands" that they inhabit, working and living at the same time in cross-border networks and within communities that reflect their countries of origin.



Figure 2: Photo of a labour camp in North Brabant, by Renzo Sgolacchia

The research aims to investigate workers' housing with the concept of "analytic borderlands" in mind. Coined by Saskia Sassen (1999) this concept understands the "spaces of intersection" as overlapped global and local strategies and where operations of power and logics of domination take place.[6] Embodying the reformulated military principles of logistics such as the optimisation and control of spaces and performances, workers' housing has the function of reproducing and organizing labour, aiming to attenuate conflicts and obstacles that could interfere with the productive capacity of the corridor. In this sense, workers' housing reveals the concrete materialisation of different forces that can be summarised with the De Certeau's distinction between tactics and strategies.[7]

Rereading the vast literature of the so-called "architecture of logistics" that focuses on corporate strategies and insurgent tactics, including law and social studies on migrant workers, but also drawing, mapping, and providing data of unexplored residential sites of the corridor, filming and interviewing NGOs members, unionists and migrant workers, I intend to deconstruct and interpret this phenomenon that is becoming a vector of contemporary urban developments.

1 Lyster, Clare (2016): Learning from Logistics: How Networks Change Our Cities, Basel, Berlin: Birkhäuser.

2 Koolhaas, Rem (2016): »The Cut«, in: Flaunt Magazine issue January 2016, https://www.flaunt.com/content...

3 Milyutin, Nikolay Alexandrovich/Sprange, Arthur/Collins, George R. (1974): Sotsgorod. The Problem of Building Socialist Cities [1930], Cambridge, MA: The MIT Press.

4 Grappi, Giorgio (2020): »Logistica e Stato nel presente globale. Sovranità, corridoi, confini«, in: Teoria politica. Nuova serie, Annali, issue 10, pp. 247–262.

5 Government of the Netherlands: Housing for EU migrant workers, https://www.government.nl/topics/foreign-nationals-working-in-the-netherlands/housing-for-eu-migrant-workers

6 Sassen, Saskia (2012): »Analytic Borderlands: Economy and Culture in the Global City«, in: Gary Bridge, Sophie Watson (Ed.), The New Blackwell Companion to the City, Chichester: Blackwell Publishing Ltd, pp. 210–220.

7 Certeau, Michel de (1984): The Practice of Everyday Life. Berkeley: University of California Press.

Bodily Movement in Architectural Theory and Its Implications for Spatial Composition



Wiktor Skrzypczak, HCU Hamburg

Final doctoral stage

Supervisor: Matthias Ballestrem, HCU Hamburg

architecture theory, movement analysis, architectural composition

Abstract

Traditional positions in architectural theory use movement to address the experience of space, while traditional positions in movement theory use space to address the movement. By sampling these traditional positions, the paper proposes a catalogue of primal movements in architectural theory. It identifies the primal movements such as entropic movements, flowing/floating, condensing/expanding, grounding, balancing, toning, articulating, closing, opening, timing, facing/reaching, wandering/tracing, positioning/occupying and focusing/attending. The paper discusses the implications of these movements for the spatial composition and the relevance of the proposed top-down analysis for creative bottom-up design practices.

DDR statement

If I could recommend something to my past self, at the beginning of my research, I would recommend myself to make a cumulative doctorate, to split it into smaller coherent research projects and so avoid roaming on the ocean of endless questions and endless possible routes of investigation.

I would recommend myself to integrate medial and technological procedures strongly with the research methodology in order to help document and transmit knowledge from intimate practice to peers.

I would recommend myself to learn creative writing in addition to scientific writing, in order to overcome the writing difficulties typical of architects.

I would expect my supervising institutions to provide obligatory courses in epistemology, scientific method(s) and their development over the centuries.

I would expect my supervising institutions to define in detail the formats of presenting and disseminating the research.

I would expect different formats for presenting explicit, rational knowledge and different formats for presenting implicit, experiential knowledge, and also new formats which combine these both kinds of knowledge.

Paper

This recent theoretical research concludes my PhD, which in itself was practice-based. And what I'm doing now is developing a taxonomy or a map of movement aspects of spatial experience. Before I go on, let me give you some background information on why I'm doing this. My previous practice-based research consisted of movement practices that try to illuminate how can we impact our bodily state, our embodiment and thus change the way we are perceiving and imagining space and maybe even change the way we are designing space. I've conducted a series of smaller and bigger experiments with students, with clients and by myself, which in themselves were mostly self-directing, grounded rather in pragmatic knowledge, than in theoretical knowledge. But at some point,

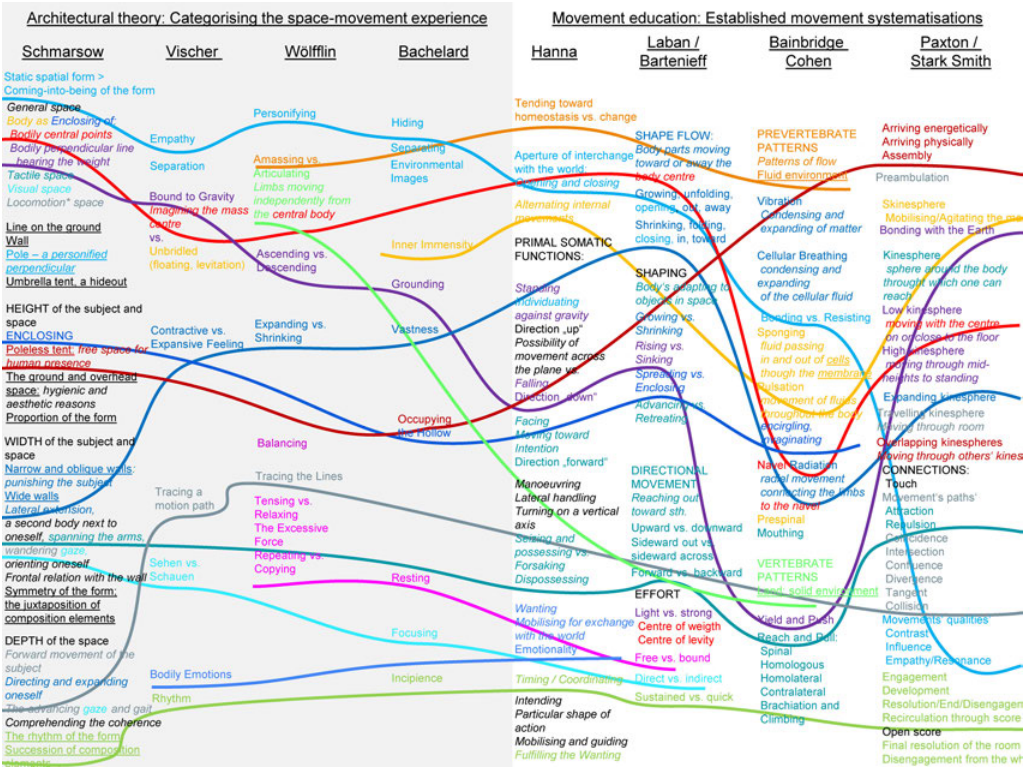


Table 1: Preliminary mapping of the common movement notions in architecture theory and movement analysis.

I realized that the possibilities of embodied experimental design are so many that I need more systematic orientation or top-down navigation through these practices, also in order to be able to transfer the knowledge from these experiments to my community of practice and to the scientific community. Briefly, that's the purpose of this theoretical work.

At the previous CA^{2}RE I finished my presentation with the sketch of a map that shows the core notions used by space theorists like Vischer, Wölfflin, Bachelard and movement theorists such as Laban, Bartenieff, Bainbridge Cohen and Stark Smith. And I've demonstrated that there are certain notions, which repeat throughout the authors and throughout the disciplines. And what I'm presenting today is the result of the systematic linking of both fields. What you are seeing now [Table 1] is again a table with movement theorists on the right and space theorists on the left, with the core notions that they use and with the many transversal lines which connect these notions. It is a preliminary step toward finding out which transversals are unique. What I'm looking for in this complex map of linked notions are the primal movement aspects of spatial experience and in order to identify them, I analyzed [Table 2] what compositional relations result from each primal movement – because I'm interested in the relevance of the movement for the architectural form and composition and for the act of composing itself. Then, I analyzed what concepts the authors use when they speak about this movement in abstract terms. I also noted what are the exemplary forms named by the authors, so that this "dry" analysis is more tangible for the readers.

The Subject of Movement:								Primal Movement	Spatial Object: Analytic Concepts	Spatial Object: Compositional Relations	Spatial Object: Exemplary Form
matter								Entropic movements			
matter	organic matter	tissue	organ					Flowing, Floating	flow	fluid dynamics flows, currents of particles	flows of circulation, respiration, nutrition
matter	organic matter							Condensing vs. Expanding	interior, exterior inner immensity	tansitioning, permeating	proto-wall, cell, membrane
matter	organic matter	tissue	organ	limb	organism		personified building parts	Grounding	centre of mass, it's level above ground; force lines: plumb line, catenary, etc.	Upper regions yielding into lower, supporting regions	ground; self-supporting, undifferentiated weight-bearing structures
matter				limb	organism		personified building parts	Balancing	standpoint vertical midline height dimension	compensating counterparts	(a)symmetric forms
matter	organic matter	tissue	organ	limb	organism		personified building parts	Toning	strength, tension, tone force quantity	bounding to the force line vs. free from the force line	specialised supporting and supported structures, differentiation of the materia
				limb			personified building parts	Articulating	members, joints	dissociating from the mass, optimising in quantity	members specialised in fun (e.g. differentiated windows, construction connections
matter	organic matter	tissue	organ	limb	organism	attention	personified building parts	*Closing*	enclosure, free space, width dimension, void, in-between space	perimeter circumscribing the void	wall, corner, refuge
matter	organic matter	tissue	organ	limb	organism	attention	personified building parts	*Opening*	Self, Other / World empathy subject vs. object	interchanging vs. separating	outdoors, ecological images
				limb		attention	personified building parts	*Facing, Reaching, Yielding*	spatial directions / vectors kinesphere / tactile space, front space, back space	orienting toward things, seizing them or being seized	faccade, handle belongings, furnishings
				(limb)	organism	attention	personified building parts	Tracing, Wandering	trace(s), depth dimension, foreground, background	confluencing, diverging, intersecting, etc. overlapping, succeeding	path, inhabitable living space
		tissue	organ	limb	organism		personified building parts	*Timing*	duration, incipience, resolution	parts coordinate themselves in space-time nacheinander (a)synchronity	(a)rhythmic forms
					organism	attention		Positioning, Occupying	presence, habitat	the object emanates or hosts human presence	home, tomb, obelisk
					organism (tele-senses)	attention		Focusing	focus, periphery	relating all elements to each other at once, vs. emphasising single one	atmosphere, overall picture vs. vista, eye catcher

Table 2: Preliminary unique primal movements

Let me give you an overview of the primal movements I identified. These are entropic movements, flowing/floating, condensing/expanding, grounding, balancing, toning, articulating, closing, opening, timing, facing/reaching, wandering/tracing, positioning/occupying and focusing. Now I'll go again through these primal movements and dwell a bit on the details. Let's start with grounding, which is a very simple movement. The spatial forms we're dealing with in grounding is, obviously, the ground and a self-supporting form lying on the ground – that is grounding. This relation between the ground and the structure is already a compositional relation. So, we have upper regions yielding into the lower regions and into the ground and we have the supporting parts underneath. The authors which I sampled used the notions of the center of mass and its level above the ground in order to describe this spatial phenomenon abstractly. Additionally, they deployed notions of force line, especially, the plumb line — the line which connects the center of mass of the structure with the center of the planet.

We could go on now with movements that are more refined like balancing or toning or we could have a glimpse at movements that are more primitive. They are relevant for our taxonomy because they show the continuity of sensing oneself internally and sensing external spatial forms, but I will go through them only very briefly. These are internal movements in general, which are exemplified by the flows of blood circulation, respiration and nutrition. And we perceive them interoceptively as a fluid composition of flows and currents. They have been abstracted in architectural theory, for instance, by Bachelard as the "inner immensity," as vastness within ourselves. Another primal movement is condensing

and expanding against the membrane of the cell, a kind of proto-wall, the primal sense of inside and outside (cf. Bainbridge Cohen). If we go further back, we will see that the sampled authors seek the origins of these movements in entropic movements of physical matter, but we won't dwell on these movements here. Instead, let us go back to more refined and tangible movements.

If we consider a structure that is grounding, with the increase of its height it will begin to balance in order not to fall. Some authors relate the movement of balancing to symmetric forms, respectively to asymmetric forms, both of which are a result of a compositional relation of counterparts compensating for each other's weight. This phenomenon has been theorized through the notions of the standpoint, the vertical midline and the dimension of height. It is because, only a balanced body, or composition, is able to maintain its vertical midline and avoid falling beyond its standpoint.

Then we have the primal movement of toning. Toning is connected to the analytic notions of force and its quantity and to the bodily tone and it establishes the compositional relationship of elements aligning to the force lines or elements being free from the force lines. An example could be a structure specialized in supporting other structures where the direction of the force lines shapes the form as is the case of an arch.

Then we have the movement of articulating, which is described as the dissociation of independent members from the undifferentiated mass. While through toning the form differentiates its materials, through articulating it differentiates itself into members and sections. Accordingly, the compositional relation is the relation between the parts as well as the way how they connect with each other, how they develop joints. We are speaking here also about the degree to which they are able to dissociate from the mass, the degree to which they are optimized in their quantity.

The next primal movement could be closing – a movement which is very often attributed to a corner of two walls, a simple refuge that emerges from the compositional relation of the perimeter circumscribing the void. The sampled authors use the notions of enclosure, free space and width dimension to analyze this phenomenon.

Then we have the primal movement of opening which is not as much the opposite of closing but rather a spatial phenomenon directed toward the outdoors, the environmental images. The compositional relationship which establishes this phenomenon is the degree to which the Self interchanges with the World or with the Other or the degree to which the Self separates from them. Inevitably, the analytic concepts of Self and Other have been complemented by the majority of sampled authors with the concept of empathy.

Then, the next primal movement I identified is facing/reaching. It's realized through the compositional relation of orienting oneself towards things and seizing them and it has been theorized through the concepts of spatial directions, the frontal direction being one of them, as well as the concept of kinesphere, a multidirectional space defined through the extent of one's limbs. Exemplary forms, which result from this primal

movement, are the ergonomic forms of furnishings, handles, belongings, as much as the facade.

The primal movement of wandering/tracing is basically unconstrained locomotion. On a small scale, it establishes the inhabitable living space, as opposed to spaces that confine our movements. On a bigger scale, it produces the path. It has been theorized through the concepts of depth dimension, and trace left by the subject moving through the layers of foregrounds and backgrounds. Accordingly, we are dealing here with compositional relations of confluencing, diverging and intersecting traces as well as overlapping and succeeding depth layers.

The next primal movement, which also relates to the frontal direction is positioning oneself and thus occupying the space. It is exemplified by a home, a tomb, an obelisk and it establishes the compositional relation of the object that emanates or hosts human presence. It's the abstract notions of presence and habitat that have been used to theorize the phenomenon of positioning and occupying.

Finally, the last primal movement, which I identified among the sampled authors, is the movement of focusing/attending. And although in itself it's rather a movement of attention than a physical movement, it also includes the subtle physical movement of sensory organs. It has been theorized, among others, through the notions of focus and periphery and it creates compositional relations such as emphasizing a single element among many, or, conversely, holistically relating everything to everything, each part to each part. The exemplary forms are an eye-catcher, a vista, or the unified feeling of the room — its atmosphere.

With these series of movements, I hope to have covered the multitude of ways through which the architectural space has been theorized through the lens of the moving body. Although such a taxonomy might be misused as a normative tool that constrains the possibilities of the creative embodied practice, be it design practice or movement practice, I'm convinced that it might help practitioners to be more precise and explicit about what they are doing. With this they can easily demonstrate how their practice navigates through the routes of the established knowledge and how it leaves these routes and explores the indefinite possibilities of "what a body can do", to speak with Spatz, and thus creates original knowledge.

Literature

Cohen, Bonnie Bainbridge/Guay, Margaret/Arraya, Rodrigo/Ridge, Michael (2018): Basic Neurocellular Patterns: Exploring Developmental Movement. El Sobrante, CA: BurchfieldRose Publishers.

Dell, Cecily (1991): A Primer for Movement Description Using Effort-Shape and Supplementary Concepts. New York: Dance Notation Bureau Press.

Friedrich, Thomas/Gleiter, Jörg (2007): Einfühlung und phänomenologische Reduktion: Grundlagentexte zu Architektur. Design und Kunst. Berlin: Lit-Verl.

Hanna, Thomas (1976): »The Field of Somatics «, in: Somatics: Magazine-Journal of the Bodily Arts and Sciences issue I (1), pp. 30–34.

Ikonomou, Eleftherios/ Mallgrave, Harry F. (1994): Empathy, Form, and Space: Problems in German Aesthetics, 1873–1893. Santa Monica: The Getty Center for the History of Art and the Humanities.

Koteen, David/Stark Smith, Nancy/Paxton, Steve (2008): Caught Falling: The Confluence of Contact Improvisation, Nancy Stark Smith, and Other Moving Ideas. Northampton, MA: Contact Editions.

Paxton, Steve (2018): Gravity. Brussels: Contredanse Editions.

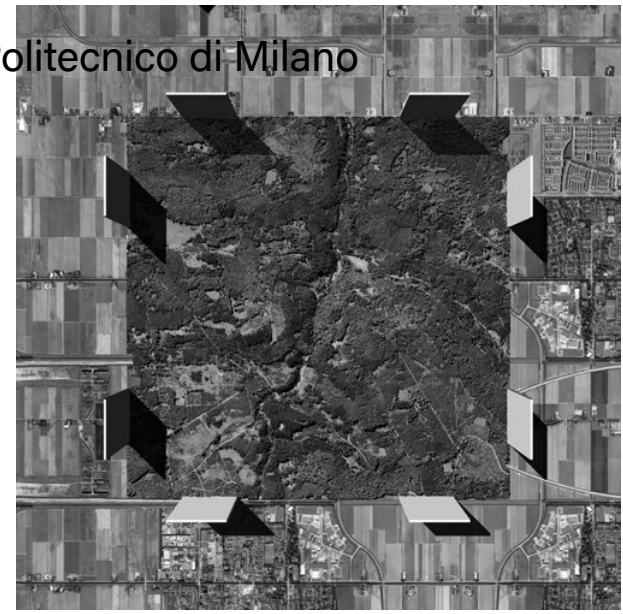
Schmarsow, August (1893): »The Essence of Architectural Creation.«, in: Mallgrave, Harry F./Ikonomou, Eleftherios (Ed.), Empathy, Form, and Space (1994). Santa Monica, CA: The Getty Center for the History of Art and the Humanities.

Vischer, Robert (1927): »Über das optische Formgefühl.«, in: Friedrich, Thomas/Gleiter Jorg H. (Ed.), Einfühlung und phänomenologische Reduktion, Munster: LIT Verlag.

Wölfflin, Heinrich (1886): »Prolegomena zu einer Psychologie der Architektur.«, in: Friedrich, Thomas/Gleiter Jorg H. (Ed.), Einfühlung und phänomenologische Reduktion (2007), Munster: LIT Verlag.

Sharing Landscape: Beyond the Urban-rural Dialectic. The FARM

Isabella Spagnolo, Politecnico di Milano



Intermediate doctoral stage

Supervisors: Guya Bertelli, Politecnico di Milano; Marco Bovati, Politecnico di Milano; Andrea Oldani, Politecnico di Milano

(vertical) farms, paradigms, sharing

Abstract

On the CA2RE conference in Delft, I would like to present and discuss the second macro-section that makes up my thesis, the title of which is: *SHARING as a paradigm and interpretative strategy.*

Within this, I would like to focus on the intrinsic relationship that historically exists between agriculture and architecture. It can be said that the history of human civilization originated with agriculture and that the latter is nothing other than the very first form of architecture, the primordial link between nature and man. This link then evolved and modified with the evolution of the *teknè*: the thesis identifies four possible formal principles that accompany this evolution in the historical phases, repeating themselves cyclically: *the fence, the grid, the court, and the greenhouse* (a negative court).

DDR statement

The thesis adopts a DDR approach declined in two ways: in the central part of the thesis (which is partially discussed in the text that I present here), the drawing is not practiced but analyzed. We begin with some design examples from the history of architecture that are emblematic of the research theme to arrive at some references of contemporary vertical farms.

From the former, four formal paradigms are drawn (fence, grid, courtyard, and greenhouse), which have historically evolved and then re-proposed cyclically. From the latter, on the other hand, we try to draw the principles of practical operation that regulate these new production methods. They are therefore functional rather than formal references.

In the third and last part of the thesis, the drawing will be practiced: we will design and find a meeting point between the formal references and the functional references studied in the previous section to identify new spatial declinations.

Extended abstract

The birth of agriculture, the birth of ancient civilizations, and the birth of the urban phenomenon are three phenomena that are closely intertwined and can be traced back to a common origin: the Neolithic Revolution, in which the invention of agriculture was the forerunner to the others.

The adoption of agriculture allowed for the first time in human history a lasting surplus of food production per person, thus making possible a significant consumption of non-strictly food products.

Man thus began to turn natural resources to his advantage systematically.[1]

Thus began the work of modification of the places, the architecture of the places which starts when man tries to modify it, to design it. Architecture is nothing more than a spatial organization socially recognized as a bearer of meaning. Taking up the famous quote by Adolf Loos: “If in a wood we find a mound, six feet long and three wide, arranged with the shovel

in the shape of a pyramid, we become serious, and something says within us: someone is buried here. This is architecture."[2]

The history of man can be said had begun precisely with agriculture (8000 BC in the Middle East and 5000 BC in Europe). It marked the transition from nomadism to permanent residence, allowed by the fact that there was no longer any need to travel to get food.

Agri-culture allowed the first specializations of work and the creation of an urban life in which some non-agricultural producers gathered; urban life, which has favored the intellectual and technical development from which the civilizations of antiquity, the first *cultures*, were born.

Heidegger goes further, combining the act of cultivating and making the land productive and that of building, both of which in German are expressed with the term *Bauen*. They are, in fact, two different expressions of human living.[3]

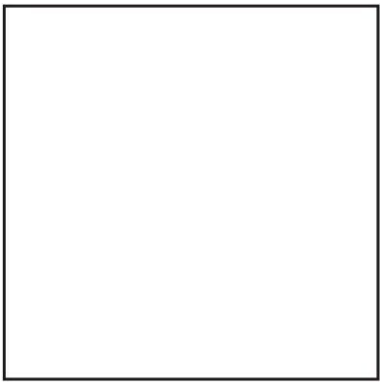


Figure 1: The first paradigm: *the Fence*

The fence

The first modality of appropriation of the space by man is the construction of limits. Primordial topological approach, the practice of the fence is the human action of attributing a specific shape to the earth, thus giving it geometry, dimensions, proportions, stability, and durability. Architectural concepts through man appropriately define space by placing a boundary between himself and natural arrangements.

The italian term "paese" itself ("country" in english), hence that of "paesaggio" ("landscape" in english), derives from the term "pagus," as a concluded outcome of the "pangere" action, or planting poles to delimit and occupy the land, in the colonization process.[4] At the origins of the recognisability of a landscape, therefore, the function of the limit between an inside and an outside acquires a role of primary importance, which sanctions the taking of possession and control of a territory, one of its first forms of structuring and construction.[5]



Figure 2: Christo and Jeanne-Claude, *Running Fence*, California, 1976

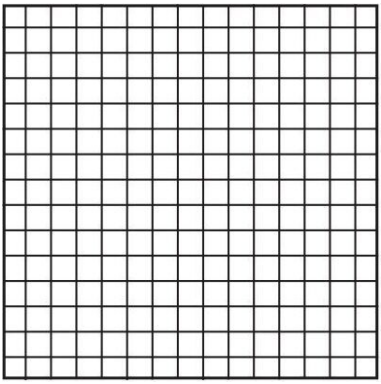


Figure 3: The second paradigm: *the Grid*

The grid

Among the first grid impositions, we find the Roman ager, which has often left indelible traces in the territory, which can be deciphered – if you know how to read – even under the subsequent forms of arrangement of the environment.

The centuriation — an essential tool for colonization of the provinces – has a characteristic square mesh structure, each of about 710 m on each side, resulting from the orthogonal intersection of the major roads and the axes of the minor rural roads: a large cadastre, drawn directly on the territory. Its grid constitutes a basis for measuring the land.[6]



Figure 4: Centuriatio along the Via Appia

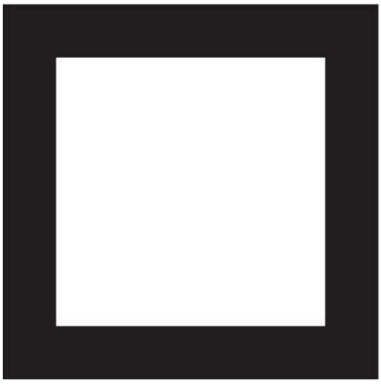


Figure 5: The third paradigm: *the Court*

The court

There was a complex mutuality between the elements of the farmhouse and its territory: one and the other would not be as we know them if both did not coexist. The rural house represents the coagulating element between the two worlds and the different functions connected to them, urban and rural. It does not constitute a limit but rather a place of exchange, control, production, and transformation, between rurality and urbanity.[7]

From a planimetric point of view, the farms tend to organize themselves around one or more large spaces, usually square or rectangular, with very various functions, such as the farmyard for processing and drying the grains, the temporary storage of fodder, room for maneuver of all the company company's equipment.

Therefore, the core of these structures is not a full, but an empty, the "court," a court almost always equipped with a threshing floor: a place together for harvesting, processing, drying, distribution of the harvest before its storage. Moreover, even the Italian term "cascina" ("farmhouse" in english) probably derives from the Latin "capsa," which means "container."

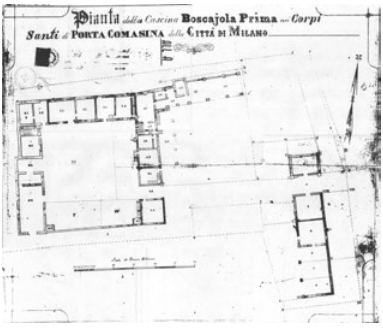


Figure 6: Plan of the Boscaiola Prima farmhouse in Porta Comasina, Milan

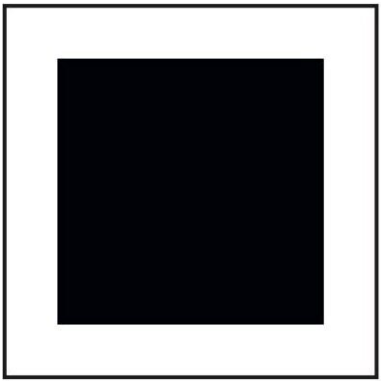


Figure 7: The fourth paradigm: *the Greenhouse*

The greenhouse

The type of greenhouse can be said to represent a bit the opposite of the court: instead of having a central void around which the functions are arranged, there is the incorporation of nature inside the building and the thinning of the border thanks to the spread of iron and glass structures during the nineteenth century. A principle of total spatial sharing between nature and architecture is established for the first time.

The greenhouse is now being re-proposed in the form of a vertical farm, containers for growing that, thanks to contemporary technologies, no longer need light and soil: agriculture thus becomes an integral part of the building, of the artifice; a mechanical uterus that provides nourishment to the organism to which it belongs. Hence, Landscape 4.0[8] can be seen as the technological and formal apex of the last historical phase. These will then be studied and analyzed, through vertical farm case studies, as a design strategy with different formal declinations that can suggest new forms of urban resilience based on the principle of sharing that has characterized the farm from the outset and continues to do so today.

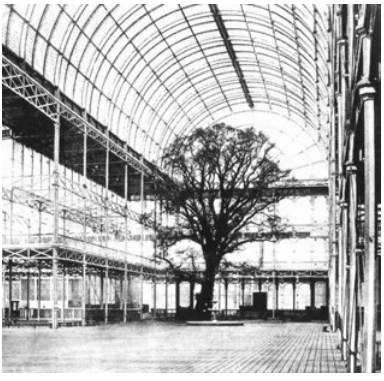


Figure 8: Historical picture of the interior of the Crystal Palace, 1851



Figure 9: Othmar Ruthner, *WIG64 vertical farm*, Vienna International Garden Show, 1964

1 Bairoch, Paul (1977): »Agricoltura«, in: Enciclopedia Einaudi, Milan: Einaudi.

2 Loos, Adolf (1992): Parole nel vuoto. Milan: Adelphi.

3 Cattaneo, Carlo (1965): Scritti economici. Florence: Le monne.

4 Sereni, Emilio (1961): Storia del paesaggio agrario italiano. Bari: Editore Laterza.

5 Turri, Eugenio (1998): Il paesaggio come teatro: dal territorio vissuto alterritorio rappresentato. Venice: Marsilio.

6 Dessì, Adriano (2019): Le città della campagna. San Giuliano Milanese: FrancoAngeli.

7 Agnoletti, Mauro (2013): Italian Historical Rural Landscapes, London/ New York: Rippon S.

8 Bertelli, Guya (2019): Landscape 4.0. Sharing spaces for the future city. Santarcangelo di Romagna: Maggioli Editore.

Ecologies of Residue Material Movement and the Thinness of Things

Asha Sumra, Aarhus School of Architecture
Arijit Chatterjee, CEPT University



Initial doctoral stage and an extension of Architectural Practice

Supervisors: Thomas Bo Jensen, Aarhus School of Architecture; Carolina Dayer, Aarhus School of Architecture

clay, ecology of materials, terracotta production

Abstract

Ecologies of Residue investigates relationships between resources and environments of two clay building products: the Mangalore tile and the Flensburg brick. Research into construction products conventionally focuses on application, with limited attention placed on the complex interactions of constructing materials. Seeking to address this gap, the project explores the role and potential of these terracotta industries in shaping building cultures: including the architecture of production and structures made using the resulting products. Through tracing processes of extraction, production, exchange and construction, a Design Driven Doctoral Research approach is used to critically examine the tangible and intangible residue of these industries in India and Scandanavia respectively. The Mangalore Tile and Flensburg brick are explored as parallel ecologies, with comparisons intended to draw out specificities and commonalities of making, exchange and use.

DDR statement

The Design Driven doctoral research approach includes an Atlas of Exchange describing material movement, and an Artefact to describe conditions of thinness. The Atlas and Artefact will be used to consolidate research and practice-based work done to date, and provide a foundation for potential material exploration. The artefact would be presented at the CA2RE+Delft Conference as part of an ensemble of evolving work in progress, which includes examples of materials, products and tectonic systems. These examples represent contemporary and historic conditions through the explorative use of drawings, models, moulds and products as tools to uncover and synthesize knowledge embedded in processes of working with clay.

The approach aims to draw out and translate relationships of encounter across land and sea that have shaped specific building cultures: an ecology of resources, people and environments. The exploration of thinness aims to uncover the tangible and intangible residue of these industries and to translate meaning from the way things are made. This relates to the CA2RE+Delft theme of Recommendation by bridging between what is and the potential of what could be, recommending translation as means to trigger potency in contemporary tectonic exploration.

Artefact

The contribution to the CA^{2}RE+Delft Conference builds on work on the Mangalore tile in South India, extending research to brickworks in Scandinavia. This aims to explore reciprocal relationships between materials, people and environments, through a perspective of *material movement* and the *thinness of things*. Material movement looks at how journeys of resources, people, products and ideas have shaped building cultures in specific parts of Europe and the Indian Ocean. Thinness, as opposed to thickness, is used as a framework for understanding how and why things are made in particular ways. Thinness relates to the limitations of clay, and the materials it interacts with, in its various forms,[1] and



Figure 1: Press moulding clay model of the tile factory walls. *(© Arijit Chatterjee, 2020)*

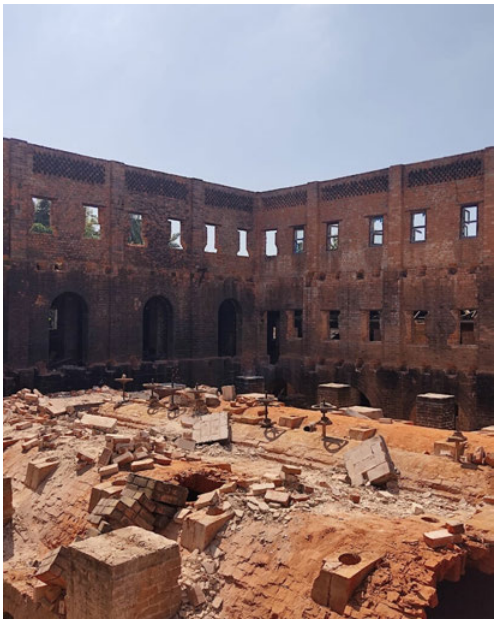
to tectonic relations such as with mortar, wood, metal, concrete. Conceptualising *thinness* encompasses the ecology of cultural and environmental relationships that contribute to making of environments of production and products for building. Density is seen as a translator: between building cultures and tectonic systems. This allows meaning to unfold by taking apart the cultural, social, economic, tectonic and pragmatic forces that shape specific products, industries and buildings.

Movement and thinness are critical to all stages of working with clay. Over vast periods of time, the feldspar in igneous rocks breaks down into fine-particle clay: a workable mineral stew resulting from the erosion of the earth's crust.[2] Geological movement contributes to the mixing of materials resulting in increased plasticity and workability. Clays that remain at or near the site of the parent material and lack plasticity.[3] Sedimentary clays, which have been transported by water, wind and ice and deposited far from the source material contain smaller particles, are more mixed with other materials and subsequently more plastic.[4] Material movement, mixing and the subsequent workability of materials is an apt metaphor for cultural encounters and their consequent impact on building cultures.

Extracting and forming clay is, therefore, a reworking of the stew from the earth's crust: analogous to cooking and to a geological re-articulation of the ground.[5] The Mangalore Tile(South India) gets its deep red colour from the high iron oxide content of the upper lying clay, compared to the lower-lying lime-rich blue clay used to make the yellow Flensburg brick (Danish-German border). Mixing of types of clay can take place after extraction, to define the qualities of the finished product, including shrinkage, colour, texture and load-bearing characteristics. Local geology along with pragmatic constraints created strong relationships between the tectonics of the earth and the tectonics of building[6] with pre-industrial terracotta in India. Products were born out of locally available resources: material, tools, labour, knowledge, expertise and fuel. Thin bricks[7] and roof tiles[8] required less energy to produce and could be easily formed and assembled by hand. Consequently, building tectonics had strong links with social structure. According to Anil Laul,

"The lower the caste, the slimmer and smaller the brick, the higher the caste, the bigger the brick ... a poor person could use the local soil to burn slimmer and better bricks, using lesser fuel ... The rationale was obvious. The slimmer the brick- the lesser energy required to bake it. *The higher caste could afford blending of clays and superior forms of fuel and transport produce over distances."*[9]

Mechanization of terracotta industries in India and Europe standardised production of bricks and tiles: selectively thickening forms and lightening loads of products and factory architecture. For the Mangalore tile, from 1865 the Protestant Basel Mission introduced tile-making technology from Europe to create an interlocking roof tile in India. In combination with the British building of Public works, the tile disrupted the hierarchy in the use of building materials. Up until the end of the eighteenth century use of terracotta tiles was limited to roofing buildings such as temples and palaces,[10] with lower social groups restricted to



2



3



4



5

Figure 2: Sovereign Tile Works(est.1929) Mangalore, India (© Arijit Chatterjee 2020). Demolition peels away the core inner layers to reveal the thinness of the factory facade walls.

Figure 3: Relationship between kiln wall & surrounding structure (© Arijit Chatterjee 2020)

Figure 4: Grammatical operation between kiln & structure, authors, 2022

Figure 5: Relationship between kiln and superstructure. Almvik Tegelbruk, Sweden (authors, 2022)

thatch construction. Changing rules along with the relative afford-ability of the tile enabled a broad spectrum of people to use the Mangalore tile to build houses, railway stations, institutions and religious buildings. The resulting proliferation of the tile marked a widespread tectonic shift: the thicker Mangalore tile replaced dense layers of thin materials(thatch and potters' tiles) to create a lighter, more durable roof. The tile defines an alternative thinness of things, and the factory buildings are themselves a densely interwoven structure of terracotta, timber and steel anchored by the kiln in a tectonic balance of thinness. [2]

The Flensburg brick (228 × 108 × 40mm) emerged in Europe at the end of the sixteenth and through the seventeenth century as a thinner alternative to the heavy medieval brick(270 × 130 × 70mm). Smaller, and easier to handle with one hand, it is said to have almost halved the work of the mason – and more than doubled building speed.[11] Brick sizes became more standardized from the end of the eighteenth century, as seen in the Danish Normal Format(DNF:228 × 108 × 54mm).[12] In the contemporary context of the Nybøl Nor brickworks, production of the Flensburg brick and newer Kolumba brick(528 × 108 × 40) are signs of a contemporary movement towards thinness. This coincides with a shift in the role of clay in building in Denmark from structure(masonry) to surface(cladding). Bespoke, coal-fired brick production at Petersen Tegl, Broager utilises technology to achieve the thinness and handmade qualities of pre-industrial terracotta. The project interrogates how building culture can relate to the conditions of encounter, precarity and efficiency from which the thinness that is aspired to emerge.

Work [3] [6 – 12] presented at the CA^{2}RE+ Delft Conference examines tectonic operations of thinness by exploring how environments of production are made. The artefact explores reciprocity in material relationships expressed in the grammatical operations of wood and clay. Tectonic relationships of terracotta factories are abstracted as a weave: an interdependent balance that allows parts on the one hand to *mount, lie* and *hang* and on the other to *rest, sit* and *stand*. Within the assemblage, wood and clay operate as counterpoints: manifesting concentration of thinness and mass through the relationships between weave and anchor. This relates to the role of the kiln in anchoring the factories and the role of ballast in the buoyancy of ships used for maritime exchange. Implicit within this, is a relationship between geology(through extraction) and maritime archaeology(through deposit). Akos Moravansky, in his analysis of the work of Rudolf Schwarz says

"The geological tectonics of the "material of the world" has its parallels in architectonics: The higher the building, the denser the lower layers and the more delicate the upper ones.",[13]

which applies directly to the tectonics of the factory, whose structure becomes lighter with height.

In various factory conditions the kiln plays a similar role, but what differs is the relationship to what is around it, expressed particularly in the structural redundancy of enclosing walls. The abstracted condition of the artefact relates to observations of the relationships between anchor and frame but carries meaning beyond a specific construction. [4] [5]

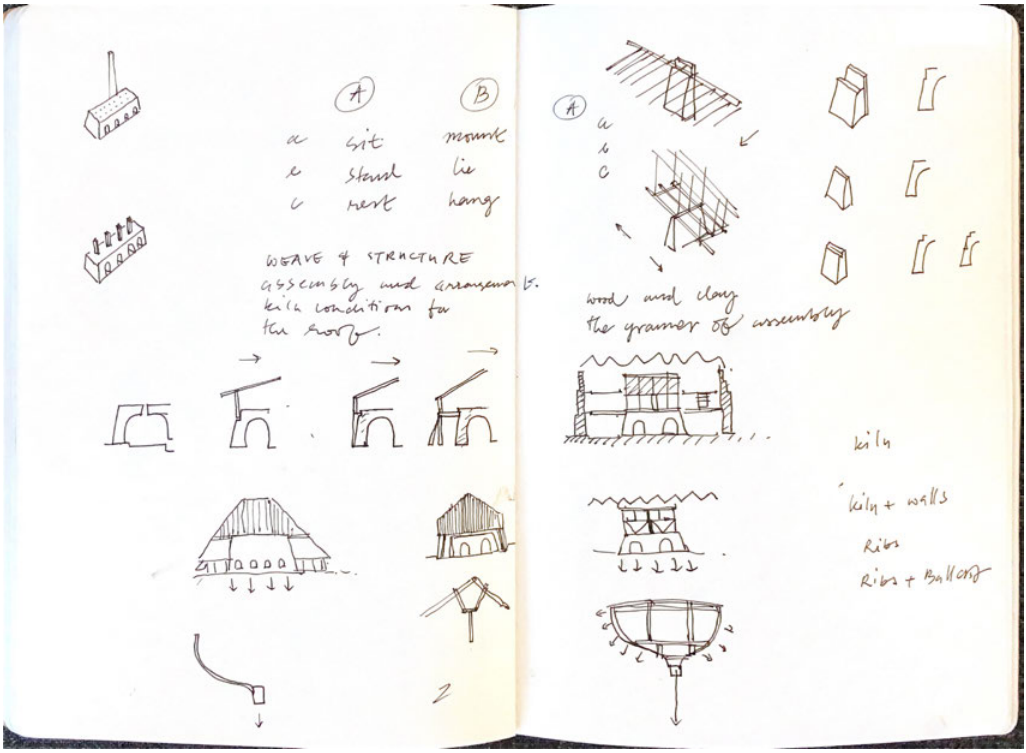


Figure 6: Grammatical operation between kiln & structure, authors, 2022

Consequently, the artefact is seen as a vehicle of research: carrying knowledge of how and why things are made through reciprocity and fusion of properties. The artefact suggests future actions in the progress of the project: indexing of cultural and material processes as a means to strengthen the relationship between the theoretical and practical research.



Figure 7: Making of the artefact Methods of brick-making used to make a section through factory kiln & superstructure (authors, 2022)



8



9



10

Figure 8: Artefact. Parts relate to each other through *anchoring, supporting, sitting, standing, resting, mounting, lying, hanging* (authors, 2022)

Figure 9: Artefact (authors, 2022)

Figure 10: Artefact (authors, 2022)

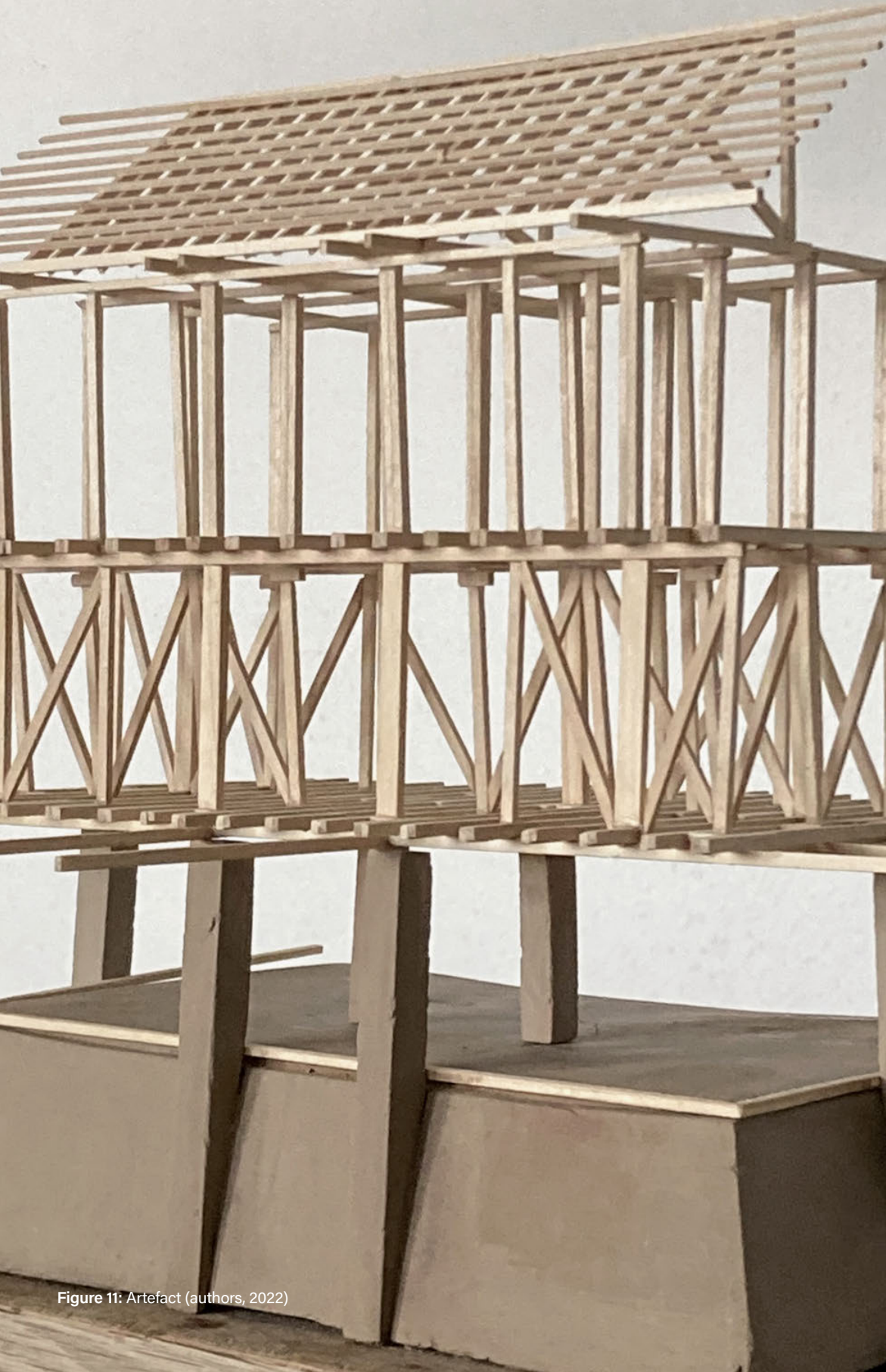


Figure 11: Artefact (authors, 2022)



Figure 12: Artefact (authors, 2022)

1 For example: particles, stew, dust, powder, slab, block, brick, pipe, vessel, tile, ornament, unfired, fired

2 Glendale College Ceramics: Clay Types, Geology, Properties and Color Chart (GcCeramics). Meeneecat, https://sites.google.com/site/..., from January 12, 2022.

3 Ibid.

4 Ibid. "Under the microscope, clay particles resemble playing cards……..flat, hexagonal, and thin, like cards. When wet, the particles can 'slip' across each other, as in a deck of cards. This ability to 'slip' is what gives a clay its workability, called plasticity."

5 Schwarz, Rudolf (2006): Von der Bebauung der Erde. Salzburg/ Munich: Verlaganton Puset.

6 Bo Jensen, Thomas (2014): »The Poetry of Brickwork«, in: Beim Anne/ Madsen Ulrik S. (Ed.), Towards an Ecology of Tectonics, Stuttgart: Edition Axel Menges, p. 174.

7 Such as the Lakhori (150 × 100 × 19–50 mm) and Achakal (180 × 100 × 25 mm) bricks

8 Semi-circular tiles known as potters' or country tiles

9 Laul, Anil (2015): Urban Red Herrings - an extract from the book "GREEN is RED". ZingyHomes, https://www.zingyhomes.com/lat... from January 12 2022.

10 Jidhu, M U (2014): »Architecture in the Urban Space: Life in the elite in Colonial Calicut«, in: Proceedings of the Indian History Congress issue 75, Platinum Jubilee, pp. 647–652.

11 The West Indian Heritage: Construction, http://den-vestindiske-arv.dk/... from January 13, 2022.

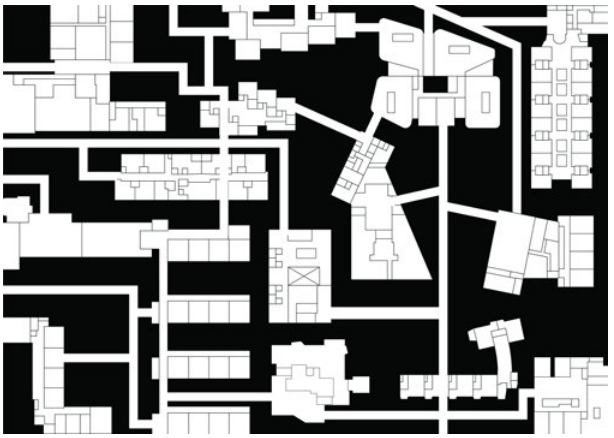
12 Ghozati, Kjeld (2016): »Rethinking Brick«, in: Foged Isak W. (Ed): Bricks / Systems, Aalborg: Aalborg Universitetsforlag, p. 45.

13 Moravánszky, Akos (2018): Metamorphism: material change in architecture. Basel: Birkhäuser.

412

Schools With Future Value

Yağız Söylev, TU Delft



Initial stage of a funded research-by-design project, pre-doctoral

Supervisor: Bart Reuser, NEXT Architects

School design, typology, programmatic diversity, social infrastructure

Abstract

Schools with Future Value investigates the school buildings as public buildings and expands the definition of their value with architectural and social aspects beyond their education function. Schools are increasingly becoming social catalysts in the Dutch context, providing a meeting ground for students, parents, and neighbourhood inhabitants. Despite their significance on society, the school buildings are among the most cost and space-efficient buildings, resulting in poor quality and minimum possible spaces optimized only for the purpose. The uncertainty of the future use of these buildings adds to the further diminishing of the ambition in design and development processes. The project aims to conduct a typological analysis of the school buildings' social, spatial conditions and pedagogical aspects; and finally, propose new school typologies and generic spatial strategies that resist the limitations of current design trends and financial models while offering design possibilities for future adaptation.

DDR statement

The architecture of education buildings is a crucial yet complex and interdisciplinary field that requires critical investigation to reflect and reshape the cities and society. After researching the transformation of education buildings from a historical perspective, I realized that the DDr approach is crucial to grasp these projects and their processes. Different aspects of schools can be probed in isolation for analytic review, yet their integration can only be observed by the intuitive nature of design and reflection iterations. Furthermore, I find the opportunity to tap into tacit knowledge[1] inherent in school design processes due to my background in practice and my collaboration with the architects and engineers in this DDr project.

Design is applied in two ways throughout the project. Firstly, design is used to analyze school buildings' social, spatial, and pedagogical aspects. I am conducting a typological analysis on the school's organization, urban connections, and potential for adaptation. Reproducing the drawings of these schools will help synthesize the ideas and strategies while providing design tools and guidelines. Secondly, research-through-design is used to propose new school typologies by integrating generic design strategies and guidelines developed in the research phase. Design and research phases are conducted in parallel, and the feedback loops between multiple iterations are the key moments to revise and reflect on the research findings and methodology, as well as the design direction. The generic design approach creates possibilities for design to become a research method.

1 Polanyi, Michael (1966): The Tacit Dimension, Doubleday & Company, inc., Garden City, New York.

Schools with Future Value investigates the school buildings as public buildings and expands the definition of their value with architectural and social aspects beyond their education function. Schools are increasingly becoming social catalysts in the Dutch context, providing a meeting ground for students, parents, and neighborhood inhabitants.[1] Despite their significance on society, the school buildings are among the most cost and space-efficient buildings, resulting in poor quality and minimum possible spaces optimized only for the purpose. The uncertainty of the future use of these buildings adds to the further diminishing of the ambition in design and development processes. The project aims to conduct a typological analysis of the school buildings' social, spatial conditions and pedagogical aspects; and finally, propose new school typologies and generic spatial strategies that resist the limitations of current design trends and financial models while offering design possibilities for future adaptation.

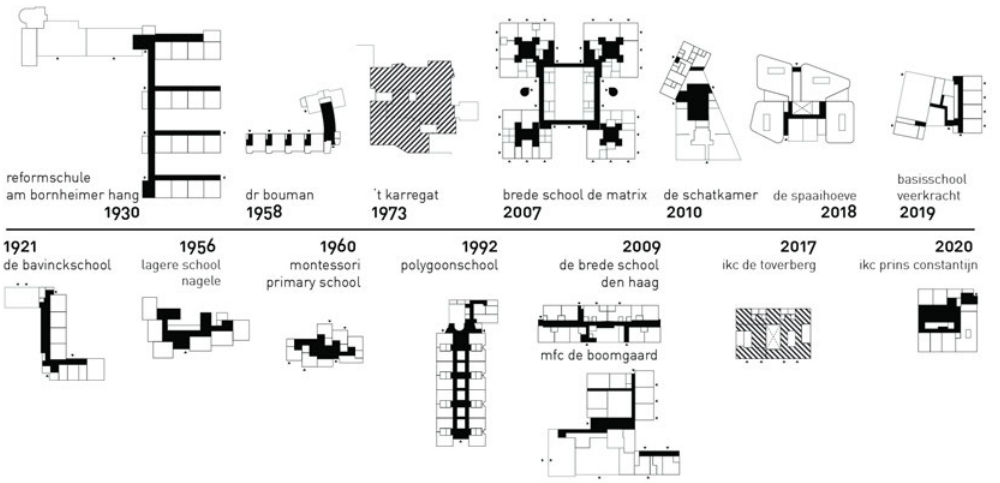


Figure 1

The current demand is to design more sustainable, even completely circular schools while minimizing the costs. This creates a great gap between wish and reality, and the ambitions are reconsidered and confronted from multiple sides. However, the discussion mainly revolves around new materials, building technologies, and energy requirements. What is left unconsidered becomes the school typologies and spatial design in addressing the issues of education, building performance, and sustainability. Dr. Bouman, an example of the Groningen type of school, shows how the issues of hygiene[2] were solved spatially in the 50s, through individualized access to classrooms, their connection to outside space, and spatial qualities to maximize the natural light and ventilation, such as the high ceiling and skylights.[3] This DDr project aims to reintroduce the abandoned spatial qualities to the debate and make a case for the importance of design thinking alongside the transdisciplinary approach for the education buildings.

The places of learning are spatial manifestations of social and pedagogical ideals. Thus, it is crucial to understand the motives behind their

change to reflect on the design task itself. The corridors have been one of the key elements of school organization. Initially, the equal-sized classrooms were clustered around and accessed through linear corridors. Later, in the school designs of Herman Hertzberger, the importance of the in-between spaces gains importance, leading to the idea of design clusters where circulation areas can be used for multiple purposes. What followed was the dissolution of the classroom, either through split levels or acoustical zones as learning plazas that allow for bigger groups and diverse educational activities, such as in 't Karregat school as designed in 1973.[4 5] Most recently, expanding the educational activities to the neighborhood inhabitants and introducing more outside spaces in education emerges the idea of a learning landscape. The concept of the learning landscape, specifically street in the scope of this project, is key to addressing the social value of the schools as an integral part of their architecture and offers a model for flexible and adaptive design layouts. The broad schools in the Netherlands incorporate community facilities, such as sports halls, language classes, in school buildings with a decentralized organization of spaces. Different programs are clustered in the building depending on their relationship to the surrounding with their own entrances. This compartmentalization opens the possibilities for partial use of the building, thus privacy for education and even partial transformation or leasing for different purposes.

Research Questions

- How can the design of school buildings and their role in the community benefit the durability of the building in the city?
- How can building performance and sustainability be improved through rethinking school typologies?
- Which spatial strategies and guidelines should be equipped to design schools that can offer future value and possibilities while resisting the trend of cost-efficient, highly specific education buildings?

Schools with Future Value is a collaboration between myself as the researcher, NEXT Architects as the supervising design firm who put forward the idea of the schools with future value, and WSP as an engineering and consultancy firm. The research-by-design project is made possible by Creative Industries Funds NL under the Building Talent grant program. The project consists of three phases. The first phase includes a typological analysis of the spatial and pedagogical aspects of school projects. Moreover, the conditions of visibility, lighting, and acoustic and their implications on education will be analyzed. The research will be supported by a survey on Dutch schools and literature research.

The second and third phases will be conducted in parallel and make use of the feedback loops between research and design. The iterative design exercises will provide reflections on the research process and influence the research inputs, whilst, the research findings will offer tools and guidelines for the design phase. The research embraces the participatory and interdisciplinary design process of the schools. Several Interviews will be conducted with the collaborating architects, NEXT Architects,

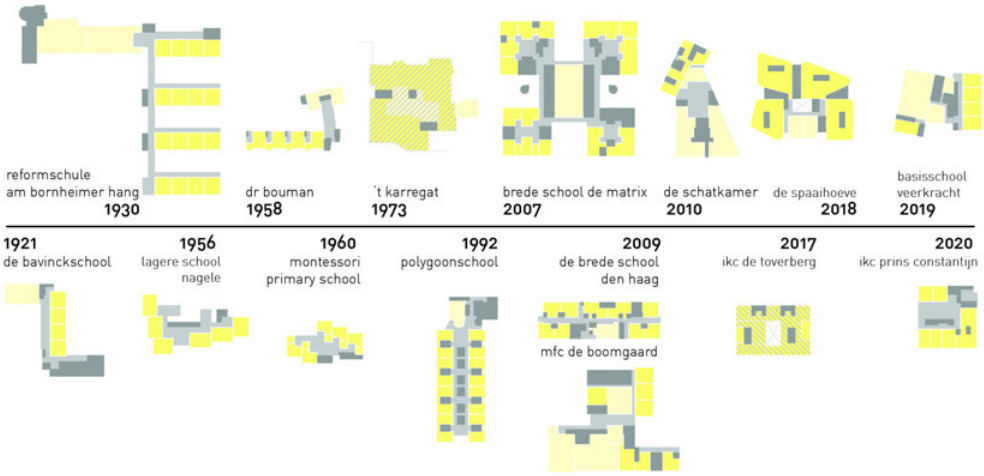


Figure 2

WSP engineers, and the contract advisor HEVO. These interviews will not only help gain insight into the specific design necessities, including building systems, particular dimensions, and technical aspects, but also into the contractual and financial dynamics in school developments.

During the design phase, generic school types, spatial concepts, strategies, and guidelines will be developed to show potential future scenarios for schools and reconsider their social status in the urban fabric. The concept of a learning landscape and street is taken as a starting point for the design exercise. The street will be studied for its potential for urban connection, flexibility through multiple entrances and articulated facades, nature inclusivity, and the blending of indoor and outdoor space. Visibility and acoustic conditions, and specific dimensions of education building case studies are critical inputs for the design assignment that will require iterations of research and design. The proposals are envisioned as public buildings that foster social cohesion and sustain their architectural and urban values by resisting the trend of cost-efficient, highly specific education buildings.

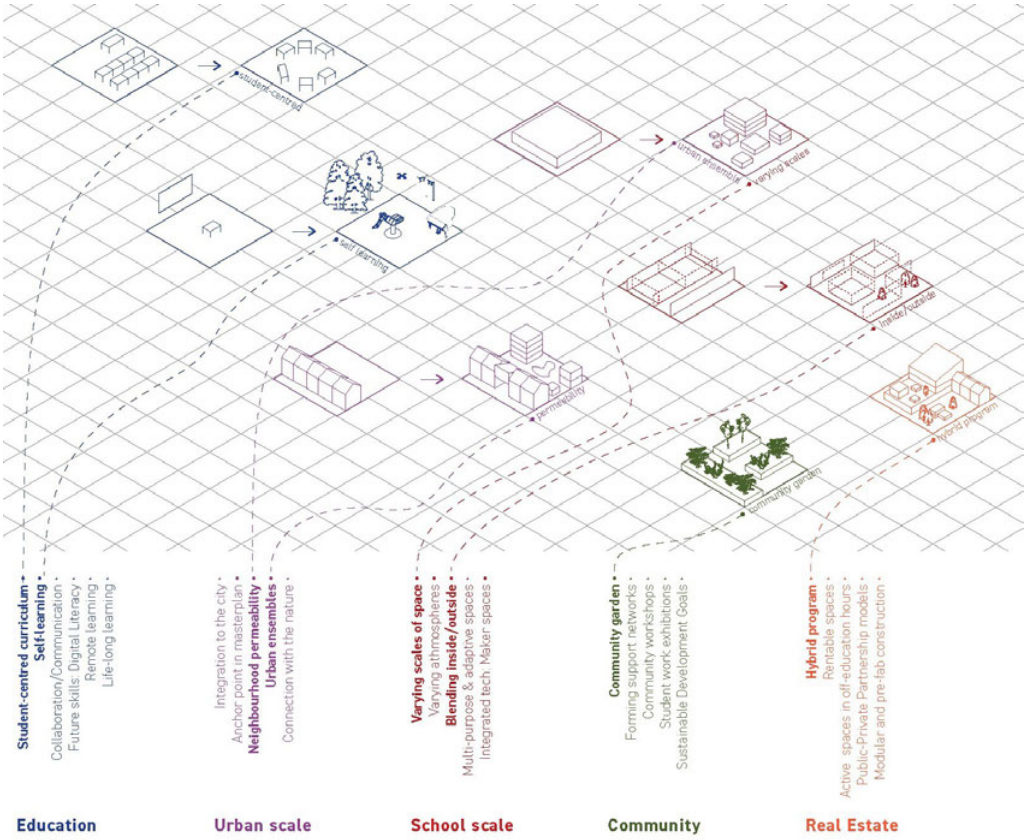


Figure 3

1 Broekhuizen, Dolf. (2022): De Basisschool als Sociale Omgeving. Ruimte Maken Voor Ontmoeting, https://adviezen.raadrvs.nl /ruimte-maken-voor-ontmoeting/plekken/ from March 7, 2022.

2 Forty, Adrian (2000): Objects of Desire. London: Thames & Hudson.

3 Verstegen, Ton, et al. (2008): Contemporary Dutch School Architecture: A Tradition of Change. Rotterdam: NAi Publishers/Staro.

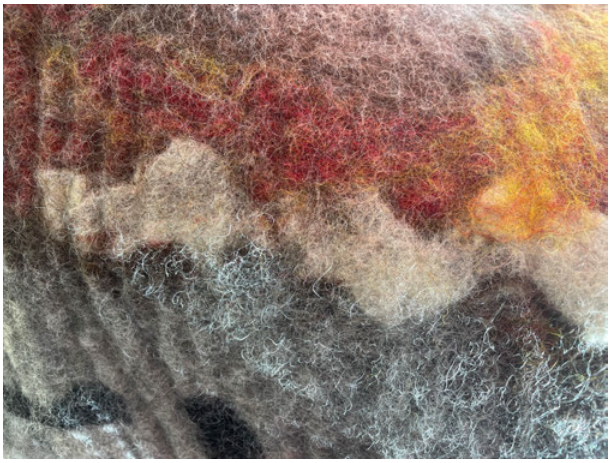
4 Müller, Thomas (2014): »From Classroom to Learning Landscape«, in: Meuser, Natascha (Ed.), Construction and Design Manual: School Buildings, Berlin: DOM Publishers, pp.33–55.

5 Komossa, Susanne (2011): »Oude Scholen – Nieuwe Scholen«, in: van Dam, Sien, et al. (Ed.), De Transformatie van het Schoolsgebouw, Bussum: Thoth Publishers, pp. 14–19.

Exploring a Craft-Design Relationship Through Felting

A Process of Making-with Elements of Traditional and Contemporary Culture

Berilsu Tarcan, Norwegian University of Science and Technology



Intermediate doctoral stage

Supervisors: Ida Nilstad Pettersen, Norwegian University of Science and Technology; Ferne Leigh Edwards, Norwegian University of Science and Technology; Trond Are Øritsland, Norwegian University of Science and Technology

craft-design relationship, felting, making-with

Abstract

This artefact is a comparison of felting practices in different stages of making. To explore the connections between craft and design through a posthumanist perspective, a specific craft named felting is employed. Felting is a way of making with fibres, usually wool, using alkaline and hot water. By using wool, the transformation of material is observed through different stages of production. The proposed artefacts signify a relationship with the environment, and refer to traditional symbols through the act of making. For instance, the symbols laid down in the beginning refer to the process itself. With time the fibres laid down come together and the motifs/symbols start to entangle with the textile created from wool fibres. Through the process, their movements and changes in the fibres are observed. In the end, textiles with several symbols appear that give reference to traditional culture symbols.

DDR statement

Design-driven research is a significant part of the project. Posthumanist research is usually done from theoretical perspectives, therefore there is a need to address posthumanist approaches from applied and practice-related fields. In this study, posthumanism is addressed through design and craft relationships, which are fields closer to practice-based or practice-led research. Consequently, this study proposes that design and craft relationship can be studied from posthumanist perspectives, and this would be significant in defining a research domain that is primarily looked at from theory. Furthermore, the project proposes that doing practice-based and design-driven research will facilitate in theorizing a process of making within the environment.

Artefact

This artefact consists of a comparison of a felting practice in different stages of making, and demonstrates a felt production example. [1] To explore the connections between craft and design through a posthumanist perspective, a specific craft named felting is employed in various geographies. In this case, the study is explored through felting, a traditional and contemporary way of making with fibers, usually wool, using alkaline and hot water. By using wool, the transformation of this material is observed through different processes of felting. The first stage is through hand-making and making textiles with motifs. The second stage is through hand-making and a rolling machine. By preparing the wool and motifs by hand, the surface is rolled into a sheet and put in the rolling machine, where the fibres are mixed and entangled together. [2]

Felting can be referred to as a traditional and contemporary craft, which was an important practice in the geography of Anatolia. Felt, or “kece” in Turkish, is a textile material obtained by the process of felting. Felting has been continued in Turkish culture, as sheep wool is obtained from animal husbandry over the livestock and for easy transportation of felt materials for nomadic culture. It is a known fact that felt was produced by many ancient civilizations before Turkish nomads migrated to Anatolia. Since felt production is affected by contemporary lifestyles, the number of construction equipment and felt masters have decreased.[1] Today, although



Figure 1: Felted artefact

industrialization and globalization have affected the practice of felting,[2] and mechanization reduces the labor in felting, the craft of felting and craftspeople are still needed.

While some artists such as "Belkıs Balpınar, Filiz Otyam and Selçuk Gürışık worked together with felt craftsmen, others learned felt making from masters and made artistic felt production".[3] Aside from the artists who use the felt together with different techniques, many artists refer to the traditional usage area with new designs.

In Norway, wool is known as a significant source and material. Wool can be found as a resource, the society has a culture and knowledge related to wool, in addition, it is valued both as a resource and a product. Norwegian wool was studied,[4 5] and is identified as useful for contributing to a more environmentally sustainable production and consumption. Wool products have been a part of material culture in Norway for a long time, for instance dressing children with wool underwear to traditional sweaters and folk costumes.[6 7] It is a material that protects from the cold weather and there is a tradition of using wool yarns and textiles for clothing. However, industrialisation and contemporary lifestyles have affected usage of local wool in Norway. Recently, projects that aim to bring value to Norwegian wool from different perspectives such as product design, fashion design or consumption studies, and the wool industry in Norway have emerged. Felted products such as plant pots, slippers, decorational items and clothing are also known and sold in markets in Norway and other Nordic geographies. However, knitting and weaving are still more commonly known as practices and crafts in Norway. The study proposes that felting could be used further in Norway, situating it together with recent studies on wool.

Contemporary Approaches to Design and Craft Relations

Craft, described as an act and "process of making",[8] "way of doing things" (ibid., p. 4) by Adamson; relates to design in many ways. According to Pfeiffer, craft is about discovering what materials (and tools) will do, despite our will.[9] He states that craft/design does not necessarily

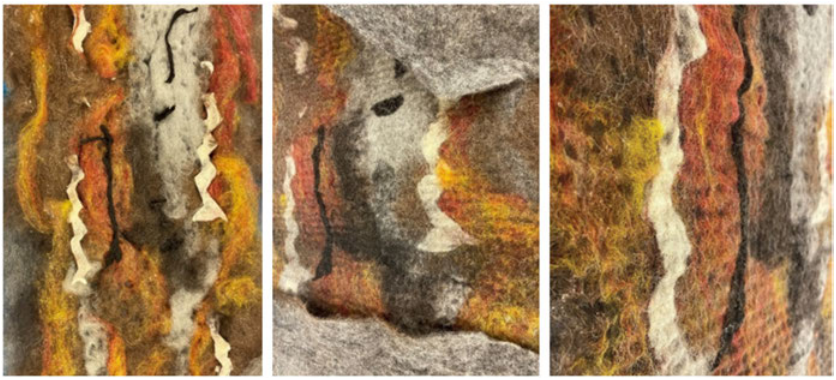


Figure 2: Comparison of felting processes through making felt: three Stages of feltmaking.

lie in the product, "it is rather the time invested in the process that reveals the product" (ibid, p. 35). Similarly, the study proposes craft as a discovery of what materials and the process together will do, by showing the steps and the final artefact.

According to Forlano,[10] approaches in design can be based on posthumanist theories, as this could shift practice and theories of design (which are human-centred) with non-anthropocentric perspectives. New materialism falls under posthumanist approaches that emphasize the matter, avoid dual conceptions of the mind-body, and human-non-human.[11] According to Cruickshank and Trivedi,[12] it is a domain that explores points of views that sees humans and nonhumans as equals; essentially about political emancipation, more sustainable becomings, and traditions that look at human-nonhuman continuity." Posthuman and new materialist concepts are not new, as there is already a way of thinking that breaks from the distinction of human-nonhuman in "indigenous epistemologies and cosmologies."[13] Acknowledging this, in this project, craft and design relationship is investigated through a new materialist lens to signify the aspects of human-nonhuman equality and the political aspects, by creating artefacts with reference to ancient cultures. These artefacts are felted textiles, produced in different workshops.

Producing Felt with Wool Fibres

Traditional felt production consists of three phases:[14] [15] first, the felt maker places the wool on the ground and prepares the pattern above the laid wool. Then the wool is spread, the pattern is laid on it and soapy water is poured over the wool before it is rolled out. The rolling process consists of rolling and putting pressure on the rolled surface. Finally, the felt is washed and left to dry. Similarly, for machine production, these three phases mostly remain the same. However, the second phase takes place with a machine that rolls (in Norway) or kicks (in Turkey) the rolled surface.

The proposed artefact signifies a relationship with the environment, but also refer to traditional symbols and propose to make meanings of these symbols through the act of making. For instance, the symbols laid down in the beginning refer to the process itself. With time the fibres laid down



Figure 3: Fibres on the felted artefact

come together and the motifs/symbols start to entangle with the textile created from wool fibres. The reference given to the process is clarified through the laying of the fibres in the beginning. Through the process, their movements and changes in the fibres are observed. [3] In the end, textiles with several symbols appear that give reference to traditional culture symbols such as birds and snakes. [4]

The PhD project focuses on human-material connections in design and making, based on experimental trials and processes, to find ways to develop materials and artefacts that are suited for living together with the world. For the next phases, a comparative analysis between Norway and Turkey is planned to find out how felting practices differ, and how wool as a material is perceived. The project consists of a collaboration between new materialistic approaches and traditional knowledge in design; exploration of craft-design relationship through felting and making-with the environment. [5]



Figure 4: Fibres on the felted artefact

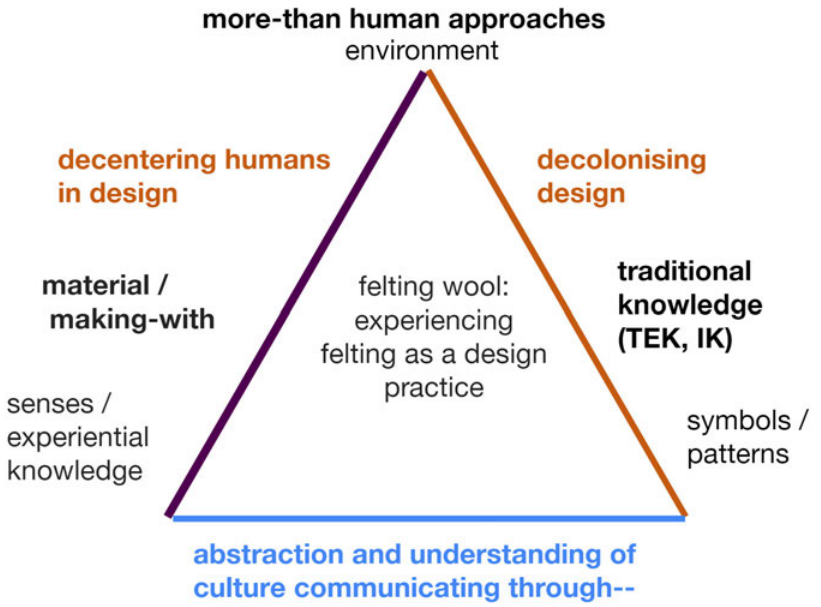


Figure 5: Elements of the PhD project

This submission consists of comparisons between many components: While the PhD project consists of a comparison between geographies of making, the project refers to different elements and their relationship to each other for comparison. This includes a comparison between theory and practice; between past and current meaning of felting, and between humans and nonhumans. In the end, all these comparisons lead to an entanglement and collaboration of these elements: The history of felt facilitates in combining the practice of making together with traditional and contemporary ingredients. Theory and practice emerge together, meaning that practice of making helps the author understand theoretical perspectives of making together with the material and through acknowledging the environment.

1 Kucukkurt, U. (2018): Afyonkarahi̇sar Merkez'de Keçe Üreti̇mi̇ Ve Keçe Atölyeleri̇. Doctoral Dissertation, Suleyman Demirel Universitesi.

2 Ovacık, M./Gümüşler, T. (2016): Geçmişten Günümüze Keçe:Ayfer Güleç İş Modeli Üzerine Bir Analiz. Yedi: Sanat,Tasarım ve Bilim Dergisi, issue (5), pp. 155–171.

3 Gür, Semra (2012): »Anadolu'nun Sanat Objesine Dönüşen Kültürel Değeri Keçe«, in: Batman Üniversitesi Yaşam Bilimleri Dergisi, issue 1(1), pp. 1173–1181.

4 Klepp, Ingun G./Tobiasson, Tone S./Bandlien, Charlotte B. (2011): A Fresh Look at Wool, The Textile Institute Centenary Conference. Textiles: a Global Vision. November 3–4, 2010,Manchester, UK.

5 Røsvik, B. L.„/Boks, C. (2012): New Opportunities for Norwegian Wool: An Investigation of Product and Market Possibilities, in: »DS 71: Proceedings of NordDesign 2012, the 9th NordDesign conference«, Aalborg University, Denmark, 22–24 August 2012.

6 Hebrok, Marie/ Klepp Ingun G. (2013): »The wonders of Norwegian wool. Interactions: Studies«, in: Communication & Culture issue 4(1), pp. 69–83.

7 Hebrok, Marie/ Klepp, Ingun G. (2014): »Wool is a knitted fabric that itches, isn't it? Critical Studies«, in: Fashion & Beauty, issue 5(1), pp. 67–93.

8 Adamson, Glenn (2010): The Craft Reader. Oxford: Berg Publishers.

9 Dougan, Brian (2009): »Craft-based design as a means to architecture« in: Kaukinen Lena K. (Ed.), Proceedings of the Crafticulation & Education Conference, Vaassa: NordFo, pp. 31–35.

10 Forlano, Laura (2017): »Posthumanism and design. She Ji«, in: The Journal of Design, Economics, and Innovation issue 3(1), pp. 16–29.

11 Leonard, Nicholas (2020): »The Arts and New Materialism: A Call to Steward ship through Mercy, Grace, and Hope«, in: Humanities, issue 9(3), 84. DOI:10.3390/h9030084

12 Cruickshank, Leon/Trivedi, Nina (2017): »When Your Toaster is a Client, how do you design? Going Beyond Human Centred Design«, in: The Design Journal, issue 20 (sup1), pp. S4158–S4170.

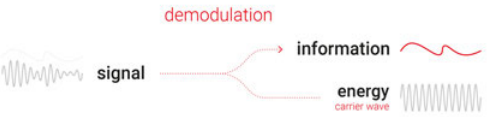
13 Nakata, Martin N. (2007): Disciplining the Savages, Savaging the Disciplines. Canberra: Aboriginal Studies Press

14 Çeliker, Deniz (2011): »Geçmişten Günümüze Türklerde Keçecilik Ve KeçeYapımında Yeni Teknikler«, in: Art-e Sanat Dergisi issue 4 (8), pp. 1–22.

15 Gumus Ciftci H./Walker, Stuart (2017): »Design for Grassroots Production in Eastern Turkey through the Revival of Traditional Handicrafts«, in: The Design Journal issue 20 (sup1), pp. S2991–S3004. https://doi.org/10.1080/146069...

Architectural Plug-In Explorative Machine for the Sonic Recomposition of Space

Taufan ter Weel, TU Delft



Intermediate doctoral stage

Supervisors: Roberto Cavallo, TU Delft; Heidi Sohn, TU Delft

#

signal processing, automated subservience, explorative machine

Abstract

The human use of electromagnetic energy as carrier of information changes and complicates the relationships between bodies, media technologies, and lived environment. It brought about shifting spatio-temporalities and modes of governance. The increasing dependency on media technologies coupled with the decreasing clarity of their inner workings, which is inherent in their expanding complexity, enable new forms of automated control. The transdisciplinary theoretical and practice-driven research explores these complex relationships through an experimental and diagrammatic architectural approach based on sound and signal processing. The paper outlines how a focus on sound and signal processing allows for an intensive and diagrammatic way of thinking and making to explore the inner workings of media technologies in relation to bodies and lived environment. The presented artefact is a site-specific sound installation – an architectural machine which modifies and recomposes the space sonically by extracting, processing, and redistributing signals in real time.

Artefact

Context

The human use of electromagnetic energy as carrier of information (that is, signal processing – from early electric telecommunication and radio to global computing networks) changes and complicates the relationships between bodies, media technologies, and lived environment. Transmission with the speed of light brought about a shifting sense of space and time. Ubiquitous computing changes the modes of governance. The increasing dependency on media technologies to carry out or automate activities (to sense, build, and change our environment) and the interdependencies between them, coupled with the decreasing clarity of their inner workings, which is in part inherent in their expanding complexity, creates unprecedented forms of automation and control. In the context of the concrete entanglement between bodies, media technologies, and lived environment, or abstract space-time and social realities, how could we address the problem of automated subservience and ubiquitous control in order to recuperate the recognition of the right, or responsibility, to actively engage in the making of our habitat? And how to develop the means to do so?

There are many ways to approach this problem and there is a vast body of work in this domain, across various disciplinary fields. My research is transdisciplinary and combines a theoretical and design-driven path at the intersections of architecture, sonic practice, sound studies, and the philosophy of technology. It focuses specifically on sound and signal processing in spatial practice, which enables a process-based and diagrammatic way of thinking and making to explore the inner workings of media technologies in relation to bodies and lived environment. A signal in its most basic form can be understood as carrier of information transmitted

through a medium. The information is impressed into a carrier wave (electromagnetic energy) through the process of modulation. [1] A received signal, in turn, needs to be demodulated (or decoded in digital terms) to retrieve the information, which is precisely what complicates technological mediation.

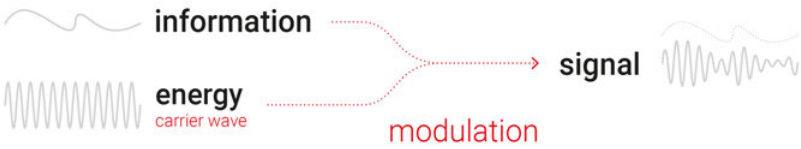


Figure 1: Signal graph (image by author).

Explorative machine

In design-driven research the diagram is a means to explore, expose, and design processes of technological mediation. Furthermore, diagramming is understood here as a material-discursive process, which implies both meaning and matter, epistemology and ontology, and is performative. This lies at the core of both the theoretical and design-driven research methodology.

In turn, the realisation of a series of site-specific sound installations is a way to put the diagram into operation, to spatially articulate these processes and produce new configurations. Employing the capacities of sound and signal processing in spatial design allows for producing spatio-temporal manifestations in a dynamic, instant, and real-but-abstract way, articulating abstract relationships and operations such as algorithmic processes sonically and spatially.

Through the series of installations, the research seeks to develop an abstract machine in order to enable processes of reterritorialisation by modifying existing sites sonically. Each project modifies a sonic space, exploring other forms for or latent potentials of that given space by rerouting its circuits and producing new material configurations and spatial articulations of sound. This involves real-time signal processing. The architectural machine is itself composed of multiple machines, and learns to adapt to and intervene in different environments. Through an iterative process of deterritorialisation and reterritorialisation, which involves various sites, it is conceived, constructed and effectuated.

Installation

The site-specific sound installation is situated in the servant space between tribune and presentation room. [2] It is a machine that is as if it were plugged into the physical space by means of electroacoustic transducers. Ambient noises and structure-borne vibrations are picked up by means of (piezoelectric) contact microphones. [3] The resulting audio signals are processed in real-time and spatially redistributed to loudspeakers placed behind three wall openings. The audio signals are not only treated as sound material but their properties (intensities, densities,

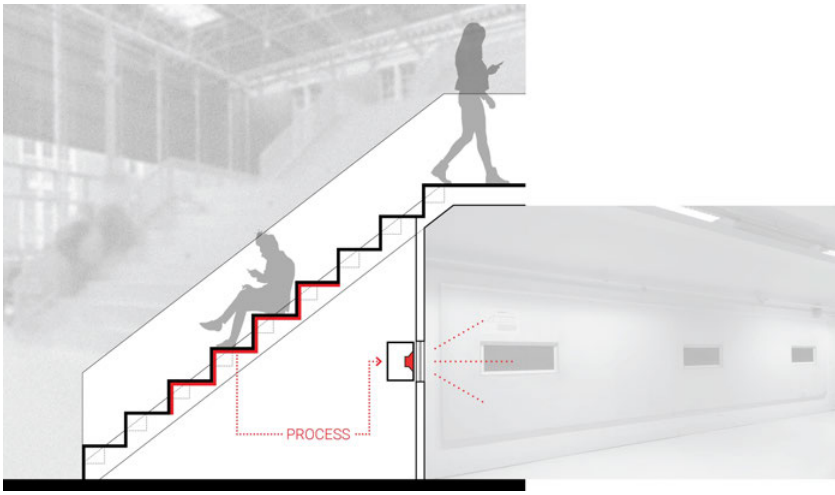


Figure 2: Installation (image by author)

envelopes, frequencies) are also sensed to trigger and modulate stochastic processes, articulating the machine's inner workings. Short extracted waveforms generate new sounds that follow the textures of and respond to the input signals. The acoustic environment and generative processes cross-modulate and mutually affect one another in a continuous re-composition.

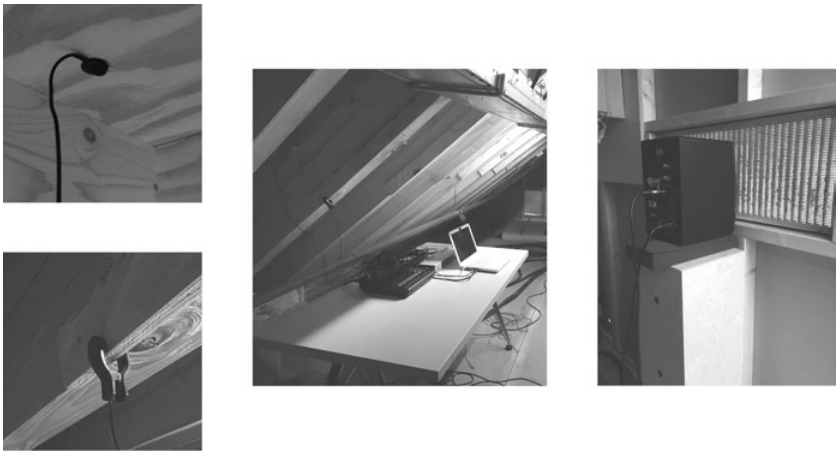


Figure 3: Set up (images by author)

The installation deliberately disorients the listener – it modifies perception through the spatial redistribution of sound. In doing so the installation implicitly directs attention to broader questions regarding the shifting sense of space-time.

The work aims to contribute to exploring possibilities for another space, another thinking, which moves beyond the inevitability of subservience to the dominant mode of subjectivation, without slipping into binary opposition or, on the contrary, postmodern, depoliticised and uncritical relativism. The social relevance, or urgency, lies in the aforementioned problem of automated subservience and ubiquitous control inherent in the concrete entanglement between bodies, media technologies, and lived environment. It is needed to understand this entanglement as continuous and reciprocal process of formation.

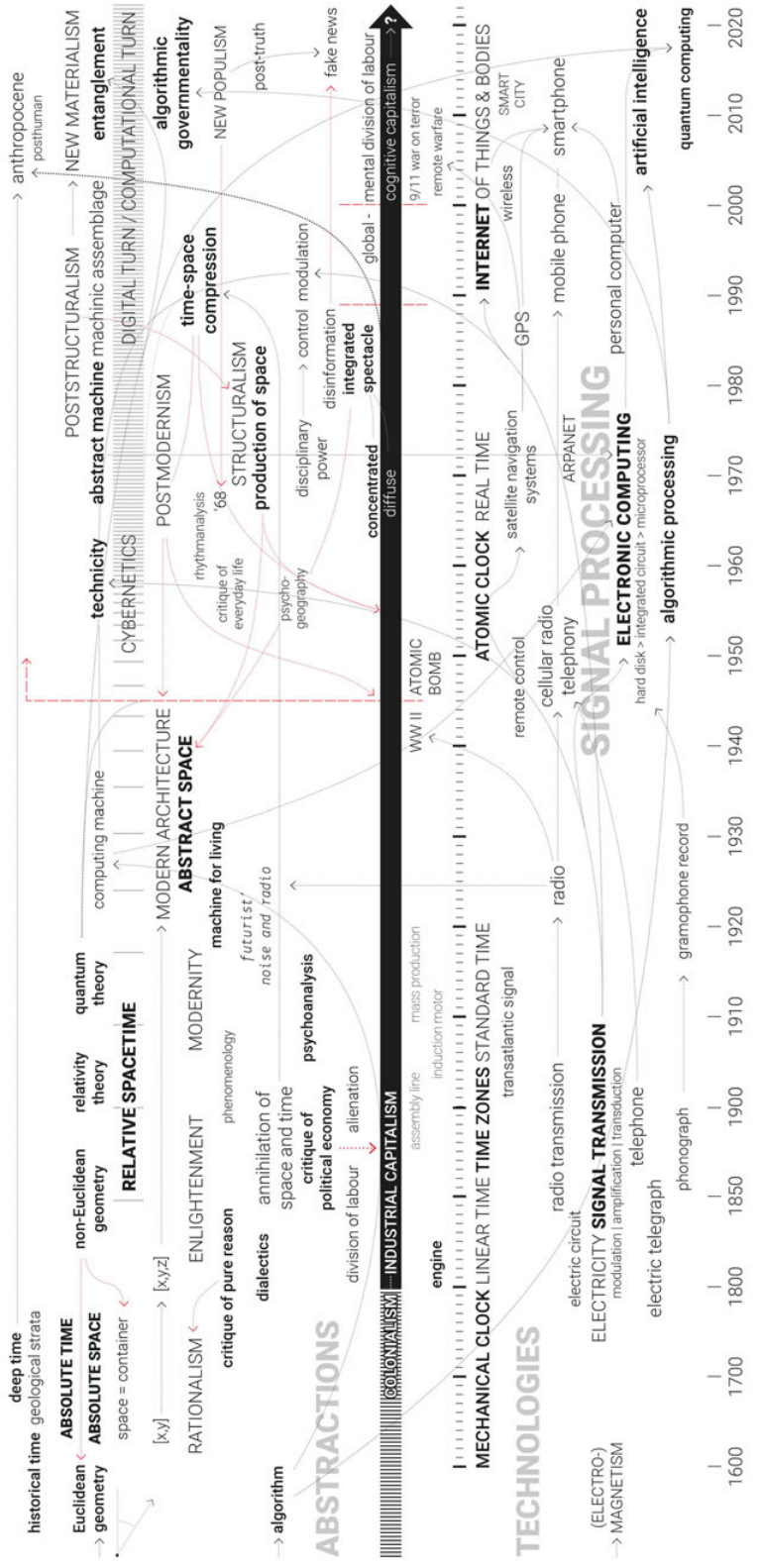


Figure 4: Research context (image by author)

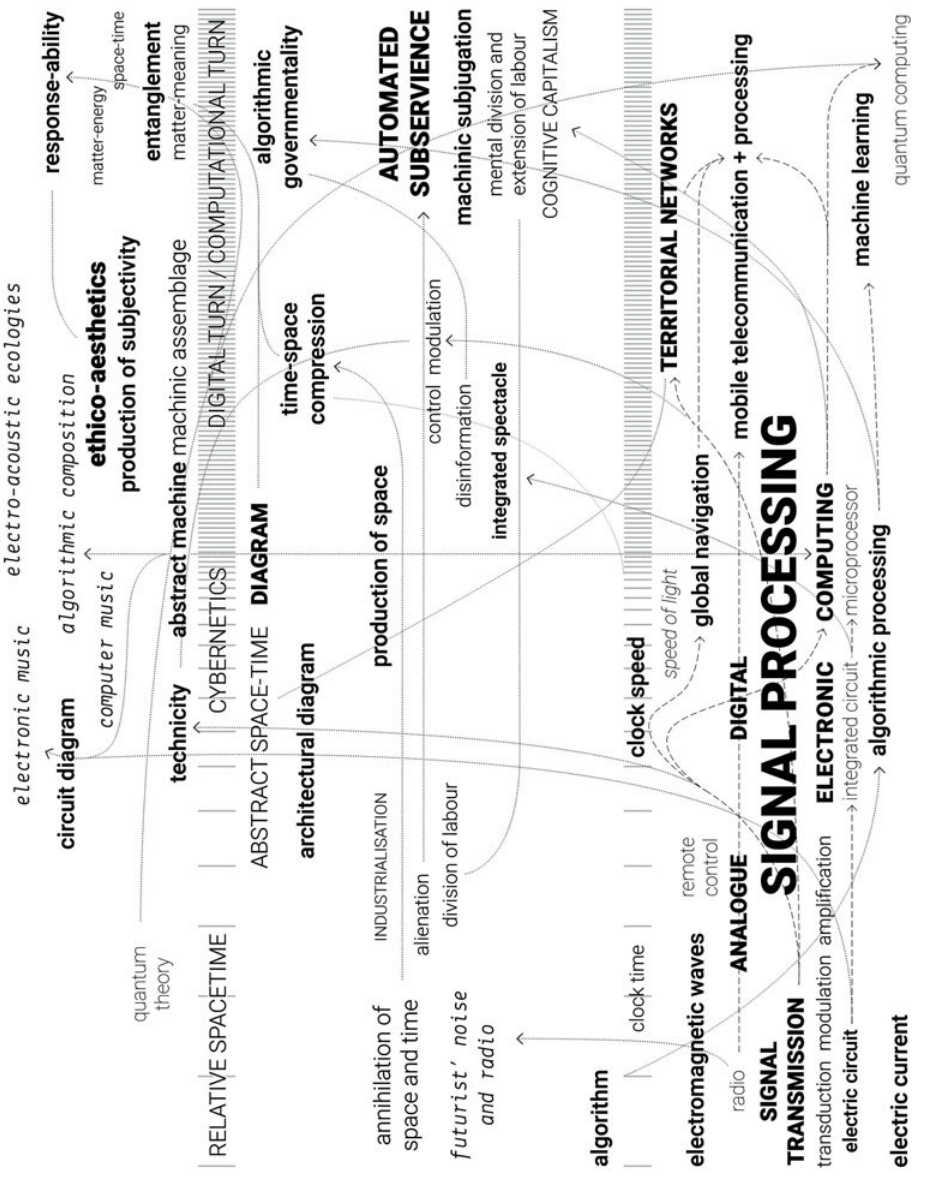
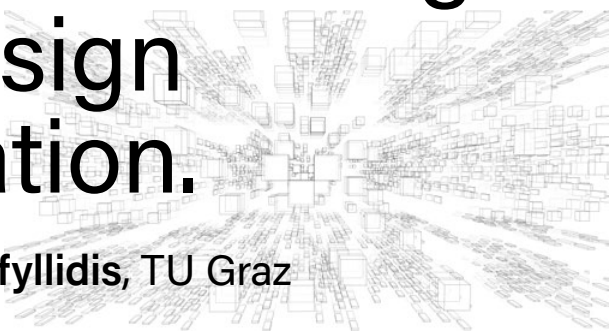


Figure 5: Theoretical framework (image by author)

Building Information Modelling (BIM) Beyond an Efficiency and Costs' Saving Method.

The Use of BIM as a Mediator Towards Collaboration, Sustainable Design and Design Exploration.



Georgios Triantafyllidis, TU Graz

Initial Doctoral Stage

Supervisor: Roger Riewe, TU Graz

BIM, design exploration, collaboration

Abstract

In the age of the Anthropocene, architecture has to face critical challenges that are affecting the quality of life and the existence of life in a globalised form. Accordingly, the job of the architect is shifting from mere form-giving to creating systems that support human interactions.

BIM can provide the common ground upon which the design team can interact and collaborate in order to create the conditions under which the participants can design. That is, to create environments in which conversations can emerge. It is a methodology, that recognises circular causality as a quality and thus creates a system, in which the goals are negotiated in an open-ended and integrated process.

Digital simulation tools allow the designers to reflect in action while testing their intentions.

This study proposes a further investigation in the way in which digital tools inform decision making during the design stage.

DDR statement

Design is a transdisciplinary field of study in which collaboration among different stakeholders is necessary in order to guarantee a good final result. Design problems are complex problems whose solutions often if not always are causes for other problems. Therefore, the job of the designers is not limited to form giving, but on creating the situations in which dialogue, collaboration and inclusion of different perspectives can emerge. In such a constellation, the figure of the "expert" does not exist. Every participant contributes equally to the development of the design solution in a causal-circular fashion. That means that every part of that systems is ready to affect the others while at the same time is ready to get affected. Designing according to Glanville, is unfolding as a conversation between a self and various possible kinds of other, such as a pen and paper, a person, an imagined person, computer soft- and hardware, physical models and so on. The crucial requirement is for the self to allow the other to "speak back" and to accommodate the unexpected so that self affects other, and other affects self. Avoiding requisite variety, both get partially "out of control" in a mix of positive and negative feedback, thus conversing along non-determinable trajectories to arrive at previously unknown destinations. (Fischer and Herr, 2019)

Paper

Anybody who asks, "How can we apply the computer to architecture?" is dangerous, naive and foolish. He is foolish because only a foolish person wants to use a tool before he has a reason for needing it. He is naive because, as the thousand clerks have shown us, there is very little that a computer can do if we do not first enlarge our conceptual understanding of form and function. And he is dangerous because his preoccupation may actually prevent us from reaching that conceptual understanding and from seeing problems as they really are.[1]

Importance

The building industry is accounted for contributing around 47% of the total CO2 emissions, and the use of almost 40% of all the extracted resources. In addition, low recycling and reuse rates of construction material, and building elements from the existing building stock are causing almost 40% of waste generation, while at the same time 11% of global CO2 emissions is related to the manufacturing of building materials and products.[2]

An implementation of new design strategies that consider the behaviour of buildings throughout their life cycle could contribute towards the reduction of the use of energy, reduction of greenhouse gases (GHG) and other hazardous by-products. New technologies and ongoing research are trying to give answers and establish methods and frameworks on how the building industry could become more sustainable and will enhance human health and well-being.

Life Cycle Assessment (LCA) is a relatively not new concept, whose goal is to quantify the energy and the environmental impact of building materials during their production stage, their transportation on the construction site, the energy and environmental impact caused during the operation and maintenance of buildings, their demolition and their potential to be reused for future buildings materials and elements. However, LCA analysis is a complex operation that requires a lot of information and calculations especially if one considers big and complex buildings. For this reason, the LCA is mostly performed at the end of the design stage. This therefore minimises the room for significant changes and therefore significantly reduces the CO2 emissions. In addition to the rising complexity of building standards and regulations and the often-conflicting interests of the different actors, together with the big amount of data related to the calculation and production of different design solutions on one hand, and the digitalisation of processes and development of different reuse scenarios on the other exceeds the capacities of the architects, engineers, planners and policymakers.

(Sustainable) Design as Wicked Problem

Architecture and design disciplines are transdisciplinary fields that deal with wicked problems. Design problems, or else wicked problems as described by Rittel and Webber[3] have the following 10 characteristics:

1 There is no definitive formulation of a wicked problem,

2 Wicked problems have no stopping rule,

3 Solutions to wicked problems are not true-or-false, but good-or-bad,

4 There is no immediate and no ultimate test of a solution to a wicked problem,

5 Every solution to a wicked problem is a “one-shot operation;” because there is no opportunity to learn by trial-and-error, every attempt counts

significantly,

6 Wicked problems do not have an enumerable (or an exhaustively describable) set of potential solutions, nor is there a well-described set of permissible operations that may be incorporated into the plan,

7 Every wicked problem is essentially unique,

8 Every wicked problem can be considered to be a symptom of another problem,

9 The existence of a discrepancy representing a wicked problem can be explained in numerous ways. The choice of explanation determines the nature of the problem's resolution,

10 The planner has no right to be wrong.

The nature of those problems is not following a linear process, but a messy one that is unique for each case and cannot be repeated.

In a pluralistic society where no absolute good or right decision can be considered, what a designer has to face during the decision-making makes this task hard to cope with. This is one of the main principles upon which the distinction of wicked problems has been made. Consequently, architecture and design urge collaboration between as many people that can formulate as many possible consequences as possible. In this sense, wicked problems do not provide solutions, but rather temporary solutions, which can continuously get improved, re-appropriated and reshaped. This makes the whole process an open-source, open-ended process which runs in feedback loops and in which every output is used as input for another sub-process and all this interaction web which they form constitutes the system.

The complexity rises even more, once we consider global measures related to the sustainability and future of the planet itself and the establishment of measures that will need to be achieved.

Architecture and design problems are disciplines based on the social realm and they result from the interactions between the different actors, including the designers, stakeholders, the users and the environment in which those interactions are taking place. In this sense, the final product is shaped by the interaction between designers, materials, processes and users.

The approach towards the development of wicked-problem solutions according to Rittel,[4] is giving importance among others to:

11 The presence of the subjective observer who is part of the system and acts both as an actor and controller,

12 The circular causality as quality,

13 The value of conversation in the “solution-finding” process,

14 The collaborative practices and the refusal of the figure of the specialist-expert.

The conversation as condition for designing

Designing, according to Glanville,[5] is unfolding as a conversation between a self and various possible kinds of others, such as a pen and paper, a person, an imagined person, computer soft- and hardware, physical models and so on. The crucial requirement is for the self to allow the other to "speak back" and to accommodate the unexpected so that the self affects others, and other affects the self.

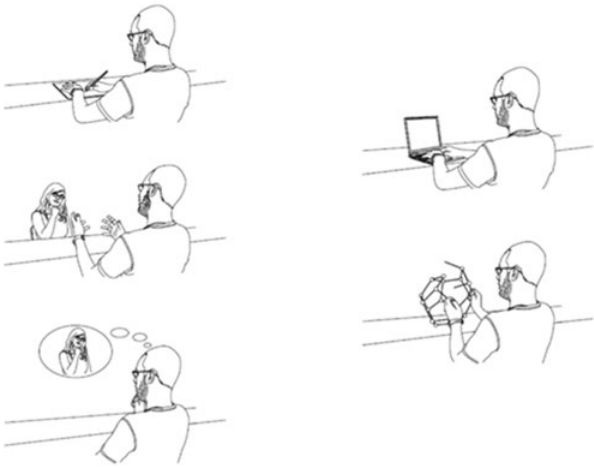


Figure 1: Stages of designing dialogues according to Glanville

A similar approach is seen in the writings and experiments developed by Donald Schön. For Schön, the value and role of conversation during the design process are of great importance. Conversation again here is seen as the result of a reflective process in which the designer is confronted with the situation [6]. During this process, sketches, models, simulations, drawings and confrontations with other human and non-human actors are building a non-predictive whole with which the designers are continuously confronted and try to develop solutions to the design problems. In such a process

> [The designer] shapes the situation, in accordance with his initial appreciation of it; the situation 'talks back,' and he responds to the back-talk.[6]

During the design process seen under those lenses, we can say that:

- the definition and understanding of the design problem are dependent on the position/perspective from which the designer is focusing,
- the development of the problems' solutions are depended on the definition of the problem itself,
- the designer is not an objective observer but is embedded inside the process from which she affects and is getting affected by in a circular-causal fashion,

- the reflective understanding and conversation cannot be predefined and cannot be predicted,
- is open-ended and each part of the system may contribute equally to the emergence of new dimensions/solutions to the problem.

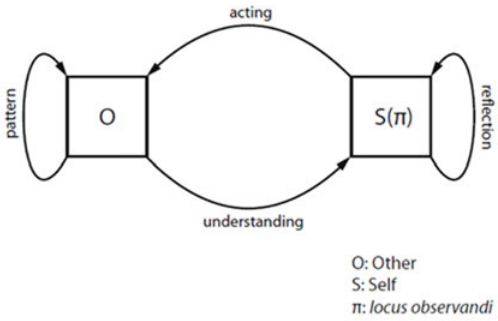


Figure 2: Glanville's design conversation diagram

BIM as agent towards design problems solutions and collaborative practices:

BIM is the method by which 3D objects and buildings are designed in a virtual environment. Buildings and their parts contain sets of properties and information regarding a wide range of different sorts of information for the early conceptual design stage to the operation and end of life of the building. The inclusion of such information makes the model the carrier of knowledge which includes the participation of all different stakeholders that take part in it. At the same time, makes the information easily retrievable, updated, shared, stored or cancelled. The main advantages of this methodology are to be seen during the development of big complex projects that accordingly include the analogous amount of information. BIM is promoting collaborative practices and integrated design through the participation of the different disciplines. This structured information then, can be accessed from different stakeholders that are collaborating from the very beginning of the project and therefore promote the swift towards an Integrated Design Process (IDP).

Accordingly, BIM is seen as:

... a digital representation of physical and functional characteristics of a facility. A BIM is a shared knowledge resource for information about a facility forming a reliable basis for decisions during its life cycle; defined as existing from earliest conception to demolition. A basic premise of BIM is a collaboration by different stakeholders at different phases of the life cycle of a facility to insert, extract, update or modify information in the BIM to support and reflect the roles of that stakeholder.[7]

where:

... collaboration describes the cooperation of complementary partners with a high level of trust and reciprocal support. An important objective of collaboration is the creation of collective knowledge in order to develop solutions for complex problems. Collaborative processes are frequently highly creative, and all partners are of equal standing.[7]

In this sense, BIM methodology recognizes and tries to bring together different actors during the creation of the building, and therefore towards the IDP. The Integrated Design Process is integrating knowledge from different disciplines in order to solve complex problems.[8]

The inputs and knowledge that are exchanged during the design stage in an ID process, try to find the best possible solution by including the conversation of the different actors. This open-ended conversation can develop new design solutions that could have not been predicted, and therefore could contribute to the design exploration and a deeper understanding of the problem itself.

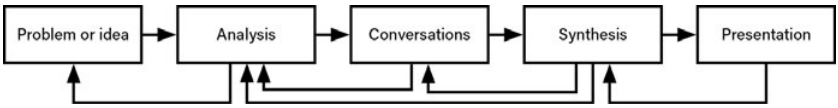


Figure 3: Integrated Design Process (IDP)

Aims/Methods:

BIM in academia is seen with skepticism both from students and academics. On the one hand, BIM is seen either as a technological tool, that is taught in form of uncredited seminars and that are mostly focusing and limiting the scope of BIM to the scope of learning a software. On the other hand, BIM is seen as a tool that is mostly used for management purposes, and therefore has no place in the design studios.[9] [10] [11]

Focusing on the academic environment of the German-speaking countries (Germany, Austria, Switzerland), we see that courses on BIM are organised mostly under the Engineering and Informatics faculties, or under Masters that are focusing on environmental planning of integrative technologies.[12]

We see therefore that there is still a lack of an Integrated Design Approach inside the schools of architecture. This is caused among others due to the lack of trained lectures.[12]

In addition, often BIM is seen as a tool that limits architecture creativity and therefore gets mostly negative connotations and is seen as a thread that has no place during the creative process of building designing and that is mostly useful for economical and management purposes.[13]

Although several digital tools are used in academia, especially in the design studios, most of them are used for the experimentation of form-finding. Parametric design in particular is celebrated in many universities but again focuses mostly on the generation of forms. From the generation of those forms, the understanding of the complexity of construction-

performance-sustainability aspects is not mostly in focus. Therefore, the use of such tools in such constellations is reducing the scope of the design studio into a form-giving process.

The job of the Architect is shifting from mere form-giving to creating systems that enhance collaboration, conversation, and exchange of information among all the participants-observers. At the same time, the design of those systems requires well-coordinated actions and explicit communication of goals and methods between teams, so that the artefacts are coherent.[5]

The purpose of this PhD project is to focus on how BIM can act:

- as a facilitator for design collaboration and design exploration,
- as a mean for sustainable design, and
- as a tool for enhancing the education of young designers.

For this purpose, there will be organised architecture studios, seminars and workshops that will focus on the Integrated Design Process. Together with other institutes, the participants will have the opportunity to collaborate and share knowledge in the form of digital models, in an attempt to develop design solutions that produce lower CO2 emissions by focusing on different strategies such as:

- circular design principles and reuse of materials,
- investigation of adaptive building typologies,
- the use of new materials for interior systems.

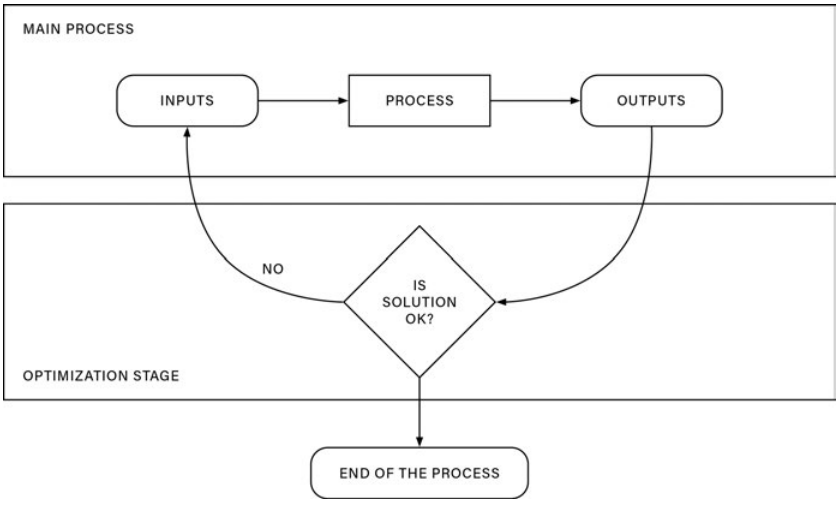


Figure 4: Design Optimisation Process

As a foundation for those seminars and workshops, there will be used the material which is at the moment under development as Research Project by the Institute of Architecture Technology at the Graz University of Technology, entitled "City Remixed – Fields of action, decision-making principles and recommendations for a circular economy in the construction sector Graz " and the project "Joining Cards" whose aim is to gain comprehensive knowledge of the joining of cardboard components, to

develop concepts for standardised and detachable interior systems (joining technology, design, construction processes).

The organisation of those hands-on experimentation will follow a causal-circular process. As a first step the participant in forms of groups and teams will have to analyse-understand and define the design problem that they will try to solve, and then develop a strategy for it. The overall experience will follow the following process as shown in. [4]

Expected Results/Conclusions:

The overall goal of this research is to see how the computer as a tool can be part of a collaborative dialogue between the designers and other human and non-human actors. In this sense, the use of computers according to[14] is to examine a much larger range of alternatives than a designer would have the time or patience or insight to examine.[14]

The use of computers in architecture and design is seen as a tool, which contributes the designers towards their attempts to solve complex problems and allows them to compute faster complex and repetitive operations. Digital computer then, is seen as

... essentially, the same as a huge army of clerks, equipped with rule books, pencil and paper, all stupid and entirely without initiative, but able to follow exactly millions of precisely defined operations. There is nothing a computer can do that such an army of clerks could not do, if given time.[14]

The way in which the digital tools are embedded inside the architectural design process, is focused not on the necessity or trend to use the computer itself, but its use should be clearly articulated and focused on in which ways this army of clerks could be helpful to solve those design problems.[14]

As explained previously, the solution to a design problem depends very much on the perspective in which the designer approaches, frames and analyses the nature of the problem. The use of the digital tools therefore can bring to a misleading formulation of purpose and focus on a problem that is not the main – or the original design problem which should be solved. The main purpose should be not just to use the digital tool, but first to know what and in which way this tool is going to help the designer solve the problem which has been defined in an earlier stage.

The importance then of using the computer according[4] lies in the fact that it can make possible what could not be treated by the unarmed natural human brain.

In this context, BIM can play an important role in the management and preparation of the data that need to be computed. BIM capacity to store, re-use and extract information directly from the geometrical 3D model, is raising, on one hand, the productivity while at the same time it reduces the errors by avoiding the constant manual re-entering of information. By following standard formats and data architectures commonly accepted by other platforms, the information can be easily used in order to

compute or simulate the performance of the building, either inside the same software by the use of plug-ins, or in cloud.

As a closing remark, it is important to mention the “dangers” of digital tools in the field of architecture. Those dangers are caused by the misuse of the tools and the purposes that they fulfil. It should be clearly stated that despite the development of machine learning and artificial intelligence, the role of the designer is still actual and of great importance. This role cannot be substituted by technological tools, since it involves a plethora of data that are unique and present in each individual, including emotions, memories, intuition, ethics.

1 Alexander, Christopher (1965): The Question of Computers in Design. California: Landscape.Berkeley.

2 Eberhardt, Leonora C. M/ Rønholt, Julie/ Birkved, Morten/ Birgisdottir, Harpa (2021): »Circular Economy potential within the building stock – mapping the embodied greenhouse gas emissions of four Danish examples«, in: Journal of Building Engineering issue 33 (January), pp. 1–11. https://doi.org/10.1016/j.jobe...

3 Rittel, Horst W. J./ Webber, Melvin M. (1973): »Dilemmas in a general theory of planning«, in: Policy Sciences issue 4(2), pp. 155–169. DOI:10.1007/BF01405730.

4 Rittel, Horst W. J. (2010): »On the planning crisis systems analysis of the first and second generations«, in: Protzen Jean-Pierre/ Harris David (Ed.), The Universe of Design: Horst Rittel’s Theories of Design and Planning, London: Routledge, pp. 151–165. DOI:10.4324/9780203851586.

5 Fischer, Thomas/ Herr, Christiane M. (Eds.) Design Cybernetics (2019): Navigating the New. Cham: Springer International Publishing.

6 Schön, Donald A. (1983): The reflective practitioner: how professionals think in action. Farnham: Ashgate Publishing.

7 Kensek, Karen M. (2018): Building Information Modelling. Cham: Springer International Publishing. DOI:10.1007/978-3-319-92862-3.

8 Hansen, Hanne T. R/Knudstrup, Mary-Ann (2005): »The Integrated Design Process(IDP): a more holistic approach to sustainable architecture«, in: Murakami Shuzo/Yashiro Tomonari (Eds.), Action for sustainability: The 2005 World Sustainable Building Conference, Tokyo: Tokyo National Conference Board, pp. 894–901.

9 Deamer, Peggy (2012): BIM and Contemporary Labor – Pidgin 15.

10 Deamer, Peggy (2015): »Marx, BIM, and Contemporary Labour«, in: Kensek Karen M. (Ed.), Building Information Modeling: BIM in Current and Future Practice, Hoboken: Wiley. DOI:10.1002/9781119174752

11 Donn, Michael et al. (2014): »BIM and the Predesign Process: Modelling the Unknown«, in: Kensek Karen M. (Ed.), Building Information Modeling: BIM in Current and Future Practice, Hoboken: Wiley. DOI:10.1002/9781119174752

12 Lemmler, Tim D., Pilot, Andreas and building SMART Deutschland e. v. herausgebendes Organ (2021): Implementierung von BIM in der Lehre: Strategien zur erfolgreichen Einführung von BIM in der Grundlagenvermittlung und interdisziplinären Lehre. Dresden: bSD Verlag.

13 Turk, Žiga (2016): »Ten questions concerning building information modelling«, in: Building and Environment, issue 107. DOI:10.1016/j.buildenv.2016.08.001.

14 On the concept of variety production and the regulation of complex systems is understood as described in: Ashby, Ross W. (1958): Requisite variety and its implications for the control of complex systems, Cybernetica, issue 1(2), pp. 83–99. (available at http://pcp.vub.ac.be/Books/Ash..., republished on the web by F. Heylighen—Principia Cybernetica ProjectRotterdam.

442

Talking House

Hinnerk Utermann, University of Applied Arts Vienna



Intermediate - final doctoral stage

Supervisor: Jan Svenungsson, University of Applied Arts Vienna

Proximity, Experimental Architecture, Building-as-research

Abstract

Talking House consists of a series of three buildings, each conceived as an experimental apparatus to study the phenomenon of proximity. It is a design-driven research conducted within the field of architecture. *Talking House* builds on my experience as a craftsman, architect, and teaching architect. The building process and the "buildings" themselves as a medium for research take centre stage:

Buildings provide a limitation and framing through material, structure, size, orientation, lighting, etc. *Talking House* explores these boundaries to study spatial behaviour by borrowing methods from the field of proxemics (Edward T. Hall).

What is proximity? How can it be described and constructed from an architectonic perspective? How to build a situation that allows for proximity between two strangers?

By reconsidering these topics and looking at them as actual practices, *Talking House* hopes to actively contribute to the discourse of design-driven research in the field of architecture

Artefact

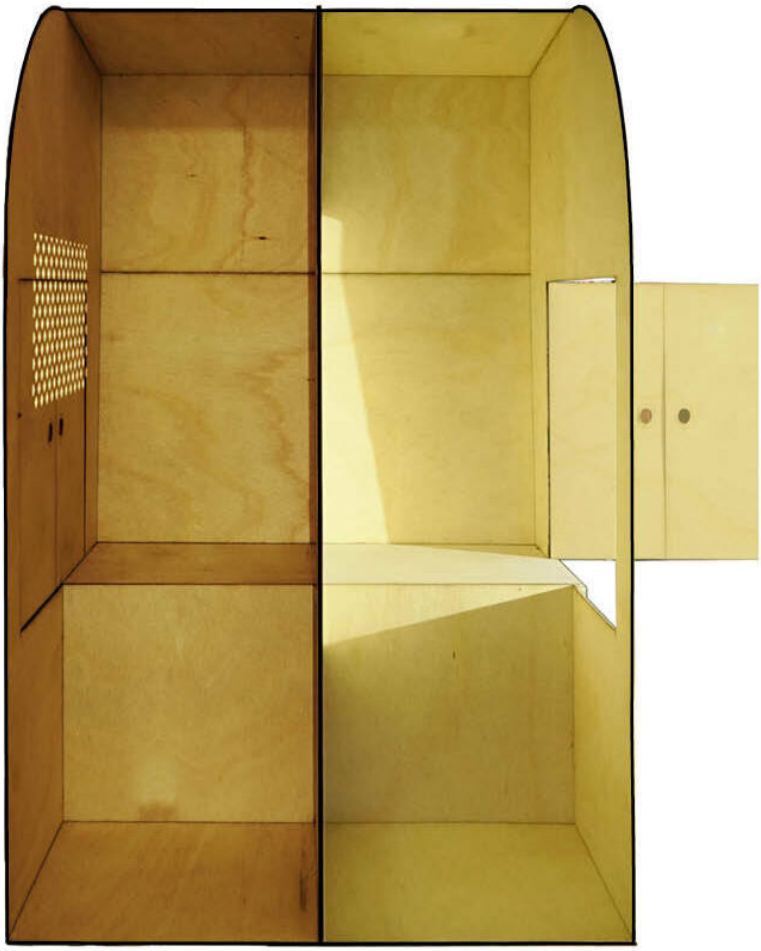
I pull a white handcart through the streets of Tel Aviv, stop at an abandoned bus station by the sea, pull out a series of boards that are part of a box, lay them on the ground and disassemble the handcart. All components lay around. I reassemble them, join wooden feet with bars to a rack, mount the box, the former case of the cart on top of the rack and attach the boards around it. I put one board after the other into place and fix it with screws and a screwdriver.

There it is: A white cabin with two compartments, each for one person. It contains two compartments, one is painted red, the other blue. an enclosed space of minimal dimension, equipped with an entrance with two doors, one seat and a backrest. It measures 1,50 m × 0,9 m × 1,20 m. Standing on four adjustable feet, it may be adjusted to any terrain. The size of the opening is 50 × 60 cm and requires a certain mobility and exercise of the person entering.

I welcome the guest. A short conversation, some instructions and the guest enters a compartment of his choice, with his legs first. I enter the other side. We sit next to each other, a plywood wall between us obscures the view. The material, 1mm thick, made of cross-laminated timber, is flexible and opaque, allowing a small amount of direct sunlight, sound and heat to pass through. We sit and whisper. The noise of the urban space penetrates the inside, our whispered conversation can only be heard in the immediate vicinity due to its low volume. The outside temperature rises in the inside. The heat of the bodies can be felt through the dividing wall.

After on hour we leave the Talking House, stiff from the motionless posture and dazzled from the sun. The guest is walking off, while I demount all pieces, transform the House into a handcart again and pull it into the lively streets of Tel Aviv.

TALKING HOUSE



Invitation for an Architectural Experiment
by Hinnerk Utermann
Visit by appointment

Figure 1: Invitation Card, *Talking House*, Hinnerk Utermann, Berlin 1.1.2020

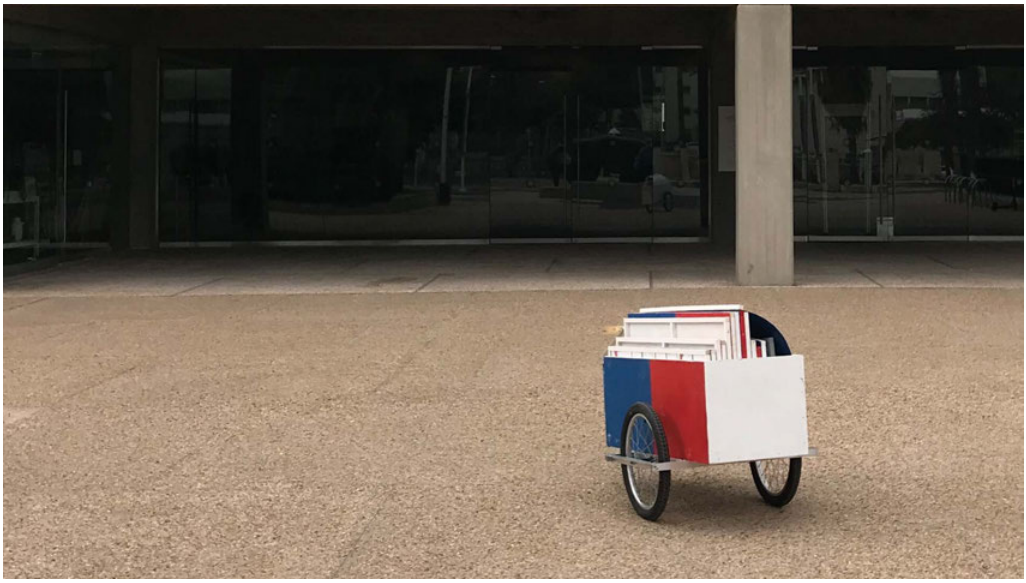


Figure 2: *Talking House*, Tel Aviv, 24.3.2020, Photo by Hinnerk Utermann

Talking House consists of a series of buildings, each conceived as an experimental apparatus to study the phenomenon of proximity.

The *CA2RE Delft* conference allowed me to see and understand my work in a new context. Responding to the framework of the conference, based at the Faculty of Architecture at *TU Delft*, I presented my project from a more applied and architectonical perspective (My PhD is originally part of an artistic research program at Angewandte/Vienna). This enabled me to reconnect with my experience as a craftsman, architect and teaching architect.

My practice draws from the building process. I'm interested in the building process itself, to study the impact of the built space on those that use and inhabit it. Talking House is a design-driven PhD that departs from (a) building-as-research that originates in the field of architecture. This recontextualization caused a significant shift in my research focus. The building process and the "buildings" themselves as mediums for research have moved to the centre stage of my project. Their function is to enable me to study proximity:

What is proximity? How can it be described, constructed, defined from a design and architectonic perspective? What are the intrinsic qualities of built situations that allow for proximity? How to build a situation that allows for proximity between two strangers? How is proximity experienced in different spatial configurations?



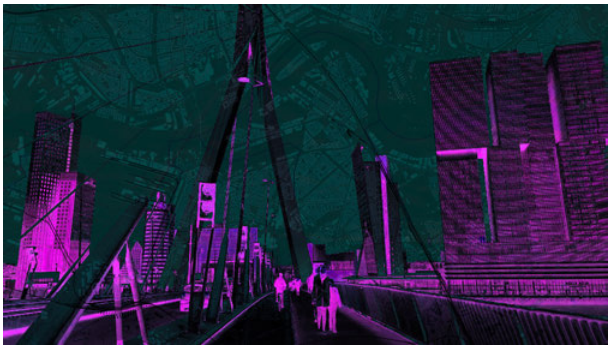
Figure 3: *Talking House*, Tel Aviv, 24.3.2020, Photo by Hinnerk Utermann

In order to respond to these questions, like a scientist, I devise an apparatus – an experimental ensemble of immaterial and material qualities with specific characteristics. I call this type of apparatus *Talking house*. Each talking house bears a specific inherent knowledge, that speaks for itself but also allows to communicate in specific ways. "Buildings" provide a limitation and framing through material, structure, size, orientation, lighting, etc. *Talking House* explores these boundaries and limitations to study spatial behaviour. Here I borrow methods from the field of proxemics. The concept of proxemics was coined and developed by the anthropologist Edward T. Hall[1] suggesting that "people will maintain differing degrees of personal distance depending on the social setting and their cultural backgrounds." Hall's theory differentiates between four distance zones (intimate, personal, social, public). For *Talking House*, my aim is to develop my own system of built metrics and protocol to describe proximity.

The modalities of construction, the tacit knowledge of building as well as the dimension of in-built knowledge and its impact on those who inhabit spaces are usually underrepresented in architectural education. By reconsidering these topics and looking at them as actual practices, *Talking House* hopes to actively contribute to the discourse on design-driven research in the field of architecture.

Data-supported Design in Architecture and Urbanism: The Use of Geospatial Data for Transport Node Design

Halina Veloso e Zarate, TU Delft



Initial doctoral stage

Supervisors: Manuela Triggianese, TU Delft; Maarten Van Ham, TU Delft; Jantien Stoter, TU Delft

Data-supported Design, Architecture & Urbanism, Complex Projects

Abstract

For the past three decades, the shift toward digitization propelled the implementation of data-supported design into contemporary practices and research in Architecture and Urbanism. The growing availability of data and broader accessibility to software and skills are introduced to designers and city makers as enablers of sustainable design solutions, aiming to address the global challenges of rapid urban growth and climate change. This brings an opportunity to explore the use of a specific type of data – geospatial data – in design methods. This paper focuses on understanding the relationship between the process of digitization and the use of data to support design in Architecture and Urbanism, through a literature review and case study. Adopting transport nodes as a type of project for the investigation of such methods, the paper brings in the case of the Sustainable Los Angeles 2050 project to explore how the use of geospatial data can influence the design of transport nodes.

DDR statement

This paper seeks to understand how data can be part of an integrated design approach, focusing on the use of geospatial data at the project scale between building (architecture) and district (urbanism). It qualifies as a Design Driven Research in several ways. First, the research frames the relationship between the shift toward digitization and the implementation of data-supported design into contemporary practices of Architecture and Urbanism. This theoretical contextualization reveals how research-by-design was determinant in discovering break-through skills and collaborations in the use of digital technologies and data-supported methods for design. Second, it looks into a theoretical background about design processes and how data can be appropriated by designers and influence the formalization of a design proposal. Here, the paper investigates existing methodological frameworks for design documented in scientific literature. The design frameworks explain in what consist the steps of design and in what order they are taken – but do not elaborate much on how data is used in the design process. Third and finally, a design case-study provides an illustrative example of how geospatial data can be used in transport node design. This case-study reconstructs the design process based on literature review, archive research and interviews with designers. The different design documents delivered as project milestones contained design material that evolved incrementally until the conclusion of the project. This archive was the main source for a near-to-complete list of geospatial data that was part of the process and conditioned the distinguished design scenarios for the five transport nodes.

The use of digital technologies and the application of data to inform design decisions has been in practice for many decades in the field of engineering. In Architecture and Urbanism, its use has only been incorporated into workflows over the past three decades.[1][2][3] The growing availability of data and broader accessibility to software and skills are introduced to designers and city makers as enablers of sustainable design solutions, aiming to address the global challenges of rapid urban growth and climate change. Data-supported design methods propose to enrich intuitive ways of design and city-making with more strategic and tactical methods. In the new millennium, Architects and Urbanists broadened their design skills and created new specializations and understandings of what is "data." The term "data" can refer to, among others, big-data data collected by sensors, GPS, mobile phones or social media posts;[4] digital 3D models and municipal building regulation data[5] or even architectural data-sets such as building plans;[6] transparency information about development processes,[4] geospatial data, which is data with spatial components located on Earth, visualized and communicated through maps.[3] Even though there lacks a single definition of what is "data" in Architecture and Urbanism, this paper focuses on "data" that has spatial components, is "readable" by design software,[4] and help designers evaluate a project's success in achieving a certain ambition or disciplinary agenda. This brings an opportunity to explore the use of a specific type of data – geospatial data – in design methods.

This paper seeks to understand how data can be part of an integrated design approach, focusing on the use of geospatial data at the project scale between building (architecture) and district (urbanism). The first step of this investigation is a contextualization that frames the relationship between the process of digitization and the implementation of data-supported design in Architecture and Urbanism. This section aims to trace a retrospective of the development of digital technologies and the use of data in design research and practice. It builds upon the report "The Digital in Architecture: Then, Now and in the Future," by the scholar M. Claypool, 2019.[7] Based on this investigation, it is possible to derive the key periods of development of data-supported design in Architecture and Urbanism. This paper proposes to name them the Age of Utopia, The Age of Experimentation and the Age of Awareness, as indicated in [D1iagram 1]. From this overview, it is interesting to observe how relevant geospatial data becomes to design explorations, as spatiality is an intrinsic quality to design. To better understand the use of data in the design process, a complementary literature review is conducted about the design phases and steps. This is done from the point of view of architecture design methods,[9] integral design approaches[10] and geodesign.[3] It reveals what types of design frameworks have been documented to explain the design process, but not necessarily clarify how data is used by Architects and Urbanists, especially in what refers to the creation of formal design outputs. Therefore, this investigation reveals a gap in the scientific literature on integral design approaches, on how geospatial data can be incorporated in the design process.

The second part of this paper traces a parallel with the emergence of sustainability as a strong disciplinary agenda for the design practice[7] in the latest stages of development in data-supported design (20102050,

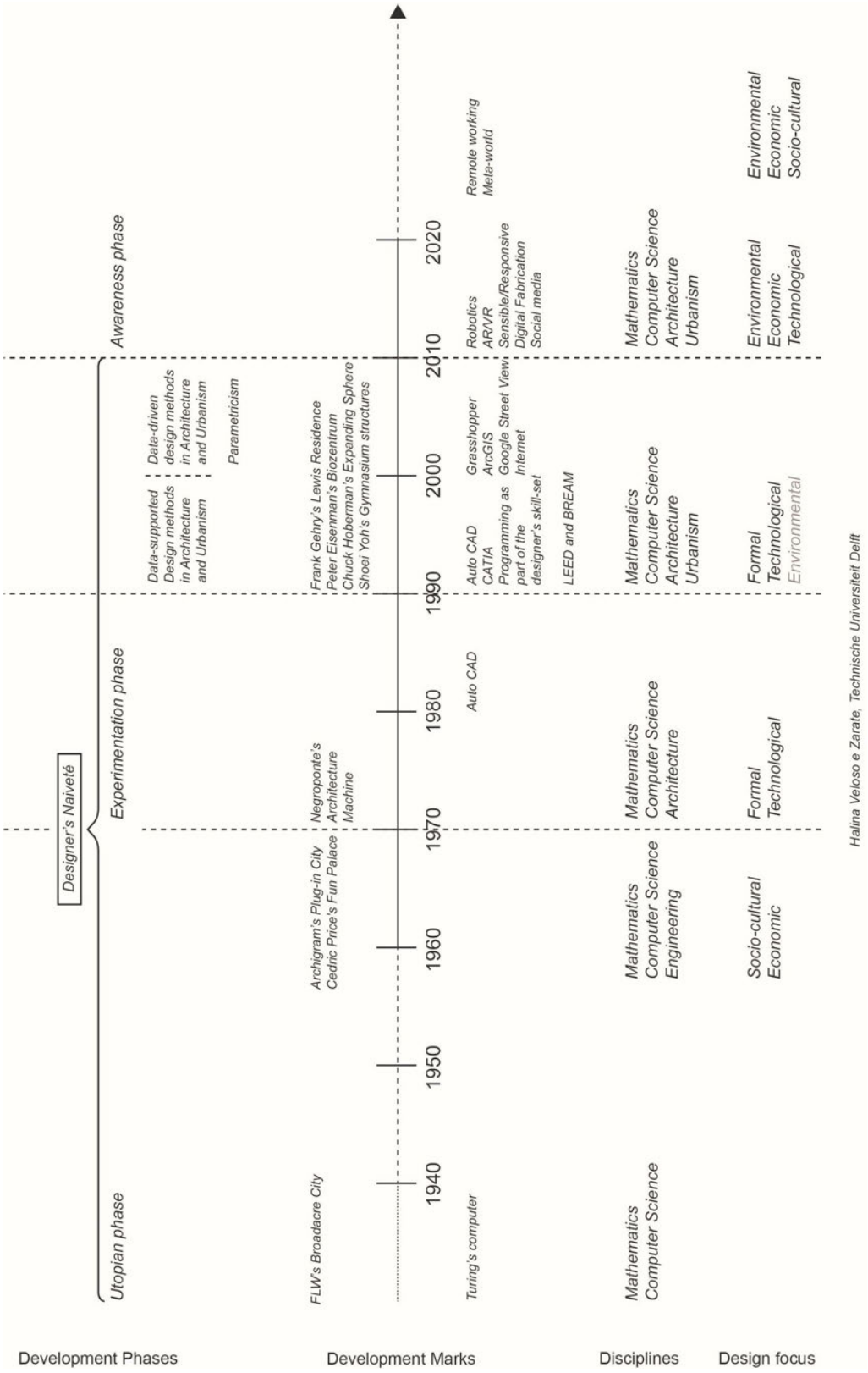

Development Phases
Development Marks
Disciplines
Design focus
Utopian phase
Designer's Naiveté
Experimentation phase
Awareness phase
1940
1950
1960
1970
1980
1990
2000
2010
2020
FLW's Broadacre City
Archigram's Plug-in City
Cedric Price's Fun Palace
Negroponte's Architecture Machine
Turing's computer
Auto CAD
Data-supported Design methods in Architecture and Urbanism
Data-driven design methods in Architecture and Urbanism
Parametricism
Frank Gehry's Lewis Residence
Peter Eisenman's Biozentrum
Chuck Hoberman's Expanding Sphere
Shoei Yoh's Gymnasium structures
Auto CAD
CATIA
Programming as part of the designer's skill-set
Grasshopper
ArcGIS
Google Street View
Internet
LEED and BREAM
Robotics
AR/VR
Sensible/Responsive
Digital Fabrication
Social media
Remote working
Meta-world
Mathematics
Computer Science
Engineering
Mathematics
Computer Science
Architecture
Mathematics
Computer Science
Architecture
Urbanism
Mathematics
Computer Science
Architecture
Urbanism
Socio-cultural
Economic
Formal
Technological
Formal
Technological
Environmental
Environmental
Economic
Technological
Environmental
Economic
Socio-cultural
Halina Veloso e Zarate, Technische Universiteit Delft

Diagram 1

The Age of Awareness). The social, environmental and economic dimensions of a project addressing global urbanization challenges[7 8 9 10 11] aim to respond to sustainable development goals. In this context, densely populated urban centres are presumed to be beneficial for the approximation between people, services and opportunities. They provide a chance to reduce demand for movement and CO2 emissions, leverage existing infrastructure, and ease the monitoring and control of the urban performance in regards to environmental quality.[10] This section of the paper points to a specific type of project that combines urbanization and mobility strategies, such as Transit Oriented Development (TOD). TOD is seen as a key to achieve sustainable urban development.[12 13 14] Such projects concern multiple scales: the regional transit network, the area of influence of a station, and the building scale of the station itself. Dealing with mobility adds large amounts of data to be considered in the design process of transport nodes – commuting patterns, passenger flows, walkability assessments, to name a few.[3] This paper brings in a brief literature review about this type of project, here referred to as "transport nodes." It aims to frame its relevance related both to the global issues in the spotlight in the first half of the 21st Century, and to the use of data-supported methods in integral design approaches.

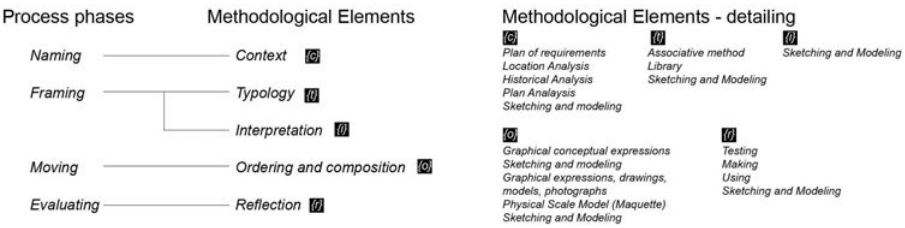
The third part of this paper adopts transport nodes as an object for investigation about the research gap regarding the incorporation of geospatial data in the design process. Geospatial data can be valuable in the design process of transport nodes, for example: data on pedestrian flows may be used as a spatial determinant for design gestures enhancing walkability around the station, such as direct connections through blocks or streetscape redesign. Another example is data on noise nuisance, passenger flows and commuting patterns. These may influence the determination of fills and voids of space in the station area. This section adopts a case study, the research project Sustainable Los Angeles 2050. The case study is conducted through literature review of the publications about this project, combined with archival research and interviews with some of the designers that worked on the project. The aim was to understand the design process of this project and which geospatial data was taken into consideration, as indicated in [Diagram 2] and [Diagram 3]. Finally, based on interviews, the paper identifies certain challenges and risks in the use of geospatial data for the design of transport nodes.

In summary, this paper contextualizes the use of data-supported design in Architecture and Urbanism; identifies the research gap in the use of geospatial data in integral design approaches; and determines the type and scale of project – transport node design — for selecting and conducting a case study. As an outcome, this paper offers learnings about the challenges and limitations of the use of geospatial data in transport node design. As rebuilding design processes of existing projects may leave behind unregistered but important details, a follow-up to this paper is necessary. This is especially relevant for urban contexts focused on the densification around public transport stations. This is the case, for example, of the city of Rotterdam, which has published a Vision Plan[15] proposing strategically located transport nodes to bear the projected urban growth of 50,000 new homes by 2040, while complying with local

Capacity Study (modelling/testing densities - uniformly or in hubs - considering different housing types and mix of programmatic uses to accommodate +1.5 million people in the study area, while responding to sustainable goals) {f}	*Dense living typology reference models (global metropolis), height envelope, Floor Area Ratio, Gross Floor Area per land use type, population density ratio, open space area per capita*	●	●	○	s
Speculative geospatial investigation with before and after performance analysis in the scale of potential Transit Oriented District {f} {c}	*accessible green area per person, water& energy consumption, waste production, food demand*	○	○	○	s
Geospatial analysis in the scale of potential Transit Oriented District {c}	*land use, Gross Floor Area per land use, Floor Area Ration, Height Envelope, points of interest, mobility split,*	●	●	●	s
Urban Character analysis in the scale of potential Transit Oriented District {c}	*text, pictures, character diagrams, sketch models*	●	●	○	nns
Definition of (top-down and bottom-up) strategies and design principles, for Wilshire Corridor as a system of complementary parts {f}	*text (list of potential strategies), reference studies, flowchart*	○	●	●	ns
Transit Oriented District Study (identifying districts with resticted densification capacity, redistributing population density only on non-restricted nodes) {c} {f} {f}	*metro stations, restrictive criteria (proximity to school district, hospital district, low change acceptance society, already saurated density districts, historic preservation*	●	●	○	s
Definition of 5 high-potential Transit Oriented Districts (Santa Monica, Century City, Fairfax/LACMA, Koreatown, Westlake/Downtown LA) {c}	*target population per hub, main character (initial assumption)*	○	●	●	s
Definition of targets sustainability targets and specific roles per station area, considering them as part of a larger system, of Wilshire corridor	*text, urban design diagrams and concept drawings*	○	●	●	nns
Transition from Wishire corridor scale to Transit Oriented District scale, subdivision of research group, delopment of separate design proposals {c}	*3D model (Rhino) at TOD scale and resolution*	●	●	●	s
Speculative scenario making testing composition potentials to achieve the sustainability targets {c} *referring back to pre-set goals to use clean energy, locally sourced water, and enhance ecossystem health* {f}	*sketch 3D models with initial design gestures, surface areas, benchmark references, performance estimations*	○	●	●	s
Finalizing design proposal (morphology, GFA per land use, new features, new character)	*3D Model, renderings, diagrams, descriptive text*	○	●	●	ns
Packaging for delivery	*Indesign packages, Illustrator files, Rhino models, Photoshop collages, GIS package, videos*	○	○	●	nns
Post production for publication (double-checking, correcting, adjusting as needed)	*delivery package*	○	○	●	nns
Publication	*books, web application tool, videos*	○	○	●	nns

**The listed steps in the design process were reconstructed from the progress deliverables of the UCLA Grand Challenge and Wilshire Densification projects. These files are part of the author's personal archive, as a team member that workd on every deliverable. They are here listed in chronological order, as they were produced during the course of the Masters program, The Now Institute studio 2015-2016. The Now Institute: (Faculty) Thom Mayne, Eui-sung Yi. (GSR) Ryan A. Doyle, Devika Tandon, Rizzie Walker, Halina Zárate. (Masters students) Shareefa Abdulsalam, Yitao Chen, Çağdaş Delen, Ryan A. Doyle, Elisabet Ollé, Beyza Paksoy, Rupal Rathi, Niketa Sondhi, Devika Tandon, Wei Tang, Rizzie Walker, Halina Zárate.*

Legend of labels based on Visser, 2020:



Source of Process phases and Methodological Elements: Visser, J.L., Creating a New Perspective by Integrating Frames Through Design An Exploratory Research into the What, Why, and How of Integrated Design. 2020, TU Delft. p. 293.

Diagram 3

The steps in the design process & related data

Steps in the design process	Type of Data Present on process materials*	# of interviewees that mentioned this step/data	Spatial (s); Not Necessarity Spatial (nns); non-spatial (ns)
Literature review of existing governmental reports, plans, and academic work [c]	*text*	● ● ○	ns
Literature review of news and social media contents about clean energy, water sourcing, transportation trends [c]	*text, pictures, evidence of local community lifestyle, habits, traits*	● ○ ○	ns
Historic development of key sustainability events and challenges [c]	*text, historic photographs, historic planning documents*	● ○ ○	nns
Global comparison with other metropolis [c]	*text, key performance indicators (consumption patterns, density, housing typology, parcel size, average commute time...), physical characteristics, design drawings, pictures*	● ● ○	ns
Summary of problems and potentialities in achieving the sustainable goal of 100% sustainability [c]	*water/energy consumption, commuting times, housing type, lifestyle habits*	● ○ ○	nns
Case-studies and references for strategies considering policies, technologies, and lifestyle change towards sustainability transition [c]	*text, images, statistical data about technology trends*	● ● ○	ns
Geospatial analysis (California, LA county) scale, first at illustration format, then in GIS (collection, selection, classification according to the 3 main pre-set topics - energy, water, ecossystem- modelling and overlaying of factors) [c]	*Geospatial data about Energy (transmission lines utilities, power plants, carbon footprint, electricity consumption - total demand and demand per sector -, solar power potential, congestion, commuting time, public transportation lines and service areas, walkability);* *Water (drought, rainfall, water flows, water supply acqueducts, consumption - total demand and demand per sector);* *Ecossystem (nature preservation, wildfires, impacts of climate change on ecosystem, climate zones, extreme heat days, habitat);* *Other (educational institutioins, hospitals, police and fire stations, crime, income, ethnicities, administrative jurisditions, innovation projects, land coverage, urban gorwth, land use, residential housing type, landmarks and destinations)*	● ● ●	s
Supply and Demand understanding: main potential strategies and design principles considering policies, technologies, and lifestyle change towards sustainability transition [d]	*Flowcharts of supply and demand, breaking down key top down and bottom up factors that influence the overall balance*	● ○ ○	nns
Analysis of building typologies in relation to household density and consumption patterns [c] [d]	*design drawings (building type, area), 3D digital model, statistical data (people her household, consumption of energy/water per household*	● ● ○	ns
Exploration about possible growth scenarios (sprawl, limited sprawl, densification near transport nodes) [c]	*geospatial data such as county outline, urban land coverage, infrastructure*	● ● ●	s
Definition of (top-down and bottom-up) strategies and design principles, for Los Angeles County to become sustainable by 2050 [d]	*flowchart, text (list of potential strategies), reference studies*	● ● ●	ns
Establishment of a preferred scenario and a study site: Wilshire Boulevard [c] [d]	*criteria for chosing study site (most demographically and urban diversity, highly accessible jobs and opportunities, already high-rise and high-density, planned robust public transportation services)*	● ○ ○	s
Transition from regional scale to local scale, making 3D digital model and maquette for regional and local scale	*selected shapefiles to be clipped and exported from the large GIS scale and resolution and imported into architectural software (Rhino) for the making of a more detailed 3D basemodel (topography, infrasturcture, adminsitrative boundaries, buildings, open spaces, plus data described in the following geospatial analysis steps)*	○ ○ ●	s
Geospatial analysis in the scale of study site (Wilshire Corridor) [c]	*Selected geospatial data about study site area: administrative boundaries, education, ethnicity, household size, housing ownership, income, population density, public transportation access, cultural facilities, open spaces, hospitals, land use*	● ● ●	s

Diagram 2

environmental, social and economic tasks. As such, a demonstration study of the transport nodes in Rotterdam would be an interesting next-step to this paper.

1 Lynn, G. (2013): »Archaeology of the Digital«, in: icam 17. Montreal, New York: Sternberg Press.

2 Calleja, Maria López/Stott, Rory. (2020): MVRDV's Datascapes were a precursor of BIM techniques. https://www.mvrdv.nl/stack-mag...

3 Lee, D.J./Dias, E./Scholten, H.J. (2014): Geodesign by Integrating Design and Geospatial Sciences. Switzerland: Springer International Publishing.

4 RIBA and Arup (2019):m Designing with data: shaping our future cities. R.I.o.B. Architects.

5 Noardo, Francesca/Wu, Teng/Arroyo Ohori, Ken/Krijnen, Thomas/Stoter, Jantien (2022): »The use of IFC models towards automation of urban planning checks for building permit«, in: Automation in Construction, issue, 134, [104097]. https://doi.org/10.1016/j.autc...

6 Newton, D. (2019): »Deep Generative Learning for the Generation and Analysis of Architectural Plans with Small Datasets«, in: 37 eCAADe and XXIII SIGraDi Joint Conference. Porto.

7 Claypool, M. (2019): The Digital in Architecture: Then, Now and in the Future. SPACE10, https://space10.com/project/di...

8 Meadows, D., et al. (1972): The Limits to Growth., New York: Universe Books.

9 UN HABITAT. (2021): Global Future Cities Programme 18 February – Session 4: Evidence-based Design & the Effective use of Data. 18 February 2021, from: https://www.globalfuturecities.org/thematic-programme/18-february-session-4-evidence-based-design-effective-use-data

10 IPCC (2021): Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.

11 United Nations (1987): Our Common Future: Report of the World Commission on Environment and Development.

12 Bertolini, L./Curtis. C./Renne, J. (2012): »Station Area projects in Europe and Beyond: Towards Transit Oriented Development?«, in: Built Environment, issue 38(1), pp. 31–50.

13 Cervero, R./Suzuki, H./Iuchi, K. (2013): Transforming Cities with Transit: Transit and Land-Use Integration for Sustainable Urban Development. Washington, DC: The World Bank.

14 Triggianese, Manuela/Cavallo, Roberto/Baron, Nacima/Kuijper, Joran (2018): Stations as Nodes: exploring the role of stations in future metropolitan areas from a French and Dutch perspective. Delft: TU Delft Open.

15 Goudappel Coffeng/APPM/RET (2018): OV2040 Samen slimmer reizen. OV-Visie Rotterdam 2018–2040. Rotterdam: Gemeente Rotterdam.

Schoolyards I The Impact of Architecture on Child Development

Children From 3 to 10 Years Old in Education Spaces in Portugal

Valeria Wiendl, Universidade Lusófona do Porto



Inicial Doctoral Stage

Supervisor: Edite Rosa, Universidade Lusófona do Porto

architecture, childhood, school grounds

Abstract

Based on the consensus about the lack of quality of playgrounds in Portuguese schools, and serving as a support in the vast field of research in the areas of pedagogy,social sciences, psychology and human motricity about the impact of the built outdoor environment for a broader child development, the research aims to group and organize in a single document the information from these studies about the use of the school playground-patio, in the scope of architecture-equipment-design. For this process, we will use analysis frameworks that we are still choosing.

From the reflection of existing projects, we will try to define design strategies to serve as a basis for architects in the process of qualification of the space.

Another concern is to contribute with methodological criteria to be applied by the Municipalities in the process of developing design/qualification tenders, in order to optimize constructive processes-'manual of good practices'. Likewise, to assist in the clarification of norms regarding the occupation of outdoor.

DDR statement

Through the use of plans, sections and mockups, we will analyze the interaction format in three different projects.

In this approach, we will also try to experiment with different types of outdoor design approaches: models, 3D models, sketches, plans/cuts, photographs.

Although with distinct programs, the three schools will be presented at the end with the same language, in order to facilitate comparative reading.

With the use of DDR methodology, we foresee a closer dialogue between designers and educational community-children.

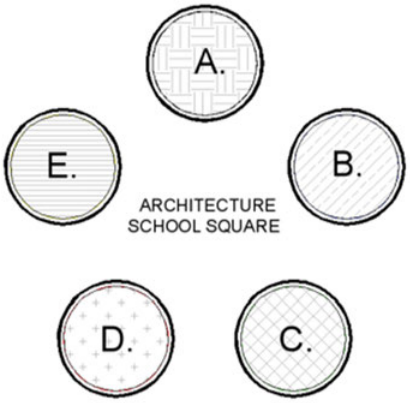
Extended abstract

Introduction

Since the 1800's, teachers, pedagogues, doctors, psychologists have advocated the need for a new design of schools, aimed at the scale of the child and more related to nature. Froebel's gardens,[1] Montessori method,[2] Waldorf schools,[3] and the Reggio Emilia[4] school project all point to the direction to take to achieve more resilient, more creative, healthier children who are better able to learn.

Much has been said and pointed out about the relationship between architecture and child development.[4] The sciences of psychology, education, sociology present studies that corroborate this statement.

In Portugal these reflections are considered in the form of building design, where architects are becoming more and more familiar with some of these "alternative" educational perspectives, where they mention the pedagogies that supported their design intentions.



A. Fröebel Kindergarden by Friedrich Fröbel, GERMANY(1782-1852)
B. Waldorf, by Rudolf Steiner, AUSTRIA(1861-1925)
C. Montessori,by Maria Montessori, ITALY (1870-1952)
D. Reggio Emilia, by Loriz Malaguzzi, ITALY (1920-1994)
E. Traditional Pedagogy in Portugal

Figure 1: Scheme pedagogies and architecture

They mention the importance of the use of color; furniture adapted to the ages and their various uses; wide corridors; ventilated openings for light and air circulation (since the health process against tuberculosis and now for the covid-19 pandemic); connecting the classrooms directly to the outside, the concept of the learning street[5] and Hermann Hertzberger's and Montessori pedagogy. But how do they refer to the design of the outdoor space, the equipment and materialization of the concepts advocated by the pedagogies?

Recognizing the great urban growth that, according to the UN forecast, in 2050 will reach 66% of the world's population,[6] schools have been given a key role in child development process. With school hours between 6 and 10 hours a day, it represents the place where children spend more time awake, and quality education is one of the UN's goals in sustainable development [7].

Trying to make up for losses in gross motor skills, reported in national assessment tests,[8] there are more cases of childhood obesity, anxiety or other neurological disorders, and the pertinence of the discussion about the positive impact of the design of schoolyards, both in the transmission and assimilation of knowledge and in the cognitive and psychomotor development of children is raised.

As far as our study is concerned, we will focus on the playground space, the school square, where some authors report as being the space that most resembles the square space in cities, where they can play and develop their social, physical interactions and relate to the environment. Like the concept of the squares designed by Aldo Van Eyck for the city of Amsterdam:[9] the playground as a space for socializing or promoting the individual, of catalyzing spaces for creation, action or relaxation – individual or collective.

What are the reasons why courtyard design is being disregarded or underutilized? What is the connection of the courtyard-place design and

the search for the consolidation of "quality, livable" spaces,[10] [11] or the new concepts of affordance[12] and biophilia?[13] How are they related to the studies of other scientific areas? How is there an understanding of the different stages of children's growth and how do they use the design of spaces to achieve these goals?

The research started in case studies in Vila Nova de Gaia, Portugal, but after the last International School Grounds Alliance Conference 2022, we quickly realized that the dimension of the problem goes beyond borders: playgrounds renegade to disuse, or limited to soccer practice for elementary school and a slide for preschool.

In an interview with the pedagogical coordinators, they report that the children's fine motor skills are still at normal levels, but they don't know how to run, jump, or move freely. Something that was acquired naturally in childhood presents itself with the need to have a specific discipline.[14]

The same is reported in schools in Chile, Spain, and Colombia, where criticism is made about the lack of quality of playgrounds and how projects have been carried out to upgrade these areas: Micos Project, Asociación Patios Habitables, Anidar-ArqA, Ludantia, LUPO-Fermín Blanco, Eskoola, Rosa Sensat, Patio Vivo, among others.

With the participation of teachers, architects, landscape architects, psychologists, doctors, sociologists, parents, and the children themselves, these projects seek to empower schoolyards to create stimuli and child development: socialization, creativity, motor skills, language, thinking, exploration.

The choice of materials, with respect to their durability, low maintenance and low cost, the importance of light, health, thermal comfort, color, articulation of spaces, mobility, modularity, and the possibility of interaction with the surrounding elements. These and other aspects must be safeguarded in both architectural and landscape design of schoolyards, respecting the safety guidelines and legislation in force.

Methodology

It is important to recognize the character of the built environment and to know how to distinguish points of interest and materials to be repeated, as well as those to be avoided as Lynch advocated.[15] To this end, we will analyze case studies, based on the common concern in the requalification of quality playgrounds, which have similarity in the daily school hours of children and the existence of working bodies already constituted and involving the study among children, teachers, psychologists, architects, landscape architects.

To begin the study, in order to serve as a methodological test, we will analyze how the outdoor environment and its appropriation by children of preschool and 1st cycle, schools in Chile and Colombia, making a comparison of two works carried out recently, considering their differences in culture, climate, topography, typology, regulatory legislation and programmatic content in the pedagogical process:

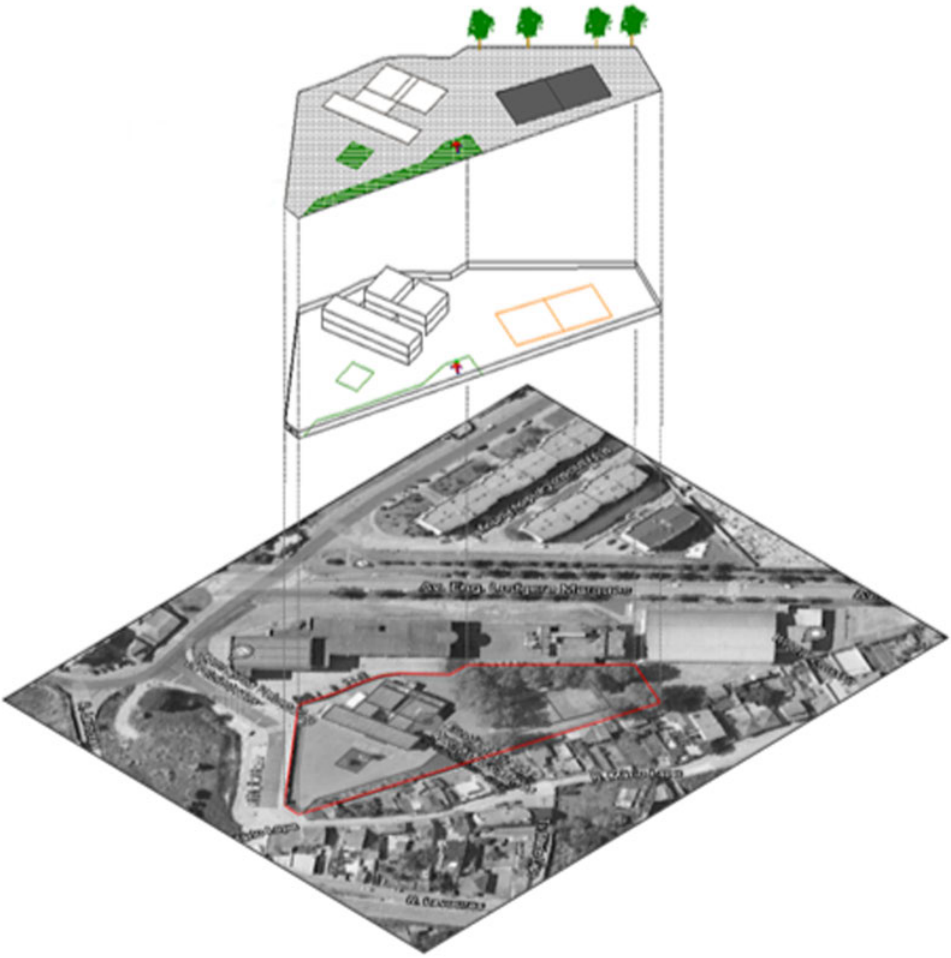


Figure 2: Tipic public schools grounds in Portugal

— 1 school redevelopment project: Ayelén School, 2017 by Patio Vivo Foundation (Chile),

— 1 new construction project: Timayui Kindergarten by Mazzanti team, 2010 by Giancarlo Mazzanti (Colombia).

In these cases, using plans, sections, photos and perspectives, the process of appropriation of space will be analyzed (from the request process, through the joint work between the design team and other stakeholders, and finally, the final proposal). The goal is to try to highlight how design manages to materialize the different intentions of the designers and how spaces that educate are designed and if they are not considered in the design, how child behavior proceeds — based on the various empirical studies on the built space and its impact on cognitive, physical and behavioral development.

It is intended to analyze the spaces for permanence (individual, collective) and the spaces for passage; the playful spaces and the spaces for games, floor typology and solar orientation; as well as seeking to establish the possible zoning of spaces:

1 typology of the school, capacity of children, occupational density in playgrounds, hours of the school and non-school period used outside,

2 pedagogy used in the school,

3 pedagogy advocated by the architects and how it reverts in the effective design of the outdoor spaces,

4 solar insolation and acoustics,

5 legislation applied,

6 nature: materials used,

7 occupation of spaces, being of individual or collective activity, with the distinct or mixed characteristics of being catalysts.

individual/group construction and the fostering of a sense of belonging and safety; fostering creativity and observation; fostering relaxation/activity; fostering resilience/rest; structured/unstructured play; fostering a sense of safety or negative and prohibitive (due to physical safety, fire or accessibility risks); changeable (possible the contribution by children-teachers-parents over time; green/natural elements that contribute to biophilic strengthening of children.

Expected results

With this methodology, we hope to contribute to the extensive studies that are scattered about the impact of architecture on child development and thus define and qualify the essential designs and elements in the design of the schoolyard, designed for children, where children "inhabit" the playground, as being theirs and for them.[16]

The intention will be to provide good practice parameters/guidance that will serve as a support tool for architects as well as for City Councils and technicians preparing tender bases (in the case of public schools). In the

same way, it intends to serve as an aid in the construction of more specific regulations regarding outdoor space and its importance in the cognitive, physical and playful development of the playground.

This research will then serve as support for a pilot project in a school in Vila Nova de Gaia (VNG), which has already agreed to participate in the research and will have the participation of children, parents and teachers. Later on, it will seek to mirror it in cases of public education, currently under consideration.



Figure 3

1 Arce, Alessandra (2002): »Lina, an exemplary child! Friedrich Froebel and the kindergarten pedagogy«, in: Revista Brasileira de Educação, issue (20), pp. 107–120. https://doi.org/10.1590/S1413-24782002000200009

2 Arce, Alessandra (2002): »Lina, an exemplary child! Friedrich Froebel and the kindergarten pedagogy«, in: Revista Brasileira de Educação, issue (20), pp. 107–120. https://doi.org/10.1590/S1413-24782002000200009

3 Lanz, Rudolf (2000): Waldorf pedagogy: Path to a more humane teaching, Antroposófica.

4 Malaguzzi, Loris (1999): »História, idéias e filosofias básicas«, in: Edwards, Carolyn/Gandini, Lella/Forman, George. As Cem Linguargens da Criança; abordagem de Reggio Emilia na educação da primeira infância. Porto Alegre: Artmed. pp. 59–104.

5 Hertzberger, Herman (1996): Lições de Arquitetura. Tradução: Carlos Eduardo Lima Machado. São Paulo: Livraria Martins Fontes Editora Lda.

6 UN-HABITAT (2012): Relatório do Estado das Cidades no Mundo 2012–2013: Prosperidade das Cidades.

7 Objetivo 4: Educação de Qualidade. https://unric.org/pt/objetivo-4-educacao-de-qualidade-2/

8 IAVE – Instituto de Avaliação Educativa (2018): Resultados Nacionais das Provas de Aferição, 2018. https://iave.pt/wp-content/uploads/2021/03/Informacao_Resultados_PA2018_16jan.pdf

9 Lerfaivre, Liane/de Roode, Ingeborg (2002): Aldo van Eyck: the playgrounds and the city. Amsterdam/Rotterdam: Stedelijk Museum Amsterdam/NAi Publishers.

10 Ibáñez, Ángela/Izquierdo, Elisa/Quintanilla, José/Huneeuws, Marcial/Escola Ayelén (2018): paisajes del aprendizaje. El patio escolar como herramienta pedagógica. Projetos, São Paulo, año 18, n. 207.01, Vitruvius. https://vitruvius.com.br/revistas/read/projetos/18.207/6914.

11 Poster 9º CIAM – The Charter of Habitat, 1953, where we see the importance of rescuing relationships in the city, and the appropriation of space by children.

12 Wells, N. (2000): At Home with Nature: effects of "greenness" on children's cognitive functioning. Environment and Behavior, issue 32 (6), pp. 775–795, https://www.nrs.fs.fed.us/pubs/jrnl/2000/nc_2000_wells_001.pdf from February 2022.

13 Withagen, R./Caljouw, S.R. (2017): Aldo van Eyck's Playgrounds: Aesthetics, Affordances, and Creativity. Frontiers in Psychology, issue 8, p. 1130. https://doi.org/10.3389/fpsyg.2017.01130

14 Neto, C. (2001): «Aprendizagem, desenvolvimento e jogo de actividade física», in: M. Graça Guedes (Ed.), Aprendizagem Motora: Problemas e Contextos, Lisboa, Edições FMH, pp. 193-220.

15 Lynch, Kevin (1960): The image of the city. Trad. Maria Cristina Tavares Afonso. Lisbon: Editions 70, imp. 2016.

16 Freire, P. (1996): »Pedagogia da autonomia«, in: Saberes Necessários à Prática Educativa. 25ª edição. São Paulo: Paz e Terra.

Program in Architectural Design of Contemporary Art Museum

Focusing on the Contemporary Art Museum Architectures Designed in Shanghai Central Area since 2010



Xin Xu, Politecnico di Milano

Final doctoral stage

Supervisor: Pierluigi Salvadeo, Politecnico di Milano

Program, Architectural design, Contemporary art museum

Abstract

After hosting the Expo 2010, there had been a spurt of growth and development of art museums in Shanghai. As a result of quantity increase, related architectural designs of contemporary art museums had also indicated a prosperous growth trend. In order to realize a sustainability in architectural design, the program in architectural design of contemporary art museum was highlighted. This research selected eight contemporary art museum architectures located in Shanghai central area built after 2010 as research cases, traced their programs backwards from the drawings of architectural plans, mapped the program design of each case and summarized the basic dispositions in program setting. Combined with possible future changes in influencing factors and taking the basis of these dispositions, a design guideline was proposed as the conclusion for future program design in contemporary art museum, allowing for multiple forms of future use and appropriation.

DDR statement

Instead of focusing on design itself or design realization as practice or product, this research intends to focus on 'the origin' and 'the formation' of a design.

As for architectural design, it is the design of space. It involves a specification on the shape and dimensions of space, as well as defining the activities that may happen inside it. The latter process contains a definition on what activities there are, including the requirements and demands proposed by these activities that the space should meet, and the sequence in which they occur, which refers to define the program of space. Program is a basis for architectural design. And as it also needs to be designed, program is generated on the basis of some relevant factors, namely, the identity and corresponding responsibilities of space itself (as contemporary art museum in this research), the demands of related stakeholders, and the architect's own intention.

This research takes 'program' as the starting point and explores the formation and origin of program design in architectural design, thus exploring how these factors influence the design of program as well as take a further influence on the design of architecture. The research would start with an analysis of eight architectural designs of contemporary art museum in Shanghai central area, giving a specific focus on the drawings of architectural plans, which are the materialized manifestations of space designs. Based on these drawings, it would be possible to generate the designed spaces, trace back the programs and map the program designs. The characteristics and formation reasons for these program designs will be highlighted, and basic dispositions of program designs will be deduced and summarized. Combined with possible future changes in influencing factors and taking the basis of these dispositions, a design guideline would be proposed as a conclusion for future program designs in contemporary art museums, allowing for multiple forms of future use and appropriation.

1. Introduction

After hosting the Expo 2010, Shanghai has clearly positioned itself to become an international metropolis and launched a new round of urban development strategy.[1] A metropolis cannot do without vigorous cultural facilities, especially art museums, and as it has already revealed, during this decade, there has been a spurt of growth and development of art museums in Shanghai.[2] Based on the solid economic foundation accumulated by its industrial capacity in earlier years, as well as a rich and unique cultural and artistic resource, not only traditional Chinese culture and art, but also a strong capacity of collection and appreciation of international contemporary cultures and arts, Shanghai has provided a steady guarantee and a constant impetus for the rapid development of contemporary art museums. As a result of quantity increase, related architectural designs and constructions of contemporary art museums have also indicated a prosperous growth trend. In fact, since 2010, more and more leading architects (teams) from domestic and abroad have been bringing their outstanding, innovative and unique architectural designs to Shanghai, making Shanghai become a global experiment filed for architectural designs, especially public cultural facilities as art museums.

As a carrier of contemporary artwork exhibition, a materialized expression of art museum institution, and an important strategy for urban development, architecture of contemporary art museum plays a vitally important role in contemporary art promoting, as well as urban vitality increasing. The architectural design of contemporary art museums is showing a great diversity based on the demands of not only contemporary artworks, whose unique and diverse themes, materials and representations are requiring more appropriate and flexible exhibition spaces of their own, but also society, as its demands for art museums are no longer just for art appreciation or public education, but for more and constantly changing new social activities.

However, the public's expectations would change; exhibitions would be replaced; but the architecture stands forever. Therefore, a question that deserves to be pondered is posed: How could a design for an architecture achieve "forever?" More precisely, it may not be "forever" or "fixed eternal," but an "everlasting pattern" that is constantly updating, adapting, and continuously developing. At this moment, the program of architectural design would be proposed once again. Based on the constantly changing demands for architectural space in art museums, that may come from the exhibitions or the future social development, architectural design always leaves opportunities for changes in the program in it may be the pattern mentioned above. On the one hand, it is a response to the various demands and requirements proposed by related stakeholders for contemporary art museums; On the other hand, it is a rationalized reactivation of the architectural spaces that have been abandoned or survived from the urban developing process; In addition, it is also a reservation for the future possibilities that may take place in the current design.

Therefore, this research takes program as the starting point and aims at exploring that in the future, how should the program be set in an architectural design of a contemporary art museum located in Shanghai

central area[3] to realize sustainability in architectural design. The issue involves two aspects: first, what will be the programs; Second, how will these programs be set. Moreover, the formation and origin of program design in contemporary art museum architectural design will also be highlighted, thus discussing how related factors influence the design of program as well as take a further influence on the design of contemporary art museum architecture.

2. Program in architectural design

2.1. Program

In the definition of architectural space, the activities (or "events" in Bernard Tschumi's word) that take place in the space is an indispensable component.[4] As for architectural design, it is the design of space. It involves a specification on the shape and dimensions of space, as well as defining the activities that may happen inside it. The latter process contains a definition of what activities there are, including the requirements and demands proposed by these activities that the space should meet, and the sequence in which they occur, which refers to define the program of space.

The notion of program involves "an act to edit function and human activities" as the pretext of architectural design: epitomized in the maxim *form follows function*, first popularized by Louis Sullivan at the beginning of the 20th century. The unification of program and function in concept can be traced back to 1957, at the conference of the Royal Institute of British Architects, John Summerson interpreted the program as a description of space dimensions, spatial relationships and other material conditions required to facilitate the implementation of a specific function.[5] Moreover, in *Program vs. Paradigm* published in 1983, based on the definition in Oxford Dictionary, Colin Rowe defined program as "a definite plan or scheme of any intended proceedings: an outline or abstract of something to be done", and he strengthened that "it is in this sense that the word program has penetrated the architectural vocabulary".[6] The proposal of program was a sublimation of functionalism and gave more prominence to people's activities in architectural space, inspiring several famous architects, such as Bernard Tschumi, Rem Koolhaas, MVRDV, Kazuyo Sejima, etc.

2.2. Design of program

Program does not merely come from the demands of space users or related stakeholders, but also considers the identity and corresponding responsibilities of space itself, as well as the architect's own intention. The identity of space and stakeholders' demands define what specific activities would be contained in a program, as well as what corresponding requirements the space should meet. And it is the architect, to the greatest extent, who determines the sequence in which activities would take place, thus the visiting order and routes, as well as the positions and

orientations of each activity.[7] This argument can be demonstrated clearly in the application of bubble diagram [1] during the design process of architecture, as well as the description of "cross-programming" that Koolhaas outlined in his book *Delirious New York* (1978).[8]

Therefore, program should also be designed. The design contains that finding the relationship and sequence of activities that will take place in space, so as to develop a set of spatial organization of behavior system, and provide an appropriate place for each activity (Wang 2014, 106).[9] It is worth emphasizing that, different from the design of physical architectural space, program design (as indicated in the two diagrams on the left in [1]) takes place before the steps of getting to the physical space (which is indicated in the two diagrams on the right in [1]). The process of program design can be interpreted as a meticulous and precise realization of the requirements proposed by various activities.[10]

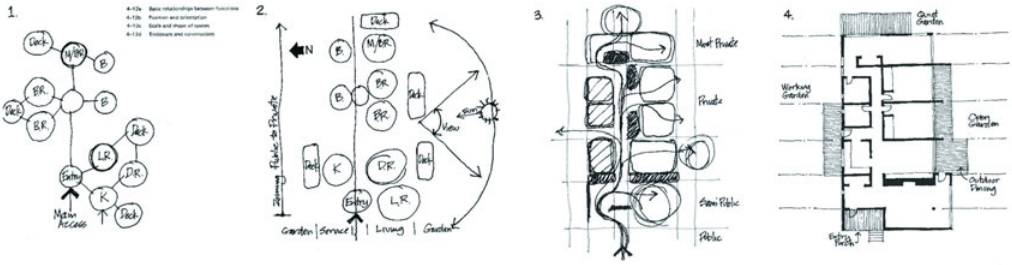


Figure 1: Diagrams presenting the transformation from program to schematic design. Laseau, Paul. *Graphic thinking for architects and designers*. John Wiley & Sons, 2000. pp. 62–63.

3. Methodology

3.1. Selection of case studies

This research selected eight architectural designs of contemporary art museum in Shanghai central area since 2010 as study cases, namely the Rockbund Art Museum (2010), the SPSI Art Museum (2011), Power Station of Art (2012), Long Museum (2014), Tank Shanghai (2018), Modern Art Museum Shanghai (2019), West Bund Museum (2019) and Museum of Art Pudong (2021). All these cases are independent architectural designs (no sharing architectural space with other non-museum institutions or organizations), including both new constructions and renovation designs. The selection of these cases was based on two criteria: the time and location of design.

1. Time consideration

The selected cases were all designed or renovated designed from 2010 until present (2021). In October 2010, the Department of Art in the Ministry of Culture and Tourism of China issued the *Notice on the Application for Projects of National Art Museum Development Support Program in 2010*. In the *Notice*, the importance of art museums in the development of public culture system was stated, and the decision that

the *National Art Museum Development Support Program* would be implemented gradually since 2010. Moreover, in 2010, Shanghai hosted the 41st Expo. With the boost of this Expo, Shanghai had become clearly defined as an international metropolis and vigorously developed its art museum issue. Therefore, thanks to both national policies and international opportunities, there had been a spurt of growth and development of art museums in Shanghai and related architectural designs and constructions had also indicated a prosperous growth trend.

2. Location consideration

The selected cases were all designed or renovated designed in the central area of Shanghai. As described above, as one of the first metropolises that developed in China, Shanghai had a solid economic foundation, as well as unique and rich cultural and artistic resources, which made Shanghai become a global experiment field for architectural designs, especially public cultural facilities as art museums. The architectural designs of these museums had been extremely abundant and representative. Moreover, the selection of cases here was also in consideration of the necessity to better fit the urban context and daily activities.

3.2. Research process

The research started with an analysis of eight architectural designs of contemporary art museums in Shanghai central area, giving a specific focus on the drawings of architectural plans, which were the materialized manifestations of space designs. Based on these drawings, the program design was traced back and mapped out regarding to each case. For each case, corresponding program was illustrated and analyzed, including what activities demanded the spatial design, as well as the relationships among them, in terms of their positions, orientations and the sequences in which they occurred. Moreover, the characteristics of these program designs were highlighted, and basic dispositions of program designs were deduced and summarized. Combined with possible future changes in factors affecting program design discussed above, as well as taking the basis of these dispositions, a design guideline would be proposed as a conclusion for future program designs in contemporary art museums, allowing for multiple forms of future use and appropriation.

4. Case studies: The programs in eight architectural designs of contemporary art museums

4.1. The activities in programs

Based on the analysis of architectural plans drawings, there are 11 types of activities presented in the selected designs, namely, ticket purchasing (TP), clothes storing (CS), exhibition experiencing (EE),[11] reading ®, participating lectures (PL), courses (PC) and music LIVE (PM), as well as

shopping (S), dining (D),[12] involving in art creation & design (AC&D) and operating daily working affairs (O).[13] The activities in the eight contemporary art museums are listed respectively as shown in [Table 1].

Name	Activities										
	TP	CS	EE	R	PL	PC	PM	S	D	AC&D	O
Rockbund Art Museum	√	√	√								√
SPSI Art Museum	√		√								√
Power Station of Art	√	√	√	√	√	√		√	√		√
Long Museum	√	√	√		√			√	√		√
Tank Shanghai	√	√	√		√		√	√	√	√	√
Modern Art Museum Shanghai	√		√						√		√
West Bund Museum	√	√	√		√	√		√	√		√
Museum of Art Pudong	√	√	√		√			√	√	√	√

Table 1: Activities in architectural designs of contemporary art museums in Shanghai central area.

As indicated in [Table 1], 'ticket purchasing' 'exhibition experiencing' and 'operating daily working affairs' are activities that necessarily take place in each of the cases. These activities also represent the original identity and fundamental responsibility of an art museum — exhibiting artworks, and the basic modes for keeping operation. Moreover, except for SPSI Art Museum and Modern Art Museum Shanghai, other museums have all set up specific spaces for 'clothing storage". 'Shopping' and 'dining' are present in most of the cases and have become an essential part of museum users' activities. In addition, 'participating lectures' is also a common activity in museum program. And other events, such as 'reading' 'participating courses' and 'involving in art creation & design' also can be found in individual museums. It is also worth mentioning that Tank Shanghai has set up a special space for 'participating in music LIVE', which has become its unique specialty and attractiveness.

4.2. The designs of program

Based on the drawings of architectural plans, the designs of program for each case are illustrated in [2] presented below. This diagram depicts the relationship among the activities in program design, including tight junction, proximity and separation; the positions and orientations of each activity, such as taking a deck view, taking a river view, accessing to urban context, etc.; as well as the sequences in which these activities occur, which are marked with arrows in the diagram.

Moreover, in the diagram, the grey circles indicate 'activities that are not specifically defined', which take architectural spaces such as entrance spaces, foyers, lobbies, outdoor areas, public decks, roof decks, etc. These spaces are not given a specific activity and are often served as 'spaces for rest' or combined with adjacent functional spaces. However, the spaces corresponding to these unspecified activities play a vitally important role in connecting the spaces required for other activities in entire program design. And in some cases, such as Tank Shanghai and West Bund Museum, spaces for 'unspecified activities' have become a core that support the entire architectural designs.

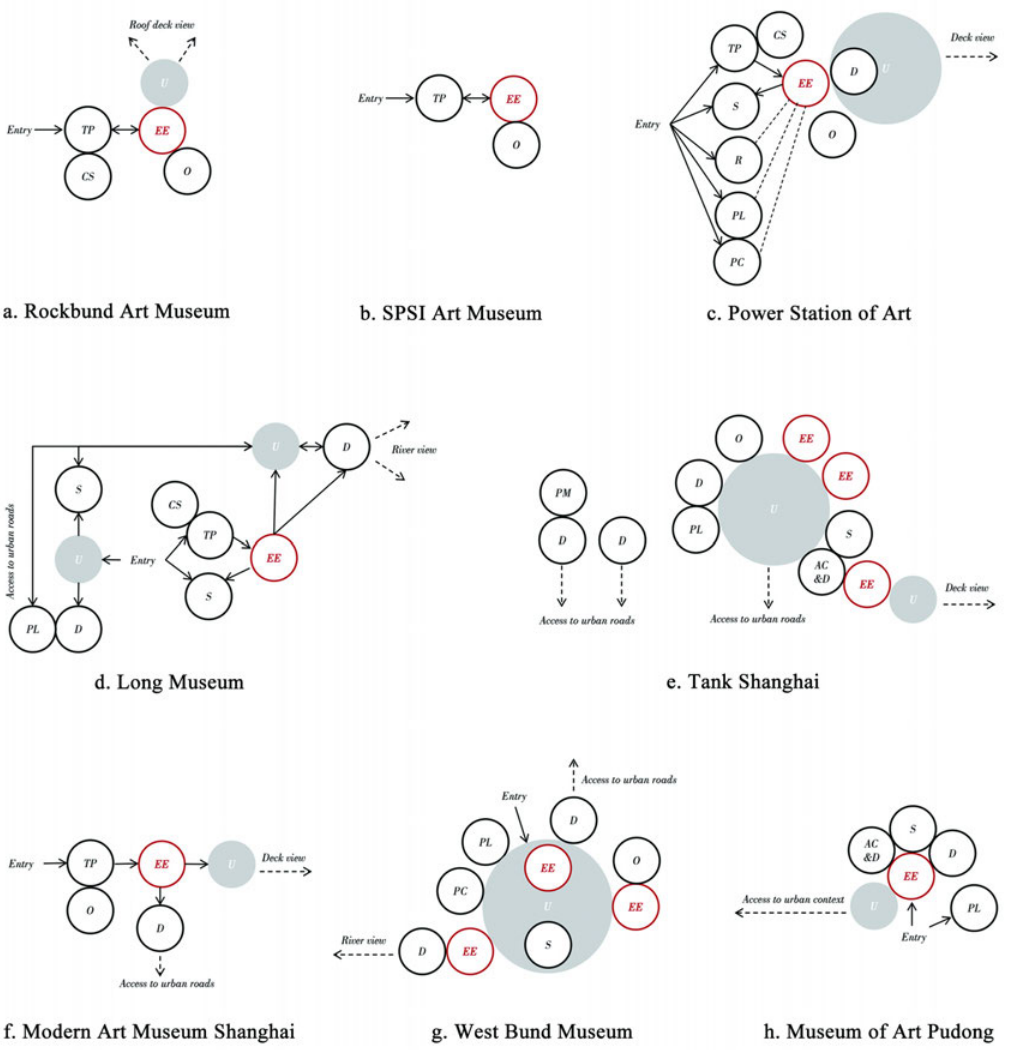


Figure 2: Designs of program for contemporary art museums in Shanghai central area. Source: Author

5. Basic dispositions of programs

5.1. Extraction of basic dispositions

Although the designs of program for contemporary art museums demonstrate variety because of the unique context of each case, some basic dispositions of programs that indicate relatively fixed compositions, connections and sequences of occurrence do exist. Based on the eight designs of program above, six basic dispositions of program in contemporary art museum can be extracted, as shown in [3] below.

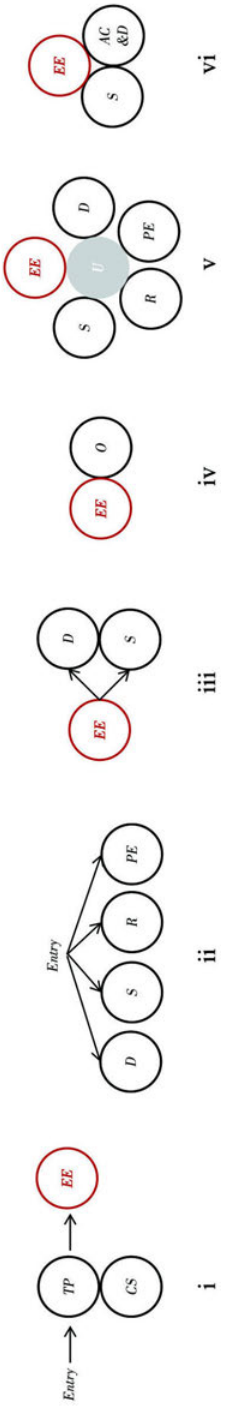


Figure 3: Basic dispositions of programs. Source: Author

1 It is one of the most basic dispositions, appearing in most of the program designs. It illustrates the relationship and the sequence in which related activities need to occur in order to approach the most fundamental activity 'exhibition experiencing': Visitors enter an art museum, purchase a ticket, store their personal belongings, and then begin to experience an exhibition.

2 When 'exhibition experiencing' is not the only activity in an art museum, 'reading' 'participating in other events' 'shopping' and 'dining' can all become reasons for people to come to an art museum. This disposition reveals the coexistence and parallelism of these activities, as well as the possibility that they can all be approached directly from the entrance.

3 This disposition, which also appears in the program designs of most art museums, indicates the connection and sequence of related activities that occur after 'exhibition experiencing': Visitors leave the exhibition room and optionally go for a cup of coffee or buy some art souvenirs. Meanwhile, 'dining' and 'shopping' can be adjacent to each other.

4 This disposition shows the connection between the activities that museum staff is involved in. In architectural space, working space is interconnected with exhibition space, which demonstrates a connection between operating activities and exhibition experience, in terms of guarding, maintaining and updating exhibits.

5 This disposition appears in the case of Tank Shanghai and West Bund Museum, showing a connection that it is the 'undefined activity' that connects other activities, including 'exhibition experiencing', and all these activities can be approached directly through this undefined one.

6 This disposition adds 'art creating and designing' to the connection between 'exhibition experiencing' and 'shopping'. The addition of AC&D emphasizes the importance of artist residency and visitors' participation in art and design, and, more importantly, the products that derive from this activity can provide economic benefits to the museum.

5.2. Possible transformations of basic dispositions in the future

As discussed in section 2.2, three factors would affect a program design of contemporary art museum: the identity and corresponding responsibilities of contemporary art museum itself, the demands of related stakeholders (including but not limited to visitors) and the architect's own intention. The possible future transformations in these factors would also have an impact on the modes of basic dispositions.

1. A transformation in identity and responsibility of art museum

Art museums, especially contemporary art museums, have begun to transform their identity and responsibilities in social life and urban development. They are no longer just a platform for artworks exhibiting, but are gradually becoming a place for people's daily lives. People will come to an art museum not just to experience an exhibition, but to get more opportunities for activities, whether to gain knowledge and skills, or just to relax and enjoy themselves. At this moment, a variety of daily activities

will be needed, and it is especially important that these activities will be directly approachable and independent of each other.

2. An experimental field for artists

For artists, an art museum should not only be a place to display their works, but also a repository of inspiration, a studio where they can create, and a platform for communication and collaboration. This is an extremely strong impetus for the creation and development of artists, especially young artists. In this sense, it makes sense to integrate the activity of 'art creating and designing' in the program design of art museum, as it will promote the development of contemporary art in a real sense.

3. In an age of digitalization

Although i is one of the most common dispositions at present, in the future, with the prevalence of online ticket purchasing and reservation, the activity of 'ticket purchasing' will no longer be part of a museum's program. Visitors will be able to start their 'exhibition experience' by simply showing their electronic voucher for online reservation or ticket purchasing.

4. Economic benefits for non-profit organizations

Although, art museum is defined as a non-profit organization, the prerequisite for its proper development is its survival in this economic society. The integration of other activities besides 'exhibition experiencing', such as 'shopping' 'dining' and 'participating events', can effectively generate economic income. This is one of the reasons why more social and daily activities will be encouraged to be included in the program design of art museum.

5. Sustainable program design

With an increasing quantity of architectural constructions and a transformation of social demands, renovation designs of abandoned (old) architectural spaces will be an inevitable and important topic in the future. Facing the sustainability of architectural design, architects should consider not only how to fit current programs into previous architectural designs, but also whether current architectural designs would be adapted to the possibilities of future programs. This would provide a good opportunity for 'undefined activity' to be introduced into the program design of art museum.

6. Conclusion: a design guideline for program in architectural design of contemporary art museum

As for architectural design, it is the design of space. Besides a specification on the shape and dimensions of space, defining the activities that may happen inside the space, that defining the program, is vitally essential. Program should also be designed, which contains defining the relationship among the activities, the positions and orientations of each

activity, as well as the sequences in which these activities occur. Moreover, a program design can be affected by three factors: the identity and corresponding responsibilities of the space itself, the demands of related stakeholders and the architect's own intention.

This research took eight architectural designs of contemporary art museum in Shanghai central area as study cases, mapped the program design of each case and summarized six basic dispositions. In order to realize sustainability in architectural design, based on the deduced dispositions and considering the possible future transformations of the influencing factors mentioned above, the future program in architectural design of contemporary art museums will be set following these three points: 1) Considering the demands from various stakeholders, a program should integrate more diverse and daily activities; 2) 'Undefined activity' should be introduced into the program design of art museum and perform its flexible functions and features; 3) Activities should be set independently, in parallel and approachable directly.

This design guideline would give a reference for the future design of program in contemporary art museums, as well as cast a further influence on the design of contemporary art museum architecture in Shanghai city.

1 In January 2018, Shanghai Municipal People's Government issued The Shanghai Urban Master Plan 2017–2035, which stated that "… Shanghai will be built into an outstanding international city, a modern socialist metropolis with worldwide influence." (2018, 6)

2 There were only 20 art museums in Shanghai in 2010, and in 2021, according to the latest records, there are 96 art museums in Shanghai (Data from Shanghai Municipal Administration of Culture and Tourism. See link: http://whlyj.sh.gov.cn)

3 Shanghai central area includes Huangpu District, Xuhui District, Changning District, Jingan District, Putuo District, Hongkou District, Yangpu District and the area within outer ring road of Pudong District. It has an area of 660km2.

4 Tschumi, Bernard (1996): Architecture and disjunction. Cambridge, MA: MIT press.

5 Summerson, John (1957): »The case for a theory of modern architecture«, in: RIBA Journal: 1957(6), pp. 307–310.

6 Rowe, Colin (1983): »Program vs. Paradigm«, in: Cornell Journal of Architecture 2, pp. 8–19.

7 Laseau, Paul (2000): Graphic thinking for architects and designers. John Wiley & Sons.

8 Koolhaas, Rem (1978): Delirious New York: a retroactive manifesto for Manhattan. Oxford: Oxford University Press.

9 Wang, Zheng 王正 (2014): Gongneng Tanyi 功能探绎 [Enquiry into Function]. Nanjing: Southeast University Press.

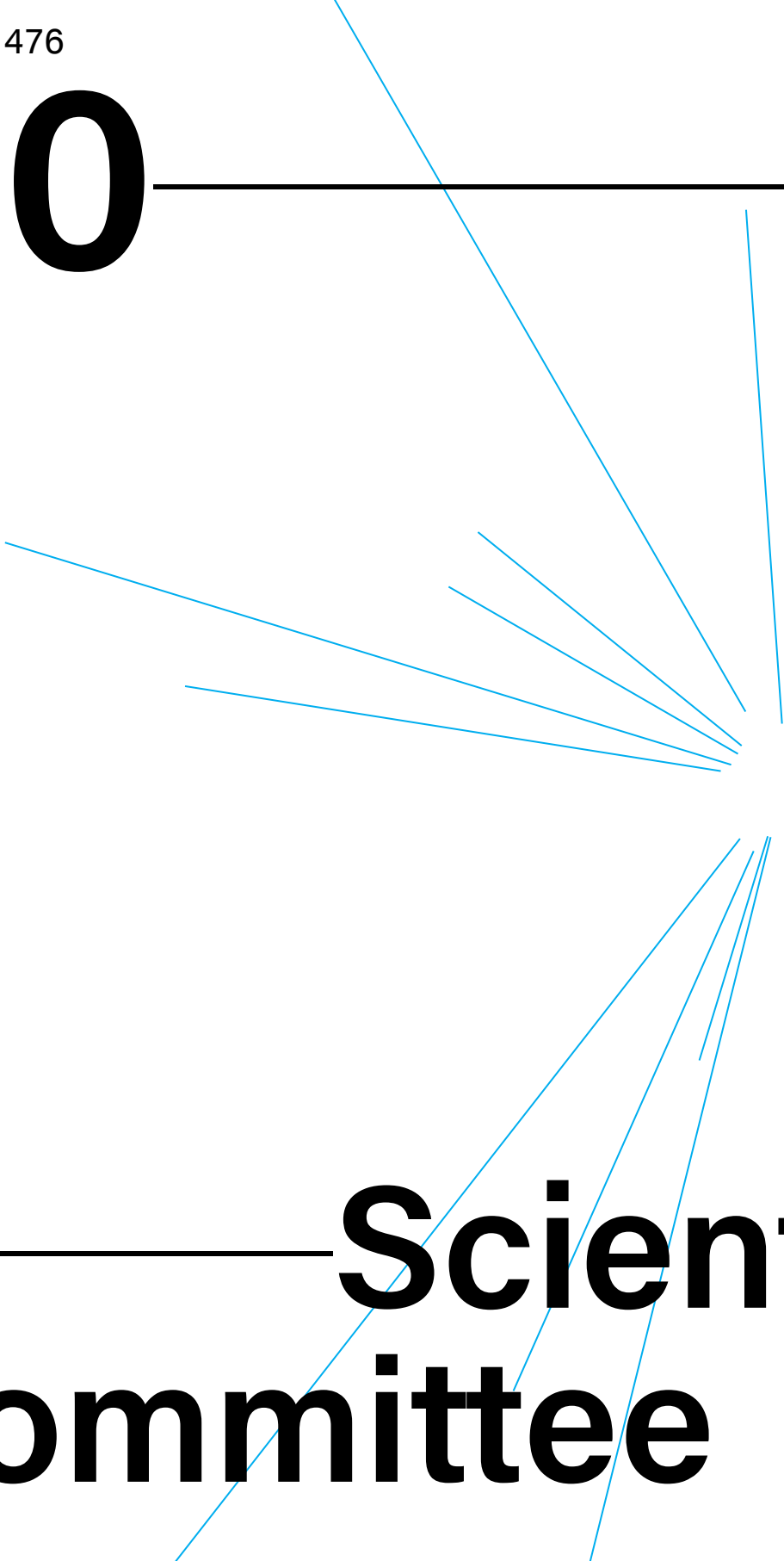
10 Viollet-le-Duc, Eugène-Emmanuel (1877): Lectures on architecture. Vol. 1. Translated by Benjamin Bucknall. London: Edinburgh Anibersitg Press.

11 'Exhibition experiencing' includes all possible activities and behaviors that may occur during exhibition experiencing, such as walking, standing and staying, taking photos, talking, etc.

12 'Dining' includes having coffee, light and formal meal.

13 'Operating daily working affairs' includes marketing, exhibits collecting, storing, studying, etc.

0



Scien
Committee

5



tific

Roberto Cavallo
Faculty of Architecture and the Built Environment, TU Delft; EAAE, ARENA

Alper Semih Alkan
Faculty of Architecture and the Built Environment, TU Delft

Daniel Rosbottom
Faculty of Architecture and the Built Environment, TU Delft

Kees Kaan
Faculty of Architecture and the Built Environment, TU Delft

Salomon Frausto
Faculty of Architecture and the Built Environment, TU Delft

Angeliki Sioli
Faculty of Architecture and the Built Environment, TU Delft

Mark Pimlott
Faculty of Architecture and the Built Environment, TU Delft

Esther Gramsbergen
Faculty of Architecture and the Built Environment, TU Delft

Maurice Harteveld
Faculty of Architecture and the Built Environment, TU Delft

Heidi Sohn
Faculty of Architecture and the Built Environment, TU Delft

Anders Kruse Aagaard
Aarhus School of Architecture

Joaquim Almeida
Departamento de Arquitectura, Universidade de Coimbra

Naime Esra Akin
Aarhus School of Architecture, EAAE

Oya Atalay Franck
Director of the ZHAW School of Architecture, Design and Civil Engineering; EAAE, ARENA

Matthias Ballestrem
HafenCity University Hamburg; EAAE

Michela Bassanelli
Department of Architecture and Urban Design, Politecnico di Milano

Fabrizia Berlingieri
Department of Architecture and Urban Design, Politecnico di Milano

Anđelka Bnin-Bninski
Faculty of Architecture, University of Belgrade; ARENA

Inge Bobbink
Faculty of Architecture and the Built Environment, TU Delft

Manuel Bogalheiro
Departamento de Arte dos Media, University Lusófona of Porto

Ignacio Borrego
Institute of Architecture, TU Berlin

Boštjan Botas Kenda
Academy of Fine Arts and Design, University of Ljubljana

Marco Bovati
Politecnico di Milano

Laura Cipriani
Faculty of Architecture and the Built Environment, TU Delft

Graça Correia
Departamento de Arquitectura, Universidade Lusófona Porto

Johan De Walsche
Faculty of Design Sciences, University of Antwerp; EAAE, ARENA

João Paula Delgado
Department of Architecture and Civil Engineering, University of Beira Interior

Débora Domingo Calabuig
Universitat Politècnica de València; EAAE

Dan Dubowitz
Manchester School of Architecture

Riet Eeckhout
Faculty of Architecture, KU Leuven

Paolo Fusi
HafenCity University Hamburg

Lidia Gasperoni
Institute of Architecture, TU Berlin

Pedro Guilherme
Departamento de Arquitectura, Universidade de Évora

Christoph Heinemann
HafenCity University Hamburg

Urs Hirschberg
Faculty of Architecture, Graz University of Technology, ARENA

Matevž Juvančič
Faculty of Architecture, University of Ljubljana

Sergio Koch
University Lusófona Porto

Thierry Lagrange
Faculty of Architecture, KU Leuven

Fabio Lepratto
Department of Architecture and Urban Design, Politecnico di Milano

Jacopo Leveratto
Politecnico di Milano

Mona Mahall
HafenCity University Hamburg

Sergio Martin Blas
ETS de Arquitectura, Universidad Politécnica de Madrid

Michael McGarry
Queen's University Belfast

Ida Nilstad Pettersen
Faculty of Architecture and Design, NTNU Trondheim

Ralf Pasel
Institute of Architecture, TU Berlin

Maria Rita Pais
Universidade Lusófona Lisbon

Claus Peder Pedersen
Aarhus School of Architecture; EAAE, ELIA

Gennaro Postiglione
Department of Architecture and Urban Design, Politecnico di Milano

Paul O Robinson
Faculty of Architecture, University of Ljubljana

Alessandro Rocca
Department of Architecture and Urban Design, Politecnico di Milano

Edite Rosa
Departamento de Arquitectura, Faculty of Architecture, University Lusófona of Porto

Mia Roth-Čerina
Faculty of Architecture, University of Zagreb; EAAE

Sofia Salema
Departamento de Arquitectura, Universidade de Évora

Markus Schwai
Department of Architecture and Planning, Faculty of Architecture and Design, NTNU Trondheim

Sally Stewart
Mackintosh School of Architecture, Glasgow School of Art, UK**,** EAAE

Eli Støa
Department of Architecture and Planning, Faculty of Architecture and Design, NTNU Trondheim

Ana Telles
School of the Arts, University of Évora, Portugal; ELIA

Maria Topolčanská
Akademie výtvarných umění v Praze, Czech Republic, ELIA

Manuela Triggianese
Department of Architecture, Faculty of Architecture and the Built Environment, TU Delft

Johan Van Den Berghe
Faculty of Architecture, KU Leuven

Esther Venrooij
LUCA School of Arts, Ghent

Liselotte Vroman
Faculty of Architecture, KU Leuven

Boštjan Vuga
AA School of Architecture, London

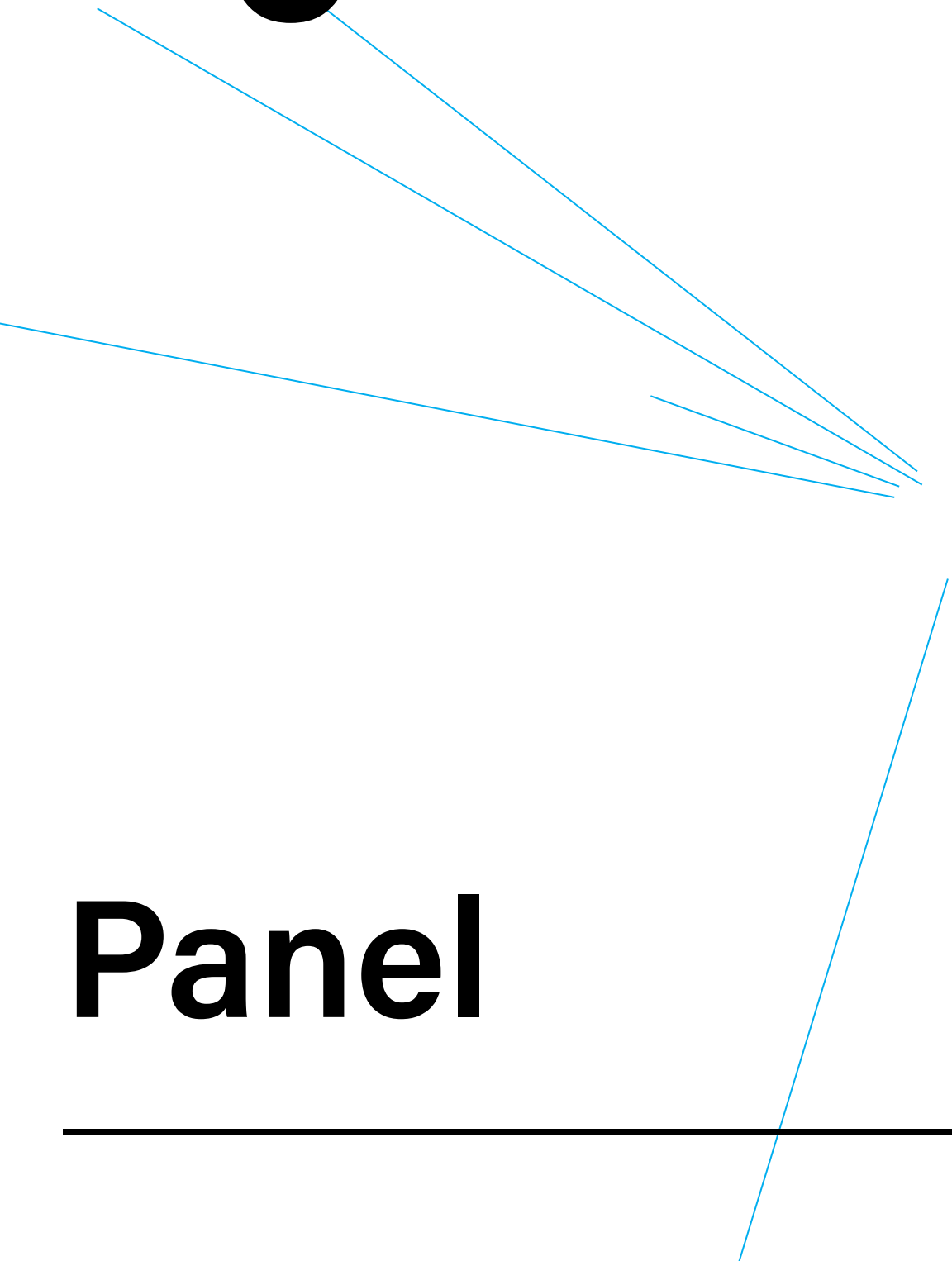
Jürgen Weidinger
Institute of Landscape Architecture, TU Berlin

Gesine Weinmiller
HafenCity University Hamburg

Katrina Wiberg
Aarhus School of Architecture

Tadeja Zupančič
Faculty of Architecture, University of Ljubljana

0



Panel

6

Members

A

Anders Kruse Aagard
Aarhus School of Architecture
digital fabrication, materials, wood constructions, concrete, experiments

Alper Semih Alkan
TU Delft
media theory, representation, visuality, hybrid mediality/materiality, technical images, drawing

Joaquim Almeida
Universidade Lusófona do Porto

Gaizka Altuna Carterina
TU Berlin

Oya Atalay Franck
Zurich University of the Arts

B

Matthias Ballestrem
HCU Hamburg
space perception, architecture psychology, typology, public interiors, design teaching, design build

Fabrizia Berlingieri
Politecnico di Milano
urban architectures; design for transitions; infrastructure and urban form; contemporary architectural design theories

Anđelka Bnin-Bninski
University of Belgrade
architect engineer with specializations in theory of arts and media and architectural philosophy
educator, curator and interdisciplinary researcher
practicing architect
current research focus on critical strategies and activist tactics of architectural drawing research in practice

Inge Bobbink
TU Delft

Manuel Bogalheiro
Universidade Lusófona do Porto
philosophy of technics, materialities of media, theory of culture, ecology

Ignacio Borrego Gómez-Pallete
TU Berlin
Practicing architect with focus on industrial and contemporary fabrication systems.

Boštjan Botas Kenda
University of Ljubljana
my research areas are visual communications in public space in relation to publishing products

Marco Bovati
Politecnico di Milano
relation between Urban and Architectural Design and the aim of sustainability
strategies for sustainable architecture and urban regeneration, with particular attention to the intermediate scale (block, district)
role of environmental features in defining the guidelines of the interventions
reuse and recycling of abandoned soils, buildings and urban tissues

C

Roberto Cavallo
TU Delft
architecture, urban design, interdisciplinary & multiscale approach, design-driven research, infrastructures & built environment, circularity, cross-domain perspective, experimental pedagogies, participatory processes, practice-oriented research

Laura Cipriani
TU Delft

D

João Paulo Delgado
Universidade da Beira Interior

Débora Domingo-Calabuig
Universitat Politècnica de València
Her interests include the methods, means, and impact of architectural research. Her research focuses on the open design processes of the 60s and 70s architecture and urban design.

Daniel Dubowitz
Manchester School of Architecture
urbanism practice and research – collaborative urbanism: regeneration of post-industrial cities across the UK, new methods for making tomorrow's cities, meaningful engagegement of citizens in their transformation
pedagogy research: student investigation how architecture can be on the move and activate a state of change

F

Paolo Fusi
HCU Hamburg

G

Lidia Gasperoni
TU Berlin
philosophy of architecture, aesthetics, media, anthropocene, fieldwork
architectural theory and philosophy with a focus on media philosophy anthropocene theories, and aesthetics

Esther Gramsbergen
TU Delft

Pedro Guilherme
Universidade de Èvora
architectural competitions
research by design
drawing research
architecture's internationalization
Álvaro Siza Vieira drawings and research method

H

Maurice Harteveld
TU Delft

Christoph Heinemann
HCU Hamburg
Based on my proper approach on design experienced in our architectural practice ifau as well as on the design methods we develop and teach in our design studio at HCU in Hamburg, I am especially interested in a projective approach on architecture based on situative development strategies and relational practices, allowing to combine and process specific experiential knowledge and overarching societal issues.

Špela Hudnik
University of Ljubljana
Architectural Design, Sustainable Architecture, Housing, Design Research, Built Environment

J

Matevž Juvančič
University of Ljubljana
education of general public on the topics of sustainability, public participation, visualizations and visual communication processes, generic urban elements, sustainability of urban neighbourhoods, notions of spatial character, spatial semantics and spatial identity

K

Sérgio Koch
Universidade Lusófona

Joran Kuijper
TU Delft

L

Thierry Lagrange
KU Leuven
design-driven research methods
act of drawing
act of looking
the drawing in relation to new spatialities

Fabio Lepratto
Politecnico di Milano

Jacopo Leveratto
Politecnico di Milano
critical spatial practices (practices of inhabitation and strategies of placemaking);
public space design (tactical interventions and re-activation projects);
post-human architecture (design for interspecies cohabitation)

M

Mona Mahall
HCU Hamburg
Mona Mahall works at the intersection of art and architecture, across spatial, image, sound, and text practices.

Sergio Martin Blas
Universidad Politécnica de Madrid

Michael McGarry
Queen's University Belfast
design practice research, representation, artistic practices, spatiality in the visual arts

N

Ida Nilstad Pettersen
Norwegian University of Science and Technology

P

Maria Rita Pais
Universidade Lusófona

Ralf Pasel
TU Berlin

Claus Peder Pedersen
Aarhus School of Architecture
Claus Peder Pedersen's research focuses on architectural design methodologies and creative processes with interest in representation and digital design tools. He is active in promoting practice- and design-driven research.

Mark Pimlott
TU Delft
public interior, representation, subjectivities, territory and interior, continuous interior
Mark Pimlott's research is primarily concerned with the public interior, as a product of, on the one hand, ideologies and their imprint on territory, the city, its institutions and subjectivities, and on the other, systems of representation consciously or unconsciously attached to those ideologies.

Gennaro Postiglione
Politecnico di Milano
interior architecture
interiors; architectural ethnography; adaptive reuse; re-housing
His research field is interiors culture, at the intersection between people, places, and practices, crossing architecture, ethnography, and material culture. The same theoretical background nourishes also his research by design activity focused on adaptive reuse of minor and neglected heritage.

R

Edite Rosa
Universidade Lusófona do Porto
design project, housing and public equipment's, urban and public space, social sustainability
The research interests are centred in the area of Architecture, in particular in the studies of modern architecture and practice of contemporary architecture.

Mia Roth-Čerina
University of Zagreb
professional, teaching and research practices are architectural education and educational spaces, as well as the public space they interact with

S

Sofia Salema
Universidade de Èvora
architectural research; teaching and research practices in architectural education; Álvaro Siza Vieira drawings and research method; heritage and research practices in restoration/conservation works; research practices in recognition of heritage values

Markus Schwai
Norwegian University of Science and Technology
urban design, spatial planning, small scale urban changes (intended to change behavior), participation — co-design, design driven research

Heidi Sohn
TU Delft

Sally Stewart
The Glasgow School of Art

T

Ana Telles
Universidade de Èvora
active pianist
music history and analysis (20th and 21st centuries), piano music, piano performance practices

Maria Topolčanska
Academy of Fine Arts Prague
pedagogy and research on architecture, city, art, urban politics, urban commons, property, land, mass housing, housing and work, typology, urban design, urbanization history, post-state socialist urbanity, education of architects, study vs. production of knowledge in architecture, architectural thinking in research, theory of contemporary practices of architecture, architecture related curatorial and editorial practices

Manuela Triggianese
TU Delft
Manuela graduated in Architecture (in 2010) at the Faculty of Architecture Luigi Vanvitelli in Italy. She worked as post-doc research fellow (from 2016 to 2018) at Amsterdam Institute for Advanced Metropolitan Solutions, as visiting researcher of UKNA program (in 2015) at the Beijing Technical University and as PhD Villard d'Honnecourt researcher (from 2011 to 2014) at Delft University of Technology. She cooperated with KAAN Architecten in Rotterdam from 2012 to 2016. Manuela is an Assistant Professor at Delft University of Technology at the Department of Architecture, section of History & Complexity.

V

Jo Van Den Berghe
KU Leuven
experimental architectural design
Techné and Poiesis in making architecture (the poetics of making)
innovative versions of the architectural drawing as an indispensable locus between Techné and Poiesis
design-driven research and reflective architectural practice

Esther Venrooij
KU Leuven
With a sharp focus, both in her studies and creative impulses on audio topography, she explores the way sound and movements inhabits space.

Liselotte Vroman
KU Leuven
Architectural Engineering, Urban/Rural Sociology, Communication and Media, Industrial Design, Communication Design

Boštjan Vuga
University of Ljubljana
architecture, research, education
public! porous! placed!
i am very much interested how boundaries could be employed to place a porous architectural structure onto a specific place in order to generate or enhance publicness!

W

Katrina Wiberg
Aarhus School of Architecture
landscape architecture and urban landscapes
climate adaptation and resilience with regard to water (rising sea levels, cloud burst, e.g.), research through designing, landscape analysis and scenarios emphasizing values-, scale and time perspectives

Z

Tadeja Zupančič
University of Ljubljana
architecture, urban design, digital design;
research in architecture, research by design, creative practice research;
spatial identity, vulnerability, sensitive designer;
architectural education, lifelong learning in architecture, digital support to architectural design/research/education

CA²RE / CA²RE+, the Conference for Artistic and Architectural Research, is dedicated to promoting Design-Driven Doctoral Research (DDDr) through its conference series. This initiative aims to strengthen and expand the community of researchers interested in this subject. The Faculty of Architecture and the Built Environment at Delft University of Technology has gladly provided the platform for this noteworthy conference.

The central theme of this event revolves around the "RECOMMENDATION" for Design-Driven Doctoral Research. This theme is a natural progression from the main topics explored in the previous CA²RE+ conferences, which included OBSERVATION, SHARING, COMPARISON, REFLECTION, and FRAMEWORK. The CA²RE+ Delft conference seeks to scrutinize the progress made thus far and endeavors to formulate guidelines and recommendations for the establishment, introduction, development, and evaluation of DDDr.

TU Delft OPEN

TU Delft BK Bouwkunde
Delft University of Technology
Faculty of Architecture
and the Built Environment

ISBN 978-94-6366-660-2