

The architecture of the building retrofit. Reading retrofitted envelopes between function and symbols

*Original*

The architecture of the building retrofit. Reading retrofitted envelopes between function and symbols / Di Renzo, Alessandro - In: SPACE. DASP Yearbook 2023 / Bianco P., Gardella F.J.. - STAMPA. - Torino : Politecnico di Torino, 2023. - ISBN 9788885745933. - pp. 108-109

*Availability:*

This version is available at: 11583/2980664 since: 2023-07-25T11:00:50Z

*Publisher:*

Politecnico di Torino

*Published*

DOI:

*Terms of use:*

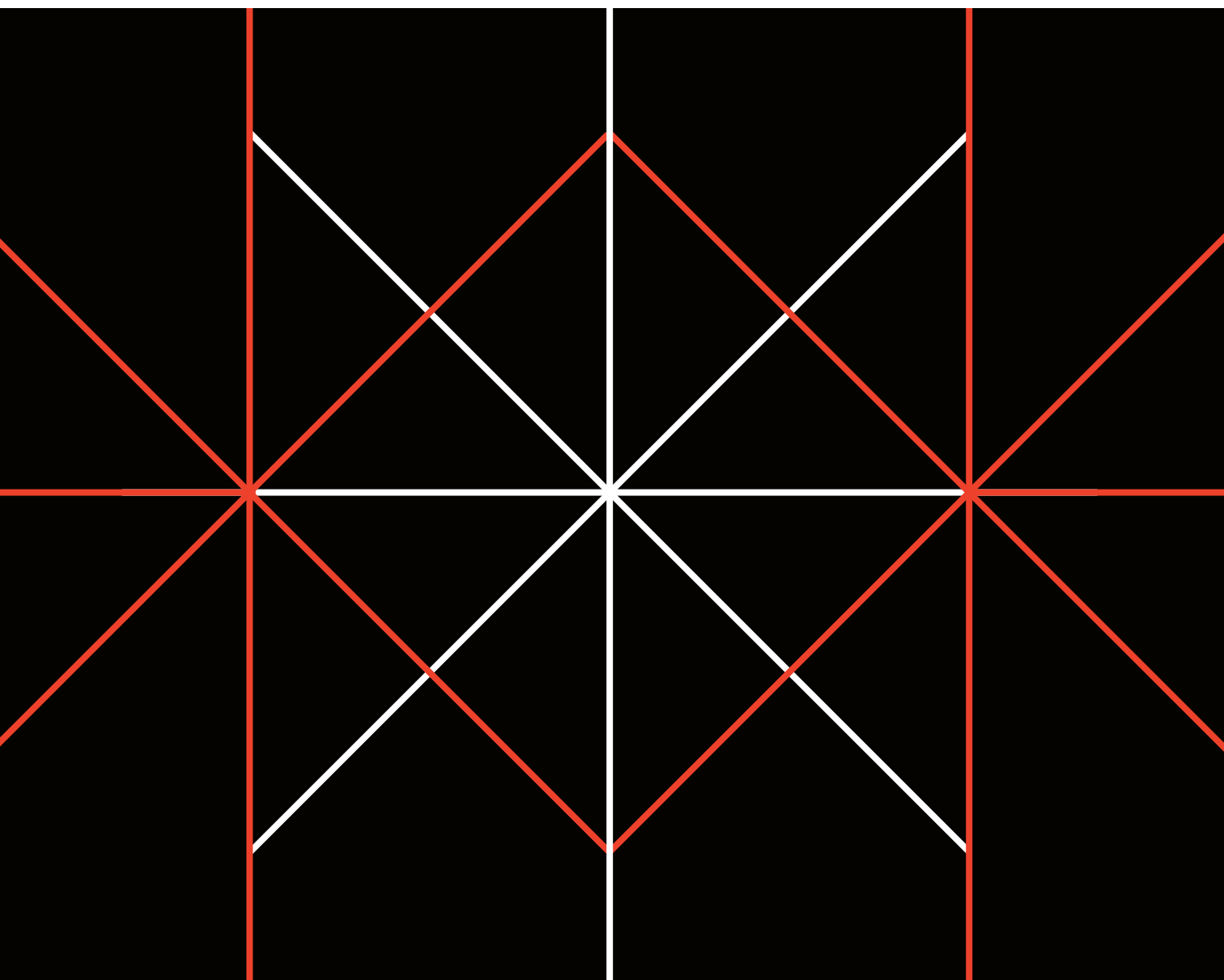
This article is made available under terms and conditions as specified in the corresponding bibliographic description in the repository

*Publisher copyright*

(Article begins on next page)

# SPACE

DASP Yearbook 2023



# SPACE

DASP Yearbook 2023

PhD in Architecture.  
History and Project

---

# GENERAL INDEX

## 000

---

### INTRODUCTION

Torino 10125. Out of the DASP-Home.* An Introduction	0010
DASP Constellation Map <i>in movement</i>	0012
Legenda. How to read this publication	0014

## 001

---

### XXXVIII CYCLE

Map of XXXVIII Cycle PhD Candidates	0018
XXXVIII Cycle PhD Candidates research	0020

## 002

---

### XXXVII CYCLE

Map of XXXVII Cycle PhD Candidates	0054
XXXVII Cycle PhD Candidates research	0056

## 003

---

### XXXVI CYCLE

Map of XXXVI Cycle PhD Candidates	0098
XXXVI Cycle PhD Candidates research	00100

## 004

---

### XXXV CYCLE

Map of XXXV Cycle PhD Candidates	00132
XXXV Cycle PhD Candidates research	00134

## 005

---

### DASP ACTIVITIES

ACC Lectures	00138
European Researchers' Night	00140
DASP Lunch Seminars	00142
"Progetti & Storie" Publication series	00144
Workshops and Conferences	00145

## 006

---

### COLOPHON

00147

# THE ARCHITECTURE OF THE BUILDING RETROFIT. READING RETROFITTED ENVELOPES BETWEEN FUNCTION AND SYMBOLS



## Alessandro Di Renzo

Cycle  
**36° - PoliTo Grant**

Year  
**2020 - 2023**

Supervisors  
**Luca Caneparo, Davide Rolfo**

Research Group  
**Architectural Technology**

In recent years, the topic of renovation of existing buildings has found wide space in the architectural debate. Sustainability has become one of the main drivers of intervention on the built heritage. The climate crisis and the more recent energy crisis have made it clear to most how dependent Europe is on energy. The building sector is responsible for about one-third of the energy consumed globally and has the highest potential for improvement. This research fits into this context and aims to examine existing residential retrofit projects. In particular, the thesis investigates the envelope and surfaces of retrofit projects: the question arises as to how sustainability principles and techniques influence the architectural outcomes of building retrofits. One wonders if and how much retrofit projects are skewed either toward performance, driven by the instance of resource rationalisation, or toward image, driven by symbolic and cultural needs.

### The envelope as a catalyst

The research addresses preliminary the issue of the contemporary envelope in its dual vocation as incorporating an expressive bearing and as a technical element. In this paper, only the former theme will be addressed.

There is a moment when the concept of envelope emerges in a particular way. From being considered an indefinite mass, the wall splits into two different functional concepts: that of envelope and that of structure. As noted by Rafael Moneo, this occurs particularly with the spread of frame structures. The separation between load-bearing and enclosing elements forces a reflection on archi-

ecture: the wall begins to be considered as a layering of elements, each with a specific function and performance. In recent decades, the topic of envelope has regained great centrality for several reasons.

As far as architecture built from scratch is concerned, in several contemporary projects, the surfaces seem to have gained more importance than the structure. Also, the focus is shifting to building boundaries because of new environmental requirements. Since interiors often need to be able to accommodate frequent changes of use, the skin is disconnected from the building's functions, and the architect's role is often its conception. According to Antoine Picon, the contemporary ornament is no longer conceived as a supplement but appears inseparable from the envelope. For this reason, the theme of envelope will inevitably intersect and overlap with the one of ornament, which, since the late 1990s, has been reappearing in architecture.

In parallel, the issue of retrofitting existing buildings has

Benjamin, W. (2008). *The Work of art in the age of Mechanical Reproduction*. Penguin Books.

Carpo, M. (2017). *The second digital turn: Design beyond intelligence*. The MIT Press.

Levit, R. (2008). Contemporary Ornament: Return of the Symbolic Repressed. *Harvard Design Magazine* v. 28.

Moneo, R. (2004). *La solitudine degli edifici e altri scritti*. Umberto Allemandi & C.

Picon, A. (2014). *Ornament: The Politics of Architecture and Subjectivity*. John Wiley & Sons.

Moussavi, F., & Kubo, M. (2008). *The function of ornament*. Actar.

Zaera-Polo, A. (2008). The Politics of The Envelope. *Log*, 13/14, 193–207.

become central. If we neglect the systems, energy retrofit focuses essentially on the building envelope, changing its architectural expression. That's because the other factors affecting energy performance (orientation, shape, distribution) cannot be changed.

The research grounds the assumption that designed objects, including building envelopes, always arise from a concrete historical, economic, social and material context. Walter Benjamin speaks of "optical unconsciousness", which is the one with which we automatically perceive things in everyday life. According to Jörg Gleiter, this occurs when we do not grasp their socio-historical details. The research aims to read and carry out some conceptual reflections on some case studies of retrofitted residential buildings, tracing a series of details catalysed therein. Several levels of reading can be outlined: a material level, related to technique, technology, economy and materials; a functional level, related to the performances it must fulfil; a formal level, related to expressive, symbolic, cultural, social and political issues; and an authorial level, related to the poetics of the authors (which here will not be investigated). Now, some keys to interpreting contemporary envelopes are proposed.

### Neo-functionalism

Looking at the debate on the architectural envelope and ornament, we find Farshid Moussavi and Michael Kubo's attempt to trace back to functional issues in the form of contemporary envelope and ornament. They hope that ornament will take on an architectural meaning related to the materiality of elements, design and assemblage logics rather than symbolic-discursive issues. Indeed, they believe that in such a fragmented multicultural world, finding symbols and icons that can find interpretive convergence is a hard goal to achieve, potentially conflicting. Thus, in their reading of case studies, symbolic and formal motivations are set aside, and contemporary ornament is interpreted as an element whose form and patterns are conceived for functional (e.g. thermal or lighting) reasons.

### Affects and materiality

In addition to the functional issue, the idea that the conception of the contemporary envelope (textures, patterns, colours and topological structures) is closely linked to the will to produce architectural affects emerges. According to Deleuze, affects do not belong to the sphere of feelings but rather to something more sensory and physical. The affect denotes a change in intensity involving the body, space, and time in which one is immersed. The attention usually given to rhetoric and semiotics is thus shifted to a physical dimension of experience. This also destabilises the traditional distinction between subject and object and the notion of detached appreciation. Viewer and architectural work are understood as part of the same continuum. Instead of using the terms matter or material, the notion of materiality is introduced. It concerns the subjective sphere and possesses a relational character. It describes the range of experiences generated during the encounter between the subject and the physical world.

### Neo-symbolism

According to Robert Levit and Antoine Picon, the reasons for the form of envelope and ornament cannot be reduced to a question of function or materiality and affect alone. Despite not immediately legible to contemporary plu-

ral audiences, the symbolic component of form is a necessary category to describe the contemporary practice, which involves the social and historical circuits of understanding. In contemporary architecture, the symbolic function seemed to be abandoned after the excesses it led to during post-modernism when the envelope (often in contradiction to form, structure, and program) took on a semiotic function. However, a relapse into symbolism seems still to occur in some cases. Critics speculate that the roots of neo-symbolism may reside at the intersection of perception and culture. Greening practices also seem to play a symbolic role that responds to the concern for sustainability and reconciliation between architecture and nature.

### Mass non-standard conception and fabrication

Contemporary critics, such as Mario Carpo, describe the changes affecting architecture through the digital revolution. It is calling into question some fundamental concepts: the idea of standard, which arose with the industrial revolution and characterised 20th-century architecture, and the idea of the author, which has characterised architecture since the Renaissance. Nowadays, it is possible to produce non-standard pieces in series at no extra cost. Variation replacing uniformity has also been read through social lenses: it refers to the condition of individuals who recognise themselves in a social group through a varied assemblage while preserving their individual specificities.

The digital is also credited with the important role of making possible the manipulation, generation, and management of shapes, textures, patterns, and topologies at different scales, with an ease that is very evident compared to the past. Today the built form is a still image chosen from endless solutions that can be generated and prefigured with the help of software. Picon argues that the development of digital culture has accompanied a weakening of the tectonic culture and greater importance attached to the surface.

# 006

# COLOPHON

## Editors

**Paolo Bianco**  
**Federica Joe Gardella**

## Communication Managers

**Michela Rosso**  
**Elena Vigliocco**

## Coordinator

**Marco Trisciuglio**

## Contributing editors

**Riccardo Biondi**  
**Martina Crapolicchio**  
**Elena Giaccone**

**Saskia Gribling**  
**Rossella Gugliotta**  
**Francesca La Monaca**  
**Valentina Labriola**  
**Ludovica Rolando**  
**Costanza Lucarini**

## Publisher

**Department of  
Architecture and Design  
Politecnico di Torino**

## Graphic Design

**MONO studio:**  
**Ilaria Bossa**

## Layout Design

**Paolo Bianco**

## Contacts

**DASP Students**  
**PhD in Architecture,  
History and Project**

**Politecnico di Torino**  
**Castello del Valentino**  
**Viale Mattioli, 39**  
**10125 Turin, Italy**

**daspstudents.org**

## Typefaces

**Akzidenz Grotesk**  
**Marilde Display**

## Paper

**Polyedra Coral Book**

## Edition

**First edition**  
**June 2023**

## Printed in Italy by

**Sirea s.r.l.**

## ISBN

**978-88-85745-93-3**

## Academic Board

**Marco Trisciuglio (coordinator)**  
**Guido Callegari (vice-coordinator)\***  
**Michela Rosso (vice-coordinator)**  
**Gustavo Ambrosini**  
**Alessandro Armando**  
**Maria Luisa Barelli**  
**Camillo Boano**  
**Michele Bonino**

**Luca Caneparo**  
**Michela Comba**  
**Giovanni Corbellini**  
**Filippo De Pieri**  
**Antonio De Rossi**  
**Giovanni Durbiano**  
**Francesca Frassoldati**  
**Paolo Mellano**

**Sergio Pace**  
**Riccardo Palma**  
**Edoardo Piccoli**  
**Matteo Robiglio**  
**Elena Vigliocco\*\***  
**Chiara Baglione (PoliMi)**  
**Isabella Balestreri (PoliMi)**  
**Gaia Caramellino (PoliMi)**

**Giovanna D'amia (PoliMi)**  
**Alessandro Demagistris (PoliMi)**  
**Roberto Dulio (PoliMi)**  
**Paolo Scrivano (PoliMi)**  
**Carlo Mambriani (UniPr)**  
**Jian Liu (Tsinghua University)**  
**Rui Yang (Tsinghua University)**  
**Li Zhang (Tsinghua University)**  
**Ge Zhong (Tsinghua University)**

\* until 38th cycle

\*\* from 39th cycle

All right reserved. No parts of this publication may be reproduced without the prior permission from the publisher and the authors.

Every effort has been made to trace copyright holders and to obtain their permission for the use of copyright material.  
In case of any errors or omission please notify the publisher.



“The PhD Program in Architecture. History and Project (DASP) was born out of two long lasting traditions of doctoral level studies and research in the area of Architecture at Politecnico di Torino. The PhD Program programmatically investigates the complexity of architectural cultures starting from the multi-disciplinary and trans-disciplinary interweaving between the history and the design of buildings, cities, territories.

On the one hand, in fact, urban and architectural composition and technology of architecture favor an interpretation of the project as a tool for measuring the stratifications of theoretical elaborations, technical

innovations and modifications of built environment. On the other hand, the historical disciplines for architecture and the city, far from a local vision and thanks to the cooperation with other histories (the economic, social, anthropological and aesthetic ones), trace paths that can be traveled by architects and urban planners, but also by other humanities scholars, such as philosophers and linguists”

---

Marco Trisciuglio

---

(from the document Proposal for the accreditation of doctorates - a.y. 2023/2024, presented to the Italian Ministry of University and Research on June 5th, 2023)

