BOOK OF PROCEEDINGS

# 1st International Conference on Built Environment

# ICBE 2026

MAY 08th-09th, 2026
POLIS University, Tiranë

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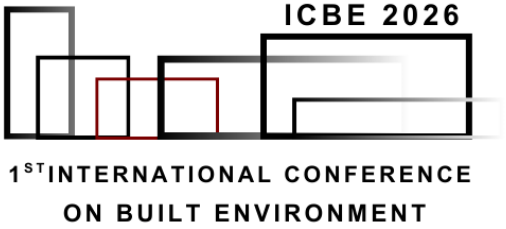
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# 1st International Conference on Built Environment

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## Conference Theme and Rationale

The 1st International Conference on Built Environment (ICBE 2026) was conceived as an international and interdisciplinary forum for advancing knowledge, critical discussion, and innovation across architecture, urban planning, engineering, construction, materials, design, and the wider built environment. Organized by POLIS University in collaboration with the National Agency for Scientific Research and Innovation in Albania (AKKSHI), the Academy of Sciences of Albania and the University of Ferrara in Italy, the conference brought together academics, researchers, practitioners, students, and industry representatives to exchange research findings, professional experience, and emerging perspectives on the transformation of contemporary cities and territories.

The conference theme reflected the increasingly complex challenges shaping the built environment, with particular attention to sustainability, resilience, technological innovation, heritage preservation, and socially responsive design. Contributions addressed sustainable architecture and green building, innovative construction technologies and materials, climate-responsive and energy-efficient design, disaster risk reduction, circular approaches to construction, and the integration of renewable energy. Equal emphasis was placed on digital transformation through Building Information Modeling, Geographic Information Systems, artificial intelligence, data analytics, automated solutions, digital fabrication, and advanced manufacturing.

ICBE 2026 also recognized that the future of the built environment cannot be approached through technological innovation alone. Urban transformation, cultural heritage, adaptive reuse, inclusive design, ecological thinking, art, and interdisciplinary research were therefore integral to the conference rationale. The scientific sessions examined topics ranging from seismic resilience, geotechnical engineering, and structural safety to urban fragmentation, public space, heritage conservation, adaptive environments, and new relationships between human and non-human systems.

Through keynote lectures, scientific presentations, case studies, and interdisciplinary debate, the conference encouraged connections between research and practice while promoting approaches capable of responding to environmental, social, cultural, and technological change. The breadth of contributions demonstrated the value of bringing engineering, architecture, urbanism, design, heritage, and emerging technologies into a shared academic framework for more resilient, sustainable, adaptive, and human-centered environments.

Held on 8-9 May 2026 at POLIS University in Tirana, with in-person and online participation, ICBE 2026 welcomed guest speakers and participants from Albanian and international universities, research institutions, professional organizations, and industry. Its sessions established a platform for presenting current research, exchanging expertise, strengthening meaningful collaboration, and identifying future directions for the built environment.

## The event

The **1st International Conference on Built Environment (ICBE 2026)** is an interdisciplinary academic and professional forum dedicated to exploring contemporary challenges, emerging research, and innovative approaches shaping the future of the built environment. Bringing together researchers, academics, architects, engineers, urban planners, designers, practitioners, and industry professionals, the conference promotes the exchange of knowledge and encourages collaboration across traditionally interconnected disciplines. Its thematic scope encompasses sustainable and resilient construction, technological innovation, advanced building materials, urban transformation, cultural heritage, and interdisciplinary design approaches. Particular attention is given to the growing role of digital technologies, data-driven methodologies, intelligent design processes, and advanced analytical tools in supporting more informed and responsive approaches to architecture, engineering, and urban development. At the same time, ICBE 2026 recognizes the importance of environmental responsibility, cultural identity, social needs, and human-centered design in shaping contemporary cities and territories. Through keynote lectures, scientific sessions, case studies, and interdisciplinary exchange, the conference provides a platform for presenting current research, discussing professional experiences, and developing new perspectives capable of contributing to **safer, more sustainable, adaptive, inclusive, and resilient built environments**.

## Objectives

- Promote interdisciplinary collaboration among researchers, academics, practitioners, and professionals in architecture, engineering, urban planning, construction, design, heritage, and related fields of the built environment.
- Advance the use of digital technologies and innovative methodologies, including BIM, GIS, artificial intelligence, data analytics, digital fabrication, and parametric approaches, in research and professional practice.
- Encourage sustainable, resilient, and climate-responsive approaches to architecture, construction, and urban development through innovative materials, energy-efficient strategies, and environmentally responsible design.
- Address contemporary challenges affecting cities, buildings, and infrastructure through scientific research, applied case studies, evidence-based approaches, and innovative design solutions.
- Promote the conservation, transformation, and adaptive reuse of cultural heritage, balancing cultural identity, contemporary needs, structural safety, and responsible urban development.
- Support human-centered and socially responsive urban transformation, considering public space, mobility, ecological systems, community needs, and the wider social and economic impacts of the built environment.
- Provide a platform for knowledge exchange and emerging research, enabling scholars, young researchers, professionals, and students to present innovative ideas, strengthen international collaboration, and contribute to future directions in the built environment.

## Main Conference Themes

- Sustainable architecture and green building practices.
- Innovations in construction technologies and materials.
- Heritage preservation and adaptive reuse in the built environment.
- Digital tools and smart technologies in architecture and construction (e.g., BIM, GIS).
- Climate-responsive and energy-efficient design.
- Disaster risk reduction and resilience in the built environment.
- Circular economy approaches in construction and material usage.
- Integration of AI and data analytics in building design.
- Acoustic and thermal performance in building design.
- Renewable energy integration in building systems.
- Advanced manufacturing techniques in construction, such as 3D printing.
- Innovations in construction technologies and materials.
- Heritage preservation and adaptive reuse in the built environment.
- Disaster risk reduction and resilience in the built environment.
- Digital tools and smart technologies in architecture and construction.
- Advanced manufacturing techniques in construction.
- Geotechnical Engineering for Sustainable Development.
- Cartography and Geographic Information System.
- Computer Automated Solutions for Built Environment.
- Reliability in Civil Engineering.
- Urban planning strategies for resilient cities.
- Climate-responsive and energy-efficient design.
- Regulatory frameworks and policies impacting construction and urban development.
- Design in the Era of Anthropocene (Rethinking the Relation between Human and Non-Human Species)
- Speculative Design (with Attention to “Discursive” and “Critical” Design)
- Design and Cross-Disciplinarity (with Emphasis on Processes rather than Design Outputs)
- Inclusive Design
- Art and Urban Regeneration (Focus on Participatory, Collaborative, and Research-Based Practice)
- Relational Art and Architecture
- Monuments and ‘Anti-Monuments’ (Particular Attention to the Process of Designing and Building the City)

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The conference is structured around six thematic sessions, each addressing a specific area of research and practice within the built environment.
Each session is coordinated by experts in the relevant disciplinary field and is open to professors, researchers, PhD candidates, and other scholars and professionals contributing to the conference themes.

### SESSION I
### Urban Planning and Societal Impact

**Chair:** Dr. Gent Avdija

This session examines the relationship between urban transformation, spatial development, and their social implications within contemporary cities. Contributions address rapid urbanization, urban fragmentation, the transformation and loss of public space, informal and spontaneous development, and the challenges associated with balancing growth and modernization with human-scale urban environments. Particular attention is given to the evolving conditions of Albanian cities and to planning approaches capable of supporting more inclusive, sustainable, socially responsive, and livable urban environments.

### SESSION II
### Sustainable Materials, Resilient Construction & Smart Design

**Chair:** Dr. Endri Duro

This session explores innovative approaches to sustainable construction, resilient structural systems, and environmentally responsive design. Particular attention is given to sustainable materials, energy-efficient and climate-responsive strategies, prefabricated and lightweight construction technologies, and human-centered approaches to structural and architectural design. The session investigates how material innovation, technological development, and responsible design practices can contribute to safer, more efficient, adaptable, and environmentally sustainable built environments.

### SESSION III
### Technological Advancements and Seismic Design for Resilient Places

**Chairs:** Dr. Seyyed Behrad Emadi & Dr. Ornela Şen

This session examines the role of technological innovation and advanced engineering methodologies in developing safer, more resilient, and adaptable built environments. Contributions address seismic hazard and risk assessment, digital fabrication, parametric and computational approaches, transformations of building envelopes and prefabricated housing systems, and emerging concepts for future urban mobility. The session highlights how the integration of engineering knowledge, digital technologies, and resilience-oriented design can strengthen the capacity of buildings, infrastructure, and urban environments to respond to contemporary and future challenges.

## SESSION IV

### Cultural Heritage

**Chairs:** Dr. Nikolla Vesho & Dr. Marsela Demaj

This session addresses the preservation, interpretation, and transformation of cultural heritage within contemporary architectural and urban contexts. Contributions explore conservation strategies for historic buildings and sacred architecture, seismic assessment and strengthening of heritage structures, adaptive reuse, and the social implications of urban regeneration and heritage loss. Particular emphasis is placed on achieving a responsible balance between conservation ethics, cultural identity, structural safety, and the evolving functional requirements of historic buildings and urban environments.

## SESSION V

### Spaces of Connection: Art and Design for an Interspecies and Interdisciplinary Environment

**Chair:** Dr. Francesco Scasciamacchia

This session explores the intersections of art, architecture, design, technology, and the built environment through interdisciplinary and experimental perspectives. It investigates changing relationships between human and non-human systems, spatial perception, adaptive reuse, post-industrial landscapes, urban representation, digital heritage, and environmentally and socially engaged design practices. Through critical, speculative, participatory, and research-based approaches, the session examines how art and design can generate new forms of connection, reinterpret existing environments, and contribute to emerging cultural and spatial narratives within contemporary cities.

## SESSION VI

### Next-Generation Pioneers of the Built Environment

**Chair:** Dr. Flogerta Krosi

This session provides a dedicated platform for emerging researchers and students to present innovative, experimental, and forward-looking approaches to the built environment. Contributions span architecture, engineering, urban planning, environmental resilience, design, and related creative disciplines, reflecting the interdisciplinary character of a new generation of researchers and practitioners. Through projects addressing topics such as bioclimatic design, flood-risk management, structural technologies, architecture-inspired design, and critical interpretations of objects and social space, the session encourages critical inquiry, experimentation, and new perspectives on the future of the built environment.

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# Table of Contents


**SESSION I** ..... 14

**Urban Planning and Societal Impact** ..... 14

**The Fading Public Realm:** ..... 5

From Expansive Open Spaces to Morphological Compression in Durres' Rapid Urban Growth

**Arjola SAVA** ..... 5

**Spontaneous Architecture as Adaptive Metabolism in Post-Socialist Cities Renis Batalli** ..... 18

**The ground floor as an urban interface: the human-building relationship and the Loss of Urban Contact Avrili MESHI** ..... 35

**Urban Blueprint and Compatible Growth:** ..... 45

A Multi-Scalar Morphological Method for Sustainable Transformation in ..... 45

Erseke, Albania **Mario DINE** ..... 45

**Examining the Internal Anatomy of Socialist-Era Hotels in Albania:** ..... 58

Spatial organisation, Geometry, Structure, Circulation, and Function**Malvina Istrefaj(KOLIÇI)** 58

**Urban Construction Through Destruction Sotir DHAMO** ..... 73

**SESSION II** ..... 87

**Sustainable Materials, Resilient Construction & Smart Design** ..... 87

**Human Centered Design in Civil Engineering Ilda RUSI, Albi ALLIAJ** ..... 88

**The courtyard as a climate-responsive and resilient spatial strategy: the case of Novi Pazar Elma MAHMUTOVIĆ, Dragana KONSTANTINOVIĆ** ..... 103

**Numerical assessment of the thermal performance of a heated and cooled floor containing upgraded phase change materials Oumayma BABAHARRA, Khadija CHOUKAIRY** ..... 121

**Eco-Friendly Building Envelopes:** ..... 132

Thermal, Energy, Cost, and Time Performance of Prefabricated Lightweight MRC Panels in Residential Construction **Erjon ÇOBANI, Flogerta KROSI, Ornela ŞEN** ..... 132

**SESSION III** ..... 156

**Technological Advancements and Seismic Design for Resilient Places** ..... 156

**Identification and assessment of resident-driven façade interventions in prefabricated large panel buildings:** ..... 157

**the case of Tirana Flogerta KROSI, Alma GJONAJ, Merita GURI, Ornela ŞEN, Endri DURO** ..... 157

**Tirana_ toward a (non) resilient city of the future** ..... 173

Re-shaping mobility and bring back "La raison d'être of the city" **Ina MUSAI** ..... 173

**A Seismic Hazard Model of Albania** ..... 187

Case study: Kukes, Berat and Himarë **Anila XHAHYSA, Neki KUKA** ..... 187

**Phenomeno-Parametrism:** ..... 203

Translating Place Experience into Parametric **Markeljan LLESHI** ..... 203

**SESSION IV** ..... 217

**Cultural Heritage** ..... 217

**Preserving and Adapting Sacred Architecture:** ..... 218

A Case Study of the Jazak Monastery **Una RADIVOJEVIĆ**.....218

**Monumentality Reconsidered:** Heritage Preservation and Adaptive Reuse through the Theories of Robert Venturi and Aldo Rossi **Harika SHEHABI** .....233

**Seismic Performance Assessment of Historic Stone Masonry Buildings:** .....245

The Case of the Angonate Residence, Gjirokastër **Alma GJONAJ, Merita GURI, Endri DURO**... .....245

**Future Heritage by Design:** .....258

New Design Approaches to Heritage Reuse **Gregor ANDONI, Kristiana MEÇO** .....258

**SESSION V**.....267

**Spaces of Connection: Art and Design for an Interspecies and Interdisciplinary Environment** 267

**Heritage as Narrative:**.....268

Building City Image Through Adaptive Reuse in Durrës **Vjola ZIU, Remijon PRONJA** .....268

**The Extraordinary Everyday** Children's Spatial Agency as Anti Monumental Practice **Xhoi MUSLIAKA** .....281

**'Liminal Architectural Bodies' in Post-Industrial Kuçova:**.....298

From an Ecological Perspective to an Aesthetic realm **Dorina XHERIMEJA, Aishe BITRI**.....298

**IN Illyria, Episode I: Apollonia** .....311

A Pixel-Art Game Framework for Archaeological Interpretation and Cultural Heritage Learning **David KRYEMADHI, Nikolla VESHO, Skervi BAUSHI, Remijon PRONJA, Kujtim HALILI**.....311

**In the Age of Material Transformation:** Textile Design and Upcycling **Armela LAMAJ**.....326

**AI as a Designer:**.....336

The Future of Taste and Creativity in Automotive Design **Gregor ANDONI** .....336

**The Secondary Archive:** .....342

Collective Memory, Mental Images and AI-Assisted Representations in a Transforming Tirana **Dejvi DAUTI** .....342

**SESSION VI**.....352

**Next-Generation Pioneers of the Built Environment** .....352

**Performance-Based Bioclimatic Design of a Kindergarten in Tirana:** Integration of Passive Systems and Dynamic Simulation **Erald MEÇE, Afërdita MUHAMEDI, Verona HYSI, Klodjan XHEXHI**.....353

**Integrated Flood Risk Management in Albania:** .....363

Human drivers, Basin dynamics and Policy gaps **Zejd BUSHATI, Esad MALAJ, Erjon ÇOBANI, Merita GURI** .....363

**Steel frame technology for residential buildings:**.....383

A comparative thesis-antithesis study versus reinforced concrete systems **Elton AHMETAJ, Erjon ÇOBANI, Merita GURI** .....383

**DOUBLE SKIN:**.....394

How does the "Double Skin" concept interact with our body in the field of fashion design? **Desara LLESHI**.....394

**Chairs as instruments in the construction of social roles and human bodies Aurora BALLA** 401

**Autonomy as a Value:**.....409

Design and Branding in the Post-Fordist Era **Irena ALIAJ, Erson RAMAJ**.....409

# SESSION VI

## Next-Generation Pioneers of the Built Environment

Emerging research and experimental design: Student research / Young scholars / Innovative methodologies / Experimental approaches to the built environment.

Sustainable and bioclimatic design: Bioclimatic architecture / Climate-responsive design / Environmental performance / Sustainable building concepts.

Resilience and risk management: Flood-risk management / Environmental resilience / Disaster-aware planning / Adaptive urban strategies.

Structural and technological innovation: Steel-frame technologies / Construction systems / Emerging building technologies / Engineering innovation.

Architecture, design and society: Architecture-inspired design / Fashion and spatial concepts / Objects and social space / Interdisciplinary creative practice.

Future-oriented thinking: Innovation / Critical inquiry / Interdisciplinary experimentation / New professional perspectives / Future built environments.

# DOUBLE SKIN:

## How does the "Double Skin" concept interact with our body in the field of fashion design?

**DOI:** 10.37199/c4100060

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**Abstract**

*In conventional fashion design the body is a key object that is sometimes used as a mannequin or sample to create clothes. This approach creates a gap between real body experience and the space around it. This paper addresses the gap by developing a "double skin" as a human centered design methodology. Borrowing the notion of "double skin" from architecture, where layered facades produce an active zone, this paper reformulates the concept in fashion as two interacting layers. It argues that, if clothing is treated as an interface rather than an isolated product, the key design question shifts from what the clothes are to how it mediates relations between the body and its environment. What should be emphasized in this abstract is that this research it's necessary for fashion design, because it has to focus more on the process rather than the final product.*

*Roland Barthes in his book* "The Fashion System" (1967*) explains that both a dressed and an undressed body communicate a message, meaning they operate as a semiotic language. Therefore clothing should not be understood merely as an object that covers the body but as a mechanism that organizes the body as a sign within a system of meaning that intervenes not only in appearance but also in how the body is interpreted and socially valued by viewers. Clothing should not be seen as only the outer surface, but rather, it serves as a symbolic skin that communicates meaning.*

*This research uses a focused case study of Manuel Torres's* Spray on the Body (2022)*, where material evidence and form making directly address the boundary between the body and its surrounding space. The contribution of this research is a structured conceptual tool that interprets how layered boundaries can be articulated to bridge the gap between embodied experience and the spatial contexts in which the body operates and is perceived.*

***Keywords:*** *fashion system, undressed body, dressed body, semiotic language, spray on the body, in-between zone.*

## 1. INTRODUCTION

### 1.1 What Wears the Body?

This research puts a point on the argument that clothing, rather than being an isolated static object acts as an intermediary structure that shapes body experience and human behavior. By exploring the dynamic relationship among the body, clothing, and society, this study stands for that fashion design should focus less on the final form and more on the systems and processes that shape our interactions with clothes in a constantly evolving technological and cultural context.

The main goal of this research is to develop the concept of the term "double skin" as a new design methodology oriented towards the body and its behavior. Through analyses of the body in philosophy, architecture, and fashion design the research argues for designer's approach based on systems, processes, and human experience.

Within this system Human Centered Design, as Norman (1988) noted in “The Design of Everyday Things,” holds that ergonomics is key to understand how design can be adaptive and interactive rather than static. This research improves fashion design theory by creating space to reflect on our bodies and ways of doing design for ourselves.

#### *1.1.1 Background*

My connection to fashion design goes deeper than just an interest in clothes or trends. It comes from a long personal and empathic journey tied to how I see the body and space. Fashion for me is more than just an industry focused on looks. It acts as a language that helps to understand ourselves and our space around and it links the body, identity and society. A key concept here is the “double skin” from Le Corbusier's project “Villa Schwob” (1916), which describes facades with two layers. In this concept, an outer and an inner “skin” coexist, forming a complex relationship.

Through this concept, clothing can also be considered not simply as a cloth for covering the body, but as a dual structure that constantly interacts among our biological body, social perception and elaborating technology. In this sense, fashion design begins to appear not simply as an aesthetic discipline but rather as a complex system that forms both the space and the clothing itself.

## 2. LITERATURE REVIEW

### 2.1 The Body in Philosophy

In this context, the thoughts of Martin Heidegger and Jean Paul Sartre provide a solid theoretical framework for analyzing the body as a location of human being and its action. In the book *Being and Time (1927)*, Heidegger shifts attention from the abstract subject to the

concrete being that always exists in space. With the abstract subject he refers to a more theoretical idea of the human detached from real experience, while with the concrete being, he refers to the actually existing and acting being in physical space. This parallelism points out the body as something lived and experienced, not just imagined or defined in theory. In a way, the body becomes the link between thought and the space. Therefore, the body is not treated as an isolated object but as a condition of being in space through which the space itself becomes accessible and experienceable.

Heidegger's philosophy frames the body as a lived reality rather than a formal surface. This fact is important for fashion design because it puts the body at the center, not as a basic silhouette, but as a place of experience. Clothing in this context does not simply cover the body, but intervenes in the way the body exists, moves and acts in space by becoming a part of everyday experience.(Heidegger, 1927).

On the other hand, Jean-Paul Sartre in Being and Nothingness (1943), increases this analysis by treating the body as a field of tension between subjectivity and objectification. According to Sartre, the body is experienced simultaneously as a body for itself, that is, as a body lived from within, and as a body for others, that is, as a body seen and objectified by the gaze of the other. This dualism positions the body in a state of non-solidity, at once free and limited. We can say that clothing plays a key role, serving as a layer between the body and the gaze of the other. The clothed body is not simply a body with clothes, but a new existential configuration in which freedom and limitation coexist. (Sartre, 1943).

### *2.1.1 Human and Body Behaviors*

The concept of human and body behavior builds a fundamental basis for understanding the relationship between the body, clothing and the environments. Human behaviors refer to the general way in which an individual acts, reacts and positions himself, influenced by and influencing the others like social, cultural, and symbolic context. Body behavior on the other hand, refers to the concrete ways the body moves, stands, and interacts with the space and objects around it.(Yang, 2016)

In this study, the body is not treated as a passive or purely biological entity but as an active actor that expresses and produces behavior. Human and body behaviors do not occur in a capsule but are formed within the formative systems and materials that surround the body itself.

Fashion design plays an important role in this process, because clothing functions as a tool that mediates human behavior. It not only reflects existing behaviors but also produces them. Clothing determines how the body can move, how much space it can occupy and how exposed or protected it can be. We say that clothing becomes an instrument of behavior, influencing the way the individual behaves in space, whether in public or private. From a systems perspective, human behavior can be understood as a network of reactions among the body, space and structures. (Sheringham, 2000)

In this analysis, the concept of "double skin" plays a crucial role because it builds an extra layer which directly affects the behavior of the body. By creating an "liminal zone" between the body and the space the concept of the "double skin" rearranges the feeling of our bodily boundaries. The body begins to behave differently when its boundaries do not correspond to the biological skin but extends them into a second structure. This expansion of our body is important as it can take up more space and can move with greater awareness of space. Behavior is no longer simply a spontaneous reaction but becomes an understandable process of interaction with the structure that surrounds it. In this way we can say that the double skin concept transforms the behavior of the body into an element of design and not just a consequence of clothing. (Sheringham, 2000)

### 2.2 The Body in Fashion

In fashion design, the body is always present but not always questioned. Many traditional approaches treat the body as a physical base on which clothing is projected, reducing
it to measurements. Although this technical approach is essential to production, it often pays no attention to the body's symbolic and semiotic. Roland Barthes in his book *"The Fashion System" (1967),* expands on how fashion can be understood as not as an object or material, but as a system of signs or a language in itself. Because of this fashion is presented not simply as cloth, but as a means of communication. (Sheringham, 2000)

Clothing acts as a system of signs that gives meanings, status, identity and accepted behavior. The body in this way is not a neutral entity but a semiotic variety. It is the surface on which the signs of fashion make sense. So the dressed body is always a legible body, a body that is interpreted within a cultural code. Barthes represents the difference between real clothes, described clothes, and photographed clothes, showing that fashion exists at several levels all at once. This idea highlights that the body in fashion is not only a biological body but also a discursive one. The body that appears in magazines, advertisements, or on fashion shows is a body constructed, coded, and regulated by a system of meanings/signs.(Barthes, 1967)

This double skin concept which I borrowed from architecture and applied into fashion design, is crucial not to replace the body, but to reformulate it as an active interface. Building on Barthes' understanding of the body as a system of signs, the double skin translates this coded body into a spatial and material interaction, where clothing mediates between the body and its space around. (Barthes, 1967)

In this way, fashion is not only a representation but a process that constructs relationships among body, space, and meaning. At this point, the concept of double skin begins to take shape in fashion design. This happens through the way clothing is designed and experienced as something that responds to both the body and the space around it. Materials, movement, and shaping allow the clothes to adapt, creating a constant interaction rather than a static shape.

In a sense, clothing kind of connects or shapes how the body feels, moves and stands to its

space. To recall fashion design from this perspective is to understand it as a system of signs that produces cultural meanings and unique identities. (Sheringham, 2000)

### *2.2.1 Is This Fashion and Does it Matter?*

Before the concept of "double skin" is analyzed as a methodology or as a new approach in fashion design, I would like to address a research question that will facilitate the articulation of the argument on why the concept of the double skin might be important, namely: "Is this human center processed based and interactive fashion really fashion and does this perception matter?" This question is not simply terminological or conceptual but directly affects how fashion design is understood as a discipline and a creative field.

Fashion is often limited to clothing, trends, and aesthetic cycles. Any approach that goes outside these frameworks to some extent risks not being considered "fashion" in the conventional sense. However, in this research I intend to challenge these limits and to ask not only what fashion is but how it functions as a system. In a way, the importance of the question lies not in institutional acceptance of the concept but in its capacity to produce new methodologies.

Here, the double skin concept is not proposed as a new style or a formal innovation, but as a structure of meanings that realigns the relationship among body, clothing and space. Therefore, the question "Is this fashion?" can be reformulated as "Does this approach expand the field of fashion design?"

If fashion is understood as a system that constructs meanings through the dressed body, then any methodology that intervenes in this approach is a valuable part of the discipline. Double skin is key precisely because it shifts the focus from the finished object to the process and the system. It does not seek to replace traditional fashion but aims to articulate an additional method for reflecting on the way clothing functions as a layer.

The question asked above about the reality of the double skin concept does not aim to determine that all major brands have agreed on what is called fashion but to assess the possibility of producing a new thought or a new working methodology. So the importance of double skin lies in its ability to shift the focus from object to process and to structure positioning fashion design not only as a production practice but as a joy of labour and as a different way for seeing the fashion world.

## 3. METHODOLOGY

### 3.1 Case Studies

To understand the concept of "double skin" in fashion design concretely, it is necessary to analyze it through case studies that challenge the traditional boundaries of clothing. Two examples in this regard are the *Nike 3D printed Bra (2025)* and Manuel Torres' experiment

with *Spray on Body* (*2022*) innovation. These two cases do not simply represent technological innovation, but open a deeper discussion on the relationship among the body, the material and the production system.

The Nike 3D printed bra appears as an object that reinvents the traditional way of designing intimate clothing. Instead of starting from a standard body shape and textile cutting logic, this product is developed through a parametric and technological process. The body is scanned, analyzed, and converted into digital data, which is then used to generate a 3D-printed structure. (Cavanaugh, 2025)

In this process, the clothing is no longer a layer sewn onto the body but a structure built around it. This case study shows that clothing begins to function as an intermediary system between the body and technology. The 3D printed bra is not simply a cover or support, but a structure that regulates the body's relationship to movement, weight, and pressure. It creates a second layer that does not imitate biological skin but functionally reformulates it.

In contrast to this approach, Manuel Torres' work with the spray-on body experiment represents an unusual shift in the fashion design process. In this case, the cloth does not exist as an object before being placed on the body. It is applied directly to the biological skin in spray form. This process dissolves the boundary among the body, the material, and the production, turning the body into the place where the phenomenon occurs. *Spray on Body* (2022) challenges the traditional separation between the body and the garment in an radical way. The body is not the base on which the garment is applied but becomes an active agent in the creation process. The material is not sewn or cut but is placed directly on the body, forming a new layer that functions as an artificial skin. This process creates a behavior where the garment and the body are inseparable at the moment of creation. (Amato, 2011)

Analyzing these case studies shows two different directions in the evolution of fashion design. The Nike 3D printed bra builds an intermediate system through technology and improvement, while Manuel Torres moves the process directly onto the body transforming the body into a production site. Neither of these examples fully realizes the concept of “double skin” as proposed in this study but both introduce us to think alternatively about fashion and to challenge conventional way in which this field is perceived and analyzed and open ways for triggering thoughts for the experimentation which will come later of applying the concept of the double skin to fashion design, something I will develop concretely for my MA’s thesis, currently on-going.

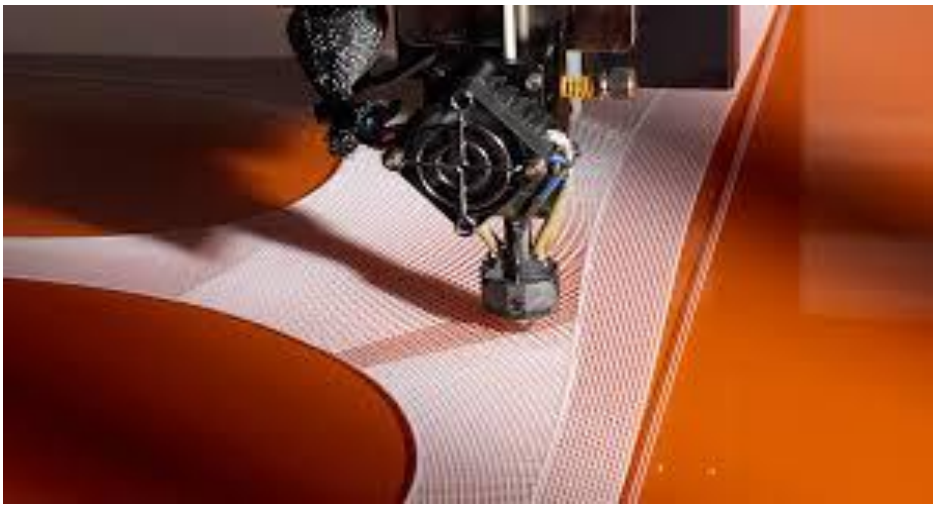


Figure 1. Nike 3D Printed Bra. Source: Nike.Inc (2025)



Figure 2. Manuel Torres at Coperni with Spray on Body. Source: Dezeen (2022)

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