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Acta Architectonica et Urbanistica (AAeU) is an international scientific journal dedicated to the fields of architecture and urbanism. All submitted manuscripts are subject to a double-blind peer review process.

The journal publishes research encompassing a wide spectrum of relevant topics, linking theory and practice within the domains of architecture and urbanism. It welcomes contributions from researchers across various disciplines, including architecture, urbanism, interior and landscape design, civil engineering, art history, geography, cultural studies, anthropology, sociology, psychology, and other fields that examine architecture and the built environment from different perspectives.

Acta Architectonica et Urbanistica (AAeU) je međunarodni naučni časopis koji se bavi temama iz oblasti arhitekture i urbanizma. Svi radovi podliježu dvostrukoj, anonimnoj recenziji.

Časopis objavljuje istraživanja koja obuhvataju širok spektar relevantnih tema i povezuje teoriju i praksu u oblastima arhitekture i urbanizma. Otvoren je za prijavu rukopisa istraživača iz različitih oblasti, uključujući arhitekturu, urbanizam, dizajn enterijera i pejzaža, građevinarstvo, historiju umjetnosti, geografiju, kulturu, antropologiju, sociologiju, psihologiju i druge discipline koje proučavaju arhitekturu i izgrađeno okruženje iz različitih perspektiva.

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EDITOR-IN-CHIEF'S NOTE

The inaugural special issue of the AAeU journal, published in October 2025, intentionally adopted a non-standard approach by bringing together autobiographical essays by former students of the Faculty of Architecture, University of Sarajevo, now practicing worldwide. This opening gesture positioned the journal as a space for reflection, multiple perspectives, and the tracing of architectural trajectories.

The second issue — effectively the first regular issue — appears at the close of the 2025 calendar year and establishes the editorial and academic standards for future publications. Structured in two sections, it comprises a scientific section of peer-reviewed articles subjected to a rigorous double-blind review process, and a professional/popular section featuring three exclusive interviews, a review article, and a retrospective architectural calendar of 2025.

The scientific section opens with two articles that examine memorials — from objects and architecture to landscape — through novel theoretical lenses: *Spomenici: Hauntological Spectra of Yugoslav Architecture* by Ena Kukić and *Prisoners of the Landscape* by Edin Smajić. Socially engaged pedagogical and planning practices are explored in *The Planning Bus (Planbussen): Problem-, Project-, and Practice-Based Learning (P3BL)* by Markus Schwai and Erik Frydenlund Hofsbro. Questions of social inclusion and spatial justice are addressed in *Spatial Justice: The Role of Housing and Social Policies in Social Inclusion and the Transformation of the Periphery* by Nemanja Milićević and Ema Alihodžić Jašarović. A pluriversal methodological framework for architectural research is proposed in *Decentering Perspectives: Embracing the Pluriverse in Researching the Architecture of the Belt and Road Initiative* by Francesco Carota, Sofia Leoni, and Michele Bonino. The Urban Digital Twin (UDT) as a contemporary planning tool is presented in *4D GIS Visualization of Agentic-AI Models: Urban Digital Twin Scenario-Based Mobility Simulations for the New Sarajevo Urban Plan* by Michael Walczak, Victoria Desponds, and Hubert Klumpner. Critical research on sustainability as a multidimensional concept is developed in *Multi-Dimensional Analysis of Building Sustainability: Comparison of Reconstruction Scenarios in Singapore* by Goran Šibenik, Binyang Dai, and Rudi Stouffs. The evolving role of immersive technologies in architectural practice is examined in *Extended Reality of Architecture: Beyond Photo-Reality of Architectural Representation and Visualization* by Rada Čahtarević. Finally, *The Anatomy of Hostile Architecture: A Form–Function–Intent Typology for Urban Furniture and Urban Interior Space* by Anday Türkmen explores the tensions between humanistic values and exclusionary tendencies in contemporary urban design.

The professional/popular section opens with a conversation entitled *Spatial Dialogues* with Academician Zlatko Ugljen, the most renowned living architect of Bosnia and Herzegovina, in which he reflects on continuities and discontinuities of urban identity, the fate of modernist heritage, the role of architects as mediators, and the importance of criticism and architectural journals. This is followed by interviews with key lecturers of the 2025 Days of Architecture festival — Reinier de Graaf (OMA/AMO) – who dissects and inspects architect's glossary, and with Momoyo Kaijima (Atelier Bow-Wow), and Simone Gobbo (Demogo) — who reflect on drawing as a mode of thinking, on the metaphor of "slowing down," and on why, at times, the best design decision is not to build at all. A review article is dedicated to the farewell of the iconic modernist Hotel Pelegrin in Kupari, recently demolished, reflecting on its multilayered symbolism and strong ties to the Sarajevo School of Architecture. The issue concludes with *A Year in Review*, mapping architectural, urban, and design events across the Western Balkans and beyond in 2025.

After a long period of silence, it is time to speak again about architecture, space, and cities from diverse perspectives — scientific, professional, and popular. The *archi-texts* in this issue invite a shift in perspective and encourage reflection before, during, and after the conceptualisation and construction of space. The cover page presents a rectangular shape of *archi-text* that challenges conventional notions of language, communication, meaning, and narrative in and about architecture. While the condensed format of the word cloud adopts a strict geometric shape, its internal, cacophonous content fluctuates between dense and dispersed configurations, deliberately complicating legibility. This typographic deisgn invites the reader to read between the lines and to reflect on the relationship between content and form, both in architectural practice and in architectural discourse.

We extend our sincere thanks to the authors, reviewers, contributors, editorial staff, and advisors. The next issue is scheduled for June 2026.

Editor-in-Chief **Assoc. Prof. Nermina Zagora, PhD** University of Sarajevo – Faculty of Architecture

RIJEČ GLAVNE I ODGOVORNE UREDNICE

U inauguralnom specijalnom broju časopisa AAeU, objavljenom u oktobru 2025. godine, namjerno je usvojen nestandardni pristup, predstavljajući autobiografske eseje bivših studenata Arhitektonskog fakulteta Univerziteta u Sarajevu, koji danas djeluju u različitim dijelovima svijeta. Ovaj početni gest pozicionirao je časopis kao prostor promišljanja, susreta različitih perspektiva i mapiranja arhitektonskih putanja.

Drugi broj — ujedno i prvi redovni broj — izlazi na samom kraju kalendarske 2025. godine i uspostavlja uredničke i akademske standarde za buduća izdanja. Strukturiran u dvije cjeline, obuhvata naučnu sekciju sa recenziranim naučnim člancima podvrgnutim rigoroznom dvostruko slijepom recenzentskom postupku, te stručnu/popularnu sekciju koja uključuje tri ekskluzivna intervjua, pregledni članak i retrospektivni arhitektonski kalendar za 2025. godinu.

Naučna sekcija započinje s dva članka koji sagledavaju memorijale — od objekta i arhitekture do pejzaža — kroz nove teorijske perspektive: *Spomenici: hauntološki bauci jugoslavenske arhitekture* autorice Ene Kukić i *Zarobljenici pejzaža* autora Edina Smajića. Društveno angažirane pedagoške i planske prakse razmatraju se u članku *The Planning Bus (Planbussen): učenje zasnovano na problemima, projektima i praksi (P3BL)* autora Markusa Schwaija i Erika Frydenlunda Hofsbroa. Pitanja društvene uključenosti i prostorne pravde obrađena su u članku *Prostorna pravda: Uloga stambene i socijalne politike u društvenoj inkluziji i transformaciji periferije* autora Nemanje Milićevića i Eme Alihodžić Jašarović. Pluriverzalni metodološki okvir za istraživanje arhitekture predložen je u članku *Decentriranje perspektiva: prihvatanje pluriverzuma u istraživanju arhitekture Inicijative Pojas i put* autora Francesca Carote, Sofije Leoni i Michelea Bonina. Urbani digitalni blizanac (UDT) kao savremeni planski alat predstavljen je u članku *4D GIS vizualizacija agentskih AI modela: scenarijske simulacije mobilnosti na urbanističkom digitalnom blizancu za novi Urbanistički plan Sarajeva* autora Michaela Walczaka, Victorije Desponds i Huberta Klumpnera. Kritičko istraživanje održivosti kao višedimenzionalnog koncepta predstavljeno je u članku *Višedimenzionalna analiza održivosti zgrada: uporedba scenarija rekonstrukcije u Singapuru* autora Gorana Šibenika, Binyanga Daija i Rudija Stouffsa. Evoluirajuća uloga imerzivnih tehnologija u arhitektonskoj praksi razmatra se u članku *Proširena realnost arhitekture: izvan foto-realnosti arhitektonske reprezentacije i vizualizacije* autorice Rade Čahtarević. Konačno, članak *Anatomija neprijateljske arhitekture: tipologija forma–funkcija–namjera urbanog mobilijara i urbanog interijera* autora Andaya Türkmana istražuje tenzije između humanističkih vrijednosti i isključujućih tendencija u savremenom urbanom dizajnu.

Stručna/popularna sekcija započinje sa razgovorom pod naslovom *Prostorni dijalozi* s akademikom Zlatkom Ugljenom, najznačajnijim arhitektom Bosne i Hercegovine, koji tematizira kontinuitete i diskontinuitete urbanog identiteta, sudbinu naslijeđa moderne, ulogu arhitekata kao medijatora, te značaj kritike i arhitektonskih časopisa. Slijede intervjui s predavačima Dana arhitekture 2025 — Reinierom de Graafom (OMA/AMO), koji secira i preispituje arhitektonski pojmovnik, kao i sa Momoyo Kaijima (Atelier Bow-Wow) i Simoneom Gobbom (Demogo) — koji govore o crtanju kao načinu razmišljanja, metafori "usporavanja" i o tome zašto je ponekad najbolja projektantska odluka — ne graditi. Pregledni članak posvećen je oproštaju od ikoničnog modernističkog hotela Pelegrin u Kuparima, nedavno srušenog, uz refleksiju o njegovoj višeslojnoj simbolici i snažnim vezama sa sarajevskom školom arhitekture. Broj se zaključuje rubrikom *Godina u pregledu*, koja mapira arhitektonske, urbane i dizajnerske događaje u Zapadnom Balkanu i šire tokom 2025. godine.

Nakon dugog perioda tišine, vrijeme je da se ponovo govori o arhitekturi, prostoru i gradovima iz različitih perspektiva — naučne, stručne i popularne. *Arhi-tekstovi* u ovom broju potiču nas na promjenu perspektive i pozivaju na promišljanje prije, tokom i nakon oblikovanja prostora. Naslovna stranica predstavlja pravougaonu formu *arhi-teksta* koja propituje ustaljene pojmove jezika, komunikacije, značenja i narativa u arhitekturi i o arhitekturi. Iako kondenzirani pravougaoni format oblaka riječi preuzima strogu geometrijsku formu, njegov unutrašnji, kakofoni sadržaj oscilira između zbijenih i raspršenih konfiguracija, namjerno otežavajući čitljivost. Ovaj vizual čitatelja poziva na čitanje između redova, kao i na refleksiju o odnosu sadržaja i forme, kako u arhitektonskoj praksi, tako i u arhitektonskom diskursu.

Zahvaljujemo autorima, recenzentima, saradnicima, uredničkom timu i savjetnicima.
Sljedeći broj planiran je za juni 2026. godine.

Glavna i odgovorna urednica **V. Prof. dr Nermina Zagora** Univerzitet u Sarajevu – Arhitektonski fakultet

SCIENTIFIC

SECTION

SCIENTIFIC SECTION . . . . . .NAUČNI DIO

Spomenici: Hauntological Spectra of Yugoslav Architecture

Spomenici: Hauntološki bauci jugoslavenske arhitekture

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Abstract This article explores Yugoslav monuments — *spomenici* — through the lens of hauntology and différance, framing them as spectral architectures where memory resists closure and meaning. Conceived as concrete affirmations of antifascist struggle and socialist solidarity, these structures now linger in an unsettled state: neither fully absorbed into the present nor entirely consigned to the past. Their ambiguous condition exposes the instability of collective memory, which is shaped as much by neglect and erasure as by acts of commemoration and reinterpretation. The study aims to demonstrate how *spomenici* challenge conventional understandings of memorial architecture, which often presume stable or singular narratives. By applying deconstructionist theory, the analysis interrogates the ways in which meaning is destabilized, re-inscribed, and contested across socio-political and aesthetic contexts. Methodologically, the research combines theoretical analysis with selected case studies and a pedagogical experiment in model-making conducted at Graz University of Technology, where students engaged in hands-on explorations of form and symbolism. The findings suggest that *spomenici* demand understanding of memorial architecture that moves beyond fixed narratives. The pedagogical case studies discussed here further illustrate how interdisciplinary methods — particularly those that foreground experimentation and dialogue — can uncover the multiplicity of meanings embedded within contested typologies. The article concludes that a hauntological reading of *spomenici* highlights their value as critical resources for rethinking the politics of remembrance. Far from being static carriers of history, they persist as spectral presences that continue to unsettle dominant narratives and provoke new engagements with cultural memory.

Keywords spomenik; hauntology; memorial architecture; post-socialist landscapes; deconstruction.

Saţetak Članak istražuje jugoslavenske spomenike kroz prizmu Derrideinih koncepata hauntologije i *différance*, predstavljajući ih kao arhitektonske bauke nezavršenog sjećanja i nestabilnog značenja. Osmišljeni kao uprostorene afirmacije antifašističke borbe i socijalističke solidarnosti, ovi objekti danas postoje u stanju neizvjesnosti: nisu u potpunosti integrirani u sadašnjost, niti su potpuno prepušteni prošlosti. Upravo ta ambivalentnost otkriva krhkost kolektivnog sjećanja, oblikovanog jednako zaboravom i brisanjem koliko i činovima komemoracije i reinterpretacije. Cilj rada je ukazati na to kako spomenici osporavaju konvencionalna shvatanja memorijalne arhitekture, koja često počivaju na pretpostavci stabilnih, jedinstvenih narativa. Primjenom dekonstrukcionističke teorije ispituju se načini na koje se značenje destabilizira, ponovo upisuje i pregovara unutar različitih društveno-političkih i estetskih konteksta. Metodološki, istraživanje kombinuje teorijsku analizu s odabranim studijama slučaja te pedagoškim eksperimentom izrade maketa provedenim na Tehničkom univerzitetu u Grazu, u kojem su studenti kroz praktičan rad istraživali formu i simboliku. Rezultati ukazuju na to da spomenici zahtijevaju razumijevanje memorijalne arhitekture koje nadilazi fiksne narative. Pedagoške studije slučaja dodatno ilustriraju kako interdisciplinarni pristupi — posebno oni koji naglašavaju eksperimentaciju i dijalog — mogu rasvijetliti mnoštvo značenja ugrađenih u osporavane tipologije. Zaključak rada je da hauntološko čitanje spomenika otkriva njihovu vrijednost kao kritičkog resursa za preispitivanje politika sjećanja. Daleko od toga da budu samo statični nosioci historije, oni opstaju kao nemirna prisutnost koje nastavlja dekonstruirati dominantne narative i poticati nove oblike angažmana s kulturnim pamćenjem.

Ključne riječi spomenik; hauntologija; memorijalna arhitektura; postsocijalistički prostor; dekonstrukcija.

1 Introduction

Long before Mark Fisher translated the experience — and the taste in music — of a generation by declaring that we are haunted by the "lost futures" of the twentieth century, Jacques Derrida had already named the condition that makes such haunting possible. In *Specters of Marx* (1993), Derrida coined the term *hauntology* to describe the uncanny persistence of what is no longer present: the spectral survival of unrealized possibilities that continue to unsettle the present.

Fisher — cultural theorist, writer, and critic of late capitalism — took up this term in the 2000s to describe a mood saturating contemporary culture. In his book *Ghosts of My Life* (2014), he argued that music, film, and popular media were trapped in a loop, endlessly recycling the forms of the past because the future promised by modernity had failed to arrive. For Fisher, hauntology was a diagnosis of cultural stagnation under neoliberalism: we remain haunted by futures that never came.

The resonance between Fisher's cultural hauntology and Derrida's philosophical one finds a striking architectural form in the monuments of former Yugoslavia. These commemorative structures, designed as spatial frameworks of antifascist struggle and socialist solidarity, now persist as reminders of a world that might have been abandoned, reinterpreted, *othered*, or aestheticized, but never fully extinguished. To acknowledge them is to feel the weight of unrealized futures pressing into the present, demanding that we learn, with Derrida, to live with *spectres*.

This article insists on using the term *spomenici*. Yugoslav monuments have long been inscribed in the canonical vocabulary of modern architecture, where the pan-Yugoslav word *spomenik* simply means "monument." In Western discourse, however, the term is often incorrectly pluralized as *spomeniks*, reflecting a deeper problem of misrepresentation. *Spomenici* have been subject to decontextualization and exoticization in digital and visual media — stripped of their memorial role and socialist background, their form and materiality elevated as aesthetic spectacle, despite their history and reception being well documented and theorized through several distinct scholarly phases.

During the Yugoslav period itself, the construction of these monuments was accompanied by a flourishing of publications — monographs, tourist guides, and architectural studies — that celebrated the new culture of remembrance. These early works, though largely descriptive, remain invaluable for their extensive photographic documentation, preserving visual records of memorials later damaged or destroyed during and after the 1990s wars.

After the dissolution of Yugoslavia, a new wave of research approached *spomenici* with critical distance, examining their shifting meanings within post-socialist and transitional societies. Among the most significant contributions to this discourse is *Shaping Revolutionary Memory: The Production of Monuments in Socialist Yugoslavia* (Horvatinčić and Žerovc, eds., 2023), which contextualizes *spomenici* within the political, institutional, and aesthetic systems that produced them. The volume explores not only their commissioning, authorship, and typological diversity but also their afterlives in both the post-Yugoslav region and international scholarship.

Sanja Horvatinčić's research, in particular, has been central to rethinking Yugoslav memorial culture. Her work traces the interrelations between architecture and memory politics, showing how *spomenici* mediate between collective trauma and the socialist vision of the future. As a member of the curatorial team for MoMA's 2018 exhibition *Toward a Concrete Utopia: Architecture in Yugoslavia, 1948–1980*, Horvatinčić helped position Yugoslav architectural production — memorials included — within the broader canon of modernism. The exhibition marked a crucial moment in the international recognition of Yugoslav architecture, yet it also highlighted a paradox: by the time *spomenici* entered the Western architectural discourse, they had already been circulating widely in the global media as decontextualized aesthetic objects.

This global fascination can be traced to the work of Belgian photographer Jan Kempenaers, whose 2010 photobook *Spomenik* presented the monuments as haunting sculptural relics isolated from their ideological and commemorative contexts. A year later, French journalist Frédéric Chaubin's *CCCP: Cosmic Communist Constructions Photographed* further cemented this visual narrative, positioning socialist-era architecture as surreal remnants of an alien modernity. Both projects, while visually compelling, effectively detached *spomenici* from their antifascist and revolutionary origins, transforming them into enigmatic symbols of "lost futures".

The viral dissemination of these images online — often through platforms like Tumblr, Instagram, and Pinterest — led to what architectural critic Owen Hatherley famously termed "concrete clickbait". In his 2016 article "Next Time You Share a Spomenik Photo, Think About What It Means," Hatherley warned that these decontextualized representations erased the antifascist legacy of the monuments precisely at a time when far-right ideologies were once again gaining traction globally. He argued that such casual consumption of imagery reproduced the very forgetting that *spomenici* were built to resist.

A similar concern underpins the work of researcher and curator Tihana Pupovac, who extensively documented the decay and destruction of *spomenici* while critically addressing their aesthetic fetishization. Through her involvement in exhibitions and conferences — most notably the 2015 symposium *Socialist Memorials and Modernism* in Zagreb — Pupovac has underscored how Western depictions often ignore the historical and political depth of *spomenici*, reducing them to empty formal gestures.

Architectural historian Vladimir Kulić further advanced this critique in his essay "Post-Socialist Orientalism: Yugoslav Monuments and Their Reception in the Media" (in Horvatinčić and Žerovc, 2023). Kulić situates the Western fascination with *spomenici* within a longer tradition of Orientalist framing that presents Eastern European modernism as exotic and otherworldly. In such representations, *spomenici* appear as "alien" artifacts from a failed utopia rather than integral expressions of European modernist experimentation. This "othering," Kulić argues, parallels the local neglect of *spomenici* in

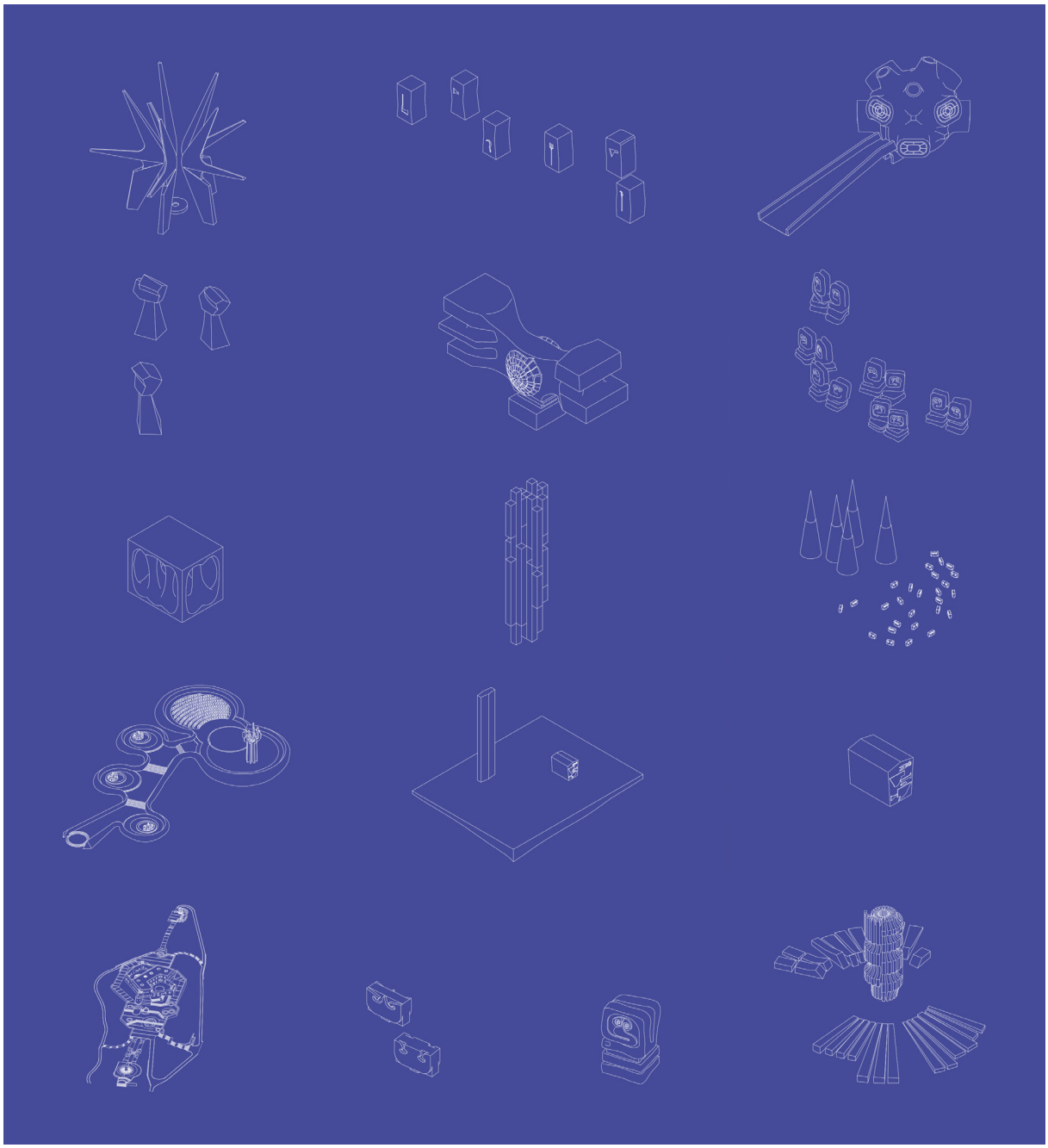

Figure 1 Spomenik Tableaux. Source: Author, 2025.

the post-Yugoslav states, where they are often treated as unwanted remnants of a discredited ideology. Against both tendencies, he calls for a dual strategy: the reactivation of *spomenici* within their social and historical contexts, and the consistent historicization of their meaning for international audiences (Kulić, 2023, p. 359).

Kulić also points out the limitations of photography as a medium for conveying ideological content. In projects such as Kempenaers' *Spomenik* and Chaubin's *CCCP*, the accompanying texts do little to compensate for these gaps, instead reinforcing the perception of *spomenici* as mysterious, authorless forms. Even Kempenaers' use of numerical labels, rather than names or dedications, abstracts the monuments from their political purpose and historical grounding.

The result has been a flattening of Yugoslavia's monumental landscape into a single visual category — vast concrete abstractions — while erasing the diversity of scale, form, and local significance that once defined it. As Kulić and others emphasize, this depoliticization denies the broader social relevance of *spomenici*, particularly in an era marked by historical revisionism and the normalization of fascist narratives. Recovering their meaning, therefore, requires more than preservation: it demands re-inscription into both local and global histories as material witnesses to antifascist struggle and socialist imagination.

This article seeks to contribute to that effort, reasserting the historical and material complexity of *spomenici* against the grain of their contemporary misrepresentation.

Through the pedagogical exploration of model-making work with students of architecture, it argues that these monuments to the People's Liberation Struggle must not be understood merely as abstract, exoticized architectural forms, but as culturally and historically significant memorials rooted in socialist ideology and the antifascist struggle that defined Yugoslavia's founding narrative. Their current representation in Western discourse — frequently detached from this context — has contributed to cultural appropriation and symbolic erasure, transforming them into aesthetic artifacts divorced from their political origins.

To counter this, a thorough analysis of the multiple meanings of these objects was conducted within a Western educational institution, engaging more than eighty students over the course of three years in spatially re-reading *spomenici* through both a Derridean prism and their own individual experiences and interpretations. By situating *spomenici* within the cultural hauntology of unrealized futures and the ongoing contestations of memory in the post-Yugoslav space, this article aims to restore their position as living monuments — neglected, yes, but still insistently present as witnesses to collective resistance and emancipatory possibility.

2 Derridean Lens

To grasp Derrida's concept of hauntology as it manifests in *spomenici* — and in memorial architecture more broadly — it must be situated alongside key ideas from his wider oeuvre. Derrida consistently questioned the foundations of meaning and presence in language, thought, and culture. His primary method, deconstruction, exposes how structures (textural or other) and concepts contain internal contradictions that prevent them from ever possessing a fixed or final meaning. This is particularly relevant to monuments, which are inscribed with specific meanings at the time of their erection — usually aligned with the political agenda of their commissioners — but whose significance inevitably expands and shifts through subsequent historical developments.

Spomenici exemplify this process: their official function collapsed with the dissolution of socialist Yugoslavia, yet their presence continues to generate new interpretations. In this respect, they are not unique. Every monument shifts its meaning as political regimes change or as societies renegotiate their relationship to the past. Contemporary debates over statues of colonial figures in Western contexts, many of which have been toppled or removed under public pressure, illustrate this dynamic of memory and shifting historical consciousness.

Yet Derridean deconstruction does not trace these external re-inscriptions; it turns inward, asking what contradictions are embedded in the very fabric of a text — or, in this case, a structure. Built to commemorate a unified, antifascist, socialist Yugoslavia — a concept that no longer exists — *spomenici* reveal under deconstruction that their founding meaning is no longer operative, while no replacement has taken firm hold. They unsettle the assumption that monuments can anchor memory securely, instead exposing memory as unstable, political, and contingent. They also trouble binary oppositions central to nationalist or historical narratives: presence and absence, past and present, center and margin. *Spomenici* occupy a liminal state: both visible and forgotten, celebrated and abandoned, modernist and postmodern relics, national (Yugoslav) and supranational (post-Yugoslav nations).

This ambiguity deconstructs the binary logic often employed in nationalist or historical narratives, demonstrating that *spomenici* resist clear categorization as either past or future. This play of opposites reflects Derrida's method, which dismantles binary thinking to reveal the unresolved in-between spaces where meaning is always deferred.

Deconstruction also challenges the assumption that language — or architecture — can represent truth transparently. *Spomenici* often avoid figurative or representational forms, with their abstract geometry defying straightforward interpretation. Rather than serving as clear conduits of memory, these monuments are oblique, cryptic, spectral — embodying the impossibility of fully representing trauma, or identity. In this sense, they are not merely available for deconstruction; they are, in Derrida's terms, already deconstructed. They embody the failure of collective memory to remain stable or unified, refusing closure and remaining open, fragmented, and ghost-like.

Central to this reading are Derrida's notions of the *trace* and *différance*. The trace denotes the way meaning is constituted by what is absent, by the lingering mark of something no longer there. Architecture always carries traces — remnants of history, palimpsests of use, residues of time — but memorial architecture does so in heightened form, gesturing simultaneously toward the presence of memory and the absence of what it recalls. *Spomenici* embody this dynamic: they do not simply commemorate the past but become its traces, their meanings and interpretation continually shifting. They are neither fully present (their original function has eroded, and post-Yugoslav governments often dismiss them as unwanted heritage) nor fully absent (they still shape landscapes and collective imagination, particularly in light of the renewed fascination with their visual language). Their status as traces is further reinforced by the erosion of meaning: some remain intact but stripped of ideological resonance, while others have decayed or been destroyed outright, such as the ones in Kamenska, Gudovac, Landovica, or atop the Makljen Pass. What is missing — Yugoslavia, antifascist solidarity, socialist unity, and some monuments themselves — is as significant as what remains.

Equally important is *différance*, Derrida's term for the interplay of difference and deferral. Words, he argued, do not point to stable meanings but derive their significance through their difference from others (*to differ*) and through the postponement of any final definition (*to defer*) (Derrida 1967). Meaning is thus contextual, relational, and unstable. If we read memorial architecture as a form of symbolic language, then it too acknowledges the instability of meaning. Monuments allow for plural, shifting interpretations, and their engagement with trauma and loss cannot be fully contained within static forms or singular narratives. Here Viet Thanh Nguyen's concept of *just memory* is useful, emphasizing the coexistence of parallel true narratives as part of an ethical memory practice.

Through *différance*, we see how *spomenici* evade singular definition, their publicly perceived meanings continuously shaped by political, social, and aesthetic contexts. They are constantly reinscribed with new connotations: some are neglected and left to deteriorate, others are repurposed for nationalist or tourist narratives, and some are reinterpreted — or *othered* — through contemporary art and photography. This ongoing process of re-signification aligns with *différance*, in which meaning is always deferred and subject to reinterpretation.

In both form and intention, *spomenici* differ significantly from contemporary monuments — those erected across the region after the wars of the 1990s to spatialize monoethnic or nationalist ideas. Such monuments are often inscribed with overt religious symbols or ethnic markers, designed to draw a sharp line between "us" and "them" and to reinforce post-war narratives. In parallel, *spomenici* today are neither wholly abandoned nor fully reclaimed, neither entirely relegated to the past nor fully integrated into the present. They persist instead in a state of perpetual semiotic deferral — much like the very idea of Yugoslavia as experienced by citizens of the post-Yugoslav region: a presence that is always already absent. All these aspects establish *spomenici* as quintessential hauntological objects: they reveal the impossibility of a stable collective memory and resist final interpretation, remaining open, ambiguous, and spectral. However, this understanding also carries the risk of disregarding their original identity in favor of the subsequent meanings they have acquired over time, or of branding them as too complex to engage with. It is therefore essential to examine and interpret *spomenici* with full acknowledgment of their antifascist origins — the foundational layer of their meaning — while allowing subsequent interpretations to enrich, rather than obscure, their complex character.

3 Pedagogical Explorations

A thorough analysis of *spomenici* has been the focus of an elective model-making course at the Institute of Design and Construction Principles at Graz University of Technology, held in 2021, 2022, and 2023. The course aimed to explore the multifaceted meanings that *spomenici* have acquired since their creation, including ones intended and inscribed by their authors. Thirty-two analytical models were produced by students under the supervision of course leaders (Ena Kukić and Iulius Popa), each differing in scale, materiality, and analytical as well as representational focus (Figure 1).

While some students focused on understanding the visual language of the socialist memorialization movement — examining form, materiality, and the use of light — others sought to deconstruct the symbolism behind these structures or explored the broader spatial context of the *spomenik* sites. In some cases, the final models presented a clear critique of the current societal status of *spomenici*, though all acknowledged the significance of the original structures.

A total of eighty-four students participated in the course, including eight from post-Yugoslav countries, whose distinctive perspectives were shaped by personal or inherited memories of these monuments. Students worked individually or in teams of two or four persons, depending on the complexity of the task. The monuments were not chosen by the students themselves; rather, the course leaders selected six different *spomenici* for each cohort, allowing multiple groups to explore and reinterpret the same site.

Because the elective course was open to both bachelor's and master's level students, the composition of each cohort — whether in terms of study level or other factors such as the presence of incoming or exchange students, and particularly those from the post-Yugoslav region — influenced the instructors' selection of *spomenici*. For example, in cohorts with a majority of bachelor students, monuments with simpler geometric forms were assigned. In cohorts with a larger proportion of international exchange students, mixed groups were encouraged to work on the same monuments as local students, facilitating cultural exchange and dialogue grounded in differing exposures to the history of Yugoslavia.

In addition to independent literature research, all students were introduced to the cultural, political, and historical framework of the monuments through lectures and discussions led by the course instructors. These sessions drew upon archival research, site analyses, photographic surveys, model studies, and planimetric redrawing. After being assigned a specific *spomenik* to thematize, students engaged in critical discussions addressing the architectural articulation of identity and collective memory — considering parameters such as transparency and porosity, structural tension, materiality, volume, and mass — within both the temporal context of their original construction and their subsequent historical transformations. An intensive fifteen-week review process ensured continuous dialogue with instructors, enabling students to address knowledge gaps, refine their analytical methods, and expand their perspectives on *spomenici*.

One of the *spomenici* that was thoroughly investigated through various models was the Monument to the Uprising of the People of Kordun and Banija in Petrova Gora National Park, commonly referred to as the Petrova Gora *spomenik*, built in 1981 and designed by Vojin Bakić and Berislav Šerbetić (Figure 2). In understanding the impossibility of ascribing a singular meaning to the monument, students explored both its original identity and the subsequent meanings it acquired over time. Heavily featured in international popular culture due to its decaying state and peculiar form, this *spomenik* has been both deconstructed and reconstructed — physically and symbolically.

Architect Vojin Bakić used reflective stainless steel for the façade, which became one of the building's most prominent aesthetic and symbolic elements. Interpreting this material as one that casts a new light on a territory marked by dark events in the Petrova Gora mountains — most notably during 1941 and 1942 — and later stripped for scrap metal during post-1990s scarcity, one group focused on exploring the metallic aspects of the object's identity. Parallel to that, another group understood the *spomenik* as an inseparable part of the landscape upon which it stands, analysing it within an urbanistic framework by focusing on the surrounding forest and the organic morphology of the hill, reinterpreted through the

Figure 2 Models of Petrova Gora *spomenik*. Models by Joo Young Lee, Vilmantė Daulenskytė, Nikolina Stjepanović, Stefan Hochhofer, Ajla Bukvarević, Milan Eftimov, Lamija Filan, Mak Krstić, Andreas Kalcher, and Vic Schmitz. Source: Courtesy of KOEN Institute, Graz, 2021-2023.

spomenik's wavy, sculptural form. Several groups focused on deconstruction, exploring the horizontal planes and pathways that define movement through the building's interior. In an effort to understand the process of removal — both physical, through decay and theft, and symbolic, through the erasure of meaning when the monument is used in music videos or advertisements — students experimented with stripping the monument down to certain components, reflecting on the absence of the removed parts.

Another *spomenik* investigated by multiple groups was the Ilinden Memorial in Kruševo, popularly known as Makedonium (Figure 3). This is also an exemplary case of a *spomenik* conceived as a building rather than a sculpture, offering both interior and exterior for analysis. Exploring the complex building process — which saw the authors, Iskra and Jordan Grabul, frequently challenged for what was seen as an overly abstract form — students engaged with the difficulties that such a unique shape presents in the act of construction. Using different methods and materials, the originally 25-meter-tall concrete dome, punctuated by tubular protrusions, was built at a 1:100 scale: once as a freestanding object, and the second time as a fossil-like imprint, reflecting on the monument's symbolic impact on the local community and how local experience shaped the identity of the object. A third group focused on understanding the key elements that form the monument's identity — most notably the

Figure 3 Models of Makedonium *spomenik*. Models by Johanna Lackner, Jakob Waltl, Theresa Mitterdorfer, Sarah Schirz, Gabriel Deinhammer, and Bettina Flegel. Source: Courtesy of KOEN Institute, Graz, 2021-2023.

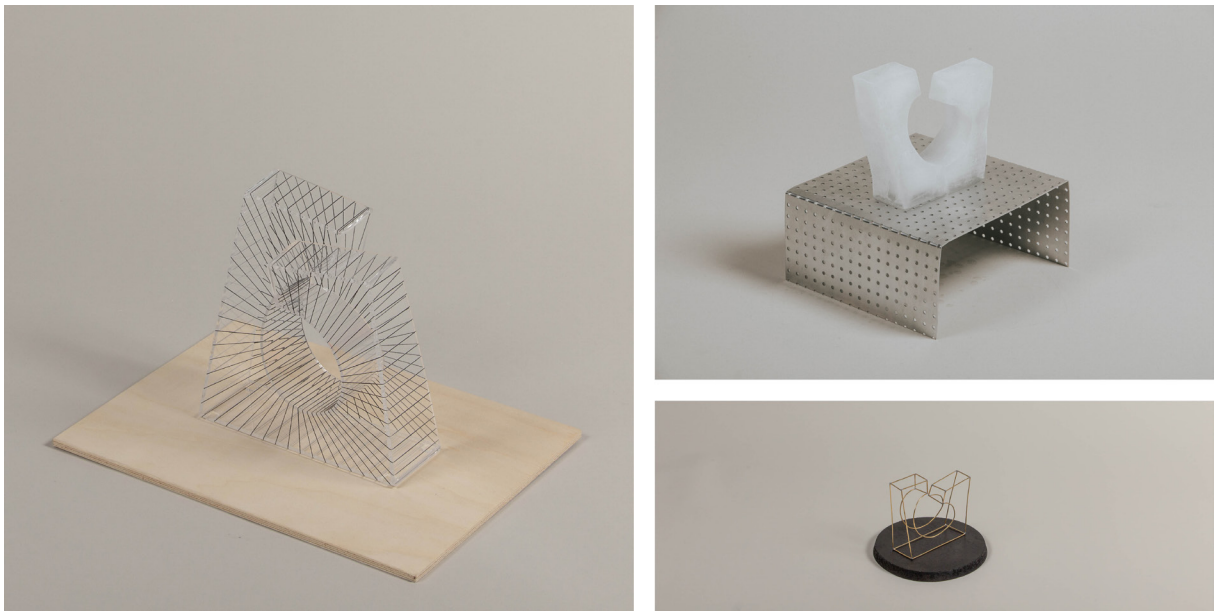

Figure 4 Models of Pleso *spomenik*. Models by Maria Cernko, Wolfgang Humer, Elma Draganović, Philipp Frank, Oskar Traut, Dávid Bálint Vörös, Daciana-Carmen Mereut, and Selina Haingartner. Source: Courtesy of KOEN Institute, Graz, 2021-2023.

four tubular extensions adorned with massive stained-glass windows by Prilep artist Borko Lazeski. As with the groups exploring Petrova Gora through fragmentation, this analysis aimed to provide commentary on the deconstruction and decontextualization of antifascist heritage through model making.

The Pleso *spomenik* in Zagreb served as one of the most poignant examples where models were used to reflect on the contemporary treatment of socialist memorial architecture (Figure 4). Explored through three different approaches, one model rendered it as a silhouette — an empty outline of something that has become socially irrelevant. Another portrayed it as a delicate, transparent construction, standing in stark contrast to its original concrete mass. The third, the only performative model developed during the course, reflected on contemporary society's relationship with antifascism and the passage of time: the model was constructed from ice and left to melt when exposed to uncontrolled environmental conditions.

Models of the Kozara *spomenik* (officially the *Monument to the Revolution* in the Mrakovica area of Kozara National Park) reflected two analytical directions (Figure 5). The first explored the role of light — both its physical penetrability through the gaps between the monument's sculpted ribs, and the original use of textured steel plates — reinterpreted in contrasting model materials. Highlighting light as one of the main design elements served as a counterpoint to dominant post-war

Figure 5 Models of Kozara *spomenik*. Models by Tomas Castro Alcanatra, Beatriz Sanchez Vergara, Gagandeep Bhatti, Alexander Krischner, Miguel Bea Ballesta, and Carmen de Martin Hernandez. Source: Courtesy of KOEN Institute, Graz, 2021-2023.

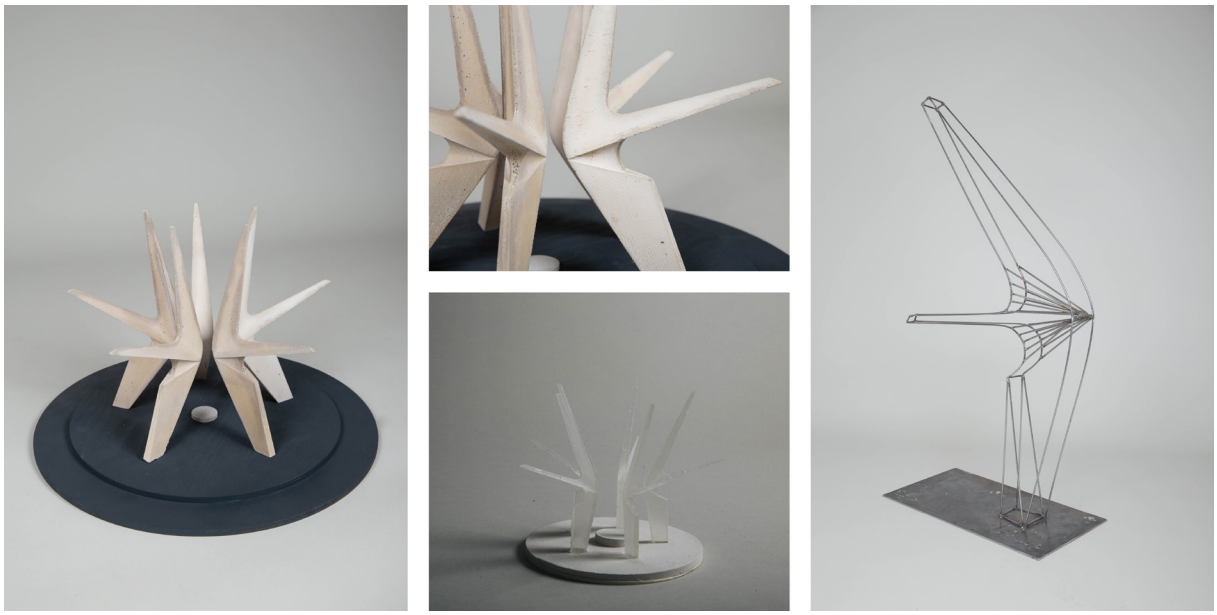

Figure 6 Models of Kosmaj *spomenik*. Models by Fabian Jäger, Konstantin Stocker, Britta Nader, Jacqueline Melcher, Elena van der Kallen, and Lukas Livesu. Source: Courtesy of KOEN Institute, Graz, 2021-2023.

narratives surrounding this *spomenik*, particularly those that reframe it through an ethnonational lens, such as the installation of the Orthodox crosses in its entrance zone. The second analysis focused on the sculptural form itself: twenty tall, narrow fins arranged in a circle. These were deconstructed, reorganized, and examined in terms of the author Dušan Džamonja's concept of the bulges in the concrete as "positives" and the recessed areas as "negatives" — an interplay between presence and absence, life and death. Shedding light on the original design intention thus becomes a way of reclaiming the monument's narrative from post-1990s appropriation and weaponization against its foundational antifascist ethos.

The Kosmaj *spomenik* (*Monument to the Fallen Soldiers of the Kosmaj Detachment*) was the most popular case study among younger students with limited experience in model making, drawn to its seemingly simple geometry (Figure 6). What neither students nor casual observers initially realized was that the five wings — appearing interconnected and mutually supported — are in fact standalone elements, each stabilized through complex structural solutions. The tension between individuality (single wing element) and collectivity (ensemble of five wings) formed the basis of several analyses. Students explored the symbolism of repetition, the number five (evoking the communist star as well as the worker's hand), rotational symmetry, and structural engineering, examining how each 30-meter-tall concrete wing could stand independently, unassisted.

Other notable student projects included a concrete model of the Jasenovac *spomenik*, whose construction in model scale proved technically difficult due to the challenges of working with concrete and the monument's triple-curved geometry. This formal instability mirrors the object's symbolic instability, as its significance continues to be undermined by nationalist rhetoric in post-1990s Croatia.

Several models also explored the Ilirska Bistrica *spomenik*, focusing on its inextricable link to its immediate surroundings. Its form is, on one hand, reminiscent of stalactites and stalagmites found in the nearby Postojna cave system, and on the other, evocative of bones, given that the sculpture serves as a tombstone for the ossuary beneath it (Figure 7). Considering the statement of its author, Janez Lenassi — who noted that the chosen forms do not need any further accessories or shocking whims to attract attention, and that the process of respectful relationships evolves along the logic of familiarization with the whole matter — students attempted to illuminate this process of familiarization by producing multiple models that investigated the symbolic forms embedded within the sculpture.

The structure of the course was designed to critically reflect on the multifaceted identity of socialist memorial architecture in Yugoslavia. Derrida's work was not explicitly introduced to students; rather, his concept of deconstruction was employed as a tool for tracing internal contradictions and inscriptions, addressing binary opposites in both materiality and meaning. A limited selection of case studies ensured that each monument was explored by multiple groups, with the intention of each adopting a distinct analytical approach and engaging in active dialogue about the varying dimensions of a *spomenik's* character. Groups often spatialized these binary opposites in models placed side by side, allowing for a highly hands-on form of deconstruction. This methodological choice aimed to foreground the complexity and ambiguity inherent in these monuments.

The passage of time played a central role as well: students were encouraged to reflect on how specific elements or aspects of a monument's design were understood at the time of its conception, and how these meanings have shifted — or been contested — over the years. The ice monument of Pleso is particularly

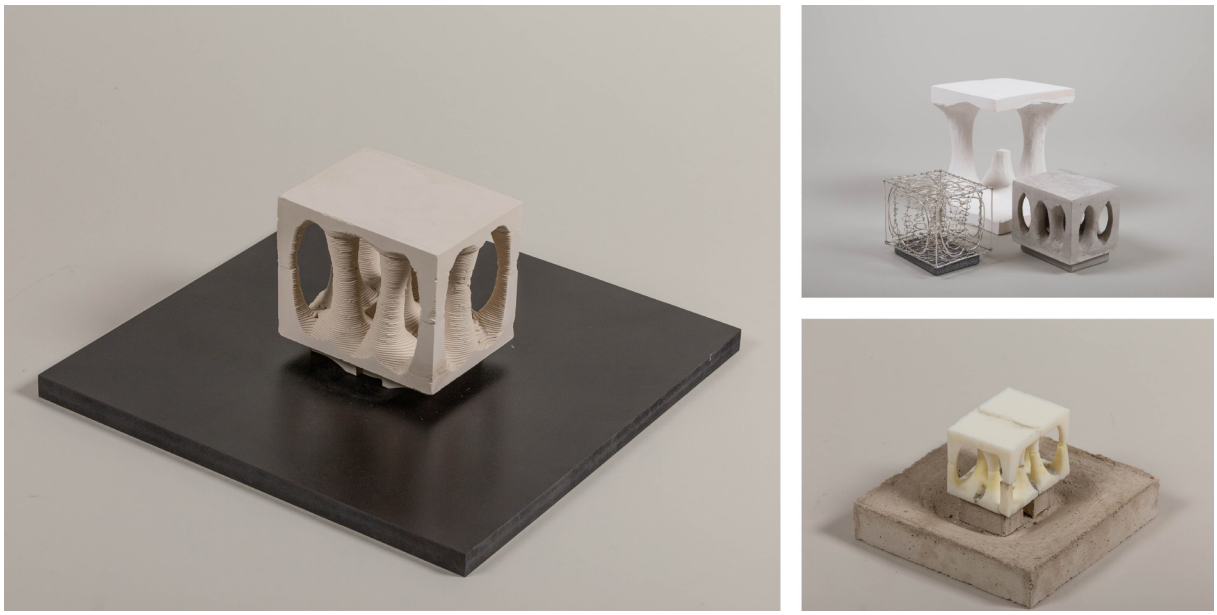

Figure 7 Models of Ilirska Bistrica *spomenik*. Models by Michael Dengg, Sarah Liebminger, Lukas Schneider, Mesude Tuncer, Dominik Hutter, Marcel Posch, Kim Benjamin Wildhirt, Sarah Korpitsch, Maria Matthäus, Daniel Lučić, and Fabian Schipflinger. Source: Courtesy of KOEN Institute, Graz, 2021-2023.

effective in this regard, as it employs the properties of its material to condense temporal layers and reference the historical decay of the entire Yugoslav memorial architecture corpus. Political and sociological frameworks surrounding *spomenici* were central to design discussions, emphasizing the inseparability of these structures from their historical and ideological contexts and helping to identify Derridean traces by highlighting what is absent. Multiple models engaging with positive-negative binary opposites in volume and mass explored this tension in depth.

A wide range of materials and techniques — including wood, concrete, ceramics, acrylic, wax, wire, plaster, XPS, textile, glass, and paper — enabled students to engage with the constructive challenges of model-making, experimenting with original materials or deliberately contrasting ones to highlight aesthetic or structural features. The outcomes of the course form a new body of knowledge, generated both through the structured guidance of the instructors and through the organic exchanges between student groups, particularly those with Yugoslav heritage, who brought reflections shaped by collective memory. The rich dialogue and peer interactions are as much a part of the course's output as the models themselves, which remain on display in the Institute's public hallway, continuing to provoke inquiry and conversation.

A total of nine *spomenici* were explored in the course: Jasenovac, Petrova Gora, Pleso, Barutana, Bratunac, Ilirska Bistrica, Kozara, Makedonium, and Kosmaj. Across three academic years, students produced thirty-two architectural models representing these monuments. Among them, Petrova Gora was the most frequently studied, with seven models developed. Jasenovac, Ilirska Bistrica, and Kozara followed, each represented through four models. Pleso, Makedonium, and Kosmaj were each interpreted in three models, while Barutana and Bratunac were explored through two models each.

The results of this experimental course should be considered as a whole, rather than focusing on individual models or case studies. Limitations arising from the course's relatively small size — one and a half hours per week — mean that there is space for further development. The course should be seen as a predecessor to a future pedagogical endeavor, in which, with more study hours and ECTS points, there would be a greater opportunity to introduce Derrida's work thoroughly before engaging in hands-on practical exploration, and to structure the categorization of models and approaches more systematically. Nonetheless, the array of different models, materials, and techniques demonstrates the diversity of analysis and representation, and the potential of this approach within a larger-scale pedagogical endeavor.

Reflections on the course suggest that deconstruction as a theoretical method works particularly well within a model-making program, especially given that these monuments belong to a functionless typology. The absence of a prior ideological framework, as well as the physical absence of parts of some *spomenici*, allows for a clear understanding of *trace* in the Derridean sense, which can be spatialized through contrasting materials, empty volumes, and the removal of spatial elements when reinterpreting specific objects. The interplay of difference and deferral, as articulated in the concept of *différance*, was also embodied in the scale models, particularly when different models of the same case study were observed side by side and their symbolic qualities compared. In this sense, a Derridean lens provided an especially apt framework for identifying and discussing the diverse meanings embedded in *spomenici*.

4 Conclusion

The analysis of *spomenici* through the framework of hauntology and *différance* reveals them as sites where memory resists closure, and where absence is as significant as presence. Their unsettled status in the post-Yugoslav landscape demonstrates how monuments can never have a fully fix meaning, but instead remain open to continual reinterpretation, like a palimpsest being continually inscribed with new layers. The persistence of these structures — whether neglected, appropriated, or embraced — underscores the spectral nature of collective memory in the region, in which the futures once promised by socialist Yugoslavia continue to linger as unresolved traces and in contrast to post-war nationalist realities.

This reading underscores both the value and the challenge of engaging with *spomenici*. They invite a more nuanced approach to memorial architecture, one that acknowledges original antifascist intentions while also recognizing subsequent layers of re-signification. By doing so, they offer a critical lens for interrogating broader questions of heritage, ideology, and the instability of memory in contemporary societies. The pedagogical experiments described in this article demonstrate the potential of design practice to illuminate these complexities, suggesting that interdisciplinary methods can play a vital role in deepening public engagement with contested pasts.

Nevertheless, this research is limited by its reliance on selected case studies and by the interpretive nature of applying deconstructionist theory to architectural objects. Future studies may benefit from expanded comparative analyses across different memorial traditions or from empirical engagement with local communities to further contextualize the lived meanings of these sites. Even so, the hauntological reading advanced here contributes to ongoing debates in memory studies, architectural theory, and heritage preservation, positioning *spomenici* as both remnants of a fractured past and resources for rethinking the politics of remembrance in the present.

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Prisoners of the Landscape

Zarobljenici pejzaža

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Abstract The landscape, a synonym for a vast, open world, can quickly become a claustrophobic playground of liminality. This is precisely what happened to the victims of the Bosnian war who fled Srebrenica after its downfall as a UN safe zone. While those unable to escape faced genocide, the ones who fled Srebrenica endured a harrowing 100-kilometre-long journey in hopes of reaching the village of Nezuk. This article explores how the landscape emotionally and functionally transforms for those involuntarily trapped in war, becoming both a horrendous safe zone and a peaceful battleground, a welcoming but torturous place of being – a new open shelter. The work dives into the specific landscape along the path taken by those fleeing Srebrenica, exploring how it changes once it becomes not a mere coincidental discovery, but a home for what feels to be an eternity. Simultaneously, the research consists of investigating the given landscape today, and the memory it evokes of the atrocious period, specifically through the commemorative March of Peace, where the path is retraced annually on the anniversary of the Srebrenica genocide. Through on-site documentation and literature, the work seeks to discover the liminal aspects of the landscape and explore how it can become a tool for memory, leading to potential design interventions.

Keywords Srebrenica; landscape; memory; genocide; survival.

Sažetak Pejzaž, sinonim za prostran, otvoren svijet, može se brzo pretvoriti u klaustrofobično polje liminalnosti. Upravo to se dogodilo žrtvama bosanskog rata koje su pobjegle iz Srebrenice nakon njenog pada kao UN-ove sigurne zone. Dok su oni koji nisu uspjeli pobjeći doživjeli genocid – najveći u Evropi nakon Drugog svjetskog rata – oni koji su pobjegli prošli su kroz užasno teško putovanje dugo 100 kilometara, nadajući se da će stići do sela Nezuk. Teza istražuje kako se pejzaž emocionalno i funkcionalno transformira za one koji su prisilno zarobljeni u ratu, postajući istovremeno užasavajuća sigurna zona i mirno bojno polje. Pejzaž postaje dobrodošlo mučno mjesto bivanja – novo otvoreno sklonište. Teza ulazi u specifičan krajolik duž tog puta i razmatra kako se on mijenja kada postane ne samo slučajno otkriće, već i dom za ono što se čini kao vječnost. Istovremeno, istraživanje uključuje proučavanje današnjeg krajolika i sjećanja koje on nosi na taj strašan period, kroz Marš mira, gdje se taj put svake godine prelazi na godišnjicu genocida u Srebrenici. Kroz dokumentaciju na terenu i literaturu, teza nastoji otkriti liminalni aspekt pejzaža i istražiti kako on može postati alat za sjećanje, vodeći ka potencijalnim prostornim intervencijama.

Ključne riječi Srebrenica; pejzaž; sjećanje; genocid; preživljavanje.

1 Introduction

> "If such-and-such assemblage of trees, mountains, waters, and houses, which we call a landscape, is beautiful, it is not through its own devices but through me – through my own grace, through the idea or sentiment that attaches to it." (Baudelaire, as cited in Jullien, 2018, p. 9).

Baudelaire's reflection here captures the essence of the relationship between human and landscape: it is not merely the physical attributes of the landscape which define its profound meaning – but the emotions, memories, and experiences that people project onto it. This article explores this dynamic relationship by focusing on the functional and emotional roles of the landscape for survival and commemoration, and uses the harrowing journey of the Srebrenica genocide survivors as its foundation. The Srebrenica genocide, the only recognized genocide in Europe since World War II, claimed over 8000 lives. Those who fled faced a 100-kilometre-long journey on foot from the former UN safe zone in Potočari, to the village of Nezuk, enduring attacks, thirst, hunger, and the unforgiving elements of the landscape (Figure 1). As a contemporary act of remembrance, from 2005 this path is annually retraced from Nezuk to Potočari allowing participants to honor and witness the survival and suffering of those who undertook the journey in 1995. What was the functional and emotional connection of the people with the landscape that helped them survive and traverse the 100-kilometer-long path? What role did elements within the landscape, such as rivers, roads, forests, caves, and mountains, have in their survival and resilience? Furthermore, how can these elements and their meanings

Figure 1 People leaving Srebrenica. The sign depicts a skull as a warning. The text translates to "DO NOT GO THIS WAY".
Source: Ahmet Bajrić, 1995.

inspire design interventions that foster remembrance? The methodology includes on-site documentation during the March of Peace in July 2024 and subsequent visits, a literature review, testimonies from survivors and design exploration through references, and conceptual ideas. The structure of the work builds from historical and contextual analysis to practical design proposals.

2 Brotherhood and Unity

2.1 Context

Ethnic heritage in the Balkans has played a huge role in its history, conflicts and the events leading up to the present-day state of Bosnia and Herzegovina. The land has felt the influences of numerous empires and religions, resulting in the multi-ethnic, multi-religious character it has today. Religiously, the population has three main affiliations: Islam, Roman Catholicism, and Orthodox Christianity. The three main faiths, although not exclusively, mostly correspond to the three main ethnic groups: Bosniaks, Croats, and Serbs. Bosnia was first mentioned as a territory in 958 in a politico-geographical handbook written by the Byzantine Emperor Constantine. While partly ruled by its neighbors, Bosnia finally emerged as a sovereign state in the 1180s. Afterwards, it was a part of the Ottoman empire, the Austro-Hungarian empire, the Kingdom of Serbs, Croats and Slovenes, the Kingdom of Yugoslavia, and finally within its present-day borders, Bosnia and Herzegovina became a constituent republic of the Socialist Federal Republic of Yugoslavia in 1945 with Josip Broz Tito as its leader (Malcolm, 1996; Malcolm & Lampe, 2025).

Tito's death in 1980 and the 1980s economic crisis in the Socialist Federal Republic of Yugoslavia, together with the rise of resurfacing nationalism, destabilized Yugoslav politics. In 1992, after Slovenia and Croatia, Bosnia and Herzegovina also declared independence from Yugoslavia. Bosnian Serb paramilitary forces immediately launched attacks on Sarajevo, supported afterwards with artillery bombardment by units of the Yugoslav National Army. Throughout April, towns in Eastern Bosnia and Herzegovina with a significant Bosniak population were targeted by Serbian paramilitary forces and the Yugoslav army, resulting in the expulsion of most Bosniaks, in what has been described as ethnic cleansing. Within six weeks, coordinated attacks of the Yugoslav National Army, paramilitary groups, and local Bosnian Serb forces led to the seizure of over two-thirds of the country's territory (Lampe, 2025).

During the following years, from 1992 to 1995, countless atrocities and human rights abuses consisting of war crimes and breaches of humanitarian law took place. At the same time, the-three-and-a-half-year siege of Sarajevo – first by the Yugoslav National Army and then by Bosnian Serb forces – continued, with daily attacks and the destruction of notable cultural landmarks, such as the National Library in August 1992. The conflict in Bosnia and Herzegovina had a deep and long-lasting impact. The war was characterized by deliberate attacks on cultural and religious heritage, particularly Islamic sites, which served both as markers of ethno-religious identity and as symbols of the historical diversity of the

Bosnian identity. The greatest part of this destruction was an integral part of the aggressive campaigns of ethnic cleansing orchestrated by both the secessionist politics of the Bosnian Serb and, later on, Bosnian Croat forces, aimed at establishing contiguous ethnically homogenous territories (Walasek, 2020).

The International Criminal Tribunal for the former Yugoslavia (ICTY) (2010) estimates the total overall number of war-related deaths in Bosnia and Herzegovina between 1992 and 1995 to be 104,732. The most atrocious crime happened in July 1995, known as the Srebrenica genocide. It was committed by Bosnian Serb military and police forces, where more than 8000 Bosniaks were killed and buried in primary and secondary mass graves (Lampe, 2025).

2.2 Genocide

Before the takeover of Srebrenica by Bosnian Serb forces on 11 July 1995, amidst the Bosnian war in 1993, thousands of Bosnian Muslims from the surrounding areas had rushed there in hopes of refuge. The Serb forces, controlled core logistic routes and access roads to the enclave of Srebrenica and hindered the arrival of international humanitarian aid such as food and medicine. Conditions were horrific for the refugees, with no access to shelter, food, and clean water. Simultaneously, outside temperatures would drop very low during winter and there was nowhere near enough shelter for every single person. In response to the rapidly worsening humanitarian crisis, the UN Security Council adopted Resolution 819, designating Srebrenica a 'safe area'. Shortly thereafter, an agreement was reached calling for a complete ceasefire in Srebrenica, the demilitarisation of the enclave, the deployment of UNPROFOR (United Nations Protection Forces), and the creation of a corridor between Tuzla and Srebrenica to allow for the safe evacuation of the seriously wounded and ill. UNPROFOR established a small command post within Srebrenica, as well as a larger main compound north of the town in Potočari, with the goal of overseeing the town's demilitarisation. UNPROFOR troops rotated every six months, after the arrival of the initial group in April 1993. They were lightly armed with no more than 600 men at a time.

In March 1995, Radovan Karadžić, president of the self-proclaimed Republika Srpska – the Serb entity within Bosnia and Herzegovina – instructed Bosnian Serb forces to eliminate the Bosniak (Muslim) population from the Srebrenica and Žepa enclaves. The order became known as 'Directive 7', and served as the trigger for the crimes that would happen later on. In July 1995, Directive 7 was put into effect, and resulted in the killing and disappearance of about 8,000 Bosniak men and boys, and the forcible displacement of up to 30,000 Bosniak women, children and elderly persons from the enclave (Srebrenica: Timeline of a Genocide, n.d.).

Based on extensive evidence – including exhumations, demographic analyses, intercepted communications, documents, testimony from both victims and perpetrators – the Trial Chamber of the ICTY concluded: that between 7,000 and 8,000 Bosnian Muslim men and boys, whether civilians or prisoners of war, were killed by Bosnian Serb forces in July 1995; that the massacre and its subsequent cover-up were systematically planned; and that it was indeed an act of genocide (International Criminal Tribunal for the former Yugoslavia, 2021). As such, July 1995 marks one of the darkest chapters of human history, and the failure to prevent this genocide a burden for all actors who could have done so. The United Nations General Assembly has since proclaimed 11 July as the 'International Day of Reflection and Commemoration of the 1995 Genocide in Srebrenica' in order to elevate the significance of this event beyond the European continent (European External Action Service, 2024). According to an article from 2018, the International Criminal Tribunal for the former Yugoslavia and domestic courts have sentenced 45 people to a total of 699 years (and counting) in prison – plus three life sentences – for genocide, crimes against humanity and other offenses against Bosniaks from Srebrenica in July 1995 (Balkan Insight, 2018).

More than three decades have passed since the Srebrenica genocide; however, to this day, denial of these events remains deeply ingrained in daily life in Bosnia and Herzegovina and the surrounding region. The genocide is frequently denied in public and political discourse, while its perpetrators are often actively celebrated. Streets and public buildings bear the names of convicted war criminals, and many convicted war criminals have been elected to public office (Srebrenica Memorial, 2021).

3 Escape from Srebrenica

3.1 Column

On 11 July 1995, Ratko Mladić, general of the Army of Republika Srpska (VRS) — the Bosnian Serb forces — entered Srebrenica, claiming it as a Serb town. At that time, more than 5,000 Bosniak refugees were inside the enclave; UN troops claimed their base accommodating refugees was full, while more than 20,000 more were waiting for refuge in nearby factories and fields. As night fell, Dutchbat troops of the UN forces began abandoning their posts, and it became clear that the civilians would be left unprotected. Slowly, word of this began to spread, so at midnight, 15,000 Bosniak men set off to escape Srebrenica (Remembering Srebrenica: The Death March, n.d.).

The forming of the column officially started as people started to gather between the villages of Šušnjari and Jaglići, in order to break through and reach the free territory of Tuzla (Figure 2). The Bosnian Muslims trod carefully, one by one, as they tried as hard as possible to remain unseen and avoid mines on the ground. At first, they threaded through dense forests so the Bosnian Serb forces would put no effort into catching them, as they knew this would be near impossible. However, they had to cross the main roads of Bratunac-Konjevići or Konjevići-Milići, and this is where the Bosnian Serb forces were waiting. The column of people saw the tanks and soldiers, but had to cross nonetheless as the Bosnian Serbs fired artillery into the dense path; this is where the first ambush to the column occurred, on 12 July on Kameničko hill. The column was broken into two at that spot, and only

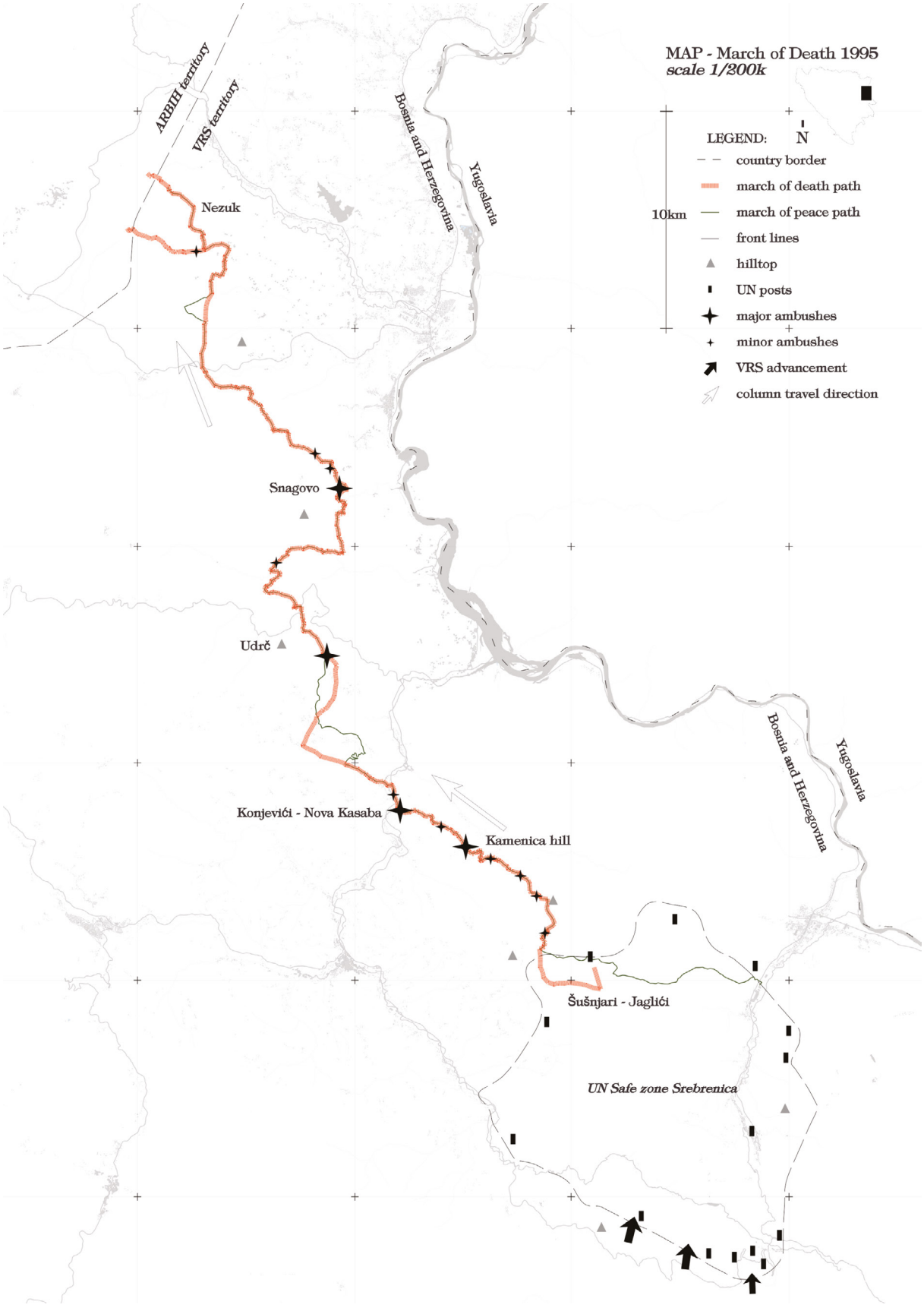

Figure 2 March of Death 1995 map. Source: Author, 2025. Data derived from: Author (2024); Geograbrik (2025); Isović E. (n.d.); Library of Congress (2002); Marš mira (n.d.); Osmanović & Suljagić (2024); Radio Slobodna Evropa (2020); Udruženje građana Preživjeli genocida (n.d.); Vojnogeografski Institut JNA (1986).

the front part of it would reach free territory — thus the manhunt began. Those who did not manage to escape were either captured or called to surrender with their safety guaranteed, but later on killed. A great deal of fear, hunger, and tiredness overwhelmed the people in the column. Additionally, there were reports of Bosnian Serb soldiers infiltrating the group and calling for people to surrender or leading them to the Bosnian Serb army, although these are not certain and would have proved challenging and inefficient to execute. However, what is certain is that the people within the column were lured to come out and surrender by Bosnian Serb soldiers, some disguised as UN peacekeeping soldiers, or even without the disguise with the soldiers guaranteeing safety for civilians, assuring them that only young men would be taken for interrogation and investigation of war crimes. However, they were not much concerned with the distinction between civilians and soldiers, as they looked at all of the people, those within the column and those who stayed in Srebrenica, as enemies who needed to be dealt with (Honig & Both, 1997).

On 13 July 1995, while crossing the major road connecting Konjević polje – Nova Kasaba, the column was ambushed and divided again. At least 6,000 people were captured. Those taken to the Nova Kasaba and Konjević polje gathering spots were shot on the shore of the Jadar river, and on the same day Serb forces shot three buses of people in the village of Cerska. Later that same afternoon, Serb forces again executed about 1,000 prisoners by trapping them before firing at them with rocket launchers, bombs, and infantry weaponry. The next big ambush happened on the hilltop of Udrč where Serb forces located and bombed the group with heavy artillery fire. The group was ambushed again near Snagovo on 14 July, with the intent of finally destroying the column from Srebrenica. With the use of tanks, transporters and the special forces of the Serb Police (MUP) the group was heavily attacked until a commander of the Serb forces was captured. On 16 July 1995, more than 3,500 of the 15,000 people who had set off crossed the safe part of the ongoing battlefield in Baljkovica, and managed to reach the free territory of Nezuk. Along this harrowing 100 kilometer journey they encountered several ambushes by the Serb forces. Due to hunger, unfamiliarity with the terrain, thousands of people within the column surrendered, or were killed. Most of the men that died on this route are still being found buried in mass primary and secondary graves. The journey for most participants lasted 5 days, while many were left wandering even after the end of the war (Honig & Both, 1997; Isović, 2022; Remembering Srebrenica: The Death March, n.d.).

3.2 Story

Mirza Bašić explains how his life, as an ordinary kid living near Bratunac, changed when the war in Bosnia and Herzegovina started in 1992. Before this he enjoyed a joyful routine, attending school, playing and spending time with his family and friends. All of this changed for the worst once the first tensions appeared. He had to leave home with his family and found shelter at friends' or relatives' houses, where the situation was better. The risk of food running out was always present, hence they often exchanged supplies, and received or gave food to other families. Everyone had the same problems. Even after the war had begun, people who were not on the front lines, and especially kids, like Mirza, tried to live life normally. Schools had improvised classes and Mirza spent his days playing and spending time outside when and where it was possible. Later, they moved again and finally ended up in Srebrenica; he was first separated from his mother, who stayed in the nearby UN base in Potočari, and later from the rest of his family during an ambush on the Death March. He had to proceed ahead, even though unsure if his father and brother had made it out of the attack alive. Bašić recalls in his book the constant feelings of fear, and hunger, which would occupy his thoughts as he crossed the landscape to safety (Bašić, 2022).

Muhizin Omerović, also shares his experience of hunger and despair. He points out how, for himself, water was a non-issue, as rivers and streams flow densely in the forests of the area. However, hunger was as food was scarce. The only food he had at the beginning of the Peace March were two ICAR cans that most people had received from UN soldiers. He had planned to eat the first the following day, and the second one the day after, as he expected to arrive in Tuzla on the third day. However, when the column got ambushed he had to go back towards Srebrenica and, unlike most, he spent 2 months on his journey before reaching free territory. He expands on peoples' habits during this time, for example, as eating whatever they could find, including snails and beech leaves. Muhizin vividly explains the significance of hiding, traveling, and sleeping within dense forests, but also the significance of their types; traveling through deciduous forests, mostly populated with beech, was much easier as the vegetation was more diverse, making navigation easier. Muhizin expands on this, and describes his experience of going through evergreen forests as very problematic. Navigation was very hard as the vegetation was uniform, less diverse. He describes the feeling as one of being constantly lost, and going around in circles (personal communication, 8 January 2025).

Hasan Hasanović mentions being initially disappointed once Srebrenica fell as everyone had believed the war for them was over once they were secured by UN forces. Additionally, he shares his experience of crossing the river Jadar on day three. He describes the river as big and strong, and recounts struggling to cross it (Hasanović, 2016, p.61; personal communication, 3 January 2025). Further on, he explains the strategy of going through dense forests as having been the most viable option for them. This way they could be hardly seen by enemy soldiers. They mainly avoided going through open fields and only did so out of necessity. He describes crossing one near Hajdučko Groblje, where they went one by one, with bullets striking the tree trunks around him as he realised how close enemy soldiers were (Hasanović, 2016, p.60). He describes crossing major roadways as very dangerous, and the journey up Udrč hill as exhausting. However, upon reaching the top, from which he could see free territory near Tuzla, his hopes of survival suddenly grew (Hasanović, 2016, p.62). After arriving in free territory, Hasan could not believe he had survived. His experiences haunt him still, however, and like others, he manages to heal through sharing his story. Afterwards,

he got an education and is fighting and hoping for the story of his killed father and twin brother to be told to the world (Hasanović, 2016, p.80).

4 The Escape Today

4.1 Walk

Annually, between 8 July and 10 July, several thousand people walk together to remember the 1995 Srebrenica Genocide, embarking on a three-day march known as the March of Peace (orig. *Marš Mira*). According to some, this act is an opportunity to show resistance to the lack of justice and recognition of crimes committed during the war, especially the Srebrenica genocide in 1995. Since 2005, participants of the March of Peace annually retrace the steps of the victims and survivors of the genocide (Luitjens & Schooler, 2022). According to Muhizin Omerović, a survivor and activist of the events surrounding the genocide in Srebrenica and after: the first March of Peace was organized informally in 1996, in Switzerland, after the war in Bosnia and Herzegovina had ended. The event did not receive significant coverage, and was attended by a small number of people. The destination of the walk was symbolically the UN Office in Geneva. After years of organizing this walk and political will from international actors to ensure a safe event, the March of Peace in Srebrenica began. The walk had a shorter route initially, before expanding to the near original route of the 1995 March (personal communication, 8th January, 2025).

The March of Peace officially has the goal of animating actors, both local and international, for the faster prosecution of war criminals, to serve justice and acts as a foundation for building peace and prosperity within Bosnia and Herzegovina. The column of participants, counting thousands of people each year from all over the world, starts the journey from the village of Nezuk and covers within three days a journey of about 100 kilometers before arriving at the Potočari Memorial Centre in Srebrenica. There, at the end of the journey, participants may attend the funeral and commemoration of newly identified victims of the genocide, found in one of the mass graves in and around Srebrenica. Along the path, participants have the opportunity to see many of the historic sites where mass killings of Bosniaks (Bosnian Muslims) occurred, or places where primary or secondary burials of the victims were found. Additionally, during the March, participants have the opportunity to hear stories about historical events, bringing their experience closer to the original March of Death in 1995. The journey consists of three parts, corresponding to the three days endured by those who fled Srebrenica, starting in the early morning of 8 July in Nezuk, and arriving in Potočari a day before 11 th July, with stops at two camps along the way in Kamenica and Mravinjci (Marš mira, n.d.; Isović, 2022).

The March of Peace today is symbolic in itself, as it represents retracing and walking in the opposite direction of the people who escaped Srebrenica. However, this journey should not be understood as walking the same footsteps, as these are impossible to retrace – people were running for their lives, and likely took unmarked paths in the forests. The most important factor of the March of Peace is its practical contribution to acts of memorialization, ensuring that genocide and the deaths of innocent people are remembered, minimizing the chance of it happening again, resisting aggressive acts of denial and the continued mistreatment of the victims, and bringing those accountable to justice. (Luitjens & Schooler, 2022).

Sites (acts) of memory, such as this one, have proven to have ever-lasting effects on promoting values or ideas through ritualistic acts. These places allow groups to engage in public discourse through which the act itself is an expression of the group's unity. Moreover, each group of people inherits previously accumulated meanings attached to the event, while also adding new ones. Indeed, activities such as these are crucial for the preservation of commemorative sites. The presence of the groups is what keeps the sites of memory from fading away. Muhizin explains that financing is a constant problem for the event. Nonetheless, due to all of these factors of resistance, the March of Peace continues to be organized year after year, and will continue as long as people believe in the cause and understand the pain associated with Srebrenica (personal communication, 8th January 2025).

4.2 Experience

The following paragraphs consist of personal reflections and experiences from the March of Peace from Nezuk to Potočari in July of 2024 (Figure 3).

The column officially set out from Nezuk at 9 in the morning on 8 July, after a night spent in tents near the starting point. After starting out in an area surrounded by vegetation, we quickly reached asphalt and passed through the village, where locals cheered the participants (Figure 4). This sense of community would continue and intensify throughout the whole trip, especially in the parts through denser villages. After transitioning further from the village of Nezuk, we found ourselves surrounded by more vegetation, and slowly crossed small streams. Most of the paths were well-marked, orderly, and often paved. The open views along the path on the first day were exceptional. I often stood admiring them, and thought how they might have offered a rare sense of calm to survivors. In some instances, places days away were visible just across the valley. I imagined how such visibility might have provided orientation and reassurance for the survivors, as it gave me closure on where I was heading. Along the path were numerous spots with water tanks, offering refreshments for the participants. Snacks and drinks were also distributed at various points along the path. Tables with volunteers from both local and foreign organizations, such as USAID or the Red Cross, were laid with all kinds of donated food and drinks. The camp in Liplje we arrived to on the first day was similar to the one in Nezuk, with some tents already set up in an open field. There were water tanks for cleaning and medical aid points in case of need. We set up our tents and spent the night there in groups. The night felt hot, but the morning air was fresh and dew was noticeable on the grass.

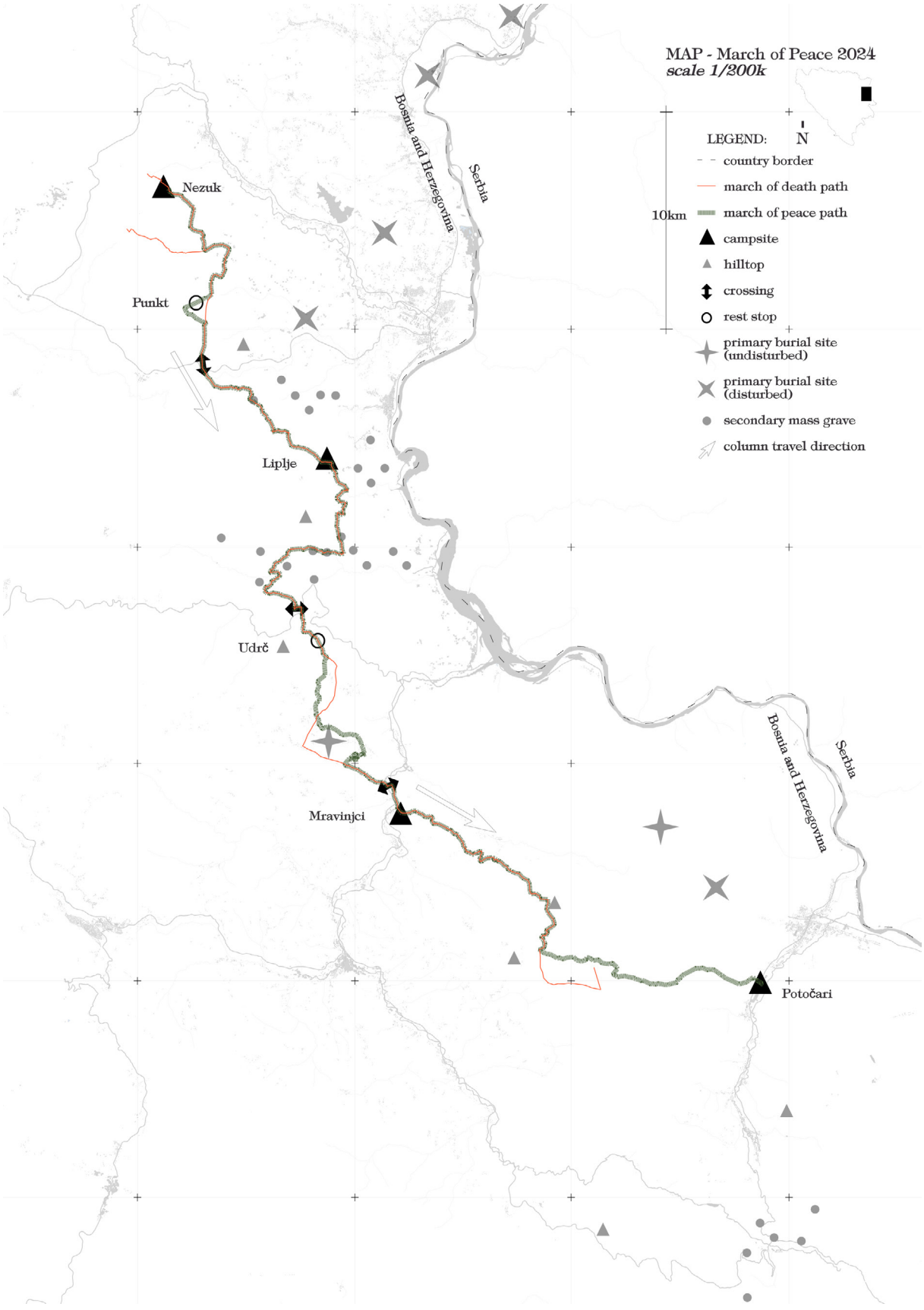

Figure 3 March of Peace 2024 map. Source: Author, 2025. Data derived from: Author (2024); Geograbrik (2025); Isović E. (n.d.); Library of Congress (2002); Marš mira (n.d.); Osmanović & Suljagić (2024); Radio Slobodna Evropa (2020); Udruženje građana Preživjeli genocida (n.d.); Vojnogeografski Institut JNA (1986).

Figure 4 Photograph from the 2024 March of Peace – Day 2. Source: Author, 2024.

On the second day of the March of Peace, on 9 July, my group set out in the early morning before the main column, so as to avoid the crowd and heat most prevalent at midday. The first thing I noticed during this part of the journey was the number of houses. It seemed these areas had more villages and most inhabitants were present to offer supplies. The people seemed generous, kind and were more than happy to share their time. Passing through more villages meant also seeing uninhabited houses, ruins of houses and of a mosque. There were several small monuments marking the presence of mass tombs and murder sites. The second day was characterized by the steep climb up Udrč hill under the hot mid-day sun. Refreshments and supplies were given away atop the open field, and most people took longer resting there compared to other spots. The open field had a wide view toward the route to Nezuk. The significance of this area for the survivors made sense, as it looked to be an amazing spot for hiding, gathering and keeping watch. Further on, the path until Mravinjci camp was paved with asphalt.

On the third and final day, 10 July, we set out again in the early morning. Similarly to the day prior, we passed through villages where people generously shared drinks and snacks. The third day was characterized by hilly forest paths and small streams of water. These proved useful in case of thirst, as they must have been for the column in 1995 as well, especially since the path proved exhausting at times. However, going at a normal pace, socializing with others, and enjoying the scenery helped keep the mind occupied. In the afternoon, after a long and tiring three-day journey, we arrived above Potočari, and proceeded to rest and wait for the rest of the column — since entrance to the Potočari Memorial Center is usually done together ceremonially, so most people refuse to go alone sooner. Afterwards, we entered Potočari in an orderly fashion. After eating and showering at the provided facilities nearby, we slept in tents and, the next day, on 11 July, marked the anniversary of the Srebrenica genocide and recited the funeral prayer (Dženaza-namaz) for the most recently exhumed victims. The atmosphere was intense, especially for the families of those being buried. The sadness of these people was evident and heartbreaking to witness.

5 Architecture or Landscape

5.1 Ecologies

In his writing about landscape patterns, Bell (2012) builds on Louis Sullivan's famous principle of 'form follows function', and explains how a similar, though far more complex, system exists in the landscape. He proposes substituting 'pattern' for 'form', and 'process' as an alternative for 'function', and sequentially says 'pattern follows process' or 'process follows pattern'. For Bell, this explanation aligns perfectly with the way landscapes are shaped, but also how this shaping can further influence processes within nature. This framework provides a useful way of understanding the shaping of the March of Death. The people within the column were first and foremost influenced by the boundaries of war, as they were trying to escape an area contested by the enemy. However, another factor concerns how they practically traversed the landscape. Impassable elements guided the column in different directions, while favorable ones guided them forward. In this sense, the pattern of movement emerged directly from both imposed violence and direct interaction with the landscape itself.

The main factors defining their journey through the landscape were its topographic character, the density of settlements, connectivity, bodies of water, and the character of the vegetation. The area along the path of the March was sparsely populated. Only a few villages were passed, and besides these, few houses were visible, some of which were abandoned. Urban areas nearby include Srebrenica, Bratunac and Zvornik, while larger villages such as Nova Kasaba and Caparde were also

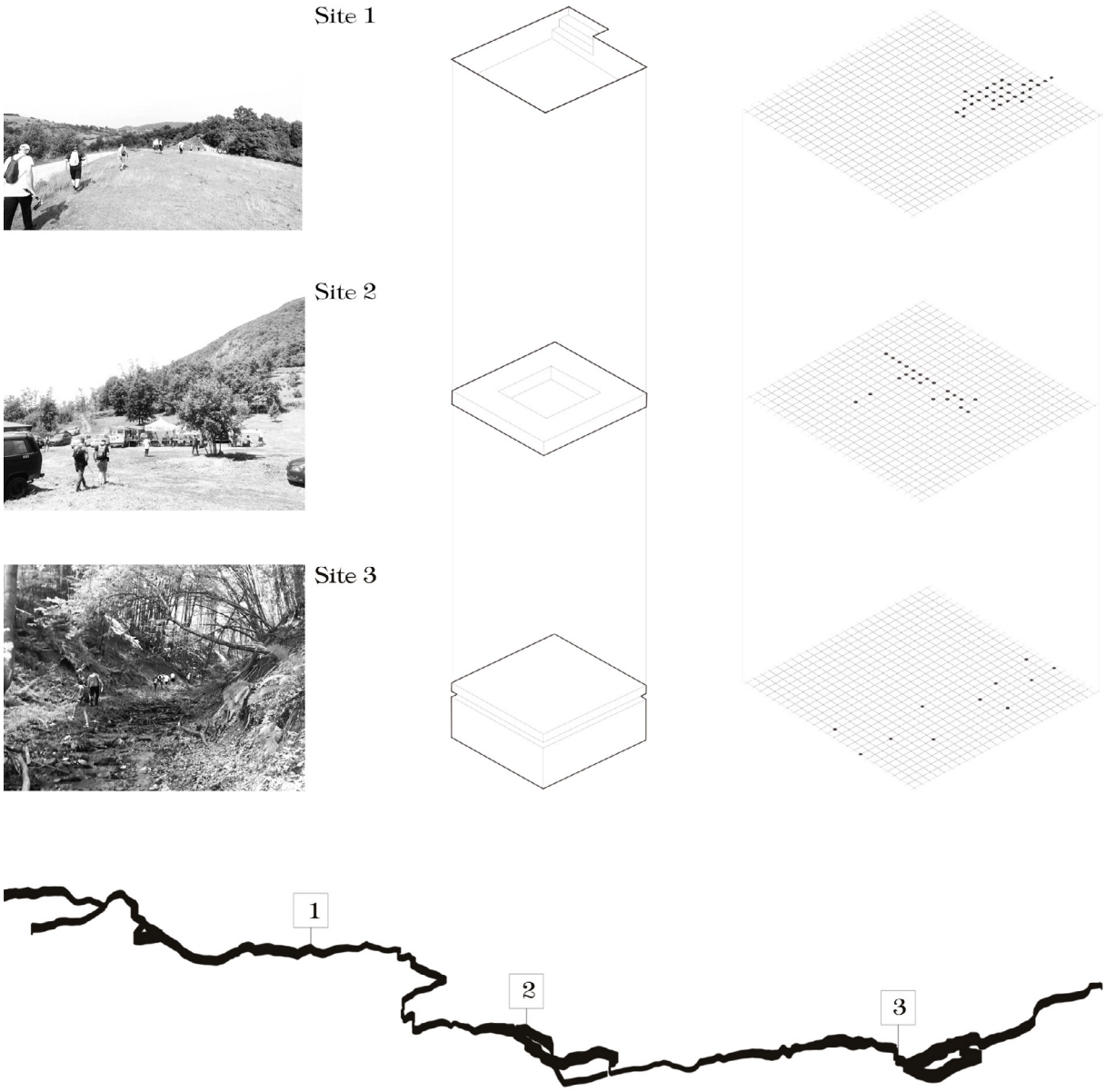

Figure 5a Photographs of the three site interventions. Source: Author, 2025.; **5b** Diagrams of the three site interventions. Source: Author, 2025.; **5c** Diagrams of the three site layouts. Source: Author, 2025.; **5d** Isometric view of sections through the terrain of the March of Death and March of Peace showing the locations of the three site interventions. Source: Author, 2025. Data derived from: Hengl, Leal Parente, Krizan, & Bonamella (2020); Vojnogeografski institut (1986).

avoided. The column of people avoided dense areas so as to remain unseen to the Bosnian Serb forces.

The column mostly passed through unseen and unpaved roads in order to avoid being caught by the Bosnian Serb army. However, they had to cross two main roads, the M4 (Tuzla-Zvornik) and M14 (Milići-Zvornik), at some point. These crossings were highly risky as Bosnian Serb soldiers expected and waited for the column. On the first occasion, the column was ambushed and split into two. Participants preferred going through the forests, avoiding any established roads throughout the journey. Many of the paths the participants of the March of Death took in 1995 were unpaved and unused, as opposed to nowadays during the March of Peace.

The biggest body of water nearby is the Drina river, which marks the border of Bosnia & Herzegovina and Serbia. Most people did not cross the border, and in terms of water bodies, their biggest obstacles were the rivers Drinjača and Jadar. Hasan Hasanović, a survivor of the March of Death, reports the river Jadar to have been a huge obstacle during his journey, as it was flooded in the morning when he had to cross it. Besides the bigger rivers, they had to cross several smaller streams deep in the forest, which were useful as sources of drinking water.

The vegetation is mostly characterized by a huge presence of deciduous trees. They dominate the route of the March, with only small patches of evergreen vegetation. The most common type of forest found along the path, and in this part of Bosnia and Herzegovina, is *fagetum montanum* — mountain beech forest (Stefanović et al., 1983). Open fields, on the other hand, proved to be an obstacle for the column. They were not suitable places

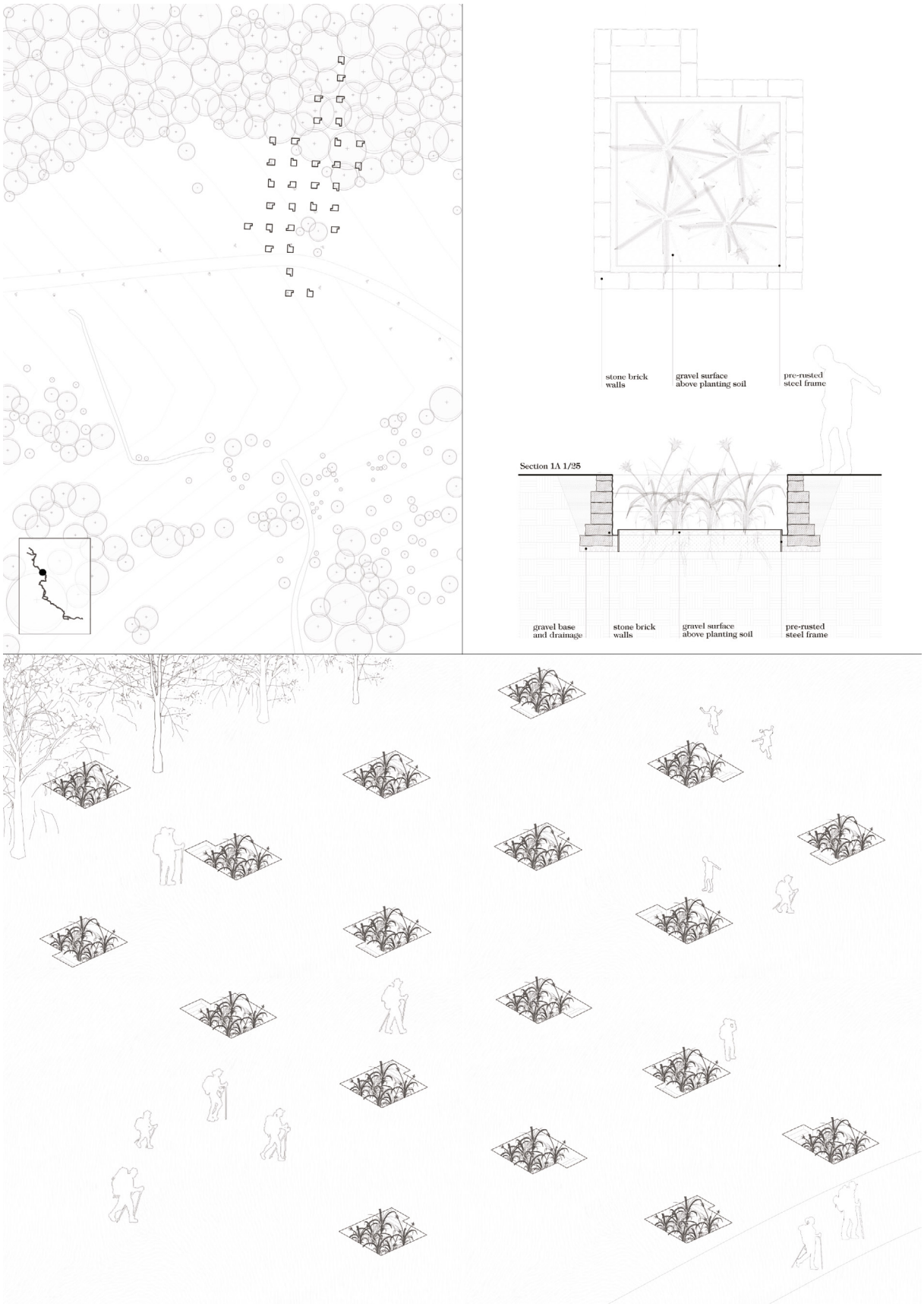

Figure 6a Intervention 1 Plan. Source: Author, 2025.; **6b** Intervention 1 Details. Source: Author, 2025.; **6c** Intervention 1 Axonometric drawing. Source: Author, 2025.

for cover or rest, unlike forests which proved useful for survivors in 1995 and provided cover and shelter during the nights. Evergreen forests, compared to deciduous ones, proved challenging for navigation.

5.2 Vernacular

Larsen argued (2004), the nature of war belongs to the strategic dimension, as it is inherently a political tool. The landscape, on the other hand, enters as a geophysical phenomenon of an entirely practical nature – for attack, defense, survival, logistics, escape, navigation, and similar acts. Indeed, our understanding of landscapes in the context of war has evolved over time. In premodern discussions, the significance of landscape conceptions in war was implicit, without playing an essential role. These conceptions then faced either radical change or minor reevaluation, including conceptions of the landscape as physical surroundings, as a geographical and geological entity, as symbolic, and as a mental projection. In other words, landscapes came to be considered not as having a static presence or purpose in war, but as having roles determined by contextual factors.

Lewin and Blower (2009) made a distinction between the landscape of combat and peacetime. They argue that the elements within a landscape contain a multitude of characters based on this distinction. Elements such as forests, trees, trenches, rivers, roads, and so on, thought to be innocent parts of beautiful and calm scenery, can quickly become places of danger, fear or a contrasting mixture of fear and hope of survival. A tree found in war, even though physically the same as in peacetime, presents not just itself, but its character in the context of battle – a hiding spot, or source of food, for example. Speaking in terms of space, they describe the front as a dynamic position constantly interwoven with the landscape. The landscape, in turn, is attributed a character based on this, and an area deemed safe for marching may stretch out indefinitely – until the first signs of combat arise. The landscape is therefore considered equally open in all directions at times of peace, but in the second case it becomes bounded and inherits a different character. In this way the open character of the landscape can quickly become a prison, based on the circumstances.

By contrast, Pagano (2004) emphasized the aesthetic aspect of the landscape. He argues that the landscape is nature that reveals itself aesthetically to whomever observes and contemplates it with sentiment. Combating the utilitarian viewpoint, he mentions fields outside the city, the river that represents either a boundary or an obstacle to be overcome by a bridge, the mountains, and the prairies of the shepherds, which cannot be considered as part of the landscape. They become a part of the landscape only when a person turns to them without any practical concern. Even though both approaches vary in context, the difference in ideals is evident. The landscape in the case of war can be thought of overcoming this difference, creating a holistic ideal in which the utilitarian and aesthetic aspect of the landscape can coexist. The landscape can both serve as a functional haven for survival, and as a source of joy and inspiration. Perhaps, as in the case of the people who undertook the March of Death, elements of the landscape are able to serve a practical purpose for survival. However, the aesthetic aspect of the landscape may also fulfill this function, hence allowing the landscape to then be considered as a holistic entity with contextual interpretations. The aesthetic views of the landscape, which may subjectively influence those familiar with them and who hold them emotionally dear, could give the observers the will to survive. These views could give them hope – at a given moment they could present them with a view on life or, even in a utilitarian sense, reveal a strategic location which, appreciated for its beauty as well as for its practical value, could fill them with hope. Alternatively, these views could also just be plainly unfamiliar and uninformative to the viewer – the viewer could also simply find within them moments of silence, resilience and hope in their pure, non-utilitarian beauty, contained within a portion of the visible landscape. At a given moment, any one person may draw inspiration from a given view without anyone else knowing of it. Bell (2012) argues for both approaches, and agrees that aesthetic values can be attributed to landscapes, especially utilitarian ones. He argues for this experience to be far richer than that of finding beauty in a landscape painting, which is bounded by a frame and presents only a single aspect of the given frame – the visual one. The living landscape in which a person is immersed goes far beyond the superficial, and proves to provide much more value to a person, both in terms of utility and aesthetics. Similarly, Buckhardt (2015) argues that the landscape may possess inherent utilitarian use, and an aesthetic one which is defined by the viewer and their experiences, emotions, idealizations, familiarities – a matter of subjectivity. Additionally, he points to the fact that the manner in which the landscape is experienced and interacted with matters as well. The action of walking or pointing to see and notice certain things within the landscape can influence the perception and emotions of the observer, therefore framing the experience and emotions felt towards it.

With regards to the 1995 March of Death, the main survival factors for the participants were shelter, cover, hunger and thirst. The most notable elements of the landscape that influenced their chances of survival were undoubtedly the forests, which could provide shelter and prevent the Bosnian Serb forces from noticing them and therefore capturing or killing them. Thus, the forests provided the main means of survival, which was to remain unseen, but besides this it also offered protection from other factors, such as cold nights, and rain. Contrary to the forests were the open fields, which provided no cover. The open fields were to be crossed quickly and during the night. Many of the participants were unfamiliar with the terrain and path leading to Tuzla, but leaders of groups and locals would guide others. The forests in eastern Bosnia and Herzegovina, through which the column participants traveled, mostly consist of beech forests. Some people took different routes and passed through Coniferous forests, where the dominating tree species are fir, spruce and pine, and are usually similar in height, width and overall look. This would cause confusion and difficulties in orientation. Besides protection, the forests provided the food necessary for survival, and comfort, given that the conditions for survival were better, but also anxiety, knowing the enemy could be hiding behind

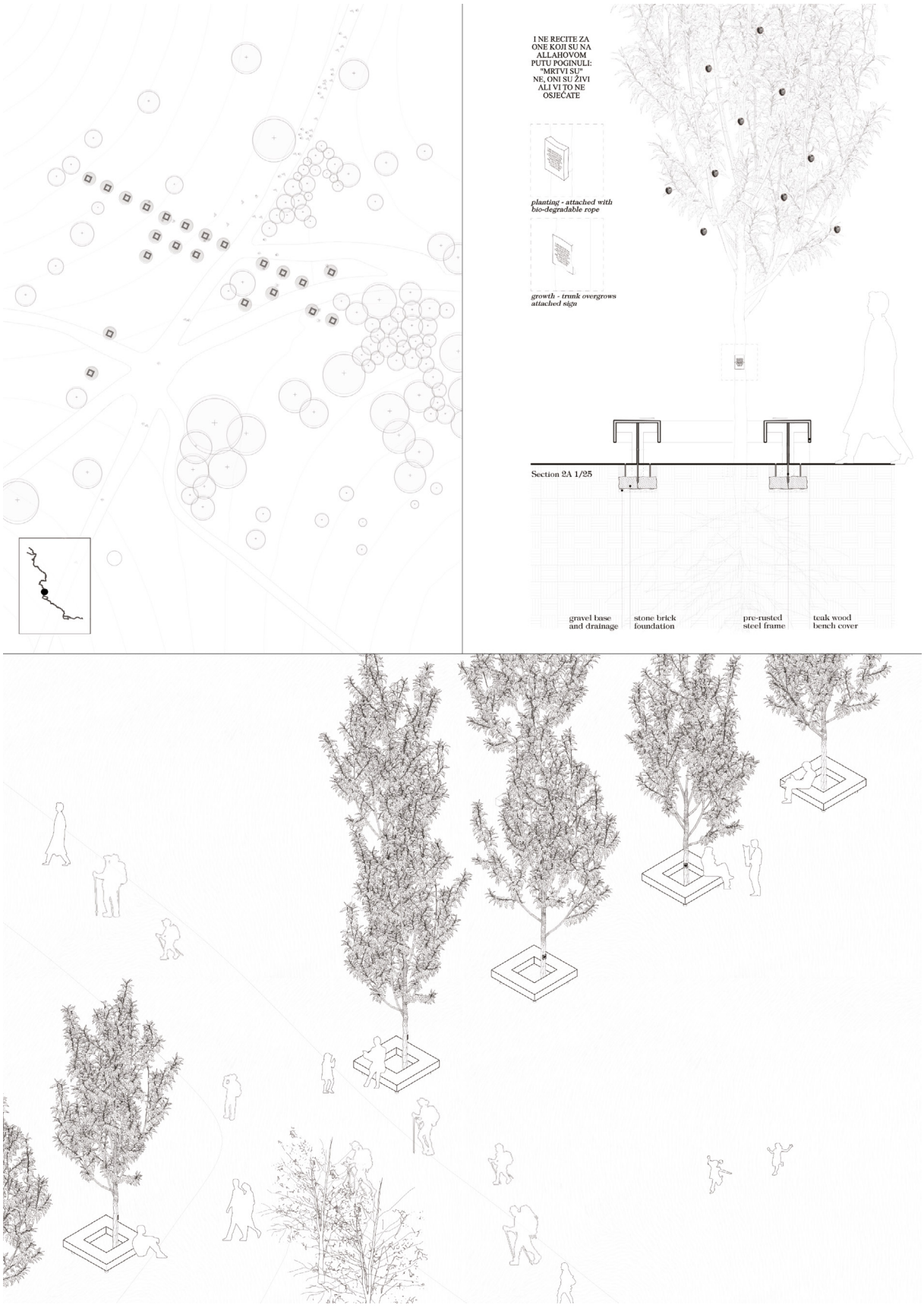

Figure 7a Intervention 2 Plan. Source: Author, 2025.; **7b** Intervention 2 Details. Source: Author, 2025.; **7c** Intervention 2 Axonometric drawing. Source: Author, 2025.

the next tree. In instances, elements from the landscape, such as rivers, were used for the generation of electricity, with the use of dams. The landscape at times, could be described as providing vernacular and primitive means of survival, diminishing the barrier between landscape and architecture. Many parts of the landscape were familiar for some, and provided comfort in this way. Hills such as Udrč, which was seen from both sides, even though hard to climb, provided a good overview of the surroundings and protection. The field on top allowed the group to recover and gather for food, information and support (M. Omerović, personal communication, 8th January 2025). The summer season played a huge advantage for people, as it was possible to sleep and survive outside during the night. However, people still improvised, and on occasion slept in caves, and houses in villages, either abandoned, unfinished, or offered as a courtesy from the tenants (Osmanović & Suljagić, 2024).

6 Memory as Landscape

6.1 References

The French garden designer Bernard Lassus, referencing academic landscape design, explains that the need to intervene in the landscape stems from the failure of people to recognize in landscapes what is already present – that is, those hoping to create a new landscape fail to see that one is already there. He concludes that a minimal intervention should start from understanding the aesthetics of the existing situation (Buckhardt, 2013).

Buckhardt presents numerous examples to illustrate his point, with projects such as "7000 Oak Trees," where minimal gestures hold very strong and impactful messages. The project by Joseph Beuys was used to communicate environmental problems and the design consists of 7000 oak trees planted around Kassel, Germany, with a stone added next to each one. The stone remains almost unchanged in comparison to the oak tree throughout the years, pointing to the act of change and growth in a very refined and minimal way.

In terms of experiential memorials, for example, several deportation-related memorials of the Holocaust from World War II include exhibitional acts. For example, they feature trains which bring the visitor closer to the acts of memory, instead of a mere physical representation of artifacts and information (Gigglioti, 2010).

Overall, besides very effective and visually imposing memorials for an event as significant as genocide, my approach focuses on interventions which offer the potential imposition of their message, through a refined and minimal way, such as the ones referenced here.

In terms of landscape art and the imposition of messages, Ian Hamilton, a land artist, and former poet, specifically his work from 2010, proves to be an important reference. For him, not only is our contemporary world a secular, materialist and fallen one from which ideal meaning has been banished, but also our perception of nature is now framed and informed by previous interpretations. What is most striking about his work is the use of words and inscriptions, showing the presence of language and meaning (Carlson, 2015). "Little Sparta", set in the Pentland Hills near Edinburgh, is one of Ian Hamilton's greatest work of art. The collaboration with stone carvers, letterers, and at times other artists and poets, explores diverse themes such as history and our relationship to nature. The wooden, stone and metal elements are sited in relation to carefully structured landscaping and planting, in which the garden in its entirety becomes the artwork (Little Sparta, n.d.).

6.2 Proposals

According to Relph (1976), places can be described as fusions of human and natural order and are the centers of our direct experiences of the world. They are defined by their focus on particular settings, more so than on the overall location, landscape, and communities. Places are not mere abstractions or concepts – they are the immediate phenomena of our inhabited world and are therefore packed with meaning, real objects, and activities. The March of Peace is not merely a walk through a landscape of forests and fields – it is a walk through a historical set of heavy events, places which hold weight. Naturally, this can be felt through physical traits in the landscape, but is especially pronounced when experienced by a subjective persona, such as the survivors. Anyone who did not undergo the original journey can never be fully aware of its implications. However, the landscape can act as a powerful tool for empathy. The people marching hold great respect for the memory of the Srebrenica genocide, and already possess the preposition of having empathy for the victims for undertaking it. The route of the March of Peace is full of subtle yet strong meanings, with elements possessing a multitude of dimensions, waiting to be uncovered by the viewer. The principle of walking and discovering the sublime elements of the landscape could be described as strollology, a concept defined by Buckhardt (2015). Buckhardt defines the landscape as a construct, which conveys the simple notion that a landscape is only to be found, not in the environmental phenomena, but in the eye of the observer. Therefore, to observe a landscape in our environment is a creative act done by bringing forward certain elements, and excluding others, and simultaneously combining and integrating what we see.

Buckhardt (2013) states that the initial step of creating a minimal intervention may be to open the eyes of the viewer to the existing landscape or urban scenario. The intervention would then elevate the experience, in a way to not only intrigue, but motivate the viewer to see. He further concludes that such interventions would not be necessarily created with bulldozers and artificial fertilizers. They would simply be designed to change the concept we hold onto, leading us to contemplate different meanings with regards to what we can physically observe throughout the March of Peace experience, for example. The events associated with the Srebrenica genocide did not only happen in Srebrenica, but followed the entire March of Death path; therefore, tracing memory throughout the landscape proves to be an interesting starting point.

The March of Peace route consists of a multitude of physical and sublime layers. Indeed, the contrast between the three ecologies of flat open fields, forests and hilltops is evident throughout the journey – one which is naturally

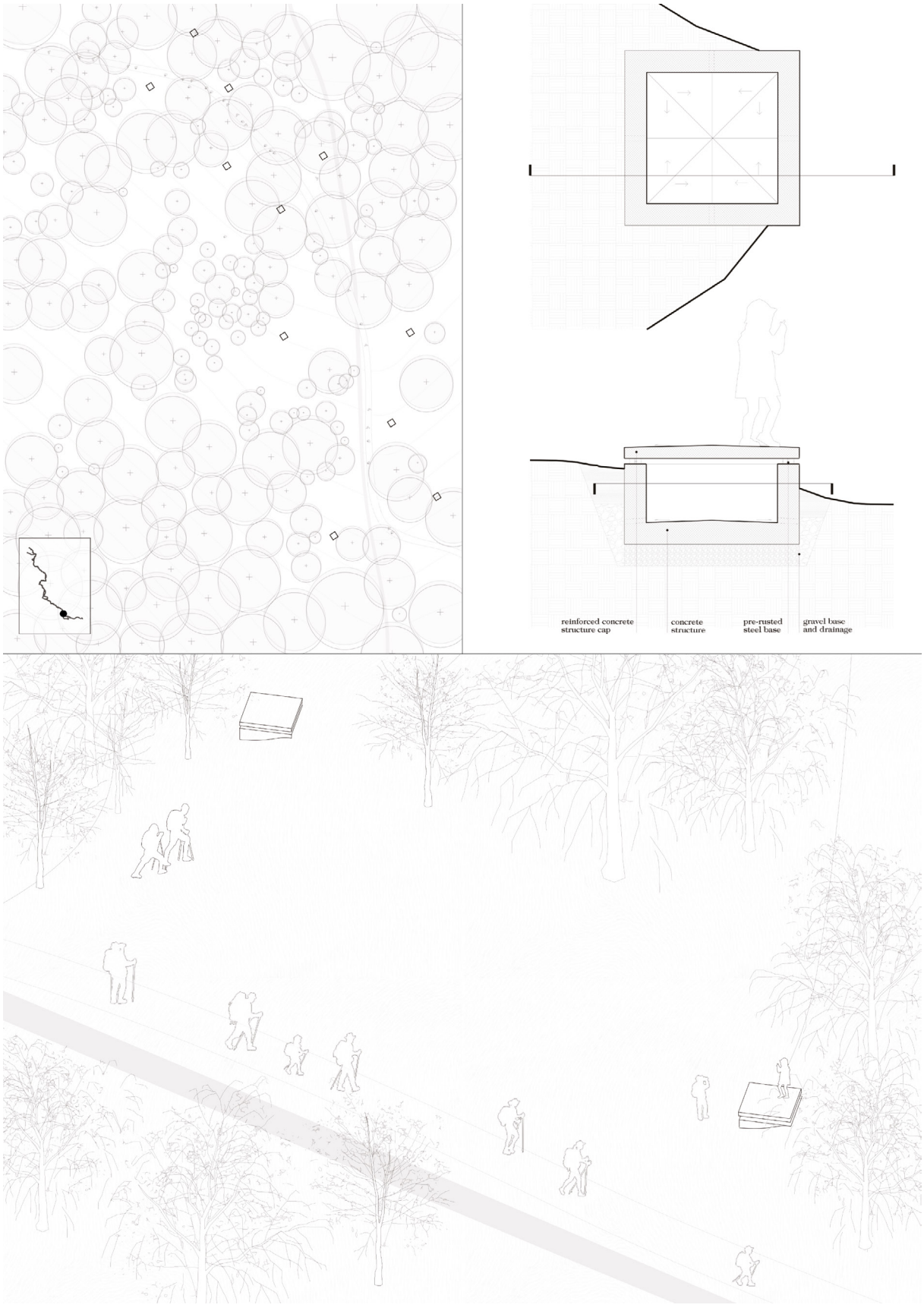

Figure 8a Intervention 3 Plan. Source: Author, 2025.; **8b** Intervention 3 Details. Source: Author, 2025.; **8c** Intervention 3 Axonometric drawing. Source: Author, 2025.

conceived as a continuous experience, rather than a single place. However, some places hold more weight than others, and the project areas have been selected based on this distinction. The proposal areas consist of a diverse picking of three places on the journey for each day of the March. On the first day, the journey is characterized by travel through open fields. The second day is most specific for its climb up Udrč to a major rest area. The third day is marked by dense forests with streams and steep hills. All three interventions are found along the path on each of the three days respectively. The symbolism of the interventions follows the overall narrative, together with the design of the details. The first day carries the symbol of death characterized by the open fields. The second day is characterized by hope on the climb up the hill of Udrč. The third day is symbolized by survival, as it goes through dense forest terrain with plenty of water streams. All three interventions are interconnected through their sublime character and the use of a recta-linear grid and elements that contrast the organic landscape.

1. The first intervention (Figures 5 and 6) is defined by carved-out holes in the terrain, from which Bosnian lily (Lilium bosniacum) flowers emerge. As a historically significant flower of Bosnia and Herzegovina, found commonly in hilly terrains around the country, it symbolizes life underground – in memory of the people who were killed. This species blossoms during summer (National Gardening Association, n.d.), and the yellow vibrant colors of the plant would define the open landscape during the March of Peace journey every year, therefore bringing forward the element of the thoughtful remembrance of the victims. During the March of Peace in July, the species would blossom outside of the holes, creating an atmosphere which would invite observers to contemplate and remember the victims. Simultaneously, the flowering would symbolize the activation of the annual event and memory. The design is characterized by a stone frame and corroded metal around the gravel-covered ground onto which the flowers are planted. A staircase would be used to experience the design more closely and, before blooming, as a way to walk down and experience the soil.

2. The second intervention (Figure 7) is placed on a major resting spot on Udrč. The area may be described as a flat hilltop with a clear view of the surrounding landscape. The elements would be arranged in a linear manner within a recta-linear grid, perpendicular to the oncoming path of the people in order to oppose movement, as they should stop, rest, admire the landscape and contemplate. This intervention consists of benches surrounding a commonly found species of wild plum trees (Prunus cerasifera), which bear fruit in summer during the annual March, and would activate the memorial with their bright red color fruit (Plantura, n.d.). Plums are characteristic for Bosnian and Herzegovinian culture and cuisine, and were a source of food during the March of Death. The trees would hold a wooden board reading a verse from the Quran found on tombstones in Srebrenica, acting as a continuous memorial by connecting fragments of the journey to the cemetery in Potočari. The translated verse (and original inscriptions) read:

"Never say that those martyred in the cause of Allah are dead — in fact, they are alive! But you do not perceive it" (Qur'an 2:154).[1]

3. The third intervention (Figure 8) is located within the characteristic landscape of dense forests and small river streams which defines the third day of the March of Peace. Elements would be scattered along the path using the same strategy as in the previous two intervention sites, inspired by the superimposition of formal geometry to contrast the organic nature of the surrounding landscape. Each individual element would consist of a concrete platform with a void underneath, and a small gap on top for sounds to enter from the natural surroundings or movements on the platform. The concrete objects would visually contrast the organic surroundings, and draw people to step on them to produce the same sounds.

All three interventions, although at different spots along the March of Peace, would be connected through their character, strategy and visual formality. The visitors' attention would be drawn to otherwise overlooked landscape elements and the memory of the victims and survivors. This strategy would define the path along the March of Peace as not a mere place of passage, but accentuate elements of the landscape as significant for survival.

7 Conclusion

There is already a substantial amount of impactful documentation that deals with the Srebrenica genocide and its historical context. The significance of this work in these realms it barely touches upon is not the main focus, but a mere starting point. This work attempts to explore the Srebrenica genocide and the Death March mainly through the realm of landscape design and memory. It attempts to synthesize the functional and emotional significance of the landscape, both in times of war – how people used its resources and visuals for the purpose of survival – and in times of perceived peace later on, where the landscape remains a silent battlefield for justice and the honor of the victims. Through the exploration of this work – the theoretical approach and design intervention proposals – a small, but hopefully lasting and impactful contribution has been made. The contribution constitutes a voice for justice, and the abolition of injustice via the means of war. Furthermore, it constitutes an insight on how a landscape can serve as a vessel of memory and resilience, contributing to ongoing discourse and reinforcing remembrance of the horrific events in Srebrenica.

1 *"I ne recite za one koji su na Allahovom putu poginuli: 'Mrtvi su' — Ne, oni su živi, ali vi to ne osjećate"* (Qur'an 2:154)

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The Planning Bus (Planbussen): Problem-, Project-, and Practice-Based Learning (P3BL)

Autobus za planiranje (Planbussen): učenje zasnovano na problemima, projektima i praksi (P3BL)

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Abstract Planbussen is a master-level course in local development and planning offered within the five-year Master of Architecture program at the Department of Architecture and Planning. It focuses on planning challenges in smaller towns and rural municipalities, emphasizing the need for proactive development strategies. Conducted in collaboration with 2–3 municipalities each year, Planbussen is rooted in practice-based fieldwork and real-world problem solving. The course aims to enhance students' planning competence while exploring the educational value and societal relevance of problem-, project-, and practice-based learning in architecture and planning education.

Keywords societal relevance; problem-based learning; project-based learning; practice-based learning.

Sažetak Planbussen je master-kurs iz oblasti lokalnog razvoja i planiranja ponuđen u okviru petogodišnjeg Master programa arhitekture na Odsjeku za arhitekturu i planiranje. Fokusira se na izazove planiranja u manjim gradovima i ruralnim općinama, naglašavajući potrebu za proaktivnim razvojnim strategijama. Sprovodeći se u saradnji sa dvije do tri općine svake godine, Planbussen je zasnovan na praktičnom terenskom radu i rješavanju stvarnih problema. Cilj kursa jeste da unaprijedi studentske kompetencije u planiranju dok istražuje obrazovnu vrijednost i društvenu relevantnost učenja zasnovanog na problemima, projektima i praksi u obrazovanju iz arhitekture i planiranja.

Ključne riječi društvena relevantnost; učenje zasnovano na problemima; učenje zasnovano na projektima; učenje zasnovano na praksi.

1 Introduction and Background

1.1 What is The Planning Bus (Planbussen)?

The Planning Bus, from now on in this text called "Planbussen" is a master-level course in local development and planning within the five-year Master of Architecture program, offered by the Department of Architecture and Planning at our university. The course consists of an elective project module worth 15 ECTS credits, in conjunction with a related theoretical module worth 7.5 ECTS credits and is open to all architecture students in their fourth and fifth years (master's level). The goal of the course is to enhance architecture students' planning competence, with a particular focus on the development and planning of smaller towns and settlements, where the challenges often differ significantly from those found in larger cities and urban areas (for example, municipalities in rural areas often need to actively drive development rather than just manage it (Cruickshank, 2018)). The course runs throughout the spring semester, starting in mid-February and concluding with the final project submission (exam) around May–June. Since 2022, the course has been conducted with groups of 8–13 students, and each year involves direct collaboration with 2–3 municipalities and their towns, which become the project areas students work with.

The main idea behind the course is to give students the opportunity, during their studies, to engage with and be exposed to current and real-world issues and challenges faced by Norwegian municipalities and towns. It is largely based on practice-oriented fieldwork, where the testing and application of theory and methods in real-world situations is a key component. Based on this course (Planbussen), we aim to explore what types of learning and knowledge are enabled through problem-, project-, and practice-based teaching, and what this approach can offer academia and other stakeholders. In addition, we ask whether there is potential for greater impact and societal relevance in higher education teaching. Before delving into these questions, we will outline the academic conditions and circumstances under which the course was originally created, and how this can be viewed in light of contemporary teaching in the fields of architecture and planning.

1.2 A Planning Background: The Forgotten Settlements

Planbussen was originally a planning course initiated and led by a former employee, now Associate Professor at the Department. The course emerged as a reaction to the lack of emphasis at the time on the physical qualities and environments in the planning and development of Norwegian towns — both within educational institutions and in professional practice. The course and the student projects were primarily focused on land-use planning and physical design responses (architecture and design), and we would argue that they largely fulfilled many of the wishes and guidelines set forth by the collaborating municipalities involved.

One of the main intentions behind the course was to highlight and bring attention to the absence of architectural and planning-related themes, needs, and perspectives in contemporary Norwegian municipal planning — and to shed light on the potential consequences this neglect could have on ongoing local development. Despite strong engagement from instructors, students, and municipalities, the course was discontinued in 2009. Without speculating on the reasons for its discontinuation, it is fair to say that the circumstances and the need for a stronger focus on local development and planning in Norwegian towns remained just as critical in 2009 as they were when the course was first introduced in 2003.

When compared to the current situation, the academic conditions and the state of development and planning in Norwegian towns remain largely unchanged — and one could only wish and hope that more progress and transformation in the field had been seen by now.

1.3 The Need for Increased Public Planning Competence

Although there may not have been major changes in practice, the need for increased efforts in Norwegian local development and planning competence has been widely discussed over the past ten years and has been raised high on the agenda — both politically and within educational institutions. In 2014, a major survey was conducted on behalf of KS (the Norwegian Association of Local and Regional Authorities) to assess municipalities' available planning competence. The results showed that two out of three municipalities reported having less than half a full-time position dedicated to spatial planning, while as many as nine out of ten stated that they to varying degrees rely on external consultants as part of their planning work (NIVI, 2014).

As a result, the "Forum for Education in Societal Planning" (FUS) and KS, in collaboration with the Ministry of Local Government and Modernisation (KMD), published the strategic document "How to Increase Educational Capacity in Public Planning?" in 2019. This document set the goal of both educating more planners and strengthening general planning competence — among other things, by expanding architecture education (Grønning & Aarsæther, 2019).

This was one of several contributing factors behind the decision, during the pandemic, to allocate 20 additional study places to the five-year Master of Architecture program and 20 places to the two-year Master's in Physical Planning at our university. This was a combined effort to provide more study opportunities for students affected by the pandemic while also boosting planning competence in Norway (in line with the strategy document). However, after the pandemic, these additional study places were withdrawn, and the previously stated commitment to increasing educational capacity in Norwegian public planning appears to have partially faded away.

2 Education and Teaching

2.1 Urban vs. Rural Focus

But the responsibility does not lie with politicians and government ministries alone — educational institutions also bear responsibility and have room to act, not only in terms of who or how many are educated, but also in how and with what content they are educated. Today, nearly half of all architects in Norway are educated at our university, and as a "producer of future planners," we have a clear and significant societal responsibility.

The lack of capacity in public planning is not solely due to too few architects and planners being graduated, but is also a consequence of what has historically been the focus of the educational programs. For a long time, there has been a divide between urban and rural contexts within the architecture and planning professions, which over the past century have maintained a clear urban orientation and focus (Frank & Reiss, 2014). That many municipalities — especially the smaller ones in rural districts — struggle to attract the right expertise must therefore be seen in light of the fact that municipal work has not sufficiently been presented as a viable or attractive career path for many architects and planners, who have long preferred urban design projects. This has, in turn, led to rural perspectives and considerations being partially forgotten, deprioritized, or under-communicated.

Of course, not everyone falls into this pattern. There are many who have worked to promote alternative perspectives beyond purely urban ones, and Norway does have several dedicated planning programs. However, the architecture profession appears to have been somewhat slower to respond, and while municipalities have long called for the necessary expertise, educational programs are only now beginning to respond.

Although the need for and focus on local development and small-town challenges have increased in recent years, the solution is not necessarily as simple as transferring urban theories and methods to rural contexts. Norwegian planning theorist Jørn Cruickshank is among those who question whether our existing (urban) theories are even suitable or appropriate for the situations and challenges that today's (rural) towns and communities face (Cruickshank, 2018). While Planbussen alone may not be capable of producing entirely new (rural) theories and methods, it can at the very least expand the range of perspectives and approaches available to Norwegian planning and local development — and perhaps especially within architecture education.

2.2 Problem-Based Learning in Architecture and Planning

Like other profession-based programs at the university and college level, architecture and planning are situated somewhere between theory and practice — two aspects that are often presented as opposites, where one is emphasized and favored at the expense of the other. The criticism typically goes that theory-heavy perspectives are too detached from reality, idealistic, and lacking grounding, while practice-oriented approaches fail to contribute to further theorization and research, merely reacting to what is rather than exploring what could be.

The pedagogical stance in Planbussen is not to prioritize either practice-based or theory-based learning and teaching over the other, but rather to recognize that both have their relevance and rightful place in education and academia, and must be used and understood in interplay with one another. Without a connection to practice, the gap between education and reality can grow significantly, and without theoretical perspectives, both practitioners and students may struggle to understand and position themselves and their work within a broader academic and theoretical context.

In teaching, problem-based learning (PBL) — which was introduced around the turn of the millennium — has become a recognized and widely used method. PBL seeks precisely to create a link between theory and practice, where students are exposed to an abstracted form of reality, intended to better prepare them to handle similar issues later in their professional careers (Salihović et al., 2016).

2.3 Studio Culture and "Community of Practice"

This form of teaching (PBL) is strikingly similar to the project- and studio-based culture that has long been the dominant mode of instruction within architecture and planning education, where students are given projects and assignment briefs intended to represent the types of challenges and situations they may encounter in professional practice, while also allowing room to develop, theorize, and reflect on their own formation and discipline.

However, this form of "studio teaching" has also been criticized for being too dependent on and limited by the experiences, perspectives, and attitudes of the instructor or course leader. This means that the selected themes, pedagogical approaches, and assignments often fail to respond adequately to contemporary changes and developments, and instead become reproductions of previously known tasks, themes, and methods (Crabbe et al., 2022). There are, of course, exceptions, but these are often dependent on individual initiative and require a greater degree of professional or pedagogical engagement (which, unfortunately, is not always present). By starting from a real situation, the framework and direction are instead shaped by what is actually happening and evolving in the field, not solely by the instructor's or institution's perspective, awareness, or overview.

A particularly important and positive aspect of studio culture, where students work alone or in groups within the same space, hall, or studio, is what Etienne Wenger refers to as a "community of practice," where students not only learn from what they themselves do but also from what their peers do and produce (Wenger, 1998). However, for this to become more than just a random form of learning — dependent on chance — it must not remain a latent and incidental element of the teaching.

It is not enough for the student group to simply possess diverse skills and knowledge and be working on different things; they must be challenged and encouraged to actively learn from one another and share their experiences through structured teaching activities. In Planbussen, this is achieved through extensive use of peer evaluation and feedback, student presentations and idea workshops, shared tasks across project groups, and facilitated guidance sessions that also address group dynamics. In this way, students' unique qualities and experiences are recognized and highlighted, and they learn to support one another while finding confidence in areas where they have control and feel a sense of mastery. In our view, it is not enough for instructors — and ideally the students as well — to merely have an awareness of pedagogy and education; it must also become an active part of the teaching process.

2.4 Project- and Practice-Based Learning in Planbussen

In Planbussen, we aim to take these established teaching and learning concepts (PBL and "community of practice") a step further — away from the normative frameworks typically set by studio- and lecture-based teaching. As a learning activity, Planbussen combines problem-based and project-based education and applies them to a real place and a current context. This enables the practical application of (theoretical) knowledge, where students also receive direct feedback and reactions from instructors, the municipality, and residents throughout the process.

Rather than presenting students with a simplified version of reality, we allow the place itself to define the framework and starting point for the projects and problems students will work on — with all its unique facets, challenges, qualities, and possible approaches. This results in somewhat less predictability, control, and oversight, but at the same time more accurately represents the reality and practice that students will eventually have to face.

Learning and project work therefore take place not only within the confines of a studio or drawing room but in situ — on-site through fieldwork — based on the real conditions and challenges of the place. In this way, students cannot choose to relate only to a simplified, pre-defined description of what is relevant or real (as defined in an assignment brief), but must instead reflect and engage in dialogue with the municipality and local residents to determine what kinds of input, answers, and investigations are needed.

To do this, the students must apply previously acquired knowledge, theory, understanding, and competence in what for most is a new and unfamiliar environment. In this sense, students are not merely asked to respond to a pre-defined question but must also participate in identifying which questions and topics are relevant for the specific situation, and how their profession can contribute to it.

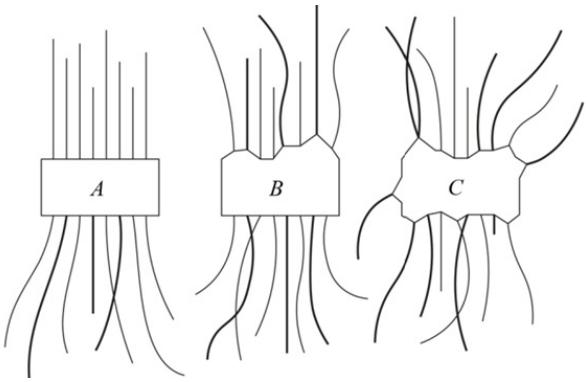

Figure 1 *A* - Example of a static and streamlined educational institution. *B* - Institution that partially adapts to and responds to the students. *C* - A dynamic interaction and exchange between the educational institution, the outside world, the instructors, and the students. Source: Based on figures originally published by Burazor & Schwai, 2018 and Archipovaite et al., 2016.

In doing so, students are given the opportunity to shape and influence their own assignment, teaching, and education (Figure 1). We believe that this approach makes the education, course, and teaching more realistic and relevant — and there are cases where student projects have led to actual measures and investments by the municipality.

2 The Planning Bus (Planbussen) in Practice

3.1 Planbussen in 2021

The educational initiative "Planbussen," in its current form, was revived in the fall of 2021 as an effort to address the previously mentioned lack of emphasis on rural topics and local challenges within the architecture education at our university (see section 1.4). The immediate trigger was a request from a municipality that wanted to collaborate with the architecture program, which rekindled the idea and opportunity to restart the course.

Compared to its original version in the 2000s, the current course still focuses primarily on the relationship between planning (land use) and architecture (physical environments), but it also acknowledges that social, ecological, and economic perspectives must be included as part of a holistic approach to local development and planning.

With the understanding that we still do not have all the answers or solutions to the challenges posed by the ongoing nature and climate crisis, Planbussen aims to approach each location and assignment with a clean slate, setting few guidelines or expectations for which themes or perspectives should be addressed — or what can or cannot be part of the student projects delivered at the end of the semester. The goal is to uncover new or different questions and answers, rather than simply reconstruct what is already known.

This requires that we, the municipalities, and the students all accept that it is not predetermined what the students and the course will work on, and that the format of the projects may not necessarily conform to the typical normative architectural or planning formats commonly found in education and practice (which we view as a form of necessary academic freedom).

From a pedagogical perspective, this means students must be conscious of and take an active role in their own education and learning. This is supported through the course's general learning activities and specific reflection assignments, where students are asked to reflect on and evaluate their completed activities, group dynamics, choices and use of various tools and methods, as well as discussions of overarching topics related to architectural, planning, urban, rural, social, and sustainability-related perspectives.

3.2 Collaboration with Municipalities

Since 2021, Planbussen has visited and collaborated with 9 municipalities and towns in the counties of Trøndelag and Innlandet (as of summer 2025). The smallest place had just under 200 residents — below the formal definition of a town — while the largest had around 10,000 inhabitants. The selection of potential partner municipalities and towns is based on a combination of their size, practical considerations (such as travel distance, administrative capacity, accommodations, etc.), academic factors (such as variation and composition of locations), and a mutual understanding between us and the municipality regarding the opportunities and limitations such an academic collaboration entails.

This includes, among other things, that we as instructors cannot (and do not wish to) guarantee what will be delivered at the end (beyond formal requirements), or what the students choose to work on. Instead, we aim primarily to address the issues we identify and find relevant.

In the fall of 2021, we sent a request for collaboration to around 30 municipalities, one-third of which responded positively right away. Since then, we have mostly continued working with those respondents without needing to find new partners. We have also seen growing awareness and interest among municipalities regarding Planbussen as a possible initiative, which has led to a few new inquiries.

The experience from these collaborations has generally been positive, and we find that the motivation and drive are strong among many municipalities — even in times of tighter budgets and poor forecasts. Feedback after completed collaborations has been unanimously positive, and Planbussen appears to offer something that municipalities recognize and value.

In addition to being open and willing to collaborate, municipalities must also be able to provide financial support for the implementation of the course. Given the significant budget cuts and reductions in the higher education sector in recent years, this support has been crucial in making it possible to conduct Planbussen in line with the academic and pedagogical goals we uphold. In return, the municipalities receive access to the students' ideas and input and are sent the final project materials at the end of the semester (both in physical and digital form). All student projects are also published on the website www.planbussen.no.

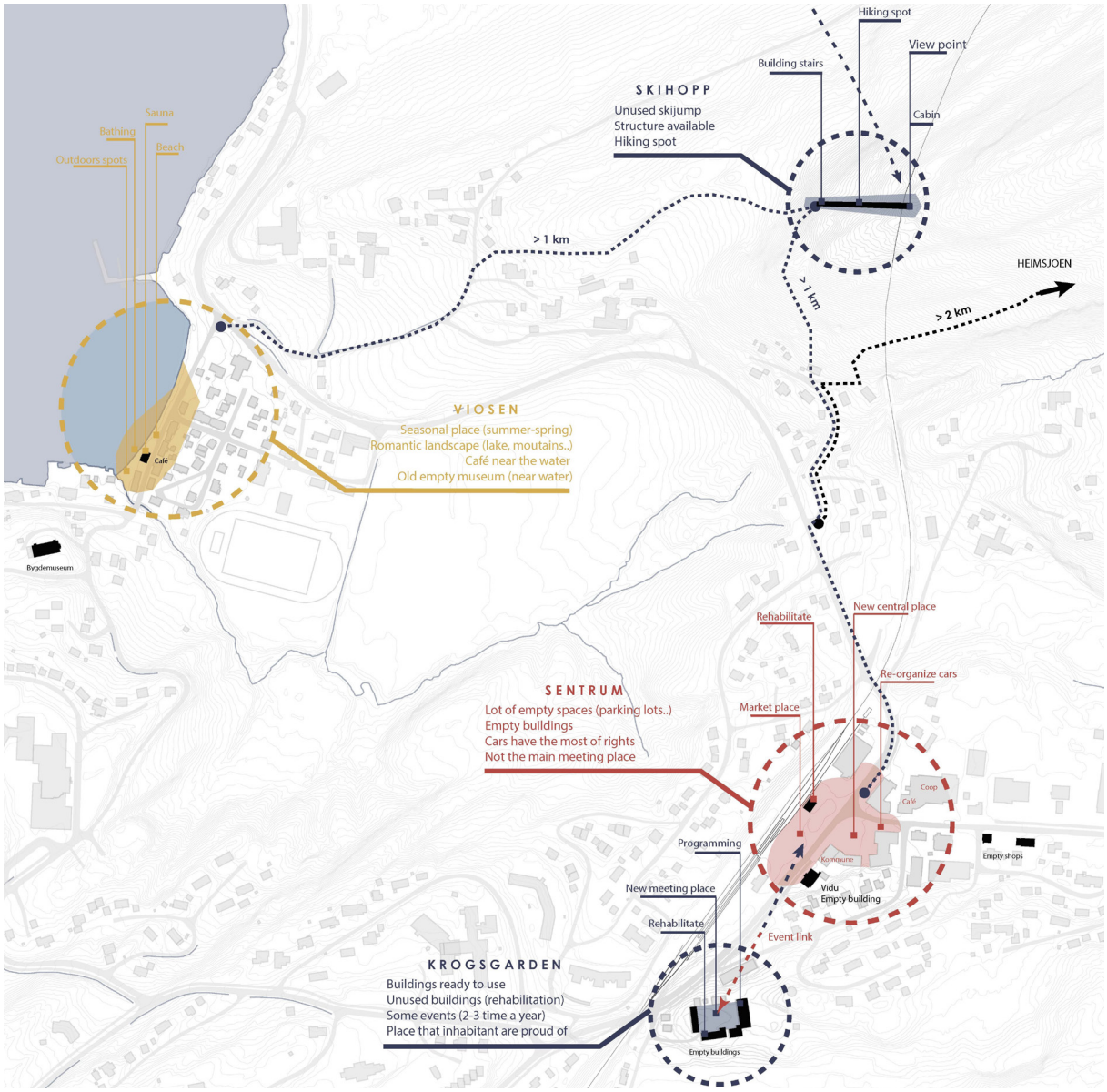

Figure 2 Project example that incorporates elements of planning, strategy, architectural projects, and other interventions. Source: Matthias Guillois & Nolwenn Jobard-Houdusse, Planbussen, 2023.

3.3 Fieldwork, Interaction, and Place Understanding

During a semester, we typically visit 2 to 3 municipalities and towns. We do this to offer and expose students to a range of variations in terms of geography, topography, industries, economy, nature, population, culture, social conditions, size, density, and more. This also allows students to explore and work with different themes and perspectives, thereby expanding their own repertoire and competence.

The semester begins with an initial preparatory phase, where students attempt to map, describe, and analyze the place remotely — a form of distance investigation and understanding. The students' first physical encounter and interaction with the site takes place through fieldwork, which usually occurs within the first two months of the semester. These visits last between 2–6 days, and the goal is for students to complete both a week-long stay at one location and a second visit to another place in the form of two shorter stays spaced a few weeks apart. This allows students to experience and understand the difference between engaging with a place and its context at varying depths and durations.

In advance, students must themselves (with guidance) plan how they intend to investigate and interact with the place and its local population. What can they find out beforehand? What is only possible to discover on-site? How is the place presented externally? What do they expect to find or uncover? In addition, they must assess and understand the wishes and perspectives presented by the municipality and try to identify the underlying intentions, whom they represent, and whether there are alternative or overlooked themes that have been forgotten or under-communicated.

Each fieldwork visit concludes with a public town meeting, where the students present and exhibit their initial ideas and project drafts and receive direct feedback and reactions from local politicians, administrators, and residents. This gives the students a final reality check and

Figure 3 The students' first encounter with the place, where they are given a tour by the municipal planner. Source: Authors, 2023.

Figure 4 The students present their project drafts at a public town meeting at the end of the fieldwork. Source: Authors, 2024.

Figure 5 Interaction between students and residents outside the local grocery store. A model, drawings, a prize wheel, and a questionnaire are used to initiate contact and dialogue. Source: Authors, 2022.

Figure 6 Final presentation and exhibition of the completed projects at the end of the semester. Source: Authors, 2022.

adjustment of their work before returning to the studio to continue developing their projects for the remainder of the semester.

Although most of the interaction and communication with the local population takes place during the fieldwork, the public meeting also serves as a potential arena to connect with key local figures, dedicated community members, and informants who can provide invaluable insights and input for further project development.

To prevent students from merely reacting to the existing conditions of the place without aspiring toward more utopian future visions, they are assigned specific tasks throughout the course that encourage them to break free from current constraints and imagine what might be possible beyond today's limitations. They are also tasked with discussing and understanding the places in a broader regional and global context — before, during, and after the fieldwork — to help reframe the places in relation to wider issues.

For many of the exchange students, who often come from larger European cities, the contrast with small Norwegian towns can be significant. While this can pose challenges for some, it also brings valuable new perspectives and ways of seeing Norwegian local development.

3.4 Starting from the Place

The problems and challenges presented to the students are rooted in the place and the actual situation, and much of the learning takes place while we are out in the field (in-situ) — something that few of the students have prior experience with from their earlier studies. By working in and on the site, students are given the opportunity not only to apply and test the content, validity, and usefulness of previously acquired theory and knowledge, but also to develop and experiment with new methods, tools, and experiences.

The goal is for "theory to meet reality," meaning that previously acquired knowledge and theory are to be given a time-specific and contextual application and understanding. By interacting with and meeting the residents of the area (in the form of politicians, municipal employees, business owners, developers, people outside shops, at schools, in neighborhoods, etc.), students are also given the opportunity to test the validity of their prior assumptions and perceptions in a way that is difficult to replicate in a typical classroom setting.

This rarely happens as a linear process and is something that repeats itself throughout the semester and the duration of the project. The close dialogue with the local population also allows students to receive immediate

reactions and feedback on the initiatives and projects they propose: Do people recognize themselves in them? Do they address the actual needs? Is it something that has been tried before? Are there any groups or individuals they should talk to or make sure to include?

For this to be possible, students must be able to present and discuss their discipline and projects with non-experts, become skilled in participatory processes, succeed in generating engagement and understanding, and be able both to grasp and convey how planning, architecture, and the built environment affect and matter to individuals.

3.5 Contextual Deepening

Even though the fieldwork may last for about a week, and the places being studied rarely have more than 2,000 inhabitants, this is not sufficient for students to dive into and address all the potentially relevant aspects, perspectives, or themes. The places and situations are simply too complex, and the available resources and time are too limited. Achieving a "complete immersion and understanding of the place" is neither possible nor an explicit goal of the fieldwork.

The intention is for students to be exposed to something real — a new and unfamiliar context — and to meet, discuss, communicate with, and receive feedback from people who both live in and constitute the context they are working with. In this way, the discovery and selection of what is considered relevant topics and perspectives happens only after the students become familiar with the actual situation. The simplification or "reduction of reality" then becomes more a matter of clarifying what they want to focus on, rather than a limitation of what it is possible to work with.

As previously mentioned, "predefined reductions of reality" are quite common in other forms of project- and studio-based teaching, and this type of reduction and simplification of context and situation is something we are critical of (see section 2.4). We believe it should, to a greater extent, be up to the students themselves (under guidance and in collaboration with instructors, the municipality, and the local community) to take on the themes and aspects they either find interesting or recognize as underexplored.

Our experience suggests that students' learning, sense of mastery, and overall satisfaction improve when they find and pursue a personal engagement in the work. We also observe a tendency for the projects and the answers they produce to be better, more numerous, and more precise when students get to work on something they are genuinely passionate about — based on the place's own conditions (within the context of architecture, planning, and local development).

3.6 Final Projects

At the end of the semester, students submit their projects for evaluation, where they are presented to and assessed by an external examiner — either a

Figure 7 Rethinking Orkanger, a master plan summarizing the intended area development. Source: Arianna Canini & Mathilde Illtis, Planbussen, 2025.

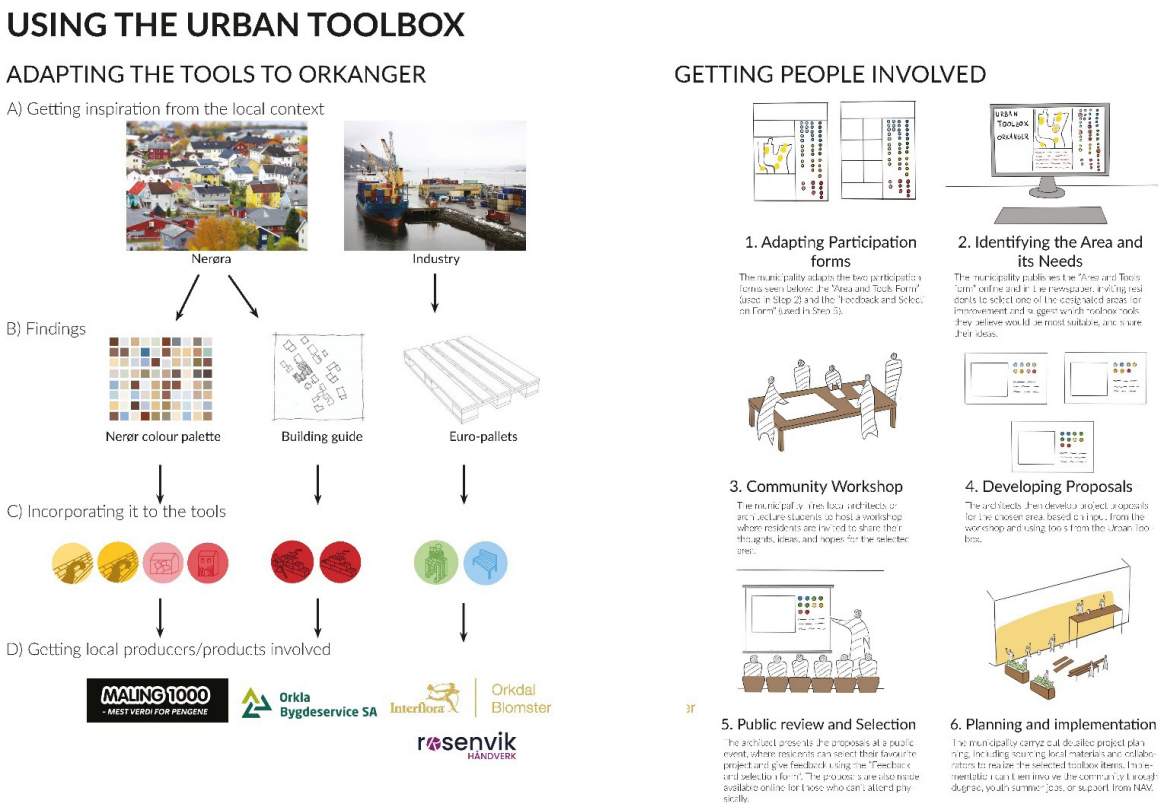

Figure 8 City centre revival – using urban toolbox, Visualizing a systematic solution to common planning problems engaging inhabitants. Source: Jenny Fjeldström Jensen and Rasa Petrosiute, Planbussen, 2025.

practicing architect or planner with experience in the field. In this way, the projects are not only evaluated in light of their specific situation and context but also from a professional and academic perspective. At the same time, the academic validity and applicability of the course itself are assessed.

In addition to this, we also return to the municipalities and places we have worked with, where the projects are presented and exhibited at a public town meeting. Here, the local residents and the municipality once again have the opportunity to share their evaluations and feedback on the projects. The meeting also becomes a potential arena for open discussion and exchange of opinions about the community's future and development.

Beyond providing the town and municipality with new input and solutions in the form of student projects, Planbussen as an activity can also have a positive impact on the place and its people. By spending time and resources on the town and its community, we acknowledge that it has value and relevance. Through physical presence and interaction with the local population, we also demonstrate that we are genuinely interested in (and dependent on) understanding their experiences, opinions, and perspectives.

Throughout the fieldwork and project period, both we and the students aim to highlight the place's existing and potential qualities, rather than simply pointing out possible problems and challenges. This is because we believe that creation, development, and change happen best through shared engagement and understanding — rather than by focusing on the obstacles along the way.

4 Conclusion

4.1 Reflections

After three rounds of Planbussen, we are left with a number of thoughts, reflections, and opinions on various topics — such as theory versus practice, the relationship between pedagogy and subject matter, and the potential relevance and application of a problem-, project-, and practice-based course, both within and beyond academia. But before delving into these themes, we will attempt to answer the questions we posed at the beginning of this text: What kind of learning and knowledge does a problem-, project-, and practice-based approach enable, and what can it offer academia and other stakeholders? And is there a potential for greater impact and societal relevance in higher education?

Based on our own experiences with Planbussen, we believe there is much to gain from such a problem-, project-, and practice-based course. The actual combination of theory and practice not only offers potential added value for educators and students, but can also be of direct benefit and interest to other stakeholders — such as municipalities, local businesses, civic organizations, residents, and practitioners in architecture and planning.

As an educational institution, we possess significant resources in the form of accumulated knowledge and expertise, which we have a responsibility to apply and manage in a meaningful way. Parts of this are already made available through research and larger projects, but we believe there is significant untapped potential for the

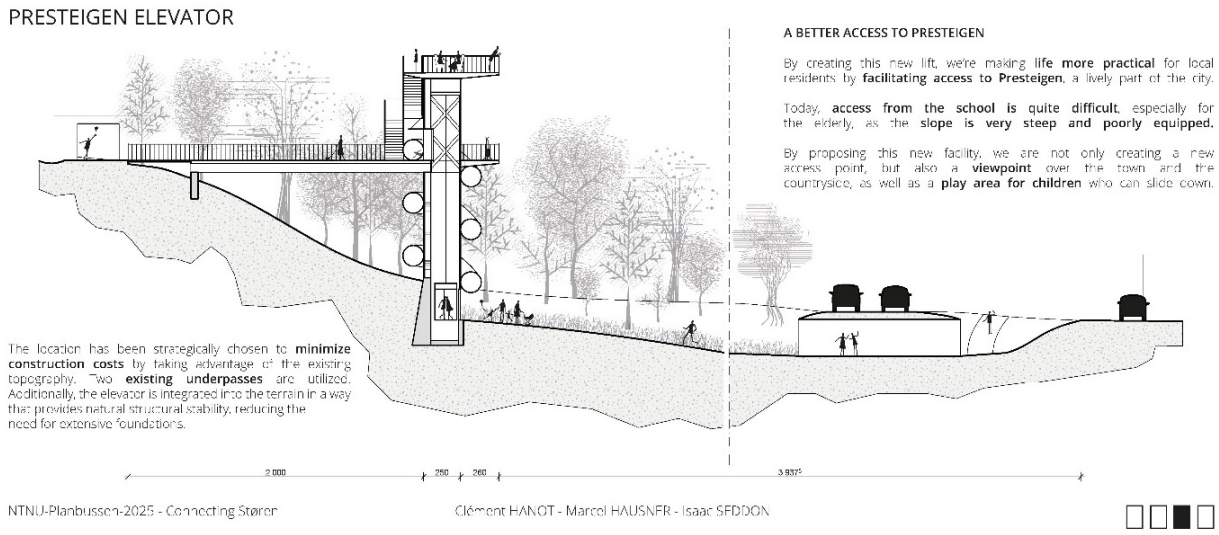

Figure 9 Connecting Støren, Proposes one architectonic design solution. Source: Clement Hanot, Marcel Hausner and Isaac Seddon, Planbussen, 2025.

educational programs and courses themselves to have a greater involvement and impact on society — beyond just producing and graduating new professionals.

By combining theory and practice during the course of their studies, we believe students become more aware of what they are preparing for after graduation, and are better able to see and understand what their education should or could provide in terms of necessary knowledge, tools, and competence. Allowing students to work on real problems and challenges — under guidance and within "safe boundaries" — also makes each student more confident in themselves and better equipped to make a real difference after completing their education.

We do not believe the approach used in Planbussen is necessarily a one-size-fits-all solution, but we do think it can serve as an example of what is possible in terms of external collaboration and societal relevance, even within the context of teaching.

In addition to this, we wish to repeat and emphasize the following points from the text, which we believe should form the foundation for most teaching at college and university level:

• Students should have greater influence over their own teaching, education, and learning. This leads to increased motivation through personal interest, but also opens up for new perspectives and contributions to the teaching.

• Peer learning ("community of practice") can play an invaluable role in education and student learning outcomes, but must be used deliberately and actively rather than remaining a passive element. This enables increased learning, even from fields not necessarily covered by the course curriculum or instructors. By incorporating learning and input from the emerging "learning community" that develops among students, residents, municipal staff, and local enthusiasts, peer learning is enabled — for students, teachers, and the local community alike (Wenger, 1998).

• Students' other knowledge, skills, and experiences should be more actively acknowledged in teaching. Many students can contribute expertise from other disciplines and areas of interest, which can broaden and enrich the possible understanding of the problems and approaches within a project. This carries the implicit recognition that it is not only instructors who can contribute new knowledge and learning to students — the exchange can also go the other way. *"The distinction between being a student and being a teacher is possibly one of the most arbitrary distinctions which an educational institution can impose upon its inmates."* (Canter, 1977, p. vi).

• Rather than focusing on teaching our students answers and solutions in the form of knowledge, we must increasingly provide them with the right tools, methods, and experiences that equip them to identify the right questions — before they begin looking for possible solutions and opportunities for tomorrow's challenges. Today's and tomorrow's complex and unruly problems may not necessarily require answers and solutions we already know. To meet these, students must develop critical reflection skills and a high degree of independence, openness, and communication. These conditions foster opportunities for student-driven learning.

• Theory should always meet practice. *"A profession not only has a practice, but a theory of action, in which that practice can become a reproducible, valid technique."* (Argyris & Schön, 1992; Till, 1996). Theory alone will never truly compare to actually engaging with the problems, the place, and the people who live there. Rather than abstracting reality, students must be trained to navigate complexity and unpredictability, and to develop a local understanding of a place — without necessarily having to live there for an extended time or become an integrated part of the local community. Additionally, there is important value in not only learning from one's own knowledge, but also from dialogue and interaction with people from the place (who possess a kind of "reality key") (Burazor & Schwai, 2018).

• By developing a local understanding of the place's challenges and opportunities, students are also able to highlight and learn about alternative, diverse, and new contributions to the sustainability debate. These contributions are not limited to the built environment, but also address economic, social, and political realities

— such as behavior, ownership structures, cultural and historical conditions, local democracy, and more.

• Planbussen and the students' presence and activity on site in itself can lead to change and spark new thinking among the local population. The students' development of contextual projects in collaboration with the local community results in projects with a higher degree of usability and potential for implementation.

4.2 Selected Excerpts from Student Projects

To showcase the variation of students approaches, both regarding content and method, we have selected three excerpts (Figure 7-9), which we briefly comment. We try to visualize the span in approach from master plan (Figure 7), strategic solution (Figure 8) to project development (Figure 9). Entrance point for all students and their approaches is the same, always framed by political realities, local particularities and inhabitants participation and input.

The project "Rethinking Orkanger" (Figure 7) presents a summary of their proposed actions in an overall masterplan, which is near the normative way of communication area development ideas. In the project "City centre revival – using urban toolbox" (Figure 8) the students propose a systematic solution to common planning problems engaging inhabitants. They gather best practice projects and categorize them, suggesting use in Orkanger, encouraging the inclusion of relevant stakeholders. The last of the presented student project, "Connecting Støren" (Figure 9), proposes a project driven development solution, through one architectonical design, solving infrastructure and connectivity.

4.3 Thoughts for the Future

Our hope for the future of Planbussen is that we can continue its pedagogical and academic development, and thus contribute positively and actively to the university, the discipline, and society at large (while acknowledging that the course itself constitutes a relatively small part of the bigger picture). In the time ahead, our goal is to continue developing and testing various pedagogical and academic tools and methods, expand our geographic context and areas of work, and hopefully establish more collaborations with new municipalities, towns, and other disciplines at university. You can follow this — and hopefully other outcomes from Planbussen — via the website: www.planbussen.no.

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Spatial Justice: The Role of Housing and Social Policies in Social Inclusion and the Transformation of the Periphery

A Comparative Analysis of the Carambanchel Project in Madrid and Social Policies in Podgorica

Prostorna pravda: uloga stambene i socijalne politike u društvenoj inkluziji i transformaciji periferije

Komparativna analiza projekta Carambanchel u Madridu i socijalne politike u Podgorici

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Abstract Contemporary urban development is increasingly characterized by processes of intensive urbanization, wherein housing policies often fail to address the needs of the broader community. The predominance of market-oriented housing models has resulted in high-density developments concentrated in central urban zones, where residential space is commodified — treated as a luxury good rather than a fundamental human right. This approach exacerbates social inequality, leaving peripheral urban areas infrastructurally underdeveloped and socially neglected, lacking in both quality public amenities and affordable housing options. The absence of spatial justice in urban planning produces patterns of spatial segregation, further marginalizing vulnerable social groups and obstructing balanced, integrated urban growth. While Podgorica has, for decades, expanded its housing stock predominantly through market-driven strategies — placing considerable pressure on central areas while overlooking the developmental potential of the periphery — Carabanchel (Madrid) emerges as a paradigmatic counterexample. There, social housing has been conceived as an architectural, urban, and social experiment that challenges conventional models. By juxtaposing these two urban trajectories, this paper seeks to demonstrate that inclusive social housing strategies can serve as effective instruments for empowering peripheral urban zones and mitigating the spatial and social consequences of inadequate housing policies.

Keywords social housing; inclusive housing; housing policies; periphery; spatial justice.

Sažetak Savremeni urbani razvoj sve je više obilježen procesima intenzivne urbanizacije, u kojima stambene politike često ne uspijevaju da odgovore na potrebe šire zajednice. Dominacija tržišno orijentisanih modela stanovanja dovela je do visokog stepena zbijenosti u centralnim gradskim zonama, gdje se stambeni prostor komodifikuje i tretira kao luksuzno dobro, a ne kao osnovno ljudsko pravo. Takav pristup produbljuje društvene nejednakosti, dok periferni gradski prostori ostaju infrastrukturno nerazvijeni i društveno zapostavljeni, bez kvalitetnih javnih sadržaja i dostupnih stambenih rješenja. Odsustvo prostorne pravde u urbanom planiranju proizvodi obrasce prostorne segregacije, dodatno marginalizujući ranjive društvene grupe i onemogućavajući uravnotežen, integrisan urbani razvoj. Dok se Podgorica decenijama širila pretežno kroz tržišno vođene stambene strategije — opterećujući centralne zone, a zanemarujući razvojni potencijal periferije Carambanchel (Madrid) pojavljuje se kao paradigmatičan kontra primjer. Tamo je socijalno stanovanje koncipirano kao arhitektonski, urbani i društveni eksperiment koji dovodi u pitanje konvencionalne modele. Upoređivanjem ova dva urbana pravca, rad nastoji da pokaže kako inkluzivne strategije socijalnog stanovanja mogu predstavljati efikasne instrumente za osnaživanje perifernih zona, ublažavanje prostornih i društvenih posljedica neadekvatnih stambenih politika.

Ključne riječi socijalno stanovanje; inkluzivno stanovanje; stambene politike; periferija; prostorna pravda.

1 Introduction: Theoretical Framework and Concepts of Social Housing

The theoretical framework of social housing architecture encompasses several key perspectives, ranging from social and economic, through urban planning and architectural approaches, to the broader cultural and political context. The need for social housing arises as a response to inequalities in housing policies and the growth of urban centers, which produce marginalized social groups. Social housing is essentially interpreted as an instrument for realizing the right to housing, a right recognized in numerous international documents, European charters, and national legislations (the Universal Declaration of Human Rights (1948), UN-Habitat (2020), European Federation for Public, Cooperative and Social Housing, etc.). In line with this, the aim of this research is to analyze the role of housing and social policies in achieving social inclusion and the transformation of peripheral urban areas, using a comparative case study of Carabanchel in Madrid and current social housing policies in Podgorica, within the context of urban expansion. Accordingly, several research questions arise, focusing on how inclusive planning approaches contribute to spatial justice in peripheral areas, and how these policies foster balanced urban development. Given that social policies significantly influence spatial justice and the level of social inclusion, the central hypothesis of this paper can be formulated as follows: *Peripheral areas that are included within social and housing policies achieve a higher degree of social inclusion and contribute to more balanced urban growth*. In order to credibly conduct a comparative analysis between Podgorica and Carabanchel in Madrid, it is necessary to establish evaluation criteria and an analytical framework, which primarily include urban, architectural and social aspects. Moreover, it is also essential to understand the political, legal, and institutional frameworks surrounding Podgorica and Carabanchel, as they play a key role in the implementation of social policy. In addition to the comparative case study analysis, the methodological framework of this research includes qualitative and quantitative methods, which include the analysis of legal and policy documents, as well as urban and social policy frameworks, combined with spatial analysis methods. It is very important to emphasize that the idea of this paper is to look at the positive and negative circumstances that emerged as a result of the Carabanchel project, with a focus on the spatial, social, political and economic context, which can serve as a model example for observing social policies and the engagement of the periphery. The purpose of the research is therefore to draw conclusions from a comparative study of the two cases, aiming to identify strategies that can promote a fairer and more equitable development of the city. Hence, the goal of this study is to understand which urban planning strategies, architectural interventions, and policies specifically contribute to this objective, based on both positive and negative experiences, as illustrated by the case of Carabanchel in Madrid, which serves as the core focus of the research. To better understand the research context, the study begins with an analysis of the historical development of social housing.

The development of social housing architecture has been shaped by different theoretical paradigms. Modernism offered the concept of standardization, rationalization, and functionality, where housing was viewed as a "machine for living." Le Corbusier (1923) advocates this idea in his work *Vers une architecture*, later exemplified in the residential project *Unité d'Habitation* in Marseille (1952). However, criticisms of the uniformity and dehumanization of these models, especially after the Second World War, led to new postmodern approaches. This is reflected in the iconic case of the demolition of the modernist housing project of Pruitt-Igoe in St. Louis in 1972. Postmodernism insists on acknowledging local identity, community, and a diversity of typologies.

Figure 1a A view of Pruitt Igoe; children visiting the library.Source: Alex Ihnen, 2011.; **1b** The demolition of Pruitt-Igoe public housing buildings, 1972. Source: Alex Ihnen, 2011.; **1c** Situation Pruitt, slums in St. Louis. Source: Igoe Myth, United States Geological Survey (USGS), 1968.

Figure 2a Grantorps bostadshus, Flemingsberg, architect Hans Matell and Leif Johansson, 1973. Source: Holger Ellgaard, 2021.; **2b** Hagaludsgatan, Hagalund - Solna in Stockholm, 2021. Source: Sniper Zeta, 2021.

Harvey (2008) emphasizes that housing should not be regarded solely as a market commodity, but rather as a right, while Castells (1983) highlights the role of housing as part of social policy and an instrument of redistribution. The complexity of the topic requires a broad and diverse review of the literature, which covers the fields of urbanism, architecture, political-economic criticism, socio-legal frameworks, community theory and the ethics of space, and the like. Among contemporary theories, the theories of Sassen (1991), which deal with global urban inequalities, stand out; her contemporary theoretical perspective points to the role of the real estate market and global capital in suppressing social housing (2014). Rolnik (2019) criticizes neoliberal housing policy, privatization, and the commodification of space, particularly in the context of post-socialist and global developments. Aalbers (2016) also offers a strong critical assessment of the instrumentalization of housing for financial purposes, which violates the principle of social justice. A very relevant theoretical reference is Soja (2010), who develops Lefebvre's concept of spatial justice, insisting that the right to the city is not only a political issue but also a geographical one. Fainsten (2010), on the other hand, establishes a normative model of urban justice based on democratic processes. Combining urban, sociological, political-economic approaches, Madden & Marcuse (2016) offer a theoretical manifesto, insisting that housing must be treated as a right, not a marketable commodity. Roy (2010) theorizes about urban poverty, pointing out the connection between social housing and the politics of inequality it implies.

Figure 3 Gellerupparken Block B4, Aarhus, 2019. Authors: Vandkunsten & Transform. Source: Helene Høyer Mikkelsen, 2020.

In addition to the theoretical framework, practical examples of successful policies will be presented below. Scandinavian countries, with their cooperative housing models, demonstrate how social policy can shape long-term and inclusive housing systems, combining public responsibility, social integration, and sustainability. Among the best-known examples is the *Million Programme* (Figure 2) in Sweden (1965–1974), during which 650,000 new housing units were built and made affordable to a wide range of citizens — working-class families, students, and immigrants — all of which were subsidized by the state.

Denmark is known for its cooperative housing model (*almene boliger*), where residents purchase a share in housing complexes, thereby acquiring the right to live under more favorable conditions, primarily intended for the middle and lower social classes. The Gellerup Plan is one of the largest housing projects in Denmark (1968–1972); conceived as a satellite city, with 2,448 apartments in two neighborhoods, the project holds unique architectural value (Figure 3). Norway developed a national social housing strategy between 2014–2021 that focused on several key goals: reducing the number of homeless people, improving housing conditions for children and young people, and enabling people with disabilities to live comfortably. Finland is also a global leader in social housing policies, demonstrated by the *Housing First* model in homelessness policy, which ensures permanent housing for people without a home (Figure 3). Other Contemporary approaches establish participatory design models (Turner, 1976), sustainability (the Vauban district in Freiburg; Figure 4), and flexibility (Aravena, Elemental, Chile) as leading concepts. In the latter, Aravena, the architect, builds half of the house, leaving the other half for the user to adapt according to their own needs (Figure 5).

Within contemporary architectural and urban discourse, the spatial dimension of social housing offers various concepts. However, the misplacement of social housing in the urban core can lead to social segregation and ghettoization. In this sense, the architecture of social housing also carries a strong social and cultural role, since the success of solutions is reflected not only in creating spaces for living but also in generating spaces that encourage interaction, inclusion, and social cohesion. Sennett (2012), for instance, emphasizes the importance of the "open city," where different social groups communicate through the city's shared spaces. Within this paper, social policies will be analyzed through the

Figure 4a Corporación Nacional de la Vivienda, Ciudad de Dios (basic core units designed for self-built extensions), 1958, Lima, Peru. Courtesy of Servicio Aerofotográfico Nacional, Peru. Source: Courtesy of National Aerophotographic Service, Peru, 1958.; **4b** El Ermitaño barriada: constructing a provisional dwelling, using a framework of wooden poles that will support esteras bamboo mats, 1962, Lima, Peru. Source: John F. C. Turner Archive, 1962.

Figure 5a Elemental's Quinta Monroy housing – original façade. "Half a House" concept. Original units built by Elemental. Source: Cristobal Palma, 2006.; **5b** Expansions to the original units completed by the residents. Source: Cristobal Palma, 2006.

comparative example of Podgorica and the Carabanchel project in Madrid, with an emphasis on strengthening the periphery and social cohesion, where social housing has the potential to transform the periphery from a space of marginalization into a space of empowerment. In this way, the possibility of whether the periphery can become a dynamic and equally integrated part of the city will be reconsidered, whereby the architecture of social housing acts not only as a response to the housing crisis but also as an instrument of social and spatial justice.

2 The Periphery as a Space of Marginalization: The Role of Spatial Policies in Empowering the Periphery

The periphery is often viewed as a space of exclusion. Already in Lefebvre's theories, the spatial organization of the city appears as a reflection of social power relations. In this sense, the periphery becomes synonymous with lower quality housing and living, carrying with it the connotation of ghettoization and social homogeneity (e.g. French *banlieues*). However, what if we perceive the periphery as a space of potential and innovation? In contemporary architectural theory and practice, the empowerment of the periphery is not seen solely through the physical renewal of space but also through the creation of conditions for social inclusion, economic sustainability, and the cultural affirmation of local communities. In this way, the periphery ceases to be a passive product of urban expansion and becomes a space of opportunities, experiments, and emancipation. In this study, and in line with the outlined thematic framework and research objectives, the urban periphery is examined through two key dimensions: participatory planning models, and innovative housing typologies and spatial interventions. Social housing, in particular, can serve as a model that operates on multiple levels: spatial integration, social inclusion, economic empowerment, culture, and identity. Treating the periphery as a dynamic space rather than merely a place of residence is a key indicator of success, as it avoids the effects of segregation and achieves social cohesion and community strengthening. Thus, empowering the periphery goes beyond classical urban patterns of city expansion and instead implies redefining the periphery as a legitimate and vital part of the urban fabric, where innovation does not emerge from the center but where new values are articulated at the margins. In this way, architecture assumes the role of a catalyst for transformation, while

the periphery becomes an opportunity for the future development of the city.

Numerous contemporary theorists question the meaning and role of the periphery in the dynamic development of the city. Harvey (1973) emphasizes that neoliberal urbanism favors the center while the periphery remains socially excluded, serving as a reflection of social and economic segregation. In this sense, the periphery is a site of class inequalities, where inclusive planning and the redistribution of resources can lead to urban justice. De Certeau (1989) interprets the periphery as a "tactic of using the city," from which the city's identity and resilience are built. Castells (1996) sees the periphery as both spatially and digitally excluded, while Jacobs (1961) criticizes monofunctional and neglected peripheries that degrade social life. Indeed, Jacobs advocates for the creation of vibrant, diverse peripheral neighborhoods with social and spatial variety. Likewise, Alison and Peter Smithson, along with van Eyck (1967), criticize modernist housing and planning models that marginalize the periphery. Rem Koolhaas, on the other hand, views the periphery as a space liberated from the rigid forms of the center, where spaces of freedom and flexibility are created. In the context of globalization, Sassen (1991) sees the periphery simultaneously as a space of exclusion and as a potential labor pool that enables the functioning of the center. Viewing the periphery as cultural capital that can develop outside the center, Bhabha (1994) interprets it as a site of "hybrid identities," where different cultures intertwine to produce a new cultural space, while Said (1978) perceives it as the "culture of the other." Contemporary urban theories also examine how models of urban growth and open economic systems influence the dynamics of development between the city center and peri-urban areas within the context of sustainable development. The authors of the book *Sustainable Development in a Center–Periphery Model* (Gabriel, 2024) employ an economic model to study the periphery, highlighting the strong interdisciplinary nature of this topic. Furthermore, new urban theories explore the potential of the periphery through patterns of ecological adaptability and the use of resources such as water, energy, and land (Ugalde-Monzalvo, 2024). When it comes to architectural and urban design concepts, the research focuses on opportunities where the periphery offers new perspectives through an innovative critical pedagogical platform that integrates theory, research, and architectural practice (McEwan, 2025). Additionally, numerous global initiatives have initiated discussions on balanced urban growth, emphasizing the need to integrate the periphery as an essential part of the urban fabric. UN-Habitat (2020) underscores the importance of sustainable urbanization, providing guidelines for policy frameworks that can strengthen peripheral areas through sustainable urban development. Examples of good practice such as Carabanchel (Madrid), Quinta Monroy in Iquique (Chile), and *Gemeindebauten* in Vienna, through social policies, architectural and urban concepts, did not lead to the degradation of the periphery, and serve as proof that through integral planning, the periphery can become an equal part of the urban fabric.

3 Carabanchel, Madrid: Social and Spatial Effects

The social housing project Carabanchel in Madrid represents a paradigmatic example of contemporary housing architecture on the urban periphery. The housing complex is located on the southern outskirts of the city and emerged in the early 2000s within the framework of a major urban expansion plan, the so-called *Programa de Actuación Urbanística (PAU)*. This plan was a response to the growing demand for affordable and quality housing, in the context of rapidly rising property prices and increasing social inequalities in Madrid. The client for the project was the municipal housing institution EMVS (*Empresa Municipal de Vivienda y Suelo de Madrid*), tasked with offering a new concept of social housing through architecture and peripheral planning. The project was part of a broader public housing program subsidized by the city, where a new concept of peripheral neighborhoods was initially intended to house young people (under 35), families with children, working-class families, people with disabilities, and socially vulnerable groups (such as single parents and victims of violence). The central idea was that social housing should by no means signify lower architectural quality but rather serve as a laboratory of contemporary architecture. The core policy ensured that apartments were rented at significantly lower prices than market rates, supported by municipal subsidies, with a point-based system introduced for priority categories. To avoid ghettoization, families of different incomes and backgrounds were deliberately mixed. Lease contracts were initially signed for 5–7 years, after which tenants, if they had not found better solutions, could purchase the apartments. Most architectural solutions were obtained through architectural competitions. For instance, the 82 Viviendas en Carabanchel (2003) project won with the idea of designing 82 different housing units. Another winning project, 141 Viviendas en el P.A.U. Carabanchel by Morphosis (Figure 6), as an alternative to monotonous high-rise blocks explores a radically different social model that integrates the topography of the landscape and the village. The public housing project 88 Social Housing (FOA – Foreign Office Architects) is known for its 67 apartments and the flexibility of its modular system (Figure 7).

A competition-winning project by the studio Extudio comprises 102 housing units with a large shared courtyard, garden, and swimming pool. It is based on a flexible housing module that allows for the expansion of the basic unit by adding "bucket" construction modules for additional bedrooms. This enables a construction system with aluminum molds, allowing rapid assembly without cranes. Additionally, Carabanchel 24, known for its container-based architecture concept, forms part of an initiative to revitalize the industrial area (Figure 9).

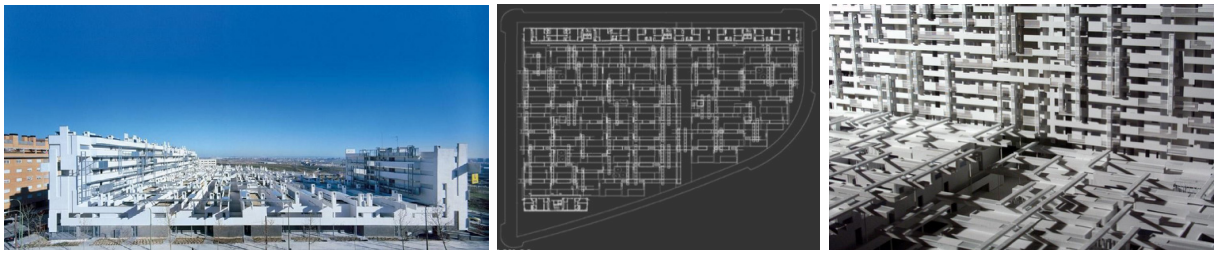

Figure 6a Morphosis: Social Housing in Madrid. Source: Morphosis Architecture, 2006.; **6b** Social Housing in Madrid – site map drawings. Source: Morphosis Architecture, 2006.; **6c** Social Housing in Madrid – model. Source: Morphosis Architecture, 2006.

Figure 7a 88 Social Housing in Carabanchel, Madrid, FOA – Foreign Office Architects. Source: Duccio Malagamba F. Andeyro & A. García, 2006.; **7b** Facade detail. Source: Duccio Malagamba F. Andeyro & A. García, 2006. **7c** Room interior with a terrace. Source: Duccio Malagamba F. Andeyro & A. García, 2006.

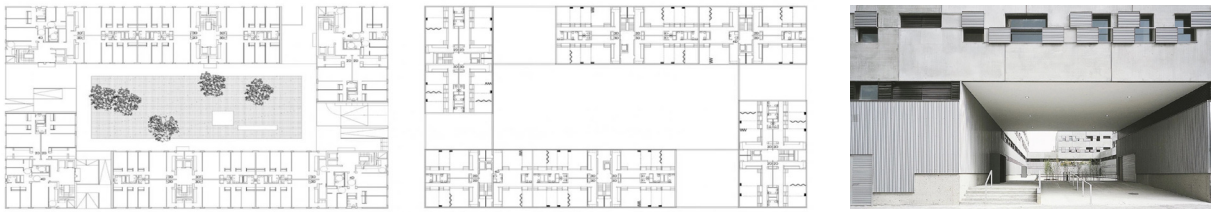

Figure 8a 67 Social Housing in Carabanchel, Madrid, Aranguren + Gallegos Arquitectos, first floor Source: Aranguren and Gallegos Arquitectos, 2003.; **8b** 67 Social Housing in Carabanchel, Madrid, Aranguren + Gallegos Arquitectos, second and third floor. Source: Aranguren and Gallegos Arquitectos, 2003.; **8c** 67 Social Housing in Carabanchel, Madrid, Aranguren + Gallegos Arquitectos, entrance. Source: Eduardo Sánchez, 2003.

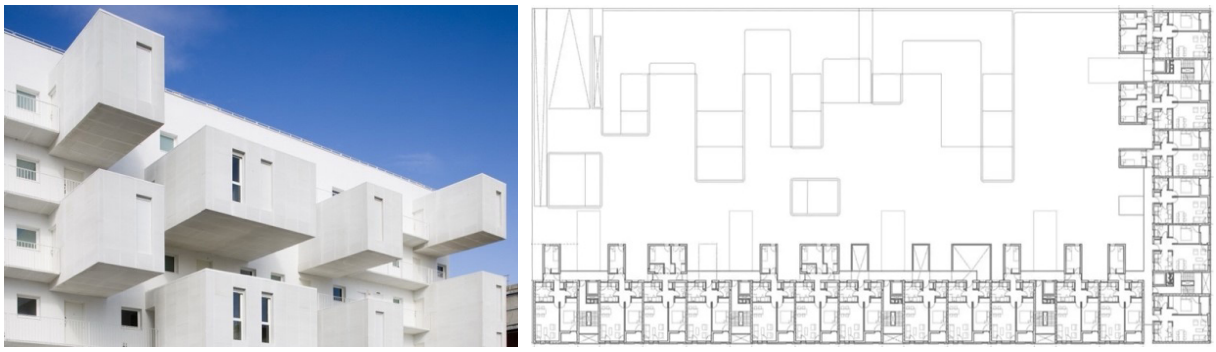

Figure 9a 102 Social dwellings in Carabanchel, Dosmasuno Arquitectos – facade. Source: Elena Bianchi, 2022.;
9b 102 Social dwellings in Carabanchel, Dosmasuno Arquitectos – plan. Source: Dosmasuno arquitectos - Ignacio Borrego, Néstor Montenegro and Lina Toro, 2007.

The overall aim of the entire project was to demonstrate how social housing could surpass minimum standards and become a field for architectural experimentation. Residential blocks, organized around shared courtyards and gallery access, offer diverse apartment typologies, including duplex units. In this way, Carabanchel functions as a laboratory for exploring the possibilities of dignified, functional, and innovative housing within the constraints of a limited budget.

On the other hand, it is important to consider the urban context of Carabanchel, which is typical for the peripheries of large metropolises. It is a planned neighborhood, connected to the city center through new transport routes. Although the architectural vision included abundant shared spaces, the lack of social infrastructure such as schools, healthcare facilities, and cultural amenities revealed the limitations of planning that focused primarily on the residential function. Despite being a spatially successful architectural experiment, such a periphery remains a site of partial solutions. This demonstrates that an architectural concept alone is not sufficient, and that in the absence

of adequate functions, the periphery can become a place of isolated housing.

In contrast, the *Gemeindebauten* social housing complex in Vienna (Figure 10) exemplifies the continuity of a successful social policy, offering high quality long-term subsidized housing with integrated public services from its inception to the present. This model shows that comprehensive, high-quality planning — combining diverse apartment typologies, public infrastructure, and long-term systemic support — results in a stable and functional peripheral urban environment.

Additionally, the IBA project in Berlin (Figure 11) stands out for its flexibility and experimental architecture, particularly when compared to newer social housing projects after 1990. Through mixed residential blocks and participatory models, different social groups are granted access to central areas, thereby reducing social segregation.

In summary, architectural innovation alone is not sufficient: without comprehensive social policies and long-term economic support, even the best architectural projects can become a problem rather than a solution. In this sense, Carabanchel, although architecturally excellent, illustrates the risks of monofunctional, isolated neighborhoods. This points to the conclusion that peripheral areas are not merely spaces of housing deficit but also potential fields for experimentation, social innovation, and urban development.

Figure 10a Karl-Marx-Hof, social housing complex built during the rule of Red Vienna between 1918 and 1934. Source: Joe Klamar, 2024.; **10b** Atzgersdorf, 1230 Vienna, Austria. Source: Harald Schilly, 2014.

Figure 11a IBA social housing drawings, Berlin, West Germany. Source: Eisenman Architects, 1981-1985.; **11b** IBA social housing, Berlin, West Germany 1981-1985. Source: Eisenman Architects, 1981-1985.

4 A Critical Review of Market-Oriented Housing Policies: The Case of Podgorica

Housing policies in Podgorica (the capital city of Montenegro) reveal a significant discontinuity between the socialist period and contemporary post-socialist development. During the era of self-managed socialism, housing was treated as a fundamental social right and an integral part of social policy. Between 1950 and 1990, Yugoslavia built approximately 2 million social housing units, providing housing for around 8 million people. Housing construction was a strategic priority, ensuring accessibility and social security. The state and local communities were the main actors in providing housing stock, with housing cooperatives and labor cooperatives playing a key role in the distribution of apartments. This enabled a relatively even territorial distribution of new housing capacities.

The first wave of uncontrolled growth of the periphery occurred during the regional wars in the 1990s, when formal and informal refugee settlements were formed (such as Konik camp, 1998-1999), concentrated on the outskirts of Podgorica. A large number of residents, in improvised conditions, created a large number of settlements, with low quality of life, and outside any architectural, legal and urban regulations. This is supported by numerous quantified data from MONSTAT (2022), as well as UN Habitat (2020), and the increase in the number of residents and households, as well as


Figure 12a Podgorica - City Kvart, collective housing complex built in 2015-2016. Source: Savo Prelević, 2019.;
12b Podgorica - Ljubović Kvart, collective housing complex built in 2019. Source: Andrea Jelić, 2020.

satellite images, the number of illegal connections to the network, extracts from cadastral and GIS services, etc. Today, these refugee camps have grown into huge illegal residential settlements, where refugees, Roma, immigrants and many other low-income groups live, and are an example of spatial and social segregation. All this suggests that the state had no clear strategy, no plan, and no control mechanisms, but rather these processes were spontaneous events. On the other hand, paradoxically, it was the state that created some of these refugee camps, without any urban, architectural or social policies.

Following the war crisis of the 1990s, and especially after Montenegro gained independence and foreign investments increased, social policies became characterized by the strong privatization of housing stock and the withdrawal of the state from an active role in construction and allocation. This is reflected in rapid, often unplanned construction in central urban zones, while peripheral areas remain marginalized, with poor infrastructure and a lack of comprehensive urban policies.

This creates a dual problem: an oversaturation of commercial housing in the city center, whose speculative development neglects broader social needs, and the peripheral areas developing spontaneously through individual construction and without proper urban control, deepening social inequalities (Figure 12).

Housing thus became a market commodity, which automatically led to rising prices on the market, and thus to unaffordable housing, and socio-economic disparities. In addition, Podgorica became a strong economic generator of development, causing very pronounced interregional migrations, which resulted in a sharp increase in the number of inhabitants, most of whom moved mainly from the northern cities of Montenegro. Such a migration wave was recorded by a very precise statistical increase in the population, but also in informal settlements (MONSTAT, 2022). The process of the legalization of buildings, initiated as part of state strategy to map illegal buildings and introduce them into the system, is also one of the quantitative indicators of the unplanned growth of the periphery (the were over 15,000 applications for the legalization of buildings in Podgorica in 2017-2023). Continuous migratory pressure on the capital contributes to the rapid expansion of informal settlements on the city's outskirts, while the state lacks policies for the prevention or control of such processes (Figure 13). Supporting evidence of inadequate social housing policies is that during the five-year period between 2020–2024, apartment prices increased by 65.8%, with the average price in Podgorica in 2024 reaching €1,938/m^2 and a growth trend of 4%, indicating that mass housing is oriented toward higher-income clientele. The inaccessibility of housing for many citizens, who migrate continuously to the capital, forces them to settle in peripheral areas, constructing illegal buildings of very poor quality, generating a trend of uncontrolled


Figure 13a Podgorica - Kakarićka gora, illegal houses built in 2005. Source: Srđa Boljević, 2024.;
13b Podgorica - Malo Brdo, illegal houses built in 1990. Source: Vesko Belojević, 2011.

urban growth and a negative image of the city. According to UNECE data, more than two-thirds of all informal settlements in Montenegro are concentrated in Podgorica and coastal areas. Illegal construction occurs in the periphery, where land is significantly cheaper due to the lack of basic infrastructure and utilities, and as such, is disconnected from the city. The absence of public housing programs and social policies positions Podgorica as a city where neoliberal housing patterns prevail, neglecting peripheral areas.

In the sense, we can conclude that alarming data on the uneven spatial development of the city, social inequality, and the uncontrolled development of the periphery, reflect current housing policies in Podgorica. This is indicated by the lack of a spatial strategy aimed at strengthening the periphery, as well as the disconnection of social policies with urban planning and sustainable development. Although there are legally established housing policies, their inadequate implementation is evident, which will be discussed below.

5 Discussion

In order to conduct a comparative analysis between housing policies in Podgorica and the above-mentioned reference examples, it is first necessary to place them within a broader context of influential factors. To explain their similarities, analogies, and differences, it is essential to examine the legislative, institutional, and planning frameworks, which differ to a certain extent between the cases. Accordingly, the research begins with an analysis of the relevant legal documents within Montenegrin legislation that address housing policy and sustainable development. The National Strategy for Sustainable Development until 2030 (Government of Montenegro, 2020) is identified as a key document, emphasizing that, in addition to adequate spatial management, the quality of housing is a crucial factor for the sustainability of cities and the quality of urban life. The strategy further states that, by 2030, it is necessary to ensure safe and affordable access to adequate housing for all, while local governments must efficiently manage local social housing policies. In Chapter 3.4.6., it is noted that the participation of local governments in improving housing conditions must be strengthened, particularly regarding the implementation of the Law on Housing, as well as access to funds for the construction and maintenance of social housing units. Within this framework, attention should be directed toward solving housing problems faced by young families, large households, persons with disabilities, and other vulnerable groups, while also improving the quality of housing in informal settlements. However, demographic and housing data indicate a concerning trend: despite the slow growth of the population, the number of housing units increased by 27% between the two most recent censuses. These new units primarily belong to the commercial market, which remains unaffordable for a large portion of the population. Housing policy, as an important aspect of urban quality of life, is defined by the National Housing Strategy (Government of Montenegro, 2011). This law was intended to enable the government and local municipalities to address the housing needs of vulnerable groups more effectively — those unable to solve their housing issues on the open market — and to bridge the gap between income levels and housing costs. Nevertheless, the shortage of affordable housing for low-income and young households remains evident, seriously undermining the quality of urban life. The same document, in section 2.5.3., emphasizes that combating social exclusion must be a strategic priority, which can be achieved through improving housing standards for vulnerable groups and strengthening social housing systems. Moreover, since the timeframe of this law has expired, it is clear that an update and adaptation to current needs is urgently required. On the other hand, the Law on Social Housing (Government of Montenegro, 2013) clearly defines the conditions for social policies and target vulnerable groups eligible for support. However, these initiatives are implemented case by case, without an integrated approach or market analysis that could identify the broader need for affordable housing at the city level. Although Article 11 of the law provides for the allocation of land for the construction of social housing, successful examples of this practice have not yet been realized — directly contributing to the persistent housing challenges discussed above. The National Housing Strategy (Government of Montenegro, 2011) also recognizes the need for more active engagement at both the local and national levels in addressing social housing issues and residential construction for vulnerable households. However, it identifies insufficient urban planning coverage and weak implementation of existing plans as key limiting factors, further encouraging informal construction. Chapter 4.1. of the Strategy outlines the vision and mission for national housing development, highlighting housing affordability — defined as the relationship between housing costs and income levels — and integration, referring to the contribution of housing to social cohesion and broader social stability. From the above, it can be concluded that, although social policies and housing frameworks in Montenegro are clearly defined in legislation, none of these laws have been effectively implemented through tangible examples of architectural or urban practice. Moreover, Montenegrin legislation lacks a clear link between housing policy and the empowerment of peripheral areas, treating these issues separately and in a fragmented manner. In contrast, housing policies in Madrid, exemplified by the Carabanchel project, emphasize local policies that actively integrate and engage the urban periphery, giving it new architectural and spatial value. The key difference lies in the implementation process — while in Montenegro these policies remain largely theoretical or limited to individual social cases, in Madrid there are established national and municipal programs that mobilize public land for major urban development projects aimed at the regeneration of urban areas, such as the recent conversion of a former prison site into 508 housing units (2023). This strategic and integrated approach to planning has become standard practice in Madrid, whereas in Montenegro, this category of housing and approach are absent from spatial planning documents — revealing a lack of alignment between legislative provisions and urban planning frameworks. In the urban planning documents of Podgorica, urban

sprawl, although a proven urban phenomenon, still does not exist as an argument for the creation of proactive and preventive housing policies, while the city periphery is still not treated in planning as having spatial potential for the possible sustainable and balanced development of the city. On the other hand, in Madrid, the legal framework for social housing is fully integrated into spatial planning, with the objectives of empowering the periphery, ensuring higher architectural standards of social housing, and promoting social cohesion and participation. This indicates the complexity and interdisciplinary nature of the process, which requires a fundamental change in the approach to planning, and which integrates architectural, urban, ecological, social and economic criteria for the analysis of the periphery.

6 Conclusion

In accordance with the set research objective, the hypothetical framework of the work can be considered fulfilled, given the satisfaction of most of the criteria by which the Carabanchel project can be considered a successful example. Also, according to the established methodological framework and criteria for comparison, it can be clearly stated that social housing policies in Podgorica still operate within a framework of partial and short-term solutions, lacking a clear strategy and vision that would simultaneously address social needs and the urban challenges of growth and expansion. In contrast to the comparative practices discussed earlier, where architectural and urban experiments, combined with clear policies, created space for more inclusive and sustainable forms of housing based on public interest and social justice, housing policies in Podgorica remain guided by market logic, focused on remediation rather than prevention.

Moreover, current housing policies, driven by market interests, contribute to maintaining a highly unjust city, in which spatial and economic segregation is further increased. The absence of strategic planning, institutional support, citizen participation, and housing programs leads to fragmented and insufficiently coherent measures, which in the long term cannot produce sustainable housing models. As a result, the periphery becomes a spatial field for illegal construction, producing social segregation, with spatial consequences that are permanent and detrimental to the city. This opens the space for future critical reflection on housing policies, which must be preventive, aligned with a balanced urban development dynamic, surpassing immediate needs, and aimed at long-term sustainable housing models that empower the periphery and make it an integral and important part of the urban fabric. In summary of the conclusions, and in relation to the experiences of the Carabanchel example, it is important to emphasize that social housing policies as a method of activating and strengthening the periphery in Podgorica must be:

- part of a broader strategy and planning document
- part of legislation related to affordable housing
- part of participatory and inclusive policies
- part of a sustainable housing concept
- part of contemporary architectural practice

This means the success of such solutions will not lie solely in the physical construction of housing units but in the process of integrating the community into the urban system, emphasizing accessibility to public amenities, participatory planning, and solutions that foster social cohesion. In this way, the periphery could become a resource for a fairer, more inclusive, and long-term sustainable urban development.

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Decentering Perspectives: Embracing the Pluriverse in Researching the Architecture of the Belt and Road Initiative

Decentriranje perspektiva: prihvatanje pluriverzuma u istraživanju arhitekture inicijative *Pojas i put*

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Abstract This paper develops a pluriversal methodological framework for researching architecture within transanational infrastructure development, using the Belt and Road Initiative (BRI) as a laboratory. Existing scholarship has often interpreted BRI projects through geopolitics or economic strategy, focusing on questions of China's global strategy, resource security, and the extension of its sphere of influence (Cai, 2017; Summers, 2016). Within these narratives, architecture and urbanization typically appear as secondary by-products of development, subordinated to the logics of diplomacy and investment flows. This tendency overlooks the ways in which BRI projects actively shape spatial orders, produce new architectural forms, and generate contested meaning, which cannot be fully captured by universalizing interpretations. Drawing on decolonial and posthumanist thought (Escobar, 2018; de la Cadena & Blaser, 2018; Mignolo, 2011), the paper argues for methodologies that recognize infrastructures as plural artifacts rather than singular instruments. Building on extensive documentation of BRI projects, four orientations are proposed: recognizing multiple realities, grounding analysis in lived contexts, tracing relational entanglements, and valuing alternative logics. Case studies — from the Pakistan-China Technical and Vocational Institute in Gwadar and the Xi'an Silk and Road Conference Center, to the Hiyaa Housing Project in the Maldives, Kilamba Kiaxi in Angola, and the Lianglu-Cuntan Free Trade Port in Chongqing — demonstrate how BRI architectures simultaneously function as geopolitical symbols, civic institutions, everyday spaces, and material

Sažetak Ovaj rad razvija pluriverzalni metodološki okvir za istraživanje arhitekture unutar transnacionalnog infrastrukturnog razvoja, koristeći Belt and Road Inicijativu (BRI) kao laboratorij. Postojeća literatura često tumači projekte BRI-ja unutar prizme geopolitike ili ekonomske strategije, usredotočujući se na pitanja kineske globalne strategije, sigurnosti resursa i širenja njene sfere utjecaja (Cai, 2017; Summers, 2016). U takvim narativima arhitektura i urbanizacija najčešće se pojavljuju kao sekundarni nusproizvodi razvoja, podređeni logikama diplomatije i investicijskih tokova. Ova tendencija zanemaruje načine na koje projekti BRI-ja aktivno oblikuju prostorne poretke, proizvode nove arhitektonske forme i generiraju osporavana značenja koja se ne mogu u potpunosti obuhvatiti univerzalizirajućim interpretacijama. Oslanjajući se na dekolonijalnu i posthumanističku misao (Escobar, 2018; de la Cadena i Blaser, 2018; Mignolo, 2011), rad zagovara metodologije koje prepoznaju infrastrukture kao pluralne artefakte, a ne kao jedinstvene instrumente. Na temelju opsežne dokumentacije projekata BRI-ja predlažu se četiri orijentacije: prepoznavanje višestrukih stvarnosti, utemeljenje analize u proživljenim kontekstima, praćenje relacijskih isprepletenosti i vrednovanje alternativnih logika. Studije slučaja — od Pakistansko-kineskog tehničkog i strukovnog instituta u Gwadaruu i Konferencijskog centra Puta svile u Xi'anu, do stambenog projekta Hiyaa na Maldivima, Kilamba Kiaxi u Angoli i slobodne trgovačke luke Lianglu-Cuntan u Chongqingu — pokazuju kako arhitekture BRI-ja istodobno funkcioniraju kao geopolitički simboli, građanske institucije, prostori svakodnevice i

assemblages. By foregrounding plurality rather than universality, this paper reframes the BRI as a site of translation between diverse worlds, and advances a methodological agenda for architectural research that is inclusive, relational, and attentive to the co-existence of multiple epistemologies.

Keywords postcolonial architecture; Belt and Road initiative; infrastructural landscape; pluriversal architecture.

materijalni sklopovi. Isticanjem pluralnosti umjesto univerzalnosti, ovaj rad preoblikuje BRI kao mjesto prevođenja između različitih svjetova, te unapređuje metodološki program arhitektonskih istraživanja koji je inkluzivan, relacijski i pažljiv prema koegzistenciji višestrukih epistemologija.

Ključne riječi postkolonijalna arhitektura; inicijativa *Pojas i put*; infrastrukturni krajolik; pluriverzalna arhitektura.

1 Introduction

Architecture, as a field of knowledge and practice, today is increasingly entangled with global infrastructural transformations that cut across borders, cultures, and ecologies. Among these, the Belt and Road Initiative (BRI), launched by the Chinese government in 2013, works as an example par excellence. Conceived as a revival of the ancient Silk Roads, and now largely described as the largest infrastructure program attempted in the last 50 years (Winter, 2019), the BRI aims to enhance connectivity across Asia, Europe, Africa, and Latin America through vast investments in transportation, energy, digital, and urban infrastructure (Summers, 2016; Cai, 2017). Its two primary branches — the Silk Road Economic Belt, linking China to Central Asia and Europe by land, and the 21st-Century Maritime Silk Road, connecting Chinese ports to Southeast Asia, Africa, and the Mediterranean — are supported by a network of state-owned enterprises, development banks, and bilateral cooperation mechanisms (Rolland, 2017; Zeng, 2019). Officially framed as a platform for "win–win cooperation," which so far encompasses over 140 participating countries, the BRI also operates as a geopolitical and spatial strategy, channeling Chinese capital, construction expertise, and urban models abroad. Often described as China's global strategy for economic integration and soft-power projection (Rolland, 2017; Zeng, 2019), so far the BRI has been largely approached through the lenses of geopolitics and political economy, focusing on questions of China's global strategy, resource security, and the extension of its sphere of influence (Cai, 2017; Summers, 2016). Within these narratives, architecture and urbanization typically appear as secondary by-products of development, subordinated to the logics of diplomacy and investment flows.

This tendency overlooks the ways in which BRI projects actively shape spatial orders on the ground, producing an extraordinarily diverse range of architectural and urban forms — from ports and industrial zones to housing estates, cultural centers, and free-trade cities — each shaped by contested meanings that emerge from encounters between global ambitions and local realities (Williams et al, 2020). This spatial dimension situates the BRI not merely as a geopolitical strategy, but as a laboratory of architectural production, where design, technology, and politics intersect across heterogeneous geographies. Thus, on the ground, BRI projects produce complex spatial, cultural, and social effects that cannot be fully captured by universalizing interpretations. A cultural complex in Gwadar, a logistics hub on the Kazakh border, a conference center in Xi'an or a housing estate in Angola each embody multiple and sometimes conflicting narratives and realities: they are simultaneously geopolitical symbols, sites of everyday practice, and material infrastructures shaped by and shaping the "lives" of diverse human and non-human actors.

Inspired by subaltern studies, which advocate for perspectives "from below" through micro-histories, and by postcolonial approaches that urge moving beyond the binary of North-South (Robinson, 2006; McFarlane, 2006; Roy, 2016), it is possible to rethink how globalization materializes through built forms. Moreover, Appadurai's multiple "scapes" of globalization are useful lenses to look at the phenomena: as such, the architectures of the Belt and Road Initiative can be seen as spatial crystallizations of intersecting *ethnoscapes, financescapes and ideoscapes* (Appadurai, 1996). These specific architectures remain only partially theorized and under-recognized within disciplinary debates on architecture and urbanism; they are not minor in the sense of marginal or irrelevant — a notion problematized since Bernard Rudofsky's *Architecture Without Architects* (1964), which questions the hierarchies of architectural value — but rather hybrid, composite, and often pastiche-like forms that emerge from negotiations, as instruments of political and cultural projection (Wigley, 1994; Martin, 2003; Till, 2009).

The reliance on universalist paradigms in architectural research — whether modernist notions of progress, global capitalist urbanism, or Western aesthetic categories — risks flattening the complexity of these projects. As Escobar (2018) argues in his call for *Designs for the Pluriverse*, the hegemony of universalist frameworks must be challenged by approaches that acknowledge the existence of multiple coexisting worlds, epistemologies, and ontologies. In the context of the BRI, this means moving beyond singular readings of projects as either "Chinese exports" or "regional adaptations" and instead embracing their hybrid, contested, and situated character. Mignolo (2011) conceptualizes this as "epistemic disobedience," the practice of refusing dominant categories of knowledge in order to make space for alternatives.

Building on postcolonial and posthumanist scholarship, this paper argues for the need to include "the pluriverse" in architectural research and particularly in research focusing on global infrastructural projects such as the BRI. The pluriverse shifts attention from a single, universal world to a multiplicity of ontologies in which humans,

non-humans, infrastructures, and ecologies interact (de la Cadena & Blaser, 2018). Such a perspective aligns with recent work in critical urban studies that foregrounds infrastructure not as neutral technical systems but as complex, socio-material assemblages (Amin & Thrift, 2017; Kanai & Schindler, 2018). For architectural research, adopting a pluriversal lens requires methodological innovation: privileging situated knowledges (Haraway, 1988), tracing transcultural assemblages (Ong & Roy, 2011), and acknowledging more-than-human agencies that shape spatial practices (Haraway, 1988; Latour, 2005).

The BRI provides ideal ground for this inquiry. From free-trade zones in Central Asia to housing estates in Africa and cultural centers in South Asia, BRI projects exemplify how architecture materializes at the crossroads of global capital, state ambitions, and local socio-cultural practices (Bonino & Carota, 2025). This paper firstly provides a literature review that traces the limits of universalist paradigms and the rise of pluriversal and decolonial perspectives in architectural and urban studies; secondly, it advances four methodological orientations for approaching the pluriverse in transnational architectural research using the BRI as a case study; finally, it emphasizes the significance of pluriversal approaches for architectural research at large, underscoring how they allow scholars and practitioners to recognize multiplicity, resist homogenization, and imagine more inclusive futures for the global built environment. In doing so, it contributes to the growing effort to decenter architectural theory, resist homogenizing narratives, and advance more inclusive, relational, and situated understandings of the built environment in the twenty-first century, aligning with Fernando Lara's call to provincialize architectural knowledge and foreground multiple modernities. Indeed, modern construction technologies travel everywhere, but they are constantly reshaped by local practices and adaptations. As he writes, "modernity is not a package to be imported but a process that gets reinterpreted in every context where it arrives" (Lara, 2024).

2 Literature Review: From Universalism to Pluriversal Architecture

Architecture has always been implicated in global processes, but the rise of large-scale infrastructural systems has intensified the entanglement between design, technology, and politics (Easterling, 2014; Harvey and Knox (2015). Modernist architecture, often exported through colonial and developmentalist agendas, advanced its forms as universally valid, marginalizing local traditions and practices (Curtis, 1996; King, 2004). Postmodern critiques (Jencks, 1977) and the call for critical regionalism (Frampton, 1983) attempted to resist such homogenization, yet largely remained anchored in Western epistemologies. Indeed, as further indicated by Botz-Bornstein (2015), the notion of a self-critical movement, such as Critical Regionalism, is intrinsically linked to the Western tradition of enlightenment – a reality that can be both advantageous and problematic, especially when these endeavors are introduced in contexts where the Western tradition of critical thought does not hold sway or may even be nonexistent.

Universalist paradigms continue thus to shape how global infrastructures and their architectures are evaluated. Large-scale projects are often measured through technical metrics of efficiency, connectivity, or economic growth, while architecture is judged according to Eurocentric standards of originality, authorship, or aesthetic coherence (King, 2004; Ferguson, 2006). Such approaches flatten complexity, reducing projects to singular logics of modernization or geopolitical expansion. James Scott's (1998) critique of high modernism remains relevant here: top-down schemes assume legibility and control but falter in the face of local realities. Yet even critical accounts such as Scott's risk reproducing a binary between state imposition and local resistance, missing the more nuanced multiplicity of practices, appropriations, and negotiations that infrastructures embody. For architectural research, this presents a methodological challenge: how to move beyond singular explanatory frameworks and toward approaches capable of engaging with plurality.

This paper draws on recent scholarship that has turned toward pluriversal and decolonial perspectives to address this challenge. Central to this shift is Arturo Escobar's (2018) notion of "designs for the pluriverse," which redefines design as a practice of ontological negotiation, a way of being-with that cultivates coexistence among heterogeneous worlds. For Escobar, the pluriverse is simultaneously a political and ontological project: it dismantles the modernist separation between nature, culture, and technology, and instead advances autonomous design, design practices grounded in relational ontologies and collective forms of self-determination. Such an understanding moves design beyond representation and into world-making, where infrastructures and architectures act not as neutral instruments of development but as mediators of interdependence. Design, in this sense, is not the translation of abstract ideas into form but the situated articulation of multiple realities, continually negotiated through networks of care, matter, and affect. Extending Escobar's prosition, Walter Mignolo (2011) introduces the idea of "epistemic disobedience," which brings the politics of knowledge into sharper focus. For Mignolo, modernity's universalism is inseparable from the discourse of coloniality, as the historical process through which European epistemologies declared themselves universal while relegating others to the margins of reason or myth. To practice epistemic disobedience is thus to delink from this colonial matrix of power, refusing to measure knowledge through Western hierarchies of rationality, aesthetics, or progress. Within architecture, this stance reframes design as a geo- and body-political practice, acknowledging that every spatial act emerges from particular positions, territories, and embodied experiences. Rather than seeking a new universal canon, epistemic disobedience invites a pluralization of epistemic worlds, each with its own cosmology and mode of making.

This emphasis on plurality resonates with the work of Marisol de la Cadena and Mario Blaser (2018), who conceptualize the pluriverse as "a world of many worlds,"

challenging the assumption that modernity provides a single ontological horizon. Their perspective foregrounds the coexistence, and often the incommensurability, of distinct ontologies that nonetheless share material and political entanglements. In a similar vein, Boaventura de Sousa Santos (2014) advances an "ecology of knowledges," calling for relations of translation and reciprocity rather than assimilation. For Santos, epistemic justice does not emerge from consensus but from the creation of dialogues across difference, where multiple knowledge systems coexist without being reduced to one another. Together, these thinkers trace a movement from critique to reconstruction: from exposing the universalist and colonial underpinnings of modern knowledge to envisioning the conditions of coexistence among diverse world-making practices. Their insights reorient architecture and design away from universal categories and toward a relational understanding of practice, one that conceives building, knowing, and living as interdependent acts within an ever-plural field of ontologies.

Such theoretical shifts converge with transformations within social and anthropological research itself, where authors such as Donna Haraway's (1988) emphasize the partial, embodied, and contextual nature of knowledge production, undermining claims to universal architectural categories. On the other side, actor-network theory (Latour, 2005) and assemblage thinking broaden the field by foregrounding the agency of non-human actors — materials, technologies, ecologies — that co-produce infrastructures and built environments. Architecture and urban theorists have applied these insights to show how megaprojects and infrastructural corridors operate not as coherent top-down plans but as unstable assemblages shaped by global finance, environmental systems, labor, and everyday practices (Easterling, 2014; Kanai & Schindler, 2018). What emerges is a view of infrastructures — and by extension its architecture and urban spaces — not as fixed objects but as contingent formations, open to divergent interpretations and uses.

The implications for architectural and urban research are significant. To study global infrastructures pluriversally is to analyze buildings and spaces not only as technical or aesthetic constructs but as mediators of multiple realities — ontological interfaces through which diverse actors negotiate meaning and value. This perspective aligns with the interpretive approaches of Albena Yaneva and Bruno Latour, who conceive architectural forms as participants in networks of translation and world-making (Yaneva, 2012; Latour, 2005). Moving beyond universal standards of design quality, such an approach foregrounds how knowledge and agency are generated within specific contexts and through heterogeneous epistemologies. As McNeill (2019) and Sheppard (2020) observe, infrastructures increasingly underpin the global urban condition; what is required now are methodologies capable of engaging this condition without collapsing it into singular categories.

This literature review has therefore traced a trajectory from universalist paradigms — modernism, technocratic infrastructure studies, and Eurocentric urban theory — through critical interventions that challenge their dominance, to pluriversal perspectives that reframe infrastructure and architecture as relational and plural. Building on this trajectory, the paper proposes in the following paragraphs an epistomological framework for studying the built environments of the BRI through multiple methods and interpretative lenses.

3 Research Design and Case Study Selection

The research underpinning this paper draws upon a multi-scalar, comparative analysis of built projects associated with the Belt and Road Initiative (BRI) between 2013 and 2024. Case studies were selected through a process combining documentary review, spatial analysis, and field-based observation, with the objective of representing the geographical, typological, and epistemological diversity of the BRI. Rather than aiming for exhaustiveness, the selection illustrates how infrastructural architectures materialize across distinct political, cultural, and ecological contexts.

The selection criteria followed three complementary dimensions. First, projects were chosen for their representational significance within official BRI narratives — those frequently cited in policy documents, media coverage, or diplomatic discourse. Second, the corpus included projects with evident spatial and cultural hybridity, where imported models intersected with local conditions. Third, the cases exemplify infrastructural and logistical complexity, capturing the relational dimension of transnational flows across the BRI. Together, these cases reflect their diversity along the BRI spectrum, allowing for a comparative reading of how multiplicity manifests across different scales and functions.

The analytical process combined qualitative and spatial methods in a series of complementary and interrelated phases. First, newspaper articles, academic journals and official reports were used to build up a comprehensive understanding of the context of each case study. Second, official documents, masterplans, and design reports, when available, were cross-referenced with satellite imagery, site photographs, and secondary literature to trace each project's development trajectory. When possible, fieldwork and interviews with local stakeholders were conducted or integrated from existing ethnographic accounts retrieved from secondary literature. Later on, spatial and architectural analyses were conducted through detailed digital reproductions of the buildings' forms, programs and design features. Morphological drawings and analytical diagrams were then produced to visualize and systematize this information. The comparative framework thus privileges thick description and relational interpretation over typological generalization, foregrounding the agency of several local and global agents in the production of the built environment (Latour, 2005).

Finally, data interpretation was guided by the four methodological orientations elaborated on in the subsequent section — recognizing multiple realities, grounding analysis in lived contexts, tracing relational

entanglements, and valuing alternative logics. These orientations were not part of a predetermined analytical framework but rather emerged inductively through the progressive reading and interpretation of the case studies. They do not prescribe a singular analytical model; instead, they operate as heuristic tools for reading BRI architectures pluriversally — as hybrid assemblages co-produced through negotiation, appropriation, and situated practice. The methodological emphasis therefore lies less in evaluating architectural form through universal standards and more in understanding how built environments mediate between diverse epistemologies and ontologies, materializing the pluriverse in space.

4 Toward a Pluriversal Methodology in the Research of BRI Architecture

The Belt and Road Initiative (BRI) is often described as a global infrastructural strategy designed to extend China's geopolitical reach (Summers, 2016; Cai, 2017). Yet when studied from the ground, BRI projects reveal far more than the logic of state power or capital flows. They are lived, adapted, and contested in diverse contexts stretching from Central Asia to Africa and Southeast Europe. If conventional analysis tends to universalize BRI architecture as the material imprint of "China going global," a pluriversal methodology opens alternative readings, attentive to the multiplicity of realities, practices, and agencies that constitute these projects.

This section outlines four orientations for approaching the BRI pluriversally. Together, these perspectives illustrate how BRI architectures emerge not as singular exports but as plural sites of negotiation.

4.1 Recognizing Multiple Narratives

BRI projects are frequently interpreted through the lens of state diplomacy. Buildings, such as the Pak–China Technical and Vocational Institute in Gwadar, Pakistan, are officially framed as development aid symbolizing bilateral solidarity, but their significance extends beyond soft-power strategies. The Pakistan–China Technical and Vocational Institute illustrates how a single building can host and project multiple architectural narratives at once: completed in 2021 by the China Communications Construction Company (CCCC) for Pakistan's Ministry of Planning and the Chinese Ministry of Public Health, the 7,350-square-meter building in Gwadar was officially presented as a diplomatic endeavor from China to Pakistan, its design and program embodying the narrative of China's development aid. This framing emphasizes the monumental scale and symbolic mixité of architectural languages derived from China and the Pakistani tradition: the courtyard layout, the pointed and rounded arches of the porch inspired by Gwadar's vernacular mud architecture, and the Islamic lattice ornamentation embedded within the facade — architectural elements that communicate endurance and partnership between the two states (Figure 1, Figure 2).

However, this official story is only one among many. Indeed, beyond its celebratory rhetoric, the building process itself was a site of conflict and negotiation, where divergent cultural expectations, political agendas, and technical standards intersected. Rather than a seamless expression of bilateral harmony, the architecture of the project embodies compromises, frictions and even conflicts. From the perspective of the Chinese architects and contractors, notably the Shanghai Construction Group, the building represents an act of architectural export, an example of how standardized expertise and construction models travel abroad. The restrained modernist vocabulary that was predominant in the first design proposal — functional halls, clear circulation systems, and modular interiors — aligns with a narrative of efficiency and reproducibility common in state-sponsored cultural facilities in China. For Pakistani cultural actors, however, the Centre sustains a different architectural narrative: that of a much-needed civic venue in Islamabad that represents the local culture through local spaces and vernacular architectural devices. The building's spatial typology — auditorium, conference halls, exhibition spaces but also rooms dedicated to prayer — responds less to stylistic innovation than to infrastructural deficit. In this account, its architecture is valued not only for its diplomatic service but mainly for its functional and symbolic contribution to the city's cultural landscape, providing a space where performances, exhibitions, and fairs can take place in a capital otherwise limited in cultural infrastructure.

At the level of the local population, the building tells yet another story — one centered on workforce participation and community engagement. While most components, including electrical equipment, appliances, windows, decorative elements, and prefabricated concrete structures, were imported from China, their adaptation and assembly took place in Gwadar with the involvement of local labor. Pakistani workers, trained by Chinese engineers, not only assisted in construction but also provided crucial feedback on climate conditions and other contextual factors affecting the building process. This dynamic established a form of reciprocal exchange, in which expertise and standardized techniques flowed from China, while localized knowledge and situated practices informed their implementation. In this sense, the project does not merely represent the unilateral transfer of architectural technologies, but rather illustrates the co-production of space, where multiple forms of knowledge — technical, environmental, and cultural — intersect. Here, the architectural narrative is not about diplomacy or cultural production, but about pragmatic integration into local economic and social routines — how a large civic building can become an opportunity for local employment and skilling in ways far removed from its original political framing.

A pluriversal approach resists collapsing distinct interpretations into a single narrative. The Pakistan–China Technical and Vocational Institute simultaneously operates as a monument to diplomacy, a vehicle for exported design expertise, a functional cultural facility, and a site of local opportunity. Rather than

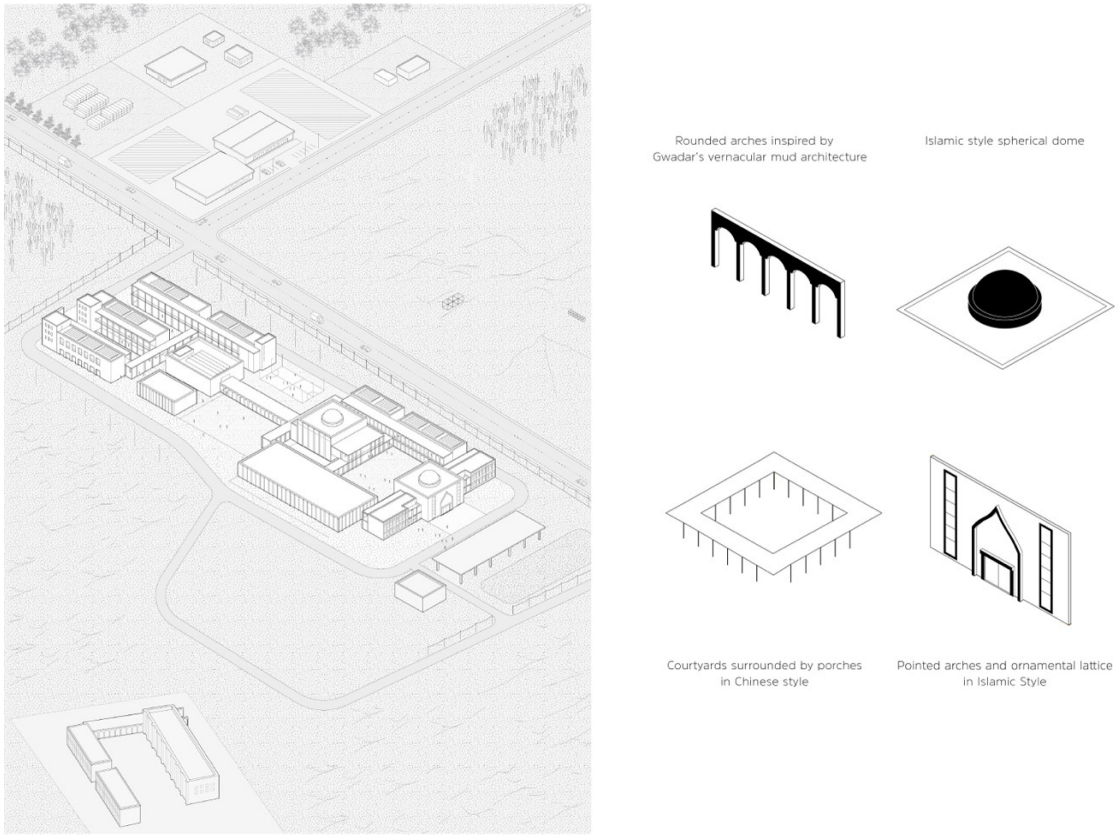


Figure 1a Axonometric view of the Pakistan–China Technical and Vocational Institute (located in Gwadar, Pakistan; built in 2021; total floor area: 7,350 sqm).; **1b** Morphological diagram highlighting the main elements of its architectural language: rounded arches inspired by Gwadar's vernacular mud architecture, an Islamic-style spherical dome and pointed-arch ornamental lattice, and courtyards surrounded by porches in Chinese style. Source: Auhors, 2025.

embodying a unified meaning, it becomes a node where multiple worlds converge — state power, transnational architectural practice, local cultural production, and everyday use. The same building thus sustains layered realities, each constituting its own world of meaning (de la Cadena & Blaser, 2018). Seen in this light, BRI architecture cannot be read through a single representational framework but as a dynamic field where diverse ontological, political, and social projects intersect. While these perspectives help decenter universalist paradigms, their significance lies in revealing the spatial, human, and ecological dimensions of architectural and infrastructural transformation within initiatives such as the Belt and Road Initiative (BRI).

4.2 The Act of Grounding

From a distance, BRI projects, and particularly new housing estates, appear as standardized typologies designed for rapid urban expansion. New urban developments like Kilamba Kiaxi in Luanda, Angola — a colossal new town of 750 repetitive apartment blocks constructed by a Chinese state-owned firm in 2014 — appear as archetypes of standardization and homogeneity, covering 30.5 square kilometers (Figure 3, Figure 4). From above, they resemble countless other enclaves built along BRI corridors, from the Maldives to Georgia, suggesting a universal model of urban production detached from local contexts. Renderings and promotional images often emphasize this global image of repetition: endless rows of towers, interchangeable façades, and modular floorplans. To ground architectural inquiry in context is to move beyond the optics of sameness and uncover the multiple narratives that these enclaves sustain.

In Kilamba, a project initially plagued by vacancy due to unit prices far beyond the reach of ordinary Angolans, new forms of occupancy gradually emerged: informal rentals, street markets, and modifications of apartments by residents. Over time, the sterile modernist fabric evolved into a lived environment, producing social rhythms and economic practices

Figure 2 Picture showing the main entrance of the Pakistan-China Technical and Vocational Institute, characterized by Arabic ornamentation. Source: Al Yosuf, 2025.

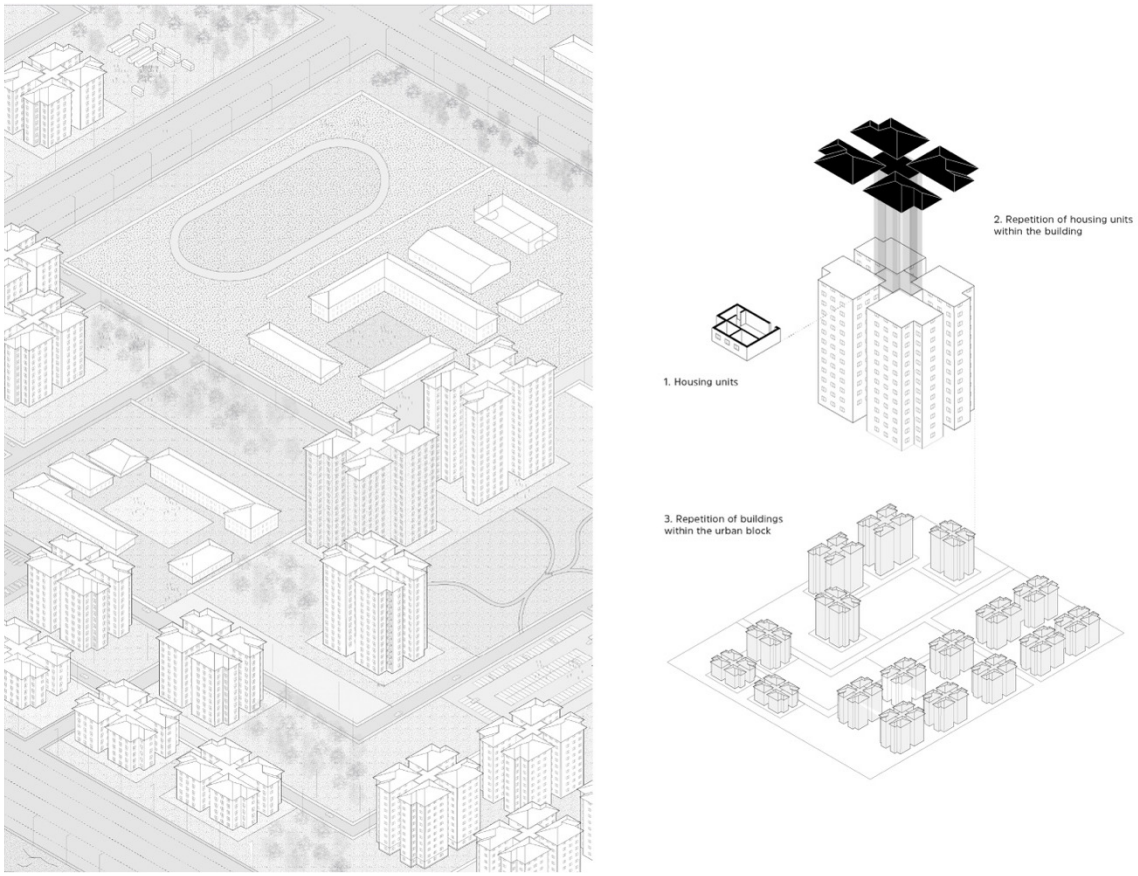


Figure 3a Axonometric view of Kilamba Kiaxi (located in Luanda, Angola; built in 2014; total dimension: 30,5 sqkm). ; **3b** Morphological diagram showing the repetition of architectural elements at different scales. Source: Auhors, 2025.

that were neither foreseen by planners nor captured in official narratives. The enclave, though conceived as a modernization initiative, was redefined by everyday uses into a plural and contested urban milieu. Different but comparable dynamics are also visible in the Hiyaa Housing Project in Hulhumalé, Maldives, built in 2020, where the China State Construction Engineering Corporation (CSCEC) exported technical protocols, labor, and construction technologies from China to a man-made island. Standardized towers — up to 24 stories high — followed Chinese setback and fire-safety regulations, while internal cores and layouts adhered to domestic guidelines. Local conditions, such as high humidity, saline soils, and regulatory requirements by the Hulhumalé Planning and Development Organization, forced adaptations: reinforced concrete mixes were altered, balcony railings modified, and ventilation systems redesigned. These adjustments reveal that even highly standardized enclaves are not imposed wholesale but evolve through site-specific negotiations where global standards are reworked to fit climatic, cultural, and normative realities.

The case of Hualing Tbilisi Sea New City in Georgia extends this logic further, illustrating how Chinese developers not only reproduce architectural typologies but also transplant entire spatial imaginaries. Occupying 4.2 square kilometers and superimposed over a dispersed network of small villages in the Bhal region, the project — developed by the Chinese real estate company Hualing Group in two phases (2008–2012; 2014–2022) — merges Chinese gated-community models with Western-style façades, malls, and landscaped environments. Marketed as a cosmopolitan enclave of leisure, education, and commerce, it has elicited ambivalent responses among local residents, who regard it both as a symbol of modernization and as an imposition on existing spatial and social fabrics. What appears as mere repetition thus becomes a site of negotiation, where standardized global forms are re-inscribed with local cultural meanings.

Such endeavors demonstrate how the intended function of BRI projects may diverge from their lived reality. Grounding research in these contexts requires privileging

Figure 4 Helicopter view of Kilamba Kiaxi, showing the repetition of mid- and high-rise buildings. The urban fabric is composed of structures of varying heights and forms, distinguished by differently colored façades. Source: Paulo Moreira, 2025.

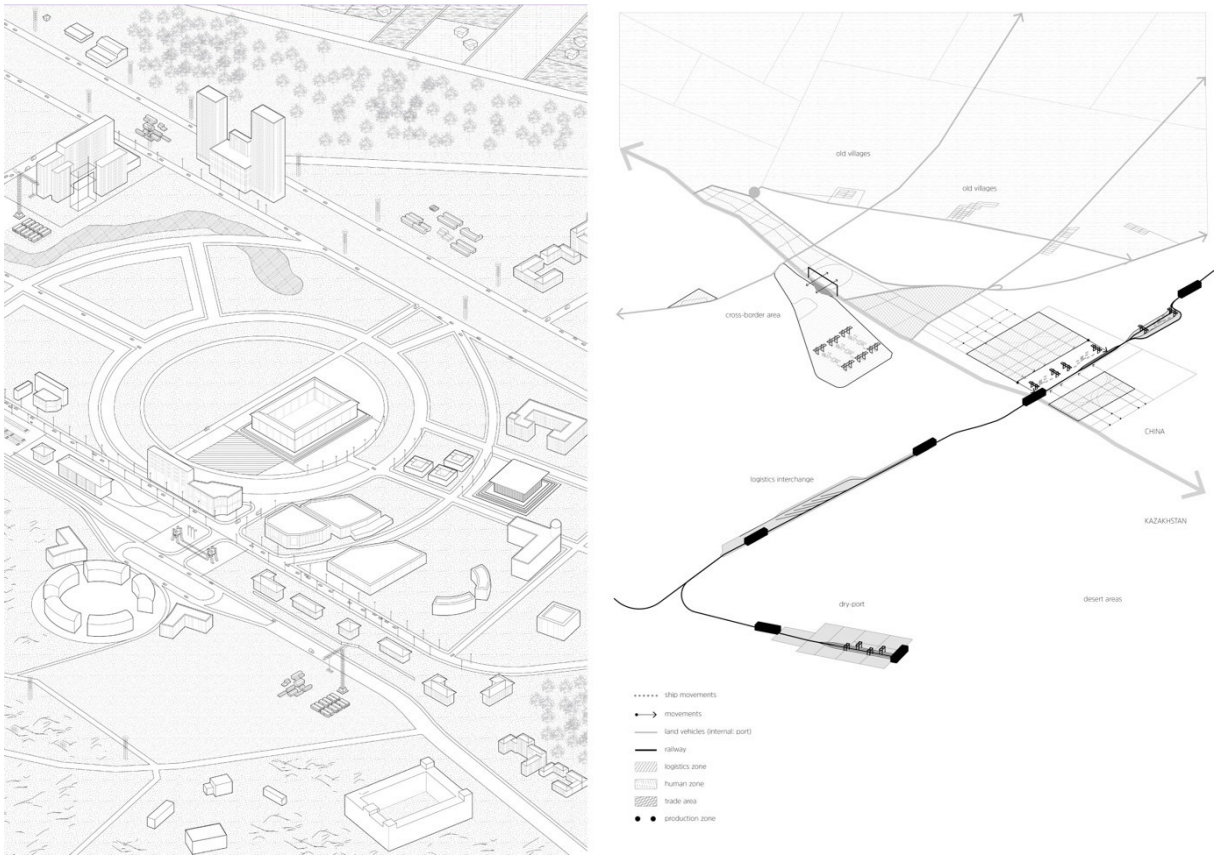


Figure 5a Axonometric view of Khorgos Free Trade Center (Khorgos, Horgos located at the border between China and Kazakhstan).; **5b** Circulation diagram showing the superimposition of human and non-human flows: the logistics area, new construction, and steel cranes allow for the movement of cargo between borders. Source: Auhors, 2025.

local voices and embodied experiences rather than relying solely on official narratives (Haraway, 1988). The apparent uniformity of mass housing is in fact the outcome of complex negotiations between global standards and local adaptations. As Fernando Lara (2024) argues, modern construction technologies travel everywhere, but they are constantly reshaped by local practices and adaptations. In other words, Keller Easterling (2014) noticed how "organizational expressions of spatial arrangements" — the protocols, standards, and sequential operations through which architecture is enacted — are sometimes improvisational and responsive to circumstantial changes, anomalies, and seemingly illogical contextual forces. As these protocols circulate globally — through ISO certifications, engineering logics, and corporate standards — they acquire new shapes through the material, climatic, and cultural conditions of each site. The result is an architecture that is neither entirely global nor wholly local but plural, situated, and dynamic, and should be studied and analyzed in this manner. By grounding analysis in lived contexts, one can see how repetition generates difference — how residents, regulations, and materials transform uniformity into multiplicity. The very same building, conceived as part of a universal model, becomes something unique in Angola, in the Maldives, or in Georgia. This reveals the essence of a pluriversal approach: taking seriously the situated practices, technical adjustments, and cultural reinterpretations that transform standardized enclaves into plural worlds of habitation.

4.3 Tracing Relational Entanglements

Many BRI infrastructures function less as isolated objects than as nodes in vast transnational assemblages and intersections of multiple realities. The Khorgos Special Economic Zone on the China–Kazakhstan border exemplifies this condition (Figure 5, Figure 6). While celebrated as a logistical hub of the "New Silk Road," a sovereign experiment in international cooperation where Chinese and Kazakh authorities established the International Center for Boundary Cooperation (ICBC) in

Figure 6 Drone-view of Khorgos Free Trade Center. Source: en.orda.kz/new-oldfaces-who-is-khorgos-visitors-now/ Courtesy of Zhang Xiaolong, 2025.

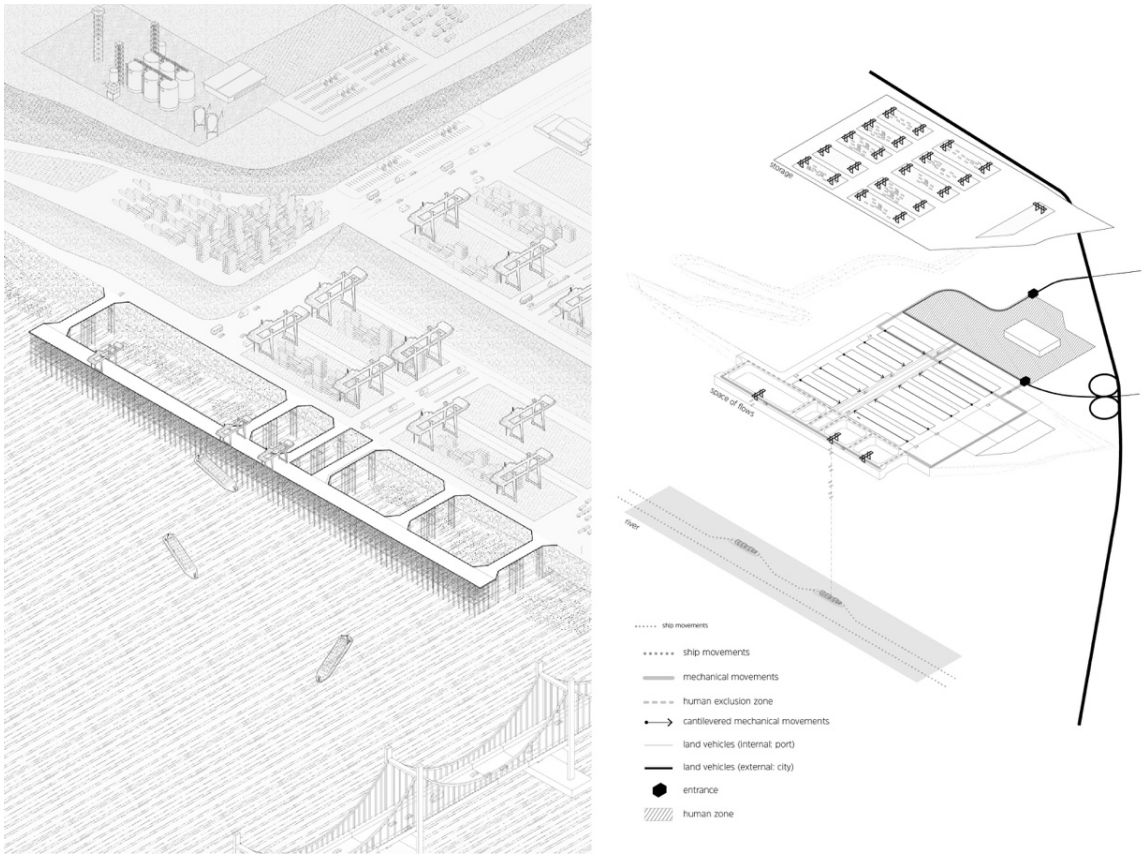


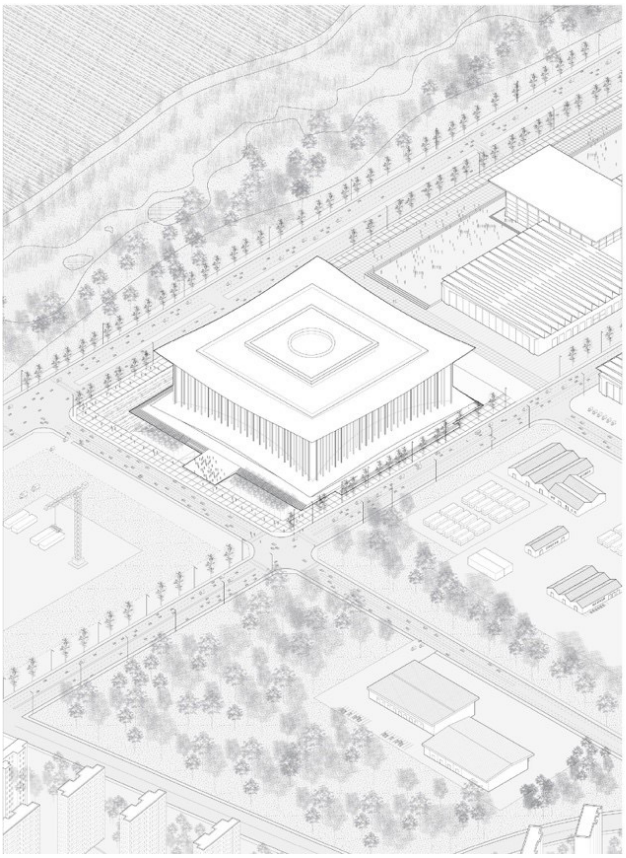
Figure 7a Axonometric view of Lianglu-Cuntan Free-Trade Port Area (Chongqing, China; built in 2020; total surface: 3,88 sqkm).; **7b** Circulation diagram showing the superimposition of human and non-human flows: concrete piers and automated steel cranes allow for the movement of cargos between the river and inland. Source: Auhors, 2025.

2014, interpreting this space solely as a trading instrument is to obscure the multiplicity of worlds that cohabit its 5.28 square kilometers.

The Khorgos Special Economic Zone is produced and lived through a dense web of relations among multiple agents: bilateral agreements, customs protocols, Chinese and Kazakh investments, labor migration, algorithmic logistics systems, and the circulation of goods and people. The zone comprises a dry port on one side and the International Center for Border Cooperation (ICBC) on the other. The latter is based on a visionary urban master plan designed by the integrated design firm AECOM, which envisions a mixed-use development focused on trade and tourism straddling the borders of China and Kazakhstan. Crucially, these relations are sustained and enacted not only by human actors but also by a constellation of non-human agents that decisively shape the zone's architectural and operational form. The very organization of the site is conditioned by the incompatibility of Chinese and Central Asian rail gauges, which necessitate permanent transshipment yards and specialized mechanical equipment. Within this tightly regulated corridor, a series of interconnected sequences unfolds — beyond the simple transit of goods — through customs zones, temporary storage facilities, stocking depots, and trading halls, each orchestrated by an automated logistics management system that dictates the tempo of circulation. Storage is limited to a precise three-hour window, while driverless vehicles coordinate container positioning to maximize transfer efficiency. This machinic choreography does not erase human presence: carriers, alerted to incoming shipments, perform ritualized exchanges with customs officers before dispatching materials to manufacturing sites. Meanwhile, thousands of visitors traverse the same infrastructural landscape daily to purchase inexpensive Chinese products. In this way, the logistical assemblage of Khorgos extends beyond the ICBC checkpoint, weaving together automated systems, regulatory regimes, and human practices into a complex ecology of border urbanism.

Standardized shipping containers dictate the dimensions of storage areas, the turning radii of vehicles, the spans of cranes, and even the depths of tunnels. RFID tags, GPS trackers, and X-ray scanners organize

Figure 8 Picture showing the movement of cargo in front of the Lianglu-Cuntan Free-Trade Port Area. Source: Raul Ariano, 2025.



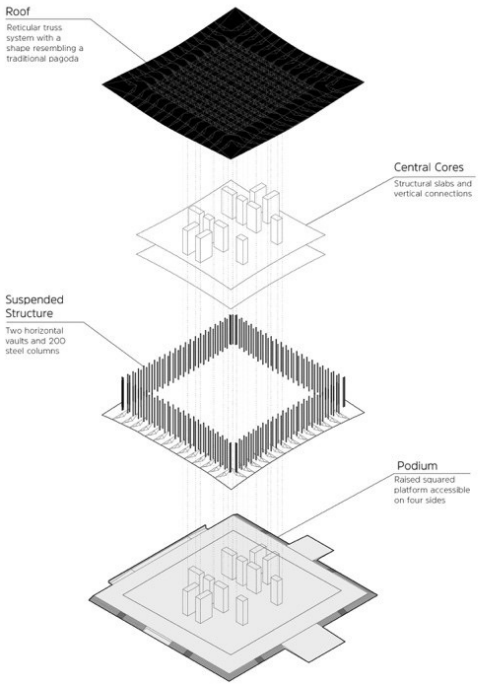


Figure 9a Axonometric view of the Xi'an Silk Road International Convention and Exhibition Center (Xi'an, China; completed in 2022 by gmp architects; total floor area: 181,200 sqm).; **9b** Relational diagram illustrating the main tectonic elements of the building. The design features a reticular truss roof system shaped to resemble a traditional pagoda, while glazed curtain walls form the envelope of the complex, creating an impression of weightlessness sustained by a suspended structure. Source: Auhors, 2025.

commodity flows at scales and speeds that exceed human capacity, while algorithms embedded in customs software determine dwell times and spatial allocations. These machinic logics do not merely supplement human decision-making but actively co-produce the architectural and urban order of the free zone. As Keller Easterling reminds us, some of the most radical spatial transformations today are scripted not in formal design but in the "language of infrastructural protocols." In Khorgos, this language materializes as a machinic landscape where architectural meaning is distributed across technologies, standards, and operational sequences as much as across human practices.

Comparable dynamics emerge at other BRI logistical nodes such as the Lianglu–Cuntan Free Trade Port in Chongqing (Figure 7, Figure 8), designed in 2022 and covering 3.88 square kilometers, where multi-story piers, automated cranes, and AI-enabled CT-type inspection machines render the shipping container — rather than the human body — the operative unit of architectural measurement. Here, as at Khorgos, the very metrics of architecture — heights, spans, and circulation logics — are subordinated to the quantified spatiality of global logistics (Tobey, 2017).

From Latour's (2013) perspective of "flat ontology," these environments collapse traditional hierarchies that privilege human over non-human agency, positioning containers, algorithms, cranes, and workers on the same plane of relational co-production. Manuel Castells's notion of the "space of flows" further illuminates these sites: Khorgos and Chongqing epitomize spaces where immaterial digital networks and material infrastructures merge, enabling the circulation of goods, capital, and people across vast distances. To trace these relational entanglements is therefore to acknowledge that BRI architectures are not static edifices but ecologies of

Figure 10 External view of the Xi'an Silk Road International Convention and Exhibition Center, characterized by two symmetrical horizontal vaults and multiple columns. The podium, accessible from all four sides as shown in the previous diagram, evokes an interplay between the Parthenon and traditional Chinese architectural forms. Source: en.yanghd.com/projects/detail/160/1, 2025

interaction where multiple ontologies — diplomatic, logistical, commercial, domestic — are enacted, and where non-human actors play roles as consequential as those of states, architects, or traders. In this sense, the architecture of Khorgos and other free zones exemplifies a pluriversal condition in which divergent agents coexist and interact, producing urban fabrics that are at once sovereign enclaves, retail markets, machinic landscapes, and lived environments.

4.4 Valuing Alternative Logics

The evaluation of world architecture is often filtered through Eurocentric categories that privilege originality, aesthetics, and above all authorship. For a long time, in the canon of Western architectural discourse, buildings have been typically judged as the expression of an individual designer's creative autonomy, inscribed within what K. Michael Hays (1998) has called a "self-sustaining cultural hegemony" that reaffirms its own values. Within this framework, large-scale BRI projects, such as the Bangladesh–China Friendship Exhibition Center or the Xi'an Silk Road International Exhibition Center (Figure 9, Figure 10), frequently designed through collaborations between Chinese state institutes and global firms, find themselves in between this dominant narrative and their essence of being derivative, pragmatic and utilitarian buildings.

Completed in 2022 by gmp Architects for the Xi'an Company Silk Road International Convention and Exhibition Center, the 181,200-square-meter complex stands as a monumental hub for trade and cultural exchange along the contemporary Silk Road. Conceived as a contemporary reinterpretation of 20th-century China's "big roof" era, the design merges technological sophistication with traditional architectural motifs — symmetrical roofs, horizontally proportioned façades, and 180 slender columns that diffuse natural light. The result is a vast, flexible steel-framed structure, both ornamental and functional, envisioned as a symbolic "temple" for global encounter where suspended arches and open interior spans evoke a sense of lightness and fluidity. Its transnational authorship, coupled with an emphasis on structural clarity and logistical efficiency, challenges conventional narratives of originality and innovation, revealing instead alternative logics of collective design and heteronomous production.

Rather than being conceived as autonomous artistic objects, these buildings are nonetheless the outcome of complex assemblages of actors, protocols, and negotiations that extend far beyond the figure of the architect. As Jeremy Till (2009) argues, architecture is always conditioned by forces external to the discipline — economic, political, technical, and cultural — that decisively shape its outcomes. In the context of the BRI, this heteronomy is amplified: design institutes, state-owned enterprises, construction corporations, ministries of commerce, local governments, and transnational procurement systems all participate in shaping architectural form. The result is a form of authorship that is distributed and collective, where the architect's role is one of mediation among heterogeneous demands rather than autonomous artistic invention. This resonates with Marianna Charitonidou's (2021) call to move beyond interdisciplinarity toward transversality, an epistemological model in which architectural practice is understood as a negotiation across art, politics, economics, and technology, rather than as a discrete, self-contained discipline.

From this perspective, projects like the Xi'an Silk Road International Exhibition Center or the Bangladesh–China Friendship Exhibition Center in Dhaka should not be evaluated against ideals of autonomy and originality, but rather as architectural mediations that embody the plural rationalities of their contexts. Their tectonic grandeur — such as suspended steel trusses, structural shells and cantilevered light roofs — functions simultaneously as an engineering achievement, political symbol, and social infrastructure. Such outcomes exemplify what Li Xiangning (2007) termed "critical pragmatism" in Chinese architecture: a design philosophy that does not deny the constraints of pragmatism and external forces, but actively transforms them into opportunities for architectural expression. In these cases, the collective negotiation between autonomy and heteronomy is not a limitation but a generative condition. By taking seriously these alternative logics of authorship, we are compelled to recognize that BRI architecture challenges the very categories by which architectural value has been historically assessed. In Walter Mignolo's (2011) terms, this constitutes an act of epistemic disobedience: a refusal to measure architecture against the yardsticks of Western authorship and autonomy, and instead an acknowledgment of the multiplicity of agencies and rationalities through which architectural meaning emerges.

5 Concluding Remarks

The analysis of BRI projects through the four proposed orientations — recognizing multiple realities, grounding in lived contexts, tracing relational entanglements, and valuing alternative logics — reveals that these architectures cannot be understood through singular or universal categories. They function instead as plural sites of negotiation, where global ambitions intersect with local practices, symbolic registers, and material agencies (Appadurai, 1996; Escobar, 2018). Seen through a pluriversal lens, such projects operate not as fixed manifestations of geopolitical intent but as spatial assemblages continually reshaped by heterogeneous actors and situated knowledges. Their forms emerge from the entanglement of institutional systems, infrastructural protocols, and everyday adaptations that collectively produce a multiplicity of meanings. Architecture within transnational frameworks such as the Belt and Road Initiative should therefore be studied not as an autonomous object but as a relational and negotiated process. Each project mediates between different

ontological and political worlds — linking state power and local agency, technical rationality and cultural expression, standardized form and lived improvisation. The four orientations proposed here help capture this complexity by foregrounding infrastructures as arenas of encounter, where conflicting temporalities, design intentions, and social practices coexist. The BRI thus appears less as a coherent system of expansion than as a constellation of situated negotiations whose architectures embody both the promises and contradictions of global connectivity.

Across the case studies, a recurring theme is the coexistence of divergent realities. The Pakistan–China Technical and Vocational Institute in Gwadar operates as both a diplomatic "gift" from Beijing and a civic institution embedded in local life. The Khorgos Special Economic Zone demonstrates how architectural form arises from entangled relations among governments, traders, migrants, and logistics algorithms. The Lianglu–Cuntan Free Trade Port exemplifies pluriversal encounters between humans and nonhumans — cargo, containers, and data. The Kilamba Kiaxi housing estate in Angola, often dismissed under Eurocentric criteria, reveals social and political value when examined through South–South perspectives, showing how standardized blocks are transformed by residents' everyday practices.

These examples confirm that BRI architectures cannot be captured by universalist frameworks. Methodologically, this calls for embracing multiplicity as a point of departure. Rather than asking "what is the meaning of a building?" pluriversal approaches investigate how different worlds simultaneously enact meaning and value (Mignolo, 2011). This requires openness to ethnographic engagement, multi-scalar analyses of actor networks, and attention to non-traditional registers of architectural worth (Latour, 2005; Ong & Roy, 2011). At the same time, BRI architectures question the very notion of authorship, emphasizing collective and cooperative processes involving a multiplicity of institutions, stakeholders, and communities (Yaneva, 2016; Armando & Durbiano, 2017). This paper also challenges dominant narratives that frame the BRI merely as a top-down extension of Chinese influence. The case studies show how projects are continuously re-signified: housing schemes become negotiations between standardization and cultural adaptation; logistical hubs operate as hybrid zones of state power and commercial practice; "gift" complexes accrue meanings beyond their diplomatic intent; large scale gathering places celebrate the magnificence of encounters within architecture. The BRI thus emerges not as a monolithic imposition but as a field of plural translations.

A pluriversal reading repositions architecture at the center of these dynamics, not as a by-product of geopolitical strategy but as a key mediator through which abstract visions become lived realities. In this sense, architecture is one of the principal terrains where global narratives are materialized, negotiated, and transformed by local ontologies. While the pluriversal framework broadens the epistemological horizon of architectural research, its significance ultimately lies in connecting these insights to the human and ecological dimensions of the built environment. If, as Escobar (2018) suggests, design is a practice of "world-making," then infrastructures shape the quality of collective life — how communities experience belonging, mobility, care, and environmental balance within changing territories. The Pluriversal Methodology thus provides a critical lens for examining how BRI projects mediate between promises of development and the lived complexities of adaptation, displacement, and ecological transformation.

In conclusion, the task for architectural research, as advanced here, is not merely to map multiplicity but to critically evaluate how it shapes everyday life. Pluriversal thinking becomes an ethical stance — one that demands accountability for the social and environmental trajectories set in motion by infrastructures, and calls for forms of scholarship and design grounded in reciprocity, justice, and ecological interdependence (Haraway, 1988; Amin & Thrift, 2017; Easterling, 2014; Mignolo, 2011).

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4D GIS Visualization of Agentic-AI Models: Urban Digital Twin Scenario-based Mobility Simulations for the New Sarajevo Urban Plan

4D GIS vizualizacije agentskih AI modela: scenarijske simulacije mobilnosti na urbanističkom digitalnom blizancu za novi Urbanistički plan Sarajeva

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Abstract This research describes the Sarajevo Urban Digital Twin (UDT) as an applied tool for city planning and for presenting complex simulation results in an adequate way for a broad audience. Developed within the Urban Transformation Project Sarajevo (UTPS), it explains how traffic simulations from the ETH Zurich (ETHZ) software EnerPol are transformed from raw binary files into time-based scenes in ArcGIS Pro (ESRI). In areas with limited local data, satellite imagery is used to create the base 3D city model. The following sections describe how building footprints and heights are extracted not only to generate Level of Detail 2 (LOD2) models with roof shapes and precise outlines, but also to capture land-cover information essential for the UDT. The automatized workflow converts simulation events into georeferenced features and matches them with the street network, so planners can watch traffic patterns shift throughout the day based on different assumptions regarding population changes. A key purpose of the UDT is to make these data and scenarios visible and understandable for people with different professional backgrounds. By offering a shared visual reference, the model supports planning processes where citizens, experts, and officials need to discuss challenges and agree on policy strategies. The study shows how linking data collection, processing, and clear visual output creates a decision-support tool that helps turn complex urban information into knowledge that can guide real interventions with real stakeholders.

Keywords Urban Digital Twin; AI; simulations; evidence-based; policy making

Sažetak Ovo istraživanje opisuje Urban Digital Twin (UDT) Sarajeva kao primijenjeni alat za urbano planiranje i adekvatnu prezentaciju kompleksnih rezultata simulacija široj publici. Razvijen u okviru projekta Urban Transformation Project Sarajevo (UTPS), rad objašnjava kako se saobraćajne simulacije iz softvera EnerPol sa ETH Zurich (ETHZ) transformišu iz sirovih binarnih datoteka u vremenski zasnovane scene u ArcGIS Pro (ESRI). U područjima s ograničenim lokalnim podacima, satelitski snimci se koriste za kreiranje osnovnog 3D modela grada. U nastavku se opisuje kako se iz gabarita i visina objekata izvlače podaci ne samo za generisanje modela sa Nivoom Detaljnosti 2 (LOD2) koji uključuje oblike krovova i precizne konture, već i za dobivanje informacija o pokrovnom sloju tla koje su ključne za UDT. Automatizirani radni tok pretvara simulacijske događaje u georeferencirane elemente i uparuje ih s mrežom ulica, omogućavajući planerima da posmatraju kako se obrasci saobraćaja mijenjaju tokom dana na osnovu različitih pretpostavki o promjenama populacije. Ključna svrha UDT-a jeste da ovi podaci i scenariji postanu vidljivi i razumljivi ljudima različitih profesionalnih profila. Nudeći zajednički vizuelni referentni okvir, model podržava procese planiranja u kojima građani, stručnjaci i zvaničnici trebaju razgovarati o izazovima i usaglasiti se oko strateških pravaca politika. Studija pokazuje kako povezivanje prikupljanja podataka, njihove obrade i jasnog vizuelnog prikaza stvara alat za podršku odlučivanju koji pomaže pretvoriti kompleksne urbane informacije u znanje koje može voditi ka stvarnim intervencijama sa stvarnim akterima.

Ključne riječi urbanistički digitalni blizanac; AI; simulacije; zasnovano-na-dokazima; donošenje zakona

1 Introduction

Cities around the world are increasingly using urban digital twins as more than just 3D visualizations. They are becoming tools for planning, decision-making, and helping people understand complex urban systems, revealing dependencies that are not recognizable at first sight. Recent developments focus on three main ideas. First, semantic and geometric interoperability allows different types of models, like BIM models, GIS datasets, and simulation outputs, to work together while keeping both the meaning and shape of objects correct (Shareef, 2023). Second, real-time data from sensors can monitor current urban conditions such as traffic flow, air quality, or energy use (Najafi, 2024). Third, simulations and predictive models are used to explore how the city might respond to different changes, for example, shifts in mobility patterns, new transport infrastructure, or population growth. These simulations are based on rules, physics, and observed behavior, and in some cases, AI is applied to fill gaps or estimate uncertainties where data are missing (Teutscher, 2025) (Figure 1).

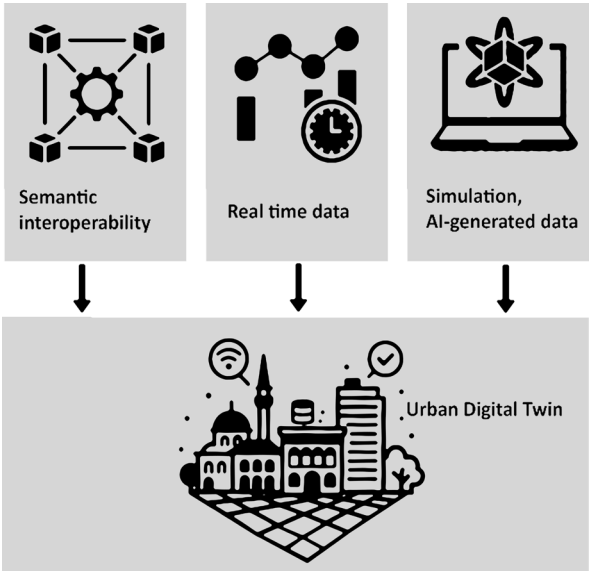

Figure 1 Schematic representation of the core components of an Urban Digital Twin (UDT). Source: Authors, 2025.

Together, these developments turn digital twins from simple replicas into interactive tools for testing policies, planning infrastructure, and involving citizens and experts in decisions.

The Sarajevo Urban Digital Twin (UDT) was developed as part of the Urban Transformation Project Sarajevo (UTPS) using ESRI ArcGIS Pro. It integrates agent-based traffic simulations from EnerPol. More details of EnerPol and the agent-based population model, and the agent-based, multi-modal, queue-based traffic model with which the Sarajevo UDT is coupled, can be found elsewhere (Walczak et al. 2025). Where local data is limited, satellite imagery is used to construct the base 3D city model. Building footprints and heights are extracted to generate Level of Detail 2 (LOD2) models, including roof shapes, precise outlines, building segmentation, and land cover information.

Building and using urban digital twins comes with several challenges. Differences between data formats, very large models, and linking detailed simulation outputs to visualizations all need to be managed while keeping data accurate and traceable. In the case of the Sarajevo UDT the raw binary outputs from agent-based traffic simulations are transformed into georeferenced features that can be displayed in a 3D GIS scene. This transformation generates extremely large datasets that are often too big to load fully into a single ArcGIS Pro scene, particularly when time is included as a fourth dimension, making the model dynamic and continuously changing, for example, with traffic flows. With the resources and tools currently available, only shorter time sequences can be visualized at a time, and the data must be aggregated, which inevitably leads to some loss of detail and resolution.

Sarajevo provides a compelling context for this UDT. Its narrow valley morphology, legacy heating systems, and winter inversion events cause episodic air pollution and traffic bottlenecks, affecting public health and economic activity. At the same time, ongoing initiatives such as the UTPS provide an opportunity to test data driven planning scenarios and assess potential interventions.

Applied to Sarajevo, the UDT supports both short term and long-term planning. Planners can test immediate changes, such as traffic rerouting or infrastructure upgrades, and observe potential effects before implementation. Over longer horizons, it can simulate different scenarios, enabling comparison for informed strategic decisions. These capabilities make the digital twin a versatile tool for operational planning as well as long term urban development. The workflow developed for Sarajevo is described in detail in the following sections.

The article is structured as follows. Section 1 reviews debates on UDTs. Section 2 describes Sarajevo and the UTPS. Section 3 details the data model, mapping, and technical implementation. Section 4 presents scenario results. Section 5 discusses governance and scalability. Section 6 concludes with lessons learned and future directions.

2 Theoretical Framework and State of the Art

2.1 Defining UDTs

The concept of the DT originates from aerospace engineering, where digital replicas of physical systems are employed to monitor, test, and optimize performance (Simio, 2025). In the urban context, an Urban UDT can be defined as a dynamic, multi-scale, and semantically enriched digital model of a city that is constantly updated with real-world data streams (Peldon, 2024).

Unlike static 3D city models, UDTs are distinguished by bidirectional data exchange between the physical city and its digital counterpart, the integration of heterogeneous domains such as buildings, infrastructure, energy, environment, and mobility, and the capability to support predictive scenario testing for informed decision-making (Mazetto, 2024).

Recent literature emphasizes that UDTs go beyond detailed GIS environments, functioning as socio-technical systems that combine data models, simulation engines, governance frameworks, and user interfaces. This perspective highlights their role as active planning instruments rather than mere visualization tools (Ruohomäki, 2023; Magnasoft, 2025).

2.2 Current Innovations in UDTs

In the past five years, UDT research and practice have accelerated, driven by advances in data availability, cloud computing, and interoperability standards. The most prominent innovative directions include:

2.2.1 Real-Time Data Integration

Cities such as Singapore, Helsinki, and Rotterdam have piloted integration of IoT sensor data into their digital twins, enabling near real-time updates on traffic flows, energy demand, and environmental conditions. This continuous synchronization transforms the twin into a living model capable of supporting operational decision-making (e.g., instant traffic management, disaster response) (Virtanen, 2024; Mazetto, 2024; Adreani, 2024).

2.2.2 Semantic Interoperability

One of the longstanding obstacles in urban informatics is the semantic mismatch between BIM (Building Information Modeling) and GIS (Geoinformation Systems). Current research addresses this gap through standards such as CityGML 3.0 and IFC-to-GIS translation schemas, which allow building-level details to be embedded in city-scale models. Semantic interoperability ensures that UDTs are scalable and reusable across multiple planning domains (Yi Tan, 2023).

2.2.3. Coupling with Simulation Engines

Beyond visualization, UDTs increasingly embed or link to simulation frameworks, such as agent-based models, energy system simulators, or climate impact models. This coupling allows cities to test counterfactual scenarios like the change of heating systems or adding a tram line within the digital twin environment. The Sarajevo project is part of this trajectory, linking ESRI's 3D GIS-Model with EnerPol's high-resolution mobility and energy simulations.

2.2.4. AI and Predictive Analytics

Generative AI and machine learning are increasingly used to fill gaps in urban data, such as estimating building attributes where cadastral records are missing, predicting future conditions, and detecting anomalies in urban systems. By analyzing large datasets, AI can help to make this process fast, efficient and accurate.
In the Sarajevo model, AI and deep learning techniques were applied to segment building footprints into parts with different heights, allowing a more detailed representation of roof shapes and elevations. AI-enhanced digital twins thus combine data-driven inference with simulation, enabling planners to anticipate future conditions and providing probabilistic insights under uncertainty, anticipating the unprecedented.

2.2.5 Participatory and Governance-Oriented Uses

A further innovation is the use of UDTs as participatory platforms. By publishing interactive and immersive 3D environments online, municipalities can involve citizens and stakeholders in co-designing urban futures, increasing transparency and democratizing planning. This approach also requires well-defined governance protocols for data ownership and privacy. As part of the UTPS, the Sarajevo urban digital twin has been made publicly accessible through an online platform that provides information about the new campus development of the University of Sarajevo. The platform was linked to a survey, allowing participants to interact directly with the digital twin and providing an opportunity to collect valuable insights and personal opinions.

2.3 Research Gaps and Challenges

Despite recent advances, several issues remain to be addressed in the implementation of urban digital twins. A central issue is convincing professionals from different fields to work with a single shared model, which requires coordination and trust. Keeping the digital twin up to date depends on either specialists manually updating the model or automized techniques that incorporate changes in the urban fabric. At present, many experts continue to work with their own individual models, leaving a gap between simu-lation outputs, GIS platforms, and planning practice. High-fidelity simulations, such as agent-based traffic models, generate complex outputs that require significant processing before they can be integrated into a digital twin. The steps in between often involve computationally intensive processes. Streamlining these steps would allow different scenarios to be represented quickly and dynamically, making the model more accessible for planning purposes.

These points highlight the importance of demonstrating a replicable workflow in Sarajevo. By building a city-scale 3D model, integrating it with EnerPol simulation outputs, and deploying it as an interactive platform, the project provides a concrete example of how a digital twin can directly support planning decisions while bridging gaps between research, technology, and practice.

2.4 Conceptual Positioning of this Study

This work positions itself within interconnected discussions in the field of UDTs. It highlights the operationalization of DTs, moving beyond prototypes to create decision-support environments that can be used directly by planning institutions. It also demonstrates practical workflows for integrating high-resolution traffic simulations and other data sources into a 3D city model, making complex outputs accessible and interpretable for planning purposes. At the same time, it extends the discourse on urban transformation to medium-sized cities, illustrating how digital twins can support planning in contexts where air pollution, transport inefficiency, and fragmented governance present significant challenges. By addressing these

points, the project contributes both methodological innovations, through a replicable technical workflow, and contextual relevance, by applying the digital twin concept to a post-socialist urban environment with pressing mobility and environmental concerns.

The following Section introduces the study area and outlines the urban challenges that motivated the Urban Transformation Project Sarajevo. It also provides an in-depth overview of the project's achievements. The UTPS is a collaborative, multi-year, multi-stakeholder initiative aimed at modernizing the urban planning system in the Canton of Sarajevo. It was developed jointly by ETH Zurich Chair of Architecture and Urban Design, ETH Zurich Laboratory for Energy Conversion, the University of Sarajevo Faculty of Architecture, the Sarajevo Canton Institute of Development and Planning, and ETH Zurich Spin-Off SwissAI, with support from the Swiss State Secretariat for Economic Affairs (SECO).

3 Study Area and Context

3.1 Geographic and Morphological Setting

Sarajevo, the capital of Bosnia and Herzegovina, lies at about 518 m elevation in a narrow east–west valley of the central Dinaric Alps, where the Miljacka River cuts through steep limestone and flysch slopes. Four main municipalities (Stari Grad, Centar, Novo Sarajevo, and Novi Grad) occupy the valley floor, while newer housing districts extend upslope onto surrounding hills and plateaus such as Trebević and Hum. The encircling mountains create strong temperature inversions in winter and leave little flat land for expansion, shaping both traffic patterns and air-quality problems (Walczak 2024).

Development on these steep, geologically unstable hillsides increase susceptibility to rainfall-triggered landslides, a recurring hazard in neighborhoods like Širokača and Bistrik. Unregulated construction and deforestation further destabilize slopes, making careful geospatial analysis and digital-twin monitoring essential for sustainable planning.

3.2 Demographic and Urban Development Trends

The Sarajevo metropolitan area is home to about 400,000 residents, concentrated along the valley's east–west corridor. Post-war reconstruction and economic transition produced a heterogeneous urban fabric in which high-density residential blocks sit alongside hillside neighborhoods that began as informal settlements (Figure 2). Many of these areas have since been gradually formalized through municipal planning and infrastructure upgrades, though building standards and service quality remain uneven. In recent years the population has grown only slowly but rising car ownership and limited public-transport capacity continue to generate congestion hotspots that shift over the course of the day, conditions well suited to scenario-based mobility modeling within a DT.

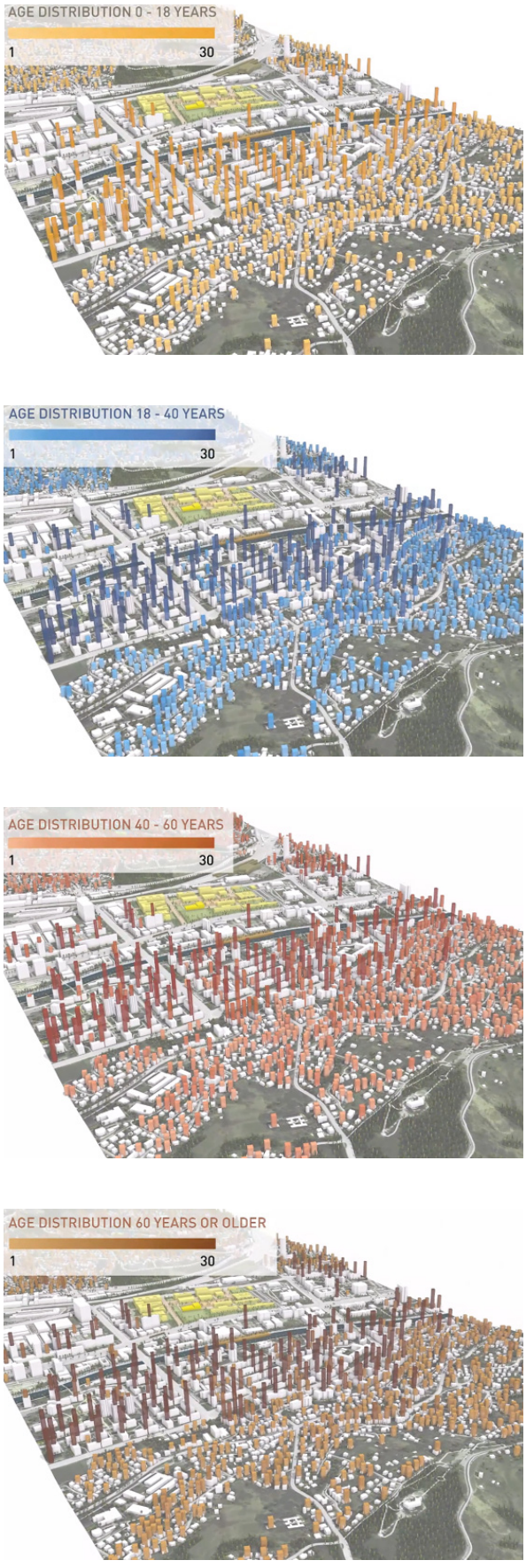

Figure 2 Population distribution in Centar, Sarajevo: ages 0–18, ages 18–40, ages 40–60, ages 60 and above. Source: Authors, 2025.

3.3 Mobility Challenges

Mobility is one of Sarajevo's most urgent planning challenges. Traffic congestion is a recurring issue along the city's central artery connecting Stari Grad to Ilidža, intensified by limited lateral connections across the valley. The public transport network still relies heavily on its historic tram corridor, but suffers from ageing vehicles, narrow coverage, and weak integration with bus and minibus services. Over the past two decades, car ownership has grown significantly, contributing not only to severe congestion but also to worsening air quality (BHAS).

Seasonal tourism further stresses mobility networks. In 2024, Sarajevo Canton saw a large increase in tourist arrivals, putting extra load on transport infrastructure especially during weekends and holiday periods (BHAS).

There are ongoing improvements: Sarajevo has launched a tram modernization project, with new tram tracks and vehicles, extensions to tram lines (for example toward Hrasnica), and investment in trolleybuses to improve system capacity and environmental performance.

An UDT, which integrates agent-based traffic simulations, can help clarify these dynamics. By comparing baseline conditions with scenarios like upgraded tram service or shifts toward walking, cycling or shared mobility, planners can see how interventions may reduce congestion, improve air quality, and make mobility more resilient.

3.4 Energy and Environmental Pressures

Sarajevo experiences some of the highest winter air pollution levels in Europe, with concentrations of fine particulate matter ($PM_{2.5}$ and PM_{10}) frequently exceeding World Health Organization guidelines. Emissions originate from multiple sources (Walczak 2024). The district-heating system relies primarily on natural gas and fuel oil, while older buildings continue to burn wood or coal. The national power grid is dominated by coal-fired generation, and vehicular traffic contributes additional pollutants. The city's narrow valley topography traps emissions under temperature inversions, prolonging episodes of poor air quality (Walczak 2024).

The resulting health impacts are considerable, including elevated rates of respiratory and cardiovascular diseases and increased hospital admissions, particularly among vulnerable populations. Efforts to modernize heating networks, expand public transport, and promote cleaner fuels have been initiated, but progress remains uneven (AP News 2023; Balkan Green Energy News 2022).

The UDT of Sarajevo integrates building-energy data and traffic flows, and meteorological conditions. By incorporating the detailed 3D building model with accurate roof geometries, it allows the calculation of solar potential on individual roofs, supporting the identification of alternative energy sources and the reduction of reliance on polluting fuels. Such UDTs also enable scenario testing for interventions such as large-scale building retrofits and adaptive traffic management, facilitating evaluation of the most effective strategies before implementation.

3.5 Governance and Planning Capacity

Urban planning responsibilities in Sarajevo are shaped by an institutional and political landscape for land use, transport, and environmental management distributed among the Sarajevo Canton, the City of Sarajevo, and multiple municipal administrations.

In this context, the UDT provides a shared platform that bridges administrative silos, aligns stakeholders around a common understanding of the urban environment, and supports evidence-based, coordinated decision-making despite political, institutional, and social fragmentation.

The proposed theory of change here is shifting from a vertical silo to a horizontal collaborative environment. Moreover, it can actively involve the population by providing accessible visualizations and interactive tools, enabling citizens to engage with planning scenarios and contribute to discussions on urban development.

3.6 Data Availability and Digitalization Efforts

Sarajevo has gradually expanded its digital data infrastructure, including cadastral building footprints, transport network datasets, and environmental monitoring stations. However, datasets are often inconsistent in quality, resolution, and accessibility. These gaps necessitate data fusion strategies, combining official records, open data, and modeled estimates. The Sarajevo UDT project addresses this through the integration of EnerPol's simulation outputs, which supplement sparse observations with calibrated predictions of traffic flows and emissions.

The ongoing LiDAR project led by the Federal Administration for Geodetic and Real Property Affairs, financed through EU IPA II 2019 funds, aims to produce high-resolution digital terrain and surface models for the city and surrounding areas. Incorporating LiDAR data into the digital twin would significantly enhance spatial accuracy, including building heights and terrain variations, improving simulations for solar potential, flood risk, and urban heat islands.

This development would further support informed planning and environmental management while fostering data sharing and collaboration among stakeholders. (FGU, 2019)

3.7 Urban Transformation Project Sarajevo

The UTPS has achieved several key milestones in modernizing urban planning practices within the Sarajevo Canton. A central outcome is the support in the development of the General Urban Plan 2040 (Walczak et al. 2023) (Figure 3), created through participatory processes involving municipal authorities, urban professionals, and citizens. These processes were crucial for securing public acceptance of the urban plan, fostering dialogue and consensus among diverse stakeholders. The plan not only provides a strategic framework to guide sustainable urban development but also emphasizes improving the safety and resilience of the city, addressing natural hazards such as flooding and landslides.

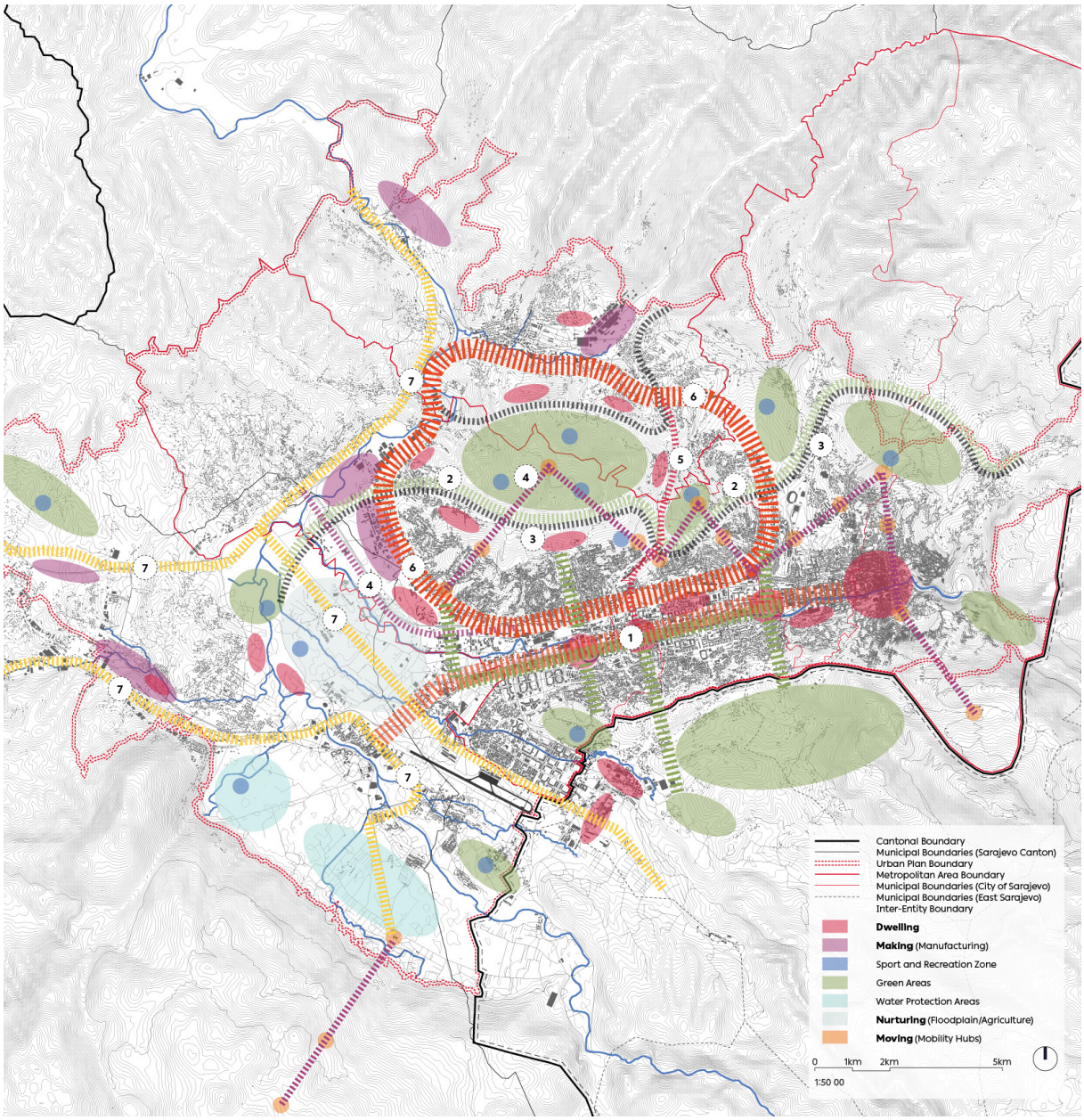

Figure 3 New urban plan describing the urban development around the city hill Hum and Žuč as a green centre. Source: Authors, 2023.

Alongside the urban plan, the UDT of Sarajevo has been established (Walczak et al. 2025). By integrating data from diverse sources, this dynamic model represents the city's infrastructure and environment, enabling evidence-based decision-making and scenario testing for urban development initiatives. Currently, a small-scale urban intervention is being developed for the university campus, which also impacts the revitalization of public spaces in the Marijin Dvor neighborhood. These prototypes serve as experimental grounds for innovative urban solutions and actively involve the local community in shaping the transformation process and show prototypically how the abstract urban plan translates into concrete architectural projects.

The project has further contributed to capacity building through workshops, exhibitions, and collaborative sessions, strengthening the skills of local authorities and urban professionals (Pagani et al. 2025). Collectively, these achievements demonstrate the potential of participatory, data-informed approaches to support sustainable and resilient urban transformation in Sarajevo and provide a model that can be adapted to other medium-sized, post-socialist cities facing similar planning and governance challenges.

3.8 Section Summary

Sarajevo's urban context is defined by morphological constraints, rising mobility demand, severe seasonal air pollution, and fragmented governance. While these conditions pose significant challenges, they also underscore the value of adopting a digital twin as a cross-cutting planning instrument. The Sarajevo case provides not only a

critical local application but also a globally relevant demonstration of how digital twin technologies can be mobilized in cities beyond the global flagship examples. The experiences from Sarajevo can guide other post-socialist cities with narrow valleys and limited resources that face similar urban and environmental challenges. The next chapter outlines the methodological framework developed to construct and operationalize the Sarajevo UDT.

4 Methodology

4.1 Conceptual Framework

The Sarajevo UDT is built around a structured workflow that begins with a comprehensive base model of the city. This model includes topography, buildings with detailed roof shapes, streets, trees, public transport networks, energy use, and demographic data, providing a robust foundation for analysis. Agent-based traffic and energy simulations were then conducted using the EnerPol framework. These simulation outputs were processed through Python scripts to transform them into a format compatible with the ArcGIS model and subsequently symbolized into a visually interpretable design. This integration enables dynamic processes, such as traffic flows or energy demand, to be represented directly on the city model.

The approach is designed to be flexible and extendable, allowing additional datasets or future simulation outputs to be incorporated without restructuring the core model. By maintaining this compatibility between simulations and the geospatial environment, the UDT supports clear, interactive representations of complex urban dynamics.

Figure 4 Segmentation of the building footprints to enhance the LOD. Source: Authors, 2025.

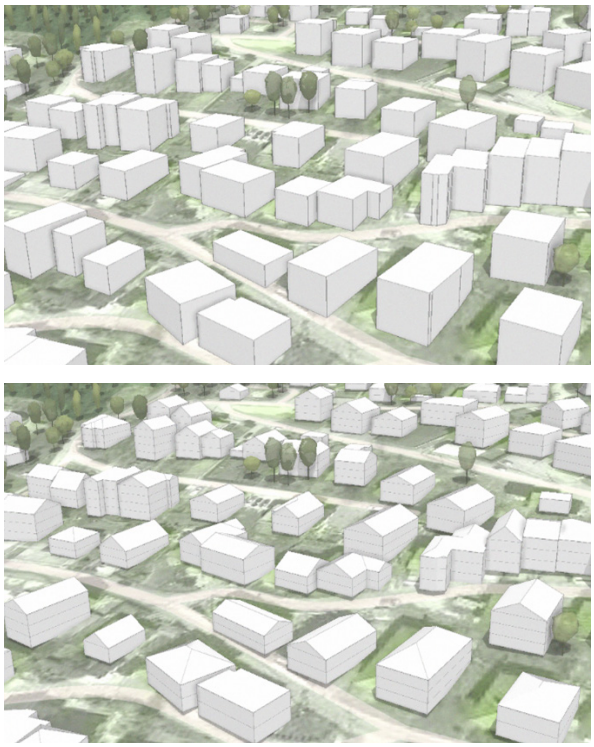

Figure 5 Enhancement from LOD1 to LOD2 through photogrammetry. Source: Authors, 2025.

4.2 Data Sources and Base Model

The Sarajevo UDT was developed using the ESRI ArcGIS Pro platform, a leading solution in the field of geographic information systems. ArcGIS Pro provides extensive tools for data management, analysis, and visualization, along with strong interoperability with other platforms, making it particularly suitable for constructing comprehensive urban models and supporting interdisciplinary applications. In addition, the platform allows models to be published and made accessible online, enabling stakeholders and the public to explore and interact with the digital twin directly through web-based interfaces.

A digital elevation model (DEM) of the grid size of 6m was used to capture the valley morphology. Cadastral building footprints, road and tramway networks, public transportation and demographic data were provided by the planning institute of Sarajevo.

The project was further supported by a sponsorship from the European Space Agency's Network of Resources (NoR), which provided access to high-resolution satellite imagery and a digital surface model (DSM) through the UP42 platform. This support enabled the acquisition of precise datasets like the buildings, where official GIS data were incomplete or of limited quality. In such locations, it proved efficient to derive additional information directly from satellite imagery, allowing for the extraction of critical urban features.

To enhance the representation of buildings, artificial intelligence techniques were applied to satellite imagery. A deep learning model was trained to segment building footprints into smaller components, enabling the construction of a more accurate three-

dimensional model that reflects variations in roof heights and distinguishes individual roof shapes. This segmentation step was essential for capturing the complex morphology of larger buildings and multi-compartment structures (Figure 4).

Once the building footprints were segmented into smaller, more precise components, the resulting model underwent a cleaning process to remove errors, inconsistencies, and artefacts from the segmentation. Photogrammetry techniques were then applied to derive building heights by subtracting the digital elevation model (DEM), representing the bare terrain, from the digital surface model (DSM), which includes buildings and other surface features. This raster-based approach allowed the calculation of elevations for each building segment, producing a Level of Detail 2 (LOD2) model that captures roof shapes and height variations, providing a more accurate volumetric representation than flat-roof (LOD1) models (Figure 5).

Using our model in ESRI's Image Analyst, we applied a pretrained deep learning model to detect trees in the satellite imagery. The model identified tree crowns based on shape, texture, and spectral patterns, and the results were refined and post processed to enhance accuracy.

These steps produced a comprehensive and robust base model of Sarajevo's urban fabric, offering sufficient precision for subsequent analyses. This includes calculating solar potential on roofs to identify alternative energy solutions, assessing shadow patterns, and integrating with mobility or energy simulations, thereby supporting environmental planning and related initiatives.

4.3 EnerPol Agentic AI Simulations

The EnerPol software developed at ETH Zurich, is an agentic AI modeling environment deployed to simulate Sarajevo's demographic, mobility and energy dynamics. The platform represents individual agents, including inhabitants and vehicles, each governed by behavioural rules, enabling a bottom-up and realistic depiction of urban flows. Temporal granularity is maintained through minute-level timesteps, capturing peak-hour congestion and fluctuations in traffic patterns. Scenario flexibility allows policy interventions — such as vehicle restrictions, tram upgrades, or residential heating

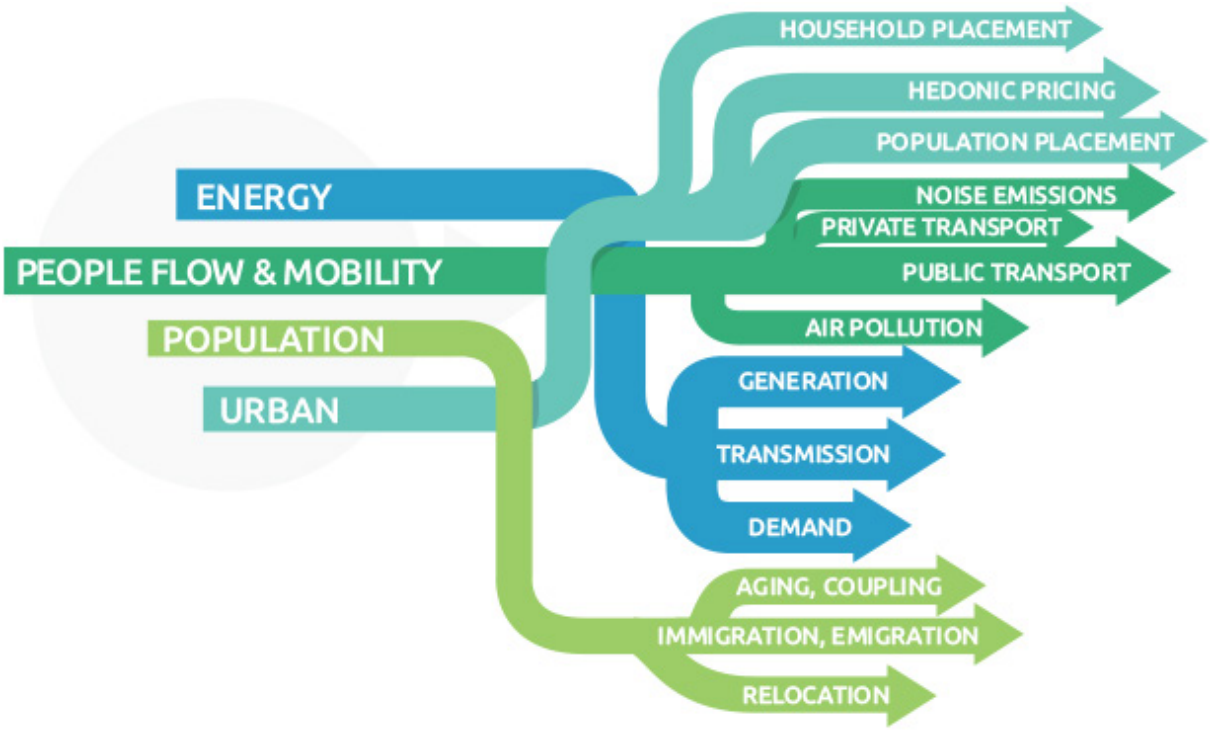

Figure 6 EnerPol framework linking high-resolution modules to enable comprehensive data-driven analysis. Source: Laboratory for Energy Conversion, ETH Zürich, 2019.

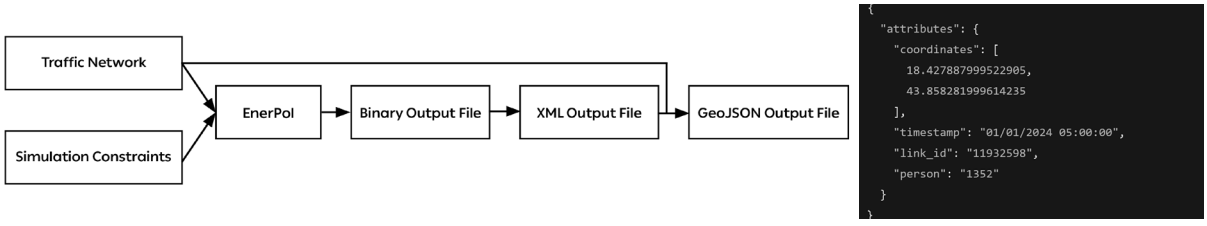

Figure 7a Procedure to make data outputs compatible with GIS environments. Source: Authors, 2025.;
7b Feature attributes of the postprocessed simulation output. Source: Authors, 2025.

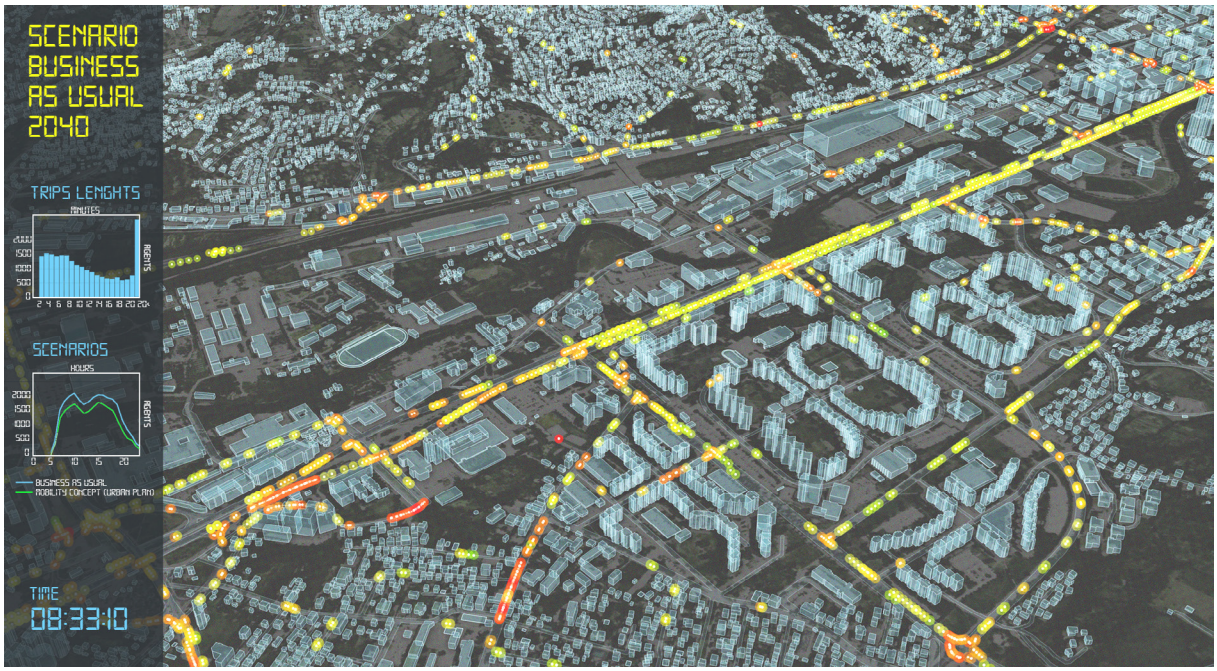

Figure 8 Traffic simulation data in 4D GIS environment. Source: Authors, 2025.

retrofits — to be encoded as alternative behavioural or infrastructural parameters.

Traffic simulations are calibrated with local traffic counts and household survey data to reflect actual mobility patterns. In parallel, energy scenarios, particularly residential heating demand, are modeled to estimate consumption across building typologies and fuel types. By combining traffic and energy output with information on vehicle fleet composition and heating technologies, the platform generates spatially referenced emissions estimates for pollutants such as fine particulate matter (PM) and nitrogen oxides (NOx).

Outputs from EnerPol include origin–destination matrices, traffic density maps expressed in vehicles per hour per link, energy consumption by building and heating type, and emissions distributions linked to road segments and building clusters, see figure 6.

More information on EnerPol and the agent-based model can be found elsewhere, Pagani et al. (2023).

4.4 Coupling Simulations with 3D Environment

Direct conversion from EnerPol's native binary files to a georeferenced GeoJSON was not possible. Instead, the binary files were first transformed into XML using pre-existing conversion scripts. These XML files provide a human-readable record of agent "events," each linked to a timestamp and a network segment identifier rather than explicit geographic coordinates. Geographic coordinates and routing information for streets and rail sections were maintained separately in a GeoPackage file (Figure 7a).

During post-processing, each event in the XML was matched with its corresponding network segment in the GeoPackage, retrieving accurate spatial coordinates. This process transformed abstract event data into spatially located features, each defined by a coordinate pair, timestamp, agent ID, and network segment ID. Due to the computational demands of these operations, post-processing was performed on ETH Zurich's supercomputer, the Euler Cluster, ensuring efficient handling of the large-scale simulation datasets (Figure 7b).

Once georeferenced, the processed data was imported as a feature class into the GIS base model. Points were symbolized according to velocity, with slow-moving agents represented in red and faster-moving agents in green, providing a visual representation of traffic congestion along road segments. The feature class was enabled for temporal display, allowing a time slide to show the evolution of traffic within defined intervals. The final visualization was exported as an animation, serving as a ready-to-use tool for presentations, stakeholder discussions, and further scenario analyses.

4.4.1 Innovative Coupling Aspects

The integration workflow supports dynamic spatio-temporal visualization, enabling users to "play" simulation scenarios over time. Interactive dashboards provide key metrics, including travel time, emissions, and exposure, directly linked to spatial outputs (Figure 8).

ESRI Experience Builder is being developed to present these results in a participatory format, connecting technical analyses with stakeholder engagement and public dialogue. This combination of precise post-processing, 4D visualization, and interactive dissemination demonstrates a novel approach to coupling agent-based simulation outputs with urban digital twin environments, while ongoing work aims to further enhance accessibility and user interaction.

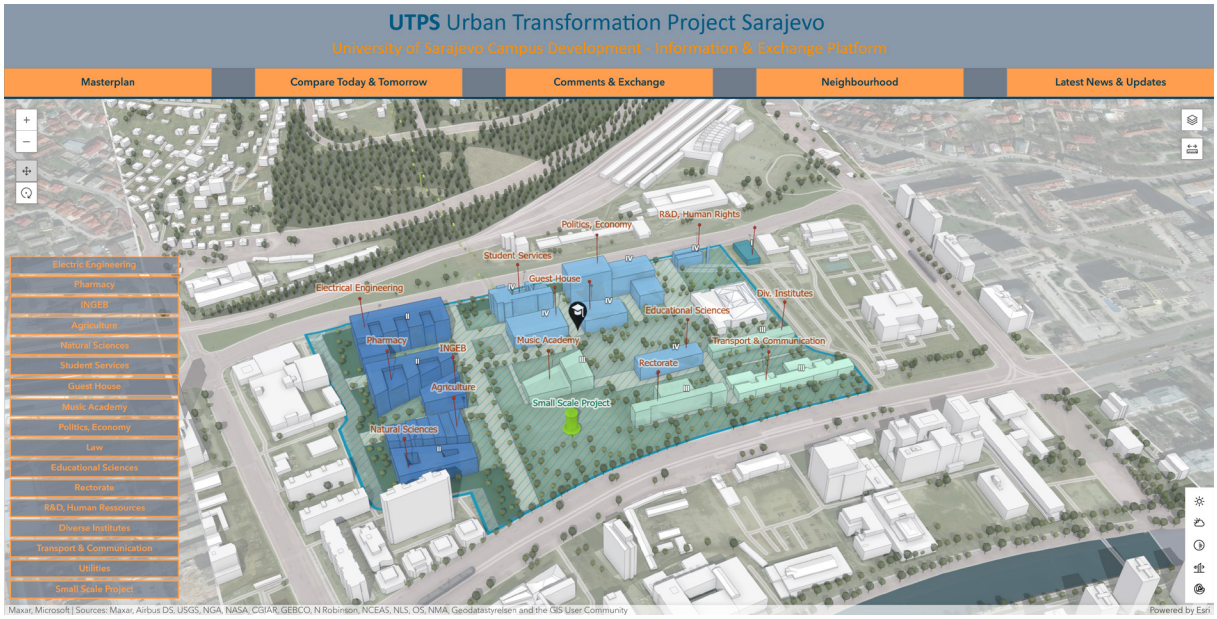

Figure 9 Online information platform showcasing campus development at the University of Sarajevo, with potential future integration of BIM models to provide details on room programs and indoor navigation. Source: Authors, 2025.

4.5 Next steps and future development

4.5.1 Real-Time Potential

While the current UDT operates primarily with modeled scenarios, it allows future integration of real-time data streams, such as air quality sensors, live traffic feeds, and other urban monitoring systems. This could transform the Sarajevo UDT into a near-operational system capable of continuous monitoring and dynamic response.

4.5.2 Scenario Generation

Generative models can be employed to automatically propose alternative planning scenarios. By leveraging tools such as ArcGIS Urban, these scenarios can be analyzed for development potential and linked to quantitative metrics, including infrastructure requirements, energy consumption, population density, and other urban indicators. This enables the visualization of direct consequences associated with different planning interventions.

4.5.3 Participatory Interfaces

The workflow is designed to support participatory planning processes. Stakeholders and citizens can interact with scenarios through accessible web-based portals, enhancing transparency and enabling collective decision-making. The inclusion of BIM models for the faculties of the University of Sarajevo campus further strengthens the model's semantic interoperability and provides a public-facing representation of ongoing campus development within the broader urban context (Figure 9).

4.6 Section Summary

The Sarajevo digital twin methodology integrates ESRI's 3D GIS environment with high-resolution simulation outputs from EnerPol. By combining semantic interoperability and spatio-temporal scenario visualization, this approach reflects current trends in urban digital twin research. Importantly, it demonstrates how advanced simulation and visualization workflows can be operationalized in a medium-sized city facing complex urban challenges, offering both scientific insights and practical contributions to the global discourse on digital twins for urban transformation.

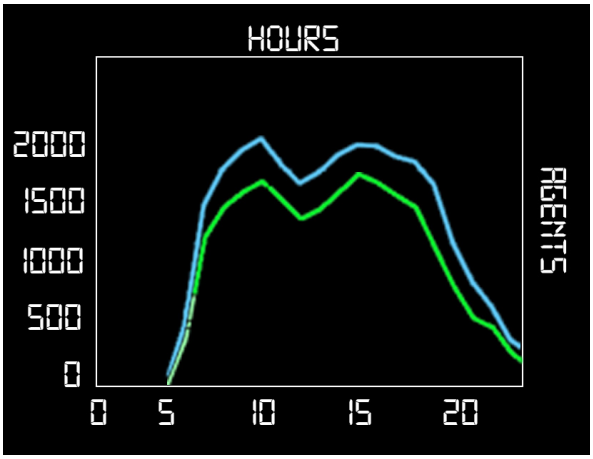

Figure 10 Traffic scenario comparison: blue: Baseline (streets as they are in Sarajevo); green: new urban plan (mobility concept together with all new and existing streets). Source: Authors, 2025.

Figure 11 Public hearing in Sarajevo using the Digital Twin. Source: Authors, 2024.

5 Results

5.1 Overview of the Sarajevo Urban Digital Twin

The implemented Sarajevo UDT provides a city-scale, semantically enriched 3D environment that integrates geo-spatial base data, agent-based mobility and energy simulations and scenario dashboards. The UDT has been successfully deployed within the ESRI ecosystem and is currently being made available online, allowing access for everyone. The result is not a static visualization but a dynamic analytical tool capable of simulating and comparing future policy interventions.

5.2 Scenarios "Business as Usual" and "Growth"

The baseline scenario "Business as Usual" assumes modest population growth, existing levels of infrastructure investment, and continuation of current mobility and energy behavior patterns. Private vehicle use remains dominant while public transport accounts for less than 30 percent of trips. Walking and cycling improve only marginally. Energy demand increases moderately, especially in peri-urban or hillside areas. The challenge of pollution and traffic congestion increased, particularly along major arterial roads and in valleys or basin areas where topography and climate (e.g. inversion) exacerbate air quality issues.

In the scenario growth, the population and housing demand rise more sharply; infrastructure (roads, public transport, energy) is expanded, more infill development and densification are assumed, and policies favoring sustainable mobility and energy efficiency are more strongly adopted. Public transport usage increases, energy systems are upgraded (building retrofits, cleaner heating, more efficient supply), and new infrastructure fills gaps, especially in peripheral and hillside zones. The result is that, although traffic congestion and emissions still increase compared to today, their negative impacts are less severe than under Business as Usual; air quality improves relative to the baseline BAU scenario, especially in neighborhoods where interventions are concentrated (Figure 10).

These results provided a robust reference point about traffic for elaborating the urban plan. Based on the insights from these scenarios, the following chapter focuses on the visualization of these different development options, showing how the generated visualizations were used to communicate planning choices during public hearings and to produce media materials supporting the new urban plan.

Figure 12 Hack-Archthon at the "Urban Design Studio Sarajevo". Source: Authors, 2023.

5.3 Participatory Processes in Sarajevo's Urban Transformation

The participatory processes in Sarajevo's urban transformation were greatly strengthened through the use of advanced simulation tools and community engagement strategies, in collaboration between the Sarajevo Canton Institute of Development and Planning, the University of Sarajevo, and the Chair of Architecture and Urban Design at ETH Zürich. These tools enabled planners, stakeholders, and residents to explore and discuss potential development options in an accessible and tangible way, making the planning process more transparent and inclusive.

5.3.1 Community Engagement and Public Hearings

Visualisations of the city, including both physical and digital models, were central to public hearings across all nine municipalities of Sarajevo (Figure 11). Residents could see projected changes directly overlaid onto a city model, helping them understand the impact of different planning options and provide informed feedback. A web-based digital model further allowed remote participation, ensuring broader engagement for those unable to attend in person.

5.3.2 Educational Initiatives and Collaborative Workshops

Workshops such as the "Hack Archthon" used these visualisations as a basis for collaborative problem-solving, bringing together students, professionals, and local stakeholders. Interactive representations of urban scenarios encouraged discussion, innovation, and a shared understanding of the city's development challenges in the "Urban Design Studio Sarajevo" project space (Figure 12).

5.3.3 Media Outreach and Public Awareness

To further engage the public, visualizations and findings from the urban transformation project were disseminated through various media channels. Television segments were produced to showcase the project's progress and its potential impact on the city's future. These media efforts played a crucial role in raising awareness and garnering support for the urban transformation initiatives.

5.3.4 Section Conclusion

By placing visualisation at the core of participatory processes, ETH Zürich and Sarajevo's local institutions created a model for collaborative urban planning. The ability to see, explore, and discuss future scenarios empowered residents and stakeholders, fostering more informed decision-making and broader public engagement in shaping Sarajevo's urban development.

For a visual representation of the project's impact and community involvement, you can refer to the following video: youtu.be/r84BamC46fo

5.4 Interactive Visualization and Communication

A key goal of the Sarajevo UDT is to create an interactive platform that makes the development process more transparent and allows people to engage with the data. Users will be able to access an online model to explore the results and contribute to the planning process through surveys or other participatory tools.

The interface is currently under development and aims to move beyond static outputs, offering dynamic maps and temporal playback to visualize urban dynamics across different time steps. Scenario dashboards link key performance indicators such as travel times, pollutant emissions, and exposure levels to spatial data, providing both analytical depth and communicative clarity. This interactive platform is intended to support planners, stakeholders, and the wider public in understanding complex urban processes and fostering greater acceptance of the city's development plans.

5.5 Chapter Summary

The Sarajevo UDT demonstrates the feasibility and value of combining 3D GIS models with high-resolution simulations for scenario-based urban planning. The results underscore that no single intervention solves Sarajevo's challenges, but digital twins can illuminate the complex trade-offs and synergies between different urban development strategies. The interactive visualization capacity transforms abstract simulations into actionable planning insights, providing Sarajevo with an example of how medium-sized cities can harness digital twin technologies for evidence-based decision-making.

6 Discussion

6.1 UDTs Beyond Visualization

One of the central debates in the current discourse on UDT in urban planning is whether they serve primarily as visualization platforms or as decision-making instruments. The Sarajevo case demonstrates that the true value lies in the latter. By coupling agent-based simulations of mobility and energy demand with the visualization tools of ESRI, the Sarajevo digital twin exemplifies the shift from descriptive to predictive and prescriptive models. This aligns with the emerging consensus in urban analytics that twins should not only reproduce the present but actively test interventions and anticipate unintended consequences.

6.2 Multi-Domain Integration as a New Paradigm

Globally, most UDT have been developed in siloed domains (transport-focused twins, energy-focused twins, or climate resilience twins). The Sarajevo application demonstrates the added value of cross-domain integration. This multi-domain coupling reflects a new paradigm of digital twins as urban system integrators, a trend echoed in leading projects in Singapore, Helsinki, and Rotterdam. Sarajevo thus contributes to a rare case where such integration is tested in a medium-sized, resource-constrained European city.

6.3 Data Scarcity and AI-Augmented Solutions

A key challenge for many cities outside of global capitals is data scarcity. Sarajevo exemplifies this, with incomplete transport counts, missing building attributes, and sparse emission monitoring. The project demonstrates how AI-assisted data augmentation and model-based inference can fill these gaps while making uncertainty explicit. Globally, this corresponds to a shift toward "approximate but actionable" UDTs, where the priority is not perfect replication but decision-relevant accuracy. Sarajevo contributes to this frontier by testing how far such strategies can be pushed in contexts where comprehensive data infrastructures may remain out of reach.

6.4 Equity and Inclusion in UDT Applications

Critical debates in urban digital twin research emphasize the importance of addressing social dimensions to avoid privileging efficiency over equity. The UDT provides a platform to explore potential impacts on different population groups and to identify areas of social vulnerability. By integrating participatory evaluation, the model can support inclusive planning processes, allowing stakeholders and residents to engage with scenarios and discuss trade-offs. In this way, the Sarajevo twin serves not only as a technological tool but also as a means to foster democratic deliberation and socially aware urban development.

6.5 Governance Innovation through Shared Platforms

Another emerging frontier for urban digital twins lies in their capacity to support governance processes. The Sarajevo UDT has been piloted with the Planning Institute, demonstrating its potential as a boundary object, a shared reference that visualizes the urban plan in a 3D context and facilitates dialogue among agencies, planners, policymakers, and citizens. This highlights the role of digital twins not merely as technical infrastructures but as institutional connectors that can foster coordination and transparency. The Sarajevo experience illustrates how, even in politically and administratively fragmented contexts, a common digital platform can anchor evidence-based discussions, bridge conflicting datasets, and support more collaborative urban decision-making.

6.6 Section Summary

The Sarajevo UDT illustrates the potential of urban digital twins to go beyond simple visualization, offering a platform for predictive analysis, cross-domain integration, and participatory engagement. While many of its capabilities such as real-time data integration, interactive scenario dashboards, and full participatory interfaces are still under development, the project demonstrates the feasibility of linking mobility, energy, and environmental data within a coherent 3D model.

Early interactions and co-creation with the Sarajevo Canton Institute of Development and Planning suggest that such a shared platform can facilitate dialogue across agencies and stakeholders, supporting more informed and transparent discussions even in a fragmented governance context.

The full vision of predictive, socially aware and governance-enabling functionality is currently in development; the Sarajevo case offers valuable lessons for medium-sized cities with limited data and resources. It highlights both the technical and organizational opportunities and challenges of digital twins, pointing toward a cautious but promising path for future urban applications.

7 Conclusion and Outlook

The following conclusions are derived from the authors' direct observations and interpretations, complemented by extensive discussions with local planning authorities, academic researchers, and domain experts. This collaborative process has allowed for a nuanced understanding of the studied context and the identification of key patterns and challenges. While the findings are primarily qualitative in nature, they provide a valuable foundation for subsequent evaluation and validation through a structured methodological framework. Future research could build on these insights by applying systematic assessment tools to measure their broader applicability and effectiveness in similar urban planning contexts.

7.1 Contributions to Urban Planning Practice

For Sarajevo, the UDT provides several practical advantages. It allows planners to explore potential interventions within a single integrated analytical environment. Interdependencies between transport, energy, and urban development become more visible, supporting a more holistic approach to policy and infrastructure design. The UDT also acts as a shared platform that helps reduce institutional fragmentation and facilitates evidence-based discussion among diverse stakeholders. These benefits are particularly valuable given Sarajevo's limited planning resources, complex administrative structure, and ongoing challenges in coordinating urban development initiatives.

7.2 Academic Innovations

Beyond its local relevance, the Sarajevo UDT offers important contributions to the broader academic understanding of urban digital twins. The project demonstrates how AI-assisted data augmentation can enrich models in contexts with incomplete or inconsistent datasets, providing actionable insights for planning. Furthermore, the Sarajevo experience illustrates the role of UDTs as boundary objects: shared, interactive platforms that facilitate dialogue among planners, municipal authorities, policymakers, and citizens. This positions digital twins not only as technical tools but also as instruments that can support more inclusive, coordinated, and transparent urban governance, even in politically and administratively fragmented environments.

7.3 Outlook: Toward the Next Generation of the UDT

Looking ahead, the Sarajevo UDT could develop in several important ways. Adding citizen feedback would help test how interventions affect people's daily lives and social acceptance, not just technical efficiency. Including climate factors like flooding, heat stress, and adaptation measures would make the model more useful for environmental planning. Finally, connecting Sarajevo's twin with regional and national models could help plan changes across energy, transport, and urban systems on a larger scale, such as for example, the Sarajevo Spatial Plan or the Sarajevo Building Codes.

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Multi-dimensional Analysis of Building Sustainability: Comparison of Reconstruction Scenarios in Singapore

Višedimenzionalna analiza održivosti zgrada: uporedba scenarija rekonstrukcije u Singapuru

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Abstract Building sustainability is associated with multiple goals for sustainable global development and tackling climate change as defined by the United Nations. Sustainability goals have different interpretations across different domains; the construction industry alone incorporates multiple professional domains involved in building projects. However, assessment of sustainability without alignment of interests, regional context and a unique strategy may lead to conflicting and suboptimal building design solutions. In this paper, multiple dimensions of sustainability assessment that affect building design and construction are investigated; first, terminology and concepts are critically analysed through wider research of scientific and grey literature defining the sustainability of buildings; second, a literature review methodology is used to identify and compare multi-dimensional analyses and existing frameworks; and finally, a multiple-criteria decision analysis of a building reconstruction in the context of Singapore is performed. The results show that sustainability of buildings is not a one-way street and that a sustainability strategy must prioritise not just dimensions but also categories, criteria and indicators for each dimension of sustainability, as well as define the multiple-criteria decision analysis for the specific context. While sustainability indicators are comparable, overall sustainability performance is not and requires a case-by-case approach. The case study on reconstruction scenarios in Singapore demonstrates four scenarios incorporating ten indicators of the three most common sustainability dimensions: social, economic, and environmental. Measuring these indicators allow for a comparison and decision-making with respect to multiple criteria. This research tackles the complexity of multiple dimensions of sustainability with this case study, informing and discussing current approaches for future analyses.

Keywords sustainable building; Multi-Criteria Decision Analysis (MCDA); Life-Cycle Assessment (LCA); sustainability pillar.

Sažetak Održiva gradnja je povezana sa više ciljeva održivog globalnog razvoja i suočavanja sa klimatskim promjenama koje su definisale Ujedinjene Nacije. Ciljeve održivosti različito tumače različite struke; sama građevinska industrija obuhvata različite stručne oblasti uključene u građevinske projekte. Međutim, procjena održivosti bez usklađivanja različitih interesa, regionalnog konteksta i jedinstvene strategije može dovesti do sukobljenih i suboptimalnih projektnih rješenja. U ovom naučnom radu ispituju se višestrukost dimenzija procjene održivosti koje utiču na projektovanje i gradnju; prvo, terminologija i koncepti su kritički analizirani kroz istraživanje šire naučne i sive literature koja definiše održivost zgrada; drugo, metodologijom pregleda literature identifikovane su i poređene višedimenzionalne analize i postojeći modeli procjena održivosti; zaključno je urađena analiza višekriterijskih odluka za rekonstrukciju zgrade u kontekstu Singapura. Rezultati pokazuju da održivost zgrada nije jednosmjeran proces i da strategija održivosti mora dati prednost ne samo određenoj dimenziji, nego i kategoriji, kriterijima i indikatorima za svaku dimenziju održivosti, kao i da definiše analizu višekriterijskog odlučivanja u odnosu na specifičan kontekst. Iako su indikatori održivosti međusobno uporedivi, sveukupna održivost projektnog rješenja nije univerzalno uporediva i zahtijeva individualnu procjenu. Studija slučaja o scenarijima rekonstrukcije u Singapuru prikazuje četiri scenarija koji uključuju deset indikatora i pripadaju trima najčešće razmatranim dimenzijama održivosti: socijalnoj, ekonomskoj i ekološkoj. Mjerenje ovih indikatora omogućava uporedbu i višekriterijsko odlučivanje. Ovo istraživanje se bavi složenošću višestrukih dimenzija održivosti kroz studiju slučaja, te izvještava o postojećim procjenama i analizira ih radi budućih primjena.

Ključne riječi održiva gradnja; analiza višekriterijskih odluka (MCDA); procjena životnog ciklusa (LCA); stub održivosti.

1 Introduction

Sustainability of the ever-growing built environment is one of the critical topics of global development and climate change goals, as defined by the United Nations (UN). The UN defines 17 Sustainable Development Goals (SDGs); SDG 11, Sustainable Cities and Communities, is the most relevant one for the construction industry. However, the goals are not operating as isolated systems, and the construction industry is closely related to eight additional goals (Scherz et al., 2020). Sustainability goals are interrelated in a complex system, where different building design practices have different effects on sustainability performance. For instance, Scherz et al. (2020) investigate the synergies of design strategies on decarbonisation of the built environment. While certain design practices contribute positively to some sustainability aspects, they may at the same time have a negative impact on others. These complex interdependencies create difficulties in reaching and measuring the sustainability strivings of the construction industry.

In addition to the complexity of the system of sustainability goals, it is not straightforward which goals are relevant to the construction industry and building design. In fact, the basic concepts of sustainable buildings show terminological ambiguity and misalignments regarding their structure (Moir & Carter, 2013). We will position within this work terms like "sustainable building", "green building" and "circular building", with an aim to distinguish and structure the terminology, leading to a clearer definition of sustainability dimensions and analyses. While the main motivation to analyse the sustainability of buildings is to achieve better building performance and reduce negative impact, lack of clarity could lead to a loss of focus and not fully addressing the performance improvement.

There is no single methodology to calculate the sustainability of buildings; multiple measurement methods to analyse sustainable building designs exist, sometimes in the form of a generally applicable method and sometimes reflecting regional planning, a lifecycle phase or professional domain (Braulio-Gonzalo et al., 2022). The certification systems include diverse indicators, which are not aligned and therefore deliver different calculation results that are not comparable. Buildings are often certified with one of the internationally available certification systems, such as BREEAM, LEED or DGNB. These tools focus on different social, environmental or economic dimensions, changing over time (Andrade & Braganca, 2016). The applied sustainability analysis may not necessarily consider a desired sustainability criteria and hence not be as effective in the context where applied. The selection of criteria and the calculation of indicators need to reflect the context, bearing in mind desired outcomes.

Following the investigation of sustainability dimensions and analyses, we continue with the case study of a residential building in Singapore, where demolish and rebuild is a standard procedure in the construction industry. The objective is to clarify and understand which environmental, economic and social factors impact decisions to retain, renovate or rebuild. While renovation is better in terms of embodied carbon, there are many other aspects that impact decision making, including the ability to reduce operational energy use, impact on the inhabitants, economic factors, etc. The current certification used in Singapore is called "Green Mark" (Building and Construction Authority, 2025). It is developed by the government and focuses on environmental sustainability dimension, especially considering embodied and operational emissions. We investigate ten criteria across three generally accepted dimensions of sustainability. This case study serves as an exemplary sustainability analysis for the specific context of renovation of public housing in Singapore. It demonstrates a strategic selection of indicators that could be considered in a similar way for future calculations; however, the entirety of indicators could differ for a different context.

This work argues the heterogeneity of sustainability measurement methods, aligns and categorises the underlying conceptual structures, and identifies gaps in the literature. The main result reveals a lack of strategic or regional systems for sustainability assessment that reflect the local context. Existing concepts are often stretched throughout multiple dimensions, but the justification of selected indicators is not derived from local planning goals. The future recommendations suggest more emphasis on the filtering processes from the entirety of sustainability rather than generic one-size-fits-all solutions. In other words, the analysis criteria should be based on the context: place and time for choosing the best design. In the case study of a reconstruction project in Singapore, a multi-dimensional approach addresses four possible scenarios. This case study represents a novel approach to decision making for multiple involved parties, with varying interests and perceptions of sustainability. The final sustainability analysis is not a one-way street, but a compromise of all involved parties with varying priorities, who need to be aware of the effects of various criteria before reaching a final decision.

The subsequent section presents the methodology of this research, including the three parts of the research: clarification of terminological ambiguity, analysis of research works investigating sustainability dimensions, and the case study performing a sustainability analysis of the reconstruction of a residential building in Singapore. The results presented in the third section follow the same structure as the methodology section, presenting the results for each methodological step individually. The discussion in the fourth section reflects on the findings, especially on the need to move away from standard generic sustainability certification and focus on the local context. The conclusion in the fifth section recaps the study and describes its limitations and next steps.

2 Methodology

The research design includes three methodological steps which serve the main objective — clarifying the multi-dimensional sustainability assessment (Figure 1).

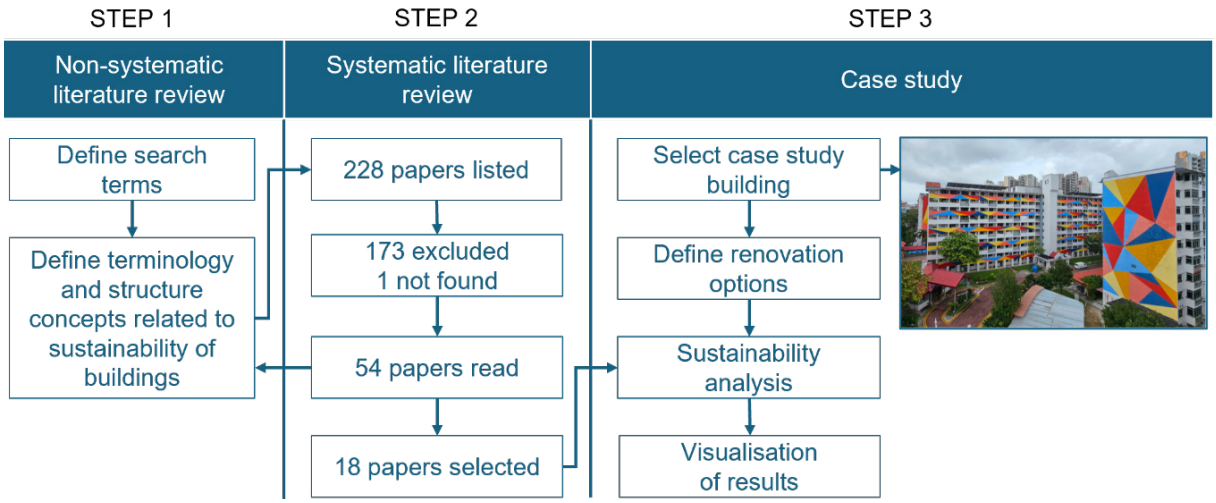

Figure 1 Research design consists of three steps, including non-systematic and systematic literature review and a case study. Source: Authors, 2025.

2.1 Clarification of Terminological Ambiguity

The terminology is explored by non-systematically investigating the literature; by searching through databases such as Google Scholar and Scopus and sorting the results by relevance. It was performed with the keywords "sustainable building" and "sustainable construction", further expanded with additional related keywords. This search delivered a list of topics and terminology for a subsequent systematic literature review, and provided a base terminology, which was further extended and improved following the systematic literature review. The databases were visited and searched on multiple occasions, last in September 2025.

2.2 Systematic Literature Review on Multi-Dimensional Sustainability Analysis

The systematic literature review included the following search ("sustainability direction" OR "sustainability pillar" OR "sustainability dimension") and ("building" OR "construction"). The objective was not to conduct exhaustive research on the dimensions of sustainability, but rather to investigate the existing approaches, compare them and identify the research gaps and directions.

The main exclusion criterion for the research papers was if they did not deal with buildings' sustainability. The first screening eliminated sustainability analysis for other industries, such as agriculture, urban planning, or manufacturing, as well as the sustainability of construction materials, supply chains and organisational sustainability. Research dealing with the sustainability of infrastructure was also excluded, but all types of buildings were included. Energy related sustainability was considered if it was directly related to buildings. The first screening eliminated 173 papers out of 228 by title or abstract. Review papers were considered for step one and for discussion, but they were excluded from the overview as they did not elaborate on any particular sustainability analysis. Step two resulted in 18 papers, which were analysed in detail and their characteristics are presented below.

2.3 Case Study on Multi-Dimensional Sustainability Analysis

The case study component of this paper was conducted as a master's thesis by one of the authors (Dai, 2025), supervised and consulted by the remaining authors. Some results have been presented as a poster presentation and not published so far. The analysis is based on an investigation of sustainability concepts and consultations with researchers from multiple research projects, concluding that multiple sustainability dimensions need to be considered and indicators must be specific for Singapore. The work proceeded with four viable scenarios that could be considered for renovation, and the calculations of the selected indicators. The sustainability assessment included a multiple-criteria decision analysis (MCDA) of the chosen sustainability indicators, the results of which can be compared and used as decision-making support.

The case study involved a building in Singapore developed by the Housing & Development Board (HDB), the largest real estate company in Singapore and publicly owned. A particular feature of HDB buildings is that they are developed with a 99-year lease; therefore, they have a limited planned use. Once the lease expires, the buildings are returned to HDB, which can then reconsider their future. The oldest HDB estates in Singapore are around 60 years old. The case study building was constructed in 1964.

Currently, the majority of existing buildings are expected to be demolished; however, HDB is considering more sustainable options for future redevelopment. Various programs are being considered in Singapore, such as the Home Improvement Programme (HIP), which includes both mandatory and optional improvements. The government is also planning to launch the Voluntary Early Redevelopment Scheme (VERS) in the early 2030s for buildings that reach 70 years of age (Housing & Development Board, 2025). This scheme would involve a voluntary buyout of the flats by the government for redevelopment, provided that the majority of residents agree.

Based on this context, we address the sustainability aspects of different lifecycle scenarios that could be applied to the HDB building once it reaches 70 years of age (Figure 2):

Scenario A is the reference case and serves as a baseline for comparison with the other scenarios. The building could theoretically remain in use for another 29 years until the 99-year lease expires, assuming no major structural deficiencies are found during mandatory inspections. However, the value of the units is expected to decline rapidly after 70 years. In this scenario, no significant renovation works are performed. Therefore, a 1% demolition rate is assumed for losses during construction works. The building's total lifespan is assumed to be 70 years due to the degradation of the concrete structure in Singapore's climatic condition. Window-type AC units are observed during the site visit, which represent the major HVAC system of 1960s HDB flats. This scenario has minimal impact on residents because most of the maintenance will be conducted in the public area, except that residents' units will eventually become unusable and lose their value at the end of life.

Scenario B involves mandatory refurbishment works after 70 years. It is estimated that with proper renovation works offered by HDB — such as upgrading elevators, lighting, structural reinforcement, repainting, and improvements to the facade to reduce operational carbon emissions — the building's lifespan can be extended by 50 years. To reduce operational carbon emissions, a high energy efficient HVAC system is implemented. This Variable Refrigerant Flow (VRF) system is like a smart refrigerant faucet providing exactly the right amount of cooling. Interior works within the units are limited and minimized to reduce disruption to residents, while facade improvements are designed to fit the existing unit layout. This scenario aims to minimize the residents' impact and maximize the building lifespan and life quality.

Scenario C involves mandatory and optional refurbishment, including upgrades to installations within apartment units and more extensive interior renovations. The renovated building is expected to last an additional 60 years. The HVAC system is upgraded to a Dedicated Outdoor Air System (DOAS) with VRF, enhancing residents' thermal comfort. The DOAS installation causes a temporary disturbance to the residents because of necessary construction works within the units, but provides them with long-term benefits like improving air quality and thermal comfort. In addition, unit layouts will be redesigned to align with the newest HDB layout design and multi-functional spaces will be provided for residents. In this scenario, construction works require residents' temporary relocation and result in higher embodied carbon emissions but will significantly increase building quality and reduce operational carbon emissions.

Scenario D involves the complete demolition of the existing building and the construction of a new one. The new building is estimated to have an 80-year lifespan due to improved construction materials and maintenance processes. It assumes a prefabricated reinforced concrete structure for the new structure and examines the potential use of recycled materials. This scenario also targets reduced embodied carbon values as a result of the use of recycled materials in the new construction, assuming that the resources recovered from the existing building can serve up to the allowed percentages of the new construction materials, considering that the new building has more than double the gross floor area (GFA) of the old building. The HVAC system includes a DOAS with district cooling system integrated with VRF. In this scenario, the HVAC system installed will be the same as in the previous scenario so as to compare the same HVAC system decarbonization potential within different building settings. The large-scale demolition required in this scenario, which causes significant disruption to the residents and generates substantial embodied carbon emissions, fundamentally distinguishes it from the other scenarios.

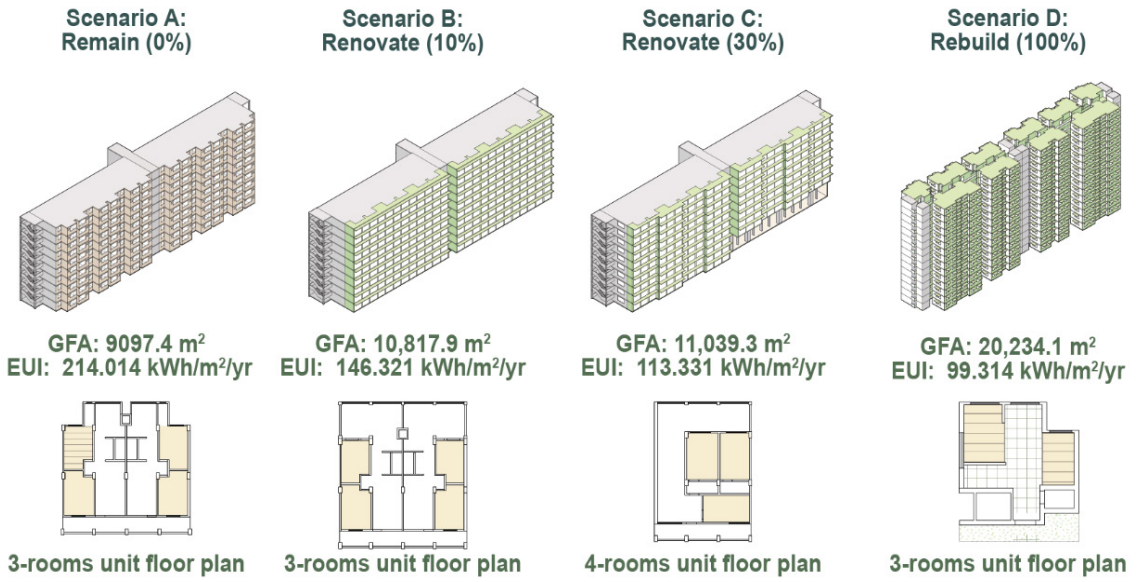

Figure 2 Overview of different scenarios, 3D building representation and a typical apartment unit (EUI - Energy Use Intensity).
Source: Authors, 2025.

The building models were created in the Rhinoceros environment, with additional calculations and simulations performed using Grasshopper and the Ladybug, Honeybee, and Butterfly plugins. The One Click LCA tool was used to calculate CO_2 values for embodied carbon across the different scenarios. The results of the case study analysis were visualized using Microsoft Excel diagram tools. Data was collected from multiple databases, including internal databases of the used software tools, the HDB website, the GHG app (Alva et al., 2024), Singapore statistics data (e.g. Energy Market Authority of Singapore (2025)), and complemented with additional sources if required (e.g. environmental product declarations of specific products). LCA data was checked and adapted for the Singapore context with the values from governmental agencies such as "Green Mark" or the Singapore Building Carbon (Building and Construction Authority, 2025; JTC Corporation & Katto Studios, 2025), and research data (Zhang et al., 2024).

3 Sustainable, Green and Circular Buildings Have Different Purposes

There is a terminological ambiguity regarding sustainability in the construction industry (Berardi, 2013). The initial research gave an overview of building sustainability. In the literature, three terms describing the sustainability of buildings were identified. These were *sustainable*, *circular* and *green* buildings, and related terms such are circular economy and sustainable construction. All three terms have similar ideas, have grown in popularity with time, and have at the same time expanded their conceptual meaning. Due to their overlap and misconceptions, we relate these concepts with the following equation:

sustainable (building) > green (building) > circular (building)

This equation signifies that the green adjective is considered as a part of sustainability and specifically encompasses the environmental dimension of sustainability. A circular building means it incorporates the principles of the circular economy to improve its environmental sustainability but not necessarily other principles (e.g. reducing thermal requirements). Therefore, these terms should not be interchanged, and the assessments and strategies should follow accordingly. The equation explicitly refers to buildings; however, it could be applied to other construction assets, such as infrastructure. For instance, the environmental, social, and governance (ESG) principle of planting a tree to increase sustainability might be part of the assessment and strategy of sustainability, but it would not make a company more circular or green. The term sustainable buildings increasingly overlaps with circular and green buildings — terms which often appear as synonyms but still carry different meanings in the literature. With some further exploration, a sustainable building is identified as the widest concept, defined as a "healthy facility designed and built in a cradle-to-grave resource-efficient manner, using ecological principles, social equity, and life-cycle quality value, and which promotes a sense of sustainable community" (Berardi, 2013). A green building focuses on the environmental aspects of that concept, primarily cradle-to-grave resource efficiency and using ecological principles" (GeeksforGeeks, 2024). A circular building implements circular economy principles to recover resources and generally is focused on the end-of-use or end-of-life phase of a construction resource to improve environmental efficiency (Šibenik et al., 2025).

Sustainability is generally measured with indicators; however, there is no single system describing the relation between the indicators and dimensions of sustainability. An interesting approach is proposed by Moir & Carter (2013); not to constrain the definition of sustainable construction and not to institutionalise the analysis, they propose a "cosmonomic" view on sustainability. The "cosmonomic" framework consists of 15 hierarchically dependent modalities related to sustainability. When investigating BREEAM, they detect social, economic and aesthetic modalities as incomplete.

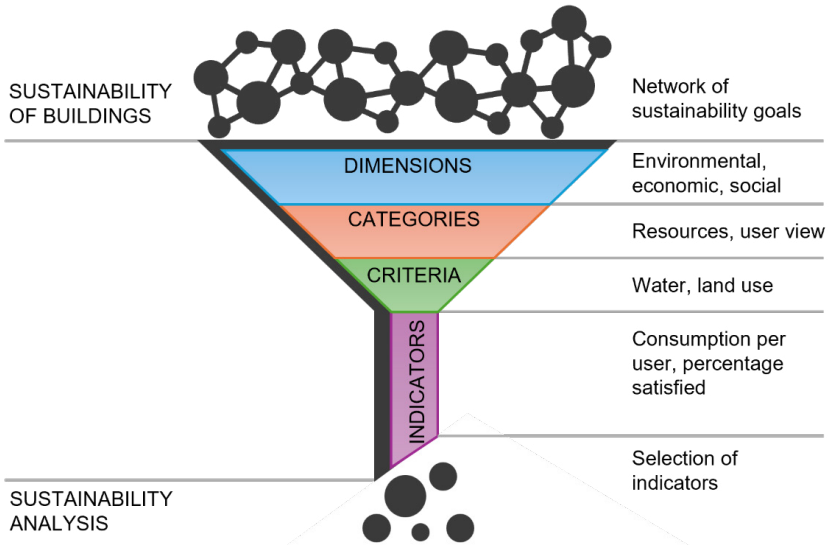

Figure 3 Hierarchical system of sustainability concepts, connecting sustainability of buildings and sustainability indicators. Source: Authors, 2025.

More simple structuring approaches were represented in Wen et al. (2020) and Shams & Alkhalifa (2025), assessing GBRT and SBAT tools for sustainability analysis, respectively. In our work, we combine those two hierarchical systems of concepts, identifying four hierarchical levels for the concept of sustainability: dimensions, categories, criteria and indicators (Figure 3). A sustainability analysis is performed with a specific selection of indicators that paint a picture of the sustainability of buildings. Generally, there are many indicators that influence sustainability, which are not all considered in the sustainability analysis. Concepts that are higher in the hierarchy are more standardised. However, the way in which the selection of criteria takes place is not standardised nor straightforward. Therefore, different analysis approaches have been investigated to understand the reasons behind specific selections of indicators.

Table 1 Overview of research papers performing multi-dimensional sustainability analysis (all papers consider environmental, economic and social dimensions). Source: Authors, 2025.

	Additional Dimensions	Subject of analysis	LC phase	Case study location
Abushaqra & Al Khalifa (2023)	/	residential	operation	Bahrain
Ahmad et al. 2016 (2016)	/	systems and techniques	post-design	Pakistan
Alalawi & Allani (2025)	/	healthcare	operation	Bahrain
Alatawneh & Germana (2016)	humanitarian	earth construction	refurbishment	Palestine
Bjorberg & Temeljotov Salaj (2023)	/	multiple	refurbishment	Europe
BuHamdan et al. (2019)	/	residential	post-design	Canada
Elsamni et al (2024)	/	megaproject	construction	Saudi Arabia
Forster et al. (2025)	gestalt	multiple	pre-design	Austria
Hassan & Ali (2024)	cultural and aesthetic	stadium	operation	Iraq and USA
Hosseini et al. (2021)	/	temporary housing	post-design	Iran
Issah Iddi and Padala (2024)	/	multiple	multiple	Ghana
Jafari & Valentin (2017)	/	ranch-style home	retrofit	USA
Josa et al. (2025)	/	concrete structure	post-design	Italy
Keena et al. (2024)	/	residential	post-design	Canada
Popovic et al. (2021)	/	hotel	pre-design	Serbia
Shams & Alkhalifa (2025)	/	educational	post-design	Bahrain
Wilkinson et al. (2014)	/	multiple	multiple	Australia
Yuan et al. (2019)	/	elderly facilities	operation	China

4 Results

4.1 Multi-Dimensional Sustainability Analysis is Context Dependent

Table 1 represents the overview of the selected research papers from the systematic literature review of sustainability analyses of buildings. The identified studies showed different subjects of analysis, different lifecycle (LC) phases for which the analysis was made, and also different locations, sometimes having more specific urbanisation-related contexts within the location. All analyses include three sustainability dimensions: environmental, economic and social; three research works each add an additional sustainability dimension to the analysis: humanitarian, gestalt and cultural and aesthetic.

There are 18 research papers identified from the literature set, each displaying a distinct sustainability analysis. Distinct analysis methods are characterised by different indicators — generally, the works define different methods that they deem suitable for measuring sustainable performance in a given context. The sustainability analyses and case studies deal with various subjects, and although all three dimensions of sustainability are present in each of the works, the analyses cannot be compared. The indicators are either newly defined, extracted from existing analyses or created as an intersection of multiple indicators. Besides the selection of indicators, their weighting (if performed to provide a single score) also differs. Following this overview, context seems to be of high relevance for any sustainability analysis. In the works of Wen et al. (2020) and Braulio-Gonzalo et al. (2022), different certification systems are compared and evaluated, further emphasising the differentiation between the sustainability analyses. Therefore, for our case study, the lessons from existing research works show that the indicators must be adapted to the context for which the sustainability analysis is performed and that a universal set of indicators does not lead to an optimal analysis.

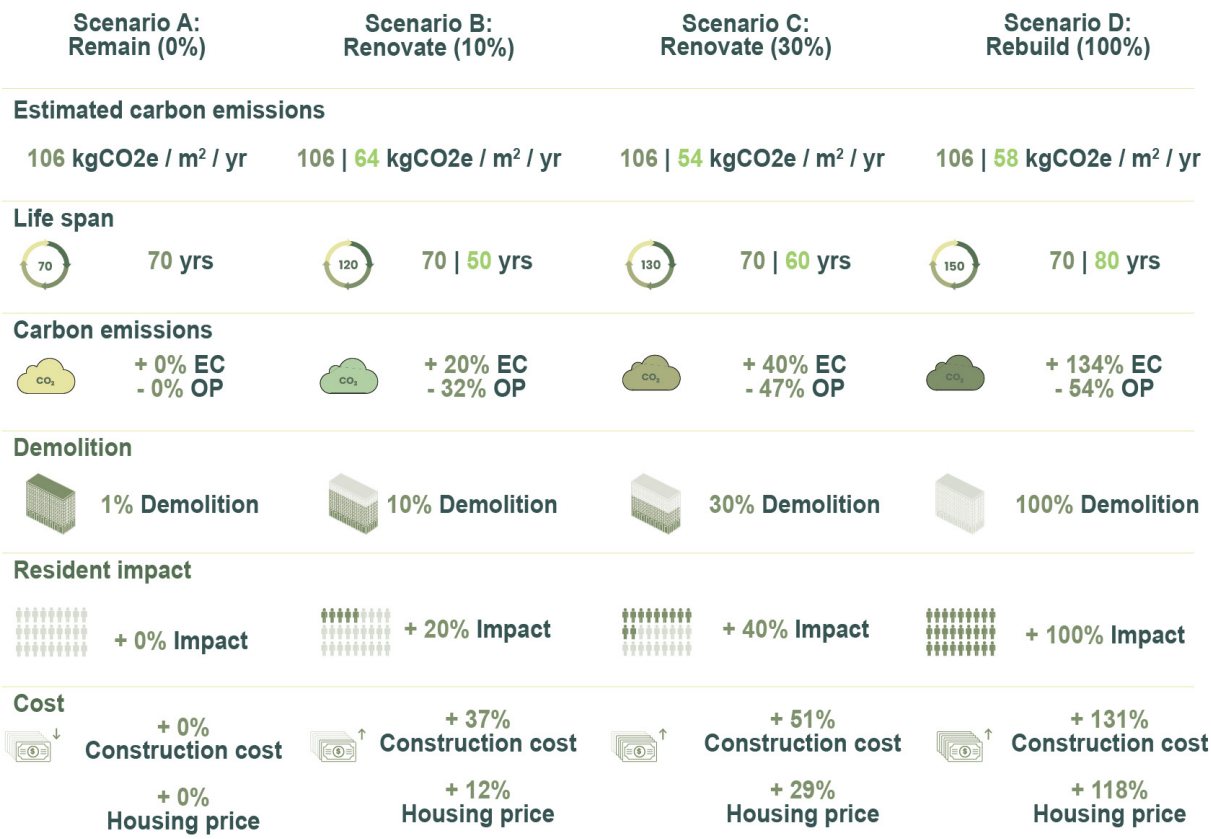

Figure 4 Overview of the main results for all four scenarios. Source: Authors, 2025.

4.2 Case Study Investigating 10 Sustainability Indicators

The oldest residential buildings in Singapore are reaching 70 years, and HDB, as the relevant real estate agency, together with residents and governmental agencies, is deciding on the way forward. The indicators of interest differ among the participants; however, environmental impacts across different scenarios, impacts on residents, and economic implications remain highly relevant for the current real estate situation in Singapore. Hosseini & Kaneko (2012) describe the interconnectivity of four sustainability dimensions (in their work they consider the institutional dimension as well), showing different causalities. For instance, clean water, which indicates environmental sustainability, also affects social sustainability, affecting human health. Therefore, sustainability indicators are all connected to the final result; in our case study, we decided on ten indicators: three for environmental sustainability (building lifespan, carbon emissions, and percentage of demolition), five for social sustainability (relocation time, expected noise, community and daily disruptions, and relocation rate) and two for economic sustainability (construction and housing cost). The indicators were chosen due to their relevance for Singapore. Environmental sustainability considers carbon emissions, but also how long it can fulfil its function and how much waste would be produced. The case study building is characterised by a high percentage of older residents, where disruption is of high importance. The renovation would affect residents' cost of living, but also provide a possibility to sell the unit, which is why the economic indicators could influence decision making. As described in the methodology section, the case study is an HDB residential building in Singapore which is simulated for multiple future scenarios, including retaining and maintaining the building and demolition, two types of renovation before the demolition, or demolition and rebuilding. An overview of the main results is presented in Figure 4. Weighting of alternatives can be done by normalising the results for each indicator; however, the main results represent different sustainability dimensions that vary in relevance for different parties. The results are therefore presented as an overview for discussion among different interested parties, who can determine their own priorities and compare the cases accordingly. This reflects the core of sustainability analysis, responding to the involved parties and context in the best possible way, and finding a compromise between sometimes conflicting indicators.

4.2.1 Environmental Sustainability

As part of the environmental sustainability dimension, we investigated three indicators which are building lifespan (Figure 5a), demolition efforts (Figure 5b), and carbon emissions including embodied and operational carbon (Figure 5c). Considering the whole building LC is a critical concept for sustainable renovation, we frame the maximisation of a building's use against its carbon emissions over time. In contrast to new construction, renovation strategies extend a structure's service life, thereby mitigating the effects of embodied carbon, which presents an important factor to the environmental sustainability. To quantify environmental impact, embodied carbon and operational carbon emissions

serve as the primary assessment indicators. The substantial carbon emissions generated from demolition activities (Figure 5b) constitute a major consideration in planning for building renewal, a decisive factor in comprehensive building redevelopment evaluations. Consequently, embodied carbon, operational carbon, and demolition-related emissions form a tripartite framework for assessing environmental sustainability. This framework is employed to evaluate and compare the environmental implications of the proposed scenarios. This analysis examines four distinct renovation scenarios, evaluating the trade-offs between intervention types. A key comparison is drawn between demolition and new building (Scenario D), which incurs higher initial carbon emissions to significantly prolong the life cycle, and more moderate retrofits (Scenarios B and C).

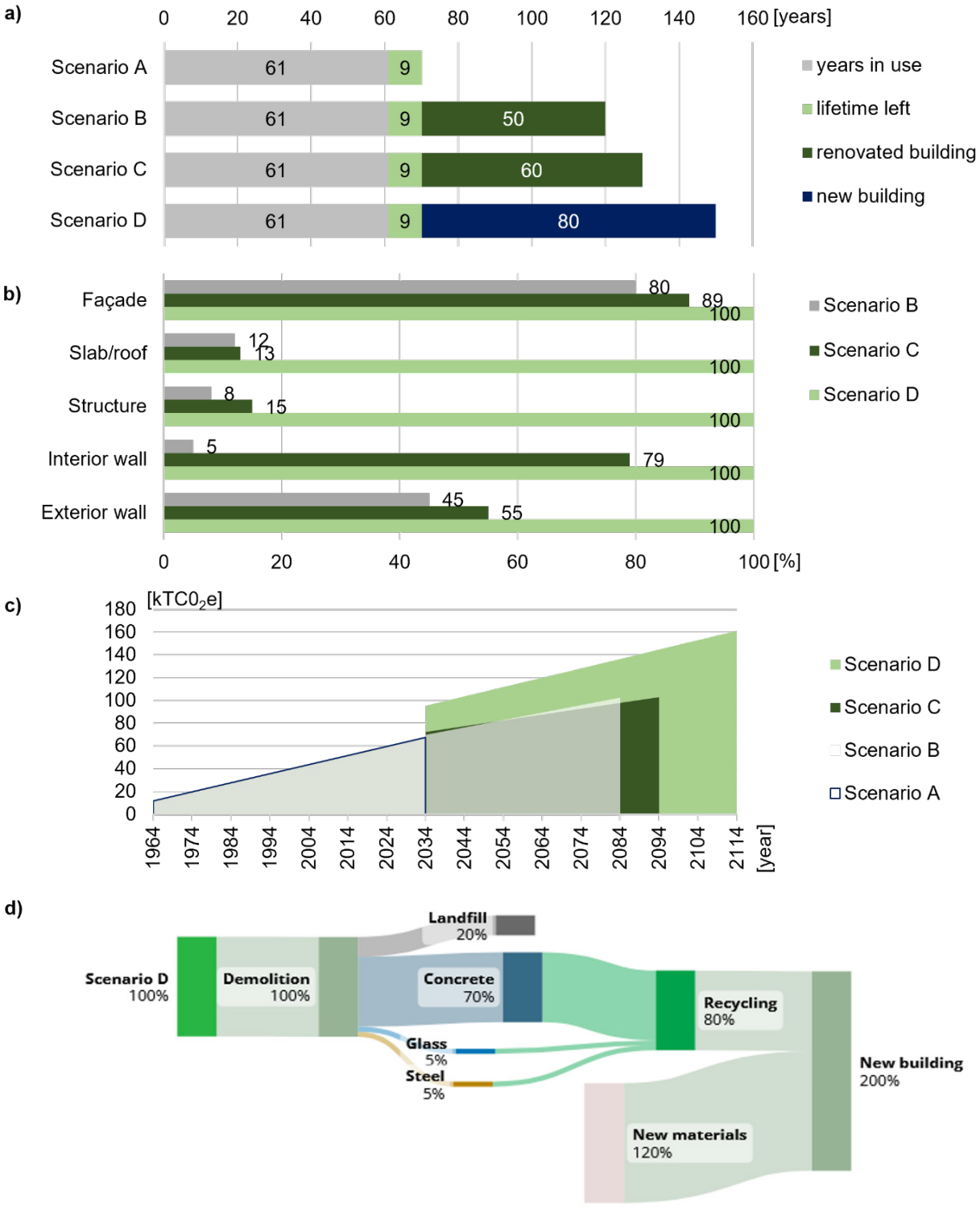

Figure 5 Diagrams showing the results of calculations of environmental indicators. **5a** Expected lifespan; **5b** Percentage of deconstructed components per scenario; **5c** Expected embodied and operational carbon over the years; **5d** Example of a potential material reuse for Scenario D. Source: Authors, 2025.

An additional option to reduce material use for the construction is seen in the circular economy, also to reduce the cost of waste treatment. From a circular economy perspective, building material recycling presents a significant opportunity for waste reduction, but also cost and carbon emission savings. We focus in this work on its environmental influence, although it could significantly influence the economic impact. Reconstruction projects are particularly well-suited to utilizing recycled construction waste, thereby directly reducing the embodied carbon emissions associated with new material production. New construction, however, demands a greater volume of materials, which recycled waste alone cannot fulfil (Figure 5d). An exemplary Sankey diagram is provided which shows a potential saving on material by implementing principles of circular economy (Figure 5d). Reducing the use of virgin materials has the highest potential in Scenario D, where the building is demolished and a new building is constructed.

The analysis indicates that retrofitting effectively prolongs building service life, thereby reducing the environmental impact of the initial embodied emissions per year. The carbon emission intensity, however, varies significantly with the degree of intervention. A comparative assessment reveals that a mild retrofit (Scenario B) is superior to a full retrofit (Scenario C) in minimizing both demolition-related and embodied carbon emissions. The full retrofit demonstrates an advantage in reducing operational carbon emissions over the long term. Although a complete rebuild (Scenario D) incurs substantial initial carbon emissions from demolition and new construction, it offers the most significant reduction in operational carbon emissions throughout its extended lifespan. Consequently, each scenario presents a distinct trade-off between short-term embodied carbon and long-term operational carbon. The best choice depends on how the decision-makers prioritise these competing factors.

4.2.2 Social Sustainability

Our social impact assessment identifies five key indicators affecting resident well-being: the necessity of temporary relocation, exposure to construction noise, the rate of permanent displacement, overall community disruption, and disturbances to daily life (Figure 6a). These factors are most likely to appear during renovation or new construction work. The analysis in Figure 6a evaluates the comparative performance of each scenario across these social parameters.

Scenarios B and C exert a comparatively minor direct impact on current residents. Specifically, minor reconstruction significantly reduces the probability of resident displacement. This approach not only enhances residents' quality of life by allowing them to remain in situ but also avoids the substantial disruptions typically associated with relocation. In contrast, demolition and rebuilding necessitate the complete vacating of the property, making continued occupancy impossible. Consequently, this scenario imposes a significantly greater effect on social sustainability, primarily through the dissolution of existing community structures and the forced relocation of inhabitants.

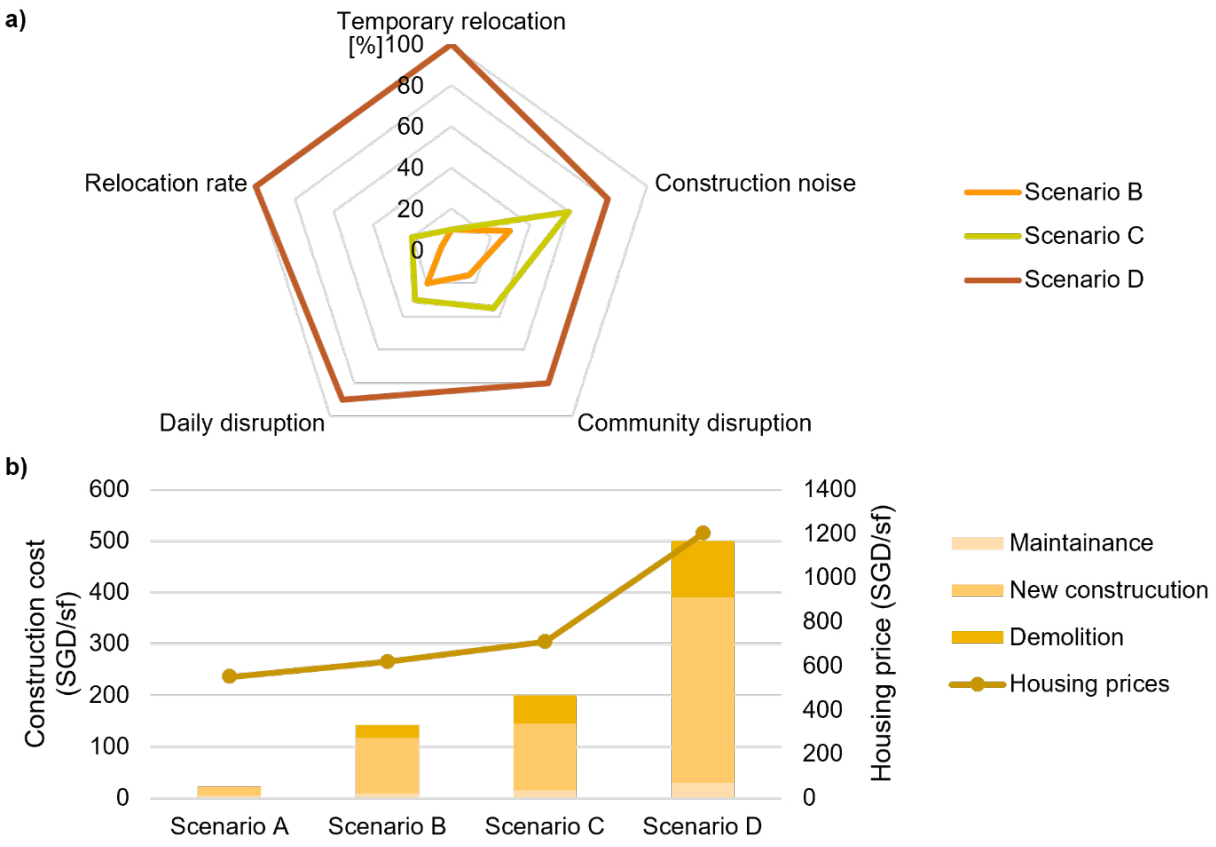

Figure 6a Radar chart showing social impacts on the residents. Source: Authors, 2025.; **6b** Comparison of economic indicators: construction and deconstruction costs with the development of housing prices. Source: Authors, 2025.

4.2.3. Economic Sustainability

Economic considerations constitute one of the fundamental dimensions of sustainable renovation. Within the residential sector, key economic metrics typically include construction costs and fluctuations in property value. Utilizing data sourced from the Singapore Department of Statistics and prominent real estate platforms, we have quantified the construction expenditures and projected changes in housing prices for each scenario. Furthermore, the costs of renovation works have also been considered. An aspect which was not considered is the potential for reusing and repurposing construction waste generated from demolition activities. The combined impact of these two factors, construction costs and housing price changes, across the different scenarios is illustrated in Figure 6b.

Our analysis of economic indicators reveals a critical trade-off between renovation and new construction. While renovation strategies effectively control initial construction costs, their influence on enhancing property values is comparatively limited. Newly constructed residences (Scenario D), by contrast, command a premium due to modernised living facilities and comprehensive community amenities, ultimately resulting in a higher overall property value.

5 Discussion

5.1 Sustainability Assessment Effectiveness Depends on Priorities

Creating a more sustainable built environment is a widely present motivation in the construction industry. Multiple building designs can be compared for their sustainable performance. However, there is no single formula for sustainability. Sustainability involves numerous, sometimes hierarchical concepts (Scherz et al., 2020). Building certification systems, which tend to provide a generally applicable evaluation of sustainability, are constantly changing (Wen et al., 2020), further proving that there is no single sustainability formula. One way to align these heterogeneous understandings is to structure the sustainability into smaller, partial concepts. However, these structures can also differ due to terminological ambiguities.

Environmental, economic and social dimensions are commonly regarded as the three main aspects of sustainability, although other structuring concepts exist as well (e.g. Moir & Carter, 2013). Dimensions are further divided into narrower concepts, and sustainability is calculated with prioritized indicators. One-size-fits-all assessments that are most common in the industry still rely on a specific set of indicators, which is never exhaustive. Using a limited set of indicators automatically prioritises certain solutions and designs compared to other analyses. It is not possible to respond to all sustainability indicators in the same way with a single solution and without compromising other ones. A single holistic sustainability realm on each of the hierarchical levels is lacking (Figure 3); such a network of indicators would be useful to more strategically serve various purposes and perspectives. Priorities of the analysis are then selected by narrowing down the focus and filtering relevant indicators. Our case study demonstrated a possible application of MCDA calculating ten exemplary indicators related to three sustainability dimensions.

5.2 Tailor-Made Assessments Can Help Make Crucial Sustainability Decisions

Currently, research works such as those listed in Table 1 individually select priorities so they could address the specifics of a context. Methods and tools closer to practical applications, such as different certification systems, also consider only a subset of indicators, which are not necessarily relevant for each case study. Therefore, future research should prioritise context-based filters, which could be useful for policymakers and yield a stronger effect on a practical application. Therefore, to have an effective sustainability assessment, it is necessary to focus on the important criteria within the specific context. Analyses in practice are increasingly context-based and implemented in the form of local policies,

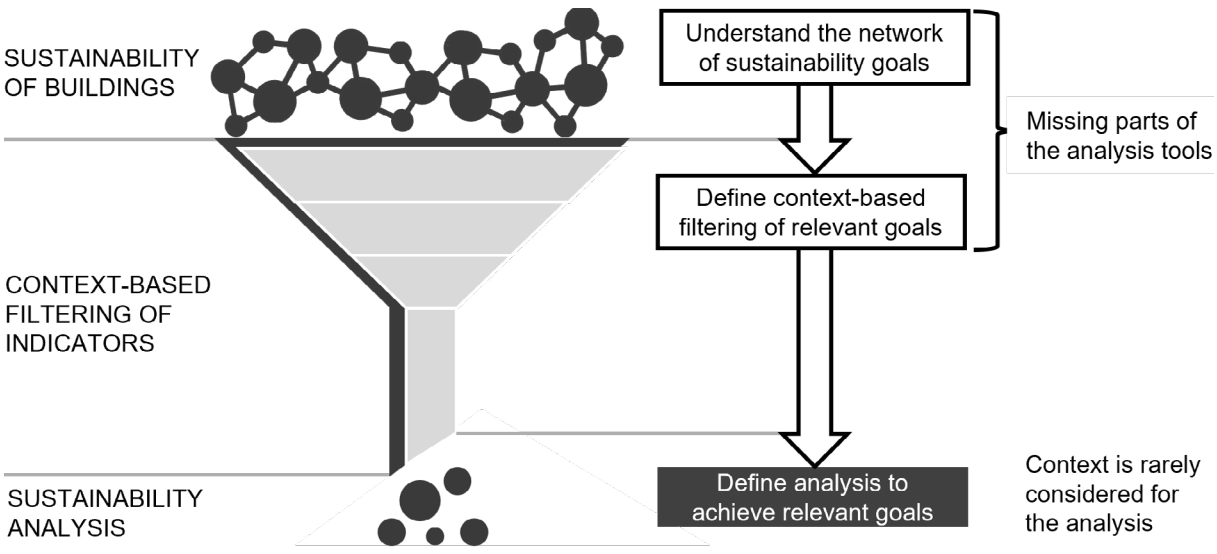

Figure 7 The gaps identified in the analysis and proposed next steps for the analysis methods. Source: Authors, 2025.

e.g., through a masterplan. Actually, existing masterplans already consider multiple sustainability indicators. An underlying system that suggests relevant and comparable indicators could have global application. In literature, especially in the research papers presented in Section 3, it is evident that the different analysis contexts require different indicators. These indicators are not always straightforward to identify, and it is necessary to focus on providing a pipeline between sustainability in the physical world and its indicators (Figure 7).

Instead of following a generally applicable sustainability measurement tool, the sustainability of a building should be defined in coordination with the master planning authority and should perform well on indicators relevant to the specific context. Based on the prioritized indicators, the project should be further evaluated to determine in which scope certain indicators are working well or not. Our context-based filtering considering conditions relevant for Singapore covers perspectives of relevance for different parties involved in the process. In our case study, which calculates and describes ten indicators of multiple dimensions of sustainability, the next step would be to weigh and compare the indicators in order to find the overall optimal solution. We don't focus on one weighting or a single solution; instead, we plan to assess the results after multiple parties have prioritized the indicators and once we've provided insight into different scenarios. A similar concept can be implemented for any sustainability analysis. Understanding the complexity of the pipelines that connect real-world sustainability performance with indicators could significantly contribute to achieving the desired context-based outcomes.

6 Conclusion

This research paper investigates how to analyse multiple dimensions of sustainability of buildings. Widely accepted dimensions of sustainability are environmental, economic and social; however, the indicators which are used for analysis are highly diverse. This research follows three methodological steps (reflected in Sections 2 and 3): first, it investigates existing terminology related to sustainable, green, and circular buildings, as well as the dimensions, categories, criteria, and indicators of building sustainability; second, it investigates and structures approaches to measuring multiple dimensions of sustainability; and finally, we perform a multi-criteria decision analysis for a case study in Singapore. The analysis of terminology indicates that the higher the hierarchical concept, the smaller the ambiguity, and vice versa. The review of multi-dimensional analyses shows that it is neither feasible nor necessary to consider all indicators for each sustainability analysis. The reviews lead to a case study multi-criteria decision analysis, resulting in an overview of unweighted indicators. The case study serves as a discussion and provides insights for future decision-makers, ranging from users and real estate companies to governmental agencies, which can assign individual and differing weighting systems and decide on subsequent actions.

A limitation of this study is that the relevant indicators were chosen by the authors. The existing scenarios are limited to hypothetical cases that do not necessarily reflect all possible (or potentially better) solutions. The simulations do not consider changes in parameters, such as past or future emission values. The terminology definition does not exhaustively review the literature to prove its wide applicability, especially beyond the construction industry. For the next steps, it is necessary to focus on the pipelines relating the indicators with the holistic system or set of systems that would be applicable more globally. It is planned to define the building sustainability knowledge domain and especially the filtering processes to connect top-down and bottom-up approaches, relating building sustainability and its indicators. Existing generic solutions (e.g., sustainability certifications) support only a very limited set of cases; however, by increasing their context sensitivity and variability, they could become more effective for global application. The interrelation of indicators also requires further research, as they could affect the overall quantification.

7 Acknowledgements

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Extended Reality of Architecture: Beyond Photo-Reality of Architectural Representation and Visualization

Proširena realnost arhitekture: izvan foto-realnosti arhitektonske reprezentacije i vizualizacije

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Abstract Digital information technologies are extending the realm of reality through various types of virtual, mixed, and augmented reality encompassed by the term "extended reality". This research redefines the concept of extended reality, interpreted within a broader conceptual framework that synthesizes representation and visualization of architecture, with phenomenology and post-phenomenology, cognitive theories of extended mind and philosophy of technology. Considering that photorealistic digital images currently dominate architectural visual representation, comparative analysis of the conceptual differences of photorealism and the proposed concept of extended reality reveals major distinctions regarding cognitive and phenomenological features, as well as the character of technological mediation.The theoretical conceptual framework of extended reality is based on the assumption that the technological mediation of visual spatial experience generates a dynamic space of interaction between multiple realities across many layers of experience. It provides a deeper comprehension of the role of architectural representation not merely as an instrument for visualization of ideas and descriptions of material objects. Architectural representation has generative, projective, and cognitive capacity that could augment and extend reality across multiple dimensions. The digital information technologies and generative models can be meaningfully integrated within the architectural design process by understanding their potential to change, develop, and extend the reality in which architecture is not only articulated and expressed but also concretized and experienced.

Keywords architectural representation; extended reality; photo-reality; technological mediation; visualisation.

Sažetak Digitalne informacione tehnologije proširuju područje stvarnosti kroz različite tipove virtuelne, miješane i dopunjene stvarnosti obuhvaćene pojmom "proširena realnost". Ovo istraživanje redefiniše koncept proširene realnosti koji je interpretiran unutar šireg konceptualnog okvira koji sintetizuje reprezentaciju i vizualizaciju arhitekture sa fenomenologijom i postfenomenologijom, kognitivnim teorijama proširenog uma i filozofijom tehnologije. S obzirom na to da fotorealistične digitalne slike trenutno dominiraju arhitektonskom vizuelnom reprezentacijom, komparativna analiza konceptualnih razlika fotorealizma i predloženog koncepta proširene realnosti otkriva glavne razlike u pogledu kognitivnih i fenomenoloških karakteristika, kao i karaktera tehnološke medijacije. Teorijski konceptualni okvir proširene realnosti zasniva se na pretpostavci da tehnološka medijacija vizuelnog prostornog iskustva generiše dinamičan prostor interakcije između višestrukih stvarnosti kroz mnoge slojeve iskustva. Koncept proširene realnosti omogućava dublje razumevanje uloge arhitektonske reprezentacije ne samo kao instrumenta vizualizacije ideja i opisa materijalnih objekata. Arhitektonska reprezentacija ima generativni, projektivni i kognitivni kapacitet koji može da dopuni i proširi stvarnost kroz više dimenzija. Digitalne informacione tehnologije i generativni modeli mogu se smisleno integrisati u proces arhitektonskog projektovanja razumijevanjem njihovog potencijala da mijenjaju, razvijaju i proširuju stvarnost u kojoj se arhitektura ne samo artikuliše i izražava, već i konkretizuje i doživljava.

Ključne riječi arhitektonska reprezentacija; proširena realnost; foto-realnost; tehnološka medijacija; vizualizacija.

1 Introduction

The new dimensions of space generated by digital information technology are extending the realm of reality through various types of virtual, mixed, and augmented reality, enveloped in the term "extended reality". The development of Artificial Intelligence (AI) generative models creates new synthetic reality environments, whose dimensions and effects on human world are still mostly unknown. Through the notion of photo-reality, the digital images are exposing some fundamental features of the modern forms of image creation. Photo-realism seems to close the gap between the representation and a presumed reality. This "gap" is the fundamental site of this research, grounded on philosophical stances of phenomenology, post-phenomenology and cognitive theories.

Architecture, with its technological, material, social and cultural dimensions, is questioning the reality of its foundations extended by the new realities of artificial imaginations and visualisations. Today, the photorealistic digital images dominate architectural visualization and presentation. The concept of photorealism holds deeper implications for understanding how visual experience mediated by technology can define and alter the nature of spatial reality. It is not only providing a foundation for spatial visualization and representation in architecture, but also playing a major role in shaping social space and visual culture. S. Sontag stated that photography would evolve beyond its own medium, becoming the fundamental way how something might be experienced, giving the viewer a way to participate in the photographed scene, altering the visual experience, and changing the perception of reality (Sontag, 1990). Manovich argues that photorealism is a constructed style, not just a representation of visible reality based on human perception (Manovich, 2017). According to Ackerman, representation is not just a reflection of some "reality" in the world, but is a "means of casting onto that world a concept — or subliminal sense — of what reality is." (Ackerman, 2002).

The following research is questioning the implications of architectural representation considered as objective and precise description of reality, produced by algorithmic systems of digital technology and recent development of AI generative models. The research is based on the assumption that technological mediation of visual spatial experience becomes not the basis of objective visual representation of some external given reality but opens a dynamic space of interaction between different realities that extends through multiple layers. The research is grounded in the philosophical work labeled as postphenomenology, which explores how technology mediates human experience of reality (Ihde, 1990). The study further incorporates cognitive theories of the extended mind (Clark & Chalmers, 1998), which argue that cognition extends into the external environment, including technology. These theoretical foundations are integrated with critical perspectives on the dinstinctive character of architectural design and its modes of representation. The hermeneutic and indeterminate character of the design process (Snodgrass & Coyne, 1997) are contrasted with the deterministic logic that underlies the development of computer-aided design (CAD) and building information modeling (BIM) technologies.

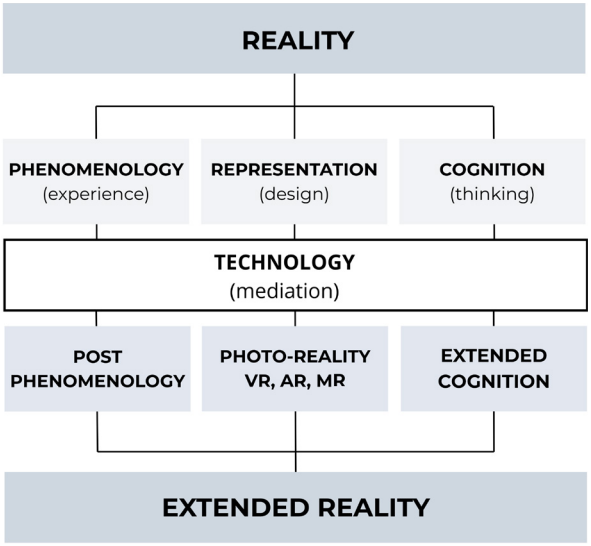

Figure 1 Basic theoretical framework of the research, defining key concepts and relations. Source: Author, 2025.

The research, through a review of the concept of representation considered in an expanded scope, explores the significance of technologically mediated visual experience, from graphic representation and photography to digitally enabled technologies. Focusing on the role of photorealism in architecture, a comparative analysis is used to identify conceptual differences between modern and postmodern representations of reality, which are further explored with regard to the development of digital technology and its further impact. The concept of extended reality as technologically mediated reality is developed and interpreted in the wider framework of contemporary thought by reframing relations of technology to concepts of representation, cognition, and phenomenological experience.

Through a complex synthesis of multiple aspects of the representation of the architectural design process with the theoretical fields of phenomenology and post-phenomenology, philosophy of technology, and cognitive theories of extended mind, the research aims to generate new theoretical insights. Research methodology is based on analytical, hermeneutic, and comparative analysis and synthesis of the key theoretical concepts, further integrated into a conceptual framework defined as extended reality. In comparison with existing research that focus primarily on digital technology, this framework is developed integrating the domains of phenomenology, cognition, and representation with technological mediation. The conceptual framework serves as an interpretative model, rather than a predictive or deterministic.

Further comparative analysis of the conceptual differences of photorealism and the framework of extended reality reveals important distinctions regarding cognitive and phenomenological features and the character of technological mediation, leading to a deeper understanding of the potentialities of representation mediated by technology that can define the nature of spatial reality.

The proposed conceptual framework of extended reality, provides a deeper insight and understanding of the fundamental role of architectural representation that can extend reality in its multiple imaginative, cognitive, experiential, material, and socio-cultural dimensions. The theoretical synthesis of the research reflects a critical stance, emphasizing conceptual and critical reflection.The theoretical nature of the study requires further research in domains such as design cognition or design practice.

2 Representation and Extended Reality

The notion of representation refers to the description or symbolization of an object, idea, or phenomenon in an adequate model and medium of human perception and cognition. The concept of representation encompasses many disciplines, such as philosophy, linguistics and cognitive sciences, media and communication, sociology and politics, art and visual culture, including the field of architecture. Its role in architecture is fundamental, but rarely has it been adequately explored in all its aspects. Representation in the field of architecture is mostly based on visual representation in the form of images with various characters and functions, such as conceptual drawing sketches and diagrams, orthographic two-dimensional spatial plans, or three-dimensional visualizations.

Representation is a complex topic, touching on the concepts of presence and absence, spatio-temporal reality, perception, and cognition. Its character could be mimetic and descriptive, symbolic and metaphorical, or speculative and projective. Representation is both a perceptual and cognitive activity. The concept of representation is closely related to visualization, language, and image. The mechanisms and principles that enable the potential perceptual presence of something absent include media, techniques, and socially shared codes that allow interpretation as recognizable meaning. The intertwining of the present and the absent in representation makes it complex, because the way in which the gap between the present and the absent can be bridged is neither simple nor obvious.

2.1 Modes of representation in relation to reality

The relationship between reality and representation is one of the key philosophical questions. Vesely emphasized the role of representation as a way to participate in the world that we consider as real: "What we normally refer to as reality, believing that it is something fixed and absolute, is always a result of our ability to experience, visualize, and articulate — in other words, to represent so as to participate in the world." (Vesely, 2004, p.3).

Different modes of representation could be categorised in relation to the common notion of reality. *Representation as a reflection* of the observable reality describes or depicts something that exists in reality as directly perceivable to the senses. This interpretation of representation often serves as the foundation of the traditional concept of representation regarded as representational realism. *Representation as disclosure* is making the invisible, intangible, or hidden reality visible, revealing something that cannot be directly perceived. This kind of representation requires transformation of information, translation, and mediation, often using abstraction or technological mediation. *Representation as concretization* gives perceptible form to abstract ideas, concepts, principles, or values. It often includes symbols, metaphors, or analogies based on shared cultural or conceptual codes. *Representation as projective anticipation* proposes, or suggests, the potential future that does not yet exist. It projects vision forward, into the reality of a possible future.

The creative and ethical complexities of representation are based on different modes of representation in relation to reality (Table 1.) and specific purposes: to document or depict, to reveal or interpret, to articulate or embody an intangible, and to propose, persuade, imagine, or anticipate. It's the context in which they're used and the intentions behind representations that determine whether they become implemented in cognitive and creative exploration or as a tool for perceptive or ideological manipulation.

2.2 Representation as extension of reality

The meaning of the concept of reality is not fixed, and it could refer to the knowledge about our environment produced by our senses, our mind, and our body, but it could also include mediation by social and cultural codes or technology. The role of representation is often questioned in relation to the concept of reality. Representation is in some cases evaluated in contrast to an external reality, as a substitute that lacks the complexity and richness of direct experience. Conversely, representation is understood as a process that constructs and constitutes reality. Webb states that "the processes of representation do not simply make connections, relationships and identities visible: they actually make those connections, relationships and identities." (Webb, 2009, p.17).

Table 1 Modes of representation in relation to the common notion of physical reality. Source: Author, 2025.

Reality	Modes of representation	Main characteristics
Observable/Visible	Reflection	Visual clarity, accuracy, likeness.
Hidden/Invisible	Disclosure	Translation, transformation, mediation.
Abstract/Symbolic	Concretization	Metaphor, analogy, code.
Potential/Possible	Projection/anticipation	Intentional, imaginative, speculative.

According to the cognitive theory of extended mind, cognition is not the inner representation of the world stored in the brain, but it is open, directed outwards, and actively interconnected with the world. "Cognition leaks out into body and world." (Clark & Chalmers, 1998). The extended cognition is situated and distributed, extending beyond the brain across the wider environment, tools and technology, language, media, cultural practices, and social structures. Active mental phenomena are coupled and integrated with the external world.

Our knowledge about the world, with accordance to the theory of extended mind, could be extended by its representations. We could overcome the limits of our perceptive and cognitive capacities by including many levels of representation as mediating processes that could include technology as a mediator. If representation is considered as perceptually extended cognition or distributed cognitive structural support, it does not replace reality, but it instead constitutes reality as its perceptual and cognitive extension. Representational systems act as transformative media through which cognition becomes distributed and concretized by continuous feedback loops.

The notion of representation as augmentation and extension of reality should be further explored in relation to the architectural design process, accepting the mediating character of our perception and cognition integrated with technological mediation.

3 Architectural Representation and Visual Experience of Architecture

Thinking, seeing, and drawing, as the basis of the architectural profession, are framed by representation that at the same time guides perception and cognition and opens conceptual possibilities. Representation is shaped and communicated mostly by visual language, graphic medium, and shared knowledge as a product of cognitive, cultural, and social processes. Architectural representation has multiple roles in different design phases: registering and guiding the design process, testing and iterating different aspects and options of ideas, communicating and presenting ideas and solutions, negotiating and persuading, directing and instructing the process of material production, and recording and documenting existing architectural heritage. According to the characteristics and phases of the design process, its representational character can be specified as ideational, notational, or experiential (Bafna, 2008; Fuente Suarez, 2016). It includes different levels of abstraction and perceptual and cognitive representational methods and techniques.

3.1 Indeterminacy of architectural representation

Tracing the origin of architecture and its representation, we could explore its history from the first drawing plans, Rennesaince perspective drawings, to photographic and digital images: in all cases that could be explored, architecture drifts somewhere between its graphic representation in the form of drawing images and external "reality" in the form of material building. Gomez remarked that "the distance between architectural drawing and building has always been opaque and ambiguous." (Pérez-Gómez, 2012). Exploring the gap from idea to built object in architecture, mediated through architectural drawings, Evans (1997) questioned the common notion of a direct, representational nature of such mediation. He discussed the priority of architectural drawing to the reality of object, where the medium puts the logic of the classical notion of realism to "stood on its head", as the drawing images here are not reflections of existing reality but productive of a reality (Evans, 1997, p.165). Architectural representation encompasses seemingly opposing domains: the invisible and the visible, notational and imaginative, undetermined and determined, ambiguous and precise, instrumental and symbolic. Although the architectural plan is considered to be completely determined in relation to the architectural object, Evans emphasized two opposing characters of objects and drawings: "in the one corner, involvement, substantiality, tangibility, presence, immediacy, direct action; in the other, disengagement, obliqueness, abstraction, mediation and action at a distance." (Evans, 1997, p.160).

The realities of physical material construction and human vision and cognition appear to be distinct, creating a challenge for architecture in bridging these two realms. Architectural representation is separated into two seemingly divergent domains: the images that simulate the visual experience of architecture and the abstract design drawing plans that enable precise spatial planning, defining of measurements, and directing the material process of construction. Architectural plan, considered as an abstract representation that determines architectural object, is treated as a neutral, objective means of description. The phenomenological dimension of architecture is correlated with its perceptual experience. Merleau-Ponty's phenomenological approach argued against the objectivity of the world representation. According to Merleay-Ponty, "The perceptual 'something' is always in the middle of something else, it always forms part of a 'field.'" (Merleau-Ponty, 2005, p.13). He pointed to the ambiguity of visual experience, with the visual field as the "strange zone," and emphasized the contextual dimension of perception "perceived, by its nature, admits of the ambiguous, the shifting, and is shaped by its context" (Merleau-Ponty, 2005, p.13). From a phenomenological standpoint, the indeterminacy becomes a positive phenomenon.

Opposing the supposition that the design process could be completely described, codified, and explained by a model derived from the philosophical logical positivist concept of exact and determinate language, Snodgrass and Coyne stated that design is a hermeneutic process, as a "never-ending play of interpretive readings" (Snodgrass & Coyne, 1997). Logic is not suitable to comprehend the "irrational, contradictory and confused nature of much of the designer's activities" (Snodgrass & Coyne, 1997, p. 88).

Architectural drawing images are neither just reflexive representations of thought nor mimetic representations of a material object, but mediators from the abstract to

the concrete, from the indeterminate to the determinate. The output of architectural representation is not predetermined but open to potentialities that transcend initial abstraction and indetermination towards the existence of an architectural object that is situated and context-dependent.

3.2 Architectural visualization and visual experience

The relationship between architecture and its representation is ambivalent. It is often considered as the primacy of a determined plan over an indeterminate idea, or as the primacy of material building as a more authentic experience than its graphic representation. Pallasmaa (2005) expressed his critique of the prevailing visual dimension of architecture. He sees "the dominance of the eye" and privilege of vision in Western thinking as suppression of other senses, leading to "detachment, isolation, and exteriority," claiming that "vision separates us from the world whereas the other senses unite us with it" (Pallasmaa, 2005, p.19-25). Architecture's reliance on visuality is often considered an insufficient, partial, and impoverished form of perceptual experience. The other senses support immersion in the spatial and temporal here and now, but vision separates us from it, extending our experience in front of our current position and projecting the mind ahead. The projective character of architectural representation and visualization is directed toward a future that is phenomenologically absent but projectively present. The reliance of architectural representation on visuality is not only related to sensory perception of the optical sight. Architectural representation drawings are not just reflexive visual descriptions of the building. Bafna pointed out that it is not just the visual experience of the building that is the aim of imaginative representations, but to invoke a "particular mode of attention." (Bafna, 2008) Some qualities, such as the point of view, proximity, the amount of information, the structure of information, and the contextual conditions of attention, as representational aspects of architecture, go beyond sensory visual perception, expanding the cognitive spatial experience.

In the classic view, representation is considered as resulting from the internal subject-object relationship, as understanding and interpretation of the visible and known world of external objective reality. The notion of visualization is sometimes established in opposition to this kind of representation, having more external dimension and supporting communication and interaction. Flusser explores the nature of images which he refers to as "technical images", characterizing them as "computation of concepts" rather than objective representation based on observation of objects (Flusser, 2011, p.10). Here he classifies photography and film media, where we could further include digital images. For Flusser, such images are not passive depictions; "Images are intended to serve as models for actions." (Flusser, 2011, p.11) He is not considering visualization as passive representation of something outside the image that could be described and explained, but as "projection in intentional direction" (Flusser, 2011). Flusser claims,"It is the concrete experience, the adventure, the information that the visualization communicates that is interesting. The explanation is abstract; it is the visualization that is concrete." (Flusser, 2011, p. 36).

Visualizations that simulate human visual experience have a significant role in the design process, serving as a bridge between more determinate, measurable, abstract plans and indeterminate, concrete living experience. Visualization is used in architectural design simultaneously as a means of presenting proposals, simulating the future, and assisting in decision-making. Aiming to draw attention and get acceptance, architectural visualisations are frequently focused on external communication and dialogue with clients and the general public. For Latour it is not perception that is fundamental for visualization and cognition: it is mobility, but also immutability, presentability, readability, and relational quality (Latour, 1986). Visualization involves social dynamics, a network of participants, and established continuity of meaning and understanding. The role of visualization, presentation, and persuasion in architectural practice is mostly supported by "realistic" images that manipulate vision, aiming to suggest completeness, concreteness and objective representation of reality. Contemporary digital technology supports this "realism," not just as static but as dynamic images, expanding visual experience into the virtual technological domains.

4 From Photo-Reality to Hyperreality of Architecture

4.1 Technological mediation and representation

Don Ihde (1990) confronts the general notion of technology as neutral applied science. He explores the concrete and experiential notion of technology as "artifacts of material culture" (Ihde, 1990), focusing on its non-neutrality and mediating role in human experience and how it affects the way of perceiving, understanding, and acting in the world. He defined his work, labeled as postphenomenology, as a "phenomenology of human-technology relation" and "hermeneutics of technology-cultural embeddedness" (Ihde, 1990). Focusing on technology as a mediator, he extends phenomenological interest in the perceptual embodiment of human existence. Ihde makes a difference between "micro perception" as subjective sensory perception and "macro perception" as cultural and hermeneutic. Microperceptions are multistable, correlating to the range of cultural contexts (Ihde, 1990).

Ihde defines key types of human-technology-world relations: *embodiment relation*, where technology becomes part of the extended body; *hermeneutic relation*, where technology interprets the world by technological mediation (e.g., thermometer, map, drawing, language); and *alterity relation*, when technology appears as a quasi-other, semi-autonomous realm or agent (Ihde, 1990). A specific case is a *background relation* when technology shapes the context, becoming integrated as invisible, transparent infrastructure. (Ihde, 1990). Wheeler influenced by Heidegger and Chalmers' extended mind

theory, argued that for something to be part of an extended cognitive system, it must be transparent in use, as part of the seamless flow of thought or action (Wheeler, 2019). Transparency, as fluent functional integration, makes the system invisible, in the background of experience.

Simondon, in his foundational work on the philosophy of technology, "On the Mode of Existence of Technical Objects" (Simondon, 2017), correlates technical objects and human culture, exploring the human reality within technical reality, claiming that "culture must incorporate technical beings in the form of knowledge and in the form of a sense of values" (Simondon, 2017, p.15). He considered technical object as a process that evolves toward a more coherent internal structure, which he called "concretization". Technical objects are never fully concrete but contain potential for further development, integration, and adaptation (Simondon, 2017). In Simondon's terms, architecture is a technical object whose abstract design gains reality through concretization, as a dialogue between the design plan and materials, site, construction, and cultural and social context.

Technology, as a mediator of perceptual experience, has its significance in architectural representation and concretization of the visual experience of architecture. The evolution of technologically mediated visual experience unfolds from recording optical information traces to generating and synthesizing visible information patterns. Starting from the geometric construction of perspectival drawings and the automatic mechanism of photography to the generated three-dimensional (3D) computer graphic (CG) renders and synthesized images of the latent statistical space of artificial intelligence (AI) generative models and neural networks, we can specify a cascade of mediation, where each new level imitates the visual experience of the previous but with fundamentally different principles of generation, human participation, and autonomy of the system.

4.2 Photo-reality of architecture from modernism to postmodernism

Although the modern age is often characterized as a period marked by the transition from the age of literacy to the age of visuality, Mitchell argues that the so-called "pictorial turn" is not unique to the modern age and new media technology (Mitchell, 2002). The development of linear perspective, technical inventions like the printing press, photographic camera, television, computer technology, and digital graphics mark significant key points in the history of how humans represent the world as well as how they see and comprehend its reality.

Heidegger (1997) claimed that what distinguishes the essence of the modern age from previous periods is the notion that the world becomes a picture. The picture is related to the objective representation of the world relying on the modern scientific worldview, with its "objectiveness of representing," defining truth "as the certainty of representing." (Heidegger, 1997) Both real and representational space are abstracted scientifically and geometrically. The construction of the world and the images are becoming the same. Modernism problematizes traditional forms of representations because they constrain understanding of the world. Relying on visuality, modernism rationalizes seeing through new technologies of image production that bring new abstract models of visualization. Crary (1992) highlights the discontinuity of modernist vision that developed since the turn of the 19th century in comparison to preceding historical periods, focusing on the role of the observer himself, who is not just a passive spectator. It is not only about changing the conventions of representation but also about the reorganization of knowledge and social practices that change productive and cognitive human capacities (Crary, 1992).

Exploring the transformations brought by modernity, Giddens (1991) stated that modernity, besides extreme dynamism and separation of space and time, disembedded social systems from their local context. Social interactions are abstracted, mediated through systems that transcend local experiences, displacing social life from its unique presence. By contrasting earlier representational techniques with a photographic image, modernism emphasizes the power of the photographic image in creating a new structure of society. According to Benjamin (1980), photography becomes a medium that separates an object from its traditional context, enabling liberation from the old rigid representational frameworks of reality and transcending established interpretations of the world. The role of photography as a realistic, objective, and accurate mechanical reproduction of reality gives it the power of persuasion, drawing the viewer into the given space of the image as a real space. "Realities understood in the form of images were now being given to realities understood to be images." (Sontag, 1990, p.119)

Scruton argues that photography cannot be a mode of classical representation because it, like a mirror, establishes a direct identity of the object of the image and its appearance at some particular moment (Scruton, 1981). Barthes analyzes photography as "analog perfection," giving photography a special status in relation to other imaging techniques. Photography, treated as a "mechanical analogy of reality," a continuous "message without code," without cultural symbols that would be associated with its reading, distinguishes it from previous forms of pictorial and symbolic representations (Barthes, 1977). Photographic images based on mechanical principles and a symmetrical relationship between the mind and the world are connecting visual sensory experience with a rational model of the world (Mitchell, 1984). The image becomes a transparent medium, as a window to the world. The interpretation of the role of photography as a direct visual copy of the real world on the one hand enhances its suggestive power, but on the other hand leaves its creative, cognitive, and cultural dimensions on the margin. Barthes noticed a paradox in photographic images as the "co-existence of two messages, the one without a code (the photographic analogue), the other with a code (the 'art,' or the treatment, or the 'writing,' or the rhetoric, of the photograph)." (Barthes, 1977, pp.17-19)

As a technological product that both mechanized and democratized the process of production of images, photography, further propagated by mass media, reveals the social significance of image creation. Photography discloses the nature of space, perception, and representation as a dialectical relationship between the world and the image in a cultural context (Mitchell, 1984).

Transcending the documentary role of technologically based images, photography becomes a collective cultural phenomenon that marks the 20th century and has a special role in modern architecture.

In the modern era, architecture is inextricably linked to photography, which plays the most important role in spreading the cultural influence of modernist ideas, supporting the valorization of modern architecture through print and electronic media. In the context of architectural representation and visualization, which occurs after the materialization of the design process, the role of photography in modern architecture becomes ubiquitous. As a technique of visual registration and description of material objects, photography has become a transparent medium through which the reality of a built object is represented and reflected. It transforms the material architectural object into its seemingly objective image, bridging the gap between the architectural drawing and the material object.

Photography in modern architecture breaks down the hierarchical privileged position of the built object and replaces it with a complex interaction of inter-media relations, finding its expression in the translation between the media of drawing, material objects, and photographs (Tanaka, 2000). To a large extent, photography influences the interpretation of architecture and its cultural significance. The strong connection between architecture and photography is based on the understanding of photography as a reliable, objective copy of the registered world, enabling direct transmission, precise description, and stable representation. Photography is treated as correlated to a direct sensory insight into reality that was mechanistically rationalized, thereby confirming the modernist rational view of nature that synthesized science and art.

According to Lyotard, modernity's discovery of the "lack of reality," referring to classical representationalism, is resolved by inventing other realities as the abstract and objective, which has a high price (Lyotard, 1984). Postmodernism problematizes the possibility of direct objective representation of reality. Lyotard stated the postmodern declaration: "Let us wage a war on totality; let us be witnesses to the unpresentable; let us activate the differences..." (Lyotard, 1984, p.82) Through juxtapositions, collages, and montages, postmodern representation attempts to represent reality as a myriad of images, not to supply reality but to invent allusions to the conceivable, which cannot be presented (Lyotard, 1984). Postmodernism points to a gap between the human experience of reality mediated by perception and the structures of language and symbols. Cultural symbols of images from the past are inserted into other images, including photography, as cultural context that determines their meaning. Against the totalitarism of objective representation that equates the realism of architecture with the objective realism of photography, postmodernism deconstructs the image of an object by breaking visual form and deforming perspective. Using digital technology to deform, break, and fold the surface image of an object, its privileged, unique objective position and transparent representation are problematized.

Considering mimetic images as deceptive phenomena that hide distorted and arbitrary mechanisms of representation are not only postmodern discourse, tracing back to Plato. "Realistic" images hide their artificiality, according to Mitchell (Mitchell, 1984). Seeing is not just a mechanical process but a product of experience and inherited cultural patterns that include the experience of making images. The photographic image does not just reflect the material world as an objective registration of a scene or event; it articulates and interprets reality, extending its visual experience. Photography could be considered the predecessor of modern digital information models that, in contemporary architecture, become fundamental representational tools, questioning the boundaries of material and immaterial space.

4.3 Synthetic hyperreality and digital determinism of architecture

Digital technology has facilitated the process of image production and automated it, also enabling great possibilities for image manipulation. The tendency towards automatism and a certain autonomy of systems and models of representation, which is characteristic of photography, takes on an even more generative character in digital information technology. 3D visualization is a term that envelops the digital techniques of image generation from digital 3D models, under the terms "3D rendering" or "3D graphics."

Architecture becomes immersed in the digital space where the photorealistic digital images dominate architectural visualization and presentation. It is considered as a possibility for increasing real experience of architecture, as a precise and more realistic representation of architectural projects. Just as photography relied on older painting techniques for its visual expression, so too do the digital images of virtual 3D models rely on the visual expression of photography. Digital 3D imaging takes on an analogy with some principles of photography, defining interface tools that regulate image parameters as a camera shot, including characteristics of photographic conditions such as camera position, focal length, and camera angle, along with algorithmic simulation of light effects and textures.

An image rendered from 3D digital models as a simulation, not directly correlated to the objective perceptual world, could be correlated to Baudrillard's definition of simulation as "the generation by models of a real without origin or reality: a hyperreal" (Baudrillard, 1994, p.1). Digital simulation becomes photorealistic, imitating the visual experience of photography. To increase visibility and readability of images, digital technology produces an overwhelming amount of detail and exaggerated composition, intensifying specific properties of perception. Photo-reality proceeds into the hyper-reality of high-resolution images and their virtual dynamic extensions. Treating architectural representation as a mirror of reality, "realistic" precision and high resolution become imperative for architectural visualization. Manovich (1994) pointed to the overemphasized reality of "perfectly real — all too real" images as a problematic aspect. He argues that digital images, free

Figure 2 The photo-real architectural visualization produced by AI technology, simulating photography and 3D renderings. Source: Author, design by text-to-image AI image generator PicLumen, 2025.

from limitations of human or photographic vision, are hyperreal, as different, inhuman visions of synthetic reality (Manovich, 1994).

Digital tools could hyperdetermine reality, leaving no room for the indeterminate aspects of design. Indeterminate phases and aspects of architectural design (conceptual or speculative) are excluded by digital tools like BIM technology. Treating architectural representation as a neutral, transparent, instrumentalized set of instructions that can be directly actualized in material space, hyper-determination of the abstract plan may reduce architectural design to a pre-programmed output, restricting its evolving, iterating, recursive and creative character. The further development in this direction leads to fully abstract design, where there is no need for any human visualization, because 3D printing technology integrated with 3D digital models doesn't rely on human visual experience.

Flusser argues that technical images (photographic images, 3D images, and AI images that simulate both photography and 3D visualizations) are not passive, neutral representations but actively become the program of reality, shaped by their apparatus (Flusser, 2011). The photo-reality of architectural visualization, using digital tools to reinforce predetermined models of reality, is taking modernist abstraction to the extreme. The "realism" of such abstract design becomes based on false visual concretization as "photo-reality" of 3D renderings. Lyotard, in his critique of "fantasies of realism," stated that the only definition of realism is "that it intends to avoid the question of reality" by preserving consciousness from doubt, stabilizing the referent, and endowing it with recognizable meaning. (Lyotard, 1984. p.74-75). "Realistic" images based on a common communication code too easily achieves approval and produces mass conformism (Lyotard, 1984).

5 Extended Reality of Architectural Representation

5.1 Architectural representation as a mode of cultural and social production of reality

According to Berger (1991), the construction of reality as a product of collective consciousness is based on interactive dynamic relations. For him, the consciousness is "capable of moving through different spheres of reality," so the world of consciousness consists of multiple realities. He gave a privileged position to the "reality of everyday life" (Berger, 1991). The reality of bodily "here" and present "now" are directly accessible to reality manipulation, but there are also different degrees of spatial and temporal accessibility to reality. For Berger, "The reality of everyday life further presents itself to me as an intersubjective world, a world that I share with others." (Berger, 1991, p.37). The shared reality of everyday life is often taken for granted, but it should be questioned considering its foundations and relations to "other" realities. The reality of everyday life emerges from a socio-historical context that also could include artificial systems, which possess a certain degree of autonomy and are not fully under the control of human perception and cognition.

Robbins analyzes the role of "the phenomenal representation of a conceptual practice" as architectural language of representation in the form of drawing, not just between imagination and realization but in relation with society and culture (Robbins, 1994). "Drawing is at once an idea and an act, an autonomous concept and a mode of social production." (Robbins, 1994, p.7). Ingold emphasized the social dimension of representation: "Whereas sensations are private and individual,

representations are public and social." (Ingold, 2002, p.158).

Architectural representations are not just fundamental mediators of the design process, but as a "shared medium of architectural discourse," they define the cultural and social dimension of the architectural profession (Robbins, 1994). Representation of different aspects of architectural practice, from conception and development to guiding the production of material artifacts, also includes the structure of relations that integrates cultural, social, and technical production. Representation constructs the social role of the architectural profession, not just separating the subjective mental idea and material building but making the material object culturally embedded in the representational field.

Architecture is the most visible example of the collective character of reality, which can never be just the sum of fragmented individual perceptions and experiences. Snodgrass and Coyne concluded that "the design process belongs to the domain of social actions and interactions, is firmly embedded in a human situation, and is a focal nexus within a network of intersubjective relationships" (Snodgrass & Coyne, 1997, p.92) Architecture is a shared experience, as a collective representation of technical and cultural extensions of reality. The material object becomes a representation of functions outside itself. The architectural function arises from the coordinated actions of the users in the interactive space of social dynamics, rather than just from the material object. The architectural object transposed into visual information is placed in a wider context of other images that form a network of representational space. This space allows for a more intense experience than immediate local perception, representing an extension of visual experience.

Representational aspects of architecture are expanding the spatial experience into the cognitive domain but also into the social and cultural dimensions. Through technological mediation the visual experience becomes mobile and exchangeable. The system of representation is also a system of concepts, the meanings of which depend on the relationship between the conceptual system and the object within the cultural conceptual maps. Architectural representation becomes an extended realm of expression, experience, intention, and cultural and social programs.

5.2 Extending architectural reality beyond the conventional representation

If we go deeper in history, before any architectural plans were drawn or buildings were built, can we find any architectural trace? The origin of architecture may lie not in some primitive hut, but in the cave space. (Jacob, 2018). Architectural space emerges from the representational field of inscribed drawings, giving it meaning, defining space as the medium of representation of some value and function, a space with memory, meaning, and potentiality. "Inside the cave, we occupy the drawing just as the drawing occupies and manufactures space." (Jacob, 2018) Establishing space constructed by the conceptual force of visual images, representational space has been created, augmenting the reality of the cave and extending its real spatial experience.

Focusing on examples when architectural projects as drawings were never materialized into buildings, Bafna (2008) explored the significance of the iconic example of the Brick Country House project by Mies van der Rohe, based on a few incomplete, ambiguous, and incoherent drawings. He emphasized the experiential qualities of the building invoked through the drawing. Perceptual aspects that are available only through drawings are still generating aesthetic experience that is architectural (Bafna, 2008). So architectural representation should not be considered just as a finished and clear depiction, description, or visualization of the final product of architecture — the building—but as the means of transfiguring spatial relations into an "imaginatively engaging meaningful entity" (Bafna, 2008).

Architecture in the modern information age is placed somewhere between the concept of the virtual, understood as a dematerialized simulation of reality, and the physical material reality. Is a materialized architectural object more than the sum of its representations, or is architecture more than the materialization of an architectural object? An architectural object is only one of the possibilities that can emerge materialized from its representation. Some can pass into other representations. According to Ingold, "Building, then, is a process that is continually going on, for as long as people dwell in an environment. It does not begin here, with a preformed plan, and end there, with a finished artifact. The 'final form' is but a fleeting moment in the life of any feature, when it is matched to a human purpose, likewise cut out from the flow of intentional activity." (Ingold, 2002, p.188)

Extended reality concept considered in this research is not just some objective reality that could be depicted by "photo-realistic" images, nor alternate version of reality like virtual reality, or reality enhanced by digital displays, but becomes a mode through which reality is unfolded and reshaped through perceptual experience, cognition, and representation.

The extended reality conceptual framework applied in architecture transcends physical buildings to include unbuilt visions, virtual spaces, and socio-cultural

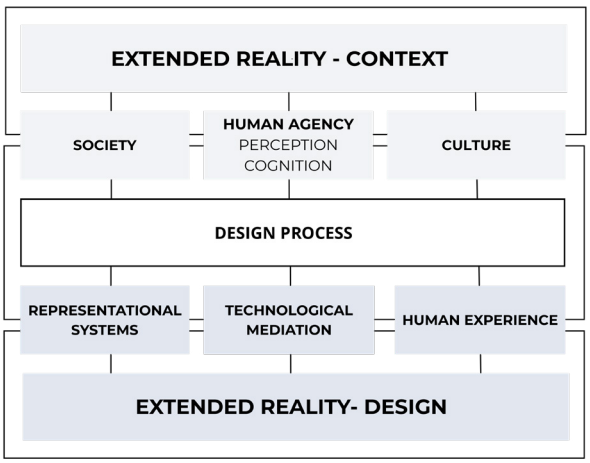

Figure 3 Conceptual model of extended reality mapping how design process includes interrelations and interactions with and through different conceptual domains. Source: Author, 2025.

Table 2 Conceptual differences of photo-realism and proposed framework of extended reality. Source: Author, 2025.

	Photo-Realism	Extended Reality
Representation	Reality as objective and determinate, presented by final image.	Dynamic processes of reality construction as a field of possibilities and variations.
Cognition	Flattened complexity, closed gap between reality and representation.	Exploration of complexity, distributed extended cognition.
Phenomenology	Reality as appearance.	Reality as a multi-layered, mediated process of experience.
Technology	Transparent, neutral, instrumental.	Technology as a mediator actively modify perception, cognition and experience.

narratives. Architecture as built, unbuilt, virtual, and cognitive domains exist within human dialogue with technology, social systems, and speculative futures. The conceptual model of extended reality, is showing that we could consider reality as continuously extended and distributed by the social, cultural and technological mediation, becoming reality that is not just experienced in its multiple contextual dimensions, but also designed.

5.2.1 Exploring the latent design space with AI technology

The world mediated by technology expands and extends in multiple dimensions, material and immaterial, sensorial and mental. The term "extended reality (XR)," in the narrow sense was introduced adressing digital technologies that simulate sensory experiences in real or imagined environments, including notions of augmented reality (AR), mixed reality (MR), and virtual reality (VR). By replacing or augmenting the physical world with mediated sensory inputs, XR is enhancing spatial perception and cognition, turning information into experiences (Marr, 2021). Digital technology of virtual and augmented reality opens up insights into new spaces and experiences that include the reality of artificial systems integrated with human experience.

Artificial intelligence (AI) tools are creating image-based reality, where the human role, skill, and effort are almost removed in the process. AI models could further include synthetic agents that autonomously perform tasks, learn, and make decisions. Synthetic reality becomes a product of generative processes that are the property of the artificial imaging system itself. Automation of the process, similar to the role of photography, seemingly further democratizes the creative work. Extracted patterns from latent design space could be explored and experienced, translated, and mixed through different media — including text-to-image, text-to-animation, text-to-3D, or image-to-video. Generative AI technology trains a neural network to extract patterns from large datasets of existing media that can be set within the space of cultural history, so Manovich suggests that AI technology is redefining postmodern historicity, giving it a new approach (Manovich & Arielli, 2024). It can simulate photography, 3D renderings, or any artistic and graphic style, but it can also be used to explore "new methods for reading cultural databases and creating new narratives" (Manovich & Arielli, 2024).

AI technologies are becoming ubiquitous and often mostly invisible as the transparent background of many processes. (Wheeler, 2019). Background relations, defined by Ihde as an invisible technological field, have a subtle impact on the experience of reality, conditioning its context (Ihde, 1990). Many forms of technologies are not referred to as AI as soon as they seamlessly become integrated with wider processes (Manovich & Arielli, 2024). Wheeler claimed that transparency of "smart" partly autonomous technology labeled as AI is becoming a part of our cognitive processes, enabling us to "offload the contextual reasoning too onto technology" (Wheeler, 2019, p.861), thus influencing our thoughts, judgment, and actions. AI systems extract the statistical average of training data, so some rare details or singular examples are hardly noticeable and learned, producing generic outputs (Manovich & Arielli, 2024). Wheeler warns that "deep learning networks are learning to categorize the world in ways that do not coincide with the way that their human users will categorize the world" (Wheeler, 2019, p.863). We should be more aware of the consequences of depending on autonomous technology to help us think and make decisions.

The true potential of AI technology in intellectual and creative work lies not in the automation and simplification of the complex process, providing definitive answers and finite solutions, but to recognize the complexity unfolding latent possibilities and connections. Instead of producing "deep fakes" of "photo-reality," AI technology could become an experimental creative partner, operating beyond the conventional forms of representation and visualization. It could produce a matrix of variations, at different levels of abstractions, create synthesis of conflicting ideas, or explore decision branches revealing critical points.The future of design needs technology that recognize, navigate, manipulate and modulate the complex, multi-layered texture of mediated, extended reality.

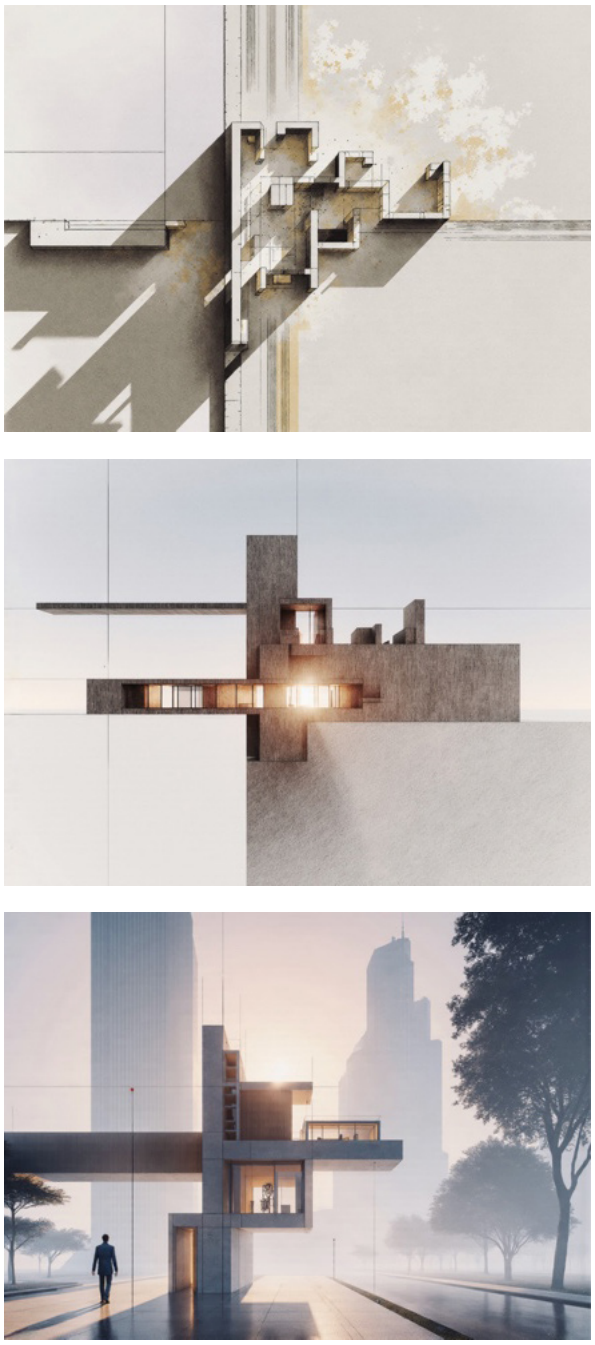

Figure 4 Artificial intelligence (AI) technology as an experimental conceptual tool, exploring variability and mixture of methods and styles: AI visualization of multidimensional variable interpretations based on the referent of the Brick Country House project drawing by Mies van der Rohe. Source: Author, by AI image generators PicLumen and Krea, 2025.

6 Conclusion

In the digital information age, architectural design practice should go beyond classical notions of its representation as an accurate description or depiction of the idea that determines the reality of the built object. Photo-realism enhanced by digital technology becomes the representational shortcut that hides technological mediation, flattening the depth of complexity and masking the ambiguity of the design process. The concept of extended reality, framed in this research, reveals the complexity of dynamic processes of design, enveloping representation, cognition, human experience, and technological mediation.

Incorporating insights from post-phenomenology and extended mind theory, the conceptual framework of extended reality evaluates design processes as distributed across human and nonhuman domains, where technology as mediator becomes integral part. Architectural representation in the form of drawing mediates perception of reality and unfolds conceptual spatial and temporal experience, extending cognitive capabilities. It should not be seen just as descriptive and instrumental, but as a platform for mutual dialogue and negotiation between representational, technological, material, cultural, and social dimensions of architecture. The act of design becomes an extension of reality. The concept of extended reality offers a notion of reality that is constantly constructed, deconstructed, and reconstructed, expanding its meaning and its scope.

Architectural representation encompasses the domain of the abstract and the domain of the perceptible, visualizing the multiplied aspects of reality, transcending the limiting frameworks that divide the world into separate domains: human and artificial, subjective and objective. Extended concept of reality incorporates the reality of artificial systems in a dynamic interactive relationship — from the optical geometry and the photographic camera to digital algorithmic systems and generative models of artificial intelligence. The architectural project is partly indeterminate, open to different scenarios of the future. The architect's role in the technologically driven future is not to determine a totalizing plan but to mediate between abstract and concrete, to find a balance between determinacy and ambiguity. The connection between the sketch, the conceptual project, and the object is not direct and purely instrumental; it opens up and expands the reality of architecture, as it unfolds and emerges from the latent space of possibilities.

This research contributes to theoretical discussions related to the role of technology in the field of design, focusing not only on new technological tools and their capabilities, but also on how they mediate and change the conditions of thought and representation that underline design itself. The proposed conceptual framework of extended reality enables an understanding of the role of architectural representation that goes beyond the exact visualization of ideas or precise descriptions of material objects, including cognitive and generative potentials that could extend reality in its multiple layers. By changing and expanding the reality in which architecture is experienced and concretized, new possibilities of generative digital models can be meaningfully integrated as a result of this understanding.

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The Anatomy of Hostile Architecture: A Form-Function-Intent Typology for Urban Furniture and Urban Interior Space

Anatomija neprijateljske arhitekture: tipologija forme-funkcije-namjere za urbani mobilijar i urbani unutrašnji prostor

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Abstract Hostile Architecture represents a paradoxical design strategy that uses urban furniture and urban interior spaces as tools for social control, challenging the humanistic and inclusive goals of design and urban planning. While widely discussed, literature on Hostile Architecture at this micro-scale remains largely descriptive, lacking a systematic typology that deconstructs how these objects operate. This study addresses this gap by proposing an analytical framework to categorize Hostile Architecture practices. Adopting a Systematic Literature Review (SLR) model, the study analyzed a purposive sample of documented cases using qualitative content analysis. The analysis was structured around a novel a priori framework based on three axes: Form, Function, and Intent. The findings revealed a typology consisting of four primary form categories (Dividers, Non-Ergonomic Surfaces, Deterrent Textures, Spatial Barriers) employed to obstruct four specific functions (sleeping, long-term sitting, skateboarding, gathering). These interventions were found to serve three intersecting social intents: the exclusion of specific groups (homelessness/youth), the assertion of spatial control, and the commercialization of public space. The study's primary contribution is the development of this "form-function-intent" matrix, an analytical typology that moves beyond descriptive case studies. This model provides a new systematic tool for designers, planners, and researchers to critically deconstruct and challenge the ethical implications of exclusionary design.

Keywords hostile architecture; urban furniture; urban interior space.

Sažetak Neprijateljska arhitektura predstavlja paradoksalnu strategiju dizajna koja koristi urbani mobilijar i urbane unutrašnje prostore kao alate za društvenu kontrolu, izazivajući humanističke i inkluzivne ciljeve dizajna i urbanog planiranja. Iako se o ovoj temi često raspravlja, literatura o neprijateljskoj arhitekturi na ovoj mikro-razini ostaje uglavnom deskriptivna, te joj nedostaje sistematizirana tipologija koja dekonstruira način na koji ti objekti funkcioniraju. Ovaj rad adresira prazninu u dosadašnjim istraživanjima i predlaže analitički okvir za kategorizaciju slučajeva neprijateljske arhitekture. Usvajanjem modela sistematskog pregleda literature, u ovom radu je analiziran odabrani uzorak dokumentiranih slučajeva koristeći kvalitativnu analizu sadržaja. Analiza je strukturirana na troosovinskom okviru: forma, funkcija i namjera. Rezultati istraživanja ukazuju na tipologiju koja se sastoji od četiri primarne kategorije forme (razdjelnici, neergonomske površine, odvraćajuće teksture, prostorne barijere) koje se koriste za ometanje četiri specifične funkcije (spavanje, dugotrajno sjedenje, vožnja skejtborda, okupljanje). Utvrđeno je da su ove prostorne intervencije namijenjene trima društveno povezanim svrhama: isključivanju specifičnih grupa (beskućnici/mladi), uspostavljanju prostorne kontrole i komercijalizaciji javnog prostora. Primarni doprinos ovo rada je razvoj matrice "forma-funkcija-namjera", analitičke tipologije koja nadilazi deskriptivne studije slučaja. Ovaj model pruža novi sistematski alat za dizajnere, planere i istraživače kako bi kritički dekonstruirali i preispitali etičke implikacije dizajna koji proizvodi isključivanje.

Ključne riječi neprijateljska arhitektura; urbani mobilijar; urbani unutrašnji prostor.

1 Introduction

Design disciplines (including Architecture, Interior Architecture, and Industrial Design) are historically and theoretically rooted in a humanistic foundation focused on improving human experience, providing spatial comfort, and enhancing quality of life. The normative principle of these disciplines is to optimize human-environment interaction ergonomically, aesthetically, and functionally. These micro-scale design objectives integrate with the broader societal ideals that Urban and Regional Planning aims to establish at the macro-scale (such as collective well-being, public accessibility, social cohesion, and the democratic use of urban spaces). The urban fluidity (circulation) and free-movement areas envisioned by planning gain their functionality precisely through the inclusive nature of these design objects.

However, in recent urban practices, a paradoxical orientation directly opposing these fundamental ethical and functional goals is observed. Practices are spreading wherein design, contrary to its 'problem-solving' nature, assumes a 'problem-displacing' role; that is, instead of solving social problems, it merely displaces them from 'undesirable' to 'unseen' locations. This approach, conceptualized as Hostile Architecture, transforms design itself into a tool for social sorting and spatial control. These interventions intentionally obstruct or incapacitate the urban commons envisioned by planners for openness and free movement. This situation is not merely a technical design flaw; it provokes a profound interrogation of the core ethical codes of the design disciplines and the principle of inclusivity in public space, creating a critical, interdisciplinary field of debate.

1.1 Problem

The normative ideal of urban public spaces, often conceptualized as 'urban commons,' is to function as inclusive platforms that foster interaction among diverse social groups and nourish democratic participation. This ideal, however, frequently conflicts with strategies in urban governance and design practices that utilize space as an instrument of social control and regulation. One of the most concrete manifestations of these strategies is the concept of Hostile Architecture, which, while widely discussed in literature, has seen this discussion focus predominantly on macro-scale interventions and the sociological consequences of these practices.

The current research problem is that this academic focus has proven insufficient in systematically analyzing how the philosophy of Hostile Architecture permeates the smallest and most tactile components of the urban fabric (namely, urban furniture and elements of urban interior spaces). The literature predominantly addresses these micro-scale interventions through a fragmentary approach, often treating them as isolated, descriptive case studies rather than as parts of a systematic phenomenon.

A comprehensive typology that relates the deliberate intent behind these micro-scale design interventions, the morphological strategies used, and the targeted social outcomes from a holistic perspective is absent. This situation creates a significant theoretical gap in the field. Particularly from the perspective of interior architecture and industrial design disciplines, the lack of a critical analysis of these 'anti-design' objects as 'design objects' is deeply felt. Considering that urban furniture is the primary interface directly shaping bodily experience in public space, the absence of an analytical framework that deciphers and categorizes the deliberate manipulations within the 'form-function-intent' triangle of these objects prevents a full understanding of design's role in social exclusion.

1.2 Purpose

The primary aim of this study is to decipher the manifestations of Hostile Architecture at the scale of urban interior space and urban furniture. It seeks to propose a systematic categorization model by analyzing the 'form-function-intent' relationality of these objects. The study moves beyond mere description to analytically scrutinize how these objects intentionally manipulate bodily experience in public space.

The study first identifies documented deterrent strategies within the literature. Subsequently, it analyzes the specific morphological, material, and ergonomic manipulations (form) used to restrict certain bodily behaviors (function). This analysis then investigates the implicit or explicit purpose (intent) behind the blocked function, identifying the targeted social groups. Finally, these findings are synthesized to establish a comprehensive analytical typology based on the form, function, and intent axes, detailing the strategies, actions, and social outcomes of hostile design.

1.3 Questions

This research is structured around three Research Questions (RQs) that examine three interrelated core dimensions to analyze the Hostile Architecture phenomenon at the urban scale. The first question (RQ1) focuses on the "form" dimension, the second (RQ2) on the "function" dimension, and the third (RQ3) on the "intent" dimension:

RQ1: Which design forms do Hostile Architecture practices manifest?

RQ2: Which user behaviors (functions) do Hostile Architecture practices aim to restrict or prevent?

RQ3: Which social intents do Hostile Architecture practices seek to achieve?

1.4. Importance

This study is intended to contribute to both theoretical and practical domains by examining the Hostile Architecture phenomenon at the scale of urban furniture and urban interior space. Academically, a step has been taken toward addressing the lack of systematic classification in the literature that focuses on micro-scale applications (namely, furniture and urban interior

space). The analytical typology developed on the 'form-function-intent' axis seeks to provide a novel theoretical instrument for future critical analyses in this field.

On the practical and social plane, this classification has contributed to enhancing the awareness of designers, urban planners, and local authorities regarding the ethical and social consequences of everyday objects in public space. Through the visualization and conceptualization of these implicit design strategies, the study aims to establish a concrete foundation for advocating more inclusive and democratic urban spatial policies. In this respect, the research intersects the disciplines of interior architecture, industrial design, urban design, and sociology, enabling the critical role of design in mechanisms of social control and social exclusion to be emphasized from an interdisciplinary perspective.

1.5 Limitations

This study offers significant analytical insights into the operation of the Hostile Architecture phenomenon at the scale of urban furniture and urban interior space, based on the 'form-function-intent' axis. However, the study's findings and the typology it has developed are subject to specific theoretical and methodological limitations. The primary dataset (corpus) of the study consists of existing secondary sources regarding Hostile Architecture applications, used to develop the proposed typology. These sources are restricted to documented examples found in peer-reviewed academic literature (articles, book chapters), professional architecture and design publications, and reputable media (news/analysis) sources. This situation is a factor affecting the external validity (transferability) of the research, creating a constraint on the generalizability of the findings to examples not yet documented in the literature or those existing in different geographical/cultural contexts (e.g., non-Western cities).

As a natural consequence of this methodological choice, the research does not include primary data collection processes (such as conducting new field observations in a specific urban context, carrying out ethnographic studies, or holding in-depth interviews with the user groups targeted by these designs). Therefore, the study's findings and the typology developed are based on a content analysis and systematic literature review. This approach also entails a limitation regarding the study's internal validity (credibility/trustworthiness). While the 'form' and 'function' analyses are largely based on observable data, the interpretation of the 'intent' dimension must rely on authorial commentary and secondary inferences from the existing literature, rather than on primary stakeholder perspectives (designer, administrator, or user).

Finally, as a theoretical limitation, the research has deliberately focused its scope on physical and material design interventions (the morphology, ergonomics, and materiality of urban furniture). Other significant forms of social control and exclusion in public spaces, such as technological surveillance systems (e.g., CCTV), psychological deterrence methods (e.g., broadcasting specific music genres or high-frequency sounds), or spatial programming (policies restricting usage hours), which are non-physical deterrent strategies, have been excluded from this study's analytical framework.

2 Theoretical Framework

This section addresses the concept of Hostile Architecture, which forms the foundation of this research, along with the relevant theoretical discussions and the current state of the literature. This theoretical ground provides the essential basis for contextualizing the study's 'form-function-intent' analytical framework. One of the fundamental conflicts that this concept addresses pertains to security-oriented interventions implemented within the organization of urban space. These practices not only intensify surveillance over public areas but also significantly constrict the entire repertoire of actions (action repertoire) available within these shared spaces. A false dichotomy established as 'freedom versus security' plays a significant role not only in theoretical debates but also in the physical shaping of the urban environment (Özmakas & Yıldırım, 2020).

The physical manifestation of this desire for control and the restriction of action is most often embodied in the design objects themselves. Design objects, which are traditionally evaluated based on aesthetic concerns and functional requirements, are often overlooked for the cultural, social, and ideological meanings they potentially carry. However, design is not merely a visual and functional problem-solving process; it is also a powerful communicative domain in which specific social values, cultural identities, and ideological structures are made visible. Everyday utilitarian objects, such as furniture, can be regarded as tools that not only reflect but also actively reproduce certain worldviews, social structures, and cultural narratives through their formal and material characteristics. Therefore, evaluating such designs solely in terms of physical and aesthetic parameters is insufficient; it is essential to decipher the narrative and ideological layers inherently embedded in these objects (Kaya Demirbozan & Türkmen, 2025).

In light of these theoretical foundations, properly contextualizing the analytical framework of the current research necessitates, first, clarifying the terminological origins of the Hostile Architecture concept and its distinct aspects from related concepts; second, examining the theoretical dynamics underlying the use of design as a tool for social exclusion and public space control; and finally, underscoring the specific analytical gap this study aims to fill by moving beyond the descriptive approaches prevalent in the existing literature.

2.1 Hostile Architecture: Definition, Origins, and Related Concepts

Practices that aim to control urban space through architecture and design are referred to in the literature by many different conceptualizations. These practices carry objectives that not only restrict access to this space, but also shape its forms of use and direct attitudes within it. Among these are terms such as 'exclusionary

architecture', 'defensive urban architecture', and 'disciplinary architecture' (Özmakas & Yıldırım, 2020).

From within this broad terminological spectrum, this study adopts the concept of Hostile Architecture as its central analytical category, as this term most effectively highlights the critical and intentionally exclusionary aspects of these practices. Hostile Architecture is defined as a critical concept identifying the exclusionary design strategies deliberately implemented in urban spaces to deter, prevent, or restrict specific behaviors of particular user groups (de Fine Licht, 2023). These practices are frequently disguised behind seemingly legitimate justifications, such as the "regulation," "cleansing," or "securing" of public space. However, their primary objective is to render the physical presence of individuals or groups coded as "undesirable" impossible (Petty, 2016). Rosenberger (2023) has also conceptualized such designs as "unpleasant design" or "sarcastic design," emphasizing that these objects implicitly convey a specific "message" (e.g., 'you are not wanted here') to certain people.

The origins of this concept are deeply intertwined with the "Crime Prevention Through Environmental Design (CPTED)" theory (as referenced in the opening paragraph), and it is frequently discussed as an aggressive evolution or even a perversion of this theory (Book, 2021; Jeffery, 1971). CPTED, in its original formulation, proposed the "neutral" regulation of environmental conditions (e.g., lighting, visibility, sense of ownership/territoriality) as a means to prevent crime (Nubani et al., 2023; Saraiva & Teixeira, 2023). However, the critical debate surrounding Hostile Architecture contends that this approach has insidiously shifted from "preventing crime" to "preventing certain people" (Carr, 2020; Chellew, 2019). Petty (2016) underscores this critical distinction by highlighting that CPTED, at least theoretically, focuses on the potential for criminality. In stark contrast, Hostile Architecture practices treat social conditions such as "poverty" or "homelessness" as if they were criminal issues in themselves, thereby utilizing the built environment as a direct instrument for "social sorting".

2.2 Public Space, Social Exclusion, and Control Through Design

The fundamental theoretical tension underlying the phenomenon of Hostile Architecture is fueled by an ongoing conflict regarding the very nature of public space. In its normative ideal, public space is conceptualized as an inclusive arena for "encounter" and "deliberation" (Fraser, 1990; Spain, 2008), where all segments of society converge, democratic interactions flourish, and collective life is sustained. The Habermasian model of the public sphere (Habermas, 2022) idealizes a realm where members of civil society rationally discuss common issues to arrive at a collective good.

Offering a significant critical contribution to this ideal, Henri Lefebvre's (1967) concept of "the right to the city" (see also Harvey, 2003) argues that these spaces are not merely abstract platforms for deliberation, but living arenas of social production and struggle. Lefebvre emphasizes the right of all urban inhabitants to participate in the production and use of urban spaces, asserting that the value of these spaces should be measured by their "use value" in the daily lives of residents, rather than their market-driven "exchange value" (King, 2019; Marcuse, 2009). This perspective stands as a political call to action against the commodifying effects of urban policies and capitalism on space.

However, these normative ideals and the demand for "the right to the city" have undergone a profound erosion, particularly with the rise of recent neoliberal urbanization policies. Public spaces are increasingly being privatized, commercialized, and subjected to intense securitization (Borja, 2022; Weaver, 2014). This process has been accelerated by the state's withdrawal from traditional public responsibilities and the subsequent filling of this void by private sector investments (Martinez et al., 2024). In this new urban order, public spaces are ceasing to be inclusive commons for "everyone" and are instead being transformed into profit-driven, exclusionary arenas designed primarily for "legitimate consumers" (Escudero Gómez, 2021).

As Németh and Schmidt (2011) have also pointed out, these privately-owned (yet public-appearing) spaces systematically diminish the "publicness" of the public sphere by restricting social interaction, limiting individual freedoms, and, most importantly, actively excluding population groups coded as "undesirable" (e.g., the poor, the homeless). It is precisely at this juncture that design intervenes as the primary instrument for implementing this "social sorting" and solidifying spatial hierarchies. In his classic work "City of Quartz," Mike Davis (1990) provocatively detailed how public spaces in Los Angeles were becoming "defensive" and fortified with an "architecture of fear," deliberately expelling the poor from these spaces through specific designs like "bum-proof benches." These practices, which continue to proliferate in capitalist societies, are also employed in metropolises such as Paris, London, and New York as a "precaution" against "problems" generated by refugees and the homeless. Furthermore, these exclusionary arrangements can differ according to the political attitudes of the countries where they are implemented and may be fundamentally shaped by distinctions such as race or ethnic origin (Altuncu, 2023). In this context, Hostile Architecture stands as one of the most concrete proofs that design is never a "neutral" practice; rather, it is a political act that directly translates social norms, property boundaries, and societal hierarchies into physical form (Broms et al., 2017).

2.3 The Research Gap in the Literature

The existing academic literature provides a rich pool of case studies documenting Hostile Architecture, which successfully establish its existence and highlight its significant ethical problems. However, this research argues that a significant gap remains at this juncture. These interventions are predominantly treated through a descriptive or fragmentary lens, often analyzing them as isolated case studies rather than as components of a coherent system. While the literature is adept at identifying what these objects are, it is insufficient in explaining the systematic patterns underlying them. A comprehensive analytical framework that holistically connects the design strategies (form), the specific bodily behaviors they obstruct (function), and the

implicit/explicit social purposes (intent) is absent. This research aims to fill precisely this analytical gap by applying the 'form-function-intent' model to provide an analytical typology.

3 Method

This section comprehensively presents the methodological framework adopted to answer the research questions. The method section is structured around four fundamental components: (1) the research model that guided the study's design, (2) the selection process and justification for the dataset (sample) included in the analysis, (3) the data collection procedures employed, and (4) the data analysis strategy utilized to synthesize the findings. The research is based entirely on publicly available and open-access secondary sources. At all stages of the research, the principles of scientific research and publication ethics were rigorously adhered to, particularly regarding the transparent and accurate citation of all references used.

3.1 Model

This research adopts the Systematic Literature Review (SLR) model to analyze the Hostile Architecture phenomenon at the urban scale and develop a novel typology. This approach, unlike a traditional review which merely summarizes existing literature, treats the literature (academic publications, professional portals, media reports) as a primary data source that is systematically searched, selected, and analyzed according to predefined protocols. All research processes (data search, selection, extraction, and analysis) have followed the reproducible and transparent steps required by this model.

3.2 Sample

The universe of this research was constituted by all publicly accessible and documented examples of urban interior space and urban furniture that demonstrate Hostile Architecture practices. From this universe, the dataset (corpus) was selected using purposive sampling, specifically criterion sampling. Accordingly, the dataset was constructed based on a rigorous purposive sampling strategy governed by three distinct inclusion criteria designed to ensure analytical validity and reproducibility: (1) Scale: The selection was strictly limited to cases at the level of 'urban furniture' and 'urban interior space' elements, deliberately excluding macro-scale urban design interventions to focus on the immediate bodily experience; (2) Context: The cases were required to be explicitly documented in academic and professional literature within the specific context of exclusionary design, ensuring that the analyzed objects were firmly situated within the theoretical discourse; and (3) Data Availability: Only cases possessing high-quality visual or textual data allowing for a detailed morphological decomposition were included to enable a robust application of the 'form-function-intent' analysis. In line with these criteria, the dataset was formed by documented 'hostile design' examples that are not restricted by a specific geography or time, but which are the most frequently recurring and feature as 'typical cases' in the literature.

3.3 Data Collection

Consistent with the research's Systematic Literature Review (SLR) model, the data collection process adhered to a multi-stage document review protocol. This process involved the use of predefined keywords and their derivatives, such as Hostile Architecture, Defensive Architecture, and Deterrent Design. These terms were utilized to systematically search major interdisciplinary academic databases (e.g., Scopus, Web of Science, Google Scholar) as well as prominent design portals that document professional reflections on the topic (e.g., ArchDaily and Dezeen). The documents (articles, case studies, critical analyses) retrieved from this search that met the predefined inclusion criteria were compiled to form the final dataset (corpus) for analysis.

3.4 Data Analysis

The analysis of the collected qualitative data (visual and textual documents) was conducted using the qualitative content analysis technique, simultaneously employing both deductive and inductive approaches.

As the initial deductive step of the analysis, a custom data extraction form was designed and utilized to standardize and systematically process the data. This form was structured to correspond directly to the study's a priori analytical framework, the 'form-function-intent' axes, and the research questions (RQ1, RQ2, RQ3). For each case in the final dataset (corpus), relevant information from the source texts was entered into this form: for the RQ1 (Form) axis, visuals and morphological/material descriptions were recorded; for the RQ2 (Function) axis, descriptions of the specific bodily behaviors the design prevented were recorded; and for the RQ3 (Intent) axis, author/critic commentary on the implicit/explicit purpose and targeted social group was recorded.

Following this deductive data extraction process, the second, inductive step of the analysis involved subjecting each main category (Form, Function, Intent) to an 'open coding' process. For example, all data under the 'Form' category was examined to generate sub-codes (design strategies) such as 'adding dividers,' 'sloping surfaces,' or 'using spikes.' The same process was repeated for the 'Function' (prevented behaviors) and 'Intent' (social aims) categories.

In the final stage of the analysis (Synthesis), the sub-codes and categories derived from these three axes were interrelated and compared using a cross-tabulation (matrix) method. The systematic relational patterns between 'form-function-intent' were examined, and the study's final contribution, the analytical typology (categorization model), was synthesized.

4 Findings and Discussion

This section presents the analytical resolution of the final dataset (corpus), which was compiled via the Systematic Literature Review (SLR) methodology and selected according to the criteria defined within the research's methodology. The results of this analysis are subsequently discussed within the context of the literature. As detailed in the Method section, the a priori 'form-function-intent' analytical framework, which constitutes the methodological backbone of this research, was used as the primary structuring tool for this section. This approach aims to overcome the problem identified in the Theoretical Framework section: that Hostile Architecture practices are predominantly treated in a descriptive and fragmentary manner in the literature. Therefore, the findings presented below not only answer the three core research questions defined in the introduction but also synthesize the systematic relationality between these three axes to present the study's final contribution: an analytical typology.

4.1 The Design Forms of Hostile Architecture Practices

The first research question (RQ1), which constitutes the initial component of the 'form-function-intent' analytical framework, aimed to decipher the specific design forms through which Hostile Architecture practices manifest. In this context, the inductive qualitative content analysis applied to the cases in the dataset (corpus) revealed that these interventions, often presented disparately in the literature, are not isolated or random solutions. On the contrary, it was determined that the design interventions used are systematically repeated in line with specific strategies and can be grouped under four main analytical categories. These categories represent the fundamental 'form' techniques that design employs to manipulate bodily experience.

4.1.1 Dividers, Separators, and Restrictors

The most widespread morphological intervention identified in the analyzed dataset was noted in this category. The core strategy is predicated on the segmentation of horizontal planes found on public seating elements, particularly benches. This segmentation is frequently mediated through pseudo-functional elements, such as components presented as 'armrests'. The primary technique of this specific form is to deliberately interrupt the topological continuity of the surface. This interruption, in turn, renders the surface physically unusable for full-length bodily actions like reclining or sleeping. These interventions manifest in the literature in two distinct ways: sometimes as metal additions retrofitted onto existing designs, and in other instances, as restrictive elements fully integrated into the design's own form (for example, as individualized seats) (Figure 1).

The visual evidence presented in Figure 1 provides a clear substantiation of the strategic spectrum inherent to this 'divider' category. The application ranges from overt, 'retrofitted' additions (Figure 1a), where the intervention is legible as an external and often crude application of control, to more covert, 'integrated' solutions (Figure 1b). In the latter, the restrictive element is seamlessly assimilated into the design's own morphology, often masked as a pseudo-functional component like an armrest. This integration signifies a more sophisticated design intent, blurring the line between function and control. Figure 1c represents the strategy's most extreme manifestation: the complete 'atomization' of the public surface. By replacing a communal bench with individualized, separated seating, this form moves beyond the singular function of preventing sleeping. It fundamentally redesigns the social potential of the space, actively discouraging any shared interaction or collective social use, thereby enforcing social separation at the level of the object itself.

Figure 1a Additions retrofitted to the design. Source: Chris Baynes, 2018.; **1b** Restrictor integrated into the design's own form. Source: Jessica Antony, 2023.; **1c** Segmentation through individual seating units. Source: City Unseen, 2024.

Figure 2a Sloped leaning bench. Source: Lorenzo Carbone, 2021.; **2b** Bench that atomizes the user. Source: Mina Benothman, 2021.; **2c** Bench with reduced sitting depth. Source: Haruhiko Okumura, 2014.

4.1.2 Non-Ergonomic Surfaces

Slopes, Curves, and Insufficiency: The second category includes forms that intentionally invert ergonomic norms or apply what can be termed "negative ergonomics." The primary objective here is to render the surface unfavorable for bodily comfort. The manifestations of this strategy in the analyzed cases show diversity. In examples known as "leaning benches," the act of sitting is reduced to a temporary "leaning" action requiring bodily effort, rather than static resting, through sloped surfaces. Another common form, seen especially in metro stations or waiting areas, involves curved or divided surfaces that disrupt horizontal continuity and "atomize" (confine) each user to their "individual" space; these forms prevent both collective use and lying down. Finally, insufficient surfaces that intentionally reduce sitting depth, angle, or area (e.g., narrow stools, shallow benches) are also included in this category. These designs make long-term comfort physically impossible, permitting only brief "perching" of the body (Figure 2).

Figure 2 illustrates the tactical diversity within this "negative ergonomics" category, where the strategy is not monolithic but employs distinct methods to achieve discomfort. Figure 2a directly attacks the function of 'static rest,' transforming the act of sitting into a temporary, effort-based act of 'leaning.' Figure 2b moves beyond individual discomfort to target social potential; its form, often presented as an aesthetic choice, not only prevents lying down but also 'atomizes' users, thereby precluding shared or collective use. Finally, Figure 2c demonstrates a more subtle, yet equally effective, form of ergonomic deprivation. By intentionally providing insufficient sitting depth, the design makes a correct or comfortable posture physically impossible, reducing the user's bodily action from a restorative rest to a brief, unstable 'perch.'

4.1.3 Deterrent Textures and Materials

The third category focuses on the manipulation of a surface's haptic or material properties to deter specific actions. This strategy spans a wide spectrum, from its most aggressive and overt forms to its most covert and subtle applications. At the most aggressive end of the spectrum are the 'spikes,' which are among the most visible examples in the literature. These metal or concrete spikes, installed on flat planes such as building alcoves, low walls, or under bridges (areas with sheltering potential), render the surface physically painful and unusable for any bodily contact. A more target-specific strategy involves 'skate-stoppers,' which are small, rough metal fixtures that interrupt the continuity of a surface. This form is designed to block only a specific action (skateboarding); thus, while not 'hostile' to pedestrians, it exhibits a targeted 'hostility' towards a specific subcultural use. At the most covert end of the spectrum lies deterrence-by-materiality. This involves the deliberate selection of materials that are intentionally harsh (e.g., polished concrete, aggregate gravel) or thermally conductive (e.g., stainless steel in cold climates) to make long-term sitting uncomfortable (Figure 3).

Figure 3 visually captures the full spectrum of this haptic strategy, ranging from overt aggression to covert materiality. Figure 3a represents the most explicit and aggressive form of deterrence, using 'spikes' to make any bodily contact physically painful, thereby directly targeting the function of sheltering. Figure 3b demonstrates the 'target-specific' or 'surgical' nature of this strategy; the 'skate-stoppers' are implemented to intercept a specific subcultural action (skateboarding) without impacting general pedestrians, thus framing a specific user group as illegitimate. Finally, Figure 3c illustrates the most subtle and covert application. Here, the hostility is not morphological but material; the

Figure 3a Metal spikes on the window parapet. Source: Shaun Soanes, 2018.; **3b** Skate-stoppers interrupting the surface continuity of the seating element. Source: Ed Wonsek, n.d.; **3c** Seating element made of hard and cold material. Source: Yumiko Hayakawa, n.d.

Figure 4a Under-road spikes. Source: Louise Irpino, 2024.; **4b** Under-road boulders. Source: Kyle Lam, 2023.; **4c** Sidewalk garden planters. Source: David Sjostedt, 2024.

use of thermally conductive stainless steel (as shown) or intentionally harsh aggregates makes the object unusable for long-term sitting in certain climates, achieving deterrence under the guise of a sleek, modern aesthetic.

4.1.4 Spatial Barriers and Corner Obstructions

The fourth and final category of form can be described as the "negation of void." This strategy's aim is not to render a surface unusable by adding an object, but rather to physically "occupy" the urban "niches" themselves (such as alcoves, corners, ventilation shafts, or underpasses) that hold potential for sheltering or gathering. In the analyzed cases, this "occupation" is achieved by strategically placing large-scale objects in these potential refuge areas. Crucially, these interventions are almost always presented under a pseudo-legitimate justification, such as "aesthetics" (decorative boulders), "ecology" (large concrete planters/greenery), or "security" (asymmetrical concrete blocks), effectively masking the underlying exclusionary intent (Figure 4).

This final category is particularly revealing as it demonstrates how Hostile Architecture operates by masking its exclusionary intent behind 'pseudo-legitimate' justifications, as visualized in Figure 4. The strategy moves from manipulating a *surface* (as in spikes, Figure 4a to *occupying an entire volume* of space. Figure 4b (boulders) and Figure 4c (planters) are prime examples of this. In both cases, the intervention is presented under the guise of "aesthetics" (landscape boulders) or "ecology" (urban greenery). However, their strategic placement in alcoves, underpasses, or along sidewalks serves the primary function of physically "negating the void" (occupying the niche), making it impossible for individuals to use these spaces for sheltering or rest. This demonstrates a sophisticated form of hostility, where the exclusionary function is laundered through a seemingly positive or benign design contribution.

4.2 Prevented User Behaviors

The second step of the 'form-function-intent' analytical framework provides the critical analysis of 'function' (RQ2). This stage progresses from the morphological 'what' (RQ1) to the operational 'how,' analyzing which specific bodily actions and public space uses the design forms previously categorized are engineered to restrict, deter, or render impossible. This conceptual shift is critical: 'Function' here is not understood as the traditional 'positive' purpose of design (e.g., to enable sitting, or to promote ergonomic comfort), which aligns with the humanistic ideals of the discipline. Instead, 'function' is conceptualized as the 'negative function' (or anti-function). This negative function is the specific, intended, and deliberate obstruction of a human action, representing a conscious inversion of ergonomic principles where discomfort or impossibility is the objective, not an accidental failure. The dataset analysis confirmed this systematic approach, revealing that these interventions do not target random behaviors but converge on four primary categories of user actions that are deemed 'undesirable' by the designers or proprietors of the space.

4.2.1 Sleeping / Lying Down

This bodily action emerged from the analysis as the most primary and aggressively targeted function by Hostile Architecture practices. The intensity of this focus is significant; it suggests that the targeting is not directed at the mere act of sleeping or reclining itself, which could be seen as a universal human need for rest. Rather, the targeting is directly correlated with the social condition that this action has come to represent in public space: namely, homelessness and the use of public surfaces for sheltering. The forms identified in the preceding analysis of RQ1 (such as "Dividers," "Aggressive Textures," and "Curved/ Individualized Surfaces") are all strategically deployed to categorically reject this specific action. Their design operates by rendering a horizontal surface (the fundamental prerequisite for rest) physically impossible for full bodily use, constituting an unambiguous spatial expulsion designed to prevent sheltering or resting.

4.2.2 Long-term Sitting / Loitering

This second category targets not the act of sitting itself, but its duration. The strategy is predicated less on "physical obstruction" (like the dividers) and more on "ergonomic deterrence" and the creation of "psychological discomfort." Forms within the "Non-Ergonomic Surfaces" (e.g., sloped benches) and "Deterrent Materials" (e.g., cold metal) categories operate through the explicit denial of bodily comfort. They render the act of sitting so uncomfortable, effortful, or even painful that legitimate public activities such as "waiting," "resting," or "socializing" are effectively re-coded as "loitering" (a deviant behavior), and these actions are prevented from extending beyond a brief, acceptable timeframe.

4.2.3 Skateboarding

This category is critical as it demonstrates the capacity of Hostile Architecture to function as a highly target-specific, surgical intervention. The specific metal additions known as "skate-stoppers" (which fall under the "Deterrent Textures" category) are prime examples. These forms are designed to have almost no impact on other public uses (like walking or sitting) while exclusively targeting a specific sub-cultural activity: the "re-appropriation" or "misuse" of urban surfaces by youth (skateboarding). This finding reveals how design can be mobilized to protect property lines and criminalize a very specific, non-conformist bodily action.

4.2.4 Gathering / Grouping

This final category targets the most fundamental social function of public space: its "collective" use. "Spatial Barriers" (e.g., planters in corners) and "Insufficient/Individualized Surfaces" (e.g., using single stools or curved seats instead of a shared bench) deliberately limit the social capacity of the space. These forms transform the public realm from a space of "assembly" (a place for coming together) into a mere space of "transition" (a place for moving through), where individuals exist side-by-side but not "together." The objective is the atomization of users, physically complicating or preventing people from socializing in groups or engaging in any collective activity.

4.3 The Social Intents Behind the Designs

The final and most critical component of the 'form-function-intent' analytical framework is the third research question (RQ3), which investigates the underlying 'why' of these interventions. This stage moves beyond the analysis of morphology (RQ1) and obstructed behavior (RQ2) to interrogate the implicit (covert) and explicit (overt) social intents and the governing ideological foundations driving these designs. To achieve this, the analysis of the source texts (author commentaries, critical analyses, and administrative justifications) within the dataset required moving beyond mere description. A more profound interpretive (hermeneutic) content analysis was applied, probing the latent motivations behind the documented practices. This interpretive reading revealed that the motivations are not arbitrary but systematically converge around three primary motivational categories, which define the ultimate purpose of these objects.

4.3.1 Exclusion of Specific Social Groups

The analysis confirms that the most prominent and pervasive intent behind Hostile Architecture practices is the targeted, discriminatory intervention against specific social groups, rather than a neutral application of design to the general populace. These objects are designed not for "everyone" but precisely against "someone," reinforcing social hierarchies by spatial means. This intent for social exclusion manifests primarily against two core subjects. The primary subject is unequivocally identified as homeless individuals. The forms designed to render sleeping or lying down impossible (e.g., dividers, spikes, curved surfaces) are directly intended to eliminate the public visibility of this group. The intent here is to "cleanse" the space of their presence, effectively treating a complex social problem (homelessness) as a spatial infraction to be physically displaced and pushed from public view. The secondary subject of exclusion comprises youth. The forms targeting skateboarding (skate-stoppers) and gathering (individualized seats) are directly intended to control and curtail the spatial practices of young people. This intent stems from a desire to manage youth sub-cultures often perceived by authorities as "noisy," "unpredictable," or "loitering" (a term often used to criminalize their presence), thereby preventing their "re-appropriation" or perceived "misuse" of urban infrastructure.

4.3.2 Spatial Control and Regulation

The second category of intent relates to a broader desire to enforce a strict normative or 'intended' use of a space, thereby preventing any actions that fall outside this prescribed script. This intent is deeply rooted in a modern urban governance assumption that public space must be predictable, manageable, efficient, and almost "aseptic" (sterile) to function correctly. The design practices driven by this intent specifically target behaviors analyzed in RQ2, such as "long-term sitting" or "gathering," which are perceived as threatening the "fluidity" (flow of capital and consumers) or "order" of the space. This intent is frequently presented under a legitimizing rhetoric of "maintaining public order," "enhancing safety," or "preventing anti-social behavior." In this context, the design object itself becomes a non-human actor, a tool of passive surveillance and behavioral control, enforcing spatial discipline on all users by pre-emptively designing out behaviors deemed non-compliant or disorderly.

4.3.3 Commercialization and Privatization of Public Space

Third, the analysis revealed that a significant number of Hostile Architecture practices are inextricably linked to the neoliberal transformation of public space. This intent is most evident in the forms designed to deter "long-term sitting" (e.g., sloped benches, uncomfortable materials). This strategy implicitly codes the act of resting or waiting as a "non-consuming" activity, and therefore illegitimate in spaces increasingly defined by commerce. By doing so, these designs actively reduce the public realm from a space of assembly, rest, and social interaction into a mere space of consumption and circulation. In the analyzed cases (particularly those near retail centers or in business improvement districts), this intent functionally equates the "legitimate user" with the "paying customer." This finding is critical as it demonstrates an intent for privatization that is not only de facto (in effect) but also ideological. The design object itself becomes an instrument that serves the commodification of public space, enforcing market logic by excluding those who do not, or cannot, participate in consumption.

4.4 Synthesis of Findings: A Form-Function-Intent Typology

This final analysis stage of the research methodologically represents the study's apex, signifying the transition from the decomposition of the Hostile Architecture phenomenon (conducted in sub-sections 4.1, 4.2, and 4.3) to its recomposition as an integrated model. The focus now shifts from identifying singular components to the systematic synthesis and integration of the findings derived from the 'form-function-intent' axes. The collective answers to RQ1, RQ2, and RQ3 strongly substantiate that these design practices are not isolated, idiosyncratic, or coincidental acts; rather, they are deliberate strategies exhibiting replicable, systematic, and predictable patterns. This finding directly addresses the theoretical gap identified in the theoretical framework (namely, the fragmentary and descriptive nature of the literature) by providing a holistic analytical framework.

The matrix presented below (Table 1) is the final output of this study's analytical backbone. This matrix does not merely present a list of the three axes; it is a holistic analytical tool that reveals the dynamic relationality and intersectionality between them. This matrix demonstrates that 'form' is not arbitrary; on the contrary, 'form' is instrumentalized by 'intent,' and 'function' serves as the critical bridge that links the physical object to its social purpose. The matrix, therefore, effectively maps how the specific 'form' techniques derived from the dataset are employed to obstruct particular 'functions,' thereby serving specific social 'intents.' In doing so, Table 1 provides the concrete evidence and the operational model for the analytical typology that constitutes the core contribution of this research.

The findings synthesized in Table 1 robustly substantiate the central argument of this research: the manifestations of Hostile Architecture at the scale of urban furniture and urban interior space are not random, isolated, or merely examples of "bad design." Rather, they constitute analytical typologies that are intentionally selected and systematically replicable to achieve specific social intents. These findings validate that the 'form-function-intent' a priori framework possesses an analytical validity that transcends the predominantly descriptive approaches currently found in the literature.

Table 1 Analytical Typology of Hostile Architecture

Form Category	Category Definition	Obstructed Function(s)	Social Intent(s)
Dividers, Separators, and Restrictors	Morphological interventions that deliberately divide or partition a surface's continuity	• Preventing sleeping and reclining (horizontal use) • Obstructing collective use and social gathering	• Preventing the visibility and sheltering of homeless individuals • Actively restricting the collective (horizontal) use of public surfaces
Non-Ergonomic Surfaces	Sloped, curved, or insufficient forms that render the surface unfavorable for bodily comfort	• Actively deterring long-term sitting (waiting, resting) • Physically denying all bodily comfort (sleeping, reclining)	• Enabling commercialization by preventing "loitering" (non-consumption) • Imposing spatial control (short-term use) and denying bodily comfort
Deterrent Textures and Materials	Interventions that render the surface's haptic or material properties painful or uncomfortable	• Obstructing sleeping and sheltering (in the most aggressive form) • Targeting specific sub-cultural uses (skateboarding)	• Excluding specific social groups (homeless, youth) via physical deterrence • Protecting property and preventing "unintended" (sub-cultural) uses
Spatial Barriers and Corner Obstructions	Objects that occupy urban niches and voids, thereby eliminating their sheltering potential	• Preventing sleeping and sheltering (in refuge spaces) • Obstructing collective gathering (grouping)	• Exclusion by "occupying" urban niches that offer potential shelter • Enforcing spatial control under the guise of "order" and "tidiness"

The analysis reveals that interventions often grouped under a singular, general heading like "anti-homeless design" actually possess far more layered functional objectives. The fact that each 'Form Category' in Table 1 obstructs at least two distinct 'Functions' demonstrates the efficiency of these strategies. For example, the "Dividers, Separators, and Restrictors" category, alongside its most obvious objective (preventing sleeping and reclining), simultaneously fulfills the function of "obstructing collective use and social gathering" through the same morphological intervention (surface segmentation). This finding indicates that this form targets not only sheltering but also assembly (as a social action).

Similarly, the "Non-Ergonomic Surfaces" category serves a dual purpose by, on one hand, "deterring long-term sitting" (e.g., sloped benches), and on the other, preventing sleeping by "physically denying all bodily comfort" (e.g., curved surfaces). This distinction is critical: the former (Dividers) renders an action physically impossible, whereas the latter (Non-Ergonomic Surfaces) creates a more covert, psychological deterrence by making the action ergonomically painful. The "Deterrent Textures and Materials" category, meanwhile, exemplifies the capacity of this strategy to be a highly target-specific, surgical intervention. This category targets the most fundamental human actions like "obstructing sleeping and sheltering" via "spikes," while also "targeting specific sub-cultural uses" like skateboarding via "skate-stoppers." This highlights the analytic precision of the model, showing how a single Form category can operationally target two distinct social groups and functions.

The most critical findings of the research emerged from the Social Intent axis, which lies behind this Form-Function relationality. The "Social Intent(s)" column in Table 1 confirms that the motivation behind these design strategies is almost never a neutral, technical justification like "public safety" or "aesthetics." On the contrary, the essence of the intent is social exclusion and spatial control. The fact that the Intent column in the table consistently features two main themes (Exclusion and Control/Commercialization) demonstrates that these two intents operate as a mutually reinforcing strategy. For example, the "Non-Ergonomic Surfaces" category enables the "Commercialization" of space (a neoliberal intent) by "preventing 'loitering'," while simultaneously "imposing spatial control" (a disciplinary intent). This finding proves that Hostile Architecture is not just a problem related to specific marginal groups (like the homeless or youth) but is also directly linked to the privatization and commodification of public space under neoliberal policies.

The primary contribution of this research is its proposal of an analytical typology (a classification model) for Hostile Architecture practices, based on the 'form-function-intent' relationality synthesized in Table 1. Contrary to existing studies in the literature (as discussed in the Theoretical Framework) which mostly treat these examples as descriptive case studies, this research offers a systematic analysis. Table 1 is not merely an inventory listing typical examples (which are already discussed in the main text); it is a categorical definition. The presence of the "Category Definition" column (Column 2) is what makes this typology novel. This model provides a replicable analytical tool for deciphering how urban furniture is transformed into an instrument of social control. For example, according to this typology, a "bench armrest" is no longer just an isolated example; it is part of an "Exclusionary Restrictor" typology. It functions as a strategy that "divides surface continuity" (Form), to obstruct "sleeping" and "collective use" (Function), serving the purpose of "excluding homeless individuals" and "restricting public surfaces" (Intent). Similarly, a "sloped bench" is no longer just a "modern" form. It is part of a "Commercializing Deterrent" typology, operating as a strategy that "renders comfort unfavorable" (Form), to target "long-term sitting" and "deny comfort" (Function), thereby achieving the intent of "enabling commercialization" and "imposing spatial control."

The proposed 'form-function-intent' typology advances the discourse by transforming key theoretical debates into a tangible analytical tool. The identified 'Intent' of spatial control mirrors Davis's (1990) observations on the militarization of urban space, yet details exactly how this fear is materialized at the micro-scale. Similarly, the focus on 'Form' resonates with Rosenberger's (2023) 'politics of objects,' while the 'Commercialization' intent aligns with Zukin's (1995) critique of 'pacified' consumer spaces. By synthesizing these distinct theoretical perspectives into a unified matrix, this framework enables designers, urban planners, and local authorities to question the implicit social and ethical intents behind these designs, which are often masked under the guise of 'aesthetics,' 'modernity,' or 'security.

5 Conclusion

This study was designed to analyze the phenomenon of Hostile Architecture, which is increasingly prevalent in urban public spaces yet predominantly addressed in academic literature through descriptive, isolated case studies. The analysis was conducted through the lens of interior architecture and industrial design disciplines. The primary objective was to systematically classify the manifestations of these design practices at the scale of urban furniture and urban interior space based on documented examples from the literature. To achieve this objective, the Systematic Literature Review (SLR) methodology was adopted. The analysis of the collected data was performed using an a priori analytical framework developed by the researcher: the 'form-function-intent' model. This methodology deciphered which design forms (RQ1) Hostile Architecture practices utilize, which bodily functions (RQ2) they obstruct, and the social intents (RQ3) that lie behind these interventions. The final output of the research was an analytical typology that revealed the intersectional patterns between these three axes.

The significance of this research lies not only in contributing a new typology to the Hostile Architecture literature but also in the analytical depth this typology

provides. By operationalizing the 'form-function-intent' framework, this study systematically demonstrated that objects categorized as 'hostile' are neither coincidental nor neutral. On the contrary, it showed they are deliberately structured instruments designed to exclude specific social groups and to assert spatial control. This finding elevates the discussion from a "general" (e.g., "this is anti-homeless") or "aesthetic" (e.g., "this bench is ugly") plane to an ethical and specific one (e.g., "this form obstructs the function of sleeping to fulfill the intent of excluding"). Thus, a concrete, critical terminology and an analytical instrument have been presented to interrogate the role and ethical responsibilities of the design disciplines (interior architecture, industrial design) within neoliberal urbanization practices.

Building upon this ethical foundation, the study offers concrete practical implications for urban policy and design practice. For local authorities and municipalities, the proposed typology serves as a critical evaluation tool during the procurement of urban furniture, enabling the identification of 'hidden' hostile strategies, such as spatial barriers disguised as 'artistic' landscaping, that might otherwise pass as benign design. For industrial and interior designers, this analytical model provides an ethical checklist to audit proposed designs, ensuring that ergonomic decisions do not inadvertently function as instruments of social exclusion. Consequently, this framework supports the transition from 'defensive' urbanism to explicitly 'inclusive' design policies by making the mechanisms of exclusion visible and contestable.

The methodological choices of this research also introduced specific limitations. The study's reliance on secondary data (existing literature) rather than primary data (fieldwork) restricted the analysis to documented (and predominantly Western-centric) examples. Furthermore, the analysis of the 'intent' (RQ3) dimension had to rely on authorial commentary and inferences from source texts, rather than on the declarations of designers or administrators. In future studies, these limitations can be overcome by testing the proposed typology through empirical fieldwork. Researchers could utilize the 'data extraction form' developed in this study as a field observation tool to document 'hostile furniture' practices in different geographical and cultural contexts (e.g., in Turkish cities), thereby testing the typology's external validity.

The findings of this research open several avenues for future studies. First, researchers are encouraged to deepen the 'intent' dimension. This can be achieved through qualitative interviews with the "producers" of hostile designs (designers, local authorities, private property owners) to decipher the ideological and economic motivations behind these decisions. Second, the "user" dimension, a significant gap in this study, must be addressed. Ethnographic studies and phenomenological interviews with the groups targeted by hostile designs (e.g., homeless individuals, youth) as well as non-targeted groups ("legitimate" urban inhabitants) will reveal the impacts of these objects at the level of lived experience, moving beyond the 'form-function' analysis.

Finally, this study focused exclusively on "physical" forms. Future researchers should expand this model to also analyze non-physical deterrents in public space (e.g., specific music broadcasts, uncomfortable lighting, surveillance technologies) along the same 'form-function-intent' axis. Ultimately, understanding "hostile" design is a necessary first step in initiating the political and practical discussion of how its antithesis (namely, "welcoming" and "inclusive" design) can be made possible.

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PROFESSIONAL SECTION

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PROFESSIONAL SECTION: INTERVIEWS, REVIEWS

1. INTERVIEW WITH ZMOMYO GLAVANIA (ATELJE POW-WOW) AND SIMONE GOBBO (STUDIO GOBBO)
2. INTERVIEW WITH JURE GRAFENAUER AND ALEŠ VODOPIVEC (ATELJE OPEN HOUSE)
3. REVIEW: UNWANTED HERITAGE HOTEL: REINTEGRIN KRESNIK JAKOVIČ DUMHUR ARHITEKTI
4. YEAR IN REVIEW: 2025

PROFESSIONAL SECTION . . . . . STRUČNI DIO

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INTERVIEW ZLATKO UGLJEN

SPATIAL PROSTORNI DIALOGUES DIJALOZI

In the first regular issue of the journal Acta Architectonica et Urbanistica (AAeU), we present an exclusive interview with Academician Zlatko Ugljen, one of the most important architects of the former Yugoslav region and the author of landmark works of modern and contemporary architecture. Among his most distinguished projects are the White Mosque in Visoko, the Ruža Hotel in Mostar, the Bregava Hotel in Stolac, as well as a series of sacral and public buildings recognized for their synthesis of modernism, local tradition, and spirituality. As a long-standing educator, a thinker of space, and a tireless advocate of the humanization of architecture, Ugljen speaks in this extensive interview about the post-transitional city, the continuities and discontinuities of urban identity, the fate of modernist heritage, the role of the architect as a mediator between society, nature, and technology, and the future of the architectural profession in the age of artificial intelligence. A special value of this conversation lies in his reflections on the role of criticism and architectural journals, which he continues to regard as an "unsurpassed" medium in which the universal values of architecture — as art, science, and a socially responsible act — are preserved, precisely the values upon which the founding of this journal is based.

U prvom redovnom broju časopisa Acta Architectonica et Urbanistica (AAeU) predstavljamo ekskluzivni razgovor s akademikom Zlatkom Ugljenom, jednim od najznačajnijih arhitekata prostora bivše Jugoslavije, autorom antologijskih djela moderne i savremene arhitekture, među kojima se posebno izdvajaju Bijela džamija u Visokom, hoteli Ruža u Mostaru i Bregava u Stocu, te niz sakralnih i javnih objekata prepoznatljivih po sintezi modernizma, lokalne tradicije i duhovnosti. Kao dugogodišnji pedagog, mislilac prostora i neumorni zagovornik humanizacije arhitekture, Ugljen u ovom opsežnom intervjuu govori o posttranzicijskom gradu, kontinuitetima i diskontinuitetima urbanog identiteta, sudbini modernističkog naslijeđa, ulozi arhitekte kao posrednika između društva, prirode i tehnologije, te o budućnosti arhitektonske profesije u vremenu umjetne inteligencije. Posebnu vrijednost razgovoru daje i njegovo promišljanje o ulozi kritike i arhitektonskih časopisa, koje, kako ističe, i dalje smatra "neprevaziđenim" medijem u kojem se čuvaju univerzalne vrijednosti arhitekture kao umjetnosti, znanosti i društveno odgovornog čina – upravo onih vrijednosti na kojima se temelji i pokretanje ovog časopisa.

AAeU: *How would you assess the changes in the urban landscape of Sarajevo as a post-transition city? Do you see continuity in tradition and identity, or have discontinuities and the loss of urban character prevailed in contemporary development?*

Zlatko Ugljen: To begin with, I believe the question remains: can we, as a society, assert that we are living in a post-transition period? By that, I mean that some of the key assumptions required to adopt that epithet have still not been fully met. These relate specifically to the planning and management of urban resources – for example, public spaces, green spaces, and so on.

> **Besides the daily consequences residents feel from the city's dysfunctioning in important segments, this also has long-term consequences for the city's visual identity, authenticity, and character. The city is losing what makes it urban – its spirit, layers, and continuity. Instead of reflecting the progress one would expect, it is losing its recognisability.**

This primarily threatens spatial continuity, which began to be lost already at the beginning of the 1990s.

Some theorists often say that discontinuity is also part of continuity, but this refers to engaged architecture that is the result of impulses spreading within a specific context, rather than a lack of planning, expertise, or adapting to market demands, and so on. Thoughtful diversity that engages in dialogue with its time can give rise to a specific coherence in space.

However, cities today are losing their urban character primarily due to the indiscriminate demolition of buildings, inadequate interventions in existing structures and the urban space as a whole, and finally, architecture that lacks the necessary analytical approach. Unfortunately, this leads to the disappearance of an important part of our spatial and cultural identity.

AAeU: *Your projects strongly rely on a regionalist approach to modern architecture, and as a student, you collaborated with Juraj Neidhardt, who advocated for a fusion of the universal and the local, and affirmed the continuity of architectural heritage. How do you see the sustainability and resilience of this kind of sensitive modernist approach today, especially in the context of the accelerated changes taking place in Bosnia and Herzegovina and the region? What message do cases like the unresolved status of Hotel Visoko, as well as the demolition of Hotel Pelegrin in Kupari, send?*

Zlatko Ugljen: Ever since I experienced architecture with Professor Neidhardt, the convictions that shape my architectural expression and approach have always led toward the continuity of building heritage, the continuity

AAeU: Kako biste ocijenili promjene urbane slike Sarajeva kao posttranzicijskog grada? Da li uočavate kontinuitet tradicije i identiteta, ili su u savremenom razvoju preovladali diskontinuiteti i gubitak urbanog karaktera?

Zlatko Ugljen: Za početak mislim da i dalje ostaje pitanje – da li, kao društvo, možemo reći kako živimo u posttranzicijskom periodu? Pod tim podrazumijevam kako neke od ključnih pretpostavki za usvajanjem tog pojma još uvijek nisu, u potpunosti, ispunjene. One se odnose, upravo, na planiranje, upravljanje gradskim resursima, kao što su javne površine, zelene površine i slično.

> Osim što stanovnici svakodnevno osjećaju posljedice nefunkcioniranja grada u važnim segmentima, to ima i dugoročne posljedice na njegov vizualni identitet, autentičnost i karakter. Grad gubi ono što ga čini urbanim – svoj duh, slojevitost i kontinuitet. Umjesto da odražava napredak koji bi se očekivao, on gubi svoju prepoznatljivost.

Time je prvenstveno ugrožen prostorni kontinuitet, koji se počeo gubiti još početkom 1990-tih godina.

Pojedini teoretičari uobičavaju reći kako je i diskontinuitet dio kontinuiteta, ali to se, onda, referira na angažiranu arhitekturu, koja je rezultat impulsa koji se širi unutar specifičnog konteksta, a ne nedostatka planiranja, stručnosti, podilaženju tržištu i slično. Promišljena raznolikost koja vodi dijalog sa svojim vremenom može iznjedriti specifičnu koherentnost u prostoru.

Međutim, gradovi uistinu gube urbani karakter prvenstveno neselektivnim rušenjem objekata, neadekvatnim intervencijama na već postojećim objektima i prostoru u cjelini, konačno, arhitekturom iza koje ne stoji neophodni analitički pristup. To, nažalost, vodi ka nestajanju jednog važnog dijela našeg prostornog i kulturnog identiteta.

AAeU: Vaši projekti snažno se oslanjaju na regionalistički pristup modernoj arhitekturi, a kao student ste sarađivali s Jurajem Neidhardtom koji je zagovarao spoj univerzalnog i lokalnog, te afirmisao kontinuitet graditeljskog naslijeđa. Kako danas vidite održivost i otpornost ovakvog senzibiliziranog modernističkog pristupa, posebno u kontekstu ubrzanih promjena u Bosni i Hercegovini i regiji? Kakvu poruku šalju slučajevi poput neriješenog statusa Hotela Visoko, ali i rušenja Hotela Pelegrin u Kuparima?

Zlatko Ugljen: Još od kako sam osjetio arhitekturu uz profesora Neidhardta, ubjeđenja koja formiraju moj arhitektonski izričaj i pristup, uvijek vode ka kontinuitetu graditeljskog nasljeđa, mišljenja sam

of thought. I believe that architects (and artists in general) must have an ear for change, innovation and the introduction of new ideas, but also for lessons from the past, modernist lessons with their universal significance.

However, preserving the memory of a place in this age of modern technologies and methods, amid changing approaches to both the design and construction process, is challenging but not impossible.
Today, the phase of reflection, analysis, and, if you will, sketching, has been reduced to the absolute minimum or even neglected. And, in fact, the best and most honest ideas are hidden within observation, reflection, and sketching, and are slowly revealed.

kako arhitekti, i umjetnici općenito, moraju imati sluha za promjene, inovacije, uvođenje novoga, ali i za lekcije iz prošlosti, modernističke lekcije sa svojim univerzalnim predznakom.

Međutim, održati memoriju mjesta u vrijeme suvremenih tehnologija i metoda, te izmjenjenih pristupa kako procesu projektiranja, tako i građenja, jeste izazovno, ali nije nemoguće.

Danas je faza promišljanja, analiziranja, a ako hoćete, i skiciranja, svedena na najmanju moguću mjeru ili je potpuno zanemarena. A, zapravo, se u promatranju, promišljanju, skiciranju kriju najbolje i najiskrenije ideje, koje se polako otkrivaju.

Therefore, it is necessary to enter into this spatial dialogue in a material and spiritual sense, to uncover the connections between then and now, to resist trends, and to find ways to discover those places where imaginations merge into a timeless flow. This process of reflection should not be skipped or rushed.

Zato se mora ući u taj dijalog sa prostorom u materijalnom i duhovnom smislu, otkriti poveznice između nekada i sada, odolijevati trendovima, otkrivati načine kako bi se pronašla ona mjesta na kojima se imaginacije spajaju u jedno bezvremensko koje teče. Taj proces promišljanja se ne bi trebao preskakati, niti ubrzavati.

I recently read that in Slovenia's urban policy, the prevailing opinion is that existing high-quality infrastructure should be utilised first before deciding on its demolition and rebuilding. I think that's a good decision. The post-World War II construction period is of irreplaceable significance to the entire region.

It speaks very eloquently, one could say — very convincingly, about an important part of our spatial and cultural identity. There are a significant number of buildings and projects realised from that period that are completely equal in quality to the architecture of the same era in the West and — what I consider even more important — from which lessons can still be learnt today. You mentioned the Pelegrin Hotel and the Visoko Hotel (for example).

Čitao sam nedavno kako u urbanoj politici Slovenije prevladava mišljenje da se prvo treba iskoristiti ono kvalitetno postojeće — izgrađeno, a tek onda odlučivati o rušenju i ponovnom građenju. Mislim da je to dobra odluka. Period izgradnje nakon Drugog svjetskog rata od nezamjenjivog je značaja za cijelu regiju.

Ovaj period, mogli bismo reći, veoma uvjerljivo govori o važnom dijelu našeg prostornog i kulturnog identiteta. Postoji značajan broj realiziranih objekata, ali i projekata, iz tog perioda, koji su potpuno ravnopravni po svojoj kvaliteti arhitekturi toga perioda na Zapadu i, što smatram još važnijim, iz njih se i danas može učiti. Vi ste spomenuli hotel Pelegrin i hotel Visoko.

AAeU: *You often emphasise the importance of the concept of genius loci. How can an architect respond authentically today? In your projects, the landscape is not a backdrop, but an equal player. Can architecture be relearnt from nature today, and in what way?*

AAeU: Često naglašavate važnost koncepta genius loci. Kako danas arhitekta može autentično odgovoriti? U Vašim projektima pejzaž nije kulisa, već ravnopravan akter. Može li se arhitektura danas ponovno učiti iz prirode, i na koji način?

Zlatko Ugljen: Yes. We are constantly learning from nature, consciously or unconsciously. I think the basic, initial concept or task of an architect is, regardless of typology, content, purpose, or whether a project integrates into the built or natural environment, to take into account the existing space, the relationships within it, and discover its traces and meanings over time. By that, I mean equal treatment for both the built and natural environments.

But, when you mention the concept of genius loci in architecture, for me, it's primarily a matter of sensibility.

Zlatko Ugljen: Da. Uvijek učimo iz prirode, svjesno ili nesvjesno. Mislim kako je osnovni — početni koncept ili zadatak arhitekte da, bez obzira na tipologiju, sadržaj, namjenu, bez obzira da li se integrira u izgrađeno ili prirodno okruženje, vodi računa o zatečenom prostoru, odnosima unutar njega, otkriva tragove i njegova značenja kroz vrijeme. Pod tim mislim na ravnopravan tretman i izgrađenog i prirodnog.

Ali, kada spominjete koncept genius loci u arhitekturi, za mene je on, u prvom redu, stvar senzibiliteta.

Entering a space with all its existing laws, you need to be able to feel the intangible. You need to pay attention to its sounds, smells, and the behaviour of people within it, and only then begin to visualise the space as a whole. By "listening" to the space and being sensitive to it, we can avoid the superficiality that is so common today.

Ulazivši u neki prostor , sa svim njegovim postojećim zakonitostima, trebate osjetiti ono neopipljivo. Trebate obratiti pažnju na zvukove, mirise, na ponašanje ljudi u njemu i tek nakon toga vizualizirati prostor u cjelosti. "Osluškivanjem" prostora i senzibilitetom prema njemu, možemo izbjeći superficijalnost, koja je , danas, česta pojava.

In my projects and realisations within the natural landscape, I am always guided by the lessons nature offers and the ways in which humans have learnt to coexist with it over time. This coexistence is important. It has given rise to some concrete elements – specific roof planes and constructions, opening sizes, site placement, use of local materials – but for the genius loci to be complete, forms and visual harmony with the space alone are not enough.

U svojim projektima i realizacijama koje se integrišu u prirodni pejzaž, uvijek se vodim podukama koje priroda nosi i načinima na koje se čovjek vremenom naučio suživotu s njom. Taj suživot je važan. On je iznjedrio neke konkretne elemente — specifične krovne plohe i konstrukciju, veličine otvora, postavku na teren, upotrebu lokalnih materijala, ali da bi genius loci bio potpun, nisu dovoljne samo forme i vizualna suglasnost

Hotel Visoko (1974)

Source Izvor Zlatko Ugljen Archive

For this, much more is needed – it is necessary to involve the other senses in the experience of the space ... for example: smells, sounds, and the nuances of noises, light and shadow, everything that evokes specific sensations and awakens memories. I often try to introduce an element of water into my architecture, and within that single element, different sensations emerge – movement, sound, noise, reflected light.

I believe that only such sensitive architecture can have a deeper meaning and be socially and culturally relevant. Juhani Pallasma beautifully defines architecture as "the art of reconciliation between us and the world."

sa prostorom. Da bi se to postiglo, potrebno mnogo više – potrebno je uključiti i druga čula u doživljaj prostora... na primjer: mirise, zvukove i šumove, svjetlo i sjenu, sve što kod čovjeka budi specifične senzacije i otvara sjećanja na nešto proživljeno. Često pokušavam uvesti element vode u svoje objekte i u tom, jednom elementu mogu se otkriti različite senzacije – pokret, zvuk, šum, bljeskanje svjetla.

Mišljenja sam kako samo takva, senzibilna arhitektura može imati dublje značenje i biti društveno i kulturno relevantna. Juhani Pallasma lijepo definira arhitekturu kao "umjetnost pomirenja između nas i svijeta."

Spiritual and Cultural Center Plehan Duhovno i kulturno središte Plehan (1993-2011) Source Izvor Zlatko Ugljen Archive

AAeU: *In your works, the concept of total design/total work of art is recognisable, where the architect shapes everything – from the space to the details. How do you see the role of the architect today in the context of increasing multidisciplinarity and teamwork? Have these original principles been lost, adapted, or taken on a new form?*

Zlatko Ugljen: I was fortunate, or if you will, I had the trust of open-minded investors. Today, it is not as easy. The concept of total design/total work of art requires a long, analytical process in which the architect personally comes to new insights and solutions, I would say to unexpected, even surprising ones.

This requires time that today's society is not prepared to give. With the wide range of furniture and equipment available today, there is no longer much interest in

AAeU: U Vašim djelima prepoznaje se koncept "totalnog dizajna", gdje arhitekt oblikuje sve – od prostora do detalja. Kako danas vidite ulogu arhitekta u kontekstu sve veće multidisciplinarnosti i timskog rada? Jesu li se ta izvorna načela izgubila, prilagodila, ili dobila novu formu?

Zlatko Ugljen: Imao sam sreću ili ako hoćete, zahvalne investitore koji su imali povjerenje i bili prilično širokih shvaćanja. Danas to nije lako izvesti. Koncept "totalnog dizajna" zahtijeva dug, analitičan proces u kojem i sam arhitekt dolazi do novih spoznaja i rješenja, rekao bih – neočekivanih.

To iziskuje vrijeme na koje današnje društvo nije spremno. U širokom dijapazonu namještaja i opreme koja se danas može nabaviti, više nema

designing and creating unique pieces. We really do have good designers among the younger generations, but producing a unique design for a single, specific space is no longer sustainable. Which is too bad, because architecture loses its integrity and authenticity as a result.

Objects that are the result of the total design/total work of art concept are more often seen in museums or exhibition spaces. And this is one of many responses to the changing socio-economic context, which, through globalisation, introduces its own market rules.

Regarding teamwork, it has never been foreign to architects. In fact, architects most often work in teams. Before the war, at the Institute of Architecture and Urbanism, I led the A4 Group, a larger group that functioned excellently. Our students (from the University of Sarajevo) worked there, as did students from all over Europe who came for internships through student exchanges.

Additionally, architecture is so complex and demanding that it can be said that without adequate multidisciplinary support, the design process would not be able to function.

AAeU: *In the context of modern society, have public architectural competitions and professional criticism become marginalised? Do you think there are still relevant platforms for expression and evaluation in architecture, design, and urban planning, or should they be redefined in accordance with today's challenges?*

Zlatko Ugljen: I haven't followed architectural competitions for a long time, but I try to keep up with projects that are later presented in the media, and it seems to me that the institution of competitions can still offer interesting, good solutions. However, it is extremely important that the competition is well-prepared and that the jury members are experts in their fields and are selected impartially. Of course, I would always give preference to international competitions. They are a kind of valorisation of architectural solutions. Then professional architectural criticism follows, which I believe is always welcome and, if you will, an essential part of our daily architectural lives. If we look more broadly, we will see that the number of architects who are involved in both practice and theory/criticism has increased in the last few decades. So, in reality, we see truth in the thesis that in architecture, theory and practice are one and inseparable.

Unfortunately, we are lagging behind other countries in the region in this regard.

posebnog interesa za projektiranje i dizajniranje unikatnog. Mi, zaista, imamo dobre dizajnere mlađih generacija, ali raditi unikatno, za jedan poseban objekt, više nije održivo. Šteta, jer arhitektura time gubi svoju cjelovitost.

Predmete koji su rezultat koncepta "totalnog dizajna" češće možete vidjeti u muzejima ili izložbenim prostorima. I to je jedan u nizu odgovora na promjenu društveno-ekonomskog konteksta, koja kroz globalizaciju uvodi svoja tržišna pravila.

Što se tiče timskog rada, on nikada nije bio stran arhitektima. Dapače, arhitekti najčešće rade u timovima. Prije rata na Institutu za arhitekturu i urbanizam sam vodio grupu A4, veću grupu koja je izvrsno funkcionirala. Dolazili su tu raditi i naši studenti, ali i studenti iz cijele Evrope koji su dolazili na praksu preko studentskih razmjena.

Osim toga, arhitektura je toliko složena i zahtjevna, te se može reći da bez adekvatne multidisciplinarne podrške, projektantski proces, ne bi mogao funkcionirati.

AAeU: U kontekstu savremenog društva, da li su javni arhitektonski natječaji i stručna kritika postali marginalizirani? Mislite li da još uvijek postoje relevantne platforme za izražavanje i evaluaciju u arhitekturi, dizajnu i urbanizmu, ili bi ih trebalo redefinisati u skladu s današnjim izazovima?

Zlatko Ugljen: Već dugo ne pratim raspise arhitektonskih natječaja, ali pokušavam pratiti radove, koji kasnije budu prezentirani u medijima i čini mi se kako institucija natječaja, još uvijek, može ponuditi interesantna, dobra rješenja. Međutim, iznimno je važno da natječaj bude dobro pripremljen, te da članovi žirija budu stručni u svojim oblastima i nepristrasno izabrani. Naravno, uvijek bih prednost dao međunarodnim natječajima. To je jedna vrsta valorizacije arhitektonskih rješenja. Druga je stručna arhitektonska kritika, za koju smatram da je uvijek dobrodošla, pa ako hoćete i neophodan sastavni dio naše arhitektonske svakodnevnice. Ako pogledamo šire, vidjet ćemo da se u nekoliko zadnjih desetljeća povećao broj arhitekata, koji se uz praksu bave i teorijom i kritikom. Dakle, u stvarnosti vidimo istinitost teze po kojoj su, u arhitekturi, teorija i praksa jedno i nerazdvojivo.

Nažalost, mi tu zaostajemo za zemljama iz regiona.

Architectural production is increasing, but its echoes are not appearing in relevant critical discourse. Architecture should not be reduced to a superficial evaluation of certain aesthetic phenomena in space. It must be fully understood because, whether we like it or not, it is always a testament to a particular time and a reflection of culture.

Arhitektonska produkcija se povećava, a njeni odjeci se ne pojavljuju u relevantnom kritičkom diskursu. Arhitektura se ne smije svoditi na površnu valorizaciju određenih estetskih pojava u prostoru. Ona mora doživjeti svoje puno razumijevanje, jer htjeli mi to ili ne, ona je uvijek svjedočanstvo jednog posebnog vremena i refleksija kulture.

When we think about it a little more, we can see that every quality piece of architecture is accompanied by quality critical thought. Therefore, we need to allow expert opinion to be heard, to hear the expert evaluation, and perhaps, as Bruno Zevi suggested, to allow it to accompany the entire design process.

Otherwise, I appreciate colleagues who try to talk about the importance of architecture as a medium across different platforms, and I think there are relevant platforms for exchanging opinions, presentations, and views.

Kada malo bolje razmislimo, vidjet ćemo da svaku kvalitetnu arhitekturu, prati kvalitetna kritička misao. Zato trebamo dozvoliti da se stručno mišljenje čuje, da dođe do izražaja stručna valorizacija, i možda čak da, kako je predlagao Bruno Zevi, ona prati cijeli projektantski proces.

Inače, cijenim kolege koji nastoje preko različitih platformi govoriti o važnosti arhitekture kao medija i mislim da postoje relevantne platforme za razmjenu mišljenja, prezentacije, stavove.

"Personally, I still consider architectural journals to be unsurpassed. Their visual language, of course, adapts to the times, but there are some universal values, some constants (just as there are in architecture in general) that we need to retain – the relationship to architecture as art, as science and technology, and, finally, as a medium that actively communicates with its surroundings and influences the shaping of society. Hence, launching this journal is very important.

Osobno smatram da su arhitektonski časopisi, još uvijek neprevaziđeni. Njihov vizualni jezik se, naravno, prilagođava svome vremenu, ali postoje neke univerzalne vrijednosti, neke konstante (uostalom, kao i u arhitekturi uopće) koje trebamo zadržati – odnos prema arhitekturi kao umjetnosti, kao znanosti i tehnici i , konačno, kao sredstvu koje aktivno komunicira sa svojim okružjem i utječe na oblikovanje društva. Zbog toga je pokretanje ovog časopisa veoma važno."

Chapel Kalvarija, Vitez Kapela Kalvarija, Vitez (2017) Source Izvor Zlatko Ugljen Archive

AAeU: *In the modern digital age, with growing social, environmental, and spiritual demands, how do you envision the new role of the architect? Should an architect be an intermediary between the world of the market, politics, and technology, on the one hand, and nature, culture, and spirituality, on the other? And how can this role be responsibly developed through architectural creation?*

Zlatko Ugljen: Different generations of architects will certainly answer this question differently.

Since I belong to an older generation, my answer will be in accordance with that. My experience shows that the most successful projects are created if you have enough freedom. The modernist belief that architecture must be free and democratic is not outdated. In fact, it is perhaps even more necessary, but also more difficult to achieve if we decide to "ride the waves of capital."

I believe that architecture should serve as a mediator between the views of the architect-author and society as a whole. The architect expresses their views through their visual vocabulary, not only about the built environment but also about all the circumstances that determine the context in which the architect's idea is born.

> **So, architecture is a language and it "speaks" on behalf of the author, reflects the social framework, invites reflection, questions the entire cultural context, and ultimately calls for change. Therefore, when we say that architecture is the most vital medium, we mean that it is, in fact, a kind of critical medium.**

Sometimes it might seem radical, but if we look back, we'll understand the importance of the opportunities available to architects, as well as the obligations they entail. Committing to such mediating architecture is a great responsibility. Because it is solely up to the architect whether and how architecture will truly act as a mediator and live up to expectations.

AAeU: *As a long-time educator and professor emeritus, how do you see the future of architectural education? What did you learn from your students' perspectives on the world? How do you see the difference between architectural knowledge and architectural wisdom? What impact do you expect from the development of artificial intelligence and digital tools on the education process and the daily practice of architects?*

Zlatko Ugljen: Perhaps I sound too optimistic, but I don't see artificial intelligence as something that can take over and replace creativity, inventiveness, and individuality. It's built over time, through watching and reading, experience, education, and ultimately, it cannot be standardized – it remains very individual for each of us. I think we need to be aware of this and develop these abilities in every possible way.

AAeU: U savremenom digitalnom dobu, s rastućim društvenim, ekološkim i duhovnim zahtjevima, kako zamišljate novu ulogu arhitekte? Treba arhitekta biti posrednik između svijeta tržišta, politike i tehnologije, s jedne strane, te prirode, kulture i duhovnosti, s druge? I kako se ta uloga može odgovorno graditi kroz arhitektonsko stvaralaštvo?

Zlatko Ugljen: Različite generacije arhitekata, sigurno, će različito odgovoriti na ovo pitanje.

Budući da ja spadam u onu stariju generaciju i moj odgovor će biti sukladan tome. Moje iskustvo govori kako najuspjeliji objekti nastaju ako imate dovoljno slobode. Modernističko ubjeđenje da arhitektura mora biti slobodna i demokratična nije zastarjelo. Dapače, ono je, možda, još potrebnije, ali i teže dostižno budemo li se odlučili "surfati na valovima kapitala".

Smatram kako je arhitektura tâ koja treba biti posrednik između stavova arhitekte-autora i društva u cjelini. Arhitekt svojim vizualnim rječnikom iznosi svoje stavove, ne samo o izgrađenom prostoru, nego i o svim okolnostima koje određuju kontekst u kojem nastaje zamisao arhitekta.

> Dakle, arhitektura je jezik i ona "govori" u ime autora, zrcali društveni okvir, poziva na razmišljanje, propituje cjelovit kulturni kontekst i, konačno, poziva na promjene. Zato, kada kažemo da je arhitektura najživotniji medij, onda mislimo da je, zapravo, svojevrstan kritički medij.

Nekada to može djelovati radikalno, ali osvrnemo li se, shvatit ćemo važnost mogućnosti koje se arhitektima pružaju, ali i koje ih obvezuju. Obavezati se na takvu arhitekturu koja posreduje, velika je odgovornost. Jer, samo o arhitektima ovisi da li će i na koji način arhitektura biti stvarni posrednik, ispuniti očekivanja.

AAeU: Kao dugogodišnji pedagog i profesor emeritus, kako vidite budućnost arhitektonskog obrazovanja? Šta ste učili iz njihovih pogleda na svijet? Kako vidite razliku između arhitektonskog znanja i arhitektonske mudrosti? Kakav utjecaj očekujete od razvoja umjetne inteligencije i digitalnih alata na proces obrazovanja i svakodnevnu praksu arhitekata?

Zlatko Ugljen: Možda ću zvučati previše optimistično, ali ja ne vidim umjetnu inteligenciju kao nešto što može preuzeti i zamijeniti kreativnost, inventivnost, individualnost. To se gradi vremenom, gledanjem i čitanjem, iskustvom, edukacijom i u konačnici se ne može unificirati — ostaje vrlo individualno za svakoga od nas. Mislim da toga trebamo biti svjesni i razvijati te sposobnosti na svaki način.

Retired Priests Home, Mostar Dom umirovljenih svećenika, Mostar **(1989, 2004)** **Source** Izvor **Zlatko Ugljen Archive**

We shouldn't allow trends to dictate our approach, but instead develop quality in our thinking. Precisely for this reason, it seems to me that architectural education should insist on less rigid and formal ways of education, which resemble high schools, and more on developing the individual competencies I mentioned.

Ne dozvoliti trendovima da nas usmjeravaju, nego razvijati kvalitetan način promišljanja. Upravo zbog toga mi se čini kako bi arhitektonsko obrazovanje trebalo insistirati na manje rigidnim i formalnim načinima obrazovanja koje podsjećaju na srednje škole, a više razvijati individualne kompetencije koje sam spomenuo.

Also, I believe students should broaden their horizons in various ways and within other segments of culture. This will give them more breadth and a general education, which is essential for architects. It's no longer enough to be just technically educated and engineer-trained, as it once seemed.

Today it is clear that the architect, once again, needs to become a 'Renaissance man'. One who strives to understand one's responsibility in humanising space. This needs to be insisted upon, and attempts made to pass it on to new generations.

The benefit of today's education is the opportunity it gives students to travel, spend time and exchange experiences with their peers. In looking around and getting to know new things, they will set higher goals for themselves.

Također, smatram kako studenti trebaju širiti svoje horizonte na razne načine i unutar drugih segmenata kulture. To će im dati više širine i općeg obrazovanja koje je neophodno za arhitekte. Više nije dovoljno biti samo tehnički obrazovan i inžinjerski osposobljen, kako je nekada to izgledalo.

Danas je jasno da arhitekt, ponovo, treba postati "homo universale". Truditi se shvatiti svoju odgovornu ulogu u humaniziranju prostora. Na tome treba insistirati i pokušati prenijeti novim generacijama.

Dobra strana današnje edukacije je mogućnost koja se studentima daje da putuju, provode vrijeme i razmjenjuju iskustva sa kolegama. Gledajući oko sebe i upoznavajući novo, postavljat će si neke više ciljeve.

Also, and I've said this many times – an architect must not forget to play, because playing is freedom, freedom develops imagination, and imagination then leads to the creativity that we transfer to architecture.

Također, a više puta sam to rekao — arhitekt ne smije zaboraviti igrati se, jer igra je sloboda, a sloboda razvija maštu, a mašta onda, kreativnost koju prenosimo na arhitekturu.

AAeU: *Your religous buildings, such as the White Mosque in Visoko, and the chapels on Plehan and Kalvarija, exude tranquility and spirituality. In a time when modern society often neglects intangible values, which universal messages and qualities do you consider enduring and necessary for the architecture of the future?*

Zlatko Ugljen: I think I've already answered this question in a way, because my relationship with architecture as a creative process always strives to achieve timelessness. Namely, harmony between man, space, and object is a conditio sine qua non of architecture.

At one time, I used to emphasise to students in introductory lectures that every human habitat is determined by three things – spiritual needs, material needs, and the community's relationship to life, and I think these are timeless lessons that we are obliged to shape in the spirit of our own time.

The situation is a bit more complex with religious buildings, as the creative dimension is directed towards penetrating the essence of the spiritual, the metaphysical, yet brought to life through concrete architectural forms.

AAeU: Vaši sakralni objekti, poput Bijele džamije u Visokom, te kapele na Plehanu i Kalvariji, odišu smirenošću i duhovnošću. U vremenu kada savremeno društvo često zanemaruje nematerijalne vrijednosti, koje univerzalne poruke i kvalitete smatrate trajnim i potrebnim za arhitekturu budućnosti?

Zlatko Ugljen: Mislim da sam do sada, na neki način, već odgovorio na ovo pitanje, jer moj odnos prema arhitekturi kao stvaralačkom procesu uvijek teži dosezanju bezvemenskog. Naime, harmonija između čovjeka, prostora i objekta je conditio sine qua non arhitekture.

Svojevremeno sam studentima na uvodnim predavanjim isticao kako je svako ljudsko stanište određeno sa tri stvari – duhovnim potrebama, materijalnim potrebama i odnosom zajednice prema životu i mislim da su to neke bezvremenske pouke, koje smo dužni oblikovati u duhu svoga vremena.

Kod sakralnih objekata je situacija malo složenija, jer se stvaralačka dimenzija usmjerava ka pronicanju u srž duhovnog, metafizičkog, a opet, oživotvorenog kroz konkretne arhitektonske forme.

White Mosque, Visoko Bijela džamija, Visoko **(1980)** **Source** Izvor **Zlatko Ugljen Archive**

These contemporary forms should reflect the universality of the modernist hand, and the spaces should be rich in metaphor, revealing traces of the past.

Finally, with sacred spaces, approach sequences are important — ones which slowly open up the space and allow the believer to be drawn to it. This is a kind of spiritual preparation in which architecture participates with its visual significance. Therefore, sacred spaces should have meaningful contact with the exterior; the atrium, piazza, garden, courtyard, porch, and gathering areas are important conceptual and aesthetic elements.

My idea of a sacred space – any place of worship – implies a space where light, shadow, and metaphor create an atmosphere of silence and contemplation, and pure generic, abstract, almost ascetic, white forms contribute to this feeling of peace, order, and harmony.

Te suvremene forme trebaju reflektirati univerzalnost izgrađenu modernističkim rukopisom, a prostori trebaju biti bogati metaforama u kojima se otkrivaju dodiri prošlosti.

Konačno, kod sakralnih prostora važne su prilazne sekvence, kojima se objekt polako otvara i dopušta vjerniku da ga privuče. To je svojevrsna duhovna priprema u kojoj učestvuje arhitektura sa svojim vizualnim predznakom. Zato sakralni prostori trebaju imati znakovit kontakt sa vanjskim prostorom – atrij, pjaceta, vrt, avlija, trijem, prostori za okupljanje , važan su konceptualni i estetski element.

Moja ideja sakralnog prostora — bilo koje bogomolje, podrazumijeva prostor u kojem svjetlo, sjena i metafore kreiraju atmosferu tišine i kontemplacije, a čiste generičke, apstraktne, gotovo asketske, bijele forme pridonose tom osjećaju mira, reda i harmonije.

AAeU: *Your body of work clearly demonstrates a synthesis of modernist expression with local heritage, as well as elements of postmodernism and critical regionalism. Which of your works do you consider closest to your own idea of architecture? What are the fundamental principles you would highlight from your own approach as inspiration for younger generations? And finally, what would you say to young architects looking for meaning and a position in today's increasingly complex world?*

Zlatko Ugljen: It's difficult for me to single out anything in particular because each of my projects, and therefore each building, is the result of a firm belief that architecture must always be considered within a given context, both spiritually and materially, meaning it must respect the space into which it is built, its character, and its identity.

Being aware of this, I always set out to discover something new, and, for me, that's the most important part of the process. And if I were to single something out, it would be the Ruža Hotel in Mostar. I'll tell you why too. Because I had the freedom to create spaces that people still remember today. They remember the intimate atmosphere of the interior, as well as the small streets – walkways, which connected the service facilities with the catering establishments. They also remember the stream that flowed through one of the hotel cafés. It combined the modernist vocabulary of spontaneous compositional aesthetics with the Mediterranean spirit.

But above all, through this project, I achieved what I always strive for – the humanisation of the district, or architecture that goes beyond the construction process, as Schumi says. This is the path towards timelessness in architecture, which is difficult to achieve, but which we are obliged to follow.

Sarajevo, November 2025

AAeU: U Vašem opusu jasno se očituje sinteza modernističkog izraza s lokalnim naslijeđem, kao i elementima postmodernizma i kritičkog regionalizma. Koje Vaše djelo doživljavate kao najbliže vlastitoj ideji arhitekture? Koji su temeljni principi koje biste izdvojili iz vlastitog pristupa kao inspiraciju za mlađe generacije? I na kraju, šta biste poručili mladim arhitektima koji danas traže smisao i poziciju u sve kompleksnijem svijetu?

Zlatko Ugljen: Teško mi je nešto izdvajati, jer je svaki moj projekt, a onda i objekt plod čvrstih uvjerenja da se arhitektura uvijek mora promišljati u datom kontekstu, duhovnom i materijalnom, dakle, poštivati prostor u koji se ugrađuje, njegov karakter i identitet.

Svjestan toga, uvijek krećem u potragu za otkrivanjem nečeg novog i to je, za mene, najvažniji dio procesa. A, ako bih želio nešto izdvojiti, onda bi to bio hotel Ruža u Mostaru.Reći ću vam i zašto. Zato što sam imao slobodu stvoriti prostore kojih se ljudi i danas sjećaju. Sjećaju se prisne atmosfere interijera, ali i malih ulica — pasarela, koje su povezivale uslužne sadržaje sa ugostiteljskim, sjećaju se i potočića koji je proticao kroz jednu od hotelskih kavana. U njemu su bili spojeni modernistički rječnik spontane kompozicione estetike i mediteranski duh.

Ali, iznad svega, kroz taj projekt sam dostigao ono čemu uvijek težim – humanizaciji okružja ili arhitekturi koja nadilazi proces gradnje, kako kaže Schumi. To je put ka bezvremenosti arhitekture, koji je teško dostići, a koji smo obavezni slijediti.

Sarajevo, novembar 2025.

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INTERVIEW

MOMOYO KAIJIMA & SIMONE GOBBO

ATELIER BOW-WOW DEMOGO

BEYOND BUILDING: ARCHITECTS ARE READERS

DALJE OD GRAĐENJA: ARHITEKTI SU ČITATELJI

When Momoyo Kaijima and Simone Gobbo speak about architecture, they rarely start with form or a solution. Moving through architecture as observers first, their work begins elsewhere. Kaijima, a co-founder of Tokyo-based Atelier Bow-Wow has long mapped the overlooked urban patterns of cities. Gobbo, a co-founder of the Italian collective Demogo, turns the same attention towards the fragile contexts of European towns. Within their practices, architecture becomes less a project to be completed and more a conversation to be kept open.

In Sarajevo, during the Days of Architecture biennial in September 2025, Momoyo Kaijima and Simone Gobbo reflected on drawing as a mode of thinking, on the metaphor of "slowing down," and on why, at times, the best design decision is not to build at all. Together, they advocate for the idea that architecture can serve as a form of resistance, expressed through attentive observation and care for others.

Kada Momoyo Kaijima i Simone Gobbo govore o arhitekturi, rijetko počinju od forme ili rješenja. Kroz arhitekturu se prvenstveno kreću kao posmatrači, a njihov rad započinje negdje drugo. Kaijima, suosnivačica tokijskog ureda Atelier Bow-Wow, godinama mapira zanemarene urbane obrasce gradova. Gobbo, suosnivač italijanskog kolektiva Demogo, istu pažnju usmjerava na osjetljive kontekste evropskih gradova i sela. U njihovim praksama, arhitektura postaje manje projekat koji treba dovršiti, a više razgovor koji treba stalno držati otvorenim.

Tokom bijenala Dani arhitekture u Sarajevu, u septembru 2025. godine, Momoyo Kaijima i Simone Gobbo usporedili su svoje perspektive o crtežu kao sredstvu promišljanja, o metafori "usporavanja" te o tome zašto je ponekad najbolja odluka u projektovanju – zapravo ne graditi ništa. Zajedno zagovaraju ideju da arhitektura predstavlja oblik otpora, koji se ispoljava kroz promišljeno zapažanje i brigu za druge.

AAeU: *To frame our conversation, we would like to invite you to introduce yourselves by situating your architectural thinking alongside the more personal experiences that shape it. Perhaps you could speak first as individuals, and then in relation to your respective collectives — outlining how these different identities inform the practices you lead.*

Simone Gobbo: I am an architect, but a theorist first. I really love the idea that architecture starts in the mind. I have a lot of passion for books, and I always try to learn new things. I believe that architecture cannot produce other architecture on its own. For me, this idea of art is one of contamination. However, it is not possible to do all the arts; I prefer to choose one small part because I fear the open territory.

AAeU: *Would you say this way of thinking has always been part of your practice? Was there a particular moment, or a specific project, that fundamentally shifted your approach?*

Simone Gobbo: This has a lot to do with my biography. When we won the 'Europan' competition, we were so young, around 27. It was a big building, a town hall, and I was a little bit naive, I would say, because I thought we could build this building and then go on to win many more competitions and become superstars. But immediately, from this experience, we learned a lot, and it was a really strong lesson for me. I come from a rural village in Italy, and my relationship with "Europe" is not straightforward. People often talk about Europe as if it's a single, unified idea, but life in the countryside is a completely different situation from what that word usually suggests. For me, it was almost a slight trauma, and it changed my approach. When I finished the building [Europan competition] with the other members of the team, we asked ourselves: Ok, what do we do now? Why don't we really try to reinvent ourselves? And it's strange, at the same time, the office had a switch, we had a crisis, but I still think we learned a lot from that competition. It was a turning point for us.

Momoyo Kaijima: I grew up in Tokyo. My partner, Yoshiharu Tsukamoto, grew up in Kanagawa, the next prefecture along the coast. I met him at graduate school while doing my Master's at Tokyo Tech (now the Tokyo Institute of Technology), and he is four years older than me. We shared architectural ideas and decided to form an architectural team. We are similar, but also different. We are both good at observing things in the environment. I am quick. He needs more time. However, these differences lead to fruitful discussions. Also, we are both teachers, but in different schools: Yoshi teaches at Science Tokyo, and before I taught at ETH Zurich, I taught at the University of Tsukuba. The student characters of each school are different. The students at Science Tokyo are engineering-based and like technology, while the students at the University of Tsukuba are art-based and like emotional things. Tsukamoto Lab and Kaijima Lab used to collaborate. After studying, some students used to come and work at Atelier Bow-Wow as young architects.

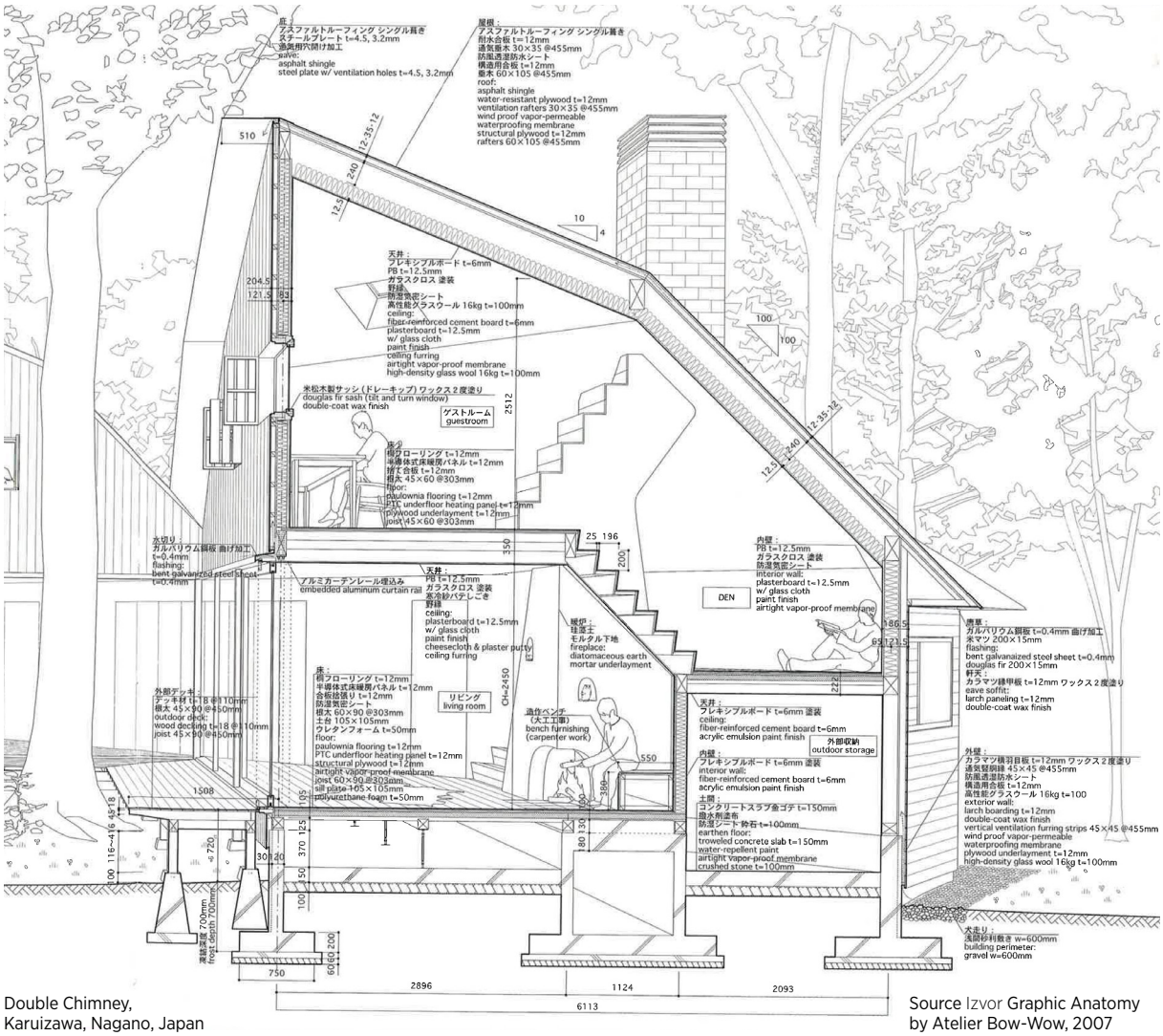
AAeU: Kako bismo postavili okvir unutar za ovaj razgovor, zamolili bismo Vas da se predstavite kroz prizmu svog arhitektonskog promišljanja i ličnih iskustava. Možda biste mogli prvo govoriti u svoje lično ime, a zatim se osvrnuti na svoje kolektive — objasnite nam kako te različite uloge formiraju arhitektonske prakse koje vodite.

Simone Gobbo: Ja sam arhitekt, ali prije svega teoretičar. Jako volim ideju da arhitektura počinje u umu. Imam veliku strast prema knjigama i uvijek pokušavam učiti nove stvari. Vjerujem da arhitektura ne može proizvoditi arhitekturu sama po sebi. Za mene je ideja umjetnosti povezan sa konceptom kontaminacije. Ali, nije moguće baviti se svim umjetnostima; ja radije biram jedan mali dio jer se plašim tog preširokog teritorija.

AAeU: Da li biste rekli da je ovaj način razmišljanja oduvijek bio prisutan u Vašoj praksi? Postoji li trenutak ili projekat koji je suštinski promijenio Vaš pristup arhitekturi?

Simone Gobbo: Mnogo toga ima veze s mojom biografijom. Kada smo pobijedili na Europan takmičenju bili smo jako mladi, oko 27 godina. Radilo se o velikoj zgradi, gradskoj vijećnici, a ja sam bio pomalo naivan, rekao bih, jer sam mislio da ćemo sagraditi tu zgradu, zatim pobijediti na još mnogo natječaja i postati superzvijezde. Ali odmah, iz tog iskustva, mnogo smo naučili — bila je to snažna lekcija za mene. Dolazim iz ruralnog mjesta u Italiji, a moj odnos prema "Evropi" nije jednostavan. Ljudi često govore o Evropi kao o jedinstvenoj ideji, ali život na selu potpuno je drugačiji od onoga što ta riječ obično priziva. Za mene je to bilo gotovo kao lagana trauma, i promijenilo je moj pristup. Kada smo završili zgradu [Europan takmičenje], pitali smo se: dobro, šta sada? Zašto zaista ne pokušamo da se iznova stvorimo? I čudno je — istovremeno, naš ured je doživio preokret, imali smo krizu, ali i dalje mislim da smo mnogo naučili iz tog natječaja. To je za nas bila prelomna tačka.

Momoyo Kaijima: Odrasla sam u Tokiju. A moj partner, Yoshiharu Tsukamoto, odrastao je u Kanagawi, susjednoj prefekturi duž obale. Upoznala sam ga na postdiplomskom studiju na Tokyo Tech-u [danas Tokyo Institute of Technology], i on je četiri godine stariji od mene. Dijelili smo slične arhitektonske ideje i odlučili osnovati arhitektonski tim. Slični smo ali i različiti. Oboje smo dobri u posmatranju stvari u okruženju. Ja sam brza. Njemu treba više vremena. Međutim, upravo ove razlike rezultiraju produktivnim diskusijama. Također, oboje smo predavači, ali na različitim školama: Yoshi predaje na Science Tokyo, a prije nego što sam predavala na ETH Zürich, predavala sam na Univerzitetu Tsukuba. Karakteri studenata u različitima školama su drugačiji. Studenti na Science Tokyo su inženjerskog profila i vole tehnologiju, dok su studenti na Univerzitetu Tsukuba umjetnički tipovi i vole emocionalne stvari. Tsukamoto Lab i Kaijima Lab su često međusobno sarađivali. Nakon studija, neki studenti su dolazili raditi u Atelier Bow-Wow kao mladi arhitekti.



Double Chimney,
Karuizawa, Nagano, Japan

Source Izvor Graphic Anatomy
by Atelier Bow-Wow, 2007

AAeU: *When it comes to the methodology, there is something that connects your two practices, Atelier Bow-Wow and Demogo, and that is the combination of research and practice, which is very rare to encounter in architectural practices today. To achieve that, it takes a lot of time and is in direct contrast to the acceleration we experience in everyday life. For example, your drawings [to Momoyo] are very inclusive, and your [to Simone] photographs of the bivouac are prioritising its surroundings rather than the structure itself — is this something you can afford to implement in all your projects, or is it an exception/outlier?*

Momoyo Kaijima: Our drawings are a platform for observing the process. We always consider how our environment can contribute to the sustainability of the world. Architecture cannot start from *Tabula rasa*.

Simone Gobbo: I think it is an attitude. Basically, we try to manage what one can control in life. It is also very important to dream. In my "first life" as an architect, I wanted to grow bigger and bigger, to have more people in the office, to be more structured and efficient, but after the experience of the competition and the book, I now understand I don't want any of that. I want to have my time to stay with my texts and drawings.

AAeU: Kada je riječ o metodologiji, postoji nešto što povezuje Vaše dvije prakse, Atelier Bow-Wow i Demogo, a to je kombinacija istraživanja i prakse, što je danas rijetkost u arhitektonskom polju. Da bi se to postiglo, potrebno je mnogo vremena i direktno je suprotno ubrzanju koje svakodnevno doživljavamo. Na primjer, Vaši crteži [Momoyo] su vrlo inkluzivni, a Vaše fotografije bivka [Simone] - u fokus stavljaju njegovo okruženje u odnosu na samu strukturu - da li je to nešto što sebi možete priuštiti u svim projektima ili se radi o iznimkama?

Momoyo Kaijima: Naši crteži su platforma za posmatranje procesa. Uvijek razmišljamo o tome kako naše okruženje može doprinijeti održivosti svijeta. Arhitektura ne može početi od "čiste ploče" [tabula rasa].

Simone Gobbo: Mislim da je to stav. U suštini, pokušavamo upravljati onim što se u životu može kontrolisati. Važno je i sanjati. U mom "prvom životu" kao arhiktekte, želio sam rasti sve više, imati više ljudi u uredu, biti strukturiraniji i efikasniji ali nakon iskustva natječaja i knjige, sada shvatam da to ne želim. Želim odvojiti vrijeme za svoje tekstove i crteže.

I think that in the career of an architect, it is not necessary to produce a lot of projects. You can have one. There are wonderful examples of authors who produced only one building and nothing more. In addition, I think education is very important.

Mislim da u karijeri arhitekte nije nužno napraviti mnogo projekata. Dovoljno je imati jedan. Postoje predivni primjeri autora koji su sagradili samo jednu zgradu i ništa više. Također mislim da je obrazovanje važno.

I teach at the University of Venice, IUAV, and I talk to my students a lot about how we use time and what is the relationship between the architectural profession and time. I think it is necessary to understand before we draw. Often, we realize it is enough to understand without actually drawing or building anything, without a design idea to propose. If design elements are part of a space, but they help you understand the context without any special relation between each other, we can start to try to understand.

Predajem na Univerzitetu u Veneciji, IUAV, i mnogo razgovaram sa studentima o tome kako koristimo vrijeme i kakav je odnos arhitektonske profesije prema vremenu. Mislim da je potrebno razumjeti prije nego što krenemo crtati. Često shvatimo da je dovoljno razumjeti bez crtanja ili građenja bilo čega, bez predlaganja arhitektonske ideje. Ako arhitektonski elementi postoje u prostoru ali vam pomažu da shvatite kontekst bez posebne međusobne veze, tu možemo početi razumijevati.

AAeU: *During your lecture, you mentioned how often you turn to text as a way of defining or even claiming spatial situations. Do you think architecture can exist purely through language, or does it inevitably require a visual form to be fully understood?*

AAeU: Tokom predavanja spomenuli ste da se često koristite tekst kao način definisanja ili čak zauzimanja prostornih okvira. Može li se arhitektura artikulisati isključivo jezički ili joj je neizbježno potrebna vizualna forma da bi bila potpuno shvaćena?

Simone Gobbo: Well, some of my favorite architecture is in text. There is this beautiful book by Italo Calvino called Barone Rampante, where he talks about living in a tree and moving from a tree to a tree — this is a wonderful architecture that doesn't exist but does exist at the same time — in my mind. I think it's a form of architecture, if you have the capacity to understand.

Simone Gobbo: Pa, neka od mojih omiljenih arhitektonskih djela su zapravo tekstualna. Postoji divna knjiga koju je napisao Italo Calvino, a koja se zove Baron Rampante, gdje Calvino govori o životu na drvetu i kretanju s drveta na drvo — to je predivna arhitektura koja ne postoji, a opet postoji — u mom umu. Mislim da je to oblik arhitekture, ako imate sposobnost da ga razumijete.

Bologna Financial Police Offices

Source Izvor Demogo Archive

AAeU: *Building on Simone's point about narrative, we'd like to turn to your use of participative drawing, Momoyo. This method moves architecture from an individual pursuit to a collective one. What does this shared act of drawing reveal about human relations, and how do we understand them through the process?*

Momoyo Kaijima: In public drawing, we collect old drawings of places and try to compare the situation today with how it was in the past. Sometimes there are similarities; sometimes there are none. This comparison always creates a narrative. In Public Drawing, there is always consensus within the group on what to draw. It is important for students to talk to professors and experts to explore their observations. Drawings are made with pencils, which contributes to the openness of the process. Paper provides a common ground for communication.

AAeU: *How do you maintain this kind of process-driven approach? And what does 'slowing down' in architecture mean today, particularly when set against the urgency of global challenges and the need to reconsider the values, criteria, and cultural purpose of what we build?*

Momoyo Kaijima: Architecture should serve society and the environment. Industrial architecture does not contribute to this and creates more problems. Buildings are constructed purely for profit or for the sake of industry. We need more buildings for culture. Compared to the 20th century, should we be slowing down in architecture? Various philosophers have tried to find a way to measure happiness in order to counter the quantitative solution. Architects must also consider a new measure of cultural architecture in industry.

AAeU: Nadovezujući se na ono što je Simone rekao o narativu, želimo se okrenuti Vašoj upotrebi metode participativnog crtanja, Momoyo. Ova metoda pomjera arhitekturu iz individualnog u kolektivni proces. Šta taj zajednički čin crtanja otkriva o ljudskim odnosima i kako ih kroz proces razumijemo?

Momoyo Kaijima: U javnom crtanju prikupljamo stare crteže mjesta i pokušavamo uporediti današnju situaciju s onom iz prošlosti. Ponekad postoje sličnosti, ponekad ne. Ovo poređenje uvijek stvara narativ. U javnom crtanju [public drawing] uvijek postoji konsenzus unutar grupe o tome šta se crta. Važno je da studenti razgovaraju s profesorima i stručnjacima kako bi istražili svoja opažanja. Crteži se rade olovkama, što doprinosi otvorenosti procesa. Papir pruža zajedničku osnovu za komunikaciju.

AAeU: Kako održavate ovaj pristup vođen procesom? I šta znači "usporavanje" u arhitekturi danas, posebno u odnosu na hitnost globalnih izazova i potrebu preispitivanja vrijednosti, kriterija i kulturne svrhe onoga što gradimo?

Momoyo Kaijima: Arhitektura treba biti u službi društva i okoliša. Komercijalna arhitektura tome ne doprinosi i stvara više problema. Zgrade se grade isključivo radi profita ili radi industrije. Treba nam više zgrada za kulturu. U poređenju s 20. stoljećem, trebamo li usporiti arhitekturu? Razni filozofi pokušali su pronaći način mjerenja sreće kako bi se suprotstavili kvantitativnim rješenjima. Arhitekti također moraju razmotriti novu mjeru kulturne arhitekture u industriji.

Photo Credit Fotografisao Almin Tabak, Days of Architecture Sarajevo Dani arhitekture Sarajevo, 2025

Photo Credit Fotografisao Almin Tabak, Days of Architecture Sarajevo Dani arhitekture Sarajevo, 2025

AAeU: *Sarajevo is often described as a city that "asks you to slow down", that lives through its imperfections, and has an energy that feels "unfiltered" and human. How do you read this slower pace and raw energy of Sarajevo's public space, and what does it mean for an architect working within such a context?*

Simone Gobbo: In Italy, there is a huge problem of too many tourists. All the old, beautiful Italian cities are now totally submerged in this strange condition of oversaturation. I understand that having tourists is economically important to people and the city, but it has also changed a person's relationship with public space. Public space is becoming a curated experience.

But here in Sarajevo, I find this place totally free of such systems. I love that Sarajevo is an imperfect place. I love imperfections. I understand the potential here, but also this energy that, if you listen, you can hear it everywhere, in the people. There is a strong sense that people here want to live — in Italy, I don't see it as often anymore, this powerful will to live.

Contemporary life is defining all these different systems for us, and it is something that changes a city. It changes its public space. This is something that is maybe outside of architecture, but at the same time, an architect has to be aware of this if they want to work in a context.

And Sarajevo, for me, is this punk place that has a lot of these beautiful imperfect places, and it has something to say. This festival is an opportunity to do something. It is not easy to find this energy anymore, or at least it is not as common anymore.

AAeU: *If you were to do a project here in Sarajevo, what element would you take or grab onto to work with it?*

Simone Gobbo: A rooftop. A small rooftop.

AAeU: Sarajevo se često opisuje kao grad koji je sinonim za "usporavanje", grad koji živi kroz svoje nesavršenosti i nosi energiju koja je "nefiltirana" i ljudska. Kako čitate taj sporiji ritam i sirovu energiju sarajevskog javnog prostora i šta to znači za arhitektu koji radi u takvom kontekstu?

Simone Gobbo: U Italiji postoji ogroman problem, a to je previše turista. Svi stari, predivni gradovi sada su potpuno preplavljeni čudnim stanjem prezasićenosti. Razumijem da su turisti ekonomski važni ali to je promijenilo odnos ljudi prema javnom prostoru. Javni prostor postaje kurirano iskustvo.

Ali ovdje u Sarajevu vidim mjesto potpuno oslobođeno takvih sistema. Volim što je Sarajevo nesavršen grad. Volim nesavršenosti. Vidim potencijal ali i energiju koja, ako je osluškujete, postoji svuda i u ljudima. Postoji snažan osjećaj da ljudi ovdje žele živjeti — u Italiji to više ne vidim tako često, tu moćnu volju za životom.

Savremeni život definiše sisteme za nas i to mijenja grad. Mijenja njegov javni prostor. To je možda izvan arhitekture ali arhitekt to mora znati ako želi raditi u kontekstu.

A Sarajevo je za mene jedan punk prostor pun predivnih nesavršenosti te ima šta da kaže. Ovaj festival je prilika da se nešto uradi. Nije lako više pronaći takvu energiju ili barem nije više tako česta.

AAeU: Kada biste imali priliku raditi projekat ovdje u Sarajevu, koji biste element uzeli kao početnu tačku?

Simone Gobbo: Krov. Mali krov.

Photo Credit Fotografisao Almin Tabak, Days of Architecture Sarajevo Dani arhitekture Sarajevo, 2025

AAeU: *You did research about the Tokyo Olympics in 1964 and again in 2020, where you compared these two events and analyzed how they affected the urban development. We talked briefly about Japan's vision of nurturing change, transformation and resilience; if Sarajevo were to take lessons from the Tokyo Olympics, what lessons would you say are applicable here?*

Momoyo Kaijima: My recommendation is to use the potential of smaller sites instead of large-scale ones. In Shibuya, some developers have done so for the Olympic development, and we have lost the history, character and topography of the area. If the city loses its scale, it also loses its cultural identity.

AAeU: *Building on what Simone mentioned earlier about the importance of intangible resources, how do you see the architect's role in activating these unseen, often fragile capacities within a world that feels increasingly fragmented?*

Momoyo Kaijima: Architects should inform the general public — including fishermen, farmers, investors and municipal officers — about the city, its landscape and its cultural richness. It is also the responsibility of architects to share problems and guide people in the right direction. If architects have good observation skills and can draw, their role is meaningful. This means that architects not only design buildings, but also guide the community towards wholeness and greater knowledge. I think this could be the future of architecture.

AAeU: Radili ste istraživanje o Olimpijadi u Tokiju 1964. i 2020. godine, kroz poređenje ova dva događaja i analizu njihovog utjecaja na urbani razvoj. Govorili smo o japanskoj viziji poticanja promjene, transformacije i otpornosti; ukoliko bi Sarajevo moglo preuzeti lekcije iz tokijskih olimpijskih igara, koje bi to lekcije bile?

Momoyo Kaijima: Moj savjet je da se iskoristi potencijal manjih parcela umjesto velikih. U Shibuyi su neki investitori to ignorisali tokom olimpijskog razvoja i izgubili smo historiju, karakter i topografiju područja. Ako grad izgubi svoju mjeru, gubi i svoj kulturni identitet.

AAeU: Nadovezujući se na ono što je Simone ranije rekao o značaju nematerijalnih resursa: kako vidite ulogu arhitekte u aktiviranju tih nevidljivih, često krhkih potencijala u svijetu koji postaje sve fragmentiraniji?

Momoyo Kaijima: Arhitekti bi trebali educirati širu javnost — uključujući ribare, poljoprivrednike, investitore i općinske službenike — o gradu, pejzažu i njegovom kulturnom bogatstvu. Također, arhitekti imju odgovornost da ukazuju na probleme i usmjeravaju ljude na pravi način. Ako arhitekti imaju dobre vještine zapažanja i znaju crtati, njihova uloga postaje značajna. To znači da arhitekti ne projektuju samo zgrade, već vode zajednicu ka cjelovitosti i većem znanju. Mislim da se u ovome ogleda budućnost arhitekture.

AAeU: *Do you ever find yourself designing against your instincts?*

Simone Gobbo: Actually, yes, a lot. I mean, that is one of the reasons that we don't do private commissions. We always work only on competitions, so we wouldn't have typical architectural clients. When we opened our office, we said OK, what do we do — and we all said competitions. At times, it becomes difficult, but I also love the tension of a competition. Because if we don't win a new competition, the office might collapse. So, it is stressful, but if you enter it with a mindset that you have to manage this tension, balance everything out, and move on, then you are on to something. I also love learning from others. I love seeing how different architects answered the same question in a competition. I think it is absolutely wonderful.

AAeU: *Are you an optimist or a pessimist?*

Momoyo Kaijima: I am generally an optimist. I want to trust people, too.

Simone Gobbo: The wonderful optimist.

Sarajevo, September 2025

AAeU: *Dešava li Vam se da projektujete suprotno svojim instinktima?*

Simone Gobbo: Zapravo, da, jako često. To je i jedan od razloga što ne radimo privatne projekte. Radimo samo natječaje, tako da ne bismo imali tipične klijente. Kada smo otvorili ured, pitali smo se: dobro, šta ćemo raditi? I rekli smo: natječaje. Ponekad je teško ali volim tu napetost natječaja. Jer ako ne pobijedimo na novom natječaju, ured bi se mogao urušiti. To je stresno, ali zauzmete stav da morate upravljati tom napetošću, balansirati i ići dalje, onda ste na dobrom putu. Također volim učiti od drugih. Volim vidjeti kako su različiti arhitekti odgovorili na isti zadatak u natječaju. Mislim da je to apsolutno divno.

AAeU: *Da li ste optimiste ili pesimiste?*

Momoyo Kaijima: Uglavnom sam optimista. Također želim vjerovati ljudima.

Simone Gobbo: Divni optimista.

Sarajevo, septembar 2025.

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INTERVIEW
REINIER DE GRAAF
OMA / AMO

WORLD-CLASS-ISH: ARCHITECT'S GLOSSARY ARHI-TEKTONSKI POJMOVNIK

Dutch architect and writer Reinier de Graaf is hardly a conventional keynote speaker, a fact the audience at the Days of Architecture biennial discovered when he took the stage in Sarajevo, on the evening before this conversation. With his characteristic dry, self-reflective humour and certain candour, he talked about his latest book, architect, verb.: The New Language of Building, to stage something closer to a performance than a lecture. Ten terms — world-class/award-winning, excellence, sustainability, well-being, liveability, placemaking, and creativity/innovation – taken from the glossary of everyday architect life were dissected, inverted, and held up for inspection. What emerged was less of a talk and more of a mirror held up to the profession itself.

In what follows, we sit down with Reinier to explore how those terms landed, what they reveal about architecture´s ambition and limits today, why language matters as much as form, and if scepticism, or perhaps just realistic critique, is the only honest stance a contemporary practitioner can take.

Za holandskog arhitektu i autora Reiniera de Graafa se ne može reći da je konvencionalan predavač, što je publika na bijenalu Dani arhitekture 2025 shvatila čim je izašao na scenu u Sarajevu, večer uoči ovog razgovora. Svoju najnoviju knjigu "Architect, Verb: The New Language of Building", de Graaf je predstavio kroz svojevrstan performans, umjesto klasičnog predavanja, sa svojim karakterističnim suhim, samorefleksivnim humorom i određenom dozom iskrenosti. Deset pojmova — world-class/award-winning, excellence, sustainability, well-being, livability/liveability, placemaking i creativity/innovation — preuzetih iz glosara svakodnevnog arhitektonskog života, bilo je secirano, izvrnuto i izloženo preispitivanju. Ono što je iz toga proisteklo bilo je manje predavanje, a više ogledalo postavljeno pred samu profesiju.

U nastavku smo razgovarali s Reinierom de Graafom o tome kako je odabrao baš te pojmove, šta oni otkrivaju o ambicijama i ograničenjima arhitekture danas, zašto jezik vrijedi jednako koliko i forma, te da li su skepticizam ili, pak, realistična kritika jedine iskrene pozicije koju današnji savremeni arhitekta može zauzeti.

AAeU: *You have been described in many ways during your career, including 'starchitect'. How would you introduce yourself in relation to yourself as an individual, to your collective, and to your ideology?*

Reinier de Graaf: That is three questions in one! I was educated as an architect and ended up working as one, which is not always common in today's world. I work for a large firm that does projects not just in my home country but also in many other countries. I am very grateful that, because of this job, I got to see a bit of the world.

AAeU: *And, who is Reinier besides his work?*

Reinier de Graaf: There is very little Reinier besides work. And as much as there is, it is certainly not worth talking about.

AAeU: *Looking back, could you pinpoint a single moment that radically changed how you approach design? How did your understanding of the profession evolve?*

Reinier de Graaf: It took me a long time to realise. In the first 10 years that I worked at OMA, I realised how much the production of buildings is actually a spontaneous, collective effort, rather than that of a single mind. Before I joined OMA, I was an incredibly egocentric architect who did everything on his own. I thought I needed to control everything, finish everything, and only then could I hand it off to a contractor or a coworker. I learnt that that was not the case, that the idea of control of the process is the perfect way to lose control. Before I used to worry about deadlines, but now I never do. I know, one way or another, we will always meet a deadline, even if everyone around me gets very nervous. With experience, you realise things will be fine: if you win a project, you win a project; if you lose it, you may win the next one.

AAeU: *Going back to the first question, how would you describe the changing role of the architect as an interpreter and communicator in relation to technological acceleration? What will be the new description of the role of an architect?*

Reinier de Graaf: I am not sure if this is a new description. Architects often like to think of themselves as avant-garde. In reality, I think they are merely running after the facts. Le Corbusier did not invent reinforced concrete; he invented what you could do with it, and how buildings would be different as a result. After reinforced concrete, we still built arches, but no longer in stone. The plan libre was his theoretical exploration of an invention that essentially wasn't his. Technological developments happen outside architecture, period. Architects are the recipients of those developments, tasked with translating them into matter. What I think is changing is that increasingly architects recognise that that is the role they play, so it is hopefully a greater awareness of that role rather than a change in the role itself.

AAeU: Vašu karijeru obilježile su mnoge titule, uključujući i onu "star architect". Kako biste vi danas sebe predstavili, prije svega kao pojedinca, te u odnosu na svoj kolektiv, te vlastite ideološke pozicije?

Reinier de Graaf: To su tri pitanja u jednom! Obrazovao sam se kao arhitekt i završio radeći kao arhitekt, što danas i nije baš uobičajeno. Radim u velikoj firmi koja ne gradi samo u mojoj zemlji, nego u mnogim drugim zemljama. Vrlo sam zahvalan što sam zbog ovog posla uspio vidjeti ponešto svijeta.

AAeU: A ko je Reinier izvan posla?

Reinier de Graaf: Vrlo malo Reiniera postoji izvan posla. A i ono što postoji svakako nije vrijedno spomena.

AAeU: Ukoliko se osvrnete unazad, možete li izdvojiti jedan trenutak koji je radikalno promijenio vaš pristup arhitekturi? Kako se kroz vrijeme razvijalo Vaše razumijevanje profesije?

Reinier de Graaf: Trebalo mi je dugo da to shvatim. U prvih deset godina rada u OMA-i shvatio sam koliko je proizvodnja zgrada zapravo spontan, kolektivni proces, a ne rezultat jednog uma. Prije OMA-e bio sam nevjerovatno egocentričan arhitekt koji je sve radio sâm. Mislio sam da moram sve kontrolisati, sve završiti, i tek onda prepustiti posao izvođaču ili saradniku. Naučio sam da nije tako — da je ideja kontrole procesa savršen način da se kontrola izgubi. Prije sam brinuo o rokovima, sada nikad. Znam da ćemo ih uvijek ispoštovati, čak i ako se svi oko mene nerviraju. S iskustvom shvatiš da će stvari biti u redu: ako dobiješ projekat — dobro, ako ga izgubiš — možda ćeš dobiti sljedeći.

AAeU: U vezi s prvim pitanjem, o Vašem identitetu u poređenju s pluralnim identitetom OMA/AMO i njegovim odrazom u arhitekturi: kako biste opisali promjenjivu ulogu arhitekta kao prevodioca i medijatora u odnosu na tehnološku akceleraciju? Koja bi bila nova definicija uloge arhitekta?

Reinier de Graaf: Nisam siguran da je to novi opis. Arhitekti sebe nazivaju avangardom ili barem vole misliti da su avangarda. Mislim da arhitekti često zapravo trče za činjenicama. Corbusier nije izumio armirani beton, a ipak je izmislio šta se s njim sve može raditi i kako će zgrade zbog njega biti drugačije. Nakon armiranog betona ljudi su i dalje gradili lukove ali više ne u kamenu, nego u betonu. Cijeli Plan Libre bio je njegova teorijska razrada izuma koji zapravo nije bio njegov i razrada onoga šta arhitektura radi. Tehnološki razvoj dešava se izvan arhitekture, tačka. Arhitekti su primatelji tih razvojnih procesa, zaduženi da ih prevedu u materiju. Ono što se mijenja jeste to da arhitekti to sve više prepoznaju, pa se nadam da je riječ o većoj svjesnosti te uloge, a ne o promjeni uloge same po sebi.

AAeU: *Your book architect, verb points out a real disconnect. When it comes to architects being honest about their actual role, are we dealing with a kind of collective denial, or is the profession consciously selling a story that isn't entirely true?*

Reinier de Graaf: I think it is worrying. For example, none of the ten terms that I presented yesterday comes from architects. They are all projections of the outside world, of what the outside world thinks architects ought to be doing. I am very worried about the ease with which architects adopt that vocabulary and start using it, and by doing so, actually surrender to the ideas everybody else has about architecture. And obviously, the more you surrender, the less you are capable of having your own mission. I have no illusion that after my book the terms will be used any less; the only thing I hope to achieve is that, when architects use these terms, they are slightly redder in the face, and when they receive awards, they are slightly more uncomfortable. In that sense, the book seems to work quite well.

AAeU: *You are quite vocal about things you do not like. What about your favourite term?*

Reinier de Graaf: Oh, I have to think about it. I am considerably better at negative critique than at constructive critique; that is a character trait. I like the word 'architecture', but I like it in its broadest possible meaning. Architecture, not just as the design of buildings, but as the intent, as the consideration that goes into anything you do. If we are really honest, nobody needs an architect to build a building. In fact, the vast majority of buildings worldwide are built without architects.

AAeU: *Vaša knjiga "Architect, verb" ukazuje na stvarnu disocijaciju. Kada je riječ o iskrenosti arhitekata prema vlastitoj ulozi, imamo li posla s nekom vrstom zaštićene slijepe tačke, kolektivnim poricanjem, ili profesija svjesno prodaje priču koja nije sasvim tačna?*

Reinier de Graaf: Mislim da je to zabrinjavajuće. Nijedan od deset termina koje sam jučer predstavio ne potiče od arhitekata. Svi dolaze iz spoljnog svijeta, iz onoga što drugi misle da bi arhitekti trebali raditi. Zabrinut sam s kojom lakoćom arhitekti usvajaju taj vokabular i počinju ga koristiti, čime se zapravo predaju tuđim idejama o arhitekturi. I naravno, što se više predaš, to si manje sposoban imati vlastitu misiju. Nemam iluzija da će se ti termini nakon moje knjige koristiti manje; jedino se nadam da će, kada ih koriste, biti malo crveniji u licu, a kada primaju nagrade, malo nelagodniji. U tom smislu, knjiga izgleda da djeluje.

AAeU: *Prilično glasno kada artikulirate stvari koje Vam se ne sviđaju. Koji je Vaš omiljeni pojam?*

Reinier de Graaf: Moram razmisliti. Mnogo sam bolji u negativnoj nego u konstruktivnoj kritici — to je karakterna osobina. Volim riječ "arhitektura" ali u najširem mogućem smislu. Arhitektura ne samo kao dizajn zgrada, već kao namjera, promišljanje koje stoji iza bilo čega što radiš. Ako smo iskreni, nikome ne treba arhitekt da bi se zgrada izgradila. Ogromna većina zgrada širom svijeta nastaje bez arhitekata.

Photo Credit Fotografisao Almin Tabak, Days of Architecture Sarajevo Dani arhitekture Sarajevo, 2025

Nevertheless, I would like to think that a building that did involve architects is a different building from one that didn't. All literature is books, not all books are literature. Architecture is a form of consciousness that goes into the built environment that otherwise would not.

AAeU: *How much of the architecture surrounding us is the conscious architecture you are referring to?*

Reinier de Graaf: Very little. The built environment happens to us while we are engaged in other activities.

AAeU: *Thinking about the lack of antonyms for architectural buzzwords, what would it mean for architects to consciously use the counter-terms?*

Reinier de Graaf: You can't. That is the vicious thing about these terms. I hate the word 'happiness', but I can never say I am opposed to it. I hate the word 'well-being' even more, but of course I would never wish anyone to not be well. I would also not promote unsustainable, environmentally unfriendly buildings. It is precisely because these words do not permit an antonym that they also do not allow debate. If there is no debate, there is no thinking; if there is no dialectic, there is no progress. So, I see the insistence on all these viciously good words as a huge problem, because it creates a kind of intellectual stagnation in our profession that is almost unprecedented. Our profession is disintegrating into a kind of self-congratulatory machine, and we need to get out of that mode urgently.

Architect, verb. Source Izvor OMA/AMO Archive, 2023.

Ipak, volio bih vjerovati da se zgrada koja je nastala uz arhitekte razlikuje od one koja nije. Sva literatura su knjige ali nisu sve knjige literatura. Arhitektura je forma svijesti unesena u izgrađeni prostor koja inače ne bi postojala.

AAeU: Koliko arhitekture oko nas je ta svjesna arhitektura o kojoj govorite?

Reinier de Graaf: Vrlo malo. Izgrađeni prostor nam se dešava dok smo zauzeti drugim stvarima.

AAeU: Razmišljajući o izostanku antonima za popularne arhitektonske "buzzwords", šta bi značilo da arhitekti svjesno koriste anti-jezik?

Reinier de Graaf: Ne možete. To je i suština problema tih termina. Mrzim riječ "sreća", ali ne mogu reći da joj se protivim. Još više mrzim riječ "blagostanje", ali naravno da nikome ne bih poželio da mu bude loše. Ne bih promovisao ni neodržive, ekološki štetne zgrade. Upravo zato što ti termini ne dopuštaju antonim, ne dopuštaju ni debatu. Ako nema debate, nema ni razmišljanja; ako nema dijalektike, nema ni napretka. Zato ovo insistiranje na "dobrim" riječima vidim kao ogroman problem, jer stvara intelektualnu stagnaciju u profesiji kakva dosad nije viđena. Nedostatak kritike i samokritike urušavaju cijelu profesiju, pretvarajući je u samohvalisavu mašinu koja proizvodi održive zgrade. Arhitektura mora što prije izaći iz tog načina razmišljanja.

AAeU: Da li se arhitekta može porediti s novinarom, fokusiranim na narative ali bez sinteze, bez zaključka ili preporuka — da li je to, po svojoj prirodi, kontraproduktivno?

Reinier de Graaf: Ne znam. Rem [Koolhaas] je bio novinar prije nego što je postao arhitekt; ja sam bio arhitekt prije nego što sam postao svojevrsni novinar. Arhitektama je uvijek teško zauzeti definitivnu teorijsku poziciju, jer vam može smetati u radu, ali može proizvesti isti nivo stagnacije koje uzrokuju "buzzwords". Kao arhitekta niste filozof. U najboljem slučaju ste znatiželjan pojedinac. Naš rad je potraga za definitivnom teorijskom pozicijom, a ne njena manifestacija. Sjećam se vremena prije OMA-e, uvijek ste znali kako će izgledati sljedeća zgrada Alda Rossija; ali nikada niste znali kako će izgledati sljedeća OMA zgrada. U OMA-i uvijek su pronalazili novi tabu da ga prekrše i izbace vas iz zone komfora. To je generacija arhitekata koja vas iznenadi svakim novim projektom, a ipak vidite da pripada koherentnom opusu. To je proces koji omogućava i da se ured mijenja s novim ljudima. U drugim uredima u kojima sam radio, samo sam izvodio predefinisani stil onoga ko je vodio ured. Ovdje ured raste s ljudima koje angažuje, i to mi se sviđa.

AAeU: *If architects begin to see themselves as journalists – following dominant narratives without a synthesis or action – is that inherently counterproductive?*

Reinier de Graaf: I don't know. Rem was a journalist before he was an architect; I was an architect before I became a kind of journalist. As an architect, it is always very difficult to maintain a definitive theoretical position, because it gets in the way of work, and can induce the same level of intellectual stagnation as the buzzwords we have been discussing. We are not philosophers; at best, we are curious individuals. Our work is a continuous search of a definitive theoretical position, rather than a manifestation of the latter. I remember before I worked at OMA you always knew what the next Aldo Rossi building would look like; but you never knew what the next OMA building would be. OMA always found a new taboo to break and catch you off guard. Nevertheless, you could tell that it is part of a more or less coherent body of work. This is a process that also allows an office to assimilate other architects. You know you can work for OMA and contribute with something of your own. In the offices where I previously worked, I essentially executed the predefined style of the person that led the office. At OMA, the office also changes with the people it hires.

AAeU: *Given your position in a global and successful firm, your critique of the "system" comes from a privileged place. How do you manage that distance? How do you ensure your position doesn't undermine your message?*

Reinier de Graaf: I don´t know. I simply try to go a step further in every book I write. ***AAeU:*** *Is that the reason there were no OMA/AMO projects in your lecture yesterday?*

Reinier de Graaf: I write under my own name; it is a distance I deliberately have taken. I remember that in the month before my first book came out, I was incredibly nervous about what the office and the clients would say. They appear in the book under different names, of course, but anyone featured would easily recognize themselves. Yet no one took issue with it. In fact, some clients were even disappointed when they realised they weren't the ones being ridiculed.

AAeU: *In this structured, emotionally detached approach to architecture, also reflected in your book, where do emotions come into play?*

Reinier de Graaf: I am not emotionally detached. As a sort of Calvinist individual, I don't always show emotions outwardly in the same way. That does not mean I have no emotions. If we're working on a project and someone tries to change something I consider a compromise, I lose sleep. When I write a book, I fanatically interfere in the layout, the typography, the cover. When I don't get my way, I get furious. Writing is also a way of letting off steam.

AAeU: S obzirom na Vaš status u globalno uspješnoj firmi, Vaša kritika "sistema" dolazi iz privilegovane pozicije. Kako održavate distancu? Kako osiguravate da Vaša pozicija ne podriva Vašu poruku?

Reinier de Graaf: Ne znam. Jednostavno pokušavam otići korak dalje sa svakom knjigom koju napišem.

AAeU: Da li je to razlog zbog kojeg u Vašem predavanju sinoć nije bilo nikakvih OMA/AMO projekata ili referenci?

Reinier de Graaf: Pišem pod svojim imenom. To je distanca koju sam namjerno postavio. Sjećam se da sam mjesec dana prije izlaska prve knjige bio nevjerovatno nervozan šta će reći biro i klijenti. Pojavljuju se u knjizi pod izmijenjenim imenima, naravno, ali svako bi se mogao prepoznati. Ipak, niko nije imao primjedbi. Zapravo, neki klijenti su bili čak razočarani kad su shvatili da nisu oni ti koji su ismijani.

AAeU: U ovom pristupu, gdje je sve strukturirano i promišljeno, gdje postoji emocionalna distanca prema arhitekturi, prisutna i u vašoj knjizi, pitamo se — gdje je tu emocija?

Reinier de Graaf: Nisam emocionalno distanciran. Kao svojevrsni kalvinista, ne pokazujem emocije uvijek na isti način. To ne znači da emocija nema. Ako radimo na projektu i neko nešto promijeni što smatram kompromisom, gubim san. Kada pišem knjigu, fanatično se miješam u prelom, tipografiju, korice, a kada ne bude po mom — bijesan sam. Pisanje je također način da se ispusti para.

AAeU: Naš kontekst ovdje je više emotivan nego analitičan. Kako se odnosite prema takvom okruženju?

Reinier de Graaf: Jednostavno puštam da mi se stvari dogode. Jedna od divnih stvari u mom poslu je da se nikad ne osjećam kao da se trebam prilagođavati. Samo pustim da se stvari dogode.

AAeU: Počinjemo li, kao arhitekti, gubiti moć djelovanja kada naš rad postaje manje stvaranje, a više reaktivni odgovor na projektne zadatke pred nama?

Reinier de Graaf: Jesmo li ikada imali moć? Da li arhitekte uopšte imaju moć? To je veliko pitanje. Možete li imati moć kada inicijativa nije ni bila u vašim rukama? Bez klijenata ne bi bilo arhitekata. Umjetnik stvara; arhitekta dobije narudžbu da stvara, i to je fundamentalna razlika. Zato je moć arhitekture suštinski drugačija od moći umjetnika i pisaca. Moć arhitekture leži u odmjerenom prepuštanju okolnostima i u tome da se te okolnosti nekako preokrenu u korist dobra. Zato je kategorički otpor vrlo težak. Arhitekt je uvijek automatski na terenu prekršenih obećanja, to je tako i ne mislim da bismo to morali previše braniti. Naš zadatak ne leži u pravu na odbijanje, nego u pravu na neposlušnu poslušnost. Moramo gristi ruku koja nas hrani. Liberalne profesije, poput advokata ili doktora, imaju obavezu služiti samo

AAeU: *Our context here is emotion-driven rather than analytical. How do you relate to this type of context?*

Reinier de Graaf: I just let things come at me. One of the wonderful things is that I never feel I have to adjust anywhere where I work. I just let it happen.

AAeU: *Are we, architects, losing agency when our work becomes less about creativity and more about responding to the briefs placed in front of us?*

Reinier de Graaf: Did we ever have agency? Do architects have agency? That is the big question. Can you have agency when the initiative doesn't reside with you? Without clients there would be no architects. An artist does things; an architect is asked to do things, and that is a fundamental difference. The agency of architecture, therefore, is fundamentally different from that of artists and writers. Its agency lies in a calculated surrender to the forces that be, and in somehow twisting those forces into forces for the good. That is why categorical refusal is very difficult. An architect is automatically in the domain of broken promises, and I don't think we should necessarily be too defensive about that. I think our task does not lie in the right of refusal; it lies in the right of disobedient acceptance. We have to bite the hand that feeds us. Liberal professions, like lawyers or doctors, have a professional code of serving their clients only. Architects have a public task, so even when they have private clients they always have this imaginary, invisible, client that is the greater good. Therefore, they have an obligation to be critical and even partly disobedient to the briefs they receive.

AAeU: *If the future of architecture depends not only on how we build, but also on how we talk about it, are we better off working in silence?*

Reinier de Graaf: Yeah, I think so, but I am not making a great contribution there. I talk all the time.

AAeU: *Finally, to close on a personal note, are you an optimist or a pessimist?*

Reinier de Graaf: I am one hundred percent an optimist. Even though there are compelling reasons in the current world to be pessimistic, I would never describe myself as a pessimist. I am an optimist.

Sarajevo, September 2025

svojim klijentima. Arhitekti imaju javnu misiju, pa čak i kada rade s privatnim klijentima, uvijek postoji taj imaginarni, nevidljivi klijent — opće dobro. Zato su dužni biti kritični pa i djelomično neposlušni u odnosu na projektne zadatke koje dobijaju.

AAeU: Ako budućnost arhitekture ne zavisi samo od toga kako gradimo, nego o od toga kako o tome govorimo, da li nam je bolje da radimo u tišini?

Reinier de Graaf: Da, mislim da jeste, iako ja tome ne doprinosim mnogo. Ja stalno pričam.

AAeU: Za kraj, da završimo sa ličnim pitanjem: jeste li optimista ili pesimista?

Reinier de Graaf: Stopostotni sam optimista. Iako postoje snažni razlozi da se u današnjem svijetu bude pesimističan, nikada sebe ne bih opisao kao pesimistu. Ja sam optimista.

Sarajevo, septembar 2025.

Photo Credit Fotografisao Ammar Akšamija, 2025

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*ARRA is short for ARhitektonska RAdiona, a not-for-profit research and design collective based in Sarajevo, dedicated to exploring speculative, experimental and critical approaches to urban practices. ARRA was founded in 2023 by Dunja Krvavac, Irhana Šehović and Nikola Ostojić, architects and friends, aiming to challenge how architecture and urbanism are perceived, understood and practiced by connecting local contexts with global practices.

*ARRA je skraćenica za ARhitektonska RAdiona, neprofitni istraživački kolektiv sa sjedištem u Sarajevu, posvećen istraživanju spekulativnih, eksperimentalnih i kritičkih pristupa urbanim praksama. ARRA je osnovana 2023. Godine, a osnivači su Dunja Krvavac, Irhana Šehović i Nikola Ostojić, arhitekate i prijatelji, s ciljem preispitivanja načina na koji se arhitektura i urbanizam percipiraju, razumijevaju i praktikuju kroz povezivanje lokalnih konteksta s globalnim praksama.

UNWANTED HERITAGE
NEŽELJENO NASLIJEĐE
Hotel Pelegrin, Kupari

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1 Regionalism & Territoriality

The impulse to shape the essay on the Hotel Pelegrin beyond the conventional genre of an art-historical analysis and to address the broader issue of Yugoslav architectural heritage arose from a symbolic event: at the moment when the Faculty of Architecture in Sarajevo is launching its first scientific journal, one of the brightest achievements of mature Yugoslav modernism — a building that was, among other things, a product of the so-called Sarajevo school of architecture — was demolished following three decades of neglect.

The Sarajevo school of architecture is rightfully associated with architectural regionalism shaped by Juraj Neidhardt and his fellows and followers. However, over time, an unfounded prejudice became attached to this connection — that of an "overly local paradigm," implying design constraints within a narrowly defined set of local norms. Contrary to this perception, which has unluckily accompanied Neidhardt's theoretical manifesto — Architecture of Bosnia and the Way to Modernity (Grabrijan & Neidhardt, 1957), since its earliest critical receptions (Mutnjaković, 1958), as well as his overall academic and practical undertakings, the set of "rules" was shaped as a flexible model that could operate within pan-Yugoslav space, drawing upon ethnographic and anthropological research (Zatrić, 2020). The Sarajevo school of architecture thus sought not only to accommodate the principles of regional architecture into modernist practices but also to position them as a prerequisite for the effective arrangement of space in alignment with socialist ideology.

Braco Finci, the architect of Pelegrin, graduated in 1955, a time when Grabrijan and Neidhardt had already dedicated six years to developing the Architecture of Bosnia as a substantive, visual, and discursive medium in articulation of their thesis on the importance of linking geography with the "Yugoslav experiment." Although this idea preoccupied the entire Yugoslav

1 Regionalizam i teritorijalnost

Impuls da se tekst o hotelu Pelegrin oblikuje izvan tradicionalnog žanra artističko-historijske analize — kao refleksija na širi problem jugoslovenske arhitektonske baštine, proizašao je iz simbolične činjenice: u trenutku kada Arhitektonski fakultet u Sarajevu pokreće svoj prvi naučni časopis, paralelno se odvijaju radovi na rušenju jednog od najsjajnijih ostvarenja zrelog jugoslovenskog modernizma, objekta koji je, između ostalog, i produkt tzv. sarajevske škole arhitekture.

Sarajevska škola arhitekture se s pravom povezuje s arhitektonskim regionalizmom oblikovanim kroz opus Juraja Neidhardta i njegovih saradnika i sljedbenika. Ipak, uz tu vezu je tokom vremena neosnovano pripojena i predrasuda o "iznimno lokalnoj paradigmi", odnosno o stvaralaštvu unutar seta uskih i lokalno orijentiranih normativa. Nasuprot toj percepciji koja prati Neidhardtov teorijski manifest Arhitektura Bosne i put u savremeno (Grabrijan i Neidhardt, 1957) još od prvih kritičkih osvrta na publikaciju (Mutnjaković, 1958), i posljedično njegov cjelovit akademski i praktični rad, set "pravila" sarajevske škole zamišljen je kao fleksibilan model koji se mogao primijeniti unutar pan-jugoslovenskog prostora oslanjajući se na etnografska i antropološka istraživanja (Zatrić, 2020). Sarajevska škola arhitekture i urbanizma tako je načela regionalne arhitekture težila ne samo akomodirati u modernističke prakse nego ih plasirati kao preduvjet za uspješnu organizaciju cjelovitog jugoslovenskog prostora u skladu socijalističkom ideologijom.

Arhitekt Pelegrina, Braco Finci, diplomirao je 1955. godine, u periodu kada su Grabrijan i Neidhardt već šestu godinu razvijali Arhitekturu Bosne kao sadržajni, vizuelni i diskurzivni medij kroz koji su artikulisali tezu o nužnosti veze između geografije i "jugoslovenskog eksperimenta". Premda je ova ideja zaokupljala širi jugoslovenski arhitektonski milje prve polovine 50-ih godina, nijedna škola arhitekture

architectural milieu in the early 1950s, no other school so consistently cultivated and practically applied the "unwritten laws" as Neidhardt's design studio did. The resonance of this regional modernist paradigm is unmistakably evident in Pelegrin itself.

tog perioda nije tako intenzivno podučavala i težila dosljednosti u provođenju "nepisanih zakona" kao što je to bilo u studiju dizajna koji je vodio Neidhardt. Odjek te paradigme regionalnog modernizma jasno je prepoznatljiv i na samom Pelegrinu.

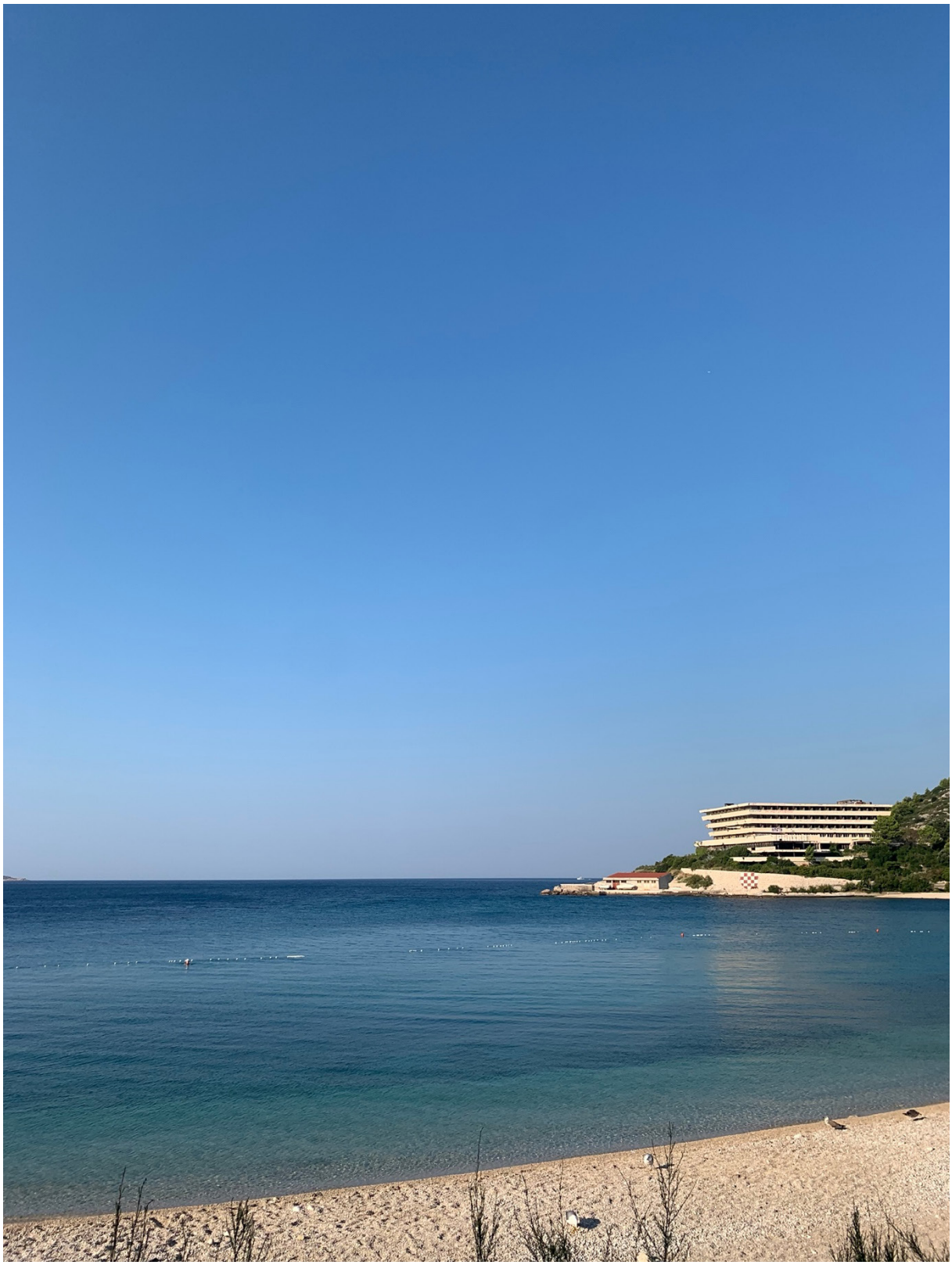

Figure 1 The "island" qualities of the Hotel Pelegrin's natural setting. Source: Authors, 2023.

Ilustracija 1 "Otočne" kvalitete prirodnog okruženja Hotela Pelegrin. Izvor: Autori, 2023.

The symbolic coincidence between the production and obliteration of the architectural legacy of Sarajevo school called for acknowledgment. It is a harsh reminder that we should not limit our examination of the socialist past to historical narration; we must also reconsider its relevance to the present. This apprehension guided the essay to naturally open up toward overlapping themes such as the transition of architectural heritage, post-conflict reconstruction, and the practices of heritage appropriation as phenomena requiring deeper intra- and interdisciplinary research.

In the transitional and post-conflict ambiance of the former Yugoslavia, there was, as expected, little concern for the systematic appropriation of spatial activities once governed by socialist policies and customs. Such concern, however, was necessary at all levels of spatial organization: from the broad, abstract one of regional planning, which in the previous system (since 1975) had been institutionalized upon the synthesis of developmental policies "as well as social practices that elude political and ideological control" (Bojić, 2024), to the level of individual buildings. Among these, the most vulnerable are precisely those that, within the borderline Yugoslav "market socialism," were market-oriented, such as hotel complexes. Today, thirty years into the transition, it is necessary to reconsider ex post the issue of direct appropriation within the field of postsocialist studies, a continuously underrepresented research branch in the regional academic milieu. The first step – surprisingly, the same as three decades ago – remains the systematic study and creation of a scholarly foundation that would outline not only the dynamics of spatial organization and production but also how closely the architectural discipline was linked to specifically socialist practices. Such research has the task "not only to explain what is happening, but in a certain way to provoke change" (Hann et al., 2002).

The destruction of Pelegrin not only touches on the uncontrolled transition of the sensitive hotel architecture category but also on the intricate challenge of restoring and preserving the neglected and damaged architectural legacy of those sociopolitical systems disintegrated by conflict. Historically, post-conflict reconstruction has almost always, alongside the pragmatical, carried an ideological dimension: it served as a symbolic pledge for the renewal and consolidation of a society traumatized by the act of destruction (Lambourne, 2001). In the Yugoslav context, however, this process proved particularly contradictory. The ideological foundations of the new national states that arose following Yugoslavia's disintegration were largely built on the negation and dismantling of the previous connections among republics. Under such circumstances, the restoration and protection of Pelegrin, along with many other structures from the socialist period, was not merely a technical or financial matter. It required a much deeper social effort — the collective acceptance of what Pelegrin symbolized: the heritage of Yugoslavia that holds cross-republican stakes.

The declaration of Yugoslav modernism as a programmatically hybrid form of modernity would necessarily entail a re-examination of existing cultural interpretations — those that have, for decades, sustained the deprivation and misunderstanding of this complex term, including the practices of appropriating cultural and architectural heritage. Such practices, as Lowenthal

Simbolična koincidencija između proizvodnje i destrukcije akademske legacije sarajevske škole tražila je da bude zabilježena. Ona je istovremeno pružila osnovu da se pitanje nestanka naslijeđa ere socijalizma razmotri ne samo kao tema od historijskog interesa, već i kao polazište za promišljanje njegovih savremenih perspektiva. U tom okviru, tekst se prirodno otvara prema preklapajućim temama tranzicije arhitektonskog naslijeđa, destrukcije i rekonstrukcije u postkonfliktnim društvima, te prakse prisvajanja naslijeđa kao fenomenima koji zahtijevaju dublja intra- i interdisciplinarna istraživanja.

U tranzicijskom i postkonfliktnom ambijentu bivše Jugoslavije očekivano je izostala briga za sistemsku aproprijaciju prostornih praksi dotad regulisanih socijalističkim politikama i kulturom življenja. Ta je briga, međutim, bila nužna na svim razinama prostorne organizacije: od najšireg, apstraktnog nivoa regionalnog planiranja, koje je u prethodnom sistemu, od 1975. godine, bilo institucionalizirano na osnovi sinteze razvojnih politika "ali i društvenih praksi koje izmiču političkoj i ideološkoj kontroli" (Bojić, 2024), pa do nivoa pojedinačnih objekata. Među njima su najranjiviji upravo oni koji su, unutar anomalističkog modela jugoslovenskog "tržišnog socijalizma", bili orijentirani tržištu, poput hotelskih kompleksa. Danas je, trideset godina nakon tranzicije, potrebno ponovo razmotriti ex post problem direktne aproprijacije, i to u okviru postsocijalističkih studija, koje su i dalje nedovoljno zastupljene u regionalnom akademskom prostoru. Prvi korak, pomalo šokantno, ostaje isti kao i prije tri decenije: sistematsko izučavanje i stvaranje naučne baze koja bi ocrtala ne samo dinamiku organizacije i produkcije prostora, već i intenzitet umreženosti arhitektonske discipline sa specifično socijalističkim društvenim praksama.Takvo istraživanje ima zadatak "ne samo da objasni šta se dešava, već da na određeni način izazove promjene" (Hann et al., 2002).

Pored nereguliranosti procesa tranzicije osjetljive kategorije hotelske arhitekture, rušenje Pelegrina ogolilo je i složen problem rekonstrukcije i zaštite uništene i zanemarene arhitektonske baštine onog društveno-političkog sistema dezintegriranog kroz konflikt. Naime, historijski posmatrano, postkonfliktne rekonstrukcije gotovo su uvijek imale, pored one očigledne pragmatične, i ideološku dimenziju: one su služile kao simbolični zalog obnove i konsolidacije društva traumatizovanog činom destrukcije (Lambourne, 2001). U jugoslovenskom kontekstu, međutim, taj se proces pokazao posebno kontradiktornim. Ideološki okviri novih država nastalih nakon raspada Jugoslavije, u velikoj mjeri počivali su upravo na negaciji i razgradnji prethodnog sistema. U takvim okolnostima, obnova, očuvanje i zaštita objekata poput Pelegrina, kao i brojnih drugih građevina socijalističkog perioda, nije bila samo tehničko ili finansijsko pitanje. Ona je zahtijevala mnogo dublji, društveni napor kolektivnog prihvatanja onoga što je Pelegrin simbolizirao: naslijeđe Jugoslavije.

Deklaracija jugoslovenskog modernizma kao programski hibridne forme moderniteta podrazumijevala bi nužno preispitivanje postojećih kulturnih tumačenja, onih koja su decenijama održavala uskraćenost i nerazumijevanje ove složene sintagme, uključujući i

observes, are based on the idea that heritage is valuable only if it is "ours," if it is limited to a selected group that claims ownership over it. While history addresses everyone willing to listen to how and why something happened, heritage, unlike history, is imbued with myths of origin and endurance, rewarding its possessors with prestige and purpose. "It benefits us by being withheld from others. Sharing or even showing a legacy to outsiders vitiates its value and power" (Lowenthal, 1998, 8).

The first and most common argument in the process of heritage appropriation is the assumption of architecture's rootedness in regional values. Yet the socialist space presupposed a far more complex notion of regionality than a mere geographical or historical category: it also included the concept of the economic region. Lefebvre described this complexity precisely, emphasizing that "in what can be seen, it is not always easy to distinguish what derives from industrial development, what from the ancient Mediterranean civilization, and what from socialism in the proper sense" (Lefebvre, 1965).

The second, more grounded and often undisciplined argument concerns the role of the local community and its immidiate resources in spatial production. Although these contributions are of inestimable value, they should not overshadow the symbolic, emotional, and economic stakes of other Yugoslav republics. Although one of the key objectives of the early Federation (1940s–1950s) was the reduction of economic disparities, the republics, in practice, functioned according to Kotkin's principle of a "single entity" (Kotkin, 1997). Each region played a role within a system that reinforced the economic narrative of the national economy, positioning them as suppliers of specific resources "to avoid redundancies within the network," while simultaneously reproducing the idea of general prosperity within a unified entity (Zarecor, 2017, 8).

In this setting, any form of heritage appropriation contributes to the already-tense and borderline colonial narrative of economic exploitation and inequality between center and periphery — the more and less developed republics on one side and the "white man's burden" on the other. Interpreting Yugoslav values through architectural heritage is therefore an exceptionally complex task. It requires continuous cultural and scientific engagement and its promotion directed toward affirming plural narratives told from the margins, resisting the reduced and media-friendly depictions of "Tito's famous guests," luxury hotels such as Haludovo, and the construction of Yugoslavia as the "socialist Other" within the imagination of the post-Cold War West.

prakse prisvajanja kulturno-graditeljskog naslijeđa. Takve prakse, kako primjećuje Lowenthal, počivaju na ideji da je naslijeđe vrijedno jedino ako je naše, ako se ograniči na odabranu grupu koja ga smatra svojim vlasništvom. Dok se historija obraća svima koji žele čuti kako i zašto se nešto dogodilo, naslijeđe je, za razliku od historije, prožeto mitovima o porijeklu i izdržljivosti, nagrađujući svoje posjednike prestižom i svrhom. "Ono se koristi time što se uskraćuje drugima. Dijeljenje ili čak prikazivanje naslijeđa ljudima sa strane obesnažuje njegovu vrijednost i moć" (Lowenthal, 1998, 8).

Prvi i glavni argument prisvajanja je pretpostavka o ukorijenjenosti arhitekture u regionalnim vrijednostima. Pa ipak, socijalistički prostor pretpostavljao je daleko složeniji pojam regionalnosti od puke geografske ili historijske kategorije: uključivao je i koncept ekonomske regije. Lefebvre je tu složenost precizno opisao, ističući kako "u onom što se vidi nije uvijek lako razlikovati što proizlazi iz industrijskog razvoja, što iz drevne mediteranske civilizacije, a što iz socijalizma u pravom smislu riječi" (Lefebvre, 1965).

Drugi, prizemniji i nedisciplinaran argument odnosi se na ulog usko lokalnih zajednica i njenih neposrednih resursa u produkciji prostora. Premda su ovi ulozi od neprocjenjive vrijednosti, oni ne bi smjeli zasjeniti simboličke, emocionalne i ekonomske uloge drugih jugoslovenskih republika. Iako je jedan od temeljnih ciljeva ranog perioda Federacije (1940–1950-ih) bio smanjenje ekonomskih dispariteta, republike su, u praksi, djelovale po principu Kotkinovog "jedinstvenog entiteta" (Kotkin, 1997). Svaka je regija imala ulogu u sistemu koji je jačao gospodarski narativ nacionalne ekonomije, pozicionirajući ih kao dobavljače specifičnih resursa "kako bi se izbjegle redundancije u mreži", dok su istovremeno reproducirale ideju općeg prosperiteta jedinstvenog entiteta (Zarecor, 2017, 8).

Svako prisvajanje naslijeđa nastalog u ovom kontekstu, produbljava historijski napet i zamalo kolonijalni narativ nekadašnje ekonomske nejednakosti i eksploatacije u odnosa centra i razvijenijih republika prema nerazvijenijim s jedne strane, i "tereta bijelca" s druge strane. Tumačiti jugoslovenske vrijednosti u graditeljskom naslijeđu je stoga krajnje izazovan zadatak. On zahtijeva kontinuiran kulturni i naučni angažman i njegovu promociju, koji će cjeniti pluraritete narativa ispričanih sa margina mnogo privlačnijeg populističkog narativa o Titovim glasovitim posjetiocima, hazarderskom hotelu u Haludovu i socijalističkom "Drugom" u imaginaciji post-hladnoratovskog Zapada.

2 On the Architecture of the Pelegrin Hotel

David Braco Finci's Pelegrin was built in 1963, at a time of economic prosperity and overarching optimism in socialist Yugoslavia. Shortly after its construction, it became the most noticeable landmark of the Kupari resort complex and a symbol of an idea of progress and societal welfare.

2 O arhitekturi hotela Pelegrin

Hotel Pelegrin, djelo arhitekte Davida Brace Fincija, izgrađen je optimistične 1963. godine, u vrijeme ekonomskog uspona socijalističke Jugoslavije. Vrlo brzo nakon izgradnje postao je ikonično zdanje Kuparskog odmarališta, simbol ideje napretka i kolektivnog blagostanja.

Figure 2 Hotel Pelegrin in the 1960s. Source: Karamehmedović, M. (1963). Hotel "Pelegrin" u odmaralištu Kupari kod Dubrovnika. Arh, 1(4), 2–9. Source: Društvo arhitekata Sarajevo.

Ilustracija 2 Hotel Pelegrin 60-ih godina prošlog stoljeća. Izvor: Karamehmedović, M. (1963). Hotel "Pelegrin" u odmaralištu Kupari kod Dubrovnika. Arh, 1(4), 2–9. Izvor: Društvo arhitekata Sarajevo.

The spatial distinctiveness of Cape Pelegrin and its nearly insular landscape qualities decisively influenced the design choices concerning the hotel's scale, proportions, and setting. The freestanding monovolume — the Pelegrin's principle expressive medium — was a novel and site-specific approach to hotel design along the Adriatic coast. Its inverted pyramidal shape is a variation on the classic modernist motif of a recessed ground floor, yet in Finci's design this theme was further enriched through the functional transformation, evolving here from a uniform accommodation layout into public and polyvalent zones. The dynamic decomposition of geometric volumes produced a sense of spatial movement that, in its spiral logic, evokes the Guggenheim Museum in New York, where the inverted conical form similarly creates a dialogue between architecture, movement, and light.

Against the isolated backdrop of Cape Pelegrin, the hotel seemed to loom like a solitary white monolith. The entire extent and structure of the resort only became apparent when one made their way along the coast into the Kupari valley. This physical and visual distance was one of the key elements in the architectural presentation of Pelegrin. The strict outlines of its volumes, the rhythm of solids and voids on the façade, and the elongated horizontal lines are almost imperceptibly replaced first by the gentle physiognomy of the entrance canopy, then the staircase and the portico, the details executed in Brač stone and lush greenery, and finally the vibrant dialog with the neighboring resort structures.

The Kupari Valley is home to a rich tourist history, dating back to the first decades of the 20th century, when the Grand Hotel, its only structure with an official heritage

Prostorne osobenosti rta Pelegrin, njegova istaknutost i gotovo ostrvski karakter pejzaža presudno su uticali na arhitektonske odluke o mjerilu, proporcijama i postavci. Slobodnostojeći monovolumen -glavno izražajno sredstvo, predstavljao je smjelo i lokacijski jedinstveno rješenje u okviru hotelske arhitekture jadranske obale. Njegova forma obrnute piramide je zapravo varijacija na klasični modernistički motiv uvlačenja prizemne etaže, ali se u Fincijevom rješenju taj motiv dodatno usložnjava i funkcionalnom transformacijom prostora iz smještajne, uniformne organizacije u javnu i polivalentnu zonu. Dinamično razlaganje geometrijskih volumena stvara doživljaj prostornog kretanja koji, u svojoj spiralnoj logici, priziva Guggenheim muzej u New Yorku, gdje obrnuta kupasta forma na sličan način ostvaruje dijalog između arhitekture, pokreta i svjetla.

Ostrvske kvalitete pejzaža rta Pelegrin pružaju iluziju na njemu izgrađenog hotela kao usamljenog bijelog monolita. Da je on samo jedan u nizu ugostiteljsko-turističkih objekata zone vojnog odmarališta Kupari, uvučenih u Kuparsku dolinu, otkrivalo se u kretanju obalom ka istom, postepeno. Upravo je ta distanca, fizička i vizuelna, bila jedan od ključnih aduta u prezentaciji Pelegrina. Stroge obrise impozantnih volumena hotela i horizontalnih poteza puno-prazno na fasadi, gotovo su neosjetno smjenjivale pitoma fizionomija prvo nadstrešnice ulaza, zatim stepeništa i trijema, a onda i detalja fasade od bračkog kamena i bogato zelenilo, te živ dijalog sa susjednim objektima odmarališta.

Kuparska dolina dom je bogate turističke historije, koja seže u prve decenije 20. stoljeća, kada je izgrađen (1924.) i jedini objekat pod službenom baštinskom

Figure 3 Urban design of the Kupari resort. Source: Karamehmedović, M. (1963). Hotel "Pelegrin" u odmaralištu Kupari kod Dubrovnika. Arh, 1(4), 2–9. Source: Društvo arhitekata Sarajevo.

Ilustracija 3 Urbanističko rješenje odmarališta u Kuparima. Izvor: Karamehmedović, M. (1963). Hotel "Pelegrin" u odmaralištu Kupari kod Dubrovnika. Arh, 1(4), 2–9. Izvor: Društvo arhitekata Sarajevo.

designation, was built (1924). After the Second World War, Kupari, as a resort of national importance, came under the administrative and operational management of the Main Directorate of the Enterprise for the Supply of Military Personnel in Sarajevo. It was then that its thorough, staged spatial reconstruction began.

The spatial development and construction of the Kupari resort unfolded in three stages. The first phase, from 1958 to 1964, marked a period of major modernization. The second phase, between 1966 and 1968, entailed the construction of a separate residential zone, while the third phase, from 1972 to 1980, brought further modernization and spatial definition of the complex (Benić & Žunić, 2019).

Architect David Braco Finci, who at the time also worked as a designer for the Construction Service of the Sarajevo Military District, prepared the first investment program for the construction of the "Blue Adriatic" Military Resort in Kupari, along with an urban-architectural plan and conceptual designs for seven buildings. These projects formed the foundation for the spatial reconstruction and development of the first phase, which gave rise to three of Finci's hotels: Gorica, Pelegrin, and the unfinished hotel known as "Hotel III," whose construction began in 1964.

oznakom — Grand Hotel. Nakon Drugog svjetskog kao odmaralište od općedržavnog značaja Kupari prelaze pod administrativno-operativno rukovodstvo Glavne direkcije preduzeća za snabdijevanje vojnih lica u Sarajevu. Tada i započinje njihova temeljita, etapna prostorna rekonstrukcija.

Prostorni razvoj i izgradnja odmarališta odvijali su se u tri etape. Prva faza, od 1958. do 1964. godine, bila je period velike modernizacije. Druga faza, između 1966. i 1968. godine, obuhvatila je izgradnju izdvojene rezidencijalne zone, dok je treća faza, između 1972. i 1980. godine, donijela novu modernizaciju i prostorno zaokruživanje kompleksa (Benić i Žunić, 2019).

Arhitekt David Braco Finci, koji je u to vrijeme djelovao i kao projektant Građevinske službe Sarajevske vojne oblasti, izradio je prvi investicioni program za izgradnju Vojnog odmarališta "Plavi Jadran" u Kuparima, zajedno s urbanističko-arhitektonskim rješenjem i idejnim projektima za sedam objekata. Ovi projekti postavili su osnovu prostorne rekonstrukcije i izgradnje prve etape, sa tri finalizirana Fincijeva hotela: Gorica, Pelegrin i nedovršeni hotel poznat kao "Hotel III", čija je gradnja započela 1964. godine.

The first of them, Hotel Gorica (or Goričina), with its accompanying café and lounge bar, was completed in 1962 on the southern slopes of Mount Goričina and in the same year received the April 6 Award of the City of Sarajevo for Architecture (Benić & Žunić, 2019, pp. 288–290). The principal design theme of the façade involved the alternation of horizontal solid and void surfaces, together with the gradual recession of the upper floors towards the ground, rendering Hotel Gorica a probe artifact, a sort of "Djoser's pyramid" in the evolution of Finci's architectural language. Merely a year later, on the cape at the southern end of the resort area, its "mature" variant emerged: the Pelegrin Hotel. At that time it was the largest hotel on the Adriatic in terms of both volume and capacity. During 1962 and 1963, most of the funds allocated for military resorts were invested precisely in its construction (Benić & Žunić, 2019, p. 290), allowing for remarkable aesthetic innovation, the impressive scale of the complex, and the superb level of execution.

One thing to keep in mind is that unlike other areas of the construction industry pressured by financial cuts and typologization and standardization requests, the design of hotels along the Adriatic coast enjoyed nearly limitless creative and technological flexibility. As a gesture toward tourists from the other side of the "Iron Curtain," it simultaneously retained its social responsibility, achieving a balance between aesthetic expression and the idea of the common good.

Formally, the Pelegrin Hotel was designed as an inverted truncated pyramid, whose volume was carved out by the central prismatic atrium with its gallery. The realization of this complex spatial composition was made possible by a modular reinforced concrete structural system developed by architect David Finci in collaboration with structural

Prvi od navedenih, hotel Gorica (ili Goričina), sa pripadajućom kafanom i lounge barom, završen je 1962. godine na južnim padinama brda Goričina i iste godine nagrađen Šestoaprilskom nagradom grada Sarajeva za arhitekturu (Benić i Žunić, 2019, str. 288–290). Osnovno oblikovno sredstvo fasade predstavljala je alternacija horizontalnih punih i praznih ploha i postepeno uvlačenje etaža prema tlu, čime je hotel Gorica plasiran kao svojevrsni probni artefakt, "Džoserova piramida" u razvoju Fincijeve arhitektonske prepoznatljivosti. Već naredne godine, na rtu u južnom dijelu zone odmarališta, nastaje njegova "zrela" varijanta: hotel Pelegrin — u to vrijeme bio volumenom i kapacitetom najveći hotel na Jadranu. Tokom 1962. i 1963. godine najveći dio sredstava namijenjenih vojnim odmarалиštima uložen je upravo u njegovu izgradnju (Benić i Žunić, 2019, str. 290), što je omogućilo izuzetnu estetsku inventivnost, veličinu kompleksa i vrhunsku kvalitetu izvedbe.

Ovdje treba istaći da je hotelska arhitektura Jadrana, oslobođena pritisaka tipologizacije i standardizacije koje su bile nametnute drugim sektorima izgradnje, djelovala u prostoru gotovo neograničene kreativne i tehnološke slobode. Kao gesta prema turistima s druge strane "zavjese", ona je ujedno zadržala i društvenu odgovornost, ostvarujući ravnotežu između estetskog izraza i ideje zajedničkog dobra.

U formalnom smislu, Pelegrin je smješten u geometriju obrnute krnje piramide, iz čijeg je volumena izrezana pravilna četverostrana prizma središnjeg atrija s galerijom. Izvedbu zamišljene forme je omogućio složeni modularni armiranobetonski konstruktivni sistem, razvijen u saradnji Fincija sa konstruktorom profesorom

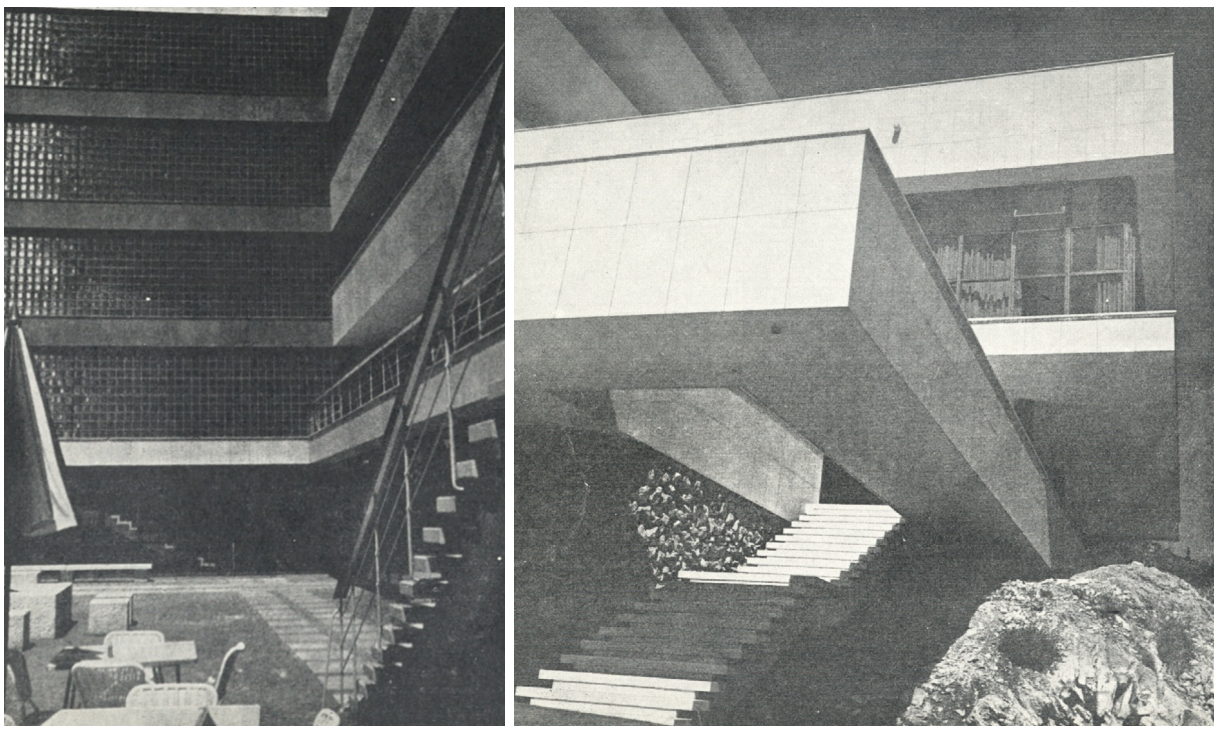

Figure 4 Atrium — stone details of the façade — and entrance portico, in the 1960s. Source: Karamehmedović, M. (1963). Hotel "Pelegrin" u odmaralištu Kupari kod Dubrovnika. Arh, 1(4), 2–9. Source: Društvo arhitekata Sarajevo.

Ilustracija 4 Atrij — kameni detalji fasade, i ulazni trijem, 60-ih godina prošlog stoljeća. Izvor: Karamehmedović, M. (1963). Hotel "Pelegrin" u odmaralištu Kupari kod Dubrovnika. Arh, 1(4), 2–9. Izvor: Društvo arhitekata Sarajevo.

engineer Professor Vjekoslav Marendić. Each rectangular floor with room balconies extends cantilevered approximately one meter outward from the level below. Such a structural solution allowed for the room capacity to be expanded in depth rather than width, at the same time providing natural shading for the spaces above each room (Karamehmedović, 1963, p. 5).

In spite of its sharp abstraction, the pyramid shape does not compete with its natural surroundings. At the point where residential content becomes public, the pyramid breaks down tactilely following the ground's shape, and the boundary between inside and outside dissolves.

According to Kostof's (1995) classification of the archetypal forms, Pelegrin can be considered both a rotational and directional foci.The main cuboid of the truncated pyramid, by its very form, determined the rotational movement of the observer who wishes to perceive the building as a whole. At the same time, a sequence of linearly arranged spatial episodes directed movement inward, guiding visitors through a series of public open spaces towards the entrance portico, lobby, terraces, and atrium, all interconnected by stair systems.

The public section of the hotel entailed a restaurant with indoor and outdoor dining areas, a spacious lobby, a café and bar, lounge space, and several open terraces. Of particular value were the views from the hotel café, which, in Darko Venturini's words, appeared "like a captain's bridge suspended above the open sea" (Venturini, 1965, p. 45).

Vjekoslavom Marendićem. Svaka etaža pravougaone forme sa balkonima soba u ovom rješenju se konzolno širi za jedan metar odozdo prema gore. U praktičnom smislu takav princip je omogućio povećanje kapaciteta soba po dubini a ne po širini, te istovremeno osigurao osjenčenje prostora iznad svake sobe (Karamehmedović, 1963, str. 5).

Oštra apstrakcija piramidalne forme nije, međutim, u sukobu sa krajolikom. Na mjestu izmjene rezidencijalnog sadržaja javnim, piramida se razlaže i taktilno prati konfiguraciju tla, a prostor prestaje da se dijeli na ono što je unutra i vani.

U arhetipskom poimanju formalnog tipa, kako ga definira Kostof (1995), Pelegrin se može razumjeti istovremeno kao rotacijski i direkcioni foci. Glavni kubus krnje piramide svojim oblikom uslovljava rotaciono kretanje posmatrača koji želi sagledati zgradu u cjelini. Istovremeno, niz linearno postavljenih sekvenci usmjerava kretanje prema unutrašnjosti, vodeći posjetioce kroz niz javnih otvorenih prostora sve do ulaznog trijema, hola, terasa i atrija, povezanih sistemima stepeništa.

Javni segment hotela obuhvatao je restoran u zatvorenom i otvorenom prostoru, prostrani hol, kafanu i bar, prostor za dnevni boravak i nekoliko otvorenih terasa. Posebnu vrijednost imale su vizure iz hotelske kafane, koja je, prema impresiji Darka Venturinija, djelovala "poput kapetanskog mosta nadnijeta nad pučinu" (Venturini, 1965, str. 45).

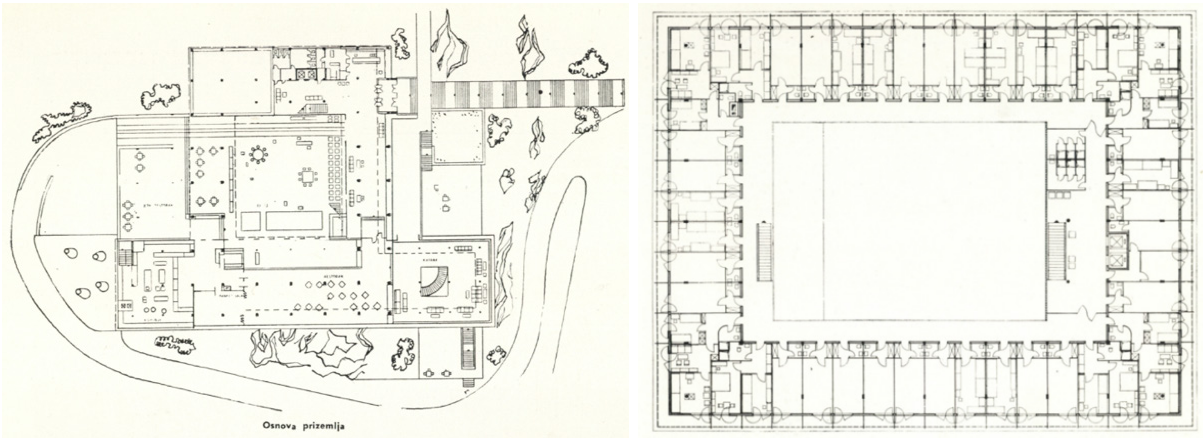

Figure 5 Ground floor plan and typical floor plan. Source: Karamehmedović, M. (1963). Hotel "Pelegrin" u odmaralištu Kupari kod Dubrovnika. Arh, 1(4), 2–9. Source: Društvo arhitekata Sarajevo.

Ilustracija 5 Osnova prizemlja i osnova karakteristične etaže. Izvor: Karamehmedović, M. (1963). Hotel "Pelegrin" u odmaralištu Kupari kod Dubrovnika. Arh, 1(4), 2–9. Izvor: Društvo arhitekata Sarajevo.

The accommodation design concept featured an open single-corridor gallery system with a representative atrium, signifying a typological and programmatic innovation in the architecture of Yugoslav hotels of the time. It is not hard to imagine that this design decision certainly owed to the effort to preserve the appearance of a "perfect" form. The rooms were organized with the access provided from an open gallery encircling the central atrium. For the standards of the time, they were exceptionally well equipped. Each contained an anteroom with built-in wardrobes and sanitary elements, including a washbasin and toilet, while a single shared shower unit per floor served all rooms on that level.

Koncepcija smještajnih sadržaja u vidu otvorenog jednotraktnog galerijskog sistema s reprezentativnim atrijem je tipološko-programska novina u tadašnjoj arhitekturi hotela Jugoslavije. Nije teško zamisliti da je ova projektantska odluka sigurno mnogo dugovala nastojanju da se očuva privid "savršene" forme. Sobama se pristupalo sa otvorene galerije, a same su sobe za tadašnje standarde bile dobro opremljene. Svaka je imala pretprostor sa ugrađenim ormarima i mokrom baterijom umivaonika i WC-a, dok je po jedna zajednička baterija tuševa po etaži opsluživala sve sobe te etaže. Zasebne su tuševe imali isključivo ugaoni apartmani (Venturini, 1965, p. 47).

Separate showers were provided only for the corner suites (Venturini, 1965, p. 47).

The interweaving of natural context and architecture achieved by Finci in Pelegrin draws upon the Arcadian lesson of Ginzburg's original Narkomfin project in Moscow (Buchli, 1998). Rather than being seen as a purely functional structure, architecture here aspires to create a framework for colective experiences that integrate built, natural, and social domains of life. Equally constructivist is the very conception of the hotel's public space that, in Maroje Mrduljaš's words, "can be everything or nothing" — a kind of social condenser, a programmatically undefined point of encounter between the commercial and the communal, between locals and foreign guests. Namely, the tourist industry development agenda along the Adriatic coast placed an emphasis on cultivating relations with the local community. In that spirit, the Kupari resort was not envisioned as a closed and self-sufficient enclave but rather as a spatially and functionally inclusive complex intended to remain active throughout the year.

During the third stage of development, in the southwest of the Kupari valley and within a dense pine forest, two residential villas known as "Tito's Villas" emerged in 1968, also by the design of David Finci. Alongside the Galeb Hotel, for which architects Milorad Petijević and Katarina Đivović were awarded the Borba Prize, these villas formed a secluded and restricted zone reserved exclusively for high-ranking military and government officials. Although the task of designing luxury residential housing was an exceptional rarity in the agenda of Yugoslav architects, Finci approached it with ingenuity, combining the opulence of volume and mass with restraint and modesty in the final ensemble. In doing so, he created a sense of balance between representativeness and quietness, between the architectural form and the environment.

3 Conclusion: Between Disappearance and Memory

The Kupari military resort suffered severe damage during the 1992 – 1995 war events. Throughout that period until its ultimate destruction, Pelegrin never fully embraced the aesthetic of the ruin as a new identity, which otherwise permeated the entire complex. The building retained its formal solidity, only slightly softened over the years — the Brač stone of the monumental entrance staircase has polished its surface; the edges of the volume and terrace have lost their sharpness. Observed from a distance, Pelegrin was still able to fool the less knowledgeable about its relevance and liveliness and, at the same time, to keep alive the hope of its renewal. For this reason, the demolition seemed even more unnatural and immediate, like the extraction of a healthy tooth.

Stripped bare by the act of demolition, Cape Pelegrin awaits a substitution that wholeheartedly promises to become a child of its era: a state of perpetually unfinished transition — alienated from the local community, self-sufficient, and profit-oriented, and, moreover, appropriately born on the foundations of ignorance towards the heritage and values of the past.

Prožimanje prirodnog konteksta i arhitekture koje je David Finci ostvario u Pelegrinu oslanja se na arkadijsku pouku Ginzburgovog prvobitnog projekta Narkomfina u Moskvi (Buchli, 1998). U oba slučaja prisutan je ideal integracije prostora, prirode i društvenog života, gdje arhitektura postaje okvir za kolektivno iskustvo, a ne samo funkcionalna struktura. Konstruktivistička je i sama koncepcija javnog prostora hotela koji, prema riječima Mrduljaša, "može biti sve ili ništa", svojevrsni socijalni kondenzator, programski nedefinisana tačka susreta između komercijalnog i komunalnog, između lokalnog stanovništva i stranih posjetilaca. Naime, imperativ u programu razvoja turizma Jadranske obale je bilo njegovanje odnosa sa lokalnom zajednicom. U tom duhu ni Kuparsko odmaralište nije zamišljeno kao zatvorena samodovoljna enklava, nego kao sadržajno i prostorno otvoreni sklop, namijenjen da živi tokom cijele godine.

Tokom treće etape razvoja, jugozapadno od Kuparske doline, u gustoj borovoj šumi 1968. godine izgrađene su dvije rezidencijalne vile poznate kao "Titove vile", također prema projektu Fincija. Zajedno s hotelom Galeb, nagrađenim Borbinom nagradom za ostvarenje arhitekata Milorada Petijevića i Katarine Đivović, ove vile činile su izolovanu zonu namijenjenu isključivo visokorangiranim vojnim i vladinim dužnosnicima. Premda je zadatak projektovanja luksuznog rezidencijalnog stanovanja bio je izuzetna rijetkost u tadašnjoj agendi jugoslovenskih arhitekata, Finci ga rješava domišljato, spajajući raskoš volumena i masa s mjerom i skromnošću u njihovom konačnom ansamblu. Takav pristup rezultirao je skladom između reprezentativnosti i stišanosti, između arhitektonske forme i krajolika.

3 Zaključak: između nestanka i pamćenja

Vojno odmaralište Kupari teško je stradalo za vrijeme ratnih dešavanja 1992-95. Od tada pa do njegovog konačnog rušenja estetika ruine, koja je prožela ostatak kompleksa, nije zaživjela kao novi identitet Pelegrina. On je očuvao svoj formalnu stamenitost, koja se tek dijelom umekšala — brački kamen monumentalnog ulaznog stepeništa se uglačao, ivice volumena i terasa izgubile oštrinu. Posmatran iz daljine Pelegrin je još uvijek mogao da prevari manje upućene u svoju relevantnost i živost, i ujedno da održava budnom nadu u svoju obnovu. Iz tog razloga se rušenje činilo još neprirodnijim i neposrednijim, poput ekstrakcije zdravog zuba.

Ogoljen rušenjem, Rt Pelegrin očekuje substituciju koja zdušno obećava da će postati dijete svoga doba — stanja trajno nedovršene tranzicije: otuđeno od zajednice, samodovoljno i profitno orijentirano, povrh toga i primjereno nastalo na temeljima ignorancije prema naslijeđu i vrijednostima prošlosti.

The fate of the Pelegrin Hotel encapsulates the contradictions of Yugoslav modernism: universal architectural ideas confronted by the limitations of political and social transformation. Its destruction was not merely a physical act but a symbolic end to a chapter in which architectural emancipation and modernization were more than anything else ethical problems.

Sudbina hotela Pelegrin sažima kontradikcije jugoslovenskog modernizma: univerzalne arhitektonske ideje suočene s ograničenjima političkih i društvenih transformacija. Njegovo rušenje nije samo fizički čin, već simbolički kraj jednog poglavlja u kojem je arhitektura bila nosilac društvenog ideala.

Figure 6 Abandoned and neglected Hotel Pelegrin. Entrance façade as recorded in 2023. Source: Authors.

Ilustracija 6 Napušteni i ruiniran Hotel Pelegrin; ulazna fasada hotela. Izvor: Autori, 2023.

Pelegrin stands both as a monument and as a wound, a reminder of the modernist ambition to make space an expression of the common good, but also of the oblivion that threatens to erase what does not agree with today's economic narratives. Consequently, it exists in a vacuum, situated between material disappearance and permanent presence in the collective cultural consciousness. His fate is a painful testimony of the ethical and aesthetic dimensions of modernist thought within the territory of the former Yugoslavia.

Pelegrin je istovremeno spomenik i rana, podsjetnik na modernističku ambiciju o prostoru kao zajedničkom dobru, ali i na zaborav koji prijeti da izbriše ono što nije usklađeno s današnjim ekonomskim narativima. Kao takav, ostaje znakovito pozicioniran između čina rušenja i opstojnosti pamćenja, između materijalnog nestanka i trajne prisutnosti u kolektivnoj kulturnoj svijesti. Njegova sudbina je bolno svjedočanstvo etičke i estetske dimenzije modernističke misli u prostoru bivše Jugoslavije.

Figure 7 Views towards the sea from the inside of the abandoned and demolished restaurant of the Hotel Pelegrin. Source: Authors, 2023.

Ilustracija 7 Pogledi prema moru iz unutrašnjosti napuštenog i porušenog restorana Hotela Pelegrin. Izvor: Autori, 2023.

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A YEAR [2025] IN REVIEW

01 JANUARY [2025]

06 January - 06 November *Ljubljana, Slovenia*	**Exhibition: Plečnik's Students and Other Yugoslav Architects in Le Corbusier's Atelier**	*mao.si/dogodek/plecnikovi-studenti-in-drugi-jugoslovanski-arhitekti-v-le-corbusierovem-ateljeju-2*
27 January – 30 April *Sarajevo, Bosnia & Herzegovina*	**MAXXI × LIFT ARCHITECTURE FILM LAB: Novi mediji, novi narativi**	*af.unsa.ba/maxxi-x-lift-architecture-film-lab-novi-mediji-novi-narativi*
15 Dec 2024 – 05 January 2025 *Zagreb, Croatia*	**59th Zagreb Salon of Architecture and Urbanism: Dialogues/Monologues + Awards and Acknowledgements of the 59th Zagreb Salon of Architecture and Urbanism**	*uha.hr/59-zagrebacki-salon-arhitekture-i-urbanizma-dijalozi-monolozi-otvorenje-u-umjetnickom-paviljonu* *uha.hr/dodijeljene-nagrade-hdd-a*

02 FEBRUARY [2025]

17 February *Ljubljana, Slovenia*	**Exhibition: Theoretical Practice of Architecture at Work at Dessa Gallery**	*dessa.si/program_en/theoretical-practice-of-architecture-at-work*
20 February *Zagreb, Croatia*	**Round table: Who (Doesn't) Need Competitions? (Kome (ne) trebaju natječaji)**	*uha.hr/okrugli-stol-kome-ne-trebaju-natjecaji-fotogalerija*
27 February *Sarajevo, Bosnia & Herzegovina*	**Noći arhitekture Sarajevo × Novi Sad – – odgovornost, obrazovanje, arhitektura**	*af.unsa.ba/noci-arhitekture-sarajevo-x-novi-sad-odgovornost-obrazovanje-arhitektura-javna-prezentacija-konkursnih-radova-diaspona/*

03 MARCH [2025]

10 March - 10 April *Ljubljana, Slovenia*	**Exhibition: To the Fore 8: Slovenian Female Architects, Builders and Designers at Dessa Gallery**	*dessa.si/program_en/to-the-fore-8-slovenian-female-architects-builders-and-designers*
20 March *Zagreb, Croatia*	**DOCOMOMO HR: Founding Assembly**	*uha.hr/osnivacka-skupstina-udruge-docomomo-hrvatska-dnevni-red-i-pristupnica*
27 March *Ljubljana, Slovenia*	**Design Perspectives Symposium at MAO**	*mao.si/dogodek/simpozij-bio28-i-perspektive-oblikovanja*

04 APRIL [2025]

01 April - 30 April *Belgrade, Serbia*	**47th Architecture Salon: Under Pressure at the Contemporary Art Museum Belgrade**	*u-a-s.rs/desavanja/item/629-v-r-n-47-s-l-n-rhi-ur-p-d-pri-is-under-pressure*
02 April - 05 April *Zagreb, Croatia*	**Days of Architects – Dani arhitekata 9.0 by the Croatian Chamber of Architects and the Croatian Architects Association**	*uha.hr/dani-arhitekata-9-0*
04 April - 10 April *Sarajevo, Bosnia & Herzegovina*	**Collegium Artisticum Awards and Exhibition**	*aabh.ba/selekcija-i-izbor-nagrada-collegium-artisticum-2025*
05 April *Makarska, Croatia*	**Architecture of Dialogue – Contemporaneity in Historical Heritage**	
05 April - 18 April *Zagreb, Croatia*	**DA! Festival – Student Festival of Art, Design and Architecture**	*da-festival.hr*
06 April (open since 21 Nov 2024) *Ljubljana, Slovenia*	**The Slovenian Design Biennale (BIO) Closing Day**	*28.bio.si/en/programme*
08 April *Novi Sad, Serbia*	**Lecture series: With Architects on Architecture**	*dans.org.rs/sa-arhitektama-o-arhitekturi*
10 April *Podgorica, Montenegro*	**Exhibition "Beyond the Looking Glass" by French architect and artist Odile Decq**	*e-flux.com/announcements/662061/programme-2025*

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10 April - 11 April *Novi Sad, Serbia*	**ArchyEnergy 2025**	*bina.rs/archyenergy-2025-spoj-arhitekture-energetske-efikasnosti-i-inovacija*
13 April *Osaka, Japan*	**The Opening of the Croatian Pavillion at the EXPO 2025 in Osaka, Japan**	*uha.hr/otvoren-hrvatski-paviljon-na-svjetskoj-izlozbi-expo-2025-osaka*
14 April - 15 May *Ljubljana, Slovenia*	**Exhibition: V4+2024 - Central European Family Houses at Dessa Gallery**	*dessa.si/program_en/v42024-central-european-family-houses*
15 April - 17 May *Belgrade, Serbia*	**The 20th Belgrade International Architecture Week - BINA 2025**	*bina.rs/en/program-2-2-3-2*
16 April *Ljubljana, Slovenia*	**Book presentation: Alpine Contrapposto – Vrlovčnik**	*dessa.si/program_en/alpine-contrapposto-vrlovcnik*
25 April *Banja Luka, Bosnia & Herzegovina*	**Public forum: Contemporary Urban Planning**	*aggf.unibl.org/sr/vesti/2025/04/javni-forum-savremeno-urbanisticko-planiranje-na-aggf-u*
25 April - 26 April *Banja Luka, Bosnia & Herzegovina*	**ARCHITECTON 2025: Real Solutions for the National Theatre**	*aggf.unibl.org/sr/vesti/2025/04/uspjesno-odrzan-architecton-2025-stvarna-rjesenja-za-narodno-pozoriste*

05 MAY [2025]

03 May *Ohrid, North Macedonia*	**Начинот на Чипан / The Way of Čipan**	*arhrid.org*
05 May *Zagreb, Croatia*	**Vladimir Nazor Awards for Best Artistic Realisations in the Republic of Croatia**	*min-kulture.gov.hr/vijesti-8/donesene-odluke-o-dobitnicima-nagrade-vladimir-nazor-za-2024-godinu/27931*
08 May - 09 May *Belgrade, Serbia*	**ARHITEKTA FORUM: Architecture>Art Outside Aesthetics**	*arhitekta.co.rs/en/arhitekta-forum-3-2*
09 May - 23 November *Venice, Italy*	**Inteligencija grešaka / Intelligence of Errors – Opening of the Croatian Pavillion at the Venice Biennale 2025**	*uha.hr/otvoren-hrvatski-paviljon-na-venecijanskom-bijenalu-2*
09 May - 23 November *Venice, Italy*	**Strada Brutalissima - Opening of the North Macedonian Pavillion at the Venice Biennale 2025**	*instagram.com/strada_brutalissima*
09 May - 23 November *Venice, Italy*	**Rasplitanje: Novi prostori / Unraveling: New Spaces – Opening of the Serbian Pavillion at the Venice Biennale 2025**	*labiennale.org/en/architecture/2025/serbia*
10 May - 23 November *Venice, Italy*	**Arhitektura Nova**	*arhitekturanova.com*
13 May *Gorizia, Italy*	**Exhibition of Architect Ivan Antić: ARCHITETTONICA**	*u-a-s.rs/desavanja/item/640-izlozba-arhitekte-ivana-antica-architettonica-u-goriciji-italija*
15 May *Kragujevac, Serbia*	**Scientific-Professional Conference of National Importance – Good Urban Life: Cultural Landscapes – Spaces of Memorial Parks**	*u-a-s.rs/desavanja/item/641-dobar-urbani-zivot-kragujevac*
19 May - 09 June *Ljubljana, Slovenia*	**Plečnik Awards 025 at Plečnik House**	*dessa.si/program_en/2025-plecnik-awards-ceremony-and-programme*
20 May - 12 June *Ljubljana, Slovenia*	**2025 Plečnik Awards: Exhibition in DESSA Gallery**	*dessa.si/program_en/2025-plecnik-awards-exhibition-in-dessa-gallery*
22 May - 29 June *Belgrade, Serbia*	**Exhibition: Power and Light of Industrial Heritage – International project FASIH (Future Art Science Industrial Heritage)**	*u-a-s.rs/desavanja/item/642-svetlost-i-snaga-industrijskog-nasleda*
23 May - 28 May *Belgrade, Serbia*	**DA! Exhibition of Works at the House of Oris**	*uha.hr/otvorenje-izlozbe-10-da-festivala*

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28 May - 28 June *Belgrade, Serbia*	**Exhibition: Architect Milan Zloković**	*dans.org.rs/izlozba-zlokovic-dans*
29 May *Banja Luka, Bosnia & Herzegovina*	**Fishpond as a Nature Park – – Architectural and Geographic Workshop**	*aggf.unibl.org/sr/vesti/2025/05/arhitektonsko-geografska-radionica-ribnjak-je-park-prirode-odrzana-u-osnovnoj-skoli-petar-kocic-u-prijedoru*

06 JUNE [2025]

04 June *Skopje, North Macedonia*	**Славко Брезоски – пионерот на македонскиот модернизам во Бразилија Slavko Brezoski – The Pioneer of Macedonian Modernism in Brasilia**	*arh.ukim.edu.mk/index.php/en/events/afs/1754-promoviranje-na-monografijata-i-izlozba-slavko-brezoski-2*
07 June - 10 June *Ljubljana, Slovenia*	**World Art Nouveau Day in Ljubljana**	*mao.si/dogodek/arhitektura-v-zivo-sprehod-po-secesijski-ljubljani-3*
10 June *Zagreb, Croatia*	**Annual Exhibition of Croatian Architects Works by the Croatian Architects Association**	*uha.hr/otvorenje-gio-2024-na-savskom-nasipu* *uha.hr/otvorenje-gio-2024-i-dodijela-uha-inih-godisnjih-nagrada*
12 June *Belgrade, Serbia*	**11th Salon of Landscape Architecture**	*upa.org.rs/arhiva-vesti/2025/11-salon-pejzazne-arhitekture-2025*
12 June - 13 June *Srebrenica, Bosnia & Herzegovina*	**Srebrenica Architecture Meetings 2025**	*af.unsa.ba/rememberance-i-srebrenica-architecture-meetings-2025*
12 June - 13 June *Banja Luka, Bosnia & Herzegovina*	**Energy Efficiency – ENEF 2025**	*unibl.org/en/news/2025/06/symposium-enef-2025-opened-science-and-innovations-in-the-service-of-the-energy-transition*
12 June - 13 June *Ljubljana, Slovenia*	**New European Bauhaus Conference**	*mao.si/dogodek/31013*
13 June *Belgrade, Serbia*	**Book Discussions – Negativity: Architecture and the Housing Question in Late-Socialist Belgrade**	*u-a-s.rs/desavanja/item/650-razgovor-o-knjizi-negativnost-arhitektura-i-stambeno-pitanje-u-beogradu-kasnog-socijalizma*
20 June *Sarajevo, Bosnia & Herzegovina*	**Share Architects Forum**	*share-architects.com/share-bosnia-and-herzegovina-2025-forum*
21 June - 30 August *Belgrade, Serbia*	**Odile Decq Exhibition: Beyond the Looking Glass at the DOTS Gallery**	*u-a-s.rs/desavanja/item/651-poziv-za-otvaranje-izlozbe-odile-decq*
27 June - 28 June *Zagreb, Croatia*	**Days of Oris Festival**	*oris.hr/hr/oris-plus/jubilarni-25-dani-orisa-u-lipnju,4367*
28 June - 06 July *Lazaropole, North Macedonia*	**ЕПИГЕНЕТСКО ЛАЗАРОПОЛЕ EPIGENETIC LA[nd]ZAROPOLE**	*porta3.mk/letna-shkola-2025-epigenetsko-lazaropole-upatstva-za-konceptualno-umetnichko-delo*
30 June - 07 July *Ohrid, North Macedonia*	**Resilient School in Declining Demographics**	*uacs.edu.mk/news/sad-call-for-participants*

07 JULY [2025]

15 July *Mostar, Bosnia & Herzegovina*	**City of Mostar: 20 Years Since UNESCO World Heritage List Inscription**	*mostar.ba/20-godisnjica-upisa-starog-mosta-na-popis-kulturne-bastine-unesco-a*
17 July *Podgorica, Montenegro*	**Night of Architecture 2025**	*daniarhitekture.me/me/noc-arhitekture-2025*
21 July - 25 July *Mostar, Bosnia & Herzegovina*	**Summer School of Urban Mobility, Mostar**	*aggf.unibl.org/sr/vesti/2025/07/ljetna-skola-urbane-mobilnosti-odrzana-u-mostaru*
31 July - August *Grožnjan, Croatia*	**Grožnjan Architecture Summer School**	*gssa.com.hr*

08 AUGUST [2025]

01 August *Mostar, Bosnia & Herzegovina*	**Novi Razvitak u Mostaru, Architectural Competition**	*aabh.ba/objavljeni-nagradeni-radovi-za-novi-razvitak-u-mostaru*
25 August - 29 August *Ljubljana, Slovenia*	**Small Architecture Summer School for Children**	*mao.si/dogodek/poletna-mala-sola-arhitekture-4*

09 SEPTEMBER [2025]

03 September *Banja Luka, Bosnia & Herzegovina*	**Terme Banja Luka: Opening Ceremony**	*zotovicbl.com/page.php?id=23*
03 Sept - 15 Oct *Skopje, North Macedonia*	**Живко Поповски: Живот посветен на архитектурата / Zhivko Popovski: Life Dedicated to Architecture**	*msu.mk/exhibition/zhivko-popovski-life-dedicated-to-architecture*
04 Sept - 05 Sept *Ljubljana, Slovenia*	**Made In: Conference on Heritages of the Future**	*mao.si/dogodek/konferenca-dediscine-prihodnosti-i-made-in*
08 Sept - 18 Sept *Belgrade, Serbia*	**World Green Building Week 2025: Webinars**	*u-a-s.rs/desavanja/item/660-pr-gr-v-bin-r-wgbw25*
09 Sept - 13 Sept *Ljubljana, Slovenia*	**Interdisciplinary Conference Taboo – Transgression – Transcendence in Art and Science**	*avarts.ionio.gr/ttt/2025/en/program*
11 Sept - 12 Sept *Belgrade, Serbia*	**World Green Building Week 2025, Green Tours 2025**	*u-a-s.rs/desavanja/item/661-z-l-n-ur-25*
12 September *Zagreb, Croatia*	**Professional symposium: Architectural Competitions: A Public Procurement Model for Ensuring High-Quality Projects**	*uha.hr/strucni-skup-arhitektonski-natjecaji-model-javne-nabave-za-osiguranje-kvalitetnih-projekata*
22 September *Budva, Montenegro*	**Dani evropske baštine 2025: Arhitektura - između stvaralaštva i nasljeđa**	*vijesti.me/vijesti/kultura/775794/arhitektura-izmedju-stvaralastva-i-nasljedja*
26 Sept - 28 Sept *Sarajevo, Bosnia & Herzegovina*	**The 15th Days of Architecture Festival**	*daniarhitekture.ba/festival/program*
27 Sept - 11 Oct *Ljubljana, Slovenia*	**35th European Heritage Days and the 13th Cultural Heritage Week: Walls of Our Past, the Foundation of Our Future**	*mao.si/dogodek/teden-kulturne-dediscine-2025*
28 September *Sarajevo, Bosnia & Herzegovina*	**Sleeping Giant - (Re)thinking Mutual Industrial Heritage panel at the Days of Architecture**	*daniarhitekture.ba/festival/program*
28 September *Sarajevo, Bosnia & Herzegovina*	**Dom penzionera: Space of Becoming – Pre-premiere Screening at the Days of Architecture Festival**	*daniarhitekture.ba/festival/program*
28 September *Sarajevo, Bosnia & Herzegovina*	**New European Bauhaus Forum Bosnia and Herzegovina**	*daniarhitekture.ba/festival/program*
28 September *Sarajevo, Bosnia & Herzegovina*	**Fresh&Bold Architecture Award**	*daniarhitekture.ba/festival/program*
29 September *Podgorica, Montenegro*	**Opening of the New Building of the Faculty of Architecture**	*ucg.ac.me/objava/blog/1230/objava/202473-nakon-vise-od-dvije-decenije-arhitektonski-fakultet-ucg-u-savremenom-prostoru-od-5-000-kvadrata*

01 Oct - 08 Oct *Sarajevo, Bosnia & Herzegovina*	**Exhibition: Bridges and Branches**	*af.unsa.ba/izlozba-studenata-arhitektonskog-fakulteta-u-sarajevu-u-sklopu-izbornog-predmeta-apstraktni-likovni-izraz-oblika-boja-i-kretanja-bridges-and-branches*
01 October *Belgrade, Serbia*	**ARCHI:CON – Conference on the Design of Workspaces and Office Buildings at the Sava Center**	*u-a-s.rs/desavanja/item/663-archi-con-konferencija-projektovanje-radnih-prostora-i-poslovnih-objekata + archi-con.com*
06 Oct - 20 Oct *Skopje, North Macedonia*	**БИМАС - Биенале на Македонска Современа Архитектура BIMAS - Biennale of Macedonian Contemporary Architecture**	*aam.org.mk/bimas*
08 October *Sarajevo, Bosnia & Herzegovina*	**Promotion and Round table: Acta Architectonica et Urbanistica – Promotion of the Special Edition "Retrospective and Perspective: Architectural Education and Practice"**	*af.unsa.ba/objavljeno-digitalno-izdanje-aaeu-uz-snimak-panel-diskusije-retrospektiva-i-perspektiva-arhitektonsko-obrazovanje-i-praksa*
09 October *Zrenjanin, Serbia*	**Discussion in Zrenjanin: Participation in Architecture**	*u-a-s.rs/desavanja/item/668-participacija-u-arhitekturi-tribina-u-zrenjaninu*
10 October *Banja Luka, Bosnia & Herzegovina*	**Architectural Diary of the Fishpond – Between Landscape and Memory**	*aggf.unibl.org/sr/vesti/2025/10/zavrsni-rad-aleksandra-marica-arhitektonski-dnevnik-ribnjaka*
10 October *Perlez, Serbia*	**SFERA Forum / Architecture of Culture: Spatial-Cultural Historic Units as Symbols of Identity**	*u-a-s.rs/desavanja/item/669-sfera-forum-arhitektura-kulture-perlez*
16 October *Banja Luka, Bosnia & Herzegovina*	**Exhibition: Architecture in Focus**	*facebook.com/profile.php?id=61562543334867*
16 October *Belgrade, Serbia*	**Project Presentation: Unraveling: New Spaces**	*u-a-s.rs/desavanja/item/671-r-spli-nj-n-vi-pr-s-ri*
17 Oct - 18 Oct *Sarajevo, Bosnia & Herzegovina*	**SFERA Architecture Summit**	*facebook.com/2018.sfera.ba*
20 October *Sarajevo, Bosnia & Herzegovina*	**Public lecture: Zajednički grad by Vladimir Krstić**	*af.unsa.ba/javno-predavanje-zajednicki-grad-prof-em-vladimir-krstic*
21 October *Sarajevo, Bosnia & Herzegovina*	**Book promotion: Arhitektura Bosne i Hercegovine 1878–1918 by prof. dr. Ibrahim Krzović**	*radiosarajevo.ba/metromahala/kultura/dragocjena-bastina-promovisana-knjiga-arhitektura-bih-1878-1918-prof-dr-ibrahima-krzovica/610606*
22 Oct - 23 Oct *Sarajevo, Bosnia & Herzegovina*	**International Workshop: Urban Regeneration and Temporary Uses within the IMPETUS project**	*smart.sarajevo.ba/en/news/371-city-of-sarajevo-hosts-the-impetus-workshop-on-urban-regeneration-and-temporary-uses*
23 October *Sarajevo, Bosnia & Herzegovina*	**Sarajevo Urban Talk**	*urbanmagazin.ba/sarajevo-urban-talk-predstavljena-postignuca-u-odrzivom-urbanom-razvoju-grada*
23 October *Belgrade, Serbia*	**BuildUp 2025 Conference: Horecature – Architecture of Hospitality**	*u-a-s.rs/desavanja/item/662-konferencija-buildup-2025*
23 October *Ljubljana, Slovenia*	**Spatial Themes Bring People Together – Participatory Practices**	*mao.si/dogodek/mvs-3-prostorske-teme-zdruzujejo-ljudi-participativne-prakse*
24 October *Split, Croatia*	**New Cycle of International Architectural Lectures – SplitTendencies 2025-26**	*splittendencies.com/en/home/* *uha.hr/novi-ciklus-programa-splittendencies*
24 Oct - 31 Oct *Split, Croatia*	**Exhibition: Mies in Split - EU Mies Awards Young Talent 2025**	*uha.hr/mies-u-splitu-otvorenje-izlozbe-24-10-2025*

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25 October *Novi Sad, Serbia*	**DNA Paris Design Awards: Josipa Škrobo, Winner in the Interior Design – Civic Buildings Category for St. Joseph's Church in Zenica**	*dna.paris/winner/zoom.php?eid=71-93019-24*
25 October *Novi Sad, Serbia*	**Đorđe Tabaković Architecture Award by the Architects Society Novi Sad (DaNS)**	*dans.org.rs/dobitnik-nagrade-za-arhitekturu-djordje-tabakovic-za-2025-godinu*
27 October *Veles, North Macedonia*	**Вертикални форми на населување на градот Велес / Vertical forms of settlement in the city of Veles**	*marh.mk/izlozba-vertikalni-formi-na-naseluvanje-na-veles*
28 October *Banja Luka, Bosnia & Herzegovina*	**Workshop: Urban Safari Through the Eyes of a Person with Disability**	*aggf.unibl.org/sr/vesti/2025/10/odrzana-radionica-urbani-safari-iz-ugla-osobe-sa-invaliditetom*
29 Oct - 05 Nov. *Skopje, North Macedonia*	**Моден викенд Скопје Fashion Weekend Skopje**	*fashionweekendskopje.mk*

11 NOVEMBER [2025]

03 November. *Sarajevo, Bosnia & Herzegovina*	**Lecture: Kultura Elektro-akustičkog zagađenja prostora by Haris Sahačić**	*af.unsa.ba/predavanje-harisa-sahacica-kultura-elektro-akusticnog-zagadjenja-prostora*
03 Nov - 09 Nov *Niš, Serbia*	**The 6th International Exhibition of Contemporary Housing: HOUSING 2025**	*housingexhibition.org/housing-25*
05 Nov - 14 Nov *Zagreb, Croatia*	**Exhibition: Mies in Zagreb - EU Mies Awards Young Talent 2025**	*uha.hr/mies-u-zagrebu-otvorenje-izlozbe-5-11-2025*
06 November *Sarajevo, Bosnia & Herzegovina*	**Movie screening: Vitić pleše + Public lecture by Boris Bakal**	*af.unsa.ba/najava-gostujuce-predavanje-boris-bakal-i-projekcija-filma-vitic-plese*
07 November *Pula, Croatia*	**Annual Exhibition of Croatian Architects Works by the Croatian Architects Association**	*uha.hr/otvorenje-gio-2024-u-puli*
07 Nov - 19 Dec *Pula, Croatia*	**Dani arhitekture u Istri – What Does Architecture Do When it Does Not Construct?**	*uha.hr/dani-arhitekture-u-istri-2025*
08 Nov - 16 Nov *Skopje, North Macedonia*	**Skopje Design Week**	*skopjedesignweek.com*
10 Nov - 11 Dec *Ljubljana, Slovenia*	**Exhibition: Towards New Learning Spaces**	*dessa.si/program_en/towards-new-learning-spaces*
12 Nov - 13 Nov *Podgorica, Montenegro*	**1st Days of Civil Engineers**	*ingkomora.me/ikcg_mne/public/index.php/index/artikli?id=5236*
12 Nov - 20 Nov *Belgrade, Serbia*	**BAB 25 – Belgrade Architecture Biennale**	
14 November *Podgorica, Montenegro*	**Conference: Sustainable Interior Elements for Hotels**	*caffemontenegro.me/vijesti/konferencija-odrzivi-elementi-enterijera-za-hotele*
14 Nov - 16 Nov *Podgorica, Montenegro*	**IV Days of Architecture Montenegro 2025 – More for Less**	*daniarhitekture.me*
15 November *Nova Gorica, Slovenia*	**Book Promotion – The Structure of Modernity: Edvard Ravnikar and His Quests**	*mao.si/dogodek/arhitektura-v-zivo-ravnikar-v-novi-gorici-predstavitev-knjige-struktura-modernosti-in-ogled-nacrtov-nove-gorice*
15 November *Venice, Italy*	**Terram intelligere: Interstitium - Opening of the Montenegrin Pavillion at the Venice Biennale 2025**	*montenegropavilion.me*

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16 November *Venice, Italy*	**Speakers' Corner: Intelligence of Errors – Discussion in the Amphiteatre of the Biennale Exhibition by Carlo Ratti**	*uha.hr/speakers-corner-inteligencija-gresaka-fotogalerija*
18 November *Čelinac, Bosnia & Herzegovina*	**Public Competition for the Conceptual Urban-Architectural and Design Solution of the City Square, Memorial Site and City Park in Čelinac**	*aggf.unibl.org/sr/vesti/2025/10/javni-konkurs-za-idejno-urbanisticko-arhitektonsko-rjesenje-gradskog-trga-u-celincu*
19 November *Skopje, North Macedonia*	**SHARE Skopje 2024 Forum**	*share-architects.com/share-skopje-2024-forum*
21 Nov - 22 Nov *Portorož, Slovenia*	**42nd International Conference Piran Days of Architecture**	*dessa.si/program_en/piran-days-of-architecture-2025*
22 November *Portorož, Slovenia*	**Student Architecture Workshop: Beyond Auditorium (Part of Piran Days of Architecture)**	*dessa.si/program_en/beyond-auditorium*
22 Nov - 30 Dec *Portorož, Slovenia*	**36th International Exhibition for the Piranesi Award 2025**	*dessa.si/program_en/piranesi-award-2025*
22 Nov *Belgrade, Serbia*	**The 4th ARHITEKTA FORUM: VISION (VIZIJA)**	*arhitekta.co.rs/arhitekta-forum-4-2*
27 Nov *Belgrade, Serbia*	**Presentation of the First Regional Award of the Milenija and Darko Marušić Foundation of the Executed Work in the Field of Residential Architecure**	*u-a-s.rs/desavanja/item/682-urucenje-prve-regionalne-nagrade-fondacije-milenija-i-darko-marusic*

12 DECEMBER [2025]

01 December *Podgorica, Montenegro*	**Exhibition: Sequences (Sekvence)**	*ucg.ac.me/objava/blog/1230/objava/205129-izlozba-sekvence-1-decembra*
04 December *Belgrade, Serbia*	**International Conference: On Architecture 2025 – Cross-Sections and Convergences of Disciplines**	*u-a-s.rs/desavanja/item/685-rhi-uri-2025-pr-s-ci-i-sp-nj-disciplin.html* *strand.rs*
04 Dec - 05 Dec *Sarajevo, Bosnia & Herzegovina*	**Conference: Improving Liveability in Historical Urban Landscapes: HUL Mostar & Sarajevo - Status And Perspectives Of Protection**	*af.unsa.ba/hul-mossar-conference-annoucement*

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Časopis objavljuje istraživanja koja obuhvataju širok spektar relevantnih tema i povezuje teoriju i praksu u oblastima arhitekture i urbanizma. Otvoren je za prijavu rukopisa istraživača iz različitih oblasti, uključujući arhitekturu, urbanizam, dizajn enterijera i pejzaža, građevinarstvo, historiju umjetnosti, geografiju, kulturu, antropologiju, sociologiju, psihologiju i druge discipline koje proučavaju arhitekturu i izgrađeno okruženje iz različitih perspektiva.