AR4EA010 Extreme Graduation Studio

NO BEAUTY LEFT BEHIND

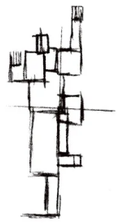
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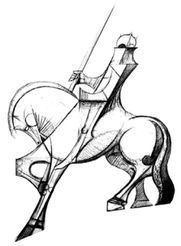
Le Corbusier



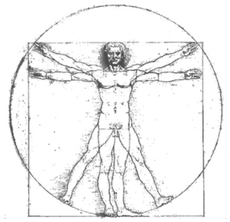
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ACKNOWLEDGEMENT

I would like to sincerely thank my supervisors, Joost Woertman and Atze Boerstra for their support, guidance, and valuable feedback throughout this graduation project. Their knowledge, critical insights, and continuous encouragement have greatly contributed to the development of both the research and the design.

I am grateful for the many discussions, questions, and challenges that helped strengthen the project and broaden my perspective as a designer. Their support has been essential in bringing this work to completion.

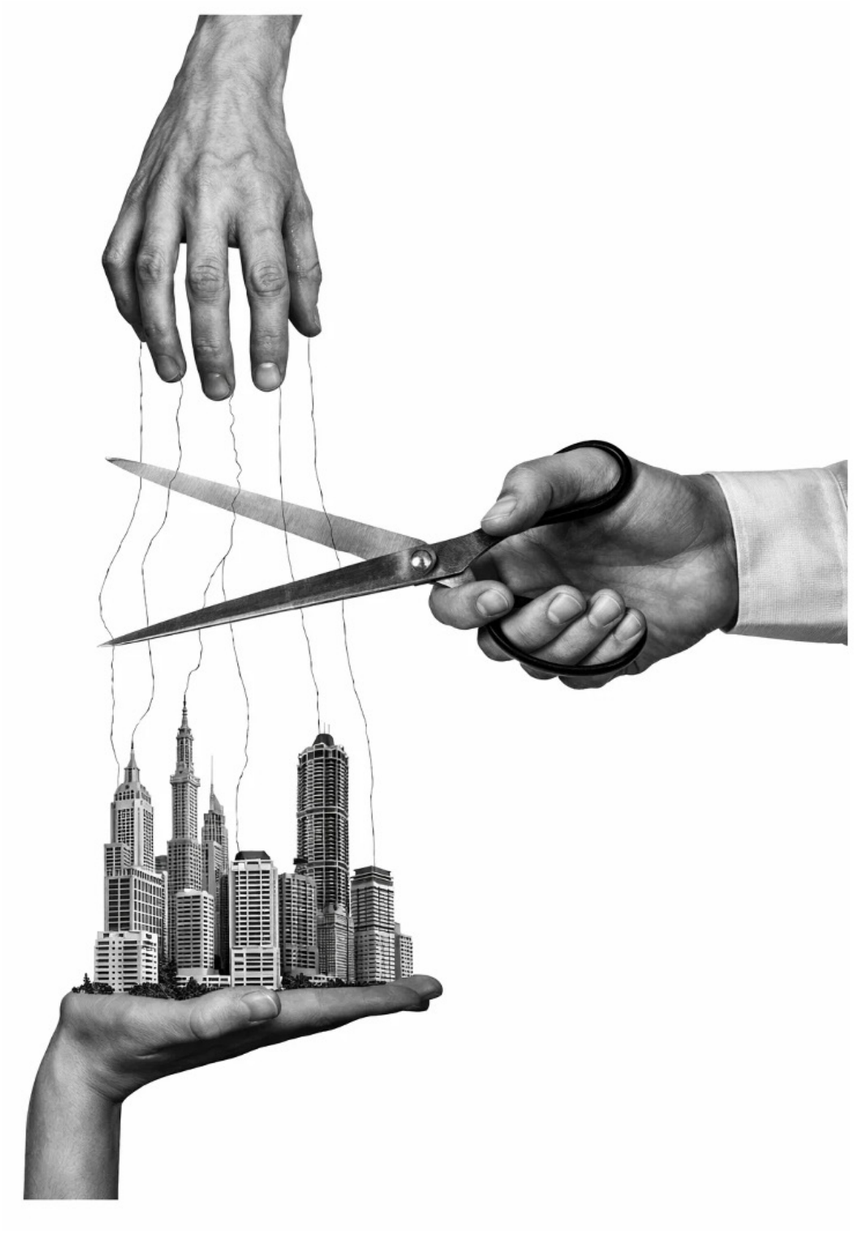


Figure unnumbered, Top-down...? NO, BOTTOM-UP! (own illustration)

ABSTRACT

Post-conflict reconstruction often prioritises speed, cost efficiency, and large-scale delivery, resulting in generic architecture and urban environments that overlook emotional experience, cultural continuity, and human wellbeing. In Syrian cities affected by conflict, the built environment plays an important role in shaping how people reconnect with their surroundings and rebuild a sense of belonging. The research investigates how architectural and urban design can support affective appraisal and a sense of belonging within post-conflict reconstruction, with a specific focus on the Syrian context.

Drawing on environmental psychology, architectural theory, healthy city principles, and post-conflict reconstruction literature, the study examines how qualities such as human scale, walkability, spatial legibility, visual complexity, materiality, and ornamentation influence emotional responses and long-term attachment to place. Through analysis of historic Syrian architecture and urbanism, the research identifies spatial and architectural characteristics that support positive affective appraisal, social interaction, and cultural continuity.

The findings are translated into a contemporary courtyard housing proposal for Homs, Syria, combining modular and scalable construction methods with climate-responsive design, walkable public space, and culturally grounded architectural expression. The project demonstrates that reconstruction can move beyond the provision of housing alone and contribute to healthier, more meaningful, and emotionally resilient urban environments. By aligning efficiency with social, cultural, and architectural quality, the research proposes a reconstruction strategy in which no beauty is left behind.



Figure unnumbered, Ornament as a sense of safety and security (own illustration)

Ornament is a valuable component in any architecture of buildings and cities that aims to connect to human beings. The suppression of ornament, on the other hand, results in alien forms that generate physiological and psychological distress. Early twentieth-century architects proposed major stylistic changes – now universally adopted – without having a full understanding of how the human eye/brain system works.

- Nikos Salingaros, 2007
A theory of architecture

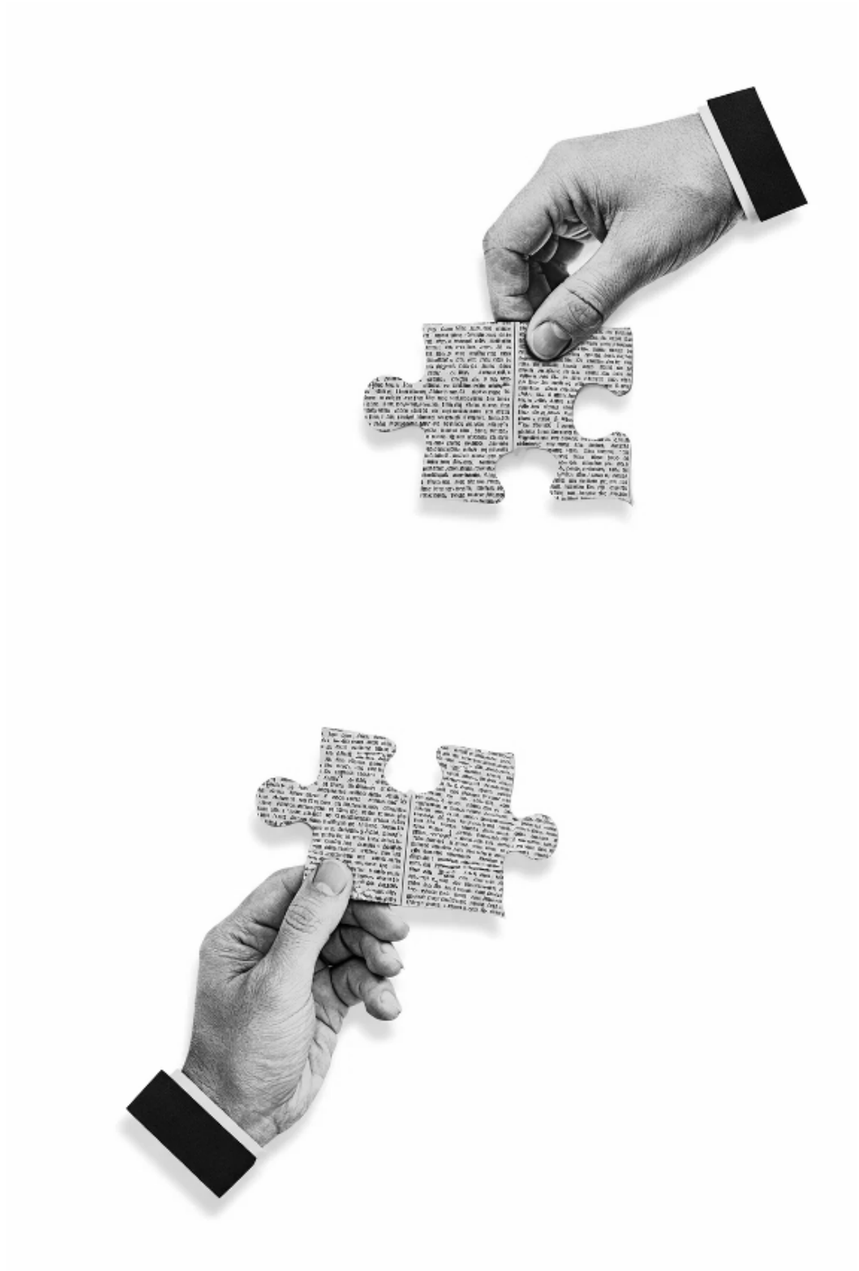


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PART ONE: INTRODUCTION



Figure 1, Seperation of loved-ones (own illustration).

I. Prologue
Psychological recovery and social reconnection.
Architecture shapes human experience not only through function and movement, but also through emotion, perception, and memory (Norberg-Schulz, 1971). From early on, my interest in architecture has been closely linked to psychological experience and to the ways in which material, form, and visual expression influence wellbeing in everyday life.

Throughout my master's studies, this interest became increasingly situated within contexts shaped by economic pressure, limited resources, and political instability. Working within such environments revealed how architectural decisions extend far beyond aesthetics, becoming intertwined with identity, resilience, and social cohesion, where even small design choices can shape how people relate to their surroundings.

These experiences led me to reflect on architecture's role in contexts of trauma and recovery, and in particular on façades as elements encountered repeatedly and often unconsciously. As interfaces between private and public space, façades influence how environments are perceived, remembered, and emotionally inhabited. This thesis emerges from the belief that such everyday encounters matter, especially in places where rebuilding is inseparable from healing.

I approach this research from outside the Syrian context, as a European architecture student working at a distance. I do not claim lived experience of post-conflict environments or speak from within Syrian cultural traditions. My understanding of Syrian cities and architecture is shaped by academic literature, historical sources, and the perspectives of Syrian architects, scholars, and displaced individuals. Because of this position, my interpretation is necessarily partial and influenced by my own background. By acknowledging these limits, I aim to approach questions of cultural meaning and identity with care, critical awareness, and respect.

II. Problem statement
The loss of socio-psychological cohesion.
This graduation project is situated within the design assignment of rebuilding in extreme environments, with the post-conflict city of Homs serving as the primary case. Following extensive physical destruction and prolonged displacement, Homs faces the challenge of large-scale urban reconstruction under conditions of urgency, limited resources, and deep social fragmentation (figure 1). When confronted with such an assignment, a fundamental architectural question arises: "how should the rebuilding of a post-conflict city such as Homs be approached?"

In post-conflict settings, reconstruction efforts are often driven by the immediate need to provide housing and infrastructure at speed. As a result, rebuilding processes tend to prioritise efficiency, standardisation, and economic feasibility, frequently treating architecture as a technical response to material damage. While these priorities are understandable, they risk overlooking the broader role of the built environment in shaping lived experience, social interaction, and the re-establishment of identity in cities emerging from conflict (figure 4).

Within this context, the architectural façade becomes a critical yet contested element. As the most visible interface between private and public space, façades shape the character of streets, influence everyday perception, and contribute to how urban environments are read and remembered (figure 2). Despite this significance, façade design in post-conflict reconstruction is often reduced to a secondary or decorative concern, particularly in high-pressure urban environments where rapid mass construction dominates decision-making.

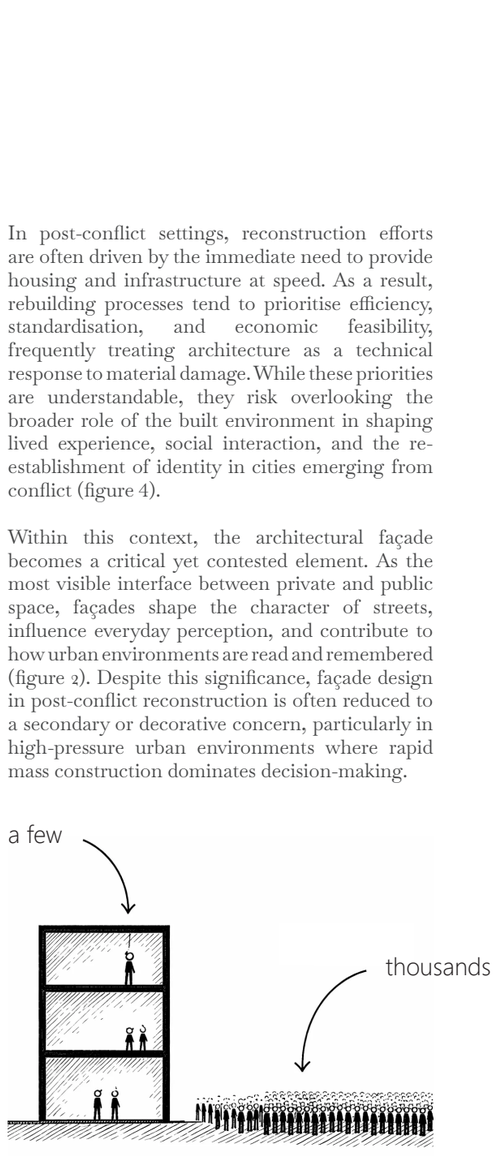


Figure 2, The role of the facade in public space (own illustration).

The problem addressed by this research lies in the tension between the urgency of post-conflict rebuilding and the need for architectural expression that supports human wellbeing and cultural continuity. In cities such as Homs, where ornamentation and material expression have historically played a defining role in urban identity, the loss or simplification of façade design risks producing environments that feel generic, disconnected, or alienating for returning populations.

III. Relevance
Critical gap in post-conflict reconstruction.
Post-conflict reconstruction confronts architects with challenges that extend beyond technical rebuilding. As noted by Tortorici and Fiorito (2017), post-conflict rebuilding must address not only material damage but also the less visible social and mental dimensions of loss, requiring engagement with ethical responsibility, cultural continuity, and long-term urban resilience. This project is relevant to architectural practice as it addresses how design can respond to the social and mental dimensions of rebuilding while operating within the constraints of rapid, large-scale construction. By focusing on façade ornamentation, material expression, and spatial perception the research engages with an architectural scale that significantly shapes urban identity yet is often marginalised in reconstruction processes. The project contributes to professional discourse by illustrating how façade design can mediate between contemporary construction practices and culturally embedded architectural languages, encouraging architects to adopt context-sensitive approaches without compromising feasibility.

In post-conflict contexts, the built environment plays a crucial role in recovery, reintegration, and the reconstruction of collective identity. Architectural expression influences how returning populations experience belonging, continuity, and social cohesion within their rebuilt environments. This research is socially relevant in highlighting the importance of culturally grounded façades in everyday urban life, particularly in contexts where rapid reconstruction risks producing anonymous or alienating environments. Beyond Syria, the insights offered by this thesis are applicable to other regions facing post-conflict rebuilding or accelerated urban transformation, contributing to broader discussions on inclusive and culturally responsive urban recovery.

IV. Objectives and motivation
Rebuilding with a long-term vision.
The primary aim of this graduation project is to explore how façade features that support positive affective appraisal and a sense of belonging can be integrated into post-conflict reconstruction in Syria. It seeks to identify specific façade characteristics that shape how people feel when they encounter a building and how these feelings develop over time, and to explore how these characteristics can be designed and implemented within the practical constraints of post-conflict econstruction. Ultimately, the design proposes an approach for designing meaningful façades that integrate local culture while remaining compatible with the realities of post-conflict construction and contemporary theories in architecture.

This study is motivated by the observation that façades, despite their visibility and cultural significance, are often reduced to generic or purely functional elements in high-pressure reconstruction contexts that prioritise speed, cost-efficiency, and standardisation (Mansour, 2015). Under such conditions, traditional building techniques and cultural embedded ornamentation are often marginalised, leading to a loss of aesthetic richness and historical continuity. In contexts such as Syria, where architectural expression have long played a central role in social life and spatial identity, the loss of these elements risks further alienation and psychological disconnection for returning populations. Within these conditions, this graduation project is driven to explore how façade-level design decisions can move beyond purely aesthetic concerns and act as instruments for healing, identity reconstruction, and social cohesion, fostering environments that support a sense of belonging and shared memory to accelerate the post-war recovery process.

V. Scope
Positioning and limitations.
The project examines how façade ornamentation and materiality can support affective appraisal and a sense of belonging in post-conflict urban environments. While façade design is also related to functional performance, environmental sustainability, and building resilience, these aspects are not the main focus of the research. They are treated as supporting design considerations and are addressed in the later design phase.

This study does not present architecture as a way to cure trauma. Instead, it understands architecture as a spatial framework that can support recovery, resilience, and the return of everyday life. This position is based on existing research that links architectural qualities to emotional response and social interaction, while recognising that these effects are indirect and shaped by cultural and social context.

This graduation assignment is situated with in the post-conflict context of Syria, with Homs as the main case for the design investigation. References to other post-conflict environments are included for comparison, but the findings are intended to inform context-sensitive architectural approaches rather than universal solutions. This work is framed as architectural research and does not engage in political analysis or commentary.

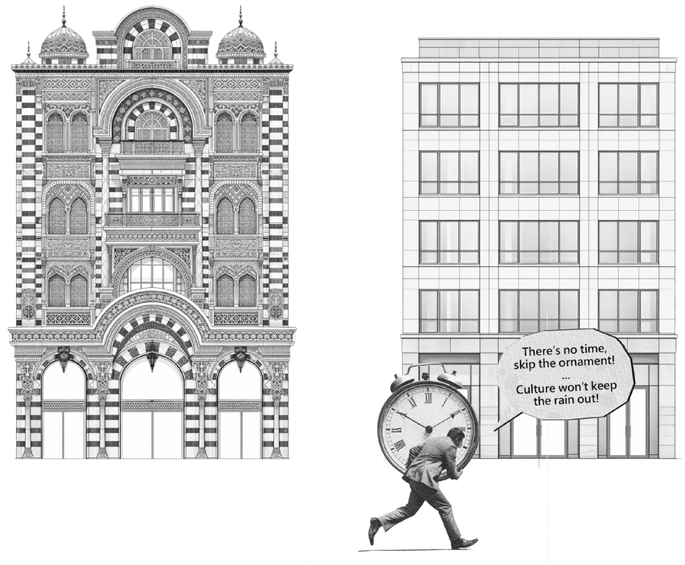


Figure 4, Speed and cost-efficiency leads to generic facades (own illustration).



Figure 3, Fleeing the Homs (own illustration).

VI. Research questions

The recovery of a destroyed historic city.

The urban environment is not experienced as a neutral backdrop, but as a setting that continuously shapes perception, behaviour, and social interaction. As argued by Norberg-Schulz (1971), the physical qualities of the built environment contribute to how individuals orient themselves, feel anchored, and develop a sense of place. This understanding raises two fundamental questions about how everyday architectural elements participate in public life, and how facade design influences the experience of belonging within the city, on both a mental and social scale:

- "How do **façade ornamentation** and **materiality** influence immediate **affective appraisal** in post-conflict environments?"

- "In what ways can **façade ornamentation** and **materiality** contribute to **a sense of belonging** in post-conflict environments over time?"

Following these conceptual questions, the research turns to the specific architectural context in which affective appraisal and sense of belonging take shape. These experiences do not arise in abstract space, but through culturally familiar forms, materials, and façade traditions that people recognize through everyday use and memory. In post-conflict settings, where reconstruction can disrupt these visual and material continuities, understanding the established façade language of Syrian cities such as Homs becomes essential. Identifying characteristic façade features allows the research to assess which architectural qualities may support positive emotional responses and belonging, and which are most at risk of being lost in contemporary reconstruction processes.

- What are typical **façade features** of **Syrian architecture** that could be associated with **positive affective appraisal** and **sense of belonging**?

In post-conflict contexts, reconstruction is shaped by urgency, limited resources, and the necessity of rebuilding at scale. These conditions often prioritise speed, cost efficiency, and standardised construction methods, leaving little room for architectural differentiation or cultural expression. Within this framework, façade ornamentation is frequently perceived as incompatible. This raises a critical question of how culturally meaningful façade design can be reconciled with the practical demands of large-scale post-conflict reconstruction, allowing ornamentation to contribute to identity and continuity without undermining construction efficiency:

- "How can **façade features** identified as supporting **affective appraisal** and **sense of belonging** be integrated into **prefabricated façade systems** for post-conflict reconstruction?" (research in appendix)

Taken together, these considerations lead to the central question of this thesis:

"How do **façade ornamentation** and **materiality** shape **affective appraisal** and **sense of belonging** in post-conflict Syria, and how can these qualities be integrated within **prefabrication facade systems**?"

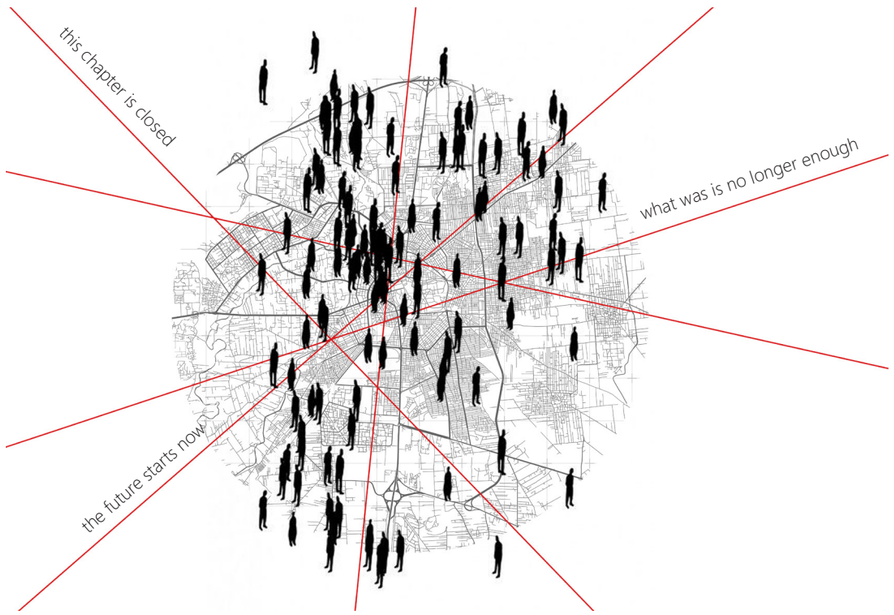


Figure 5, Homs connecting thread



Figure 6, Repairing the loss and displacement as precise as possible, which takes time (own illustration).

PART TWO: APPROACH

I. Methods

Research by design.

This graduation project follows a research-by-design methodology in which theoretical research, spatial analysis, and design experimentation are continuously combined. Based on Elise van Dooren's framework in Anchoring the Design Process (2020), the project developed through iterative cycles of sketching, modelling, testing, and reflection rather than through a linear process (Figure 7).

Literature review.

The project is informed by theories on human-scale urbanism, public life, and spatial perception. The work of Jan Gehl, Jane Jacobs, Kevin Lynch, and Dom Hans van der Laan provided insights into walkability, social interaction, urban legibility, spatial harmony, and human experience, shaping the project's approach to public space and architectural identity.

In addition, the writings of Syrian architect Marwa Al-Sabouni highlighted the importance of cultural continuity, collective memory, and belonging within post-conflict reconstruction. Her work strongly influenced the project's ambition to use architecture as a tool for rebuilding both the physical city and its social fabric.

AI as an expermintation tool.

As part of the design exploration, AI visualization tools were used to generate multiple façade variations and atmospheric impressions. These visualizations functioned as communication tools during conversations with experts and people from Syria, allowing different architectural languages, materials, rhythms, and façade compositions to be evaluated in relation to the local context. The use of AI made it possible to rapidly test alternative interpretations of architectural identity and spatial atmosphere, supporting discussions about what felt culturally appropriate, recognizable, and contextually sensitive within the project.

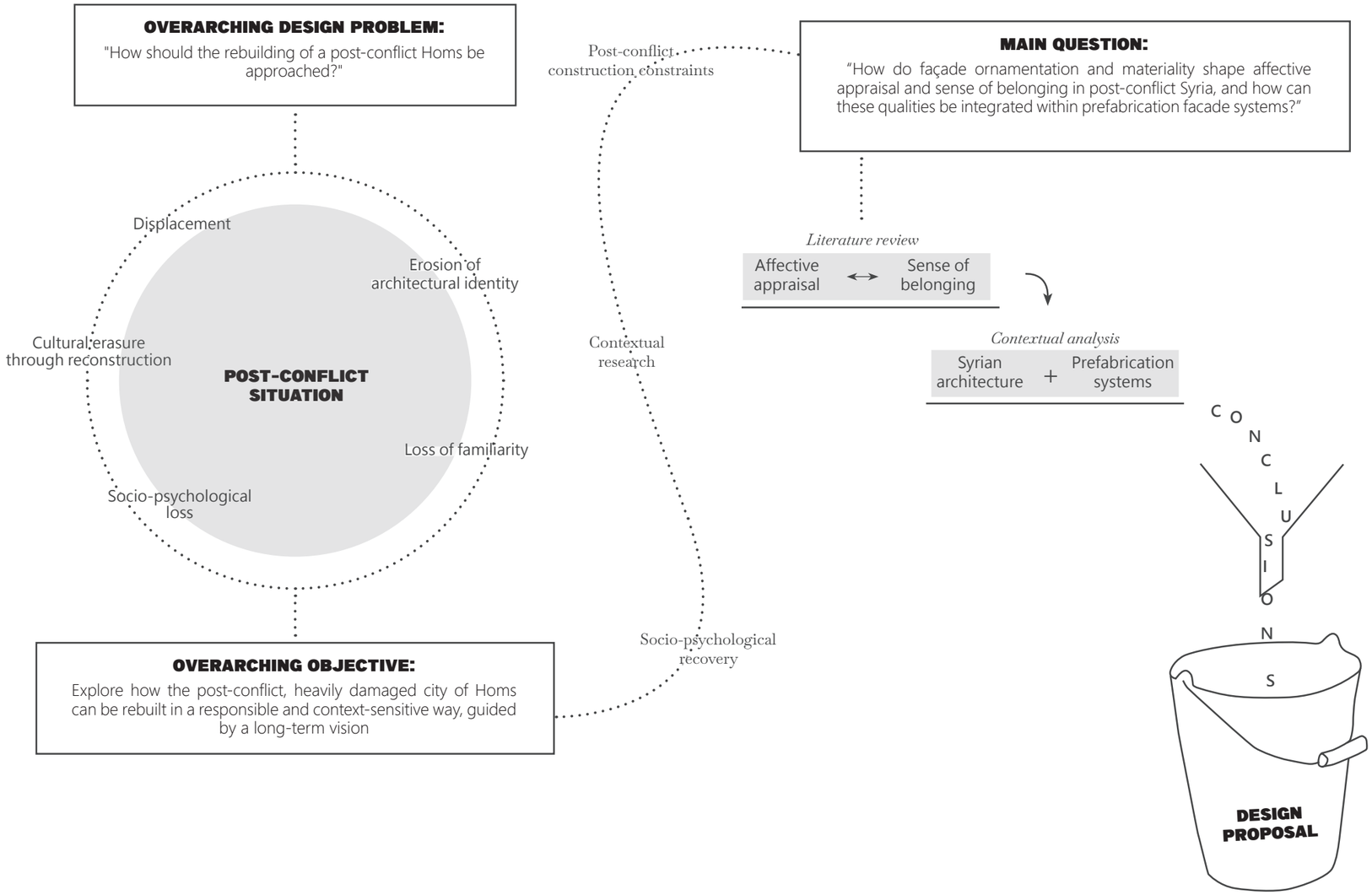


Figure 7, Diagram showing the research input to design outcome

II. Theoretical framework
Understanding conditions.
This project engages with a set of interrelated architectural, emotional and social concepts that together frame how façade design can influence wellbeing and identity in post-conflict urban environments. These terms carry specific historical and theoretical meanings and are used throughout the study to structure analysis, interpret case studies, and guide design thinking. Clarifying them at the outset is essential to ensure conceptual coherence and methodological precision.

As **ornamentation** forms a central subject of this research, it is essential to clarify how the term is understood. Ornamentation is approached here not as just decoration, but as a meaningful and enduring part of human cultural expression. Glăvean (2014) describes ornament as a patterned practice through which meaning, identity, and experience are communicated, rather than as surface decoration. Ornaments appear across societies and historical periods, serving aesthetic, social, and practical purposes at the same time. It helps people recognise places, organise space, and remember shared ideas and values. Through repetition and familiar patterns, ornament guides attention and shapes how environments are perceived and experienced. From this perspective, ornament functions as a mediator between the individual and their cultural environment, embedding shared symbols, values, and narratives into everyday life. To translate this to architecture, ornamentation helps people understand how buildings are organized and what they are used for. Rather than being separate from the building itself, façade ornamentation works together with form to show importance, function, and cultural meaning within the city.

However, this understanding of ornament was challenged during the modernist movement of the twentieth century, when ornament was deliberately rejected in favor of abstraction, efficiency, and industrial production (Calvert and Hoogslag, 2019). Influential figures such as Adolf Loos framed ornament as unnecessary or regressive, associating its removal with progress and modernization. This legacy continues to influence contemporary construction practices, particularly in developing and post-conflict contexts, where modernistic unornamented architecture is often described with progress. As a result, ornamentation is frequently excluded from reconstruction efforts, especially in developing countries like Syria.

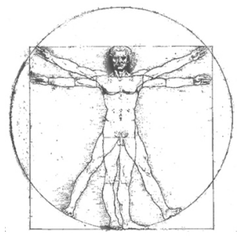


Figure 8, Classical architecture emphasised proportion and bodliy reference (Donnal, n.d.).

A healthy environment (city) is an urban environment that supports physical, social, and mental well-being through the design of its spaces and public life. Jan Gehl emphasizes the importance of human-scale (figure 8) public spaces that encourage walking and social interaction (Gehl, 2011) (figure 9). Jane Jacobs highlights mixed-use neighborhoods and active streets as essential for safety and community life (Jacobs, 1961). Kevin Lynch focuses on clear and legible urban structures that help people navigate and connect with the city (Lynch, 1960). In addition, Dom Hans van der Laan argues that harmonious proportions and spatial order contribute to human comfort and balance (Van der Laan, 1983). Together, these theories show that a healthy city is created through accessible, socially engaging, and well-structured urban spaces. The three dimensions of well-being are examined in this project through the concepts of 'affective appraisal' and 'sense of belonging'.

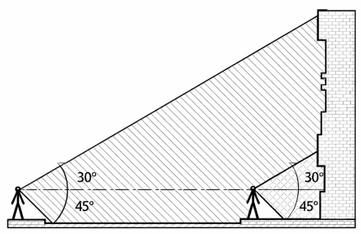


Figure 9, eye-level public space experience (own illustration).

Affective appraisal refers to the immediate, often pre-conscious evaluation of an environment or stimulus in terms of emotional valence (pleasant–unpleasant) and arousal (calming–stimulating) (Louro et al., 2024). Within appraisal-based theories of emotion, emotions are understood not as automatic reactions to stimuli but as the result of rapid evaluative processes through which individuals assess how situations relate to their needs, goals, and well-being (Smith & Lazarus, 1990). These appraisals occur extremely quickly and frequently outside conscious awareness, shaping how people feel before reflective judgement or verbal reasoning takes place. Scherer (2001) conceptualizes appraisal as a sequence of checks assessing relevance, implications, coping potential, and normative significance, through which environmental stimuli give rise to immediate affective states related to pleasantness, tension, or perceived threat. Ellsworth and Scherer (2003) further emphasize that appraisal integrates bodily perception, prior experience, and contextual meaning, allowing emotions to emerge even in the absence of deliberate thought. Importantly, Carruthers and Hood (2004) argue that subjective experience mediates the relationship between external conditions and longer-term wellbeing, suggesting that affective evaluation precedes and conditions reflective judgement. From this perspective, affective appraisal captures how people feel in the moment when encountering environments, providing a crucial explanatory layer between physical stimuli and more stable psychological outcomes. As such, affective appraisal offers a theoretically precise framework for understanding immediate emotional responses, perceived stress, and feelings of comfort as foundational processes shaping human–environment interaction.

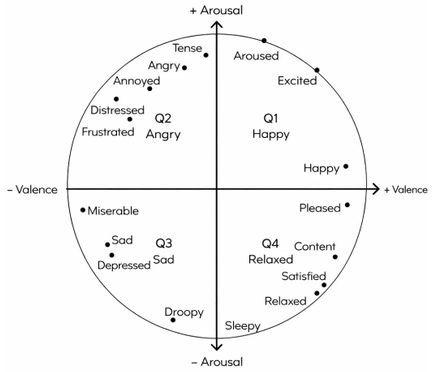


Figure 10, Russell's circumplex model (modified from Louro et al., 2024)

Within appraisal-based emotion theory, affective appraisal becomes empirically observable through recurring dimensions that capture how environments are emotionally evaluated in the moment. Across psychological research, appraisal is commonly assessed along axes of emotional valence (pleasant–unpleasant), arousal (calming–stimulating), which together reflect the outcome of rapid relevance and coping evaluations (figure 10) (Smith & Lazarus, 1990; Scherer, 2001). These dimensions are considered valid indicators because they correspond directly to the appraisal checks through which individuals assess whether an environment supports wellbeing or signals potential harm.

Previous literature has operationalized affective appraisal using a combination of perceptual, emotional, and physiological evidence, including self-reported feelings of comfort or tension, immediate affective descriptors, stress-related bodily responses, and momentary judgments of safety or coherence (Ellsworth & Scherer, 2003; Carruthers & Hood, 2004). Importantly, these indicators capture pre-reflective emotional experience, rather than reflective attitudes or long-term evaluations. As such, affective appraisal can be recognized in practice through patterns of immediate emotional response that emerge upon encountering an environment, providing a measurable link between physical stimuli and subsequent psychological or social outcomes.

Sense of belonging has long been understood as a fundamental human need reflecting the experience of feeling connected to others, places, or social systems. Baumeister and Leary's (1995) belongingness hypothesis positions belonging as a core motivational drive, arguing that individuals require frequent, positive interactions within stable and caring relationships to maintain emotional wellbeing. This framing emphasizes belonging not merely as social inclusion, but as the subjective feeling of being accepted, valued, and recognized. Expanding this view, Hagerty et al. (1992) define sense of belonging as personal involvement within a system or environment, characterized by feelings of *collective identity*, *place attachment*, and *cultural continuity*. From an identity perspective, belonging is further shaped through shared meanings, cultural narratives, and collective memory, which allow individuals to locate themselves within a larger "we" (Tajfel & Turner, 1979). Together, these approaches highlight belonging as both relational and contextual, emerging through interactions between individuals and their social or symbolic environments. More recent research conceptualizes sense of belonging as a multifaceted experience influenced by personal perceptions and external social conditions. It depends on how individuals perceive themselves, how welcome they feel, and whether their environment offers opportunities for participation and recognition (Allen et al., 2021; Pardede & Kovač, 2023). Contemporary studies also emphasize a temporal dimension, showing that belonging includes connections to past experiences, present relationships, and anticipated futures, fostering feelings of rootedness and security over time (Kolesovs, 2021). Empirically, a strong sense of belonging is associated with higher life satisfaction, social connectedness, and psychological functioning, while its absence is linked to loneliness and poorer health outcomes (Hagerty et al., 1996; Avcı, 2023).

To function as an analytical concept, sense of belonging must be observable through identifiable dimensions and indicators. Prior literature conceptualizes belonging as a multidimensional experience encompassing emotional, relational, symbolic, and spatiotemporal components. Emotionally, belonging is reflected in feelings of comfort, familiarity, and emotional security within an environment (Hagerty et al., 1992; Avcı, 2023). Relationally, it involves perceived acceptance, recognition, and opportunities for participation, aligning with belongingness theory's emphasis on social affirmation (Baumeister & Leary, 1995; Allen et al., 2021). Symbolically, belonging emerges through identification with shared meanings, cultural narratives, and collective memory, enabling individuals to situate themselves within a broader social or cultural "we" (Tajfel & Turner, 1979).

Finally, a spatiotemporal dimension highlights belonging as a process that links past experiences, present engagement, and anticipated futures, fostering continuity and rootedness over time (Kolesovs, 2021). Empirical studies operationalize sense of belonging through a combination of perceptual, emotional, symbolic, and behavioral indicators, including self-reported feelings of fit and attachment, emotional responses to place, recognition of culturally meaningful cues, and sustained engagement with environments (Hagerty et al., 1996; Pardede & Kovač, 2023). Together, these dimensions clarify how sense of belonging can be recognized and assessed in practice, providing a conceptual basis for examining how spatial and environmental qualities may support or undermine belonging over time.

PART THREE: RESEARCH CONCLUSIONS

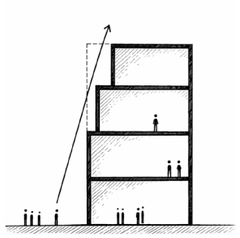


Figure 11, Setbacks in facade to supports comfort (own illustration).

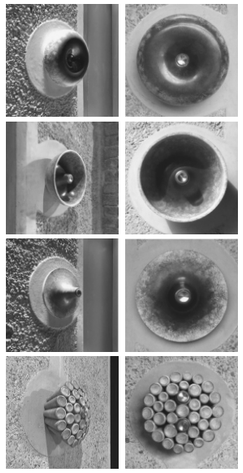


Figure 12, Lift buttons designed by Heatherwick Studio .

I. Affective appraisal

Public space is experienced through the body and the senses rather than as an abstract setting. As argued by Jan Gehl, the built environment shapes how people move, interact, and emotionally respond to their surroundings. Façades are especially important because they form the visual and spatial edge between private and public space, influencing whether places feel welcoming, safe, or threatening. In post-conflict environments, where sensitivity to stress and insecurity is often heightened, these emotional responses become even more significant. Façades therefore act not merely as backgrounds, but as active mediators of comfort, trust, and psychological stability.

One key factor is human scale. Environments that relate to bodily perception and pedestrian movement are generally perceived as more comfortable. Research shows that proportion and enclosure influence stress-related responses, even at a subconscious level (Figure 11 and 13). Buildings can remain human-scaled despite their size when façades include smaller articulated elements that relate to the human body. Conversely, large blank surfaces may create feelings of alienation. Emotional comfort also depends on balanced enclosure: spaces that are too enclosed feel oppressive, while overly open spaces can increase feelings of exposure.

Visual complexity similarly affects emotional appraisal (Figure 14). Studies in environmental psychology suggest that people prefer environments with moderate, organised complexity rather than excessive simplicity or chaos. Ornamentation, texture, and detail can therefore enhance emotional engagement when they remain legible and coherent. Research on fractal patterns further suggests that humans are naturally drawn to ordered mid-range complexity because it is easier and more pleasurable to process visually.

Rhythm and regularity also contribute to emotional comfort. Repetition, symmetry, and coherent façade composition help people orient themselves and reduce cognitive effort while moving through space (Figure 15). Regular rhythms tend to produce positive emotional responses, whereas irregularity can increase discomfort and uncertainty.

Finally, material and texture shape affective appraisal through multisensory experience (Figure 12). Natural and textured materials are often associated with warmth, authenticity, and care, while smooth synthetic surfaces can feel cold or distant. In post-conflict public spaces, tactile and familiar materials may therefore help communicate permanence, safety, and human presence, supporting calmer and more supportive emotional experiences.

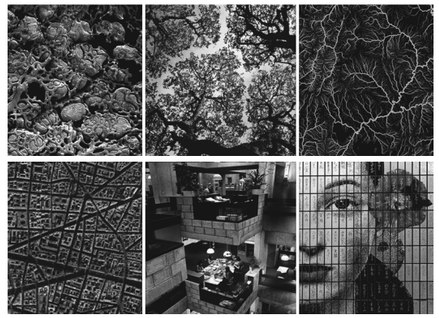


Figure 14, Complexity & order in nature (top), complexity & order in design (bottom)
(modified from Ryan, 2025)

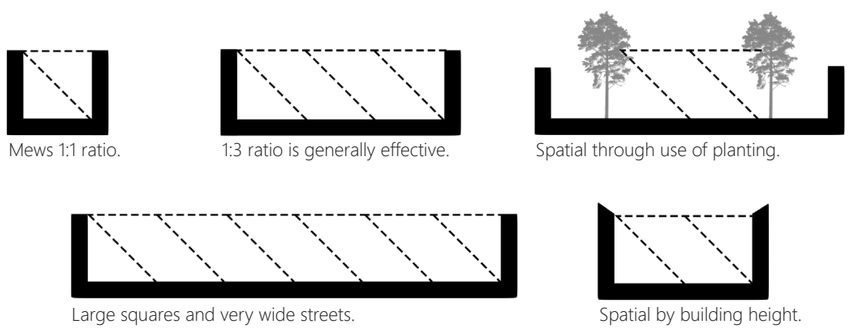


Figure 13, Public space is defined by the ratio of height to width (modified from Chris, 2019).

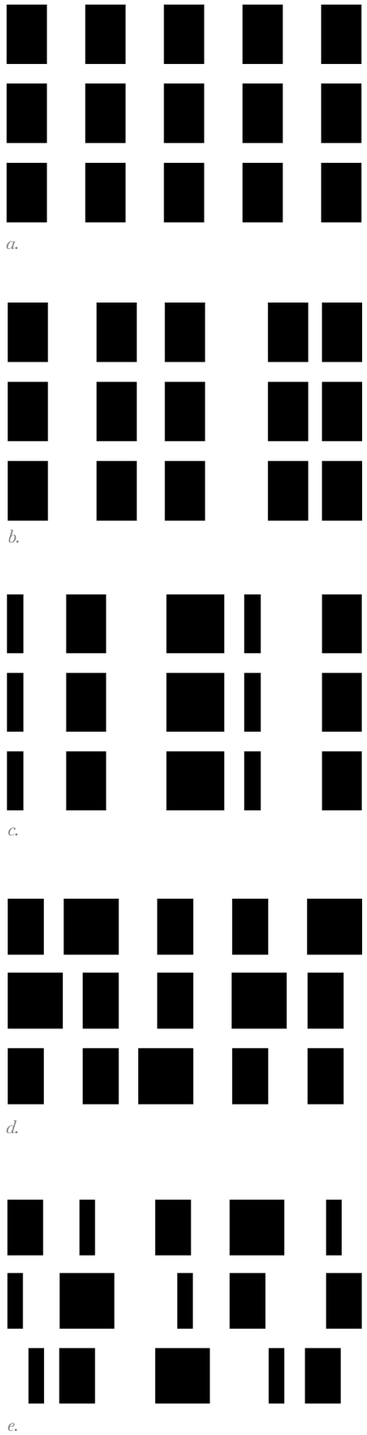


Figure 15, Representation of openings in a facade; testing the preference of the composition in context of itr regularity and irregularity. Outcome:
Percentage of aesthetic preference grade above average (a. 55,65% - b. 57,22% - c. 44,75% - d. 39,53% - e. 34,15%) (modified from Malewczyk et al., 2022)

II. Sense of belonging

A sense of belonging develops gradually through familiarity, memory, and shared meaning rather than through immediate emotional reactions. In post-conflict cities, where displacement, destruction, and social fragmentation have weakened connections between people and place, the built environment plays an important role in rebuilding these relationships. Façades are especially significant because they are stable and visible elements encountered in everyday life. Through their form, materiality, and ornamentation, façades help create recognition, continuity, and emotional connection, supporting the feeling that a place is socially and culturally meaningful (Figure 16).

One important dimension is collective identity, which refers to the shared understanding of "who we are" within a community. In post-conflict environments, this identity is often disrupted by the loss of landmarks and familiar urban character. Façades can help restore collective identity by incorporating culturally meaningful materials, patterns, and architectural references into public space. Research shows that environments reflecting local traditions and shared narratives strengthen emotional attachment and social recognition. Importantly, this does not require exact historical reconstruction. Contemporary reinterpretations of local architectural forms can reinforce belonging while allowing identity to evolve over time. In contrast, generic and standardized façades lacking cultural reference may increase feelings of alienation and disconnection.



Figure 16, Collective identity through architecture (own illustration)

Place attachment focuses more on personal emotional bonds with specific places formed through everyday experience and memory (Figure 17). These attachments develop gradually through repeated interaction with familiar environments. Human-scale façades, warm materials, and visually rich details encourage people to recognize, remember, and return to places. Ornamentation and materiality also help distinguish one place from another, supporting orientation and memory. In post-conflict contexts, façades that preserve or reinterpret familiar local characteristics can help residents reconnect emotionally with their surroundings and rebuild trust in everyday urban life.



Figure 17, Place attachment after conflict (own illustration)

Closely connected to this is cultural continuity, which refers to the persistence of shared meanings and traditions despite disruption and change (Figure 18). Façades contribute to continuity by adapting recognizable architectural principles, materials, and patterns rather than copying the past directly. In this way, façades act as public carriers of memory and identity, helping communities perceive their culture as ongoing, resilient, and connected to the future.

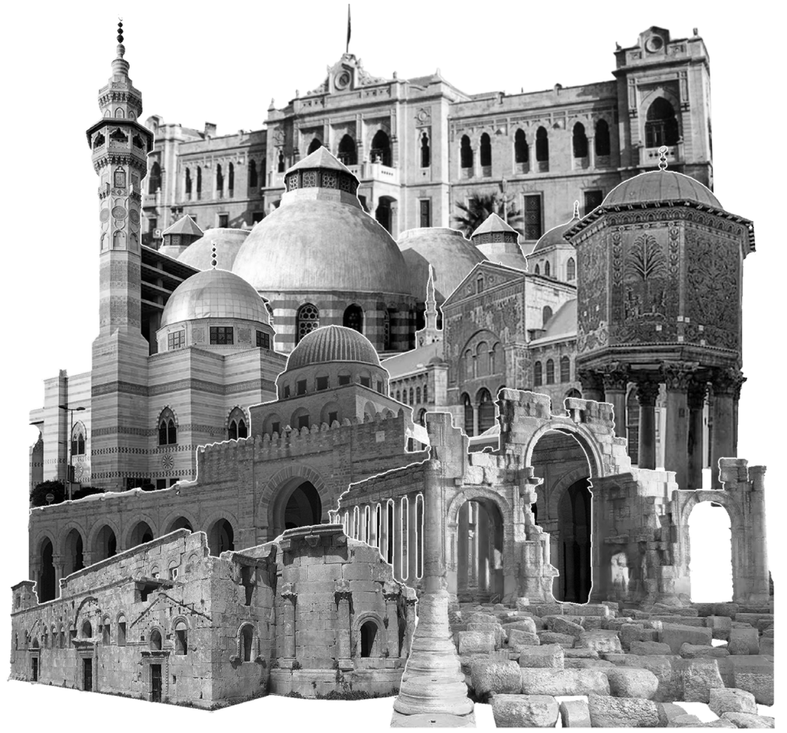


Figure 18, Collage of cultural continuity of Syria (own illustration)

III. Syrian architecture

This chapter examines how Syrian architecture contributes to positive affective appraisal and a sense of belonging through façade composition, materiality, spatial organization, and ornamentation. Syrian architecture reflects a layered cultural history in which repeated architectural elements, local materials, and traditional construction methods create continuity, recognition, and collective identity within the urban environment (Figure 19).

Historic buildings such as the Umayyad Mosque, Qasr al-Azm, Church of Umm al-Zennar, and Khan As'ad Pasha demonstrate how Syrian façades balance monumentality with human scale through arches, arcades, rhythmic openings, expressive entrances, and layered façade articulation. These elements make buildings visually legible and approachable, supporting comfort, orientation, and social interaction at street level.

Rhythm and visual complexity are created through repeated arches, symmetrical openings, ornament, and articulated façade patterns, allowing pedestrians to recognize and interpret buildings easily while maintaining visual interest. Traditional Syrian façades also often incorporate ablaq, the alternating use of light and dark stone, which strengthens visual rhythm and reinforces local architectural identity.

Natural materials such as local stone, carved wood, and textured masonry contribute to a grounded and familiar architectural atmosphere. Subtle tonal variation and handcrafted details strengthen emotional attachment by connecting residents to local construction traditions and collective memory.

Ornamentation in Syrian architecture is typically integrated into the structure itself through carved stone, geometric patterns, detailed thresholds, and expressive entrances. Rather than overwhelming the façade, ornament highlights hierarchy, transitions, and important public moments, reinforcing cultural meaning and belonging.

In contrast, many post-independence modernist and French Mandate-era buildings introduced standardized concrete façades and smooth surfaces that often lack local identity and material continuity. These buildings can feel detached from the cultural and urban context, weakening emotional connection, recognition, and sense of belonging within the streetscape.

**See Figure 20*

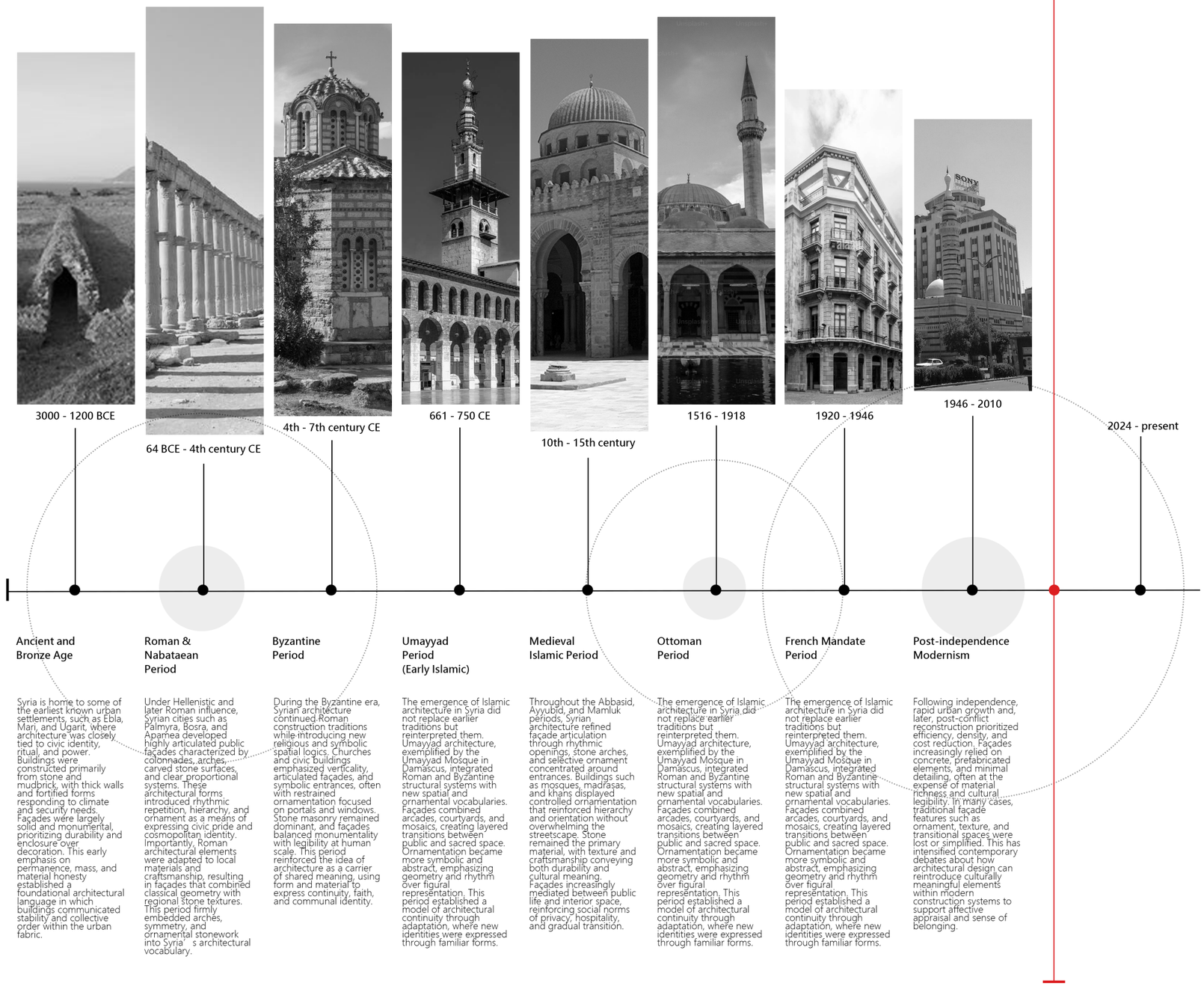


Figure 19, Timeline of the influences on Syrian architecture

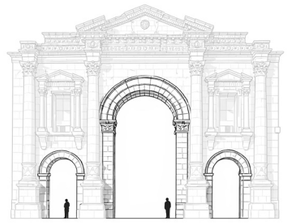
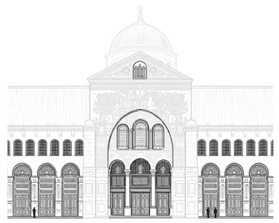
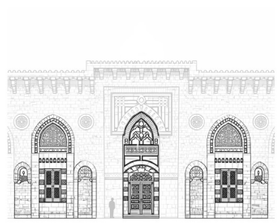
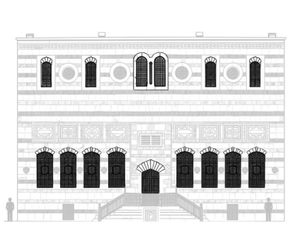
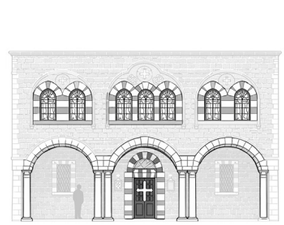
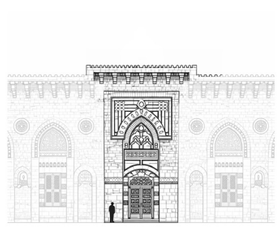
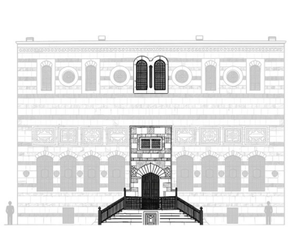
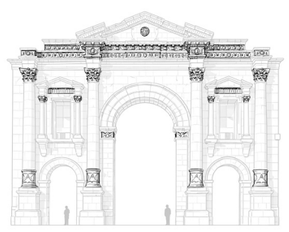
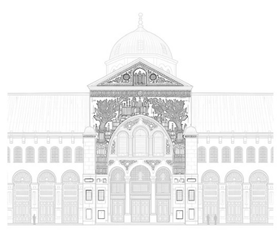
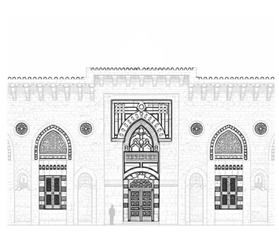
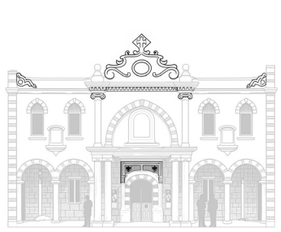
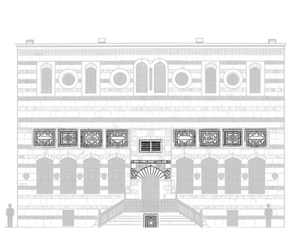
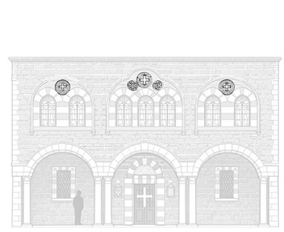
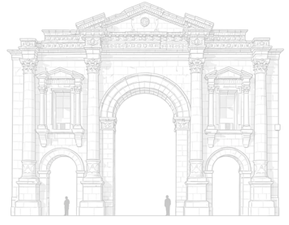
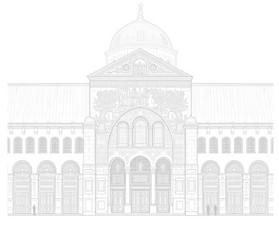
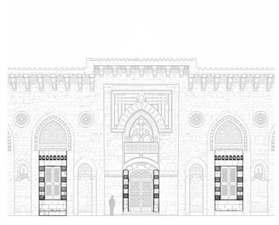
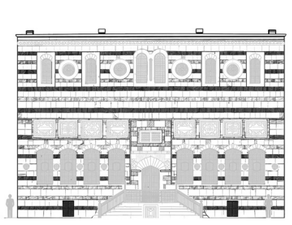
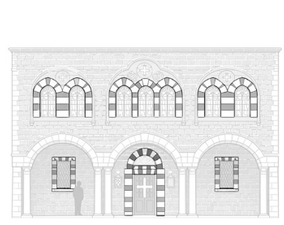
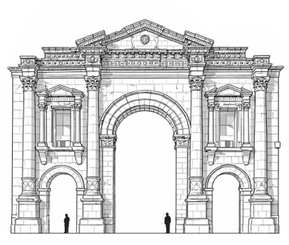
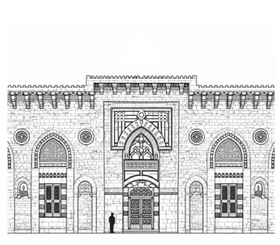
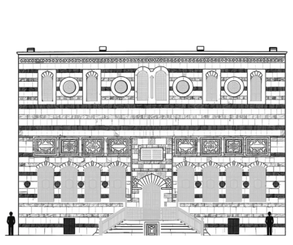
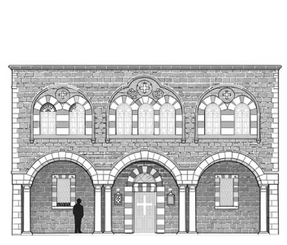
	palmyra	umayyad mosque (damascus)	umayyad mosque (aleppo)	syriac catholic church	al azm palace	um al-zennar church
arches						
entrance						
ornament						
ablaq						
natural materials						

Figure 20, Common syrian identifying architectural elements

PART FOUR: URBAN PROPOSAL

I. Research to design
Bridging the research to architectural principles.
The previous chapters established the theoretical foundation of the project by investigating the relationship between architecture, affective appraisal and sense of belonging within post-conflict reconstruction. Through literature research, contextual analysis, and façade studies, the research demonstrated how architectural qualities such as human scale, rhythm, materiality, ornamentation, and spatial articulation influence emotional perception and attachment to place.

This chapter translates these findings into architectural principles that directly inform the design proposal. Rather than functioning as isolated theoretical conclusions, the research becomes a set of generative design drivers operating across multiple scales, from urban organisation and public space to façade systems, material expression, and construction methods.

The project approaches reconstruction not only as the rebuilding of physical structures, but also as the reconstruction of emotional continuity within the city. Research into affective appraisal is translated through layered façade articulation, rhythmic organisation, textured materiality, and pedestrian-scaled urban interfaces designed to support visual legibility, sensory comfort, and familiarity within public space.

At the same time, the research into sense of belonging informs the reinterpretation of Syrian architectural principles within contemporary reconstruction systems. Ornamentation, materiality, and spatial sequencing are therefore approached as carriers of cultural continuity capable of reconnecting architecture to local memory and everyday life without relying on literal historical reproduction.

The following chapters demonstrate how these architectural principles are implemented throughout the design proposal, translating theoretical and emotional research into contemporary reconstruction strategies through urban design, façade systems, adaptability, fabrication, and spatial experience.

**Main takeaways in concept, see Figure 21*

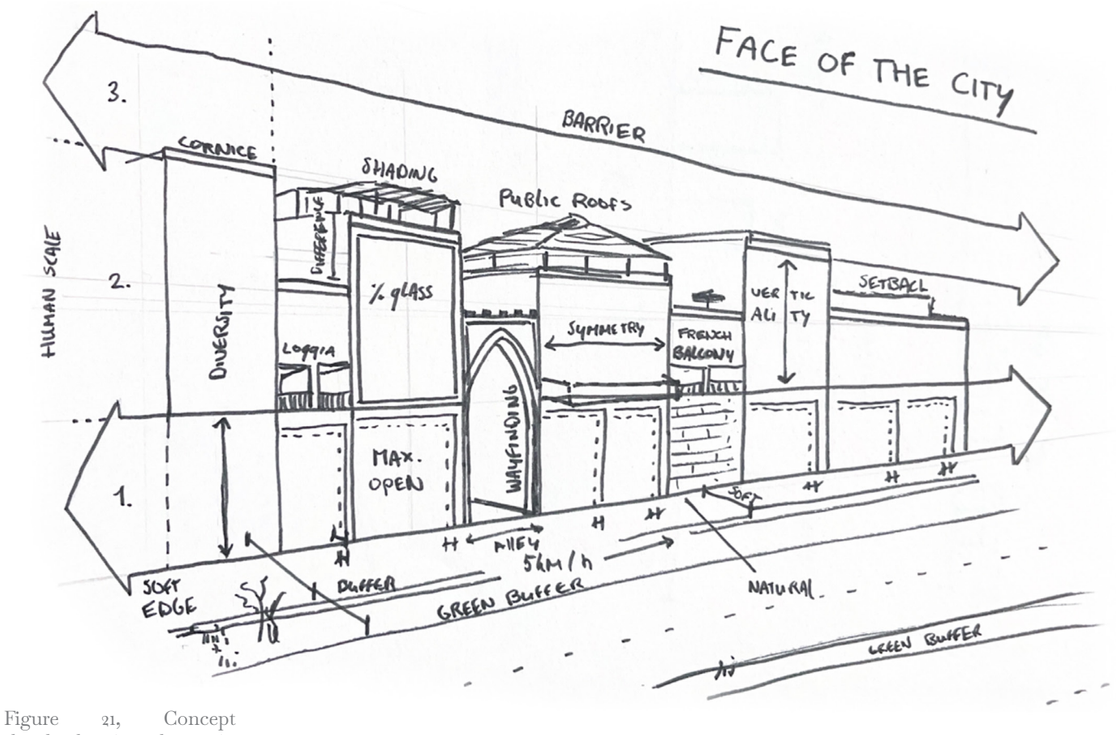


Figure 21, Concept sketch showing the main takeaways from research

II. Current situation/site selection.
Before the war, Homs had already been significantly shaped by Western planning principles introduced during and after the French Mandate (Figures 22, 23 and 24). Modernist planning approaches prioritised efficiency, large-scale infrastructure, and vehicular movement, resulting in rigid urban grids, repetitive building blocks, and a gradual erosion of traditional Syrian urban qualities.

These developments reduced walkability, weakened public life, and contributed to anonymous urban environments with limited spatial identity, greenery, and social interaction. At the building scale, standardised architecture often lacked a connection to local climate, culture, and everyday patterns of living.

This context forms an important starting point for the project, which views reconstruction as an opportunity to move beyond anonymous modernist urbanism and reintroduce walkability, human scale, spatial diversity, and culturally grounded urban experiences into the rebuilding of Homs.

**See Figures 25 and 26 for site selection*

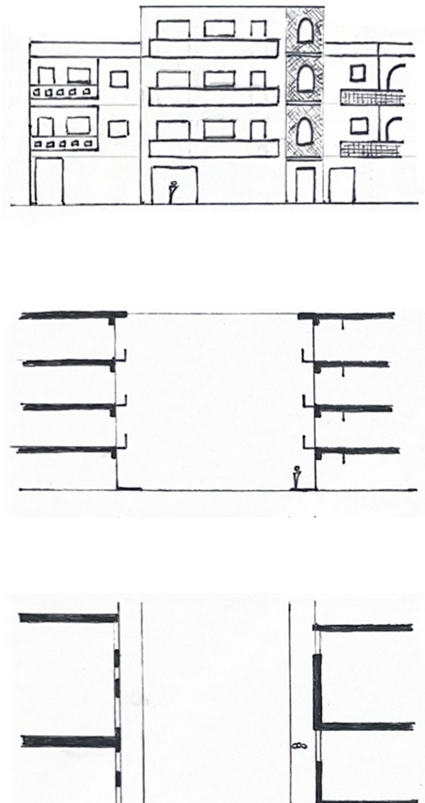


Figure 23, Sketch: current situation



Figure 22, Sketch: current situation

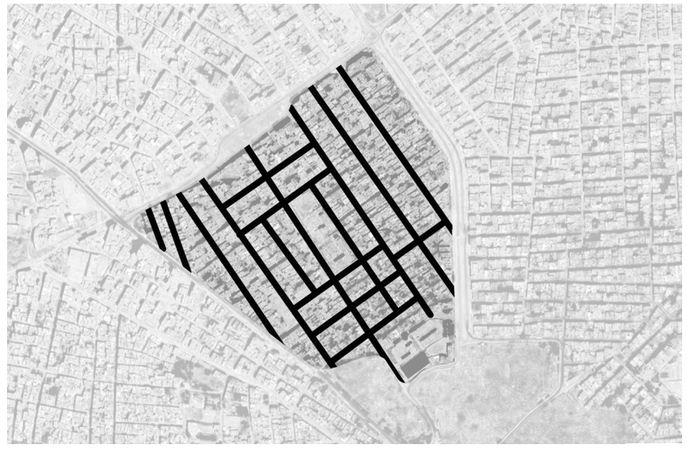
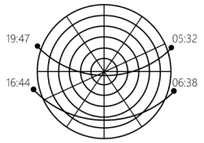
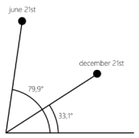


Figure 24, current situation, modern planning: car oriented







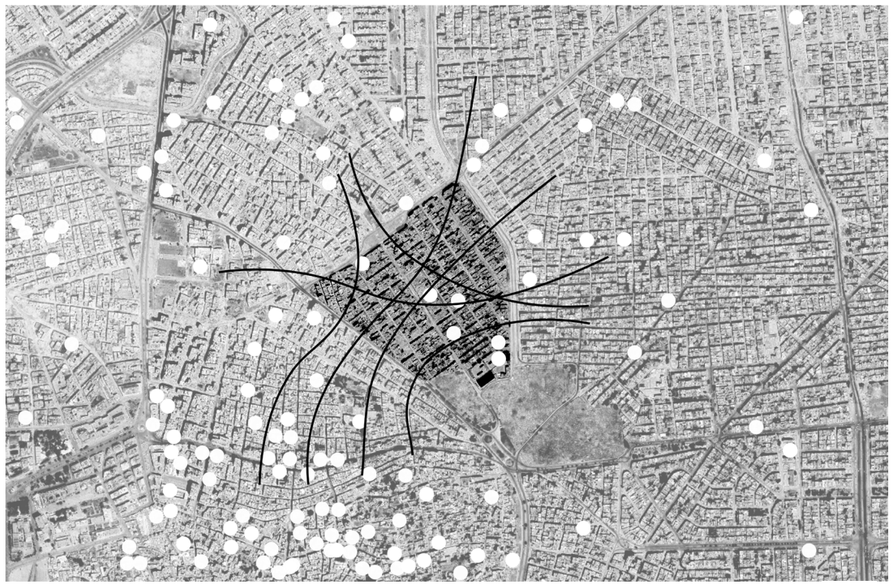


general information

Average annual rainfall: 360 - 365 mm
Average temperature: 18°C
Altitude above sea level: 501 m

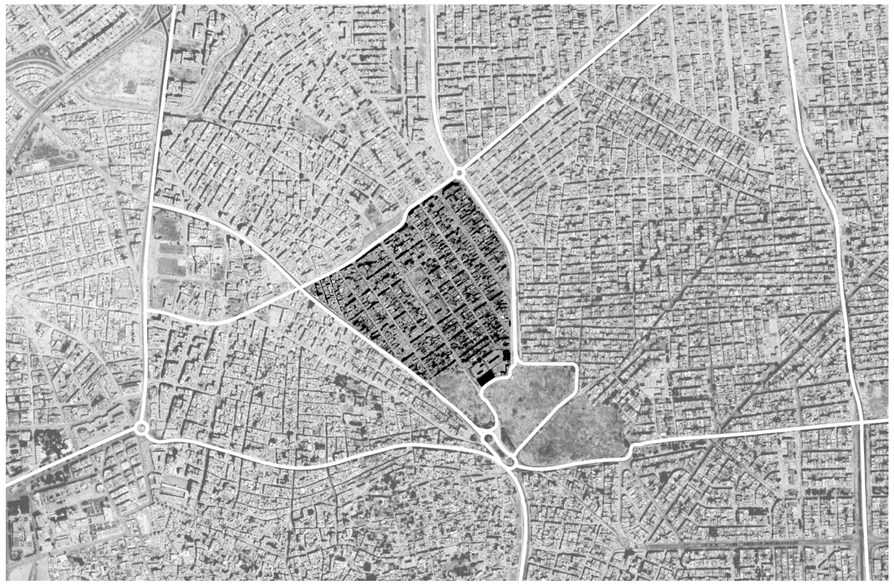
extension of the center
historic center





public functions
main routes





main roads





informal
historic center



Figure 25, Site selection:
- in the city center
- along a big street
- movement throughout
- beside informal housing



karm shamsham



pilot project

Figure 26, Site selection: pilot project

III. Healthy city concept

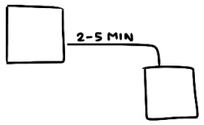
The urban strategy of the project is based on the understanding that a healthy city is fundamentally a walkable city (Figure 27). Within the context of post-conflict reconstruction, the project focuses on rebuilding everyday urban life, social interaction, and emotional wellbeing through pedestrian-oriented environments rather than car-dominated planning.

Drawing on Jan Gehl's concept of "life between buildings," the design prioritises human scale, public space, and social interaction through streets, courtyards, thresholds, and layered pedestrian environments that encourage movement, encounter, and everyday occupation. Jane Jacobs further informed the project through her emphasis on mixed-use urbanism, active street life, and "eyes on the street," leading to a fine-grained urban structure with active plinths, permeable street edges, and continuous public activity that strengthen both walkability and perceived safety.

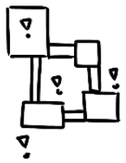
In addition, Kevin Lynch's concept of imageability influenced the development of recognisable spatial sequences, landmarks, nodes, and rhythmic street patterns that support orientation, memory, and attachment to place. Together, these theories informed a reconstruction strategy in which walkability, public life, and spatial recognition become central tools for rebuilding social cohesion, familiarity, and long-term urban wellbeing within the city.



interrupted sightlines creates curiosity



proximity



landmarks



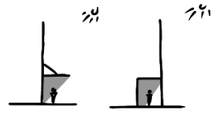
movement hierarchy;
car is last



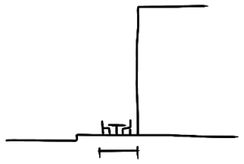
no dead ends



many intersections



comfortable
circulation



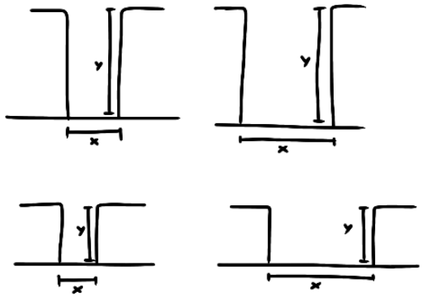
soft edges



transparent active
plinth



layered views



variety in proportion of the
streets

Figure 27, Concept drawings: walkability

Reinterpreting traditional syrian living patterns.
Research into traditional Syrian living patterns highlighted the importance of courtyard housing as a spatial model centred around privacy, climatic comfort, and collective family life (Figure 28). Traditional Syrian dwellings are typically organised around protected internal courtyards that create gradual transitions between public and private space while providing opportunities for social interaction, natural ventilation, and environmental moderation.

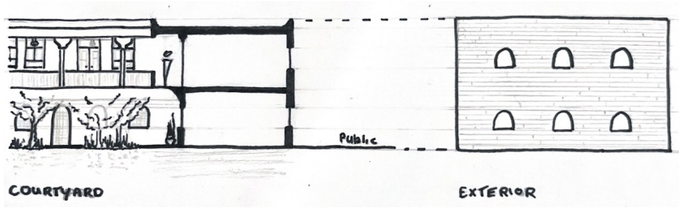


Figure 28, Traditional courtyard house

In addition, research into the historic urban fabrics of cities such as Homs, Damascus, and Aleppo revealed the significance of human-scaled and pedestrian-oriented environments (Figure 29 & 30). Narrow streets, varied spatial rhythms, active plinths, shaded passages, and mixed-use urban structures contribute to rich sensory experiences and vibrant public life. These qualities closely align with the theories of Jan Gehl, Jane Jacobs, and Kevin Lynch, which emphasise walkability, social interaction, imageability, and spatial recognition as essential components of healthy urban environments. Together, these findings established an important foundation for the development of a contemporary reconstruction strategy centred around walkability, collective life, and cultural continuity.

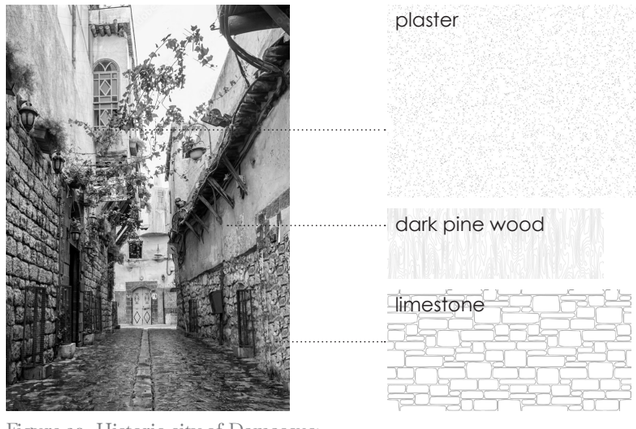


Figure 29, Historic city of Damascus: common materials



Figure 30, Historic city of Damascus

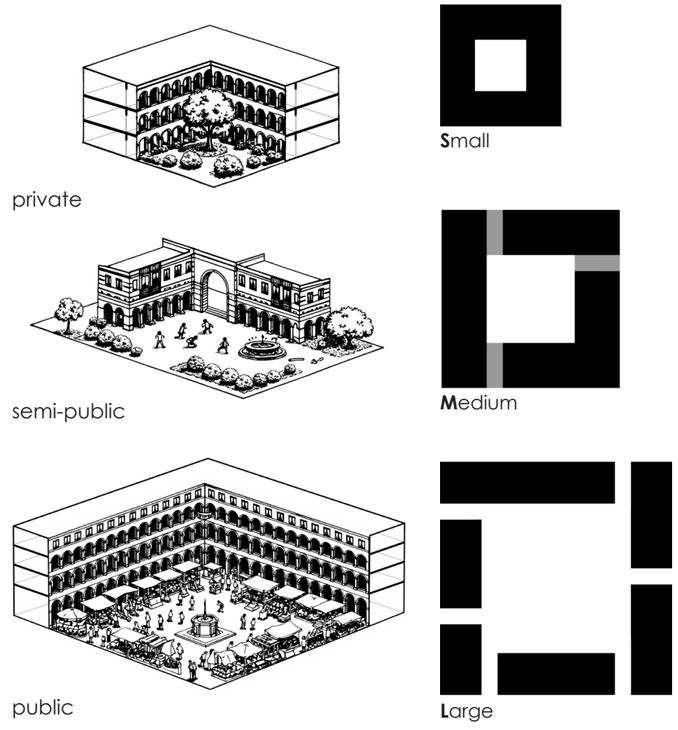
IV. Urban reconstruction theory
Courtyard city model.
Based on these analyses, the city is reorganized through a hierarchy of courtyards that structure space from private to public (Figure 31). Rather than continuing the existing rigid and anonymous grid, the proposal introduces a system of connected courtyard spaces that create identity, improve spatial quality, and support social interaction across multiple scales. Through this hierarchy, the courtyard model organizes space across all scales, from the wall and the building to the scale of the city itself.

At the smallest scale, private courtyards serve the residents of individual buildings, providing light, ventilation, and protected communal spaces for everyday life. These intimate spaces establish a sense of belonging and strengthen the relationship between residents and their living environment.

At the intermediate scale, semi-public courtyards combine residential functions with shared amenities and public programs. These spaces operate as transitions between the private and public realm, encouraging interaction between residents and the surrounding neighborhood while maintaining a sense of enclosure and community.

At the largest scale, fully public courtyards become part of the urban structure itself. Activated by public functions in the plinth, these spaces function as collective gathering areas that connect movement, public life, and the surrounding urban fabric. In this way, the courtyard becomes more than a spatial element; it becomes the fundamental unit through which the city is organized.

Together, these courtyards form a continuous urban system that reconnects the scale of the wall, the building, and the city. The proposal reintroduces human scale, spatial identity, greenery, and social interaction into the urban fabric of Homs, while drawing inspiration from the social and climatic qualities of traditional Syrian urbanism in a contemporary context.



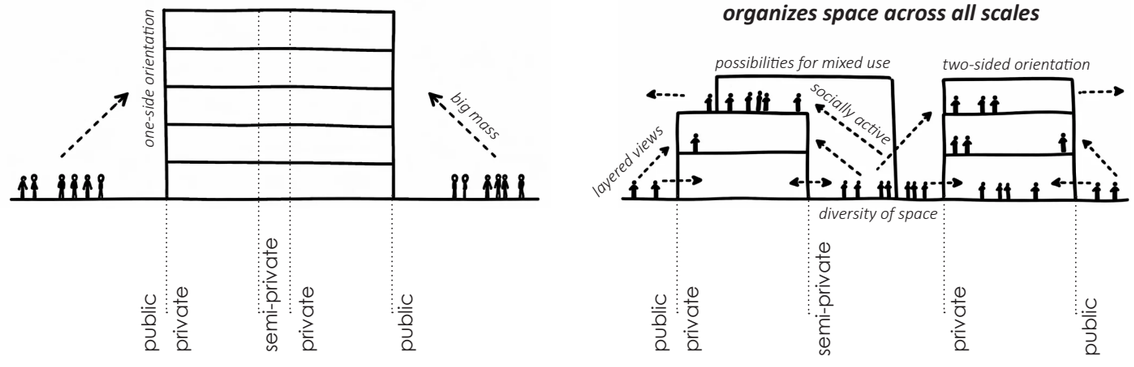


Figure 31, Courtyard city model

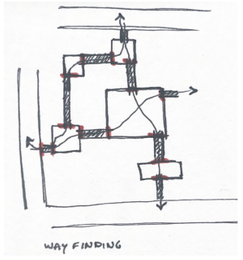


figure 32, Urban legibility through supported pathways between landmarks.

Urban morphology, programming and legibility

The proposal develops a walkable and human-scaled urban morphology based on interconnected courtyards, pedestrian pathways, and layered public spaces (Figure 32). Drawing on the theories of Jan Gehl, Jane Jacobs, Kevin Lynch, and principles related to Space Syntax, the design strengthens social interaction, accessibility, urban legibility, and environmental quality while responding critically to the existing car-oriented structure of Homs.

A clear separation between vehicular and pedestrian movement concentrates traffic along the neighbourhood edge, allowing the interior streets and courtyards to function as safe and socially active public spaces (Figures 34 and 35). Access, servicing, and parking are organised along the perimeter, while the interior neighbourhood is entirely pedestrian-oriented, transforming streets and courtyards into spaces for social interaction rather than traffic movement. While maintaining a comparable urban density to the existing city, this density is reorganised into a courtyard-based structure that prioritises open space, greenery, and human experience (Figure 36). This strategy also improves the urban microclimate by reducing asphalt surfaces and introducing a greater presence of greenery, permeable surfaces, and shaded pedestrian environments. As a result, heat accumulation is reduced while natural ventilation, environmental comfort, and biodiversity are enhanced.

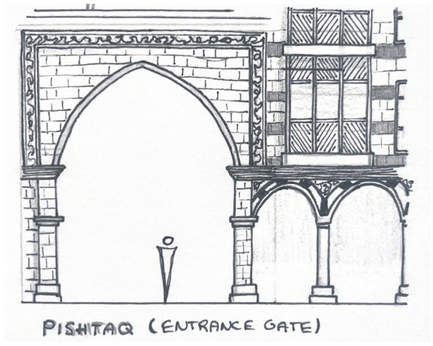


figure 33, Wayfinding through pishtaq-iwan entrance gates.

The programme is organised through a hierarchy of public, semi-public, and private courtyards, creating gradual transitions between collective urban life and residential environments. Wayfinding is reinforced through a series of pishtaq-iwan entrance gates and layered thresholds that function as landmarks, strengthening orientation, familiarity, and spatial identity within the reconstructed neighbourhood (Figure 33).

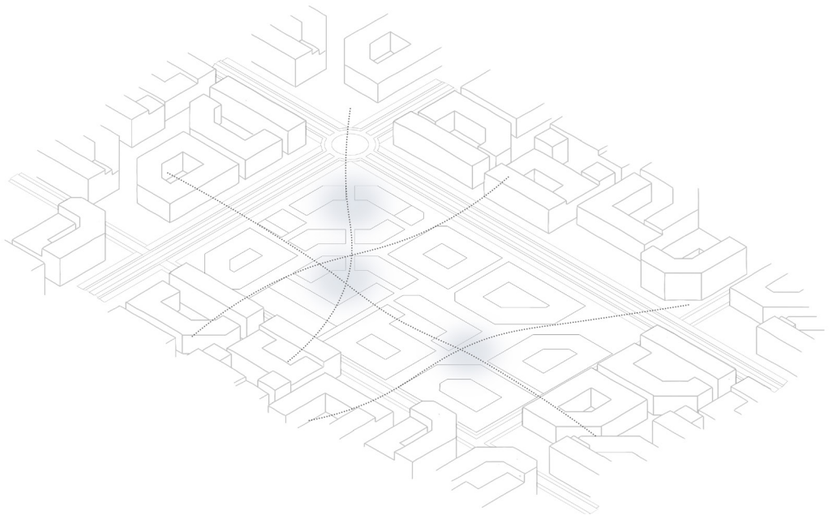


figure 34, Map of new courtyard city model showing the main pedestrian routes through the site.

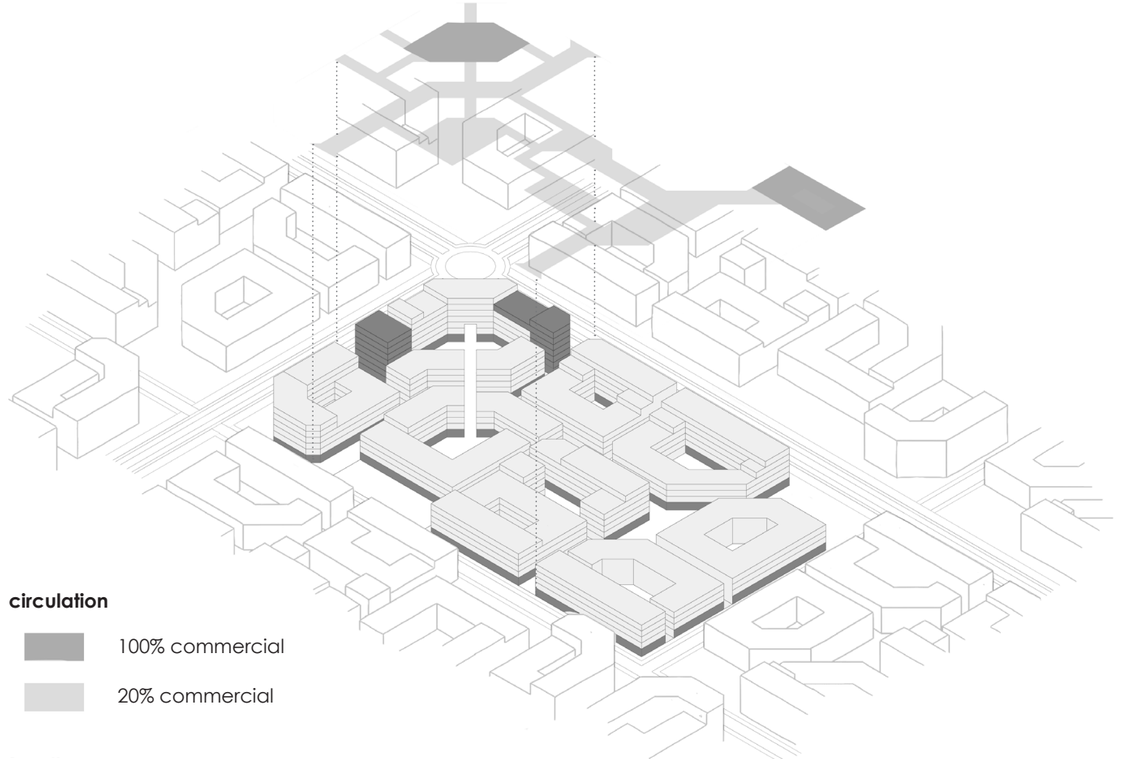


figure 35, Functional organization.

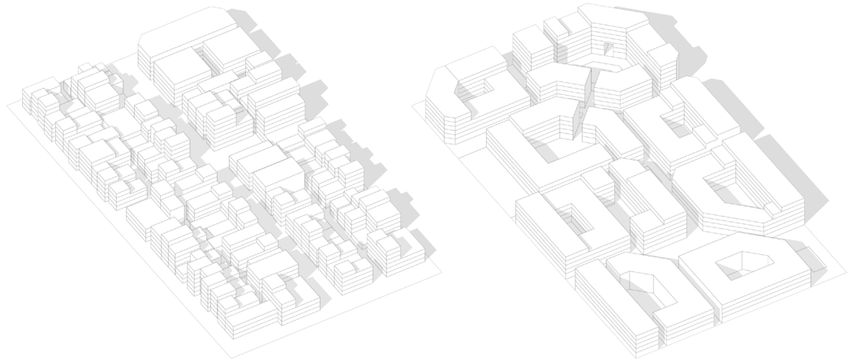


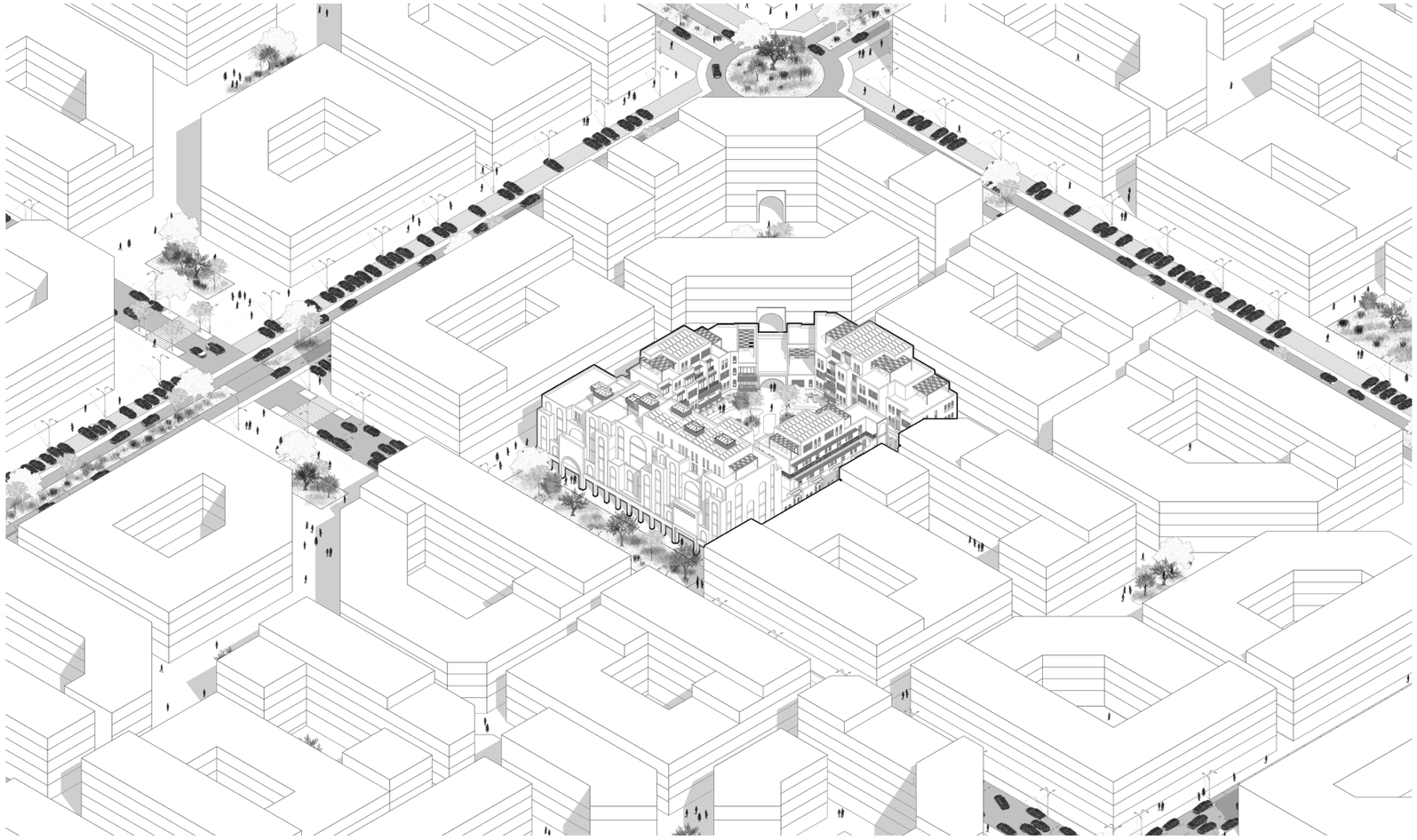
figure 36, Isometric view before and after: reorganizing the same density.

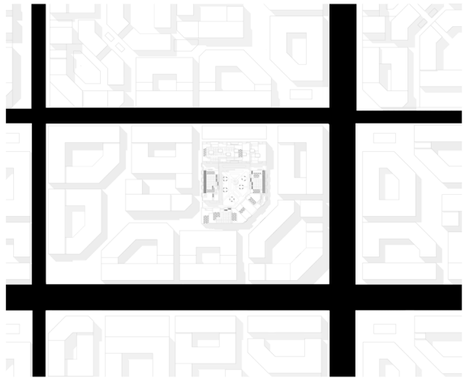
PART FIVE: DESIGN PROPOSAL

I. Design aim

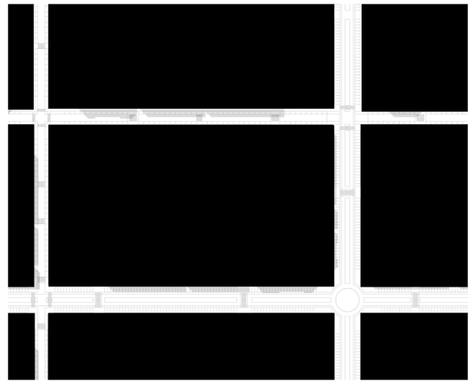
The project aims to develop a contemporary courtyard housing typology for post-conflict Homs that rebuilds both housing and collective urban life. Inspired by traditional Syrian living patterns, the design creates protected and inward-oriented residential environments where privacy, social interaction, and a sense of belonging are carefully balanced.

Rather than replicating historical architecture, the project reinterprets the spatial logic of the traditional courtyard house within a contemporary reconstruction framework. Through layered transitions between public, semi-public, and private space, the courtyard becomes the social and climatic heart of the housing block, fostering community, comfort, and everyday life within the rebuilt city.

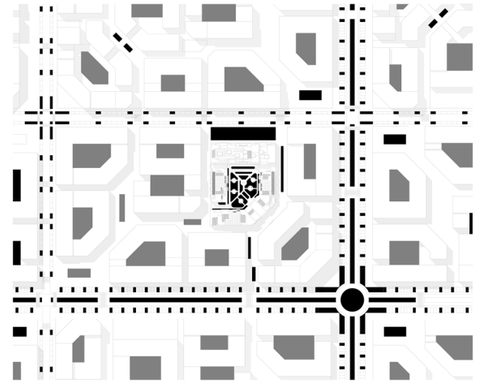




Cars



Pedestrian



Greenery

Figure 37, Birdseye view (top) urban diagrams (bottom)

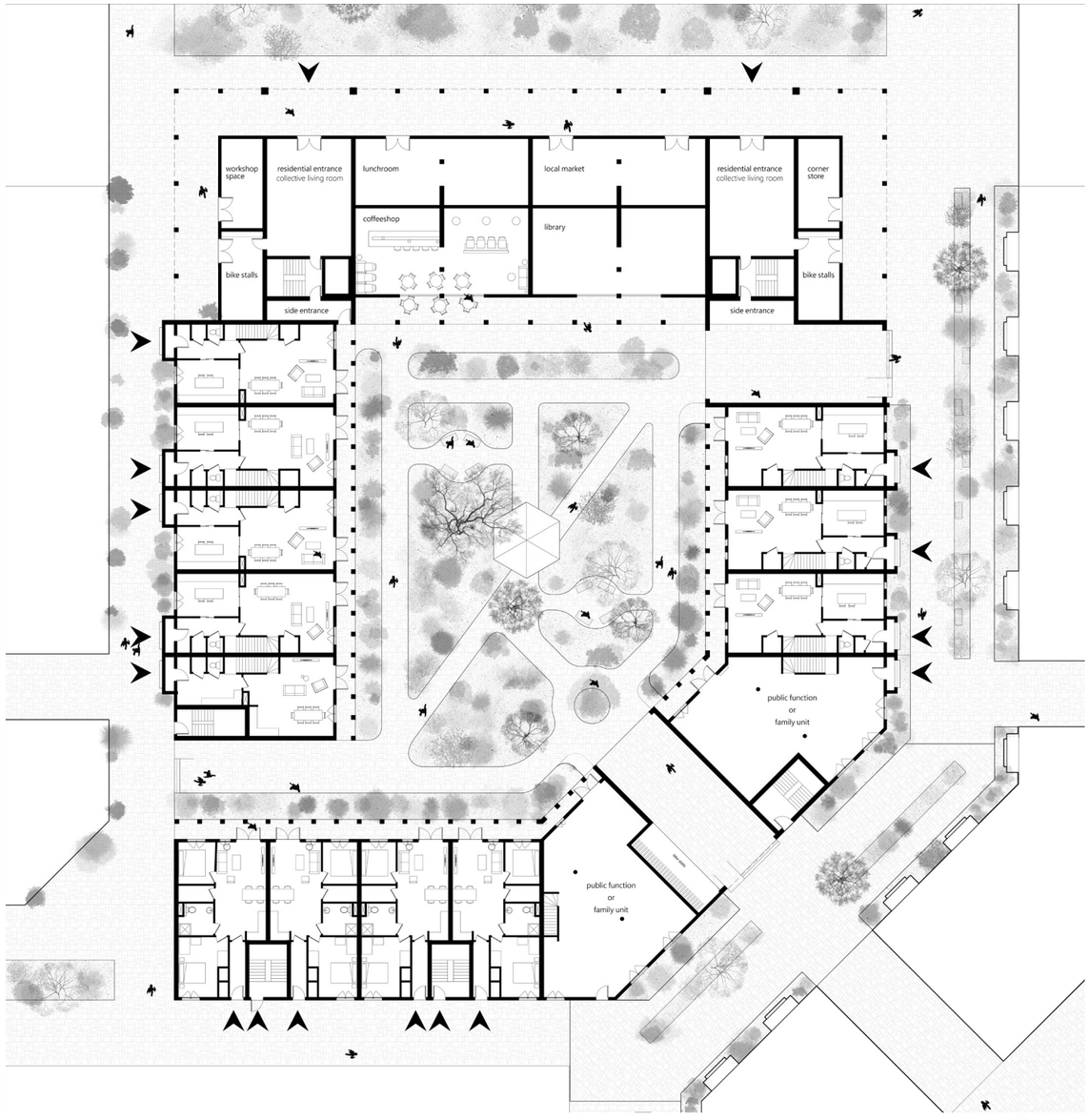


figure 38, Ground floor

II. Program

The programme of the courtyard block is organised around a gradual transition from highly public urban activity along the neighbourhood edge towards quieter collective spaces within the interior courtyards (Figure 38). The barrier buildings play a central role within this strategy by concentrating most public functions within their ground-floor plinths. Positioned along the primary pedestrian routes and surrounding streets, these plinths accommodate higher-traffic programmes such as local markets, lunchrooms, workshop spaces, offices, and commercial functions. Together, these activities activate the public realm, strengthen walkability, and support everyday social and economic life within the neighbourhood.

Towards the interior of the block, the programme becomes calmer and more community-oriented. Approximately 20% of the plinth is dedicated to lower-intensity functions such as a library, reading spaces, and a café facing the semi-public courtyard. These programmes support gathering, learning, and informal social interaction while contributing to a quieter atmosphere within the collective courtyard environment.

Through this layered distribution of functions, the project creates a clear spatial hierarchy from public to semi-public space. The barrier buildings therefore operate not only as physical buffers between the city and the residential interior, but also as social and programmatic interfaces that connect neighbourhood life to the wider urban fabric.

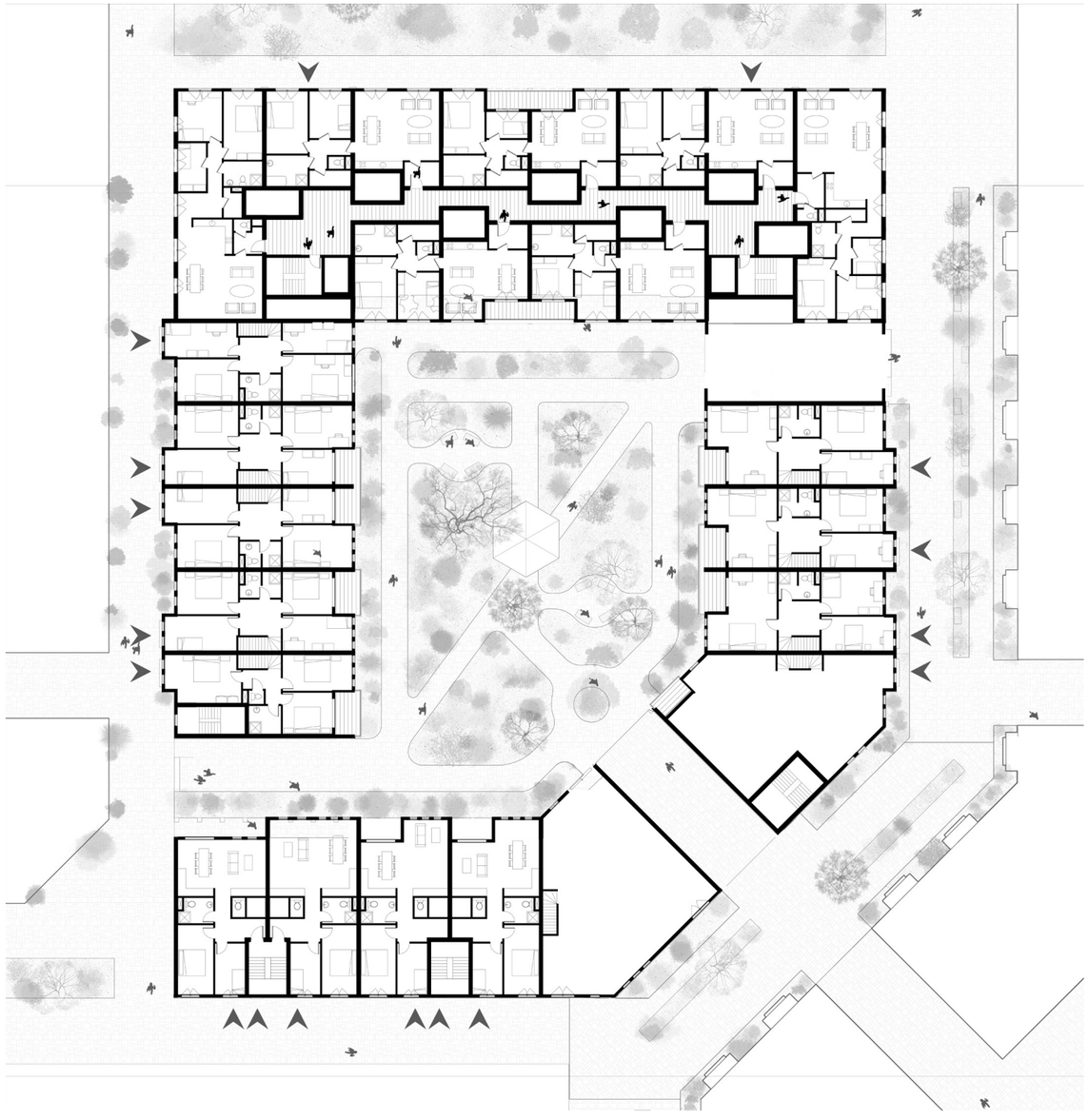


figure 39, first floor

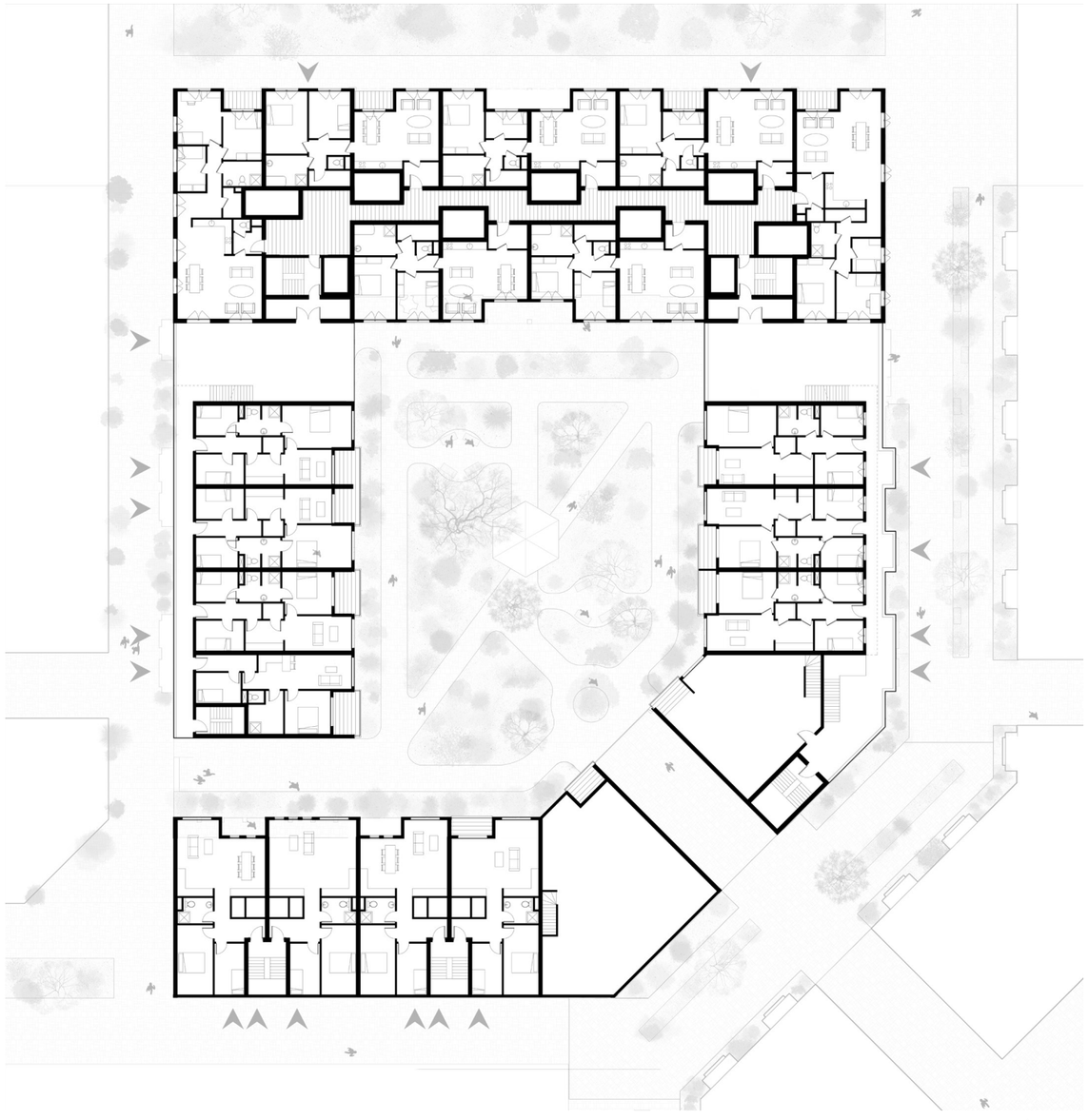


figure 40, second floor (resembles floors above)

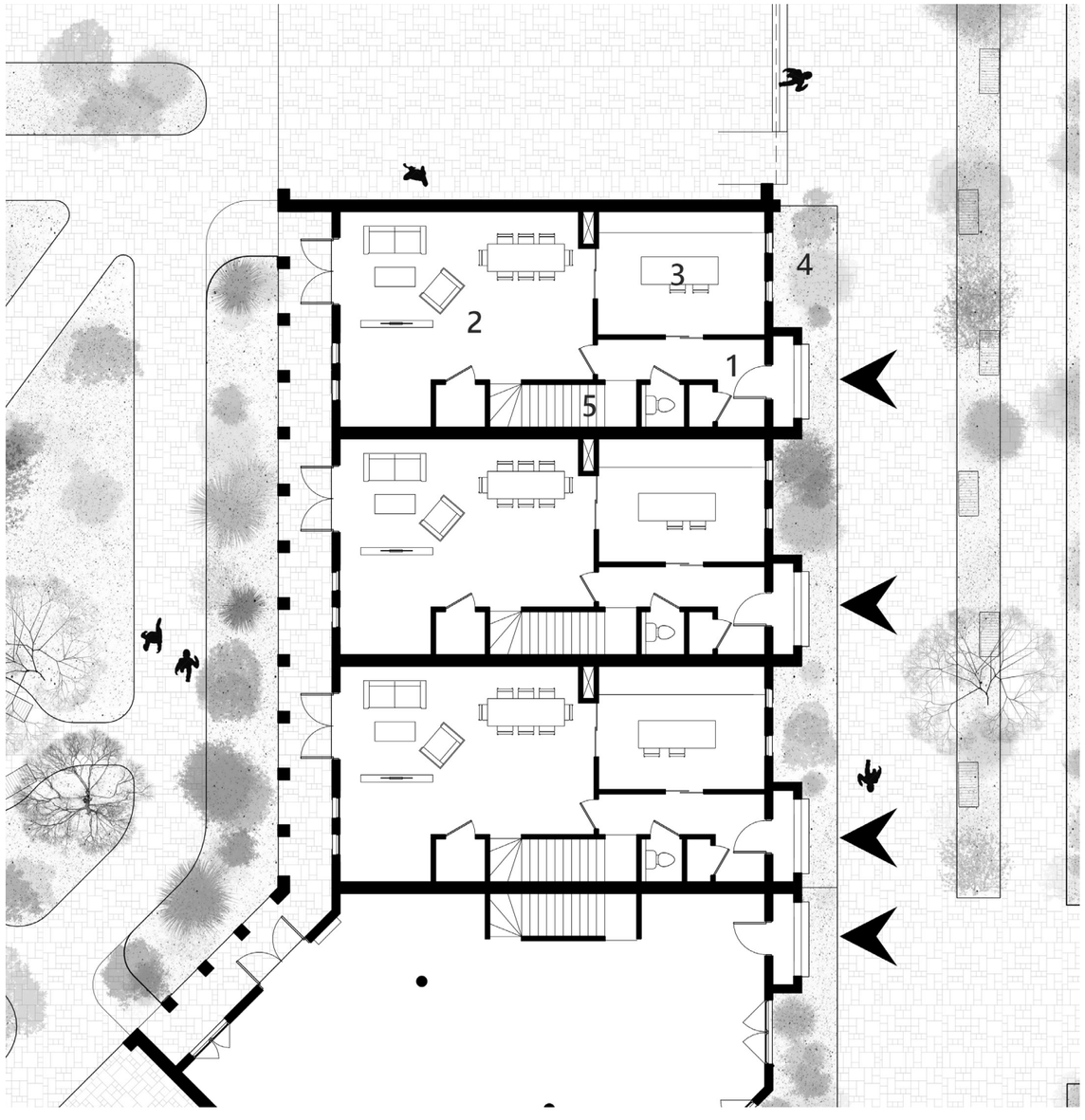
III. Housing typologies

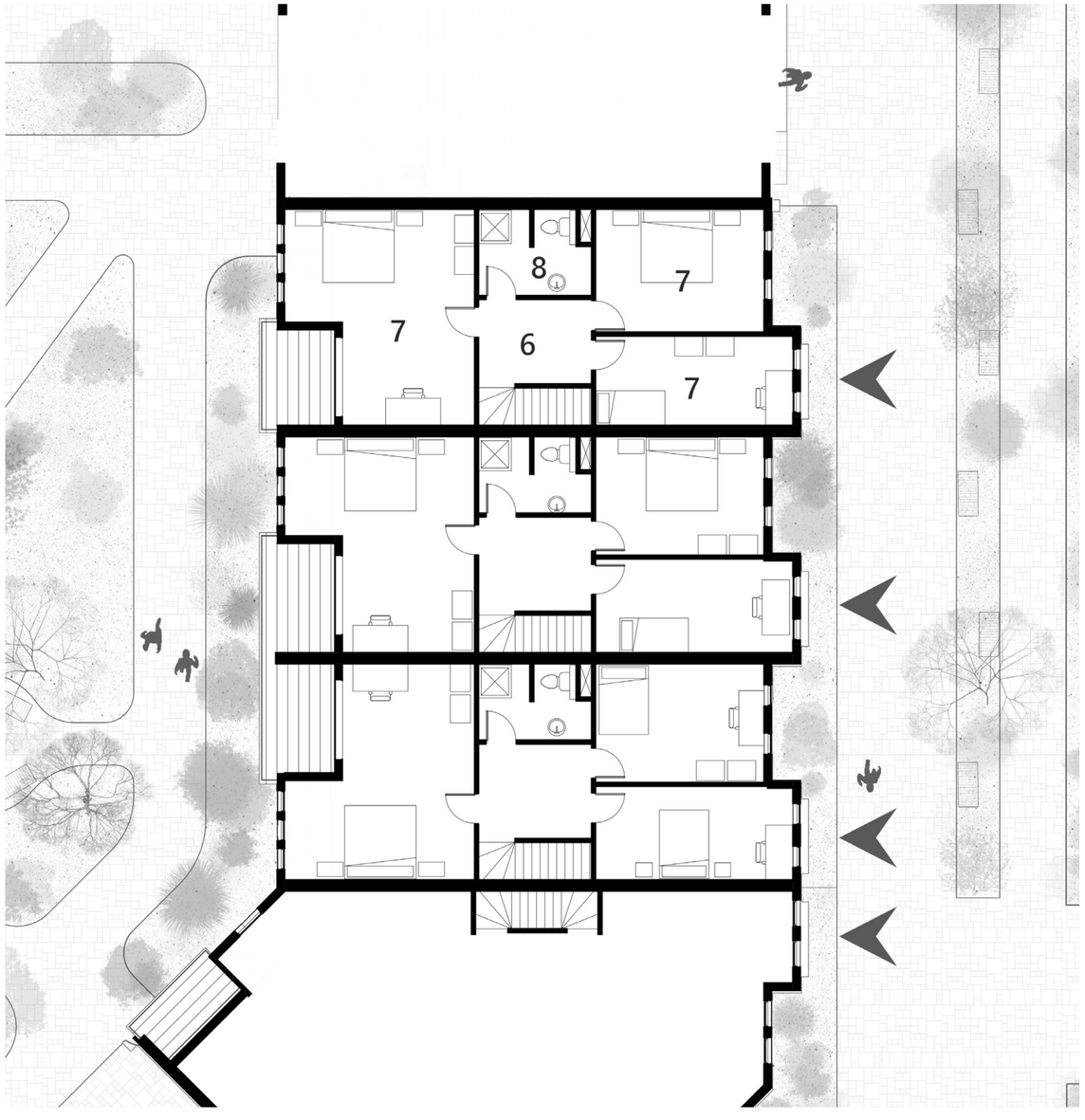
Duplex.

The duplex housing typology is designed primarily for larger family households and reflects the importance of family-oriented living within Syrian culture (Figure 41). With a floor area of approximately 151 m² spread across two levels, the typology creates a clear separation between collective and private functions. The lower floor accommodates the main living spaces, such as the kitchen, dining area, and living room, while the upper floor contains the bedrooms and more private family spaces. Located directly adjacent to the barrier building, the duplex units are connected to the shared circulation cores containing the staircases and lifts. This arrangement optimises circulation efficiency while creating opportunities for informal encounters between residents. Through its generous size, vertical organisation, and strong relationship with the courtyard, the duplex typology provides a comfortable and adaptable living environment suited to multi-generational and family-based forms of living.

Figure 41, duplex typology ground floor (left) and first floor (right)

1 entrance
2 living/dining space
3 kitchen
4 front garden
5 staircase
6 hall
7 bedroom
8 bathroom





Barrier.
The barrier building apartments form part of the neighbourhood's outer edge and benefit from their strategic position between the city and the collective courtyard (Figure 42). The primary apartment type consists of approximately 91 m² single-floor dwellings, oriented either towards the quieter courtyard or the surrounding urban streets. Their elongated façade allows for generous daylight penetration and strong visual connections to the surrounding environment. At the ends of the buildings, larger corner apartments of approximately 117 m² offer panoramic views, increased daylight access, and more spacious living environments suitable for larger families. Together, the barrier apartments combine efficient layouts with high levels of natural light, while their position within the larger urban structure contributes to both neighbourhood identity and residential quality.

1 staircase
2 elevator
3 walkway
4 apartment
5 ventilation shaft

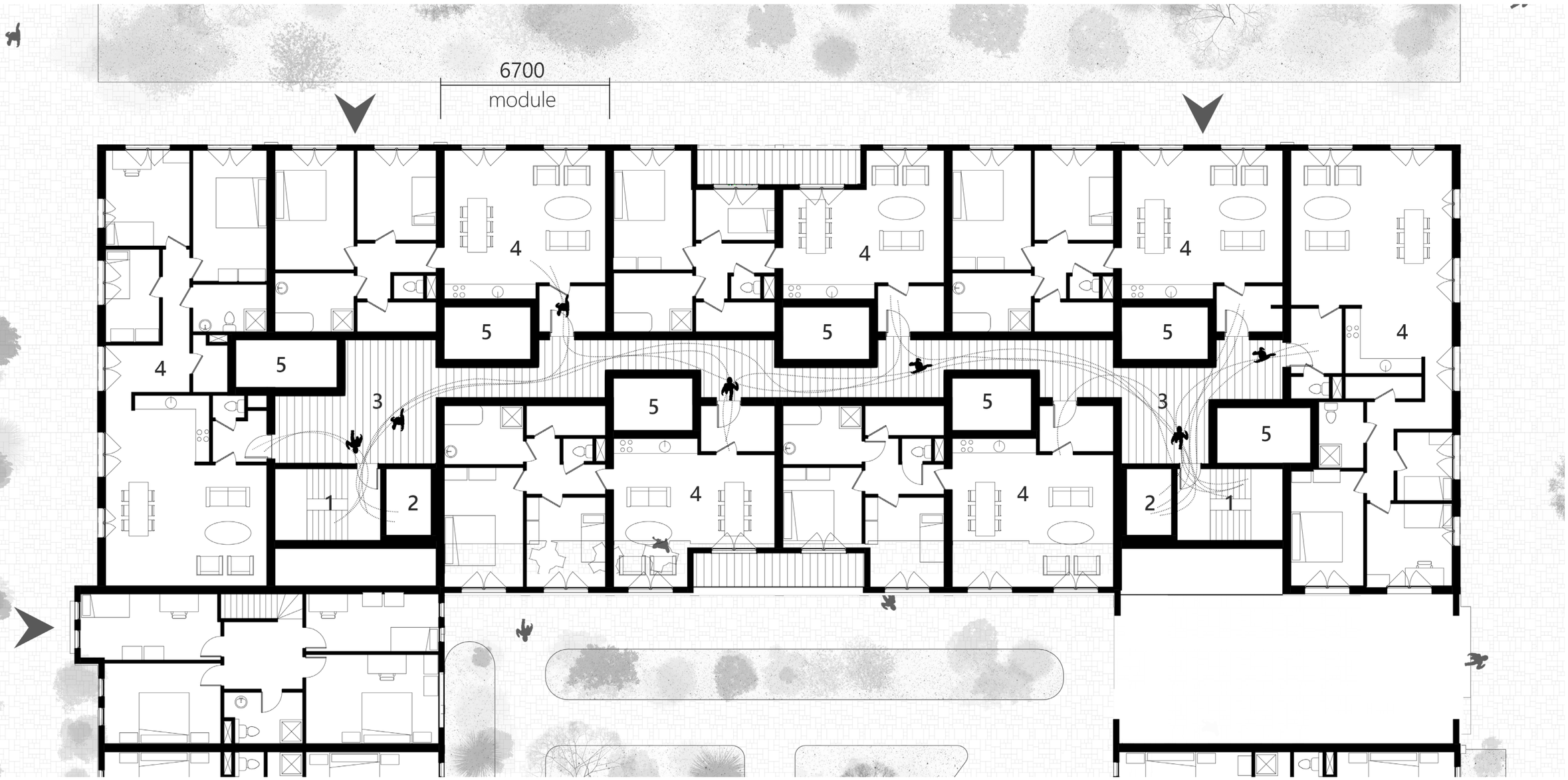
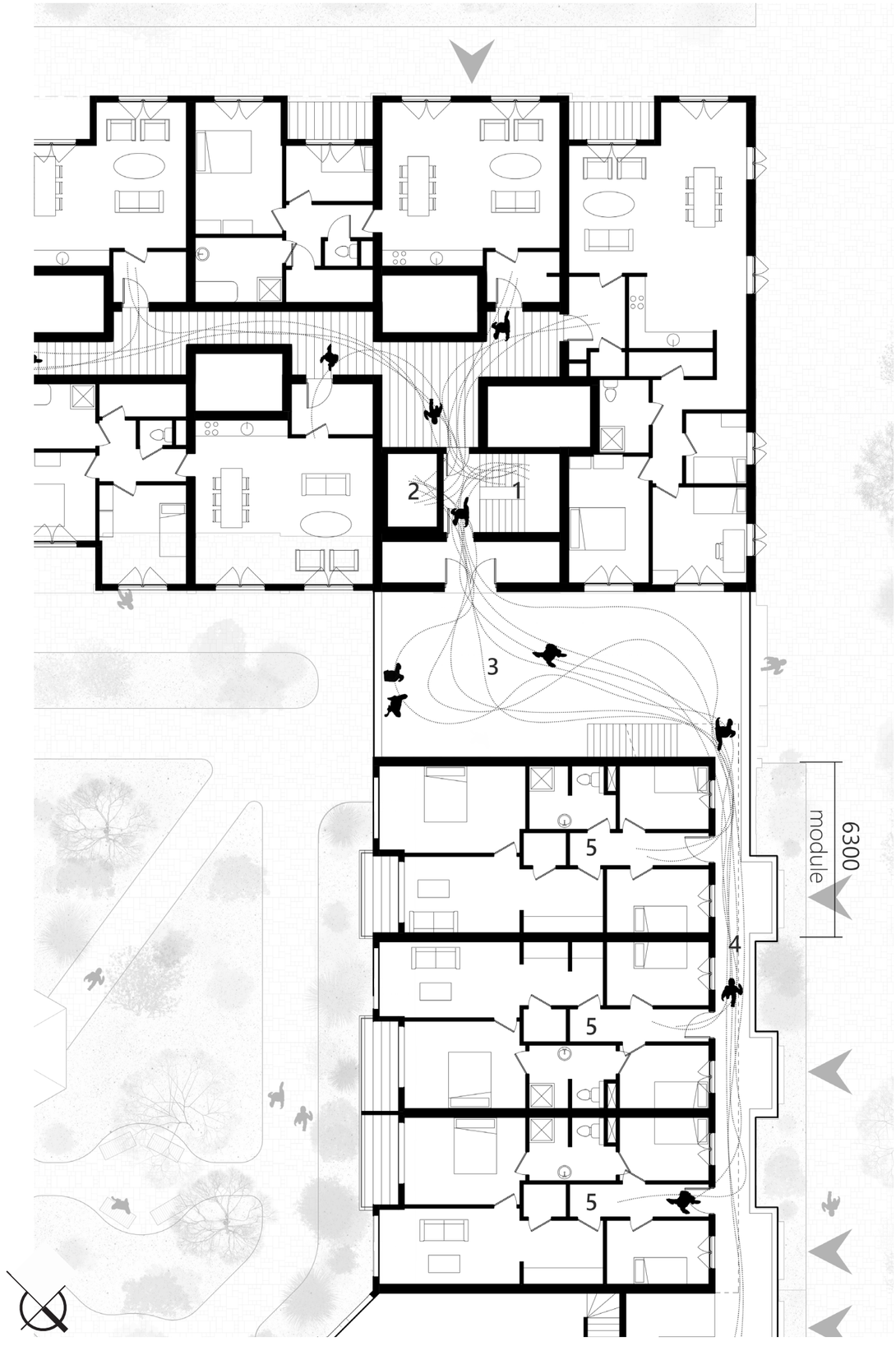


Figure 42, barrier typology

Apartment (typology 1).
The courtyard apartments above the duplex housing are positioned within the inner residential blocks and directly connected to the circulation cores located in the barrier buildings (Figure 43). This configuration optimises circulation efficiency while encouraging everyday encounters between residents through shared entrances, bridges, and circulation routes. The apartments have a floor area of approximately 76 m² and are designed for smaller households, couples, young families, or elderly residents.



1 staircase
2 elevator
3 collective terrace
4 walkway
5 apartment

Figure 43, apartment typology 1

Apartment (typology 2).
The second apartment typology consists of fifteen single-floor apartments of approximately 76 m² organised around a compact circulation core without lift access (Figure 44). As a result, these apartments are primarily intended for younger households, couples, small families, and working residents who can comfortably access the upper floors via stairs.

The typology offers an efficient and adaptable living environment within a compact footprint while benefiting from two sided orientation, creating generous daylight access and natural cross-ventilation.

Figure 44, apartment typology 2

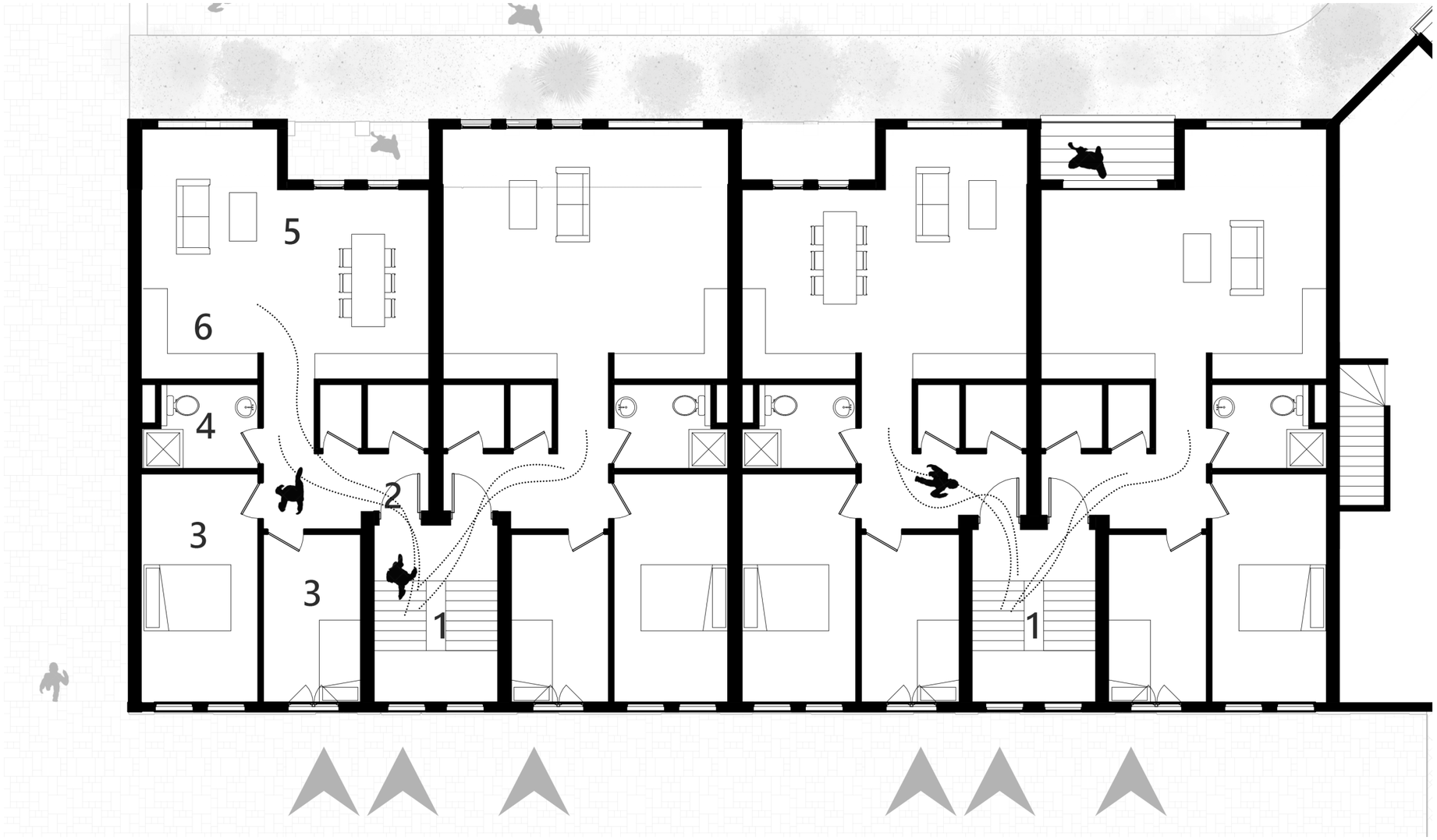
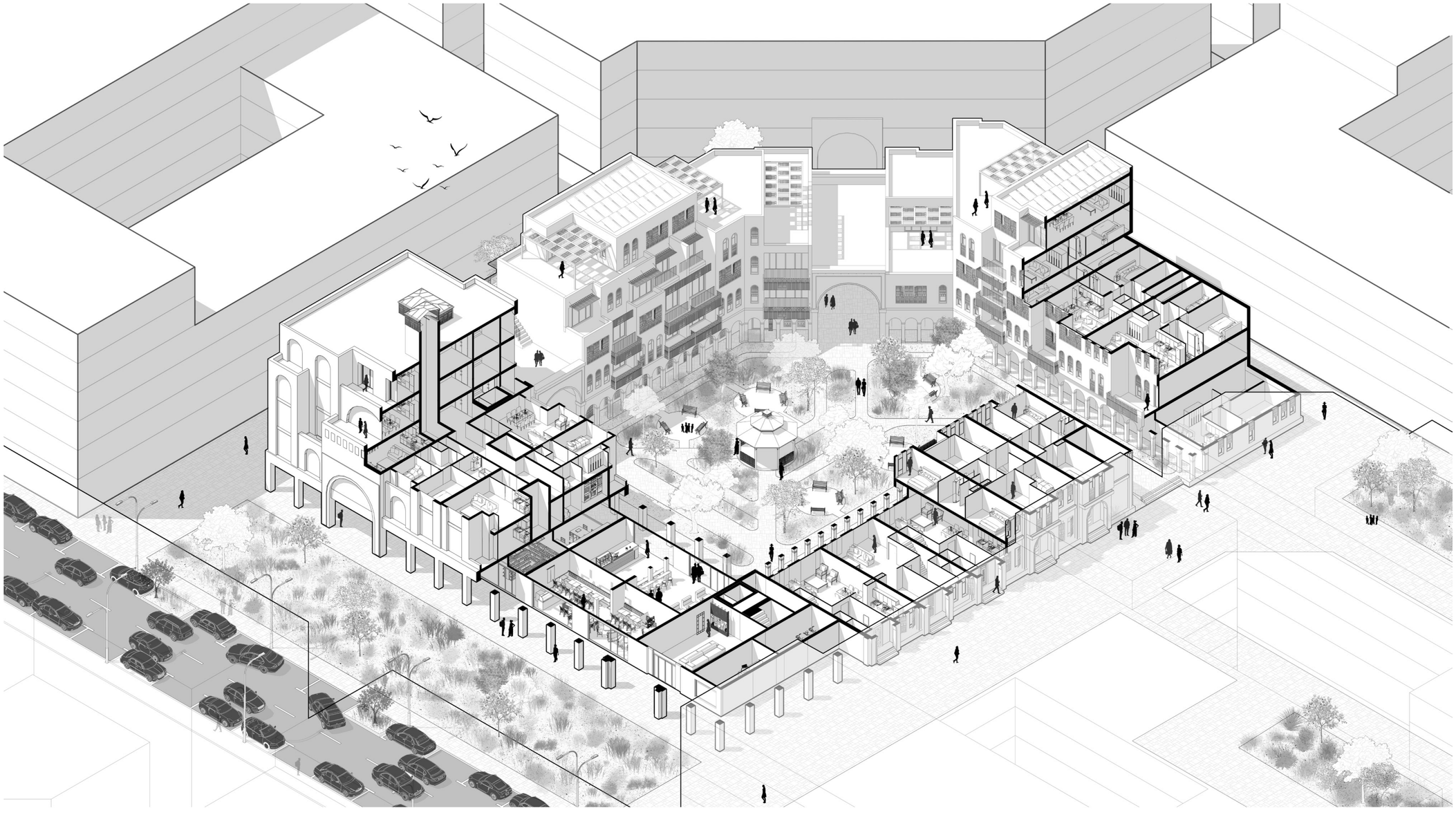


figure 45, Isometric view



figure 46, Isometric section



IV. Modular Design Strategy

The project is based on a modular design system in which each building typology is developed using a standard structural grid and fixed module dimensions. This approach responds directly to the demands of post-conflict reconstruction, where speed, scalability, cost efficiency, and buildability are essential. By repeating a limited number of modules across different housing typologies, construction can be standardised and prefabricated without sacrificing architectural quality or spatial diversity.

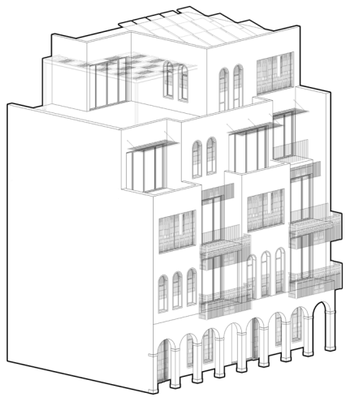
The modular system also supports future adaptability. While the primary structure remains fixed, apartments, façades, and programme can evolve over time according to changing needs. This aligns with the project's broader application of Stewart Brand's shearing layers, where long-life structural components provide a stable framework for more adaptable layers such as façades, services, and interior layouts. The result is a reconstruction strategy that combines efficiency and repetition with flexibility, allowing large numbers of dwellings to be realised while maintaining a coherent architectural identity and long-term resilience.

Using the two connecting modules seen in Figure 47 the modular design strategy is explained.

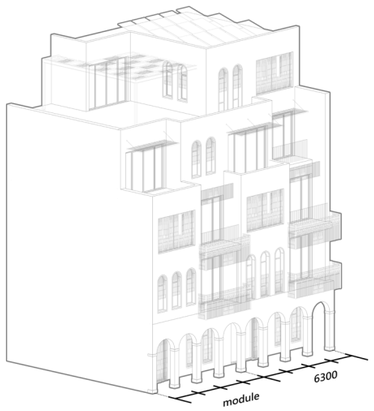
figure 47, Isometric section, module highlighted



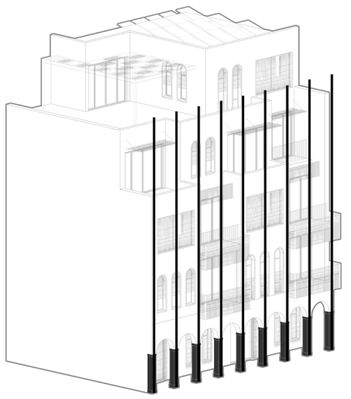
Facade strategie.
The façade system is developed through five guiding principles that create coherence across the different building typologies (Figure 48). First, each typology is based on a standardised module with fixed dimensions, supporting scalability and efficient reconstruction. Second, a consistent rhythm of vertical lines is established through the arcade columns, creating order and continuity across the elevations. Third, horizontal façade lines strengthen legibility and visually connect the different building elements. Fourth, setbacks, recessed openings, and façade depth reduce the perceived scale of the buildings and create a more human-scaled sense of enclosure. Finally, a variety of outdoor spaces, including roof terraces, balconies, Juliet balconies, modern mashrabiya balconies, and small terrace balconies, provide residents with different degrees of openness, privacy, and connection to the surrounding environment.



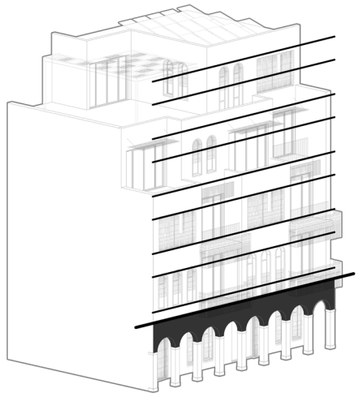
base



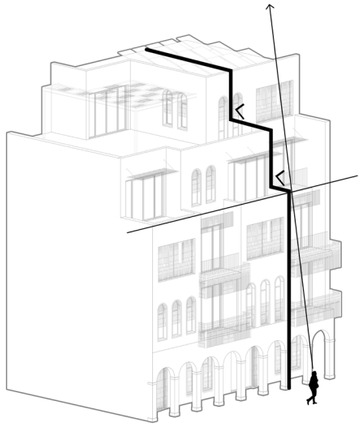
measurements



vertical lines



horizontal lines



setbacks



outside space

figure 48, Guiding principles for facade design

Structure.
The project employs a simple and efficient tunnel-form concrete structure designed for rapid and scalable reconstruction (Figure 49). Standardised structural modules are repeated across the different housing typologies, allowing for prefabrication, faster construction, and cost efficiency. The reinforced concrete walls and floor slabs provide structural stability, durability, and seismic resistance, which is particularly important within the earthquake-prone context of Syria. By combining a robust primary structure with adaptable façade and interior layers, the system supports both long-term resilience and future flexibility.

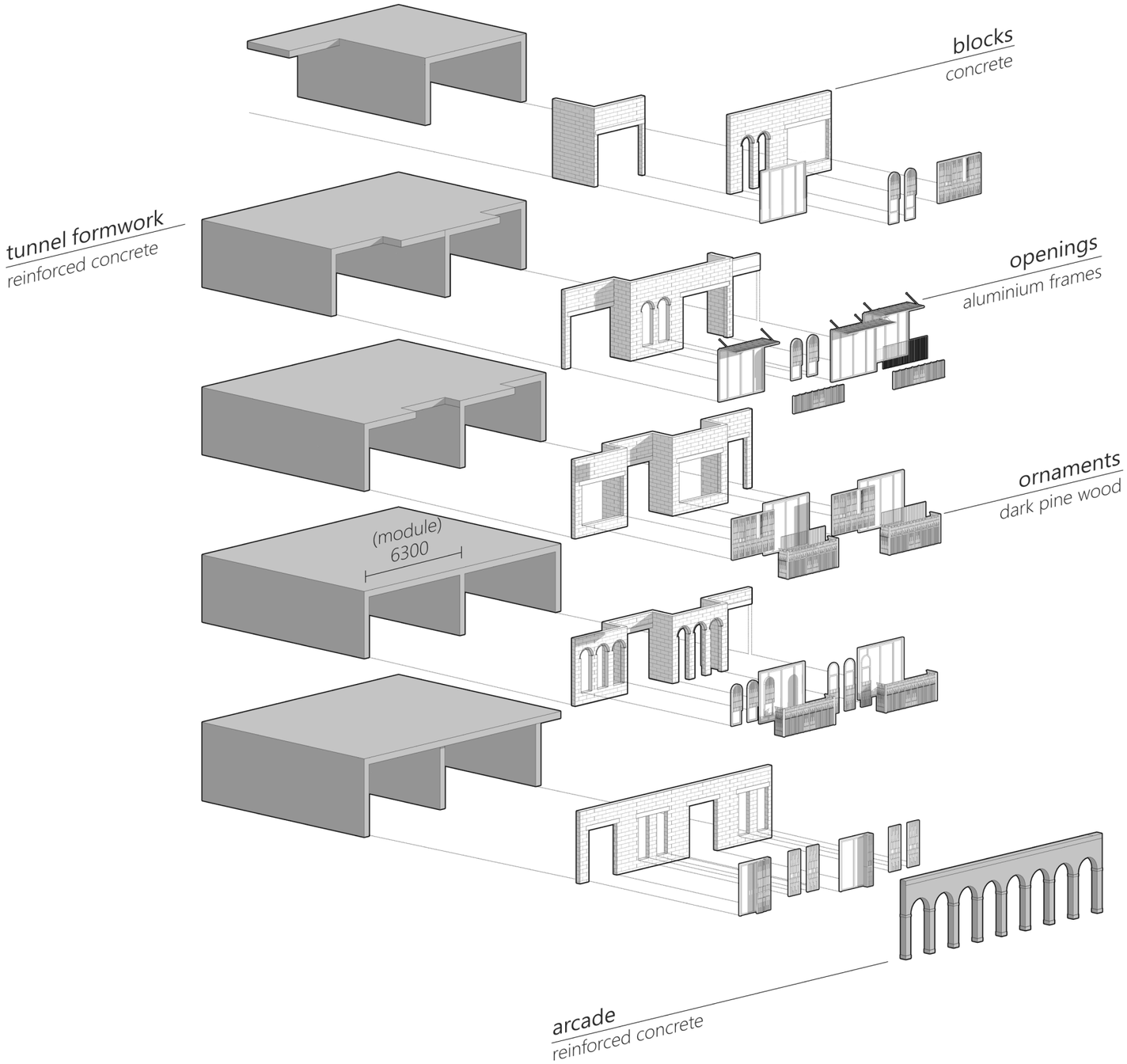


Figure 49, Exploded view: structure



Figure 50, Isometric view: atmosphere of the courtyard

V. Elevations
The project distinguishes between three façade conditions that respond to different levels of publicness, privacy, and urban scale. Together, they create a gradual transition from the scale of the city towards the intimacy of the courtyard while supporting walkability, orientation, and social interaction.

Barrier.
The barrier building elevation forms the outer edge of the neighbourhood and acts as a transition between the surrounding car-oriented streets and the pedestrian-focused interior (Figure 51). Its architectural expression is more monumental and repetitive, reflecting its role as an urban buffer and orienting element within the larger city fabric.

Large square arcades, layered façade depth, and integrated screens create a strong rhythm across the elevation while reducing the perceived scale of the building at pedestrian level. Horizontal façade lines provide continuity along the neighbourhood edge, while vertical articulations and recessed openings break down the mass into more human-scaled proportions. Together, these elements create a façade that balances protection, identity, and architectural coherence while contributing to wayfinding, climatic comfort, and the overall character of the neighbourhood.

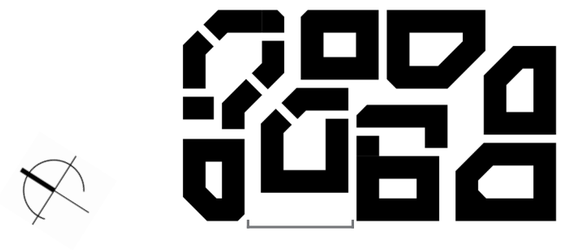
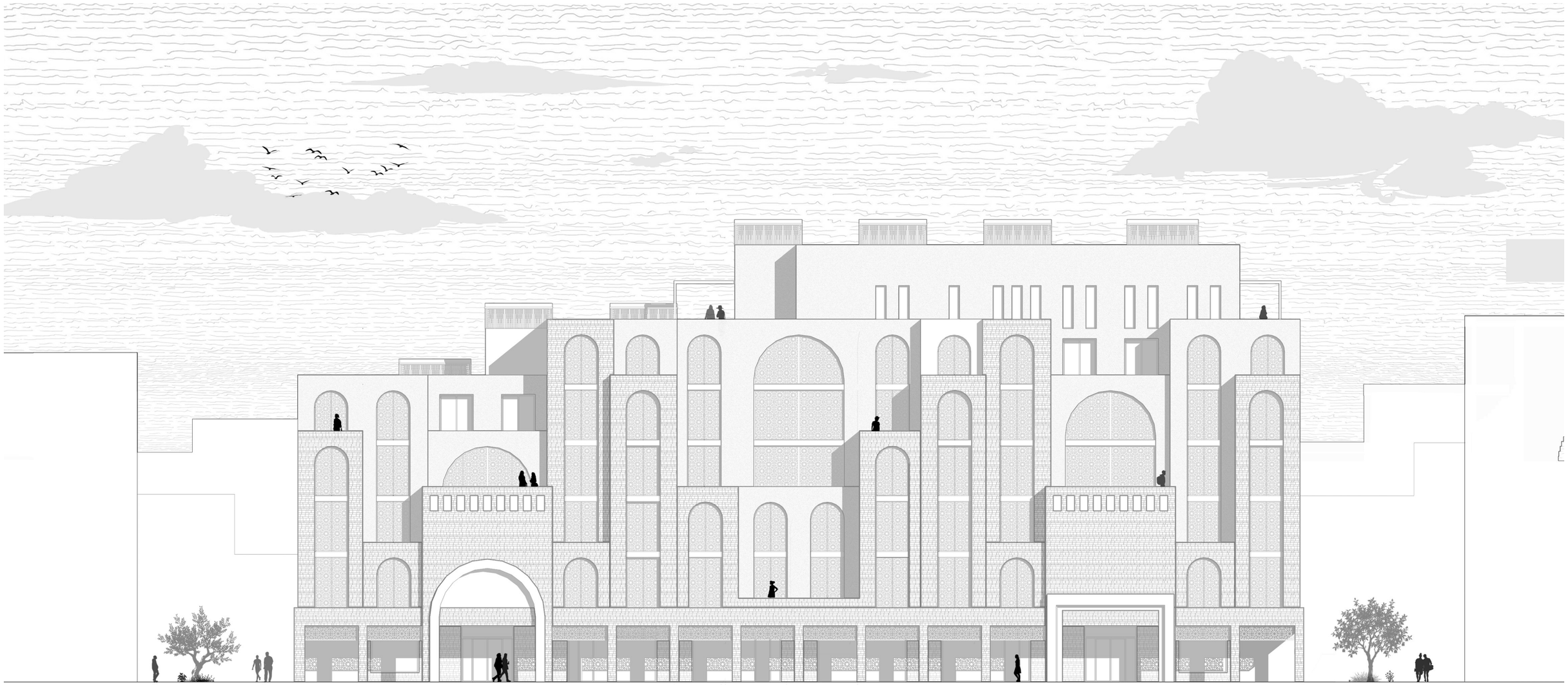


Figure 51, Elevation: barrier



Pedestrian street.
The pedestrian street elevation is designed around human scale, walkability, and everyday social interaction (Figure 52). In contrast to the more monumental barrier buildings, the façade is articulated through smaller modules, setbacks, ornamentation, and layered material expression that relate closely to pedestrian movement and perception.

Privacy and openness are carefully balanced through screened openings, recessed windows, and façade depth, allowing residents to maintain visual connections with the street while protecting domestic life. The pedestrian streets are also characterised by a greater presence of greenery than the barrier buildings, with trees, planting beds, and vegetation integrated throughout the public realm to create a softer, cooler, and more pleasant walking environment.

The rhythm of vertical openings, public balconies, and arches creates a rich and varied streetscape, while continuous horizontal lines provide cohesion across the neighbourhood. Together, these elements create a comfortable and visually engaging pedestrian environment that encourages movement, encounter, and a strong sense of place.

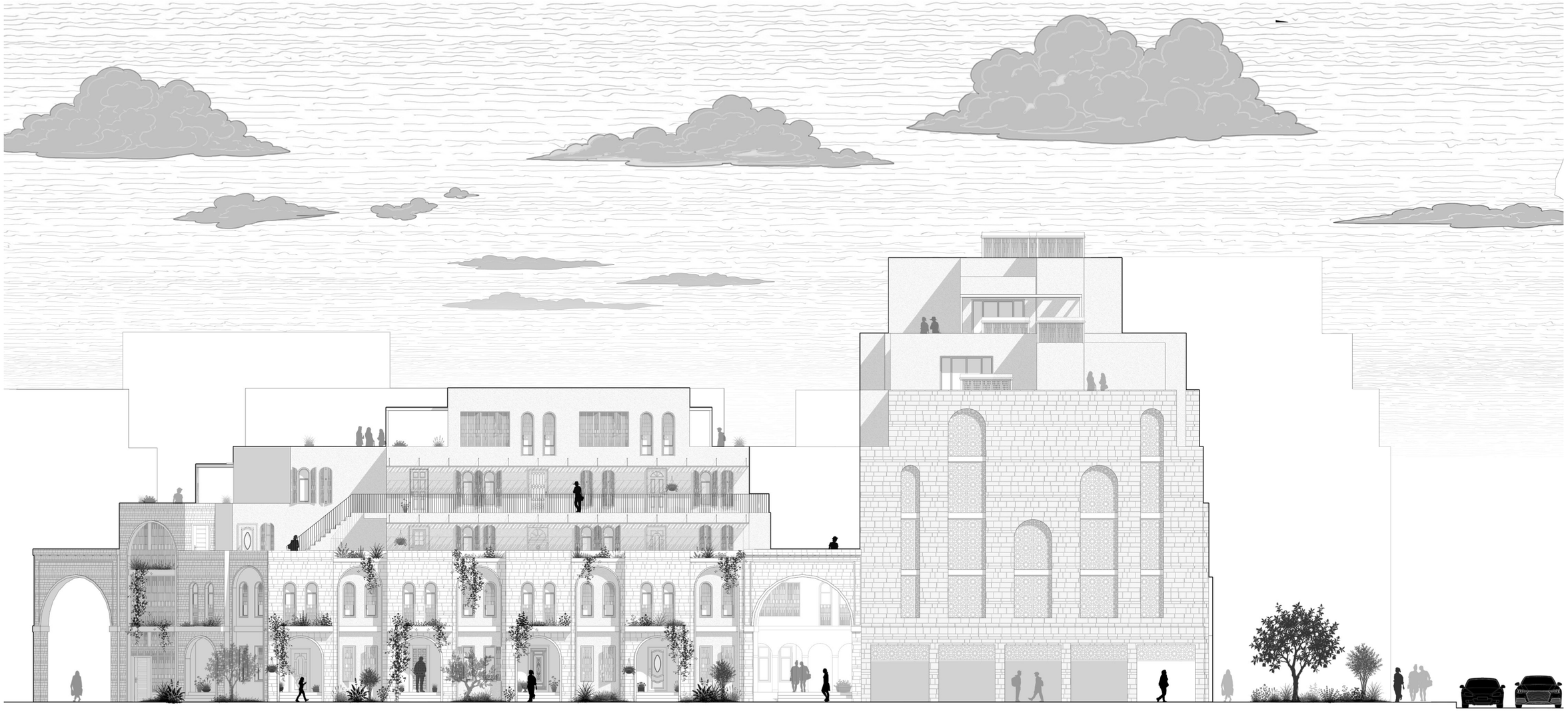


Figure 52, Elevation: pedestrian street

Entrance identity
Each entrance door is designed with a unique ornamental pattern, creating a sense of individuality within the larger housing blocks (Figure 53). This variation helps residents identify with their home and strengthens the feeling of belonging within the neighbourhood.

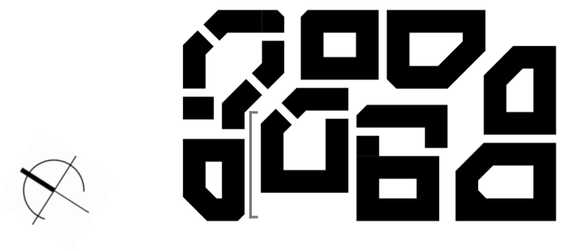
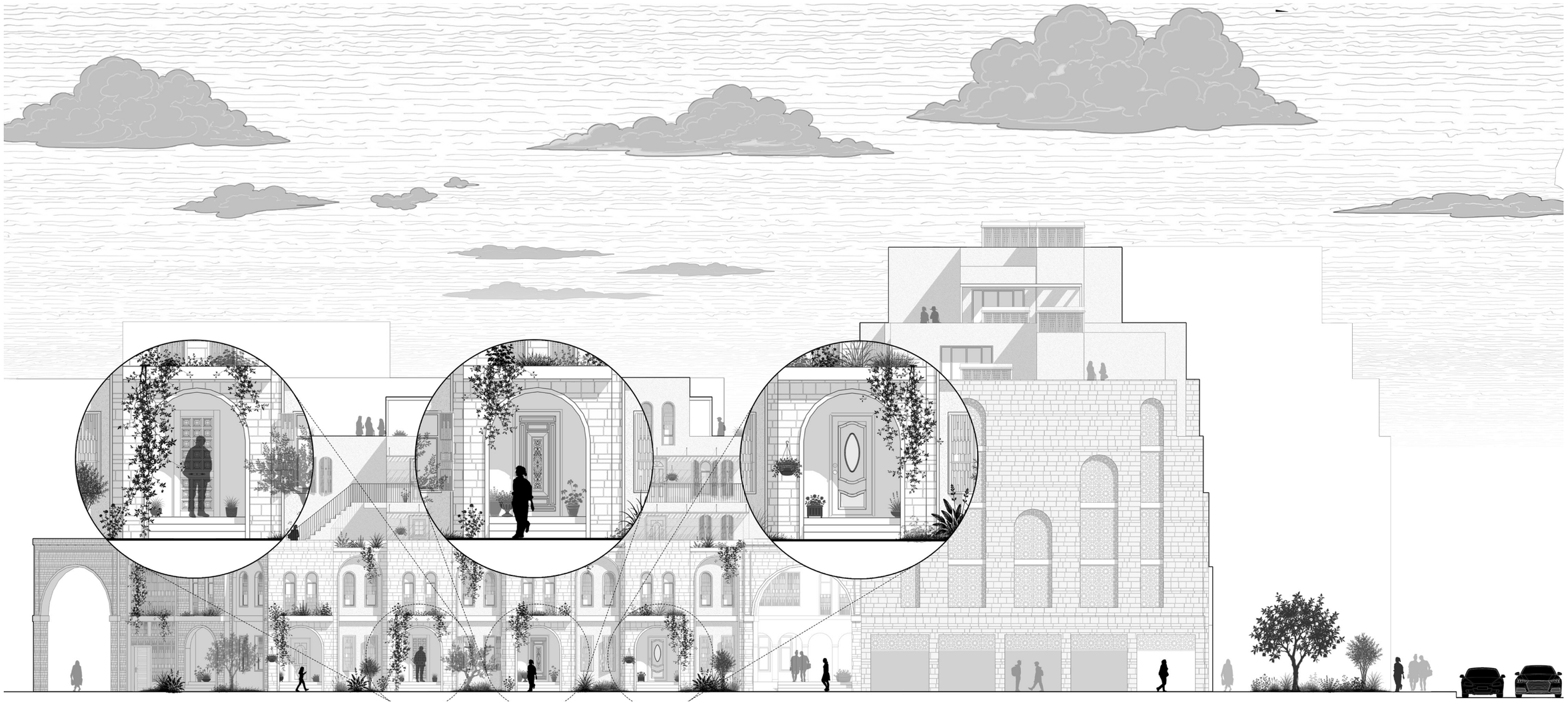


Figure 53. Elevation: pedestrian street (zoom-ins)



Courtyard.
The courtyard façade adopts the same human-scaled architectural language as the pedestrian street elevation but becomes noticeably more open due to its relationship with the protected semi-public courtyard (Figure 54). Larger balconies, and generous openings strengthen the connection between the dwelling and the collective outdoor space, encouraging passive social interaction and neighbourhood oversight.

Compared to the street façade, the courtyard elevation prioritises openness, daylight, and community. Integrated greenery, layered ornamentation, and softer spatial transitions contribute to a calm and intimate atmosphere centred around collective living, familiarity, and everyday social life.



Figure 54, Elevation: courtyard

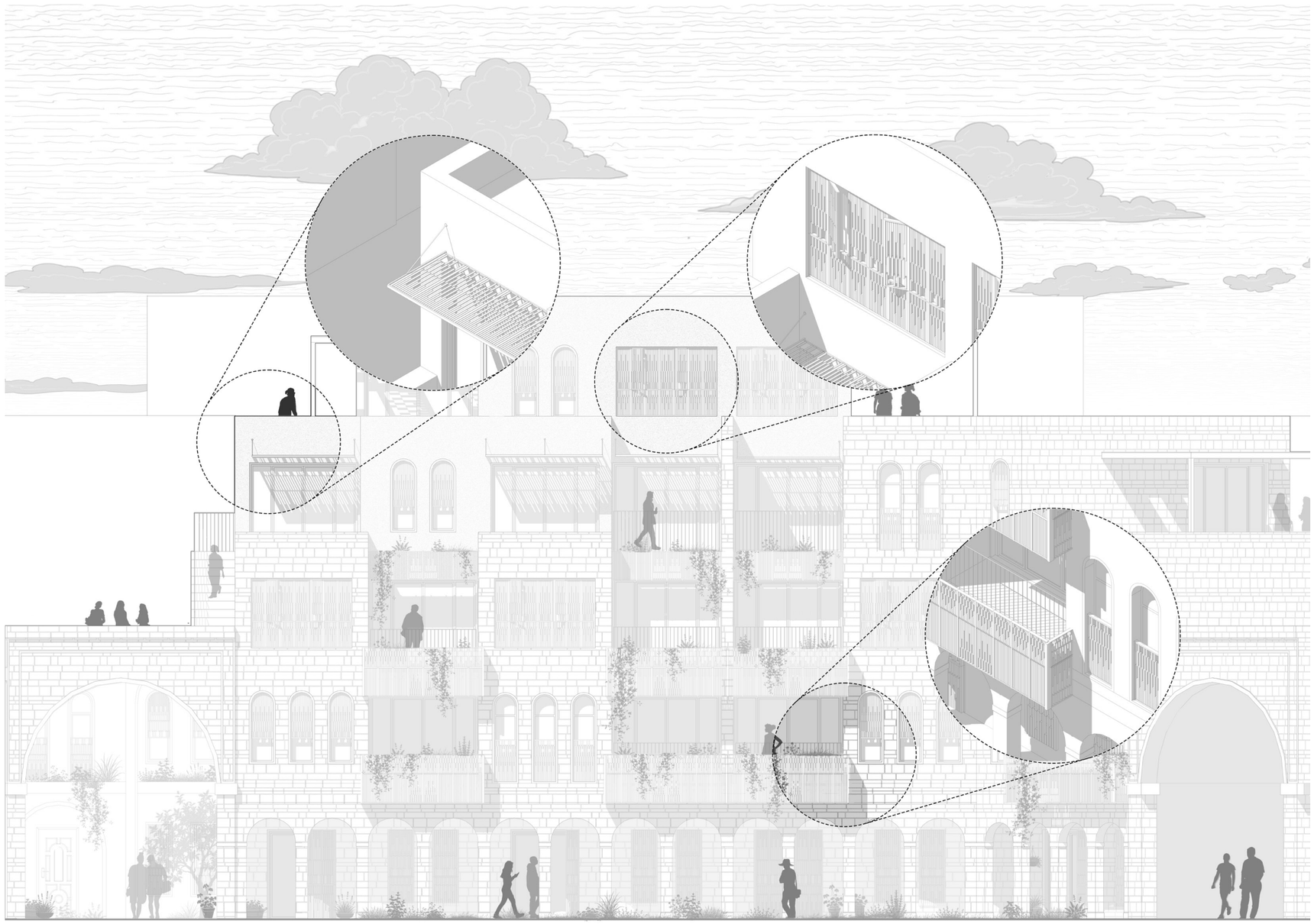


Figure 55, Elevation: courtyard (zoom-ins)

VI. Sections
Barrier.
Evening time
The section reveals the integrated ventilation shaft, which also functions as a lightwell (Figure 56). Inspired by traditional Middle Eastern windcatchers, the shaft operates as a passive ventilation chimney that extracts warm stale air from the building while drawing cooler air through the façades and courtyard openings. Simultaneously, a glazed roof element allows daylight to penetrate deep into the circulation spaces and apartments, serving as a lightwell, reducing the need for artificial lighting and improving spatial quality within the core.

Figure 56, Section: barrier (evening time)

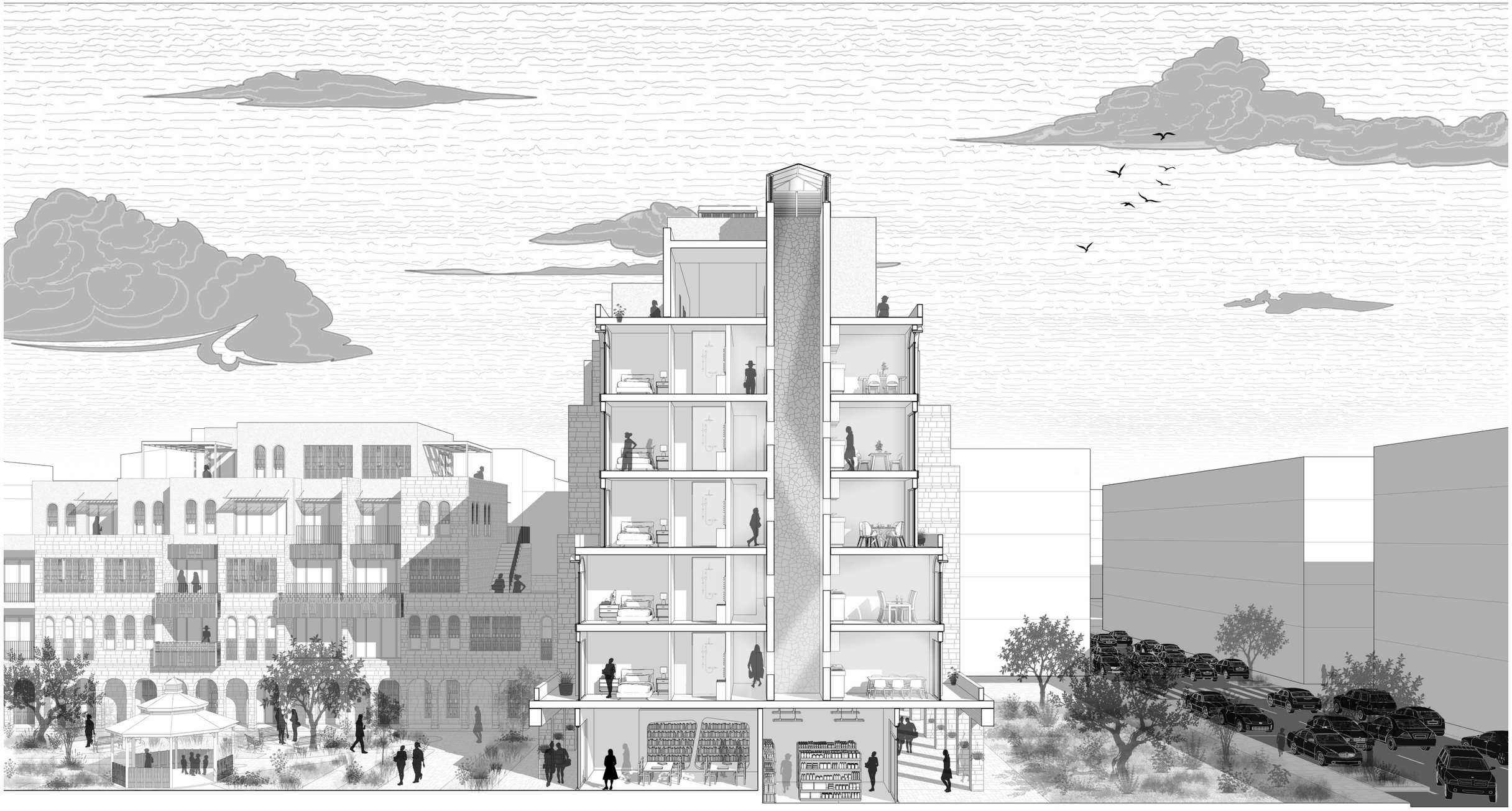
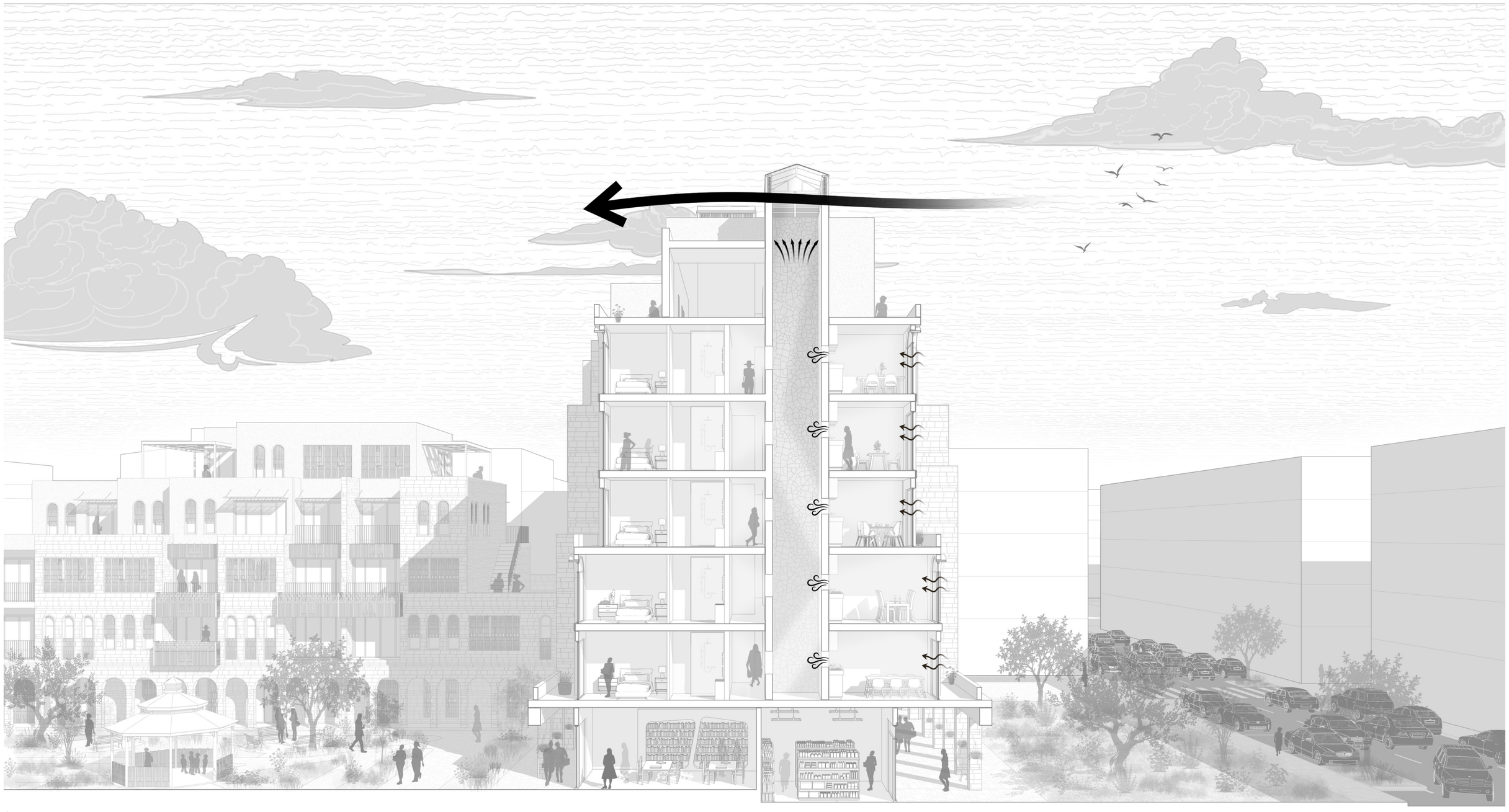


Figure 57, Section: barrier (evening time)



Morning time
In the morning, the lightwell performs the opposite function (Figure 58). As the sun rises in the east, daylight enters the shaft and illuminates the western side of the circulation spaces, which would otherwise receive limited direct sunlight.

Throughout the day, the lightwell distributes natural light deep into the building core, improving spatial quality and reducing the need for artificial lighting.

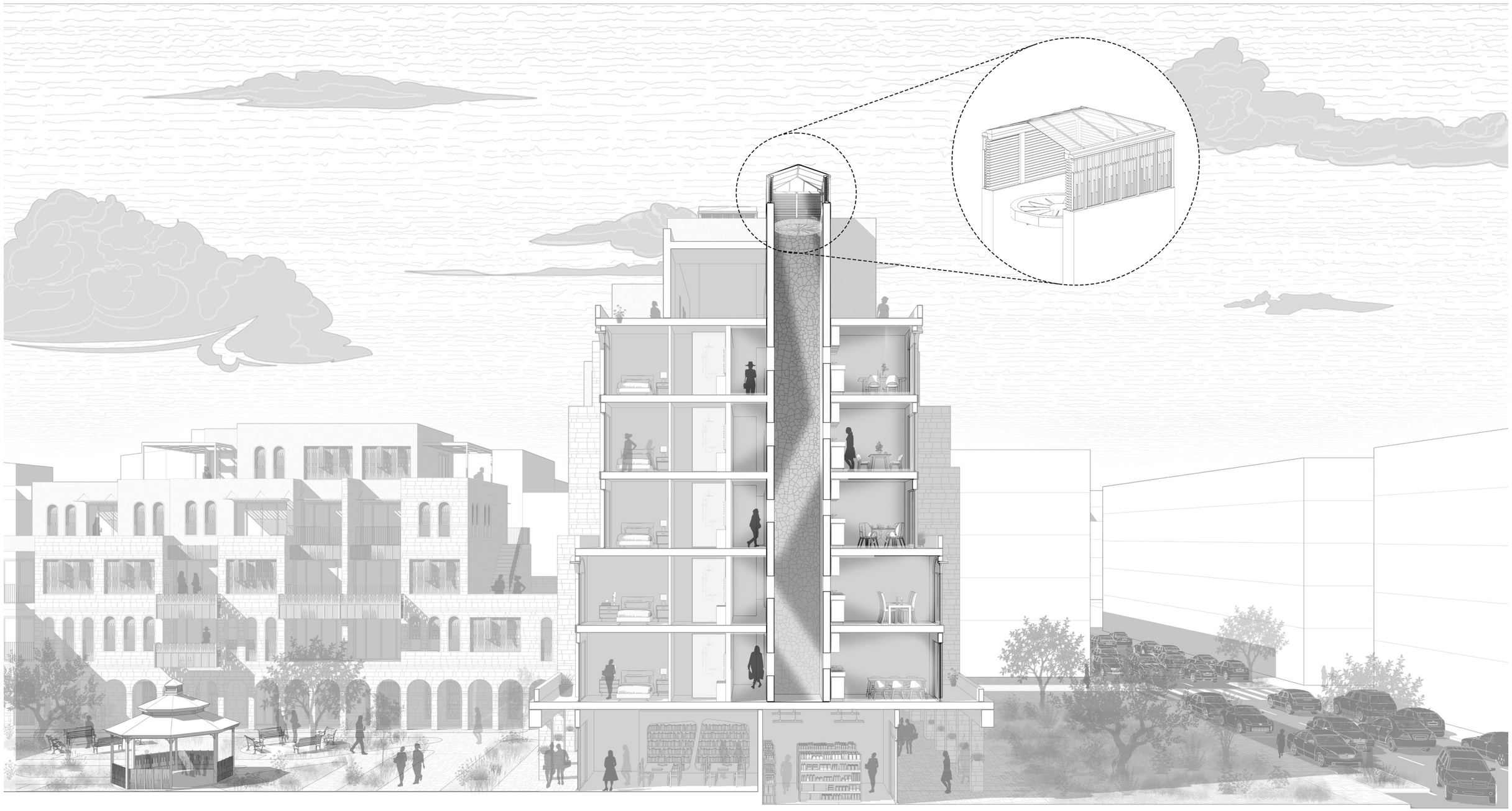
Figure 58, Section: barrier (morning time)



Supporting mechanical system

The ventilation shaft is designed to operate primarily as a passive system, relying on natural pressure differences and the stack effect to extract warm, stale air from the building (Figure 59). During periods of extreme heat or low wind conditions, a mechanical ventilation unit positioned at the top of the shaft can be activated to enhance airflow and ensure comfortable indoor conditions. This creates a hybrid system that prioritises passive performance while providing additional support when required.

Figure 59, Section: barrier (zoom-in)



Pedestrian street.
The pedestrian street section illustrates the project's human-scaled approach to urban space (Figure 60). Free from vehicular traffic, the street prioritises walking, social interaction, and everyday public life. Trees, planting beds, seating elements, and active plinths create a comfortable and engaging environment, while the surrounding façades provide enclosure, shade, and visual richness. Together, these elements transform the street from a circulation route into a social space that supports walkability, neighbourhood identity, and collective life.

Figure 60, Section: pedestrian street



VII. Climate

The project is designed primarily around passive climate strategies that respond to the hot and dry climate of Homs. The following diagrams illustrate how the design responds to sun, wind, and rain at the building scale.

Figure 61 is the base section for the climate schemes.

Figure 61, Section: climate schemes

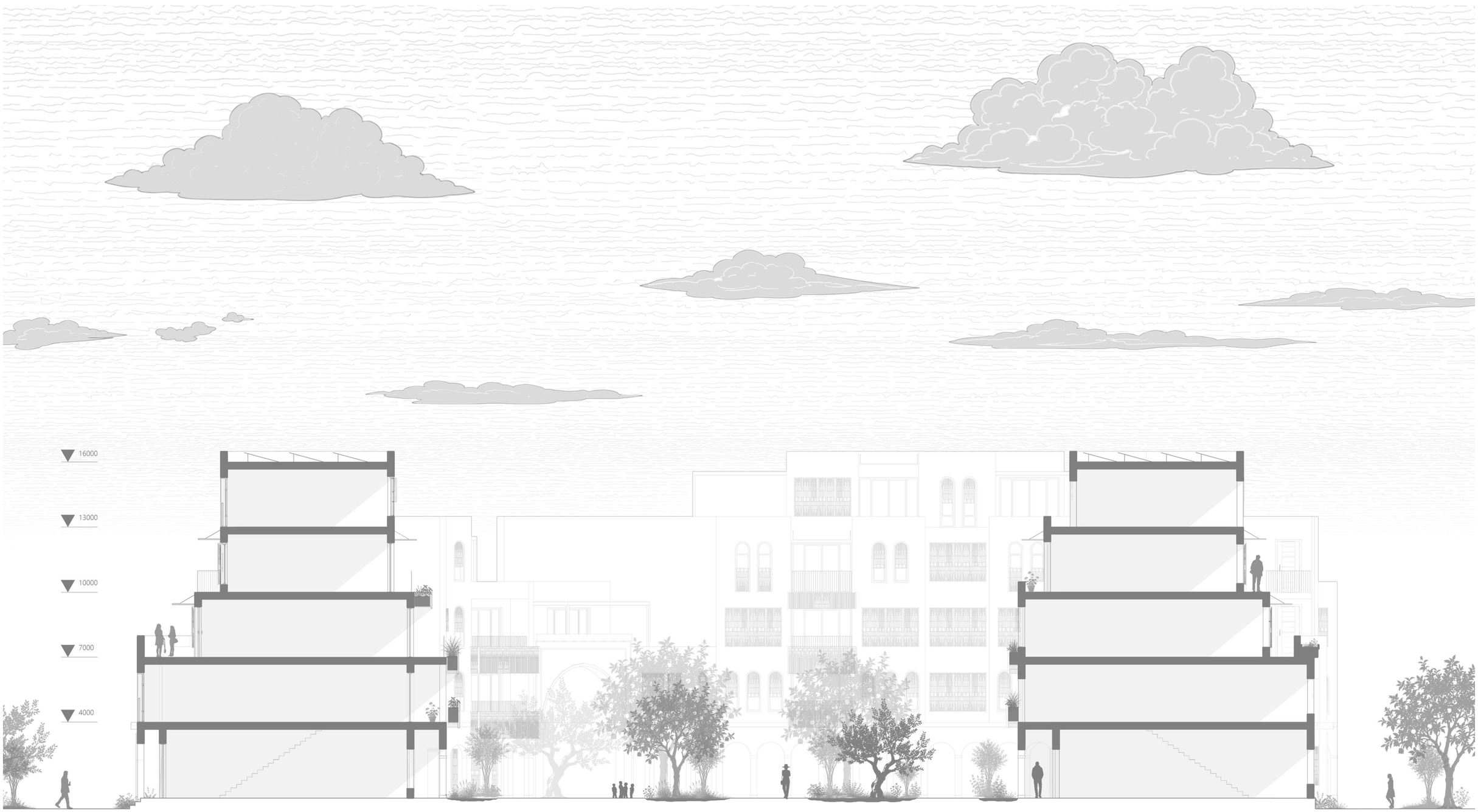


Figure 62, Climate diagram: sun

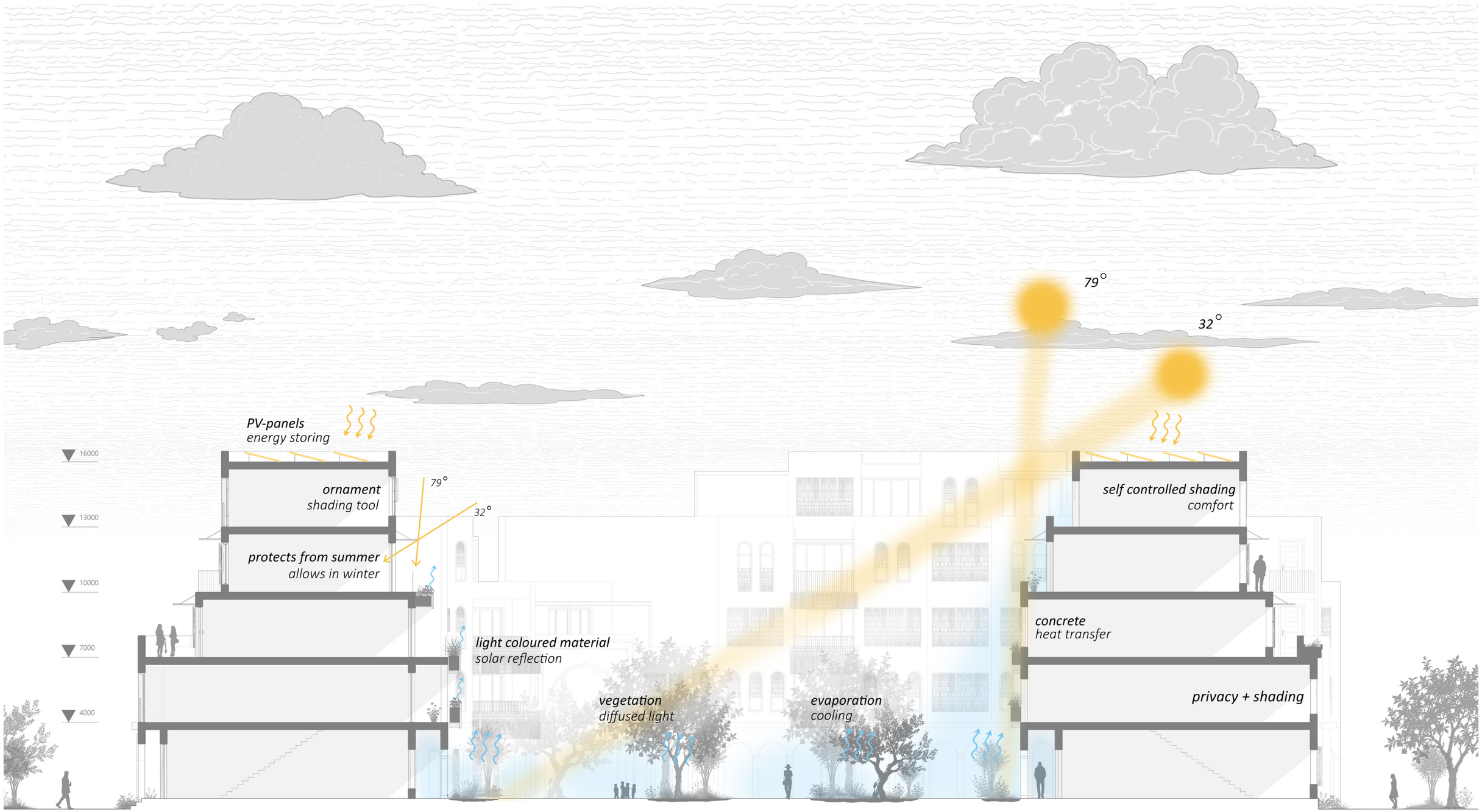


Figure 63, Climate diagram: wind

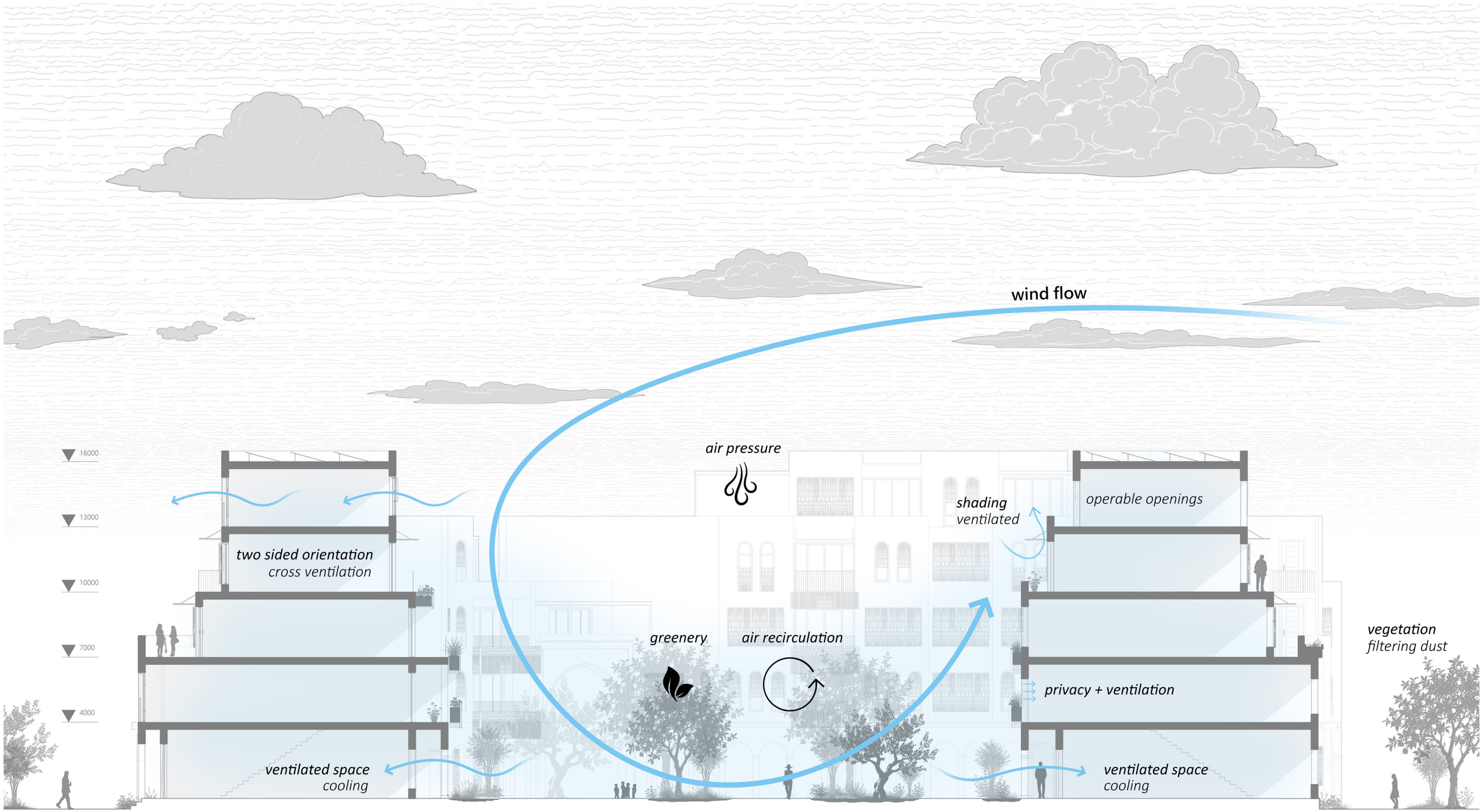
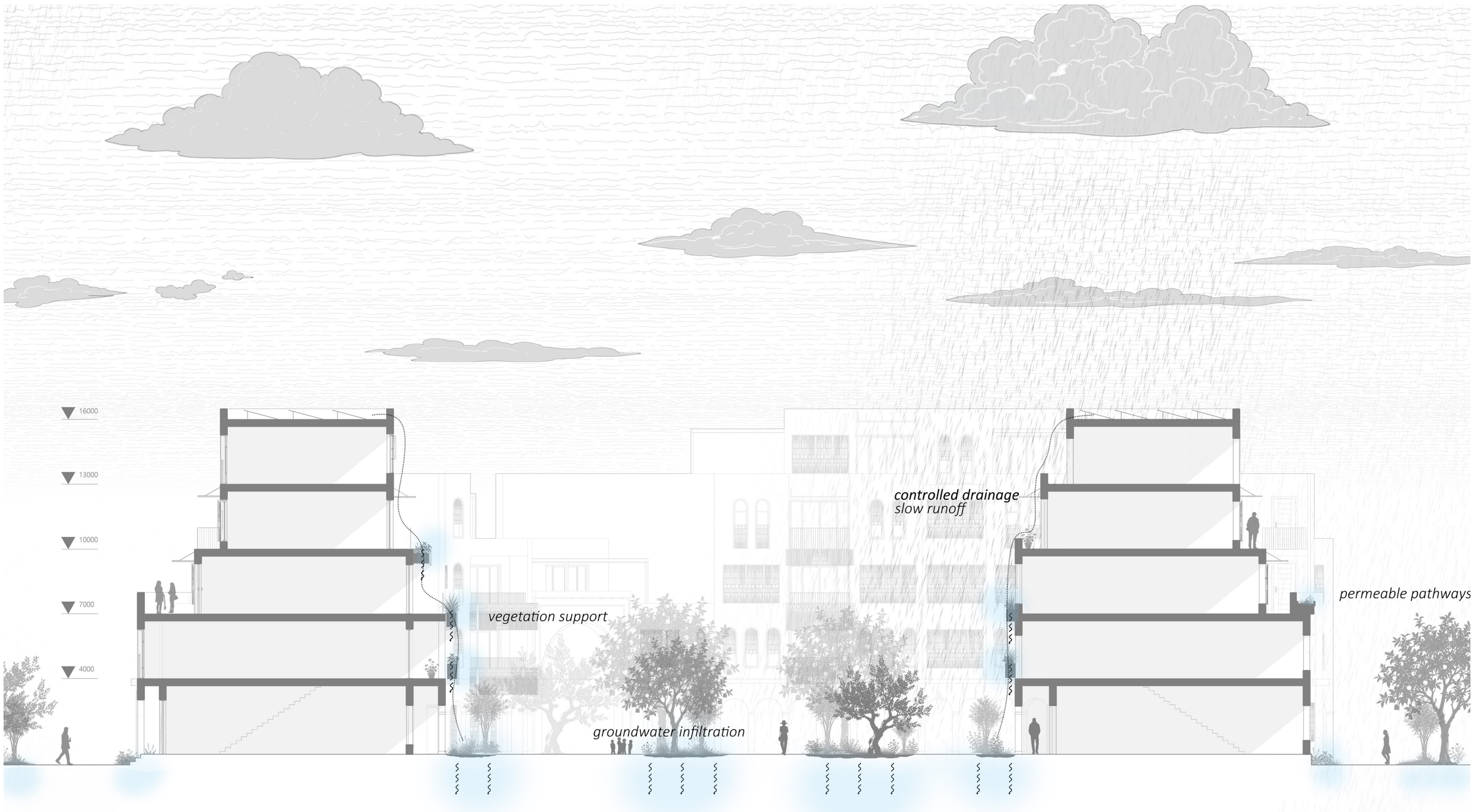


Figure 64, Climate diagram: rain



VIII. Details

Ornamentation.

The project approaches ornamentation as an adaptable architectural layer rather than a fixed decorative element. Drawing on Stewart Brand's shearing layers, ornament is integrated into shorter-life building components such as façade screens, shading devices, and infill panels, allowing it to evolve alongside changing social, technical, and cultural needs (Figure 65) (Brand, 1994).

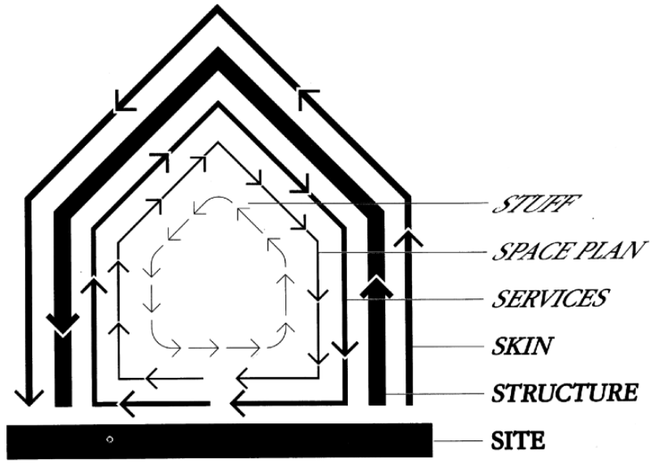


Figure 65, Shearing layers (Brand, 1994)

Rather than reproducing historical ornament as a static symbol, the project positions ornament as an evolving architectural language that contributes to cultural continuity, community participation, and long-term resilience. Through a system of wooden slats and simple geometric patterns, residents can personalise parts of their living environment while maintaining a coherent architectural identity.

For the courtyard block, the pattern shown in Figure 67 was selected not only for its aesthetic qualities but also for its environmental and social performance. The varying density of the pattern regulates ventilation, allowing airflow through the more open sections while providing greater protection in the denser areas. At the same time, the design balances privacy and openness, creating screened areas where domestic privacy is desired and more transparent zones where visual connection and social interaction with the courtyard are encouraged. In this way, ornament functions simultaneously as climatic infrastructure, privacy filter, and architectural expression.

Future needs.

Although the project prioritises passive cooling strategies, it also anticipates future demand for mechanical cooling. To avoid the visual clutter of externally mounted air-conditioning units, an ornamental façade element has been designed to accommodate a Daikin MXM Multi-Split 2-port outdoor unit (5.0 kW) (Figure 66).

The element currently functions as a planter but can easily be converted into an air-conditioning enclosure if required (Figure 68). A perforated access panel provides both maintenance access and sufficient airflow while concealing the unit behind the façade. This allows technical infrastructure to be integrated seamlessly within the architectural expression of the building.

This strategy reflects the project's approach to ornament as an adaptable layer capable of accommodating future needs without compromising architectural quality.

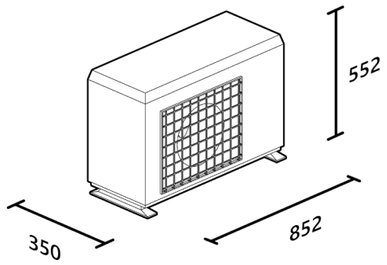


Figure 66, Daikin MXM Multi-Split 2-port outdoor unit

axonometric

elevation

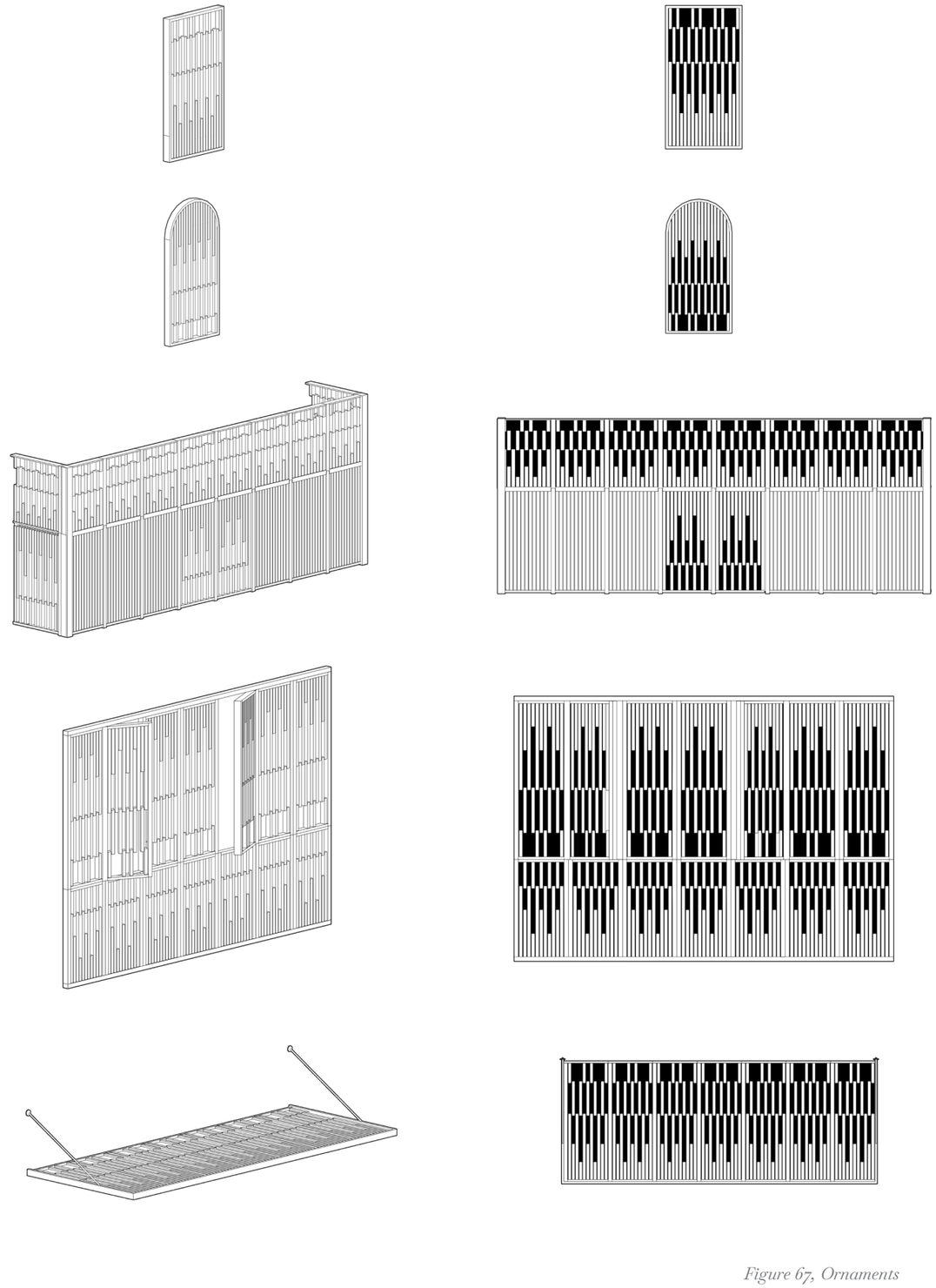
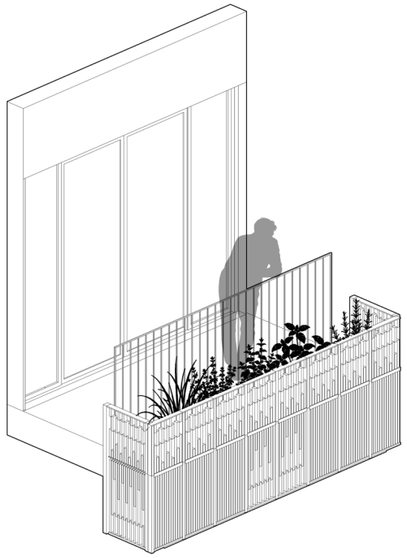
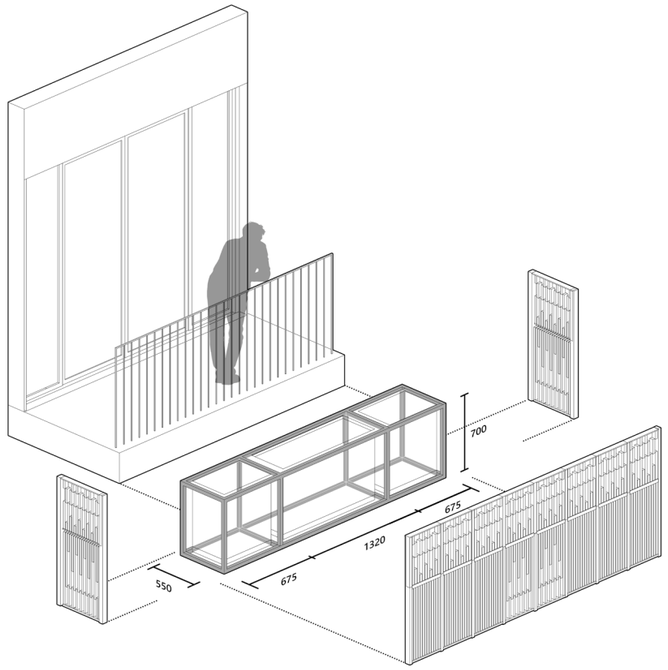
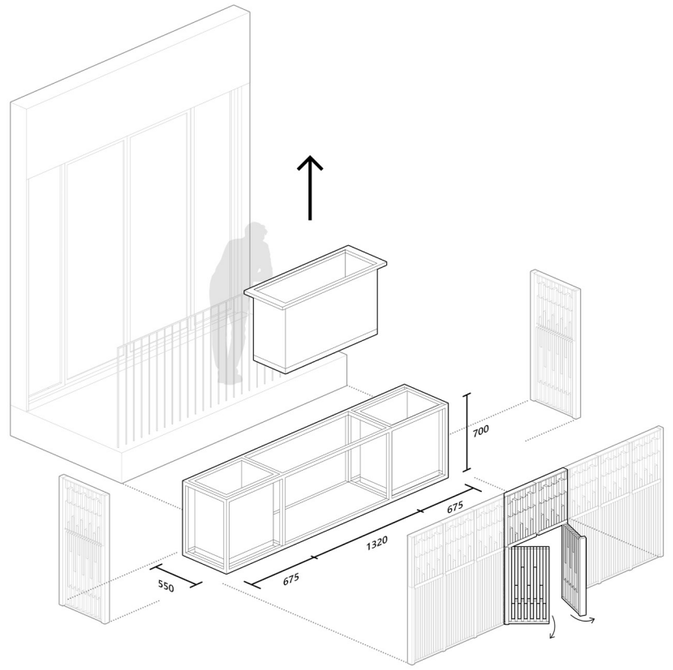
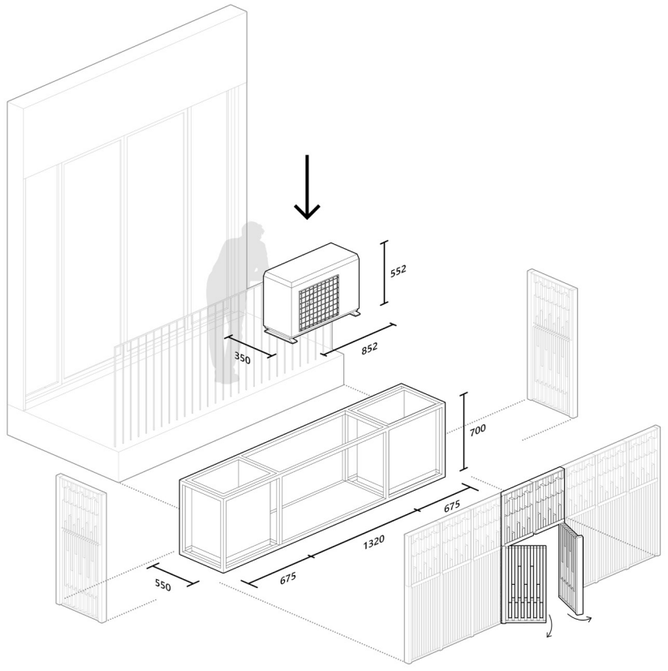


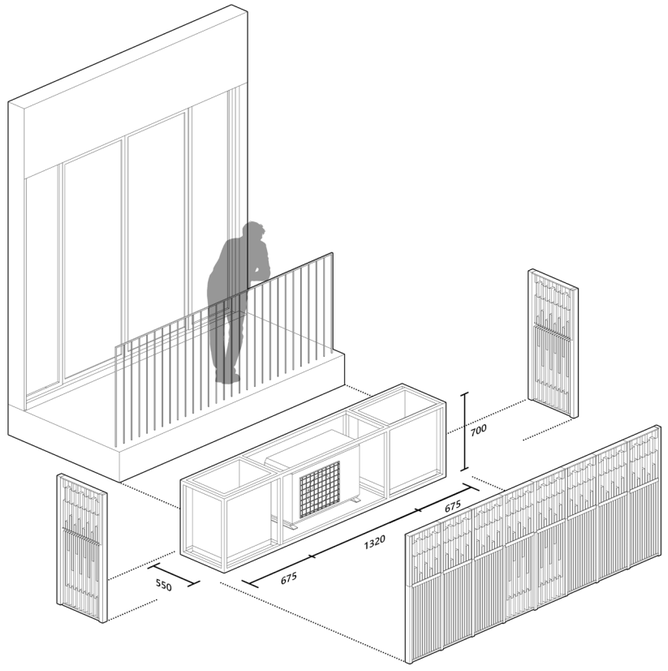
Figure 67, Ornaments











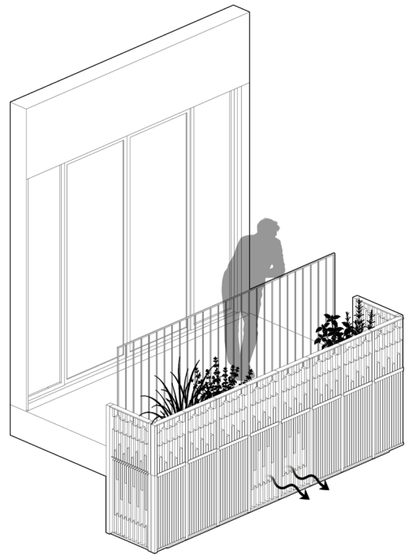


Figure 68, Ornament: planter <> AC-casing

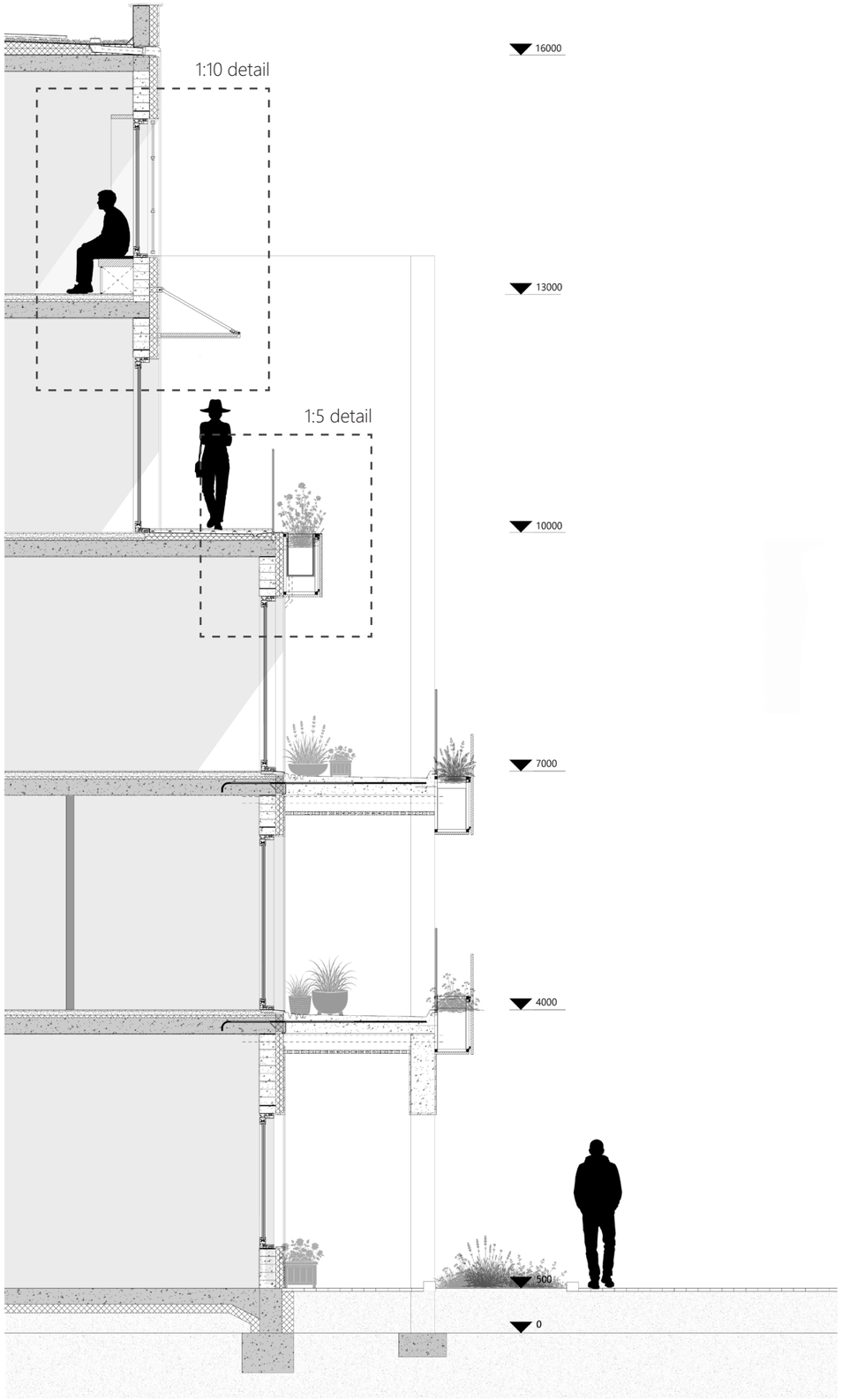




Figure 69, 1:20 facade fragment

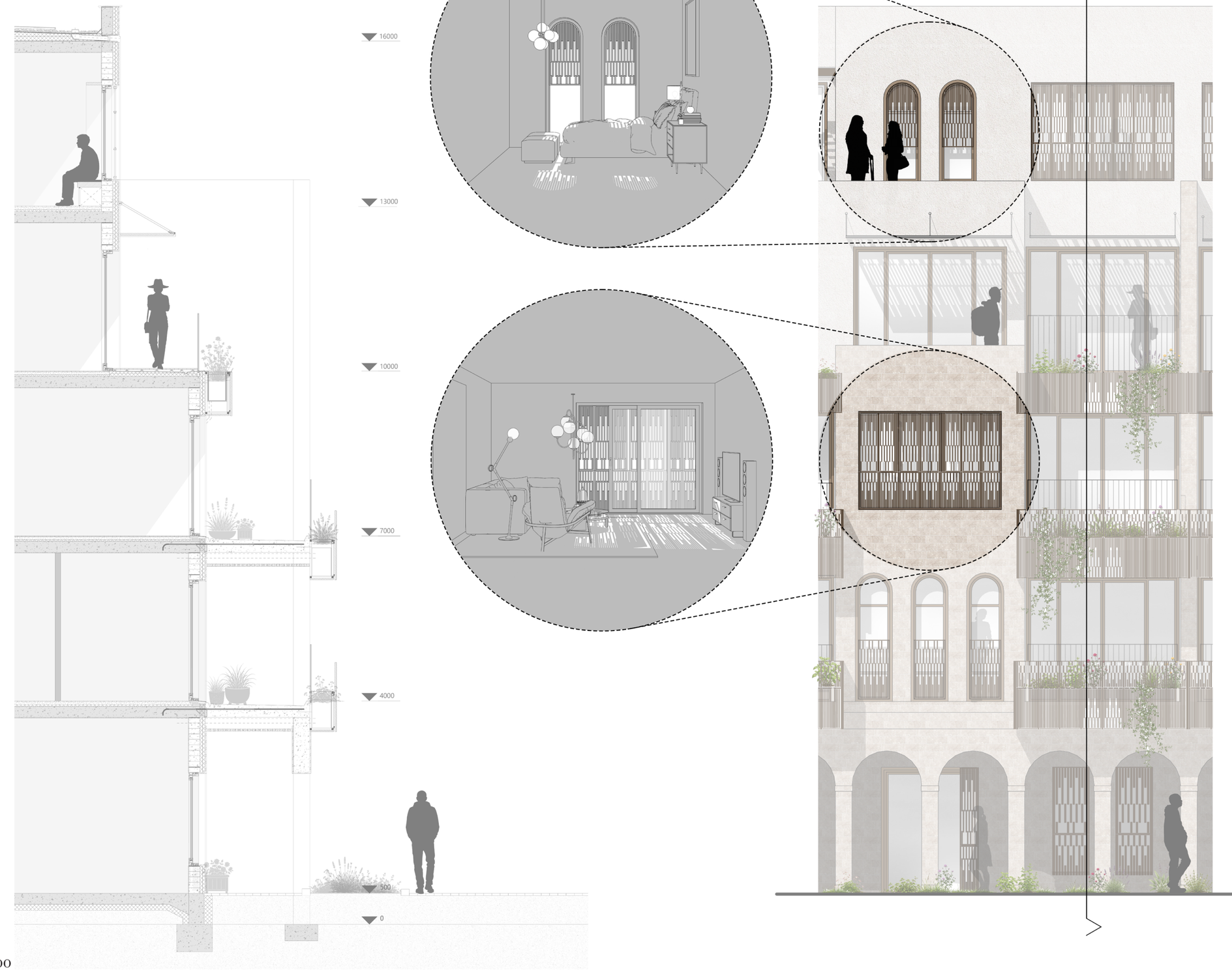


Figure 70, 1:20
facade fragment

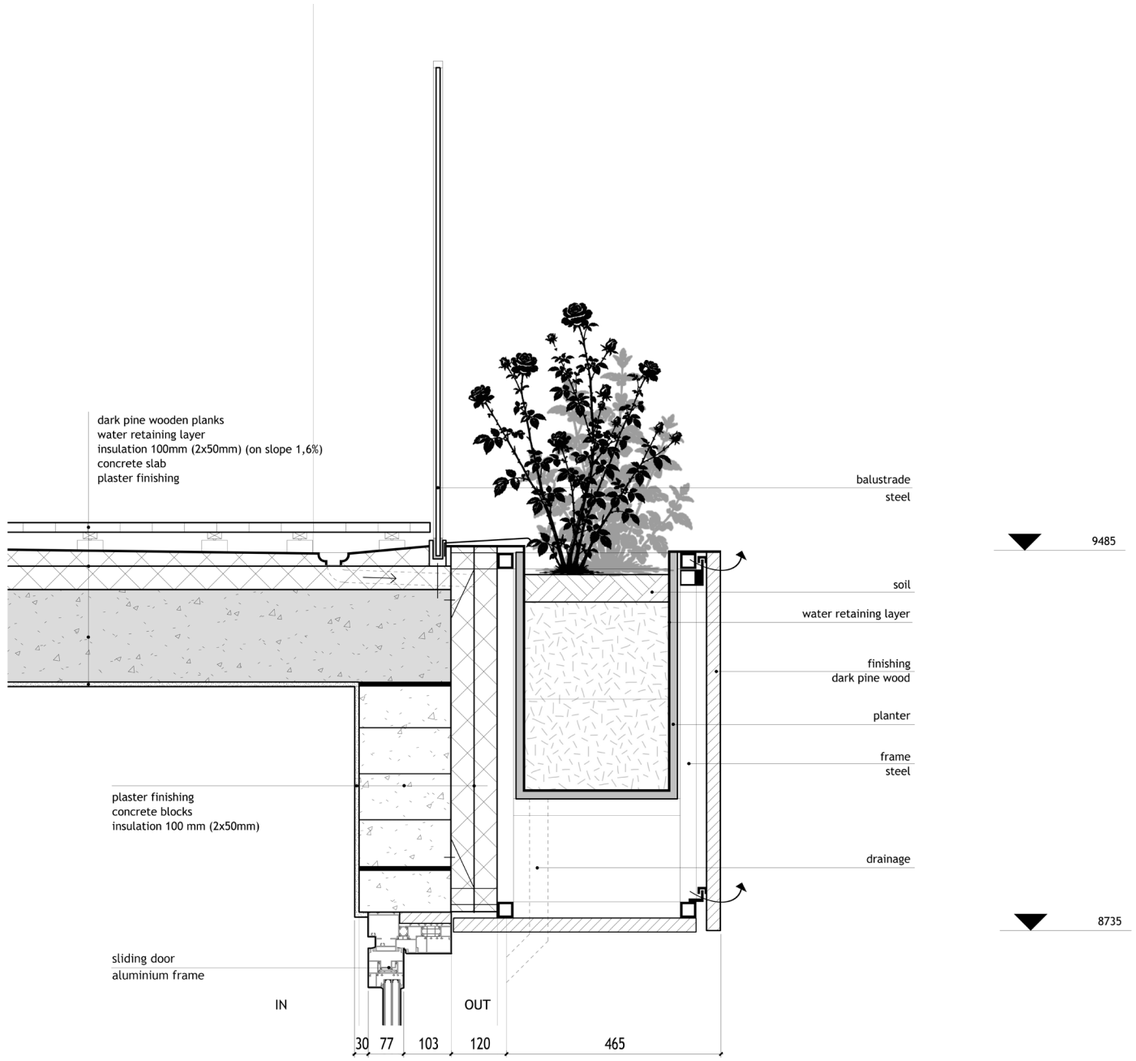


Figure 71, 1:5 detail ornament

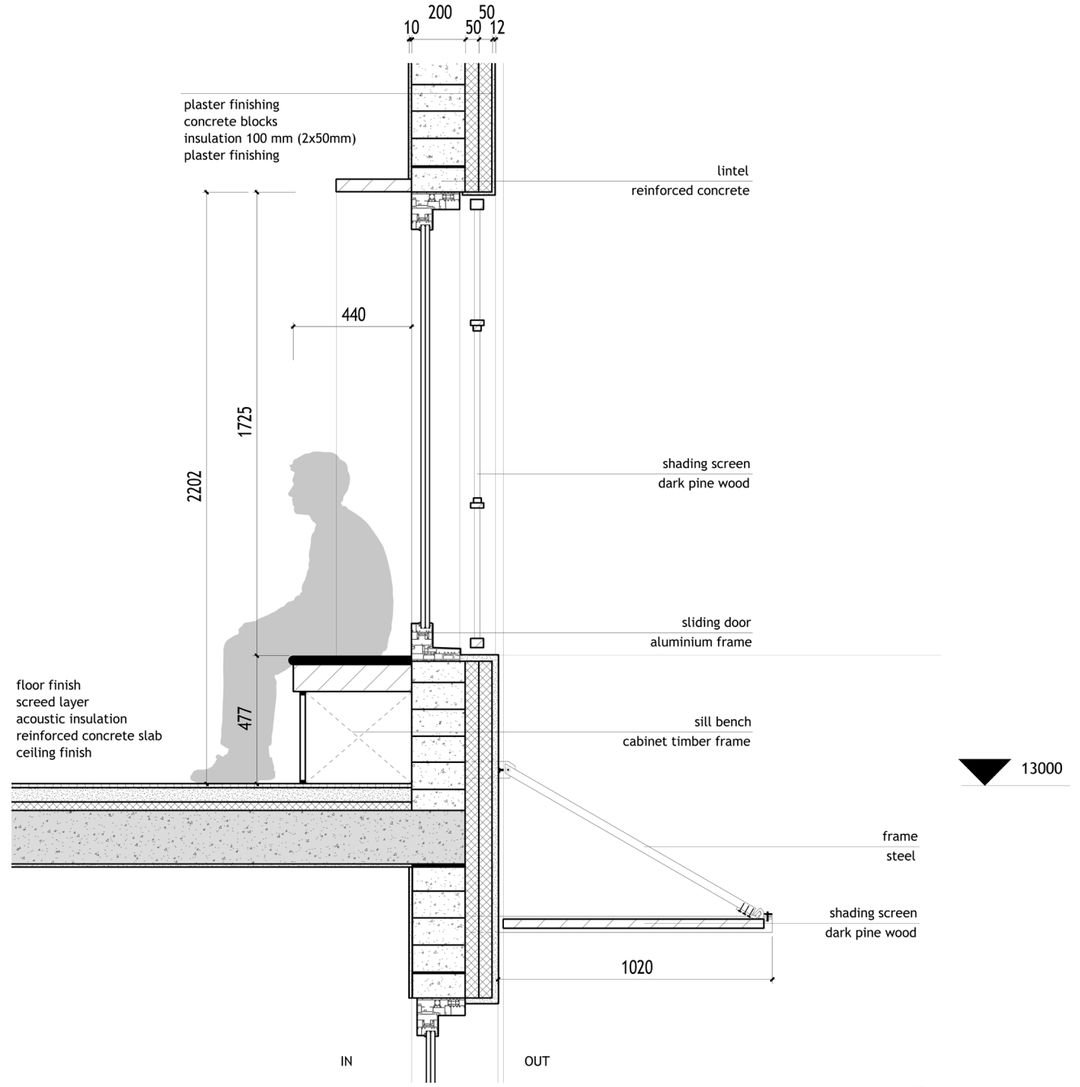


Figure 72, 1:10 detail modern mashrabiya

IX. Atmospheric view
These atmospheric views illustrate the everyday life envisioned within the neighbourhood. Surrounded by human-scaled architecture, greenery, and layered façades, the design functions as a collective living space where residents can meet, relax, play, and interact. The images highlight the balance between privacy and community through the use of balconies, ornamentation, vegetation, and gradual transitions between public and private space. Together, these elements create a comfortable and socially vibrant environment that reflects the project's ambition to create a sense of belonging, wellbeing, and collective life within the reconstruction of Homs.



Figure 73, Atmosphere: courtyard (enhanced with AI)



Figure 74, Atmosphere: street to barrier building (enhanced with AI)



Figure 75, Atmosphere: balcony to courtyard (enhanced with AI)



Figure 76, Atmosphere: iwan to courtyard (enhanced with AI)

X. Scale model
1:1000 urban proposal (courtyard city model).
The 1:1000 urban site model illustrates the project's overall urban strategy and its integration within the new fabric. At this scale, the hierarchy of courtyards, pedestrian routes, public spaces, and barrier buildings becomes visible, demonstrating how the proposal reorganises the urban density into a more walkable, human-scaled, and climatically responsive neighbourhood. The model highlights the relationship between public and semi-public spaces, the separation of vehicular and pedestrian movement, and the role of the courtyard system as the primary organising element of the urban morphology.

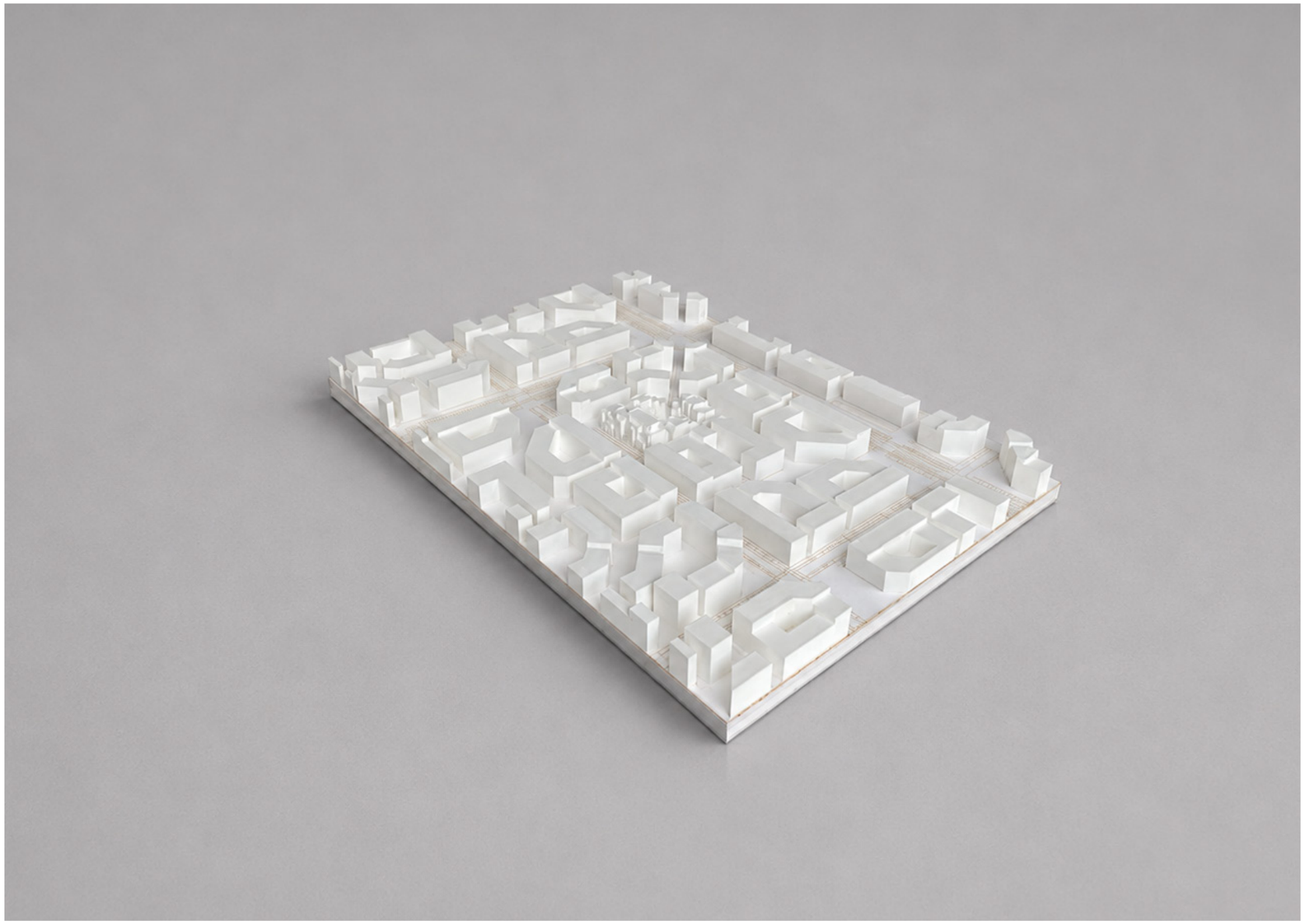


Figure 77, 1:1000 urban scale model

1:33 module.
The 1:33 model explores the architectural experience of a single residential module at a human scale (figure 78). It demonstrates how the modular design system translates into spatial quality through the interplay of structure, façade articulation, ornamentation, and materiality. The model highlights the composition of materials, the depth of the façade, and the relationship between interior and exterior space, allowing the tactile and atmospheric qualities of the architecture to be studied beyond drawings alone. Through this detailed representation, the model illustrates how a standardised reconstruction system can still create identity, richness, and a strong sense of place.



Figure 78, module scale model

PART SIX: CONCLUSION & DISCUSSION

This project investigated how affective appraisal and a sense of belonging can contribute to post-conflict reconstruction through architecture and urban design. The research demonstrated that reconstruction should not focus solely on housing provision, infrastructure, and efficiency, but must also consider the emotional, social, and cultural relationship between people and their environment.

The final design translates these findings into a contemporary courtyard housing proposal for Homs, Syria. Through walkable urbanism, human-scaled public spaces, culturally grounded architectural expression, ornamentation, and climate-responsive design, the project creates an environment that supports both physical and emotional wellbeing. Inspired by traditional Syrian living patterns and informed by theories on perception, belonging, and healthy cities, the proposal seeks to rebuild not only the physical city but also the relationship between people and place.

The project demonstrates that efficiency, scalability, and prefabrication do not have to come at the expense of architectural quality or cultural identity. By combining modular construction with spatial richness, climate adaptation, and opportunities for personalisation, the proposal offers an alternative reconstruction model in which beauty, belonging, and human experience remain central. In this way, the project argues that successful reconstruction should be measured not only by what is rebuilt, but also by how people feel living within it.

REFERENCES

Aldaher, S. A. (2021). An Attempt to Set a Design Base for Post-Conflict Housing in the Historic Core of Homs, Syria. In Malmo University. https://www.diva-portal.org/smash/get/diva2:1573169/FULLTEXT02.pdf

Allen, K, Margaret L. Kern, Christopher S. Rozek, Dennis M.
McInerney & George M. Slavich (2021) Belonging: a review of conceptual issues, an integrative framework, and directions for future research, Australian Journal of Psychology, 73:1, 87-102, DOI: 10.1080/00049530.2021.1883409

Altman, I., & Low, S. M. (1992). Place Attachment. New York and London Plenum Press. - References - Scientific Research Publishing. (n.d.). https://www.scirp.org/reference/referencespapers?referenceid=2527830

Avcı, M. (2023). Belongingness, Social Connectedness, and Life Satisfaction in College Students after COVID-19 Pandemic. Journal of Happiness and Health, 3(2), 23–36. https://doi.org/10.47602/johah.v3i2.43

Avrami, Erica C., Randall Mason, and Marta De la Torre. 2000. Values and Heritage Conservation: Research Report. Los Angeles, CA: Getty Conservation Institute. http://hdl.handle.net/10020/gci_pubs/values_heritage_research_report

Bassily, V., Abufarag, T., & Goubran, S. (2022). Heritage Buildings' Façades as Facilitators for Local Sustainable Development: The Case of Cairo's El Korba Area. Heritage, 5(3), 2689–2731. https://doi.org/10.3390/heritage5030141

Baumeister RF, Leary MR. The need to belong: desire for interpersonal attachments as a fundamental human motivation. Psychol Bull. 1995 May;117(3):497-529. PMID: 7777651.

Berlyne, D. E. (1971). Aesthetics and Psychobiology. Appleton-Century-Crofts.

Betancourt, A. A. R. (2023). The Aesthetics of the Contemporary Urban Landscape and its Implications for Well-Being. Proceedings of the International Conference of Contemporary Affairs in Architecture and Urbanism-ICCAUA, 6(1), 437–455. https://doi.org/10.38027/iccaua2023en0157

Brand, S. (1994). How buildings learn: What happens after they're built. Penguin

Brilliantmaps (2024, 16 oktober). Brilliant population density maps of over 100 countries. Brilliant Maps. https://brilliantmaps.com/population-density-maps/

Carruthers,C.P. and Hood, C.D. (2004) The Power of the Positive: Leisure and WellBeing, Therapeutic Recreation Journal, 38(2): 225-246.

Chris. (2019, April 18). A Myth of Urban Design: The 'Sense of Enclosure' Theory | Chris Haile. https://www.chrishaile.com/a-myth-of-urban-design-the-sense-of-enclosure-theory/

Dalton, R. C., Burgess, D., Mavros, P., Hölscher, C., Gregorians, L., Pozza, E., Nicholls, C. M., Edwards, J., Burslam, R., Duthie, R., Rayner, A., & Heatherwick, T. (2025). Building appearance and wellbeing: how architectural design affects public emotion. Architectural Science Review, 1–20. https://doi.org/10.1080/00038628.2025.2558092

Dhanabhakyam, M., & Sarath, M. (2023). Psychological Wellbeing: Asystematic Literature Review. International Journal of Advanced Research in Science Communication and Technology, 603–607. https://doi.org/10.48175/ijarsct-8345

Donnal. (n.d.). Proportion and Scale | Donnally Architects, LLC. https://donnallyarchitects.com/proportion-and-scale/

Elise, V. D. (2020). Anchoring the design process. DOAJ (DOAJ: Directory Of Open Access Journals), 17, 176. https://doi.org/10.7480/abe.2020.17.5351

Ellsworth, Phoebe C., co-author. "Appraisal Processes in Emotion." K. R. Scherer, co-author. In Handbook of Affective Sciences, edited by R. J. Davidson et al, 572-95. Oxford: Oxford Univ. Press, 2003.

Formiga, B., Rebelo, F., Pinto, J. C., & Gomes, E. (2022). How architectural forms can influence emotional reactions: an exploratory study. In Lecture notes in computer science (pp. 37–55). https://doi.org/10.1007/978-3-031-05900-1_3

Frampton, Kenneth. "Towards a Critical Regionalism: Six Points for an Architecture of Resistance." The Anti-Aesthetic: Essays on Postmodern Culture, edited by Hal Foster, Bay Press, 1983

François, D., & Salingaros, N. (2021). Building with Biophilia: An Interview with Nikos Salingaros. Architecture's New Scientific Foundations. https://patterns.architexturez.net/doc/az-cf-219676

Frankwang. (2025, June 12). Perforated metal panels for architectural facades. ExMetals – Custom Metal Fabrication Services. https://exmetals.com/perforated-metal-panels-for-architectural-facades

Gehl, J. (1980). Life between buildings: Using public space. http://bvbr.bib-bvb.de:8991/F?func=service&doc_library=BVB01&local_base=BVB01&doc_number=022616273&sequence=000001&line_number=0001&func_code=DB_RECORDS&service_type=MEDIA

Glaveanu, V. (2014). The function of ornaments: A cultural psychological exploration. Culture & Psychology, 20(1), 82–101. https://doi.org/10.1177/1354067x13515937

Graham, B., Ashworth, G., & Tunbridge, J. (2000). A geography of heritage : power, culture, and economy. https://doi.org/10.4324/9781315824895

Graphic concrete. (2020, April 28). PROCESS & PRODUCTION. https://www.graphicconcrete.com/product/process-production

Hagerty B.M., Lynch-Sauer J, Patusky K.L, Bouwsema M., Collier P. Sense of belonging: a vital mental health concept. Arch Psychiatr Nurs. 1992 Jun;6(3):172-7. doi: 10.1016/0883-9417(92)90028-h. PMID: 1622293.

Hagerty, B. M., Williams, R. A., Coyne, J. C., & Early, M. R. (1996). Sense of belonging and indicators of social and psychological functioning. Archives of Psychiatric Nursing, 10(4), 235–244. https://doi.org/10.1016/s0883-9417(96)80029-x

Hameed, Umer. (2024). Roman Art and Architecture (Reading Material). 10.13140/RG.2.2.26665.61284.

Hamidé, Abdul-Rahman, Salibi, Suleiman, K., Smith, Gordon, C., Irvine, Elizabeth, V., Hourani, Habib, A., Commins, Dean, D., Scullard, Hayes, H., Ochsenwald, L, W., Polk, Roe, W., Gadd, & John, C. (2025, December 10). Syria | MAP, Civil war, rebels, religion, & History. Encyclopedia Britannica. https://www.britannica.com/place/Syria/Daily-life-and-social-customs

INAB. (2025, September 6). Installation of GFRC Facades: The Dry System Method - grc-inab. Grc-inab. https://grc-inab.com/installation-of-gfrc/

INAB. (2025, September 6). what is GFRC - GRC? introduction to Glass Fiber Reinforced Concrete - grc-inab. Grc-inab. https://grc-inab.com/gfrc-intro/

Hopkins, J. N. (2016, February 9). The genesis of Roman architecture. De Gruyter Brill. https://www.degruyterbrill.com/document/doi/10.12987/9780300214369/html

Kaplan, R., & Kaplan, S. (1989). The Experience of Nature A Psychological Perspective. New York Cambridge University Press. - References - Scientific Research Publishing. (n.d.). https://www.scirp.org/reference/referencespapers?referenceid=1536526

Keçeci, K., & Keçeci, K. (2025, June 30). Post-War reconstruction. Dök Mimarlık. https://dokmimarlik.com/en/post-war-reconstruction

Kesai. (2025, November 7). Perforated metal panel facade - COSUN SIGN. Cosun Sign. https:// en.cosun-

sign.com/product/metal-facade-panels/

Kim, A. & Humanise. (2025). Why the outsides of buildings matter to human health: a global evidence review [Report]. https://strapi-humanise.s3.eu-west-2.amazonaws.com/Global_Evidence_Review_full_e7c5a079e3.pdf

Kolesovs, A. (2021). The sense of belonging to the country: integrative relationships and spatiotemporal commitment. Frontiers in Psychology, 12, 635113. https://doi.org/10.3389/fpsyg.2021.635113

Lev-Wiesel, R., Malayev, T., Mendel, N., Zohar, L. B., Wiselman, L., Zimmerman, R., Jaroenkajornkij, N., & Girish, M. (2025). The impact of war-induced relocation on sense of place: Examining its moderating role between event severity and psychological symptomatology. Journal of Environmental Psychology, 107, 102741. https://doi.org/10.1016/j.jenvp.2025.102741

Louro, Pedro & Redinho, Hugo & Malheiro, Ricardo & Paiva, Rui Pedro & Panda, Renato. (2024). A Comparison Study of Deep Learning Methodologies for Music Emotion Recognition. Sensors. 24. 2201. 10.3390/s24072201.

Malewczyk, M., Taraszkiewicz, A., & Czyż, P. (2022). Preferences of the facade composition in the context of its regularity and irregularity. Buildings, 12(2), 169. https://doi.org/10.3390/buildings12020169

Mansour, H. (2015). The lost identity of the city: The case of Damascus. ResearchGate. https://www.researchgate.net/publication/286252741_The_lost_identity_of_the_city_The_case_of_Damascus

Meddahi, K., & Boussora, K. (2021). Aesthetic measures of Algiers' colonial facades. Nexus Network Journal, 23(3), 667–688. https://doi.org/10.1007/s00004-021-00546-z

Miller, C., & Salingaros, N. (2021) Building Beauty: Interview with Nikos Salingaros. New English Review. https://www.newenglishreview.org/articles/building-beauty-interview-with-nikos-salingaros/

Miller, K. E., & Rasmussen, A. (2024). War exposure, daily stressors, and mental health 15 years on: implications of an ecological framework for addressing the mental health of conflict-affected populations. Epidemiology and Psychiatric Sciences, 33, e78. https://doi.org/10.1017/s2045796024000830

Monumental Labs. (n.d.). Monumental Labs. https://www.monumentallabs.co/

Murteza, N. D. (2021). Perceived wellbeing effects of designer fractal patterns: visual complexity and interior spaces. Indiana. https://www.academia.edu/63915129/Perceived_Wellbeing_Effects_of_Designer_Fractal_Patterns_Visual_Complexity_and_Interior_Spaces

Nextera. (2025, October 4). Nextera Insulation LLC. https://nexterainsulations.com/products_list/ architectural-facade-system/

Norberg-Schulz, C. (1971). Existence, space and architecture. London, UK: Studio Vista.

Pardede, S., & Kovač, V. B. (2023). Distinguishing the Need to Belong and Sense of Belongingness: The Relation between Need to Belong and Personal Appraisals under Two Different Belongingness–Conditions. European Journal of Investigation in Health Psychology and Education, 13(2), 331–344. https://doi.org/10.3390/ejihpe13020025

Pioneerfiber. (2026, January 15). Why GFRC is Gaining Popularity in Prefabrication. www.pioneerfibre.com. https://www.pioneerfibre.com/post/why-gfrc-is-gaining-popularity-in-prefabrication

Proshansky, H. M., Fabian, A. K., & Kaminoff, R. (1983). Place-identity: Physical world socialization of the self. Journal of Environmental Psychology, 3(1), 57–83. https://doi.org/10.1016/s0272-4944(83)80021-8

Raghani et al. City, Territory and Architecture (2025) https://doi.org/10.1186/s40410-025-00292-6

Rieder. (n.d.). Shaped facade panels for innovative facade designs. https://rieder.cc/en/formparts

Ryan, C. (2025, March 4). 14 Patterns of Biophilic Design: Complexity & order. Human Spaces. https://blog.interface.com/complexity-and-order-biophilic-design/

Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological

wellbeing. Journal of Personality and Social Psychology, 57(6), 1069-1081.

Salingaros, N. (2007). A theory of architecture. ResearchGate. https://www.researchgate.net/publication/256059077_A_Theory_of_Architecture

Scherer, K. R. (2001). Appraisal considered as a process of multilevel sequential checking. In Appraisal processes in emotion (pp. 92–120). Oxford University Press.

Schlick, J. (2026, January 18). CNC Machining in Architecture: Uses, benefits, and implementation for architects. TechniWaterjet. https://www.techniwaterjet.com/cnc-machining-architecture/

Smith, C. A., & Lazarus, R. S. (1990). Emotion and adaptation. Contemporary Sociology a Journal of Reviews, 21(4), 522. https://doi.org/10.2307/2075902

Sound-rite. (2025, June 13). Glass Fiber reinforced concrete: Pros and cons for commercial use — SOUND-RITE INC. https://www.sound-rite.com/blog/glass-fiber-reinforced-concrete-pros-and-cons

Sukkar, A. S., Abou Zainedin, S. A. Z., & Fakhani, H. F. (2021). INFORMAL SETTLEMENTS IN SYRIA: WHAT APPROACH AFTER THE CONFLICT? In Arab Reform Initiative. Arab Reform Initiative. https://s3.eu-central-1.amazonaws.com/storage.arab-reform.net/ari/2021/10/27110940/EN-ARI_ResearchPaper_SYRIA.pdf

Syria population (2025) - Worldometer. (z.d.). Worldometer. https://www.worldometers.info/world-population/syria-population/

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin, & S. Worchel (Eds.), The social psychology of intergroup relations (pp. 33-37). Monterey, CA: Brooks/Cole.

Teghe, Daniel & Rendell, Kathryn. (2005). Social wellbeing: a literature review. 10.13140/RG.2.2.28891.26406.

Thamotharampillai, U., Perera, R., Wickremasinghe, R., Williams, S., Vijayasangar, T., Sivatharsan, B., Hilbert, V., & Somasundaram, D. (2025). Collective Trauma- Psychosocial consequences of war in northern Sri Lanka 10 years on, a mixed methods study. SSM - Mental Health, 8, 100457. https://doi.org/10.1016/j.ssmmh.2025.100457

TRIALOG 148/149 – Post-war Cities: Planning Recovery and Reconstruction – Trialog Journal. (n.d.). Trialog Journal. https://www.trialog-journal.de/en/journals/trialog-148-149-post-war-cities-planning-recovery-and-reconstruction/

Valentine, C. (2024). The impact of architectural form on physiological stress: a systematic review. Frontiers in Computer Science, 5. https://doi.org/10.3389/fcomp.2023.1237531

Wang, C., Ding, H., & Gath-Morad, M. (2025, September 26). A Systematic Review: Affective Perception on Urban Facades. arXiv.org. https://arxiv.org/abs/2509.22599

World Health Organization. (2021). Mental Health. Retrieved from https://www.who.int/healthtopics/mental-health/#tab=tab_1

Yoltar-Yıldırım, A. (2009). Ottoman decorative arts. Republic of Turkey, Ministry of Culture and Tourism. https://teda.ktb.gov.tr/

Zanon Prefabbricati. (n.d.). https://zanonprefabbricati.com/en/products/panels

Zhao, R., Guo, W., Wei, F., Luo, Y., & Liu, C. (2023). Improving the environmental health benefits of modern community public spaces: taking the renovation of residential facades as an example. Systems, 11(8), 388. https://doi.org/10.3390/systems11080388

APPENDIX

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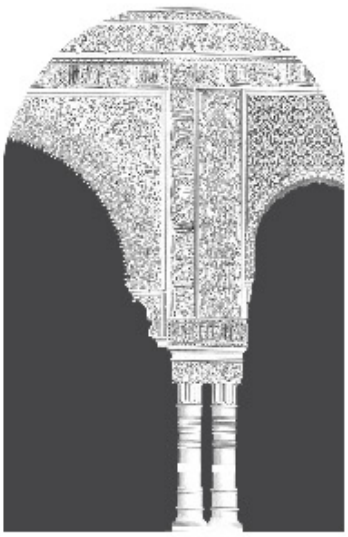
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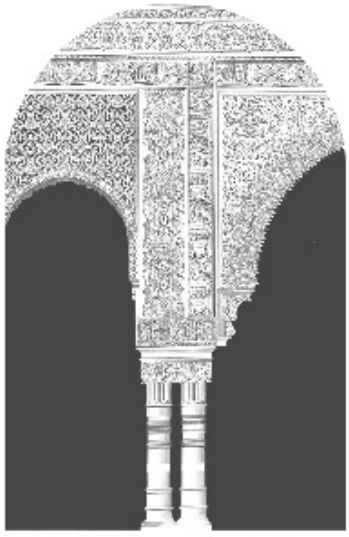
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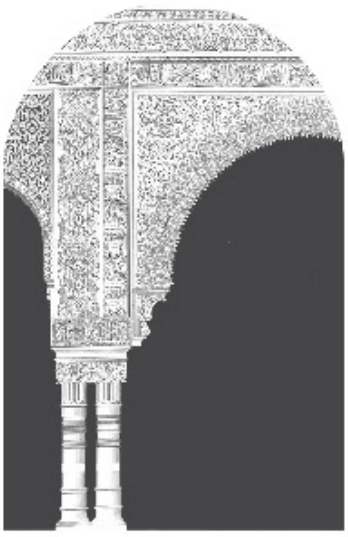
Ornament as the new generic

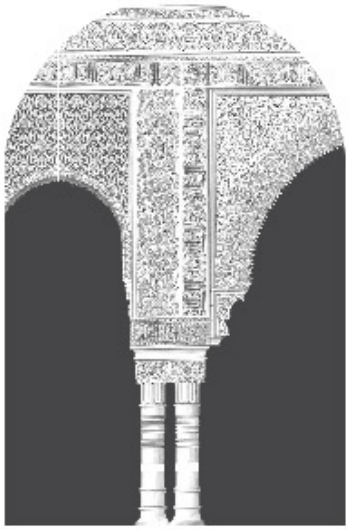
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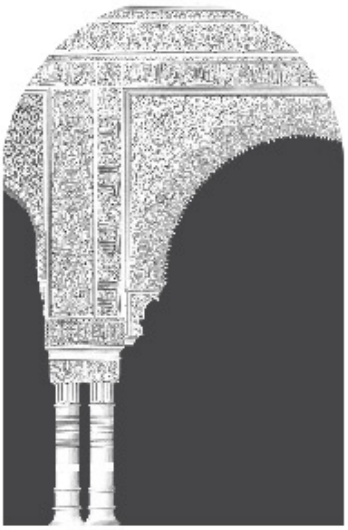


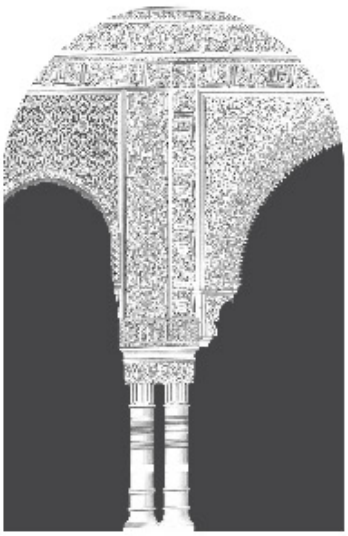


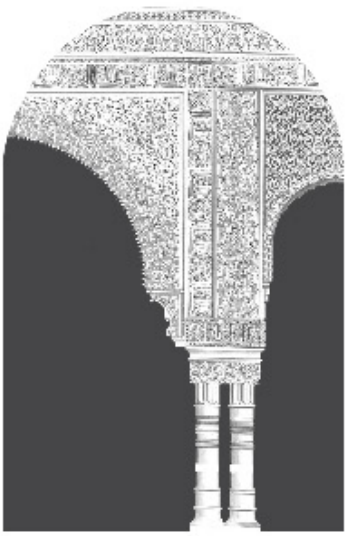




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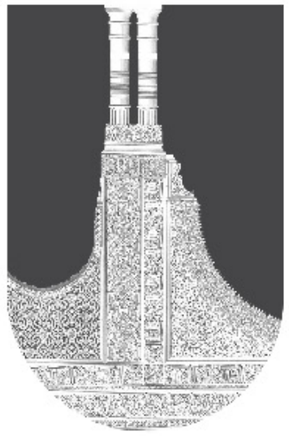
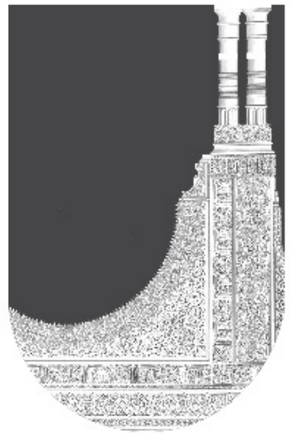
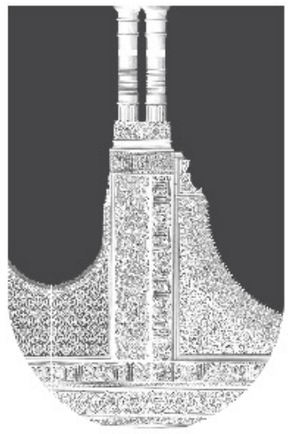
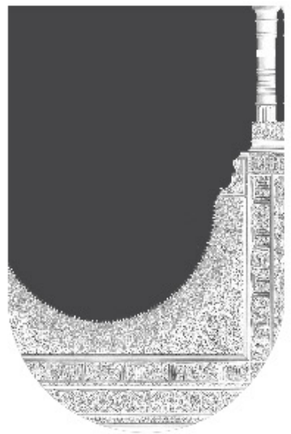
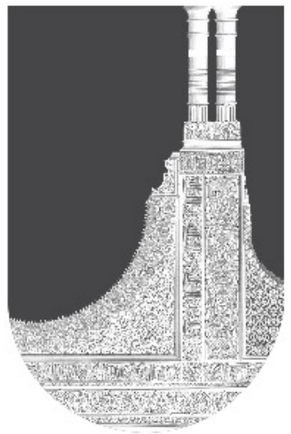
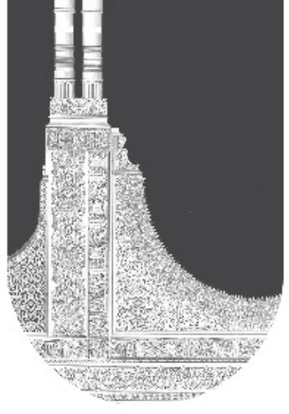
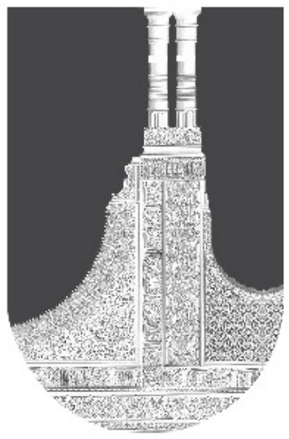
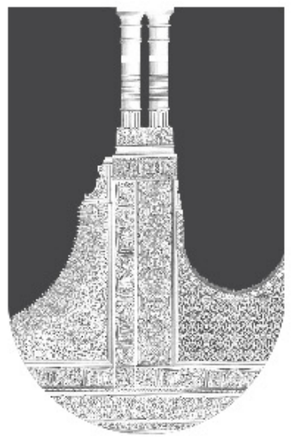
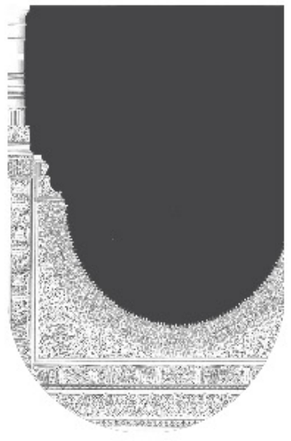
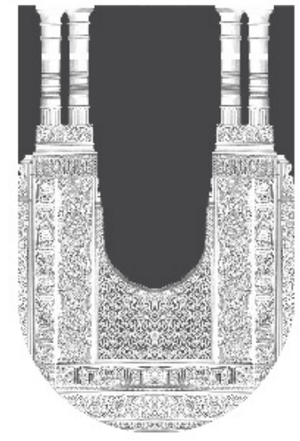






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Joost Woertman
Atze Boerstra

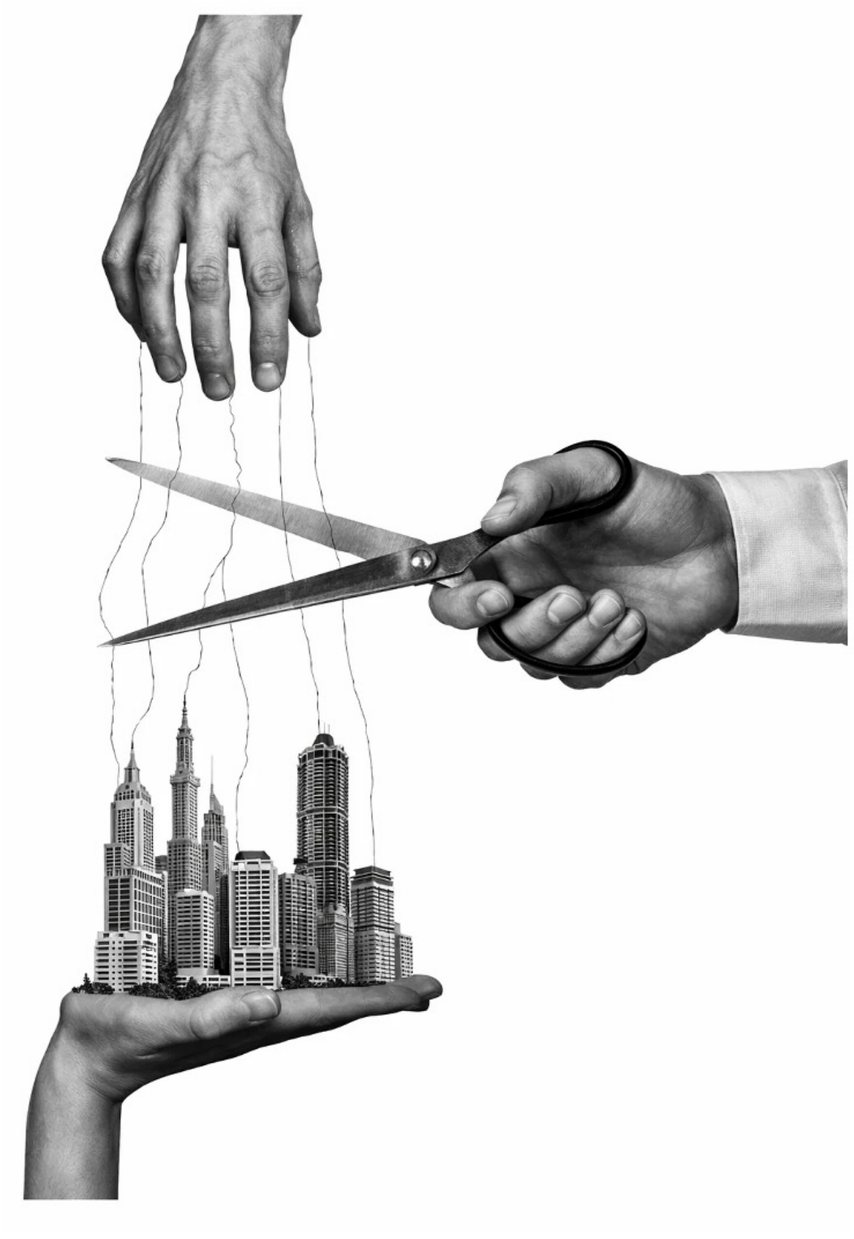


Figure unnumbered, Top-down...? NO, BOTTOM-UP! (own illustration)

ABSTRACT

Post-conflict reconstruction often prioritizes speed, cost efficiency, and large-scale delivery, which can result in generic architecture that overlooks emotional experience and cultural continuity. In Syrian cities affected by conflict, the built environment plays an important role in shaping how people feel, reconnect, and rebuild a sense of belonging. This research investigates how façade ornamentation and materiality influence affective appraisal and sense of belonging in post-conflict public space, and how it could be implemented in a fast and cost-efficient way by looking into prefabrication methods, with a specific focus on the Syrian architectural context. Drawing on environmental psychology, architectural theory and post-conflict reconstruction literature, the study examines how façade qualities such as human scale, visual complexity, rhythm, materiality, and ornamentation shape immediate emotional responses when a facade is encounterend and how those feelings accumulate over time to create a sense of belonging. Through analysis of historical and vernacular Syrian architecture, the research identifies local façade features that support positive affective appraisal and a sense of belonging. The research further explores how these qualities can be integrated into prefabricated façade systems used in post-conflict reconstruction. It demonstrates that prefabrication does not inherently conflict with cultural expression, but can support emotionally and culturally meaningful environments when ornamentation, texture, and material legibility are embedded early in the design process. By aligning efficiency with affective and cultural considerations, the research proposes a framework for reconstruction that supports both practical needs and long-term emotional recovery.



Figure unnumbered, Ornament as a sense of safety and security (own illustration)

Ornament is a valuable component in any architecture of buildings and cities that aims to connect to human beings. The suppression of ornament, on the other hand, results in alien forms that generate physiological and psychological distress. Early twentieth-century architects proposed major stylistic changes – now universally adopted – without having a full understanding of how the human eye/brain system works.

- Nikos Salingaros, 2007
A theory of architecture

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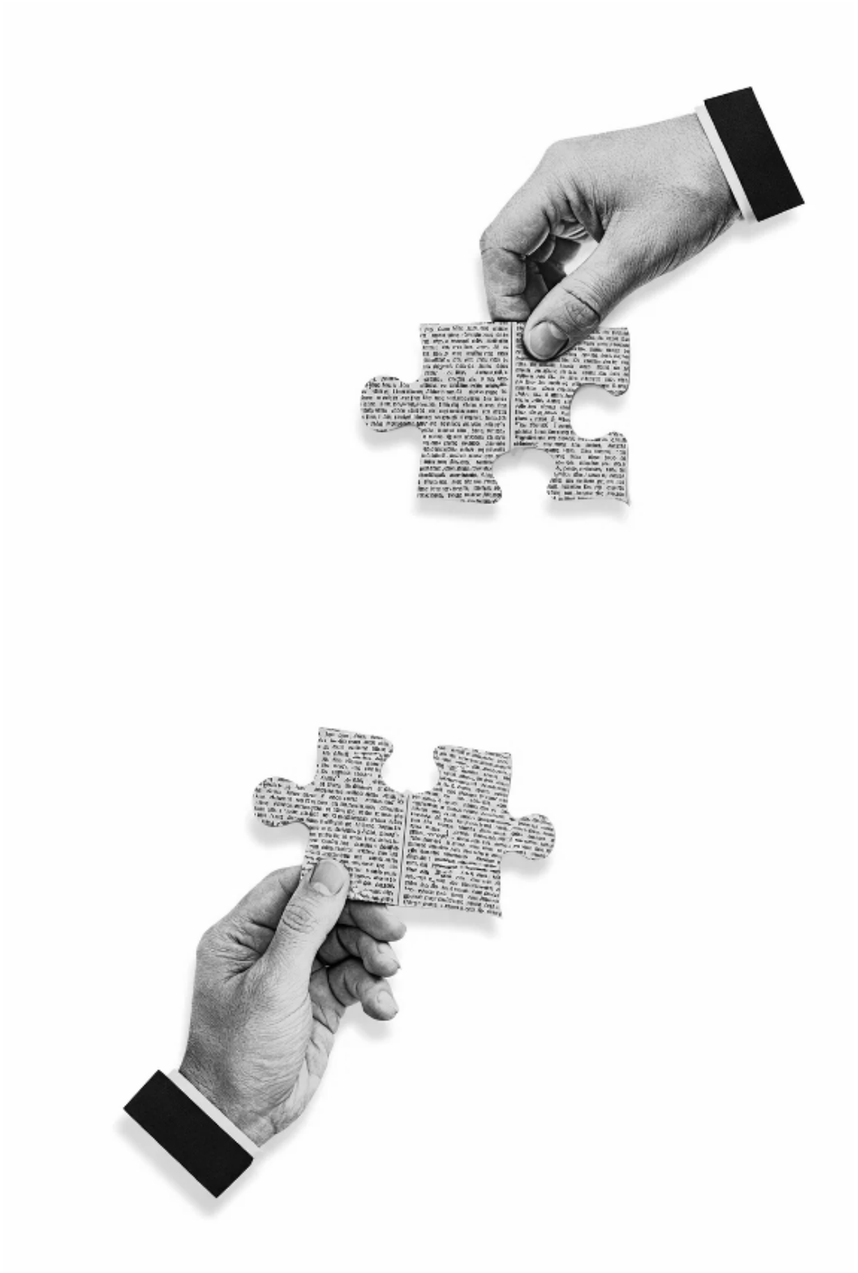


Figure unnumbered, Systemetic review of sources

PART ONE: INTRODUCTION



Figure 1, Seperation of loved-ones.

I. Prologue:
Psychological recovery and social reconnection.
Architecture shapes human experience not only through function and movement, but also through emotion, perception, and memory (Norberg-Schulz, 1971). From early on, my interest in architecture has been closely linked to psychological experience and to the ways in which material, form, and visual expression influence wellbeing in everyday life.

Throughout my master's studies, this interest became increasingly situated within contexts shaped by economic pressure, limited resources, and political instability. Working within such environments revealed how architectural decisions extend far beyond aesthetics, becoming intertwined with identity, resilience, and social cohesion, where even small design choices can shape how people relate to their surroundings.

These experiences led me to reflect on architecture's role in contexts of trauma and recovery, and in particular on façades as elements encountered repeatedly and often unconsciously. As interfaces between private and public space, façades influence how environments are perceived, remembered, and emotionally inhabited. This thesis emerges from the belief that such everyday encounters matter, especially in places where rebuilding is inseparable from healing.

I approach this research from outside the Syrian context, as a European architecture student working at a distance. I do not claim lived experience of post-conflict environments or speak from within Syrian cultural traditions. My understanding of Syrian cities and architecture is shaped by academic literature, historical sources, and the perspectives of Syrian architects, scholars, and displaced individuals. Because of this position, my interpretation is necessarily partial and influenced by my own background. By acknowledging these limits, I aim to approach questions of cultural meaning and identity with care, critical awareness, and respect.

II. Problem statement:
The loss of socio-psychological cohesion.
This graduation project is situated within the design assignment of rebuilding in extreme environments, with the post-conflict city of Homs serving as the primary case. Following extensive physical destruction and prolonged displacement, Homs faces the challenge of large-scale urban reconstruction under conditions of urgency, limited resources, and deep social fragmentation (figure 1). When confronted with such an assignment, a fundamental question arises for the architect: "how should the rebuilding of a post-conflict city such as Homs be approached?"

In post-conflict settings, reconstruction efforts are often driven by the immediate need to provide housing and infrastructure at speed. As a result, rebuilding processes tend to prioritise efficiency, standardisation, and economic feasibility, frequently treating architecture as a technical response to material damage. While these priorities are understandable, they risk overlooking the broader role of the built environment in shaping lived experience, social interaction, and the re-establishment of identity in cities emerging from conflict (figure 4).

Within this context, the architectural façade becomes a critical yet contested element. As the most visible interface between private and public space, façades shape the character of streets, influence everyday perception, and contribute to how urban environments are read and remembered (figure 2). Despite this significance, façade design in post-conflict reconstruction is often reduced to a secondary or decorative concern, particularly in high-pressure urban environments where rapid mass construction dominates decision-making.

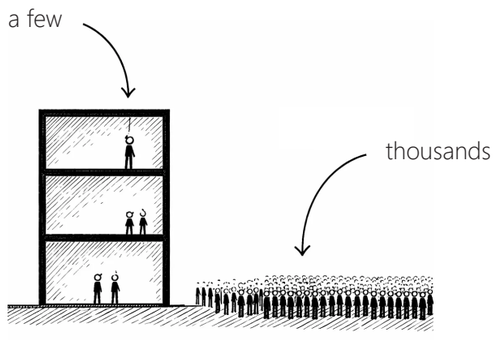


Figure 2, The role of the facade in public space (own illustration).

The problem addressed by this research lies in the tension between the urgency of post-conflict rebuilding and the need for architectural expression that supports human wellbeing and cultural continuity. In cities such as Homs, where ornamentation and material expression have historically played a defining role in urban identity, the loss or simplification of façade design risks producing environments that feel generic, disconnected, or alienating for returning populations.

III. Relevance:
Critical gap in post-conflict reconstruction.
Post-conflict reconstruction confronts architects with challenges that extend beyond technical rebuilding. As noted by Tortorici and Fiorito (2017), post-conflict rebuilding must address not only material damage but also the less visible social and mental dimensions of loss, requiring engagement with ethical responsibility, cultural continuity, and long-term urban resilience. This thesis is relevant to architectural practice as it addresses how design can respond to the social and mental dimensions of rebuilding while operating within the constraints of rapid, large-scale construction. By focusing on façade ornamentation and material expression, the research engages with an architectural scale that significantly shapes urban identity yet is often marginalised in reconstruction processes. The thesis contributes to professional discourse by illustrating how façade design can mediate between contemporary construction practices and culturally embedded architectural languages, encouraging architects to adopt context-sensitive approaches without compromising feasibility.

In post-conflict contexts, the built environment plays a crucial role in recovery, reintegration, and the reconstruction of collective identity. Architectural expression influences how returning populations experience belonging, continuity, and social cohesion within their rebuilt environments. This research is socially relevant in highlighting the importance of culturally grounded façades in everyday urban life, particularly in contexts where rapid reconstruction risks producing anonymous or alienating environments. Beyond Syria, the insights offered by this thesis are applicable to other regions facing post-conflict rebuilding or accelerated urban transformation, contributing to broader discussions on inclusive and culturally responsive urban recovery.

IV. Objectives and motivation:
Rebuilding with a long-term vision.
The primary aim of this thesis is to explore how façade features that support positive affective appraisal and a sense of belonging can be integrated into prefabricated façade systems for post-conflict reconstruction in Syria. It seeks to identify specific façade characteristics that shape how people feel when they encounter a building and how these feelings develop over time, and to explore how these characteristics can be designed and implemented within the practical constraints of large-scale, rapid reconstruction. Ultimately, the thesis proposes an approach for designing meaningful façades that integrate local culture while remaining compatible with the realities of post-conflict mass construction.

This study is motivated by the observation that façades, despite their visibility and cultural significance, are often reduced to generic or purely functional elements in high-pressure reconstruction contexts that prioritise speed, cost-efficiency, and standardisation (Mansour, 2015). Under such conditions, traditional building techniques and cultural embedded ornamentation are often marginalised, leading to a loss of aesthetic richness and historical continuity. In contexts such as Syria, where architectural ornamentation and material expression have long played a central role in social life and spatial identity, the loss of these elements risks further alienation and psychological disconnection for returning populations. Within these conditions, this thesis is driven to explore how façade-level design decisions can move beyond purely aesthetic concerns and act as instruments for healing, identity reconstruction, and social cohesion, fostering environments that support a sense of belonging and shared memory to accelerate the post-war recovery process.

V. Scope:
Positioning and limitations.
This thesis examines how façade ornamentation and materiality can support affective appraisal and a sense of belonging in post-conflict urban environments. While façade design is also related to functional performance, environmental sustainability, and building resilience, these aspects are not the main focus of the research. They are treated as supporting design considerations and are addressed in the later design phase.

The thesis does not present architecture as a way to cure trauma. Instead, it understands architecture as a spatial framework that can support recovery, resilience, and the return of everyday life. This position is based on existing research that links architectural qualities to emotional response and social interaction, while recognising that these effects are indirect and shaped by cultural and social context.

This graduation assignment is situated with in the post-conflict context of Syria, with Homs as the main case for the design investigation. References to other post-conflict environments are included for comparison, but the findings are intended to inform context-sensitive architectural approaches rather than universal solutions. This work is framed as architectural research and does not engage in political analysis or commentary.



Figure 3, Fleeing the Homs (own illustration).

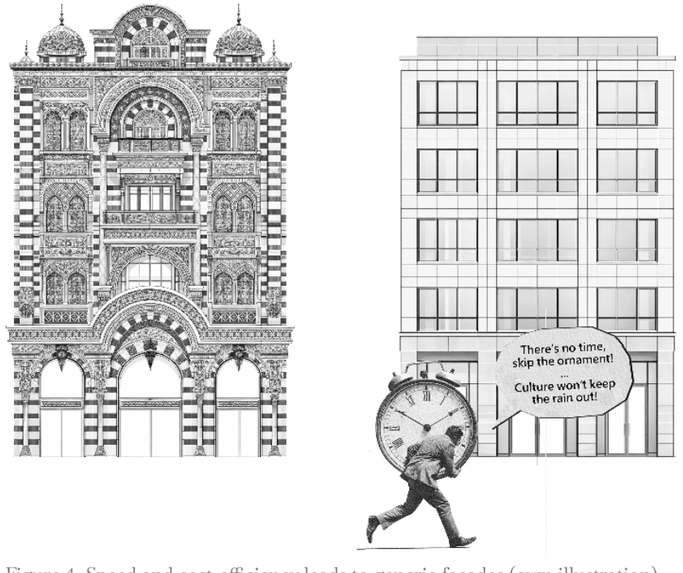


Figure 4, Speed and cost-efficiency leads to generic facades (own illustration).

VI. Research questions:
The recovery of a destroyed historic city.
The urban environment is not experienced as a neutral backdrop, but as a setting that continuously shapes perception, behaviour, and social interaction. As argued by Norberg-Schulz (1971), the physical qualities of the built environment contribute to how individuals orient themselves, feel anchored, and develop a sense of place. This understanding raises two fundamental questions about how everyday architectural elements participate in public life, and how facade design influences the experience of belonging within the city, on both a mental and social scale:

- "How do **façade ornamentation** and **materiality** influence immediate **affective appraisal** in post-conflict environments?"

- "In what ways can **façade ornamentation** and **materiality** contribute to **a sense of belonging** in post-conflict environments over time?"

Following these conceptual questions, the research turns to the specific architectural context in which affective appraisal and sense of belonging take shape. These experiences do not arise in abstract space, but through culturally familiar forms, materials, and façade traditions that people recognize through everyday use and memory. In post-conflict settings, where reconstruction can disrupt these visual and material continuities, understanding the established façade language of Syrian cities such as Homs becomes essential. Identifying characteristic façade features allows the research to assess which architectural qualities may support positive emotional responses and belonging, and which are most at risk of being lost in contemporary reconstruction processes.

- What are typical **façade features** of **Syrian architecture** that could be associated with **positive affective appraisal** and **sense of belonging**?

In post-conflict contexts, reconstruction is shaped by urgency, limited resources, and the necessity of rebuilding at scale. These conditions often prioritise speed, cost efficiency, and standardised construction methods, leaving little room for architectural differentiation or cultural expression. Within this framework, façade ornamentation is frequently perceived as incompatible. This raises a critical question of how culturally meaningful façade design can be reconciled with the practical demands of large-scale post-conflict reconstruction, allowing ornamentation to contribute to identity and continuity without undermining construction efficiency:

- "How can **façade features** identified as supporting **affective appraisal** and **sense of belonging** be integrated into **prefabricated façade systems** for post-conflict reconstruction?"

Taken together, these considerations lead to the central inquiry of this thesis:

"How do **façade ornamentation** and **materiality** shape **affective appraisal** and **sense of belonging** in post-conflict Syria, and how can these qualities be integrated within **prefabrication facade systems**?"

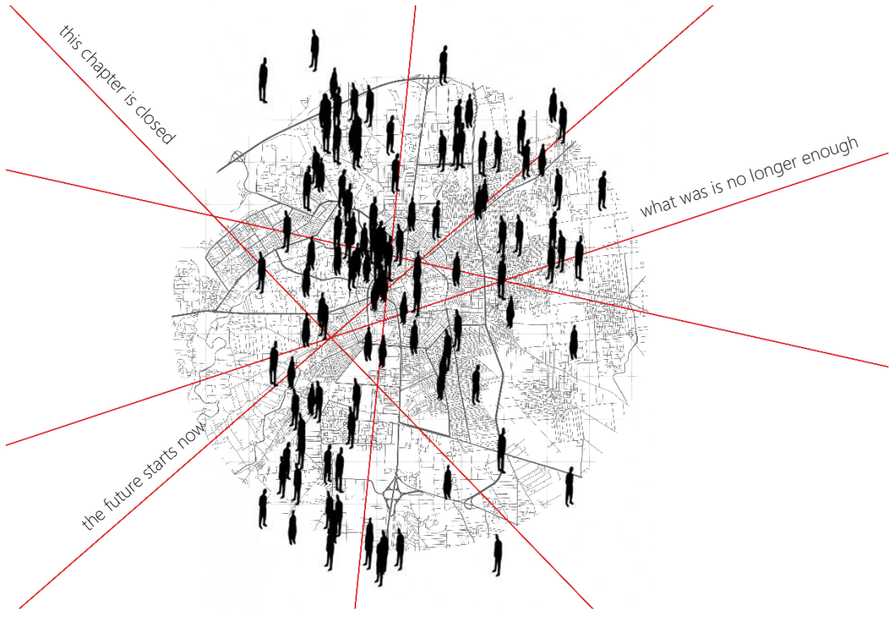


Figure 5, Homs connecting thread



Figure 6, Repairing the loss and displacement as precise as possible (takes time).

PART TWO: METHODS

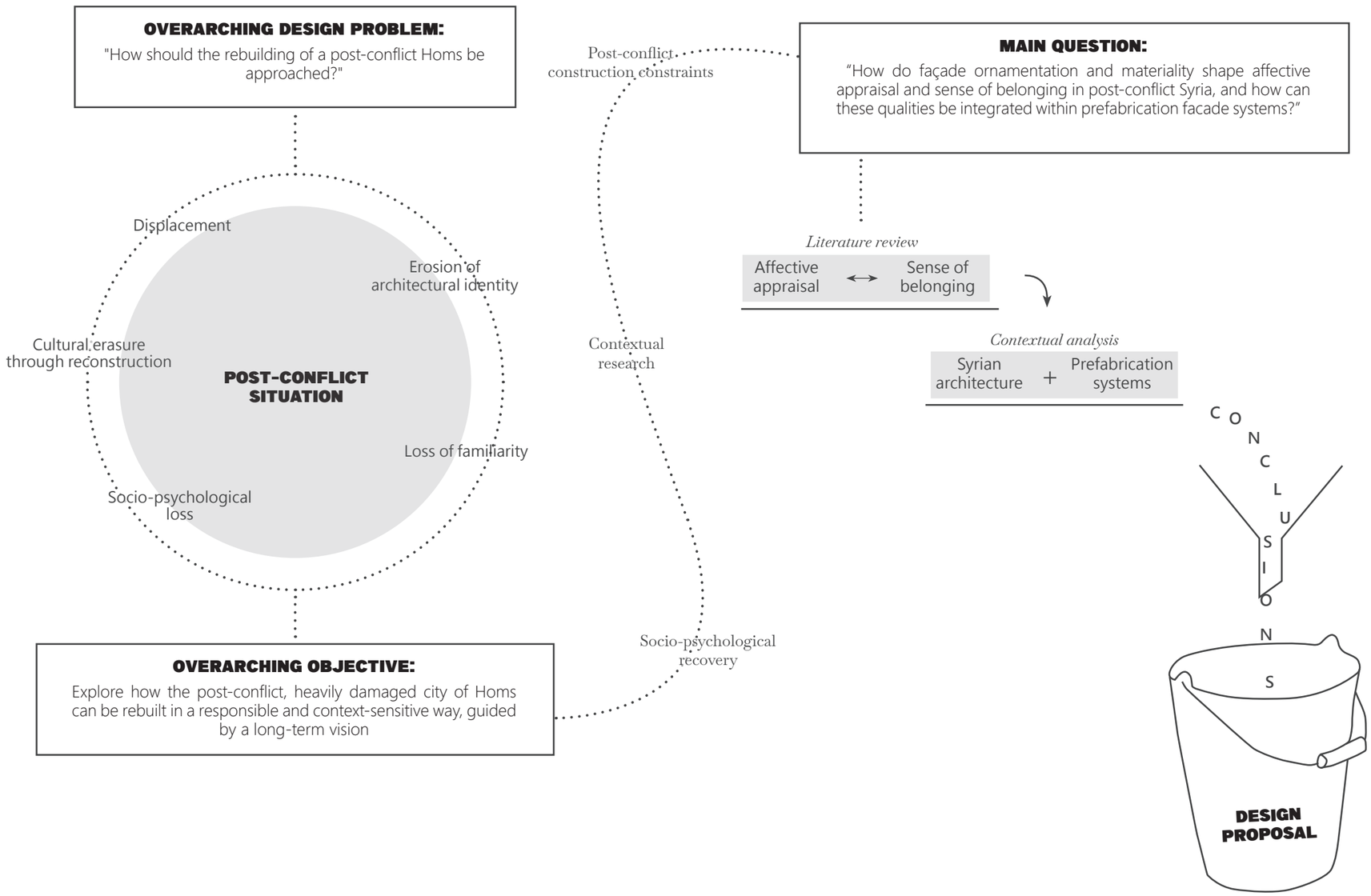
This research uses a qualitative approach that combines theory with architectural analysis to explore how façade ornamentation and materiality can support emotional response and a sense of belonging in post-conflict environments. The study is based mainly on a structured literature review and a comparative analysis of architectural façades, supported by historical and visual sources.

The literature review brings together insights from environmental psychology, architectural theory, heritage studies, and post-conflict reconstruction research. Peer-reviewed articles, academic books, and key architectural texts are used to define core concepts and to understand how architectural features influence emotional experience and social connection. This theoretical framework helps identify which façade qualities are relevant for the analysis.

Alongside this, a focused study of ornamentation and façade design is carried out to examine how architectural elements convey meaning rather than functioning as decoration alone. The analysis looks at historical Syrian buildings from different periods, paying attention to materials, textures, proportions, rhythms, and levels of detail. Buildings are selected based on their cultural importance and their role in everyday urban life, allowing comparisons across different building types.

Because direct site access is limited, visual materials such as archival photographs, drawings, heritage records, and recent images are used to support the façade analysis. These sources are combined with historical studies of Syrian and Levantine architecture to ensure that observations are culturally and historically grounded.

Instead of using quantative data, the research relies on interpretive analysis. Recurring architectural features are identified and related to emotional and social indicators taken from the theoretical framework. These findings then inform the design phase, where different prefabrication strategies are explored to assess how culturally meaningful façade characteristics can be translated into practical solutions for post-conflict reconstruction.



I. Define key terms

Understanding conditions.
This research engages with a set of interrelated architectural, emotional and social concepts that together frame how façade design can influence wellbeing and identity in post-conflict urban environments. These terms carry specific historical and theoretical meanings and are used throughout the thesis to structure analysis, interpret case studies, and guide design thinking. Clarifying them at the outset is essential to ensure conceptual coherence and methodological precision.

As **ornamentation** forms a central subject of this research, it is essential to clarify how the term is understood. Ornamentation is approached here not as just decoration, but as a meaningful and enduring part of human cultural expression. Glăvean (2014) describes ornament as a patterned practice through which meaning, identity, and experience are communicated, rather than as surface decoration. Ornaments appear across societies and historical periods, serving aesthetic, social, and practical purposes at the same time. It helps people recognise places, organise space, and remember shared ideas and values. Through repetition and familiar patterns, ornament guides attention and shapes how environments are perceived and experienced. From this perspective, ornament functions as a mediator between the individual and their cultural environment, embedding shared symbols, values, and narratives into everyday life. To translate this to architecture, ornamentation helps people understand how buildings are organized and what they are used for. Rather than being separate from the building itself, façade ornamentation works together with form to show importance, function, and cultural meaning within the city.

However, this understanding of ornament was challenged during the modernist movement of the twentieth century, when ornament was deliberately rejected in favor of abstraction, efficiency, and industrial production (Calvert and Hoogslag, 2019). Influential figures such as Adolf Loos framed ornament as unnecessary or regressive, associating its removal with progress and modernization. This legacy continues to influence contemporary construction practices, particularly in developing and post-conflict contexts, where modernistic unornamented architecture is often described with progress. As a result, ornamentation is frequently excluded from reconstruction efforts, especially in developing countries like Syria.

Affective appraisal refers to the immediate, often pre-conscious evaluation of an environment or stimulus in terms of emotional valence (pleasant–unpleasant) and arousal (calming–stimulating) (Louro et al., 2024). Within appraisal-based theories of emotion, emotions are understood not as automatic reactions to stimuli but as the result of rapid evaluative processes through which individuals assess how situations relate to their needs, goals, and well-being (Smith & Lazarus, 1990). These appraisals occur extremely quickly and frequently outside conscious awareness, shaping how people feel before reflective judgement or verbal reasoning takes place. Scherer (2001) conceptualizes appraisal as a sequence of checks assessing relevance, implications, coping potential, and normative significance, through which environmental stimuli give rise to immediate affective states related to pleasantness, tension, or perceived threat.Ellsworth and Scherer (2003) further emphasize that appraisal integrates bodily perception, prior experience, and contextual meaning, allowing emotions to emerge even in the absence of deliberate thought. Importantly, Carruthers and Hood (2004) argue that subjective experience mediates the relationship between external conditions and longer-term wellbeing, suggesting that affective evaluation precedes and conditions reflective judgement. From this perspective, affective appraisal captures how people feel in the moment when encountering environments, providing a crucial explanatory layer between physical stimuli and more stable psychological outcomes. As such, affective appraisal offers a theoretically precise framework for understanding immediate emotional responses, perceived stress, and feelings of comfort as foundational processes shaping human–environment interaction.

Within appraisal-based emotion theory, affective appraisal becomes empirically observable through recurring dimensions that capture how environments are emotionally evaluated in the moment. Across psychological research, appraisal is commonly assessed along axes of emotional valence (pleasant–unpleasant), arousal (calming–stimulating), which together reflect the outcome of rapid relevance and coping evaluations (figure 7) (Smith & Lazarus, 1990; Scherer, 2001). These dimensions are considered valid indicators because they correspond directly to the appraisal checks through which individuals assess whether an environment supports wellbeing or signals potential harm.

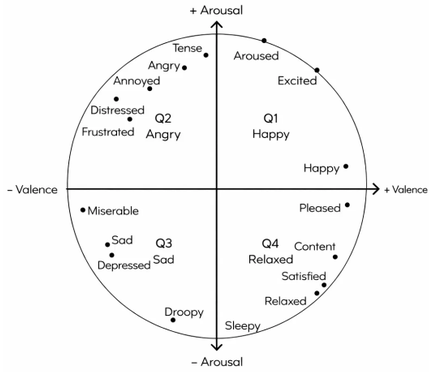


Figure 7, Russell's circumplex model (modified from Louro et al., 2024)

Previous literature has operationalized affective appraisal using a combination of perceptual, emotional, and physiological evidence, including self-reported feelings of comfort or tension, immediate affective descriptors, stress-related bodily responses, and momentary judgments of safety or coherence (Ellsworth & Scherer, 2003; Carruthers & Hood, 2004). Importantly, these indicators capture pre-reflective emotional experience, rather than reflective attitudes or long-term evaluations. As such, affective appraisal can be recognized in practice through patterns of immediate emotional response that emerge upon encountering an environment, providing a measurable link between physical stimuli and subsequent psychological or social outcomes.

Sense of belonging has long been understood as a fundamental human need reflecting the experience of feeling connected to others, places, or social systems. Baumeister and Leary's (1995) belongingness hypothesis positions belonging as a core motivational drive, arguing that individuals require frequent, positive interactions within stable and caring relationships to maintain emotional wellbeing. This framing emphasizes belonging not merely as social inclusion, but as the subjective feeling of being accepted, valued, and recognized. Expanding this view, Hagerty et al. (1992) define sense of belonging as personal involvement within a system or environment, characterized by feelings of *collective identity*, *place attachment*, and *cultural continuity*. From an identity perspective, belonging is further shaped through shared meanings, cultural narratives, and collective memory, which allow individuals to locate themselves within a larger "we" (Tajfel & Turner, 1979). Together, these approaches highlight belonging as both relational and contextual, emerging through interactions between individuals and their social or symbolic environments. More recent research conceptualizes sense of belonging as a multifaceted experience influenced by personal perceptions and external social conditions. It depends on how individuals perceive themselves, how welcome they feel, and whether their environment offers opportunities for participation and recognition (Allen et al., 2021; Pardede & Kovač, 2023). Contemporary studies also emphasize a temporal dimension, showing that belonging includes connections to past experiences, present relationships, and anticipated futures, fostering feelings of rootedness and security over time (Kolesovs, 2021). Empirically, a strong sense of belonging is associated with higher life satisfaction, social connectedness, and psychological functioning, while its absence is linked to loneliness and poorer health outcomes (Hagerty et al., 1996; Avci, 2023).

To function as an analytical concept, sense of belonging must be observable through identifiable dimensions and indicators. Prior literature conceptualizes belonging as a multidimensional experience encompassing emotional, relational, symbolic, and spatiotemporal components. Emotionally, belonging is reflected in feelings of comfort, familiarity, and emotional security within an environment (Hagerty et al., 1992; Avci, 2023). Relationally, it involves perceived acceptance, recognition, and opportunities for participation, aligning with belongingness theory's emphasis on social affirmation (Baumeister & Leary, 1995; Allen et al., 2021). Symbolically, belonging emerges through identification with shared meanings, cultural narratives, and collective memory, enabling individuals to situate themselves within a broader social or cultural "we" (Tajfel & Turner, 1979).

Finally, a spatiotemporal dimension highlights belonging as a process that links past experiences, present engagement, and anticipated futures, fostering continuity and rootedness over time (Kolesovs, 2021). Empirical studies operationalize sense of belonging through a combination of perceptual, emotional, symbolic, and behavioral indicators, including self-reported feelings of fit and attachment, emotional responses to place, recognition of culturally meaningful cues, and sustained engagement with environments (Hagerty et al., 1996; Pardede & Kovač, 2023). Together, these dimensions clarify how sense of belonging can be recognized and assessed in practice, providing a conceptual basis for examining how spatial and environmental qualities may support or undermine belonging over time.

II. Context analysis

Understanding Syria.
To understand the conflicts and crises of today's Middle East, we need to understand how the region emerged in essentially its present form. After the collapse of the Ottoman Empire in the early 20th century, European powers intervened deeply in the political and urban fabric of the region. Under the French Mandate, Syria's borders were redrawn, its cities re-planned, and Western

architectural and administrative models were imposed. These interventions disrupted historic urban patterns, weakened local craftsmanship, and replaced ornamented, human-scale architecture with more uniform, modernised forms. In the decades that followed, conflict, displacement, and rapid urban growth further reshaped Syria's built environment. Today, the destruction of cities like Homs has exposed not only a physical crisis but also a cultural one: the loss of architectural identity, memory, and ornamentation that once defined Syrian places. Understanding this historical trajectory is essential for framing reconstruction today, especially when asking how ornamentation, identity, and psychological wellbeing can be meaningfully reintegrated into the rebuilding of Syrian cities.

Population.
Syria's population has changed dramatically over the past decades. In 1950, the country had roughly 3.5 million inhabitants, most of them living in rural areas or in historic urban centres such as Damascus, Aleppo, and Homs. By 2011, the year the conflict began, Syria's population had grown to around 21–22 million, reflecting rapid mid-20th-century urbanisation and improvements in health and infrastructure. However, the war triggered one of the largest displacement crises in modern history (Figures 8 and 9). Between 5.5 and 6.9 million Syrians have left the country, mainly to Turkey, Lebanon, Jordan, Iraq, Egypt, and European nations, while an additional 6–7 million people are internally displaced within Syria.

These movements reshaped the demographic landscape. Many younger and working-age adults left the country, altering the age structure and weakening community networks. Population density has shifted as well: historic districts in cities like Homs and Aleppo suffered severe depopulation, while safer zones or smaller cities absorbed large numbers of displaced families. Although estimates place Syria's 2025 population again around 20–22 million, this number reflects a country whose residents are unevenly distributed, with fragmented communities and disrupted social structures. Such demographic changes are directly relevant to reconstruction, as returning residents, displaced families, and ageing populations all require environments that restore identity, memory, and psychological wellbeing.

Social structure.
Syria's culture and social infrastructure are built on strong family networks, close-knit neighbourhoods, and vibrant public life (Hamidé et al., 2025). Extended families often live near one another and provide essential social support, while neighbourhoods (harat) function as small communities centred around shared courtyards, local shops, and places of worship (Salamandra, 2004; Al-Harithy, 2010). Public spaces such as mosques, cafés, and especially the souk act as social and economic hubs where daily interaction, craft traditions, and community relationships are maintained (Burns, 2005). Hospitality, intergenerational living, and communal celebrations are central cultural values, creating a resilient social fabric that ties people to place and memory (Chatty, 2010). This interconnected social world highlights the importance of culturally sensitive reconstruction that respects and rebuilds these layers of social life.

III. Impact of conflict on people

Armed conflict has profound and pervasive effects on individuals and communities, extending far beyond immediate physical harm to include lasting psychological and social consequences.

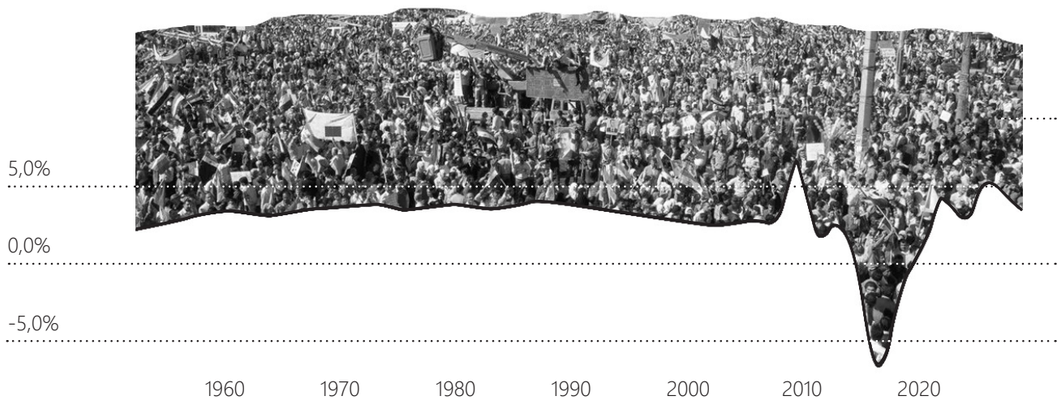


Figure 8, Diagram showing collective identity post-conflict

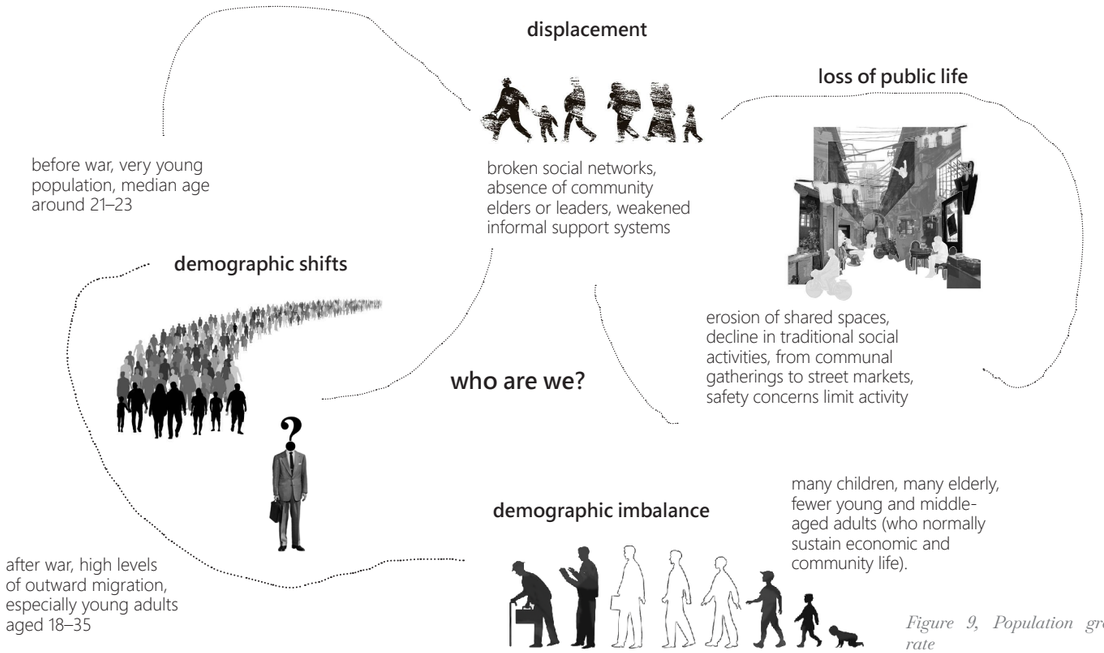


Figure 9, Population growth rate

Research consistently shows that exposure to violence, displacement, loss of loved ones, and socio-economic disruption associated with conflict significantly increases the prevalence of mental health conditions such as post-traumatic stress disorder (PTSD), depression, anxiety, and chronic stress among civilian populations (systematic reviews estimate PTSD prevalence around 23–37% and depressive symptoms around 20–30% in war-affected regions) (Ahmed, et al., 2024). These elevated rates of psychological distress demonstrate that conflict shatters individuals' sense of safety, continuity, and control, undermining core cognitive and emotional assumptions about the world and oneself, a process that trauma theory describes as the disruption of foundational beliefs about benevolence, meaning, and self-worth.

Miller and Rasmussen (2024) indicate that conflict also disrupts everyday life, economic stability, and social networks, exacerbating daily stressors that compound trauma effects and contribute to long-term distress (e.g., loss of employment, displacement, insecurity) . Forced relocation and loss of familiar environments disrupt individuals' sense of place and attachment to community, weakening psychological resilience and social identity. Recent environmental psychology research shows that displacement diminishes place attachment and intensifies psychological symptoms like anxiety and depression, while a renewed sense of belonging can moderate these effects at lower levels of stress (Lev-Wiesel et al., 2025).

In displacement contexts, the lack of familiarity, loss of social ties and disruption of community cohesion undermine sense of belonging, weakening the psychological anchor that normally supports identity and continuity, and increasing vulnerability to distress, isolation, and social dysfunction (as documented in long-running war zones such as Sri Lanka) (Thamotharampillai et al., 2025).

Collectively, this body of research situates conflict as not only a trigger for clinical symptoms but as a pervasive force that alters how individuals appraise their emotional landscapes and how they relate to communities and environments. It highlights that psychological impacts are shaped by both direct exposure to violence and the ongoing social-environmental conditions that follow, underlining the need to understand conflict's effects on affective appraisal and belonging as interconnected, dynamic processes rather than isolated outcomes (Miller & Rasmussen, 2024).

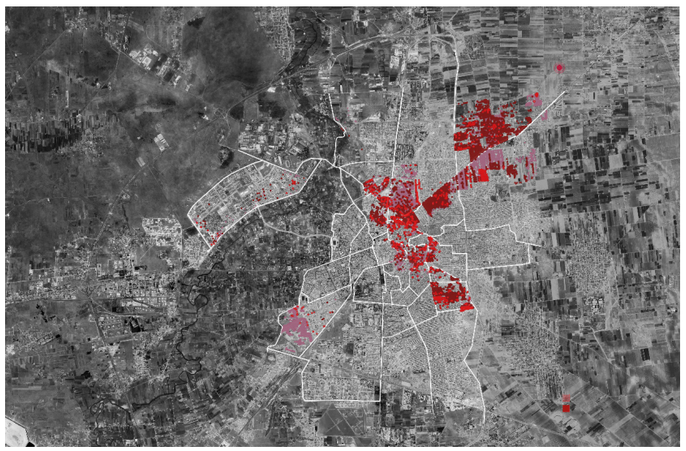


Figure 10, Map of damage status Homs in 2022, showing 37% of the total residential buildings are moderately or serverely damaged.

PART FOUR: RESEARCH CONCLUSIONS

This chapter presents the main findings of the research, drawing on environmental psychology, architectural theory, cultural studies, and post-conflict reconstruction literature. It explores how façade ornamentation and materials shape people's emotional responses to public space and support a sense of belonging in post-conflict cities over time. The next chapter examines façade features in Syrian architecture that relate to the findings discussed in Chapters One and Two. The final chapter then focuses on how ornamentation can be applied in a fast and cost-effective way, with particular attention to prefabrication methods that make the use of ornamental elements more feasible.

I. Affective appraisal

Public space is not experienced in abstract terms but through the body, through movement, proximity, sensory cues, and the façades that define spatial boundaries at eye level (figure 15). As Jan Gehl (1980) observes, public space gains meaning through everyday human activity, with the built environment shaping how people move, pause, interact, and feel within it (Gehl, 1980). Architecture therefore functions not merely as a physical container, but as an active mediator of comfort, stimulation, and stress. Christopher Alexander similarly emphasizes the importance of spatial edges, including building façades, as critical interfaces between private and public realms. These edges influence how welcoming, legible, or threatening a space appears, shaping users' immediate emotional orientation toward their surroundings (Alexander et al., 1977).

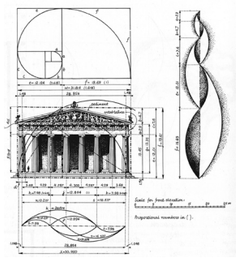


Figure 11, Classical architecture emphasised proportion and bodliy reference (Donnal, n.d.).

In post-conflict public spaces, where previous experiences of violence, loss, or instability often intensify sensory alertness and emotional sensitivity, affective appraisal becomes especially influential in shaping whether environments are perceived as safe, calming, or threatening. Within this context, façades become especially influential. As the most continuously encountered architectural element in public space, façades provide constant visual, material, and spatial cues that are evaluated rapidly and often pre-consciously. Their scale, articulation, rhythm, materiality, and ornamentation contribute to how a space is emotionally assessed in terms of comfort or discomfort, calm or tension, engagement or avoidance. Rather than functioning as passive backgrounds, façades actively participate in shaping immediate emotional responses, perceived stress levels, and bodily ease particularly in environments where trust and safety must be gradually re-established.

This chapter therefore examines façade design as a key mediator of affective appraisal in post-conflict public space. It explores how specific façade qualities influence moment-to-moment emotional experience, laying the psychological foundation upon which longer-term social meanings and attachments may later develop.

Human Scale.
Human scale has long been recognised as a key factor in psychological comfort in public space (figure 11). Environments that align with bodily perception, eye-level interaction, and walking speed are generally experienced as more comfortable and supportive of everyday social life (Gehl, 1980). Façades play an important role in this process, as they shape how buildings are perceived at street level through proportion, articulation, and enclosure (figure 12).

Research on architectural form suggests that proportion and enclosure are frequently associated with physiological stress responses. In a systematic review, Valentine (2024) identifies these variables as reoccuring factors in studies examining stress-related indicators, such as heart rate and skin conductance. At the same time, the review highlights the lack of standardised methods, suggesting that responses to proportion and enclosure are context-dependent rather than universal.

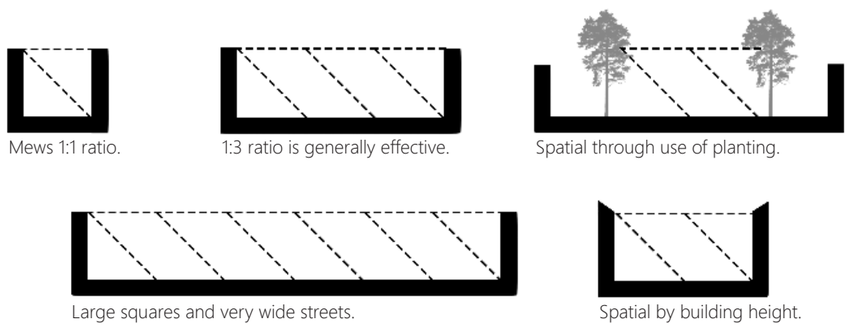


Figure 12, Public space is defined by the ratio of height to width (modified from Chris, 2019).

Formiga et al. (2022) show that these effects are not always consciously perceived. Formiga et al. (2022) show that architectural proportions can influence emotional and physiological reactions even when participants do not explicitly report preference. This suggests that aspects of human scale may operate at a pre-reflective level, where spatial qualities are registered by the body before conscious interpretation.

Moreover, human scale is not defined by absolute size, but by relational proportion. Buildings of considerable height can still feel human-scaled when their façades are articulated through intermediate elements that visually relate to the human body (Gehl, 2011; Salingaros, 2015). Salingaros explains this through hierarchical scaling systems, in which larger forms are organised through progressively smaller elements. According to this perspective, façades that lack such hierarchy, such as large planar surfaces without subdivision, are more difficult to process perceptually and may contribute to feelings of discomfort or alienation.

Ultimately, the experience of enclosure depends on balance. Spaces that are overly enclosed can feel confining, while environments with insufficient enclosure may increase feelings of exposure and insecurity (Ewing & Handy, 2009). Through openings, setbacks, and articulation at street level, façades help regulate this balance and support bodily comfort (figure 14).

Visual Complexity.
Research in environmental psychology shows that environments with a moderate level of visual complexity are generally experienced as more engaging and pleasant than spaces that are either too plain or too visually chaotic (Berlyne, 1971;). Positive responses to complexity depend on how well visual richness is organised. Kaplan and Kaplan (1989) show that people prefer environments that combine richness of information with clear structure and legibility (figure 13). Applied to façades, this means that ornamentation and detail can support emotional engagement when they are part of an overall composition that is easy to understand at the pedestrian scale.

Research on fractal-based visual complexity further explains why organised complexity supports positive affective appraisal. Murteza (2021) shows that visual patterns characterised by ordered, mid-range complexity are associated with higher visual preference, increased visual interest, and more positive mood responses.

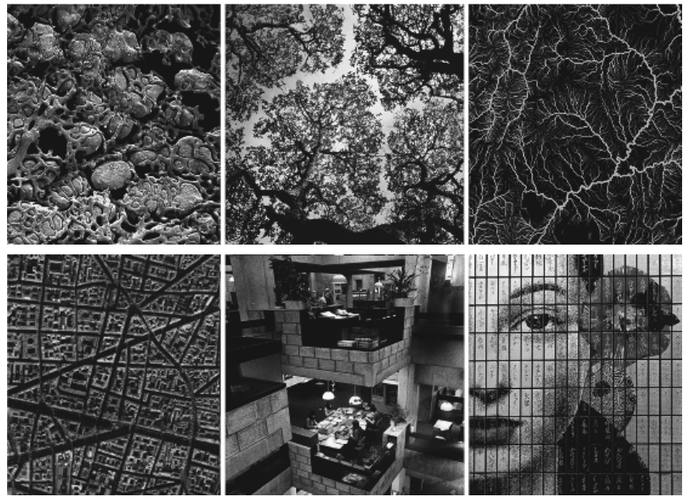


Figure 13, Complexity & order in nature (top), complexity & order in design (bottom) (modified from Ryan, 2025)

These effects are strongest at moderate levels of complexity, corresponding to the types of patterns most commonly found in natural environments. This response is explained through the concept of fractal fluency, which suggests that the human visual system is evolutionarily adapted to efficiently process mid-range complexity. When complexity is structured and perceptually fluent, it produces an experience of "effortless looking," supporting positive affective appraisal rather than cognitive strain. Applied to façades, this suggests that ornamentation and material articulation can enhance emotional comfort when complexity is ordered, hierarchical, and readable at the scale of human perception.

Lastly, visual complexity must also be experienced at the scale of everyday movement. Gehl (1980) emphasises that pedestrians experience buildings slowly and primarily through the lower parts of façades within their field of vision (figure 15). Details that relate to this scale are more likely to be noticed and appreciated. Bosselmann (1998) similarly shows that urban environments are perceived through movement, and that visual information needs to match human walking speed in order to remain comprehensible rather than overwhelming.

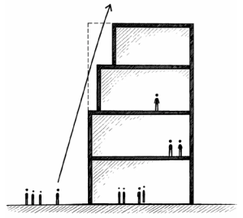


Figure 14, Setbacks in facadeto supports comfort (own illustration).

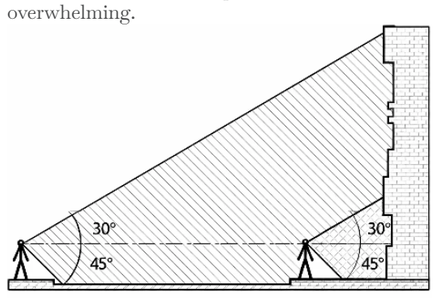


Figure 15, Eye-level experience of the facade (own illustration).

Rhythm and regularity.
Beyond complexity, rhythm and regularity play a role in shaping emotional responses in public space. Rhythmic repetition helps people understand and read buildings more easily when it is clear and well organised. A systematic review by Wang et al. (2025) shows that façade features such as rhythm, symmetry, and visual coherence are often linked to positive emotional responses. Their findings suggest that repetition supports emotional comfort when it is part of a clear and unified façade, rather than used as isolated or decorative elements.

Just like complexity, rhythm is not experienced only as a static quality. As people move through public space, rhythmic patterns in façades are perceived over time and from changing viewpoints. Wang et al. (2025) note that façade rhythm influences affective appraisal in relation to its urban context, suggesting that coherent rhythm supports orientation and emotional comfort while moving through space. In this way, rhythm helps create continuity and reduces perceptual effort as people walk along a street.

Empirical research on façade composition supports this relationship. Malewczyk et al. (2022) show a clear link between compositional regularity and immediate aesthetic preference (figure 16). Their study finds that façades organised through clear rhythmic order are generally rated more positively than highly irregular compositions (Figure XX; *a. is most positively rated, e. least positively rated*). Importantly, irregular façades tend to produce stronger negative emotional responses than regular façades produce positive ones. The authors link this effect to the clarity of compositional rules, particularly vertical alignment, which allows façades to be understood quickly and with little cognitive effort.

These findings also highlight the importance of balance between regularity and variation. Rather than suggesting that maximum regularity is always preferred, the study shows that emotional comfort depends on the legibility of the underlying order. When repetition provides a stable structure, variation can remain engaging without becoming confusing. From a processing-fluency perspective, this balance supports positive affect by keeping perception easy while avoiding monotony (Reber, Schwarz, & Winkielman, 2004).

Experimental research in psychology helps explain why these effects happen. Reber, Schwarz, and Winkielman (2004) show that visual patterns that are easier to process, such as regular and symmetrical forms, are generally experienced as more pleasant. According to their processing-fluency model, perceptual ease leads to positive affect, while perceptual difficulty increases discomfort. Applied to façades, rhythmic regularity reduces cognitive load and supports immediate emotional comfort, whereas irregular arrangements increase perceptual uncertainty.

In post-conflict public spaces, where emotional sensitivity and vigilance may be heightened, these effects are especially important. Façades that use regular and legible rhythms can reduce perceptual ambiguity and moderate emotional arousal. In this way, rhythm and regularity help create a calmer and more stable emotional experience, shaping how public space is felt before conscious interpretation or social meaning develops.

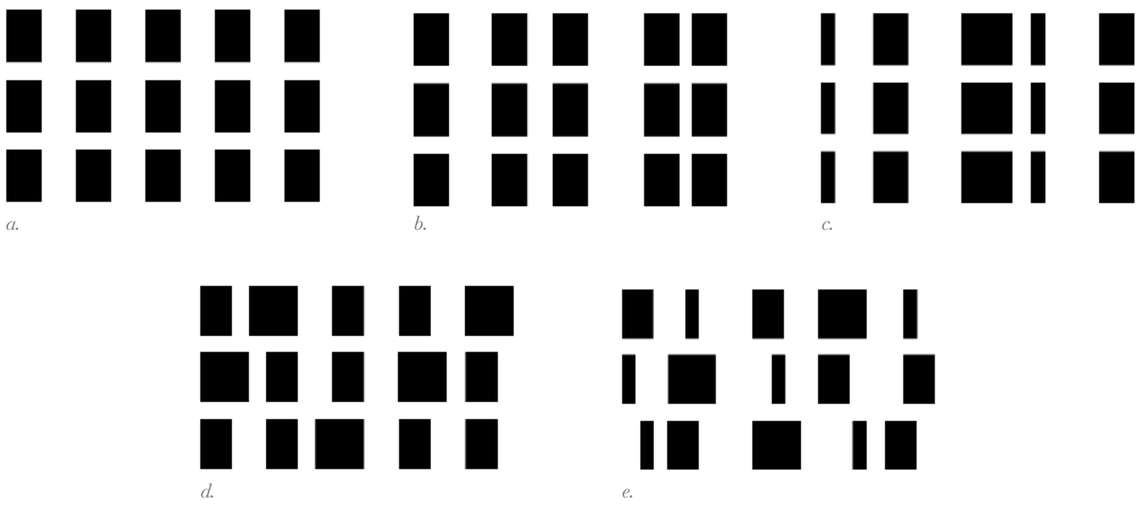


Figure 16, Representation of openings in a facade; testing the preference of the composition in context of itr regularity and irregularity. Outcome: Percentage of aesthetic preference grade above average (a. 55,65% - b. 57,22% - c. 44,75% - d. 39,53% - e. 34,15%) (modified from Malewczyk et al., 2022)

Material and texture.
Materiality adds a multisensory layer to how façades are experienced in public space. Materials are not only experienced through sight but also through perceived weight, roughness, temperature, and age, all of which influence how safe, calm, or cared-for a place feels. Additionally, Pallasmaa (2005) argues that architecture is fundamentally experienced through the body, with material surfaces shaping subconscious emotional reactions through sensory memory and touch-related associations. Even when not physically touched, textured materials invite tactile imagination, supporting a sense of closeness and human presence. This helps explain why material richness at eye level can reduce stress and support calm engagement in public space. Dalton et al. (2025) adds to this argument by explaning that façades using natural or visibly textured materials are commonly associated with warmth, authenticity, and emotional depth. These materials are often linked to older buildings and sustainable practices, which further reinforces feelings of trust and familiarity. In contrast, smooth and synthetic surfaces tend to be perceived as colder and more distant, reducing emotional comfort at street level.

The importance of tactile material qualities can already be influential at a very smaller scale. Thomas Heatherwick illustrates this through the example of elevator buttons, which are often designed as flat, smooth surfaces that offer little sensory feedback. Heatherwick Studio redesigned lift buttons to include depth, resistance, and tactile form, allowing users to feel when a button has been pressed (figure 17). Such material details create moments of recognition and memory, helping people feel more connected to their environment. This example shows how texture and material feedback can support comfort and emotional trust through everyday interaction. Applied to façades, it suggests that materials which carry texture and tactile meaning can similarly support memory, familiarity, and emotional connection at the scale of the street.

Physiological research further supports the importance of material expression. Valentine (2024) emphasizes that architectural form cannot be separated from material qualities, as sensory cues directly influence stress-related responses such as arousal and alertness. The review also notes that many studies rely on visual simulations, which limits their ability to capture material effects fully. This suggests that real, physically present materials likely have a stronger impact on affective appraisal than current laboratory findings show.

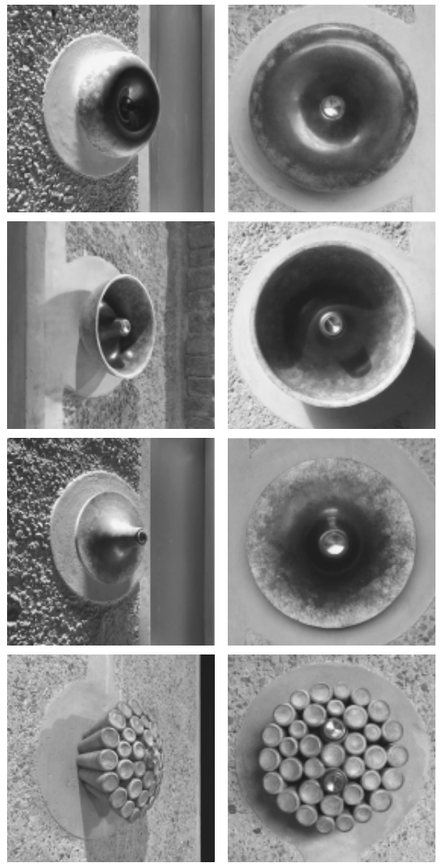


Figure 17, Lift buttons designed by Heatherwick Studio .

In post-conflict public spaces, where emotional sensitivity may be heightened, material and texture become especially important. Façades that use familiar, legible, and tactile materials can communicate care, permanence, and human presence. Through these sensory qualities, material expression helps create a calmer and more supportive emotional experience in public space, shaping affective appraisal before conscious interpretation occurs.

II. Sense of belonging

While affective appraisal describes how people emotionally respond to a place in the moment, a sense of belonging develops more slowly through repeated experience, familiarity, and shared meaning over time (Hagerty et al., 1992; Kolesovs, 2021). In post-conflict urban contexts, where displacement and destruction have disrupted everyday routines and collective identity, the built environment becomes an important support for reconnecting people to place (Baumeister & Leary, 1995). Façades play a key role in this process because they are stable, visible elements of the city that people encounter daily. Through their material, form, and expression, façades help shape recognition, continuity, and the feeling that a place is familiar and socially meaningful.

Building on the theoretical framework, this chapter examines how indicators of sense of belonging manifest in façade ornamentation and materiality. By applying emotional, symbolic, relational, and temporal indicators to architectural façades, the analysis reveals which façade characteristics support or undermine belonging in post-conflict urban environments.

Collective identity.
Collective identity refers to the shared sense of "who we are" that emerges through common symbols, narratives, and visual references within a community (Tajfel & Turner, 1979; Hagerty et al., 1992). It shapes how groups see themselves and how they are seen by others (figure 18). In post-conflict cities, collective identity is often weakened by displacement, the loss of familiar landmarks, or reconstruction that ignores local culture. Architectural façades can help rebuild collective identity by making shared values, cultural references, and histories visible in public space.



Figure 18, Collective identity through architecture (own illustration)

Façade ornamentation and material choices support collective identity by bringing familiar patterns, symbols, and building traditions into public space (Relph, 1976). These elements act as visual cues that help residents recognize their history and themselves in the city. People feel a stronger sense of belonging in environments that reflect shared cultural values and local narratives, allowing spaces to feel owned collectively rather than forced or anonymous (Tajfel & Turner, 1979; Hagerty et al., 1992).

Empirical studies show that architectural features linked to local building traditions, such as familiar motifs, materials, or façade rhythms, strengthen identification and emotional attachment, especially in places affected by displacement or conflict (Proshansky et al., 1983). Ciotoli and Belibani (2023) suggest that pre-conflict architectural forms can function as points of recognition, helping residents reconnect with their sense of place and familiar identities. Similarly, façades that include culturally rooted elements can create feelings of continuity and legitimacy, reinforcing a shared sense of ownership in reconstructed urban environments (Mohamed, 2024).

Façade ornamentation does not rely on copying historic buildings or recreating the past exactly (Avrami et al., 2000). Instead, belonging is strengthened when façade elements are legible, culturally meaningful, and expressed in a contemporary way. When ornamentation and materials reflect familiar cultural meanings without imitating the past too directly, they help people feel connected to a shared identity while leaving room for that identity to develop over time.

In contrast, façades with no cultural reference, using generic materials, standardized details, or abstract forms, can weaken feelings of belonging because they offer no points of recognition (Calame & Charlesworth, 2009). These environments can feel disturbing or disconnected from local society, increasing feelings of alienation rather than recovery. This has been observed in Damascus, where modernization and large-scale redevelopment have disrupted historic urban fabric, replacing layered architectural expressions with standardized forms (Lababedi, 2008). Such changes can remove familiar visual cues and symbolic landmarks that once supported continuity and recognition, highlighting the need for façades that balances modernization with culturally legible elements (Ateek, 2020).

Place attachment.
While collective identity focuses on shared social meanings, place attachment refers to the emotional connections people form with specific places through everyday experience and memory (Frampton, 1983). In post-conflict cities, these connections are often weakened by displacement, destruction, and the loss of familiar spatial references (Graham et al., 2016). Rebuilding place attachment is therefore essential for restoring a long-term sense of belonging.

Place attachment is observable through emotional responses to the built environment that grow over time, such as feelings of familiarity, comfort, pride, or loss (Lewicka, 2011). These emotions develop through repeated use, memory, and lived experience. In relation to façades, attachment is supported when forms, materials, and spatial character shows continuity with the past, helping residents reconnect with remembered places and daily routines (figure 19).



Figure 19, Place attachment after conflict (own illustration)

Architectural features with visual richness, warm materials, and human-scale design strengthen place attachment by encouraging people to pause, recognize, and return to a place (Lewicka, 2011). Ornamentation and materiality support these processes by providing clear visual and tactile differences between places, helping people orient themselves and recall specific locations (Ciotoli & Belibani, 2023). Over time, façade details become part of everyday routines and personal memories, linking architecture to lived experience.

In post-conflict contexts, where spaces may otherwise feel generic or disconnected, façades that preserve or reinterpret locally meaningful patterns, materials, or building methods can help people emotionally reconnect with place (Calame & Charlesworth, 2009). Through repeated exposure, these façade characteristics support the slow rebuilding of familiarity, trust and emotional attachment, contributing to a lasting sense of belonging rooted not in both personal experience and social identity.

Cultural continuity.
Cultural continuity refers to the way shared meanings, practices, and visual references are passed on over time, even when social and physical conditions change. In post-conflict urban environments, cultural continuity becomes especially important for a sense of belonging, because conflict often disrupts not only communities but also the buildings, spaces and symbols that carry collective memory (Graham et al., 2000). When familiar architectural references are lost or replaced, people may feel disoriented and their emotional connection to place can weaken. Ultimetaly, cultural continuity asks whether a culture can still be read as ongoing despite disruption, change, or reconstruction.

Cultural continuity is not expressed through exact copying of the past, but through repetition and adaptation (figures 20 and 21). In façade design, this can be seen in the continued use of traditional building principles, ornamentation, or material relationships that change over time while remaining recognizable. Continuity is supported when façade elements refer to historical forms in ways that allow reinterpretation rather than static preservation (Avrami et al., 2000). In post-conflict environments, such design approaches signal resilience, showing that cultural expression has not ended but has adapted to new circumstances, helping communities maintain a sense of connection across time.

Façades serve as public, lasting carriers of cultural expression. Ornamentation, patterns, materials, and construction techniques can evoke local traditions without requiring literal reconstruction. This approach helps residents perceive the city as continuously reflecting who they are and where they come from. Research shows that architectural traces and symbolic references act as anchors for identity, reconnecting personal experience with collective history (Ciotoli & Belibani, 2023; Mohamed, 2024).

Cultural continuity does not rely on visual density or historic replication alone. Façade elements that reinterpret shared meanings, without imitating the past, support both recognition and adaptation. In this way, they reinforce belonging by linking memory, daily experience, and a sense of cultural presence to the ongoing life of the city.



Figure 20, Collage of cultural continuity of Syria (own illustration)

III. Syrian architecture

The aim of this chapter is to identify typical façade features of Syrian architecture that contribute to positive affective appraisal and a sense of belonging. Building on the theoretical insights from Chapters 1 and 2, this chapter explores how visual and material qualities, spatial organization, and ornamentation of Syrian architecture work together to support affective appraisal, place attachment, and collective identity in the urban environment.

Syrian architecture reflects a multi-layered cultural history spanning millennia, from ancient urban settlements to post-independence modern developments (figure 21). Each period has contributed distinctive construction methods, material palettes, and compositional principles that continue to influence Syrian façades today. Understanding this historical layering is essential for interpreting which features resonate emotionally and culturally with local communities.

Cultural history, continuity and identity.
Cultural continuity and collective identity in Syrian façades are expressed through repeated patterns, materials, and design approaches that persist over time. These features help residents recognize familiar elements, connect with shared history, and feel a sense of belonging across generations.

Umayyad Mosque in Damascus demonstrates this continuity through repeated arcades, mosaics, and courtyard layout (figure 22). The façade draws on Roman, Byzantine and earlier local traditions while fitting Islamic aesthetics. This layered design communicates historical depth and cultural identity, supporting recognition and emotional attachment. Qasr al-Azm in Hama also supports cultural continuity. Its modest street façade, richly detailed interior, and local stone preserve traditional construction methods and material choices (Figure 25). Residents can relate to these elements, reinforcing memory, routines, and shared cultural narratives over time. The Church of Umm al-Zennar in Homs shows continuity across religious boundaries. Its stone walls, arched openings, and simple ornament use the same material and spatial language as nearby Islamic buildings (Figure 26). This shared vocabulary makes the architecture legible across communities, showing that continuity can link people through familiar forms. Khan As'ad Pasha in Damascus uses symmetrical façades, repeated windows, and focused ornament to create hierarchy while referencing Ottoman domestic traditions (figure 24). By reinterpreting historical motifs in practical, contemporary ways, the building conveys cultural identity without needing to copy the past exactly.

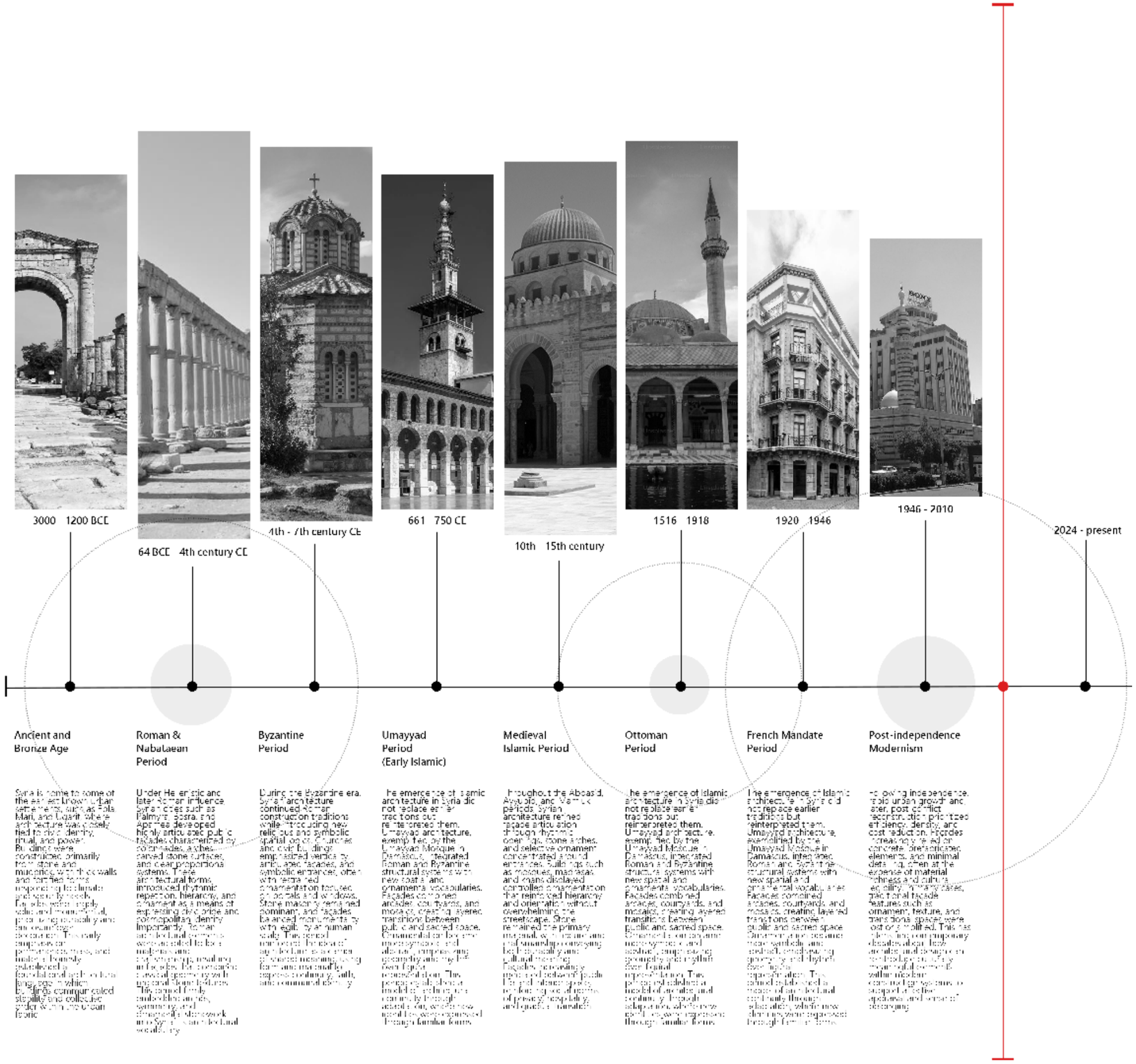


Figure 21, Timeline of the influences on Syrian architecture

Human scale and proportion.
Human scale and proportion are key features of Syrian façades that influence emotional responses and a sense of belonging. Traditional Syrian architecture avoids uniform monumentality, instead breaking down large buildings into approachable, legible elements. Façade proportions, rhythmic openings, and arcades allow people to relate to the urban environment comfortably, supporting both memory and social recognition.

The Umayyad Mosque in Damascus demonstrates this well. Although monumental, its façades are divided into human-scaled arcades that repeat across the courtyard (Figure 22). This structure allows pedestrians to experience the space comfortably, while mosaic details and façade articulation enrich perception without overwhelming observers. The courtyard mediates between the street and interior, creating a rhythm that encourages engagement and supports affective comfort.





Figure 22, The Umayyad Mosque in Damascus (8th century)

Qasr al-Azm in Hama shows human scale in a domestic context. Its modest street façades, small carefully positioned openings, and carved wooden doors create a calm and protective presence (Figure 25). The subtle tonal variations in stone masonry enhance visual comfort, connecting residents to familiar materials and textures, and strengthening everyday routines and memory. The palace features repeated arches and evenly spaced openings, producing a clear, rhythmic structure. This proportional consistency makes the building easy to read and navigate, offering emotional comfort and fostering recognition at street level.

Rhythm and Visual Complexity.
Rhythm and visual complexity in Syrian façades create patterns that guide perception, support recognition, and encourage engagement with the built environment. Repeated elements, layered articulation, and ordered openings make façades visually legible while stimulating interest, contributing to positive emotional responses and a sense of belonging.

The Great Mosque of Ma'arrat al-Nu'man illustrates this clearly. Its stone arches and evenly spaced openings produce a rhythmic façade that is both ordered and engaging (Figure 23). The repetition of bays allows pedestrians to anticipate and interpret the structure, providing comfort and visual clarity while reinforcing memory of familiar forms.



Figure 23, The Great Mosque of Maarat al-Numan located between Aleppo and Hama (12 century)

Khan As'ad Pasha in Damascus (1751–1752) demonstrates rhythm in a domestic and commercial context. Symmetrical stone articulation and repeating windows and doors create a balanced façade that guides movement and perception (Figure 24). The rhythm of the openings and ornamented thresholds establishes hierarchy and legibility, making the building readable at street level. This supports social recognition and strengthens the observer's connection to the cultural environment.



Figure 24, Khan As'ad Pasha in Damascus (1751-1752)

The Umayyad Mosque in Damascus combines rhythmic arcades with layered façade articulation (Figure 22). Despite its monumental scale, the repeated arches, arcade bays, and subtle mosaic detailing break the façade into manageable, human-readable sections. This complexity encourages exploration and prolonged engagement, supporting both affective appraisal and a sense of belonging rooted in cultural continuity.

Materiality and Texture.
Materials, color, and texture are among the most immediately perceived aspects of Syrian façades and strongly influence emotional responses and place attachment. Traditional architecture emphasizes locally sourced materials and subtle tonal variation, creating façades that feel familiar, grounded, and culturally legible. These qualities contribute to comfort, recognition, and a sense of belonging over time.

Qasr al-Azm in Hama (1742) exemplifies this approach. Its stone masonry with subtle color variation and carved wooden doors create a visually rich yet restrained street presence (Figure 25). The material consistency conveys solidity and protection, supporting positive affective appraisal and linking residents to familiar textures and construction traditions.





Figure 25, Qasr al-Azm in Hama (1742)

The Church of Umm al-Zennar in Homs demonstrates how material choices can reinforce cultural continuity across religious contexts. Heavy stone walls, minimal ornament, and carefully positioned openings produce a calm, protective façade (Figure 26). Despite being a Christian building, it shares material and textural qualities with nearby Islamic structures, allowing residents to perceive continuity and belonging beyond specific faith boundaries.

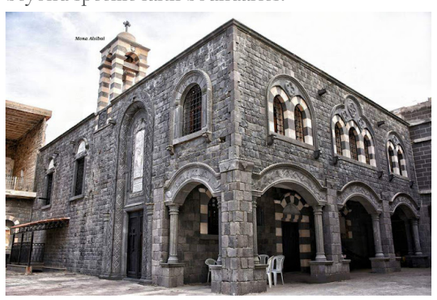


Figure 26, The Church of Umm al-Zennar in Homs (1852)

In contrast, post-independence modernism influenced buildings, like the post office in Damascus, often employed concrete frames, smooth plastered surfaces, and standardized finishes (figure 27). While efficient, these façades often feel detached from local context, reducing recognition, weakening emotional bonds, and disrupting material continuity within the streetscape.



Figure 27, post-office building in Damascus (2006)

Ornamentation and Craft.
Ornamentation in Syrian architecture is traditionally integrated into construction rather than applied. Carved stone, wooden details, geometric patterns, and calligraphic elements convey cultural meaning, hierarchy, and significance, supporting both affective responses and collective recognition. Properly designed ornament enhances legibility, guides movement, and fosters a sense of belonging.

Qasr al-Azm in Hama illustrates this principle. Ornamentation is concentrated around entrances and windows, with clear symmetry and stone articulation guiding perception (Figure 25). This hierarchy allows pedestrians to understand the building's organization, creating visual clarity and reinforcing collective identity while supporting emotional comfort.

The Church of Umm al-Zennar in Homs also uses limited, focused ornamentation, particularly around thresholds (Figure 26). By restricting decorative details to important points, the building communicates symbolic meaning without overwhelming viewers. This approach encourages recognition of function and hierarchy, while maintaining a calm, legible façade that supports attachment and memory.

The Umayyad Mosque in Damascus combines monumental scale with subtle mosaic and arch detailing (Figure 22). Ornament reinforces architectural rhythm and highlights structural transitions, contributing to both cultural continuity and affective engagement. Its integrated craft communicates historical depth while remaining perceptible and meaningful at the pedestrian level.

In contrast, French Mandate-era and modernist buildings often minimized or abandoned ornament, relying on flat surfaces and standardized detailing (figure 27). Such façades can feel generic, culturally detached, and emotionally distant, reducing opportunities for recognition, memory, and attachment.

IV. Prebafrication

This chapter explores how façade features that support positive affective appraisal and a sense of belonging can be integrated into prefabricated façade systems for post-conflict reconstruction. Although prefabrication is often chosen for its speed, cost efficiency, and ability to deliver large-scale rebuilding, it is commonly associated with generic and culturally detached architecture. This chapter treats prefabrication as a design opportunity, arguing that culturally meaningful façade qualities can be embedded when they are considered early in the design process. Rather than copying historic buildings, the focus is on developing modular systems that allow variation, adaptation, and cultural reference while remaining efficient and repeatable. The following section provides a brief overview of contemporary prefabrication methods that make this possible.

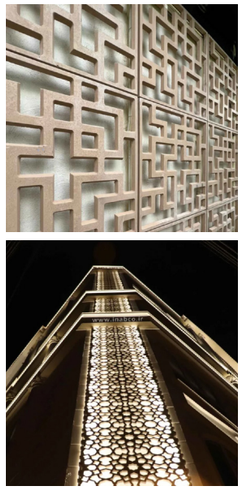


Figure 28, GFRC panels (INAB, 2025)

Factory-Molded Concrete Panels.
Factory-molded concrete panels are prefabricated façade elements made off-site in controlled conditions. They can be cast with pattern reliefs, meaning raised or recessed designs are created directly in the mold. This allows ornament and texture to be part of the panel itself, making production faster and more efficient than carving on site. Concrete façade panels can show a wide variety of textures and patterns (Graphic concrete, n.d.). For example, technologies like graphic concrete use special surface treatments in the mold to reveal different textures, such as smooth and rough areas, creating visible patterns and designs while keeping the panel durable (figure 29).

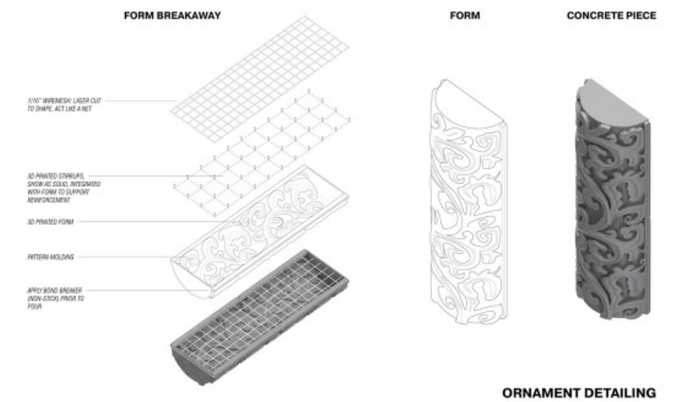


Figure 29, Concrete mold panels

This approach allows architects to use culturally relevant patterns and motifs directly into these panels without extra finishing on site. Panels can also be three-dimensional, with sculpted shapes, curves, and detailed relief (Rieder, n.d.). These elements are produced in the factory and installed quickly on site, allowing complex ornament without slowing construction. Cost efficiency is achieved through repetition and mold reuse. Once a mold is made, it can produce multiple panels with the same pattern, lowering the cost per unit (Zanon Prefabbricati, n.d.). Panels can also be finished with different textures or colors, such as polished, rough, or exposed aggregate surfaces, directly in the factory, giving designers flexibility without extra on-site work.

Glass Fiber Reinforced Concrete (GFRC).
Glass Fiber Reinforced Concrete (GFRC) is a lightweight and highly moldable composite material made of cement, fine aggregates and glass fibers (INAB, 2025). Compared to traditional concrete, GFRC panels are much thinner and lighter while remaining strong and durable (figure 28). It also does not depend on heavy steel reinforcement. This make GFRC especially suitable for prefabricated façade systems, where ease of transport, fast installation, and reduced structural load are important. Because of these properties, GFRC has become a widely used material for prefabricated façade systems, especially where both aesthetic expression and technical performance are required.

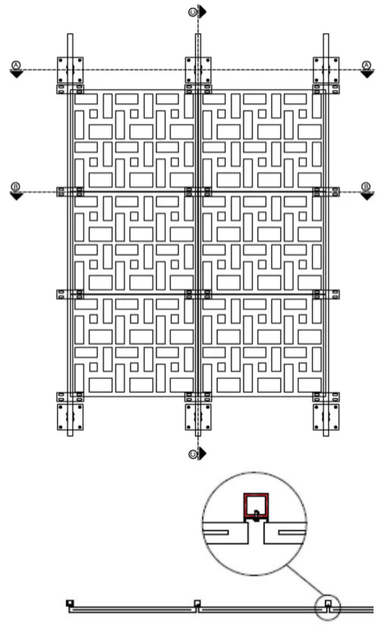


Figure 30, Attachment detail of the GFRC-panels (INAB, 2025)

Panels can be manufactured off-site in controlled conditions, ensuring consistent quality and efficient production. This factory fabrication reduces on-site labour, speeds up installation, and improves overall project timelines, all factors that are important in post-conflict rebuilding where rapid construction and limited resources are common constraints (Pioneer Fibre, 2025).

One of GFRC's key advantages for façade ornamentation is its design freedom. The mix can be cast into virtually any shape, size, or pattern, including intricate reliefs, curved surfaces, and fine textures. It can mimic natural stone, wood grain, or custom artistic patterns, enabling detailed visual expression that resonates with cultural and historic architectural languages, while being compatible with modular production systems (figure 30) (Pioneer Fibre, 2025). This flexibility makes GFRC suitable for both modern and heritage-inspired façades, as well as for complex architectural elements such as cornices, columns, window surrounds, and screens (INAB, 2025).

GFRC panels are also highly durable and resilient. They resist weathering, moisture, freeze-thaw cycles, UV exposure, and thermal variation, which ensures long service life with low maintenance requirements, important qualities in urban environments with harsh climatic conditions (Sound-Rite, 2025). Their lightweight nature reduces the need for heavy structural support and simplifies transportation and installation, lowering overall costs and technical complexity (Pioneer Fibre, 2025). GFRC panels are typically installed using prefabricated dry façade systems, where panels are attached to a metal substructure using mechanical anchors designed during manufacturing (INAB, 2025). These systems can be configured to support a visually continuous surface or articulated façades with controlled joints, depending on aesthetic and performance needs.

Metal perforated and patterned panels
Metal perforated or patterned panels made with CNC (computer numerical control) machining or laser cutting offer an efficient way to add ornament and visual pattern to prefabricated façades (Frankwang, 2025). These panels are usually made from materials such as aluminum or stainless steel, which are strong, lightweight, and resistant to corrosion—qualities that make them suitable for both decorative and structural façade use. CNC and laser cutting allow precise patterns to be cut directly into metal sheets according to digital designs (Schlick, 2025). This means designers can create geometric patterns, sequences of openings, or custom motif arrangements with smooth edges and consistent quality, even at large scale (figure 31).

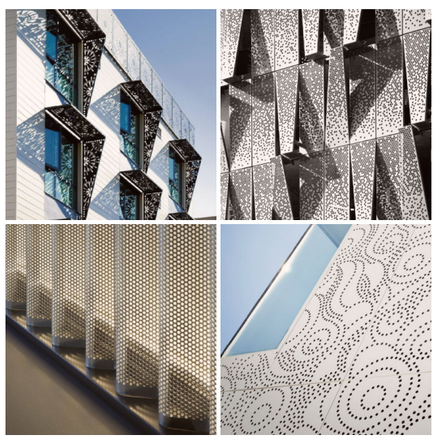


Figure 31, Overview of different perforated panels (Schlick, 2025)

Perforated metal panels can do more than look attractive. Their patterned holes allow natural light and air to pass through, contributing to passive shading, ventilation, and reduced heat gain in buildings, which is useful for comfort and energy performance (Nextera, 2025). By arranging perforations in different sizes or densities, designers can also create visual rhythm and depth on the building surface, echoing traditional architectural patterns in a modern material.

These panels are typically produced in controlled factory conditions. Digital models are translated into cutting instructions, and panels are cut, finished, and often coated with protective layers such as powder coat or anodizing before being installed on site (Kesai, 2025). This factory fabrication ensures consistent quality and reduces on-site work, allowing panels to be mounted quickly onto frames or rainscreen systems with less labour. The lightweight nature of metals like aluminum also reduces transportation and structural load, supporting faster construction and lower costs.

AI-robotics in combination with human crafts.
Robotics in combination with human finishing and craft knowledge offers a promising approach to producing architectural ornament that is both efficient and culturally meaningful. Monumental Labs (2025) is a fabrication and technology company that demonstrates how this hybrid model can be applied to contemporary façade production.

By combining digital design, robotic stone milling, and skilled human craftsmanship, the company reduces the time and cost traditionally associated with ornament while preserving its tactile and cultural qualities (figure 32). In this process, robotic fabrication carries out the bulk material removal and repetitive tasks with high precision, while craftsmen refine surfaces, edges, and details. This allows ornamentation to retain subtle variation and material expression, qualities that are important for recognition and emotional connection.

The involvement of craftsmen ensures that ornament is not experienced as purely mechanical, but as an extension of cultural knowledge embedded in material practice. For this research, Monumental Labs is relevant because it shows how local craftsmanship can be integrated into prefabricated production systems rather than excluded by automation. Such a model is particularly valuable in post-conflict reconstruction, where rebuilding cultural identity and social belonging is as important as speed and efficiency. The approach suggests that advanced fabrication technologies can support, rather than replace, local craft traditions, enabling façades that foster a sense of belonging through both process and outcome.





Figure 32, Craftsmen finishing the ornamentation (Monumental Labs, 2025)

PART FIVE: CONCLUSIONS & DISCUSSION

This research addressed the challenge of rebuilding post-conflict cities in a way that goes beyond speed and efficiency, recognising the built environment as an active part of psychological recovery and cultural continuity. In post-conflict contexts, like Syria, rapid reconstruction often risks producing generic architecture that overlooks emotional experience and sense of belonging. The central question guiding this research was:

"How do façade ornamentation and materiality shape affective appraisal and sense of belovnging in post-conflict Syria, and how can these qualities be integrated within prefabrication facade systems?"

The research shows that façades play a significant role in shaping how public space is emotionally experienced, especially in post-conflict environments where sensitivity to safety, familiarity, and care is heightened. Affective appraisal operates at a pre-conscious level, influenced by façade qualities such as human scale, visual complexity, rhythm, materiality, and texture. Façades that are articulated at eye level, show ordered complexity, and use tactile, legible materials are more likely to be experienced as calming, welcoming, and trustworthy. These qualities help reduce stress and support immediate emotional comfort in everyday public life. In contrast, large-scale, flat, and materially abstract façades tend to increase feelings of distance and alienation, reinforcing emotional detachment in already fragile urban contexts.

Over time, these immediate emotional responses contribute to a broader sense of belonging. The research demonstrates that façade ornamentation and materiality support belonging through collective identity, place attachment, and cultural continuity. In the Syrian context, familiar patterns, materials, proportions, and craft traditions function as points of recognition that help residents reconnect with shared history and everyday memory. Importantly, belonging is not strengthened through literal reconstruction of the past, but through reinterpretation of culturally meaningful façade qualities in contemporary forms. When façades reflect local architectural languages while allowing adaptation and change, they help rebuild continuity across time and support a sense of ownership and legitimacy in the rebuilt city.

Finally, the research shows that these emotionally and culturally meaningful façade qualities can be integrated into prefabrication processes when they are considered early in design. Prefabrication does not inherently require generic outcomes. Methods such as factory-molded concrete panels, GFRC elements, perforated metal panels, and hybrid production combining digital fabrication with human craftsmanship allow ornamentation, texture, and material expression to be embedded within efficient construction systems. By shifting the focus from copying historic façades to designing modular systems that allow variation and cultural reference, prefabrication can meet the practical demands of post-conflict reconstruction while still supporting affective appraisal and a lasting sense of belonging.

BIBLIOGRAPHY

Aldaher, S. A. (2021). An Attempt to Set a Design Base for Post-Conflict Housing in the Historic Core of Homs, Syria. In Malmo University. https://www.diva-portal.org/smash/get/diva2:1573169/FULLTEXT02.pdf

Allen, K, Margaret L. Kern, Christopher S. Rozek, Dennis M.
McInerney & George M. Slavich (2021) Belonging: a review of conceptual issues, an integrative framework, and directions for future research, Australian Journal of Psychology, 73:1, 87-102, DOI: 10.1080/00049530.2021.1883409

Altman, I., & Low, S. M. (1992). Place Attachment. New York and London Plenum Press. - References - Scientific Research Publishing. (n.d.). https://www.scirp.org/reference/referencespapers?referenceid=2527830

Avcı, M. (2023). Belongingness, Social Connectedness, and Life Satisfaction in College Students after COVID-19 Pandemic. Journal of Happiness and Health, 3(2), 23–36. https://doi.org/10.47602/johah.v3i2.43

Avrami, Erica C., Randall Mason, and Marta De la Torre. 2000. Values and Heritage Conservation: Research Report. Los Angeles, CA: Getty Conservation Institute. http://hdl.handle.net/10020/gci_pubs/values_heritage_research_report

Bassily, V., Abufarag, T., & Goubran, S. (2022). Heritage Buildings' Façades as Facilitators for Local Sustainable Development: The Case of Cairo's El Korba Area. Heritage, 5(3), 2689–2731. https://doi.org/10.3390/heritage5030141

Baumeister RF, Leary MR. The need to belong: desire for interpersonal attachments as a fundamental human motivation. Psychol Bull. 1995 May;117(3):497-529. PMID: 7777651.

Berlyne, D. E. (1971). Aesthetics and Psychobiology. Appleton-Century-Crofts.

Betancourt, A. A. R. (2023). The Aesthetics of the Contemporary Urban Landscape and its Implications for Well-Being. Proceedings of the International Conference of Contemporary Affairs in Architecture and Urbanism-ICCAUA, 6(1), 437–455. https://doi.org/10.38027/iccaua2023en0157

Brilliantmaps (2024, 16 oktober). Brilliant population density maps of over 100 countries. Brilliant Maps. https://brilliantmaps.com/population-density-maps/

Carruthers,C.P. and Hood, C.D. (2004) The Power of the Positive: Leisure and WellBeing, Therapeutic Recreation Journal, 38(2): 225-246.

Chris. (2019, April 18). A Myth of Urban Design: The 'Sense of Enclosure' Theory | Chris Haile. https://www.chrishaile.com/a-myth-of-urban-design-the-sense-of-enclosure-theory/

Dalton, R. C., Burgess, D., Mavros, P., Hölscher, C., Gregorians, L., Pozza, E., Nicholls, C. M., Edwards, J., Burslam, R., Duthie, R., Rayner, A., & Heatherwick, T. (2025). Building appearance and wellbeing: how architectural design affects public emotion. Architectural Science Review, 1–20. https://doi.org/10.1080/00038628.2025.2558092

Dhanabhakyam, M., & Sarath, M. (2023). Psychological Wellbeing: Asystematic Literature Review. International Journal of Advanced Research in Science Communication and Technology, 603–607. https://doi.org/10.48175/ijarsct-8345

Donnal. (n.d.). Proportion and Scale | Donnally Architects, LLC. https://donnallyarchitects.com/proportion-and-scale/

Ellsworth, Phoebe C., co-author. "Appraisal Processes in Emotion." K. R. Scherer, co-author. In Handbook of Affective Sciences, edited by R. J. Davidson et al, 572-95. Oxford: Oxford Univ. Press, 2003.

Formiga, B., Rebelo, F., Pinto, J. C., & Gomes, E. (2022). How architectural forms can influence emotional reactions: an exploratory study. In Lecture notes in computer science (pp. 37–55). https://doi.org/10.1007/978-3-031-05900-1_3

Frampton, Kenneth. "Towards a Critical Regionalism: Six Points for an Architecture of Resistance." The Anti-Aesthetic: Essays on Postmodern Culture, edited by Hal Foster, Bay Press, 1983

François, D., & Salingaros, N. (2021). Building with Biophilia: An Interview with Nikos Salingaros. Architecture's New Scientific Foundations. https://patterns.architexturez.net/doc/az-cf-219676

Frankwang. (2025, June 12). Perforated metal panels for architectural facades. ExMetals – Custom Metal Fabrication Services. https://exmetals.com/perforated-metal-panels-for-architectural-facades

Gehl, J. (1980). Life between buildings: Using public space. http://bvbr.bib-bvb.de:8991/F?func=service&doc_library=BVB01&local_base=BVB01&doc_number=022616273&sequence=000001&line_number=0001&func_code=DB_RECORDS&service_type=MEDIA

Glaveanu, V. (2014). The function of ornaments: A cultural psychological exploration. Culture & Psychology, 20(1), 82–101. https://doi.org/10.1177/1354067x13515937

Graham, B., Ashworth, G., & Tunbridge, J. (2000). A geography of heritage : power, culture, and economy. https://doi.org/10.4324/9781315824895

Graphic concrete. (2020, April 28). PROCESS & PRODUCTION. https://www.graphicconcrete.com/product/process-production

Hagerty B.M., Lynch-Sauer J, Patusky K.L, Bouwsema M., Collier P. Sense of belonging: a vital mental health concept. Arch Psychiatr Nurs. 1992 Jun;6(3):172-7. doi: 10.1016/0883-9417(92)90028-h. PMID: 1622293.

Hagerty, B. M., Williams, R. A., Coyne, J. C., & Early, M. R. (1996). Sense of belonging and indicators of social and psychological functioning. Archives of Psychiatric Nursing, 10(4), 235–244. https://doi.org/10.1016/s0883-9417(96)80029-x

Hameed, Umer. (2024). Roman Art and Architecture (Reading Material). 10.13140/RG.2.2.26665.61284.

Hamidé, Abdul-Rahman, Salibi, Suleiman, K., Smith, Gordon, C., Irvine, Elizabeth, V., Hourani, Habib, A., Commins, Dean, D., Scullard, Hayes, H., Ochsenwald, L, W., Polk, Roe, W., Gadd, & John, C. (2025, December 10). Syria | MAP, Civil war, rebels, religion, & History. Encyclopedia Britannica. https://www.britannica.com/place/Syria/Daily-life-and-social-customs

INAB. (2025, September 6). Installation of GFRC Facades: The Dry System Method - grc-inab. Grc-inab. https://grc-inab.com/installation-of-gfrc/

INAB. (2025, September 6). what is GFRC - GRC? introduction to Glass Fiber Reinforced Concrete - grc-inab. Grc-inab. https://grc-inab.com/gfrc-intro/

Hopkins, J. N. (2016, February 9). The genesis of Roman architecture. De Gruyter Brill. https://www.degruyterbrill.com/document/doi/10.12987/9780300214369/html

Kaplan, R., & Kaplan, S. (1989). The Experience of Nature A Psychological Perspective. New York Cambridge University Press. - References - Scientific Research Publishing. (n.d.). https://www.scirp.org/reference/referencespapers?referenceid=1536526

Keçeci, K., & Keçeci, K. (2025, June 30). Post-War reconstruction. Dök Mimarlık. https://dokmimarlik.com/en/post-war-reconstruction

Kesai. (2025, November 7). Perforated metal panel facade - COSUN SIGN. Cosun Sign. https:// en.cosun-sign.com/product/metal-facade-panels/

Kim, A. & Humanise. (2025). Why the outsides of buildings matter to human health: a global evidence review [Report]. https://strapi-humanise.s3.eu-west-2.amazonaws.com/Global_Evidence_Review_full_e7c5a079e3.pdf

Kolesovs, A. (2021). The sense of belonging to the country: integrative relationships and spatiotemporal commitment. Frontiers in Psychology, 12, 635113. https://doi.org/10.3389/fpsyg.2021.635113

Lev-Wiesel, R., Malayev, T., Mendel, N., Zohar, L. B., Wiselman, L., Zimmerman, R., Jaroenkajornkij, N., & Girish, M. (2025). The impact of war-induced relocation on sense of place: Examining its moderating role between event severity and psychological symptomatology. Journal of Environmental Psychology, 107, 102741. https://doi.org/10.1016/j.jenvp.2025.102741

Louro, Pedro & Redinho, Hugo & Malheiro, Ricardo & Paiva, Rui Pedro & Panda, Renato. (2024). A Comparison Study of Deep Learning Methodologies for Music Emotion Recognition. Sensors. 24. 2201. 10.3390/s24072201.

Malewczyk, M., Taraszkiewicz, A., & Czyż, P. (2022). Preferences of the facade composition in the context of its regularity and irregularity. Buildings, 12(2), 169. https://doi.org/10.3390/buildings12020169

Mansour, H. (2015). The lost identity of the city: The case of Damascus. ResearchGate. https://www.researchgate.net/publication/286252741_The_lost_identity_of_the_city_The_case_of_Damascus

Meddahi, K., & Boussora, K. (2021). Aesthetic measures of Algiers' colonial facades. Nexus Network Journal, 23(3), 667–688. https://doi.org/10.1007/s00004-021-00546-z

Miller, C., & Salingaros, N. (2021) Building Beauty: Interview with Nikos Salingaros. New English Review. https://www.newenglishreview.org/articles/building-beauty-interview-with-nikos-salingaros/

Miller, K. E., & Rasmussen, A. (2024). War exposure, daily stressors, and mental health 15 years on: implications of an ecological framework for addressing the mental health of conflict-affected populations. Epidemiology and Psychiatric Sciences, 33, e78. https://doi.org/10.1017/s2045796024000830

Monumental Labs. (n.d.). Monumental Labs. https://www.monumentallabs.co/

Murteza, N. D. (2021). Perceived wellbeing effects of designer fractal patterns: visual complexity and interior spaces. Indiana. https://www.academia.edu/63915129/Perceived_Wellbeing_Effects_of_Designer_Fractal_Patterns_Visual_Complexity_and_Interior_Spaces

Nextera. (2025, October 4). Nextera Insulation LLC. https://nexterainsulations.com/products_list/ architectural-facade-system/

Norberg-Schulz, C. (1971). Existence, space and architecture. London, UK: Studio Vista.

Pardede, S., & Kovač, V. B. (2023). Distinguishing the Need to Belong and Sense of Belongingness: The Relation between Need to Belong and Personal Appraisals under Two Different Belongingness–Conditions. European Journal of Investigation in Health Psychology and Education, 13(2), 331–344. https://doi.org/10.3390/ejihpe13020025

Pioneerfiber. (2026, January 15). Why GFRC is Gaining Popularity in Prefabrication. www.pioneerfibre.com. https://www.pioneerfibre.com/post/why-gfrc-is-gaining-popularity-in-prefabrication

Proshansky, H. M., Fabian, A. K., & Kaminoff, R. (1983). Place-identity: Physical world socialization of the self. Journal of Environmental Psychology, 3(1), 57–83. https://doi.org/10.1016/s0272-4944(83)80021-8

Raghani et al. City, Territory and Architecture (2025) https://doi.org/10.1186/s40410-025-00292-6

Rieder. (n.d.). Shaped facade panels for innovative facade designs. https://rieder.cc/en/formparts

Ryan, C. (2025, March 4). 14 Patterns of Biophilic Design: Complexity & order. Human Spaces. https://blog.interface.com/complexity-and-order-biophilic-design/

Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological wellbeing. Journal of Personality and Social Psychology, 57(6), 1069-1081.

Salingaros, N. (2007). A theory of architecture. ResearchGate. https://www.researchgate.net/publication/256059077_A_Theory_of_Architecture

Scherer, K. R. (2001). Appraisal considered as a process of multilevel sequential checking. In Appraisal processes in emotion (pp. 92–120). Oxford University Press.

Schlick, J. (2026, January 18). CNC Machining in Architecture: Uses, benefits, and implementation for architects. TechniWaterjet. https://www.techniwaterjet.com/cnc-machining-architecture/

Smith, C. A., & Lazarus, R. S. (1990). Emotion and adaptation. Contemporary Sociology a Journal of Reviews, 21(4), 522. https://doi.org/10.2307/2075902

Sound-rite. (2025, June 13). Glass Fiber reinforced concrete: Pros and cons for commercial use — SOUND-RITE INC. https://www.sound-rite.com/blog/glass-fiber-reinforced-concrete-pros-and-cons

Sukkar, A. S., Abou Zainedin, S. A. Z., & Fakhani, H. F. (2021). INFORMAL SETTLEMENTS IN SYRIA: WHAT APPROACH AFTER THE CONFLICT? In Arab Reform Initiative. Arab Reform Initiative. https://s3.eu-central-1.amazonaws.com/storage.arab-reform.net/ari/2021/10/27110940/EN-ARI_ResearchPaper_SYRIA.pdf

Syria population (2025) - Worldometer. (z.d.). Worldometer. https://www.worldometers.info/world-population/syria-population/

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin, & S. Worchel (Eds.), The social psychology of intergroup relations (pp. 33-37). Monterey, CA: Brooks/Cole.

Teghe, Daniel & Rendell, Kathryn. (2005). Social wellbeing: a literature review. 10.13140/RG.2.2.28891.26406.

Thamotharampillai, U., Perera, R., Wickremasinghe, R., Williams, S., Vijayasangar, T., Sivatharsan, B., Hilbert, V., & Somasundaram, D. (2025). Collective Trauma- Psychosocial consequences of war in northern Sri Lanka 10 years on, a mixed methods study. SSM - Mental Health, 8, 100457. https://doi.org/10.1016/j.ssmmh.2025.100457

TRIALOG 148/149 – Post-war Cities: Planning Recovery and Reconstruction – Trialog Journal. (n.d.). Trialog Journal. https://www.trialog-journal.de/en/journals/trialog-148-149-post-war-cities-planning-recovery-and-reconstruction/

Valentine, C. (2024). The impact of architectural form on physiological stress: a systematic review. Frontiers in Computer Science, 5. https://doi.org/10.3389/fcomp.2023.1237531

Wang, C., Ding, H., & Gath-Morad, M. (2025, September 26). A Systematic Review: Affective Perception on Urban Facades. arXiv.org. https://arxiv.org/abs/2509.22599

World Health Organization. (2021). Mental Health. Retrieved from https://www.who.int/healthtopics/mental-health/#tab=tab_1

Yoltar-Yıldırım, A. (2009). Ottoman decorative arts. Republic of Turkey, Ministry of Culture and Tourism. https://teda.ktb.gov.tr/

Zanon Prefabbricati. (n.d.). https://zanonprefabbricati.com/en/products/panels

Zhao, R., Guo, W., Wei, F., Luo, Y., & Liu, C. (2023). Improving the environmental health benefits of modern community public spaces: taking the renovation of residential facades as an example. Systems, 11(8), 388. https://doi.org/10.3390/systems11080388

APPENDIX 2 ORNAMENTATION: SYMBOLISM AND MEANING

Roman-era:
Symbolism and meaning.
Roman architectural ornamentation developed as a highly legible visual language closely tied to power, memory, and public life (Hopkins, 2016). Unlike the abstract ornamental systems of Islamic traditions, Roman ornament is fundamentally representational and hierarchical. It draws heavily on natural forms, mythological imagery, and inherited Greek classical vocabularies to communicate social order, political authority, and cultural continuity (Hameed, 2016).

At the core of Roman ornamentation lies the classical system of orders (Hameed, 2024). Columns, capitals, entablatures, and moldings were not merely structural or decorative devices, but carriers of meaning. Doric, Ionic, Corinthian, and later Composite orders conveyed different degrees of refinement, strength, and prestige. Their proportional rules established visual harmony while simultaneously signaling the importance of a building or space within the urban hierarchy. Ornament, in this sense, functioned as an architectural grammar that could be read and understood by contemporary viewers.

Figurative and vegetal motifs play a central role in Roman ornament (Hameed, 2024). Acanthus leaves, laurel wreaths, rosettes, garlands, and scrolls dominate capitals, friezes, and cornices. These motifs were not abstracted beyond recognition; instead, they retained a clear connection to the natural world. Laurel symbolized victory and imperial authority, garlands evoked abundance and religious offering, and acanthus leaves expressed vitality and artistic mastery. Through recognisable imagery, Roman ornament communicated values that were civic, political, and commemorative rather than metaphysical.

Material and craftsmanship were equally symbolic (Hopkins, 2016; Hamees, 2024). Marble of different colors, bronze details, stucco reliefs, and polychromy were deliberately employed to signal wealth, power, and technological sophistication. The Romans exploited the visual impact of materials on a monumental scale, using ornament to enhance the sensory experience of architecture and to project the resources of the empire. Ornament was thus inseparable from the economics of empire and the visibility of imperial reach.

Finally, placement within architectural space determined the meaning of Roman ornament. Decorative density increased at focal points such as capitals, triumphal arches, temple façades, basilica apses, and imperial monuments. Ornament framed entrances, crowned structures, and marked transitions between public and sacred or civic zones (Hameed, 2016). In imperial contexts, such as forums and victory monuments, ornament functioned as visual propaganda, embedding political narratives directly into the built environment.

In Roman architecture, ornament is therefore not an independent surface treatment but an integral component of architectural communication. Through representation, proportional systems, material expression, and spatial hierarchy, Roman ornament transforms buildings into readable statements of authority, memory, and civic identity.

Acanthus
A Mediterranean plant admired for its deeply cut, elegant leaves.

Where it is seen:
Corinthian and Composite capitals, friezes, architectural reliefs.

Symbolic meaning:
Represents vitality, enduring life, and artistic refinement. Its stylized form conveys natural beauty disciplined by order and proportion.



(meghanlostartpress, 2022)

Acroteria
Plinths and sculptural ornaments placed at the apex and corners of a pediment.

Where it is seen:
Temple pediments and monumental civic buildings.

Symbolic meaning:
Marks architectural culmination and visual emphasis. Acroteria enhance monumentality and often reinforce the identity or dedication of the building.

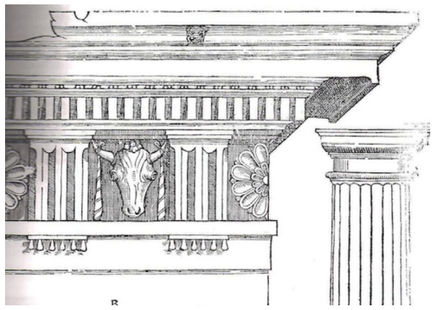


(Illustrated Glossary of Classically-Inspired Architectural Terms, n.d.)

Bucrane
A carved ox skull or ox head, often garlanded.

Where it is seen:
Metopes of Doric friezes, altars, sacrificial monuments.

Symbolic meaning:
Refers to sacrificial rituals and religious devotion. It evokes offerings to the gods, abundance, and piety.



(Bucrania, n.d.)

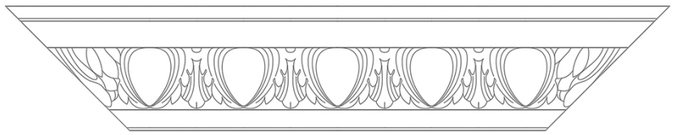
Eagle
A powerful bird motif used symbolically.

Where it is seen:
Imperial monuments, military standards, sculptural reliefs.

Symbolic meaning:
Symbolizes power, victory, authority, and divine favor. Closely associated with imperial rule and military dominance.



(Illustrated Glossary of Classically-Inspired Architectural Terms, n.d.)



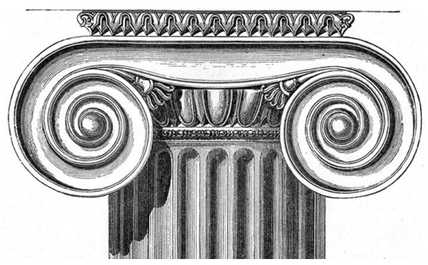


(Craven, 2025)

Egg & dart
A decorative molding with alternating egg-shaped ovals and dart-like elements.

Where it is seen:
Cornices, Ionic capitals, ovolo moldings.

Symbolic meaning:
The egg signifies fertility and rebirth, while the dart conveys movement and tension. Together they create rhythm and balance in classical design.

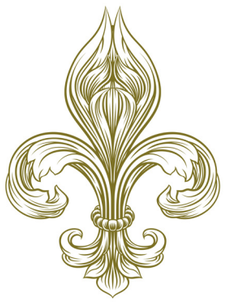


(Illustrated Glossary of Classically-Inspired Architectural Terms, n.d.)

Volute
The central disc or enriched element within an Ionic volute.

Where it is seen:
Ionic column capitals.

Symbolic meaning:
Represents wisdom and knowledge through its scroll-like form, as well as growth and natural evolution suggested by the spiral geometry.



(Metin, 2019)

Fleur de lis
A stylized lily flower motif.

Where it is seen:
Later Roman and post-Roman decorative contexts, religious and heraldic ornament.

Symbolic meaning:
Symbolizes purity, virtue, divine light, and perfection. In Christian contexts, it signifies the Virgin Mary and the Holy Trinity, and later royal authority.



(Types of Greek Frets, 2012)

Greek key (meander)
A continuous rectilinear pattern formed by a single unbroken line.

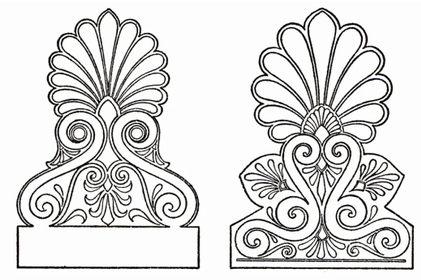
Where it is seen:
Friezes, borders, string-courses, mosaics.

Symbolic meaning:
Represents infinity, unity, and the eternal flow of life. It also conveys strength, protection, and resilience, with associations to the winding Maeander River.

Lotus (palmette)
Stylized floral motifs derived from lotus and palm forms.

Where it is seen:
Friezes, capitals, decorative borders, relief sculpture.

Symbolic meaning:
Associated with rebirth, regeneration, purity, and peaceful oblivion. Inherited from Egyptian symbolism and adapted into Greco-Roman decorative language.

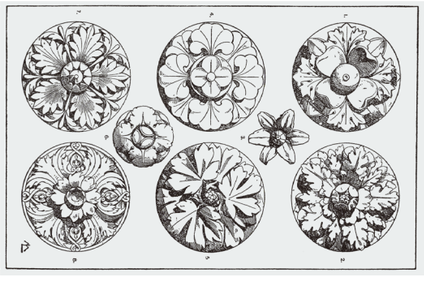


(Palmette - Wikiwand, n.d.)

Rosette
A circular, stylized floral ornament.

Where it is seen:
Friezes, coffers, metopes, funerary monuments.

Symbolic meaning:
Symbolizes love, beauty, rebirth, and the solar cycle. In funerary contexts, it represents resurrection, transition, and eternal life.



(Wikipedia contributors, 2025)

Tympanum
The triangular or curved recessed field within a pediment.

Where it is seen:
Temple façades, civic monuments, religious buildings.

Symbolic meaning:
Serves as a narrative and symbolic focal point. Sculptural programs communicate mythological stories, civic identity, religious devotion, and political values.

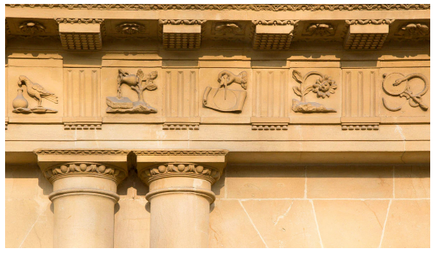


(Wikipedia contributors, 2025)

Zophorus
A continuous sculpted frieze bearing animals, figures, or mythological scenes.

Where it is seen:
Ionic and Corinthian entablatures.

Symbolic meaning:
Conveys narrative, religious ritual, power, fertility, and protection. Animal imagery communicates mythological meaning, civic pride, and divine order.



(Illustrated Glossary of Classically-Inspired Architectural Terms, n.d.)

Ottoman-era:
Symbolism and meaning.
Ottoman ornamentation developed within the broader framework of Islamic art, where figural representation was limited in religious contexts and visual meaning was instead conveyed through abstract, vegetal, geometric, and calligraphic forms (Yoltar-Yildrim, 2009). As emphasized in Ottoman Decorative Arts, Ottoman decoration should not be understood as illustrative or narrative, but as a symbolic language grounded in repetition, stylisation, and spatial logic.

One of the defining characteristics of Ottoman ornament is geometry. Interlocking geometric patterns, mathematically ordered grids, and symmetrical compositions appear consistently in architectural surfaces, tile revetments, woodwork, and manuscript decoration. These patterns express a rational and ordered vision of the universe, reflecting the Islamic understanding of divine unity and cosmic balance. Rather than drawing attention to individual motifs, geometric ornament dissolves hierarchy and directs perception toward an underlying, universal order.

Closely connected to geometry is rhythm. Ottoman ornament relies heavily on repetition and visual cadence. Motifs such as rumi scrolls, hatayi flowers, and arabesques unfold across surfaces in continuous sequences, creating a sense of infinite extension. This rhythmic repetition discourages focal points and instead immerses the viewer in a contemplative visual field. As noted in the discussion of architectural brushwork (kalemişi) and tile decoration, these repetitive systems were deliberately used to harmonize architectural forms rather than dominate them.

Material plays a crucial symbolic role in Ottoman ornamentation. Iznik tiles, glazed ceramics, gilded surfaces, painted plaster, stone carving, and wood all carry distinct visual and sensory qualities. The brilliance of glazed tiles, especially in mosque interiors, enhances light and color, reinforcing the spiritual atmosphere of sacred spaces. The careful combination of materials was not arbitrary but part of a hierarchical decorative program in which tiles, marble, and painted surfaces were assigned specific zones within a building.

Finally, placement within sacred or imperial space is central to the meaning of Ottoman ornament. Decoration was strategically concentrated around architecturally and symbolically significant elements such as the mihrab, dome, window arches, and calligraphic bands. In imperial contexts like Topkapı Palace, ornament articulated authority, refinement, and continuity, while in religious architecture it reinforced the sanctity of space through Qur'anic inscriptions and abstract motifs. Meaning, therefore, arises not from the motif alone but from its relationship to function, location, and hierarchy within the built environment.

In this way, Ottoman ornament operates as an integrated visual system. Its symbolism is embedded in abstraction, repetition, and spatial discipline, transforming surfaces into carriers of metaphysical and political meaning without resorting to narrative imagery.

Arabesque (Islimi)
A continuous, flowing vegetal pattern composed of spiralling stems, split leaves, and palmettes.

Where it is seen:
Mosque wall decoration, tile panels (Iznik), manuscript illumination, wood carving, stone reliefs, metalwork.

Symbolic meaning:
Represents infinity, unity, and divine order. The endless, non-figurative flow reflects the Islamic concept of God's infinite nature and the continuity of creation.

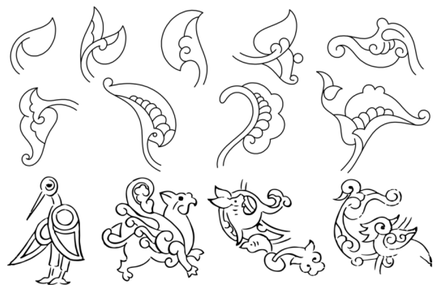


(Introduction to Arabesque – Art of Islamic Pattern, n.d.)

Rumi Motif
A stylised, abstract leaf or split-palmette motif, often interwoven with arabesques.

Where it is seen:
Architectural stone carving, tiles, book illumination, textiles.

Symbolic meaning:
Associated with imperial authority and refinement. The abstraction emphasizes spiritual transcendence over naturalistic representation.

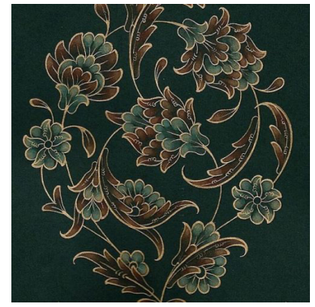


(Yazar, 2018)

Hatayi Motif
Highly stylised floral forms derived from East Asian lotus and peony motifs.

Where it is seen:
Iznik ceramics, manuscript decoration, textiles, wall tiles.

Symbolic meaning:
Symbolizes paradise, renewal, and idealized nature rather than earthly realism.



(HATAYI BORDER – Art of Islamic Pattern, n.d.)

Cloud Band (Bulut)
Curvilinear cloud-like bands originating from Chinese decorative traditions.

Where it is seen:
Tiles, manuscript borders, architectural ornament, textiles.

Symbolic meaning:
Represents heavenly power, divine presence, and cosmological order. Its adoption also signals Ottoman engagement with global artistic traditions.



(Iznik Tile With Cloud-bands – Galerie Kevorkian, n.d.)



(Wikipedia contributors, 2025)

Geometric Patterns (Girih)
Interlocking geometric shapes based on mathematical principles.

Where it is seen:
Stone façades, wooden ceilings, tilework, screens (mashrabiyya).

Symbolic meaning:
Expresses rational order, balance, and the underlying mathematical harmony of the universe as created by God.



(Eken, 2025)

Calligraphic Ornament
Decorative use of Arabic script, often Qur'anic verses or royal inscriptions.

Where it is seen:
Mosque interiors, domes, façades, manuscripts, ceramics.

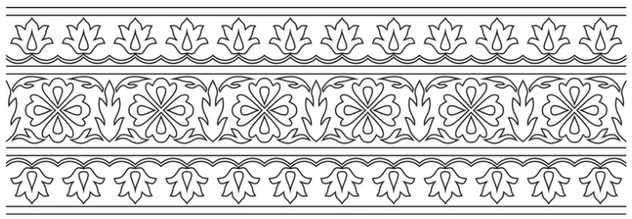
Symbolic meaning:
The word of God made visual. Calligraphy serves both spiritual and aesthetic functions, reinforcing sacred authority and legitimacy.

(Korkmaz, n.d.)

Rosette
Circular floral or star-like motif.

Where it is seen:
Ceilings, tile centers, stone façades, woodwork.

Symbolic meaning:
Represents perfection, cosmic order, and balance.



Carnation
A stylised flower motif, often paired with tulips.

Where it is seen:
Tiles, textiles, ceramics.

Symbolic meaning:
Represents elegance, vitality, and refinement. Unlike Western symbolism, it is primarily ornamental and idealised.

Palmette
Fan-shaped leaf motif, often integrated into arabesque systems.

Where it is seen:
Stone carving, tile borders, manuscript illumination.

Symbolic meaning:
Symbol of life, growth, and continuity, inherited from earlier Islamic and classical traditions.



(Eken, 2025)

APPENDIX 3 DATA MANAGEMENT CHECKLIST

DATA MANAGEMENT CHECKLIST

Instruction

This checklist is relevant for all graduation projects of the Master AUBS. The form is intended to highlight common aspects of graduation projects that require particular attention with regard to planning the research and data management. Relevant information and supplementary sources regarding each question are provided below each question.

With this checklist, the faculty wants to avoid that students unexpectedly find themselves in complex and stressful situations, in which ethical or privacy matters and/or other laws and regulations become an issue. In projects involving humans, certain types of data processing increase the risks to the human participants: planning such projects requires additional evaluations and advice from university staff before ethical approval can be received and the project can begin. In the case of a graduation project, obtaining additional advice or permits may delay the project with an extra education period or semester. To avoid this, it is recommended that students set up a graduation project with a low level of risk. Therefore, all students have to check their risk, by completing this checklist before their A1.

The first section of the checklist (A) should be completed by all students, together with their supervisor, during the planning of the graduation project, before the A1. It does not need to be submitted to anyone for review or approval. Please consider questions 1 to 3 carefully in relation to the intended graduation project, and answer with 'yes' or 'no'.

The second section of the checklist (B) should only be completed if the graduation project involves working with data from human participants. In that case, the student and their supervisor must apply for and receive ethical approval from the Human Research Ethics Committee (HREC) before the project can begin (see the paragraph 'Explanation and follow-up' after the questions). The student can submit the application to the HREC, but the supervisor is responsible for making sure that the project is compliant with relevant privacy regulations and ethical policies.

Section A. General considerations	yes	no
1. Is the graduation project conducted as part of an internship (at a company), or as part of a research project at TU Delft? If a student's graduation project is conducted at a company or as part of a research project at the university, questions of data ownership and intellectual property rights need to be addressed in a written graduation or internship agreement before the project begins. Students and their supervisor should consult the Intellectual Property Rights of Students webpage. Additional information can also be found in the Extended Personal Research Data Workflow.		✔
2. Does the project involve conducting (part of) the research outside the Netherlands? Students who intend to travel abroad (even to other EU countries) for study, exchange, research, internship, or graduation project purposes need to follow the Travel Safety Protocol. This includes attending a mandatory Travel Safety Training Session: see the Disclaimer.	✔	
3. Will the research involve processing data from humans, such as running a survey, conducting interviews or workshops, collecting data through social media or internet forums, or re-using existing datasets about humans provided by a third party? (If 'yes', see follow-up questions 4 to 13 in Checklist B.) Students who work with data from human participants must complete the next section and apply for and receive ethical approval from the Human Research Ethics Committee (HREC) before conducting the research.		✔

1

APPENDIX 4 REFLECTION

Looking back at this graduation project, I realise that it took me on a very different journey than I initially expected. When I started, my ambition was to focus on the architectural details of a design, something I had rarely had the opportunity to fully explore during my studies. However, as the project developed, I found myself designing not only a building, but an entire urban structure. This was a major challenge and often pushed me outside my comfort zone, but it ultimately became one of the most valuable aspects of the project. It taught me a great deal about urbanism and made me realise that architecture and urban design cannot be separated from one another. The quality of a building is heavily influenced by its urban context, just as the quality of a city is shaped by its architecture.

Another important insight was my growing interest in the relationship between psychology and architecture. Throughout the research and design process, I became increasingly fascinated by how people perceive, experience, and emotionally connect to their environment. In the end, architecture is not only about creating spaces, but about how people feel within those spaces and how they relate to them over time. This project strengthened my interest in themes such as belonging, identity, affective appraisal, and human perception, and I intend to continue exploring these themes in future projects.

Perhaps the most important lesson was the importance of surrounding yourself with the right people. Throughout this project I built connections with many individuals who greatly strengthened the design through their knowledge, experience, and feedback. Conversations with Syrian friends were valuable, helping me understand cultural nuances and evaluate which design decisions would be appropriate within the Syrian context, something that would have been difficult to achieve on my own. I also learned a great deal from architects and professionals who challenged my assumptions and broadened my perspective. In particular, I met architects who actively use AI within their design process. These conversations helped me better understand how AI can be used as a design tool, which I was able to apply directly within my own project. Rather than seeing AI as something to fear, I have come to view it as a tool that architects can collaborate with to explore ideas, test alternatives, and improve communication throughout the design process. This experience has shown me that good design is never created in isolation. Moving forward, I hope to continue building a strong network of people around me, as I believe that collaboration, dialogue, new technologies, and shared knowledge are among the most important tools an architect can have.

Finally, I would like to thank my supervisors, Atze and Joost, for their guidance throughout this graduation project.

Atze's knowledge of indoor climate and building physics fundamentally changed the way I think about architecture. He taught me that designing for climate is ultimately about designing for people. Ventilation is not simply about moving air through a building; it is about creating a healthy, comfortable, and pleasant environment for the people living inside it. Beyond the technical aspects, Atze also taught me the importance of understanding the people you work with and design for, a quality that I hope to continue developing throughout my career.

I would also like to thank Joost for his guidance and trust throughout the design process. What I appreciated most was the freedom he gave me to explore ideas, make mistakes, and develop my own direction, while always being available to help when needed. Beyond the project itself, Joost shared many insights about the architectural profession and his own experiences within the field. These conversations helped me reflect on the type of architect I want to become and the path I would like to pursue after graduation.

I am very grateful for their support and hope to remain in close contact for future projects and collaborations.