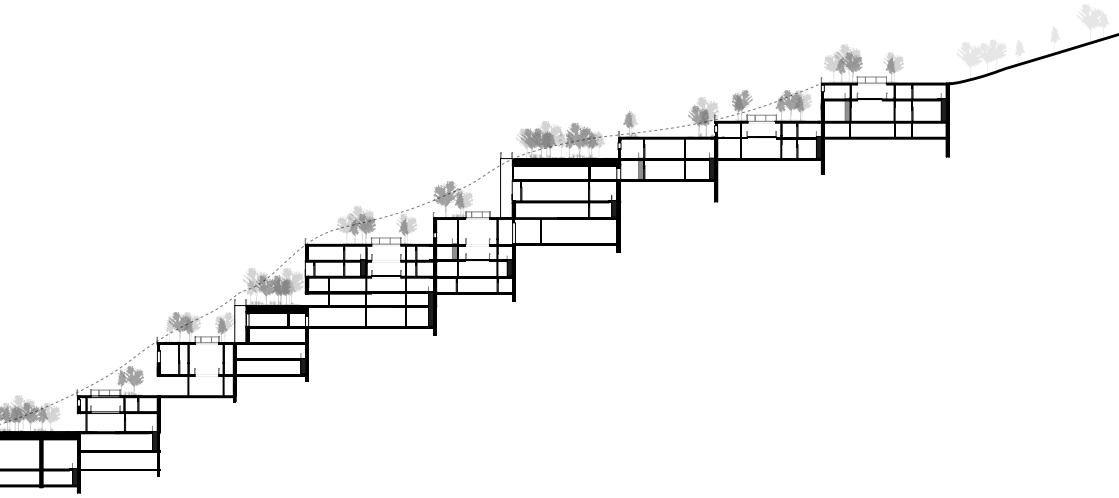
The City on the Wall

Rethinking Retaining Walls as a Multifunctional Resource through Interdisciplinary Design

Dafna Galeen



TECHNION
Israel Institute
of Technology

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The City on the Wall

Final Project

"Space, Consciousness and Sustainability" Studio

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Research Seminar

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Architecture and Town Planning Program

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Content

01 The Challenge

"The process of design is not about imposing but about revealing possibilities that are already there."

(James Corner)

The Boundaries of Planning and Their Spatial Expressions

In the spatial planning professions, there is a clear distinction between different fields, each focusing on a particular aspect of the physical environment. Among these fields, we find two architectural domains: architecture and landscape architecture. My initial interest in this subject arose from the dilemma of choosing between the different tracks upon entering academia—a question that has accompanied me ever since. Indeed, the disciplinary separation between the fields begins already at the academic level in which they are studied, and this trend continues in professional practice as well.

Architecture, as we know it today in our surroundings, deals primarily with buildings and less with the design of their environment. In contrast, landscape architecture focuses on the design of the space between buildings, and not on the

Between Architecture and Landscape, Photo: Original, 2024
Barbican center, Chamberlin, Powell & Bon, London

buildings themselves. Already here, we see the tendency to separate the two fields, leaving no overlapping gray areas. This creates two parallel planning realities that do not intersect, leading to a fundamental lack of communication. In the past, there was no division between these fields. However, with the differentiation of landscape from architecture during the 18th century, the two professions began a process of professional separation that distinguished them from one another.[1] Since then, this separation has only deepened, with each field including certain subjects while leaving others outside its scope.[2]

(1) Swaffield, Theory in landscape architecture a reader, 2002
(2) Meyer, The Expanded Field of Landscape Architecture, 1997
(3) Leatherbarrow,. Is Landscape Architecture?, 2011

Despite the disciplinary boundary between architecture and landscape architecture, there are points of overlap between them. Sometimes, we encounter projects that blur the rigid boundary. In such cases, the treatment of the ground is often proposed as a bridging solution that enables viewing the built and the landscaped as one unified system. In these spaces, continuity is created, allowing harmony between the different components of the environment.[3]

The spatial quality achieved in such environments raises a broader question about the boundaries between other spatial

‚Between Architecture and Landscape: Yad Hanadiv Visitors Center, Ramat Hanadiv Arch. Ada Carmi-Melamed, Photo: Amit Guron, 2008

professions as well. The fragmentation of knowledge in spatial disciplines includes subjects relating to mobility, infrastructure, engineering, drainage, and more. These disciplinary boundaries manifest physically in space. The clear separation between fields often leads planners to adopt a narrow perspective, focusing only on their specific expertise. As a result, impermeable and monotonous elements are created, disconnected from their surroundings and reinforcing differences between various environmental components. In the urban public realm, which is the focus of my work, these elements create significant disruption. They function as barriers, generating fragmented public spaces that negatively affect the perception and functioning of the environment.[1]

To understand this phenomenon, I examined these boundaries in environments with significant spatial characteristics—cities built on mountains. Today, when each planning field remains confined to its narrow perspective, topographical height differences are perceived as planning constraints. In the construction of a city on a slope, each discipline views the space only through its own lens, attempting to solve the issues within its scope alone. Consequently, each field enters the process at a different stage, ultimately leaving us with disconnected urban layers. In other cases, overly steep areas are neglected and abandoned, creating ruptures within the urban fabric. Common solutions for building in mountainous cities are limited and often unsuccessful, with highly significant spatial consequences.

(1) Saisanath, Subbaiyan, Influence of the Physical Attributes of Boundary Walls on the Perceived Sociability of the Adjoining Public Space, 2022

Drainage
Water carriers: Gaaton in Nahariya.
Photo: Dr. Avishai Teicher, 2011

Transitions and Movement
Ruppin Interchange, Haifa.
Source: Carmel Tunnels Website, 2014

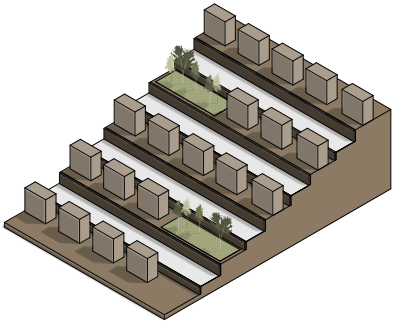
Static
Public Parking, Haifa.
Photo: Original, 2024

Engineering
Retaining Walls, Haifa.
Photo: Architect Guy Shahar, 2010

Examples of the spatial expression of spatial subjects

One of the most prominent physical manifestations of professional boundaries in mountainous cities is retaining walls. Retaining walls intersect with subfields of spatial planning, including engineering, architecture, and landscape. Despite their enormous impact on these domains, they remain a solution focused solely on the engineering aspect, disregarding the other environmental dimensions. They stand out as a spatial phenomenon that sharply illustrates the lack of functional continuity resulting from disciplinary separation. In mountainous cities such as Haifa, the prevalence of retaining walls has unintentionally turned them into a defining feature of the city. The default approach for planners in topographically challenging environments is the use of retaining walls.[1] Yet, these walls generate boundaries in space. They fragment the urban fabric and reinforce the separation between its components. In fact, they clearly highlight the missed spatial potential that results from disciplinary separation.

From this arises the central question I will explore: How can we plan cities on mountainous in a way that encourage a connected, walkable urban fabric, instead of fragmentation and physical barriers?



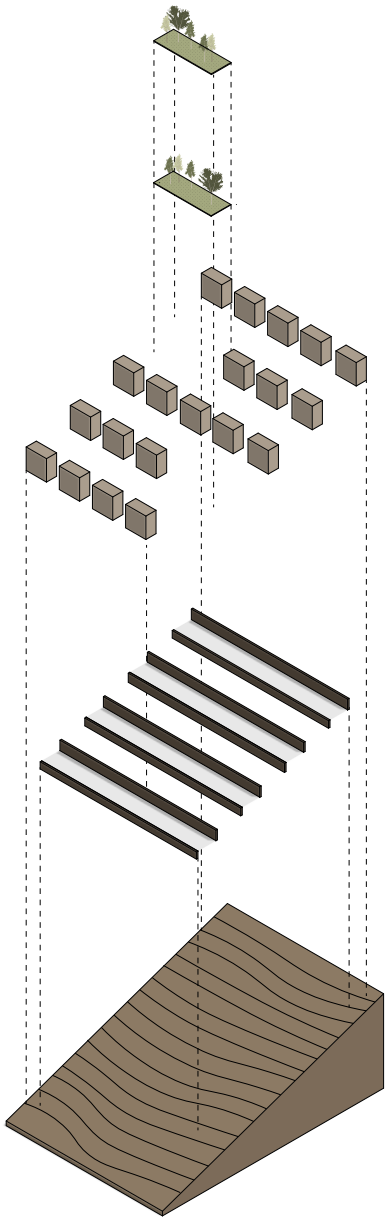
(1) Based on a personal interview, Asaf Stern, 30.12.2024

Landscape

Architecture

Retaining walls and infrastructure

Existing Terrain



Slope Development: Fragmented Urban Layers

02 Retaining Walls as a Case Study

Retaining Walls, the Missed Resource

A retaining wall, by definition, is an engineering structure designed to stabilize and support soil masses, prevent landslides, and compensate for significant elevation changes in topography.[1] Retaining walls are placed in space as a simple, cheap, and quick solution to deal with conventional construction in mountainous topography. This is the main reason they have become so prevalent in topographical planning.[2] This project focuses on retaining walls adjacent to public areas.

The use of walls for soil stabilization began thousands of years ago, mainly for agricultural purposes in land cultivation. Terraces supporting soil were designed out of functional necessity. Today, technological developments have led to the creation of supports of different scales and materials.[3] Retaining walls, similar to terraces, were born out of a functional need.

Retaining walls as a functional necessity: Retaining wall on Hazan Street in Haifa, Photo: Original, 2025

(1) According to the Collins Dictionary

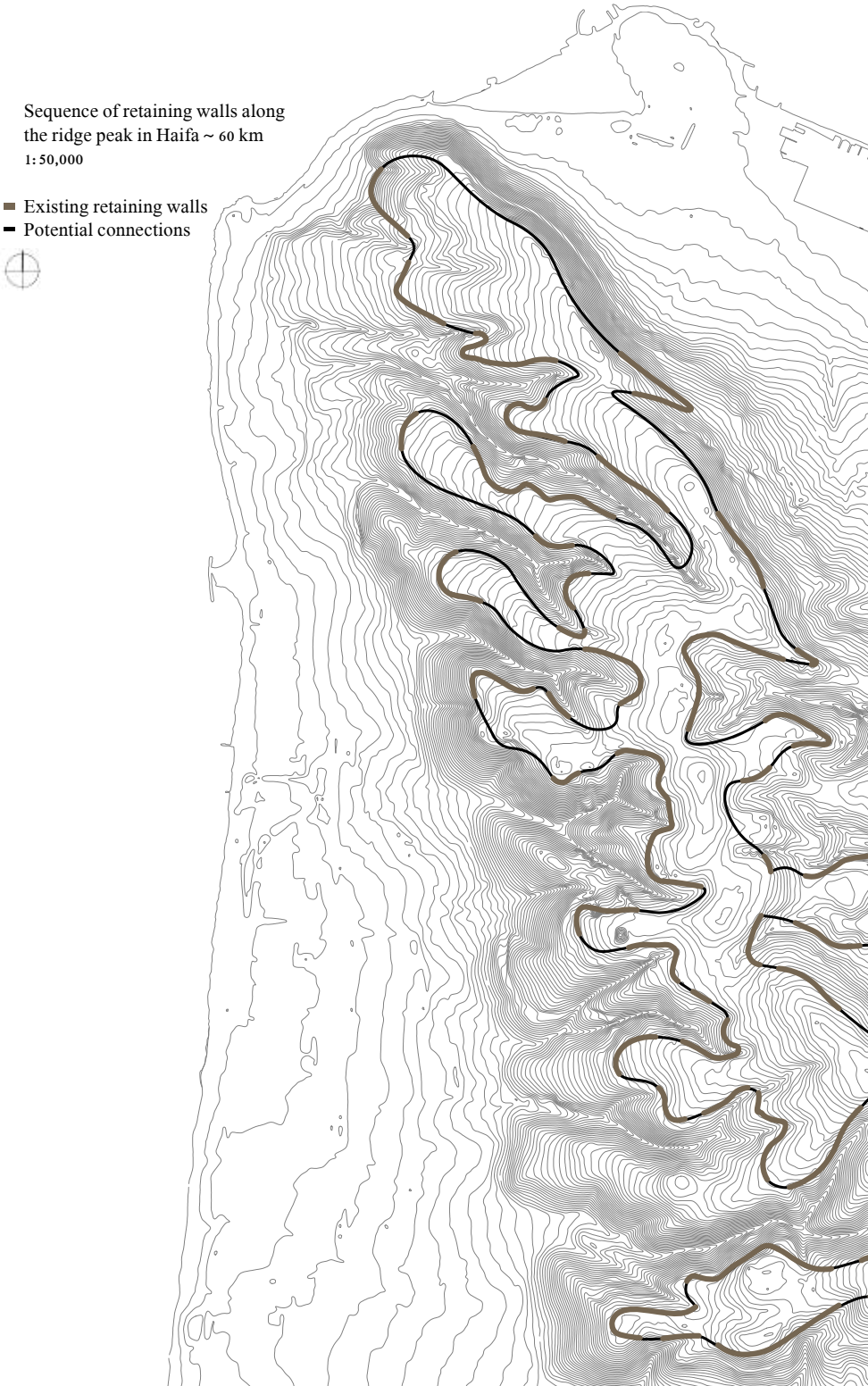
(2) Based on a personal interview, Asaf Stern, 30.12.2024

(3) Castro, Vallejo, Estrada, The Optimal Design of the Retaining Walls Built by the Incas in Their Agricultural Terraces 2018

Sequence of retaining walls along the ridge peak in Haifa ~ 60 km

1: 50,000

- Existing retaining walls
- Potential connections

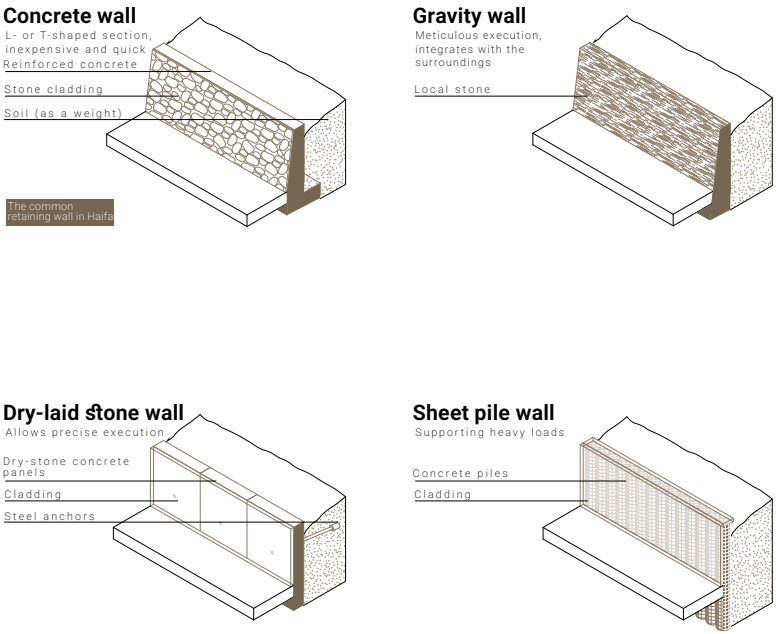


Nowadays, their use is widespread, despite having significant weaknesses.

The extensive use of retaining walls as the default solution for construction in topography has turned them into a spatial phenomenon. In many mountainous cities in Israel, the presence of retaining walls in public space is highly significant.[2] Consequently, retaining walls have, unintentionally, become a central feature of mountainous cities in Israel. The excessive reliance on retaining walls has led to a large collection of built walls, which can sometimes appear as if they merge into one long wall defining areas within the city. From an urban perspective, we can quantify retaining walls and understand their enormous built scale.

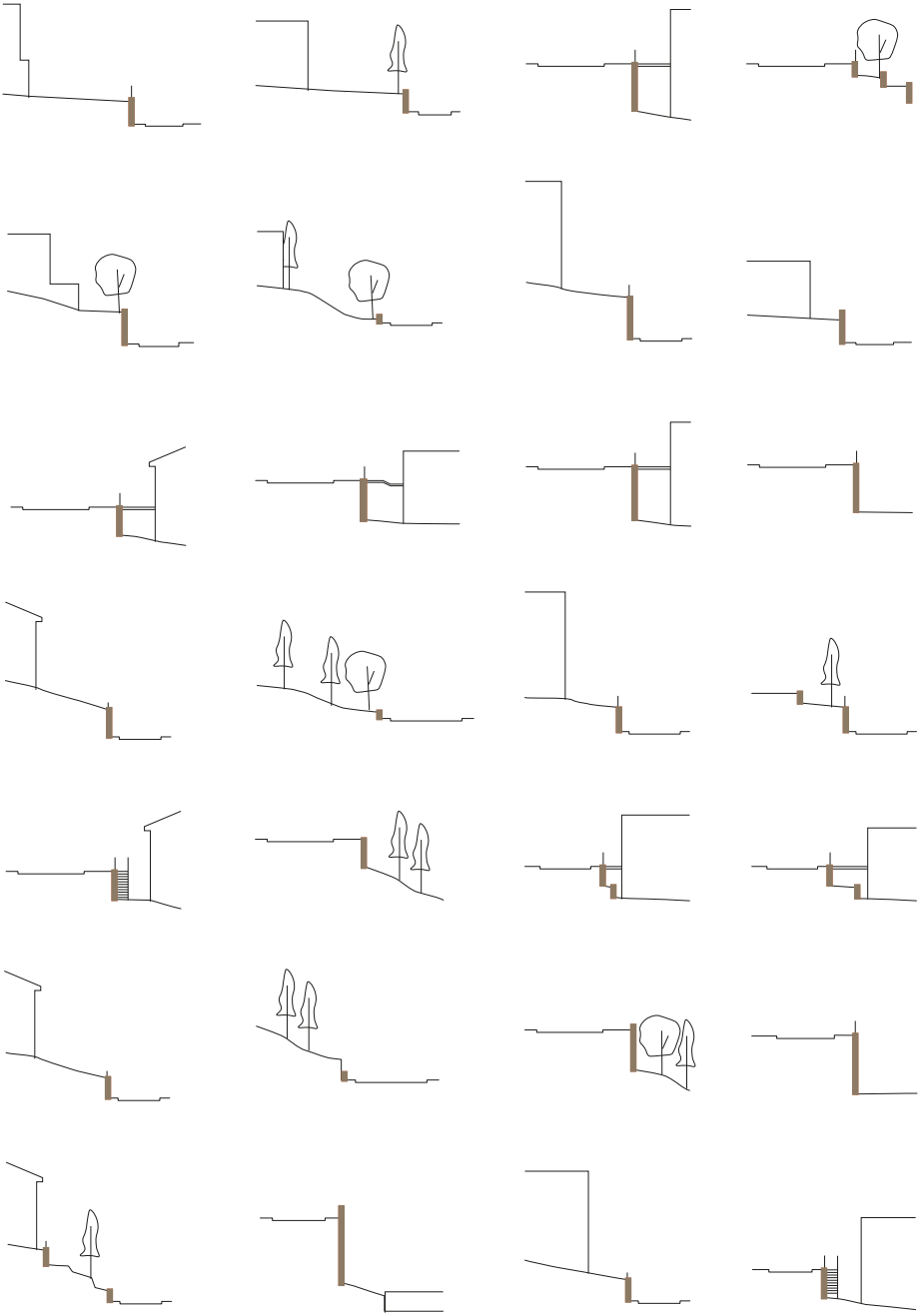
One of the main problems of retaining walls is their monotony. Planners assigned them a single role: to support the building or the transportation infrastructure by holding the soil and creating a leveled, regular area for planning. This monotony is also expressed in their repetitive form. The reason for choosing the common form of the retaining wall is economic. The prevailing assumption is that this is the fastest and cheapest solution to address the topographical challenge. This assumption is disproven in light of long-term maintenance costs.[1] Moreover, the decision to design them repetitively and monotonously causes the walls to manifest in space in a uniform way, varying only in height or length. In other words, the appearance of the walls remains essentially the same, without regard to their spatial context.

(1) Based on a personal interview, Asaf Stern, 30.12.2024
(2) Saisanath, Subbaiyan, Influence of the Physical Attributes of Boundary Walls on the Perceived Sociability of the Adjoining Public Space, 2022
(3) Liu, Wilson, Hu, Liu, Wu; Mingjian, How does habitat fragmentation affect the biodiversity and ecosystem functioning relationship?, 2018

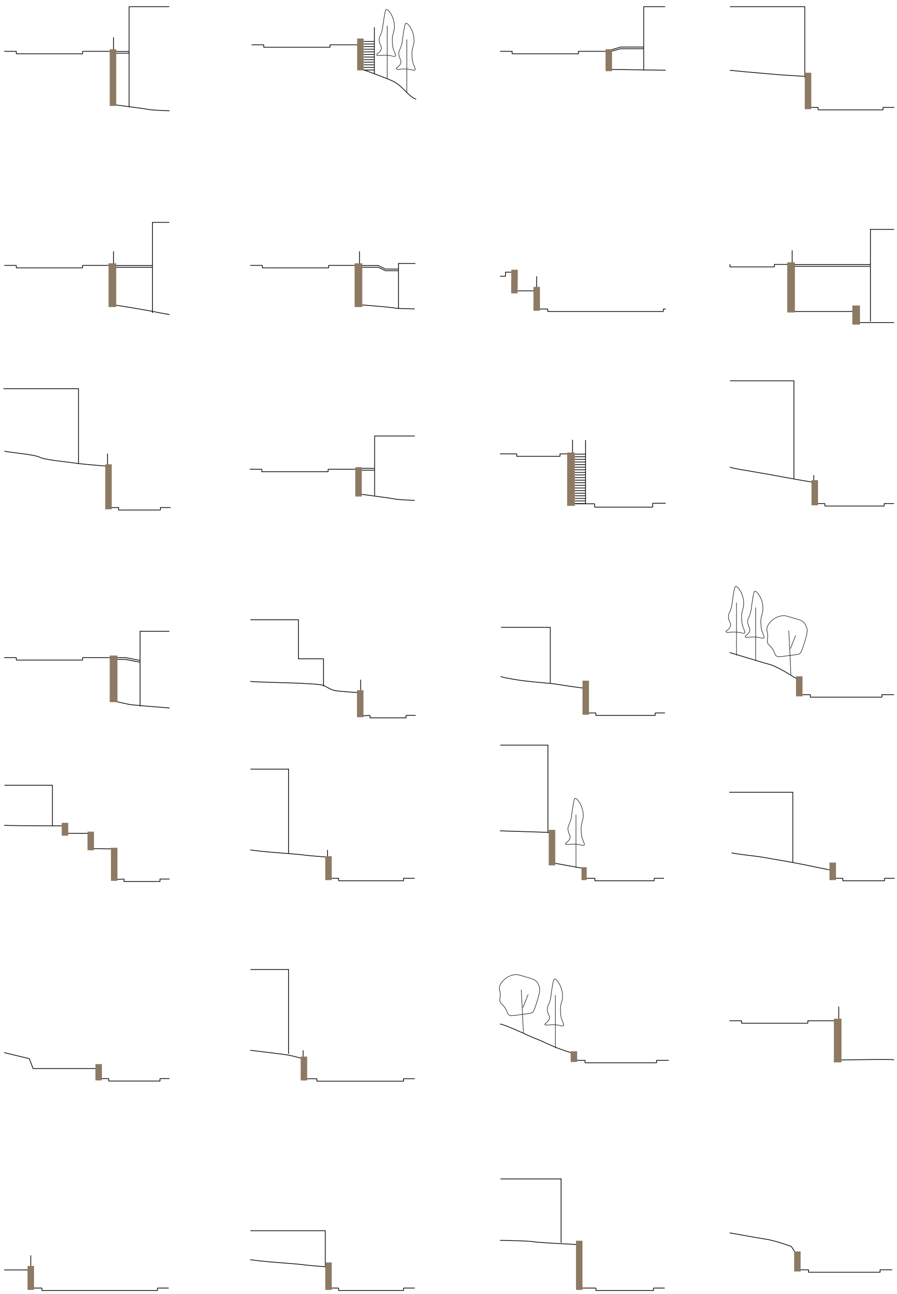


The common types of retaining walls and the most common wall in Haifa

Retaining walls have indirectly become space-defining elements: long streets bounded by walls that create rigid borders between areas. Typically, on one side of the wall lies private land, while on the other lies public space. Retaining walls interfacing with the street reveal an impenetrable façade to pedestrians, animals, vegetation, and the ecosystem. The walls are positioned as artificial infrastructure separating natural and human systems. This division blocks movement and sight connections, expressing anti-urbanism in the lack of communication it fosters. In this way, it also creates social[2] and ecological barriers, with critical consequences for biodiversity and resilience.[3] Furthermore, the monotonous walk along opaque, repetitive retaining walls creates an alienating experience for users of the space.[2] Thus, retaining



The monolithic retaining walls: typical sections in the eastern neighborhoods of Haifa arranged according to spatial context. Essentially identical walls, with height variations along the wall, but without regard to the surrounding environment.



walls represent a failed and restrictive point of encounter between critical components of the urban environment.

Significant resources are invested in the construction of retaining walls—from their planning to execution and maintenance costs. The construction cost of one square meter of a concrete retaining wall with a standard thickness of half a meter is about 200$.[1] Considering the continuity of Haifa's retaining walls, which extend for tens of kilometers, we can grasp the enormous economic resources dedicated to their construction. Moreover, the collapse of retaining walls, especially due to rainfall, is a common phenomenon in Haifa. Therefore, when calculating economic resources, the cost of repairs must also be considered.[2] All of this reveals the vast economic effort invested in this urban system. In fact, significant resources are devoted to impermeable, monotonous walls that disrupt space. This highlights both the great problem with the retaining wall phenomenon as it exists today, and the urgent need for a shift in mindset toward them.

Often, retaining walls can become a nuisance or even a danger to the public when they fail in the single role assigned to them by planners. Rain events frequently cause unplanned, powerful water flows around retaining walls, creating a public hazard. By artificially altering ground slopes, the walls disrupt natural watercourses, channeling large volumes of runoff into random points along the wall and generating intense, uncontrolled flows. The more severe scenario is the collapse of retaining walls due to water accumulation and the absence of an

(1) Based on a personal interview, Asaf Stern, 30.12.2024
(2) Mendelsohn, "Collapsed retaining wall on Yad Labanim Road in Haifa", 2023

Almost indistinguishable: the repetitive appearance of retaining walls isolated from their surroundings in Haifa, Photo: Original, 2024

adequate drainage system.[1] The collapse of retaining walls is not a rare occurrence in Haifa; it endangers the public and its consequences pose long-term disruption for residents.[2] This is a real problem stemming from a repetitive planning flaw in retaining wall design—yet another reason why we must rethink how we plan in mountainous environments.

From all the above, my main conclusion is that retaining walls are a wasted urban resource, born out of a narrow engineering need whose use has spiraled out of control. Despite common perception, a retaining wall is not merely an engineering element—its impact goes far beyond practical boundaries. In practice, the wall functions as a rigid border, with wide-ranging influence on its surroundings. Therefore, treating retaining walls as purely supportive and ignoring their environmental impact creates an urban system that is disconnected and even troubling. These walls are blind to the other disciplines in their context, just as their planners are blind to them. They stand as clear evidence of an element that misses its potential as a result of disciplinary separation.

(1) Carmi, "The collapse of the supporting wall of a building in Haifa", 2021
(2) Odeh-Krantingi, "Promiscuous and Fearful of Winter Presenters", 2023

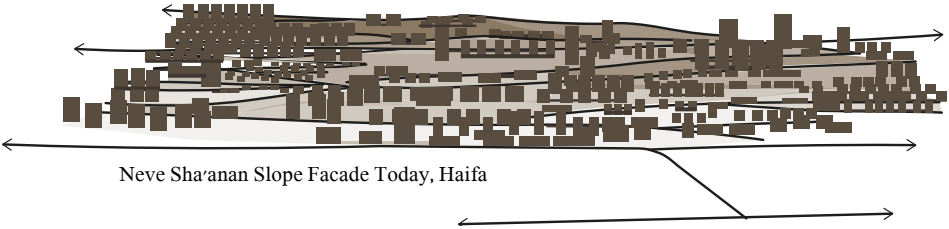
Walls as a nuisance: collapse of a retaining wall on Yad Levanim Street in Haifa in 2023; its restoration is still in progress
Source: 'Yefe Nof', 2023

Talking to the Wall

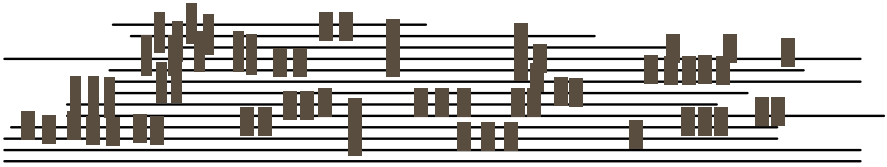
The topographical changes in Haifa and similar cities embody opportunities for multi-dimensional spaces through the spatial possibilities that elevation differences allow. In contrast, today the mountainous slope frontage that emerges is characterized by vertical construction that dominates the mountain and contradicts the existing topographical lines. In this way, the mountain city ignores the natural infrastructures it has been given.

The retaining walls that were placed to create leveled infrastructure for buildings are in fact intermediate spaces that touch upon many fields, such as soil, construction, infrastructure, and drainage. Therefore, they hold the potential to serve as bridging tools in space. Within their spatial context lies the power to be interdisciplinary, to connect rather than disconnect. By re-planning this in-between zone, it is possible to generate a space that responds to additional needs invited by the environment.

The interdisciplinary potential can also be discovered in other spatial phenomena that manage to blur overly rigid boundaries. The spaces that succeed in doing so were either born out of the functional needs of their time or evolved in response to changing needs over the years.[1] Interdisciplinary thinking gives rise to hybrids of different spatial uses. In this way, multifunctional spaces are created, producing in-between areas that enrich their surroundings while simultaneously answering real needs. In my project, I decided to apply this approach and design a multifunctional supporting space.

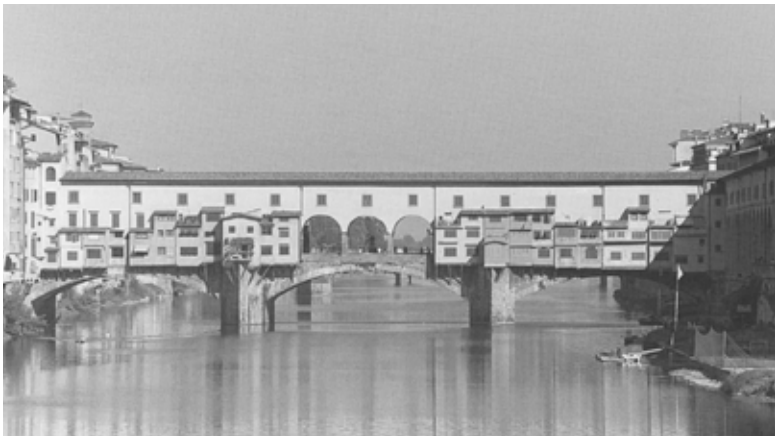


Neve Sha'anan Slope Facade Today, Haifa



The natural and horizontal versus the artificial and vertical in Haifa

(1) Flanigan, The Ponte Vecchio and the Art of Urban Planning in Late Medieval, 2008



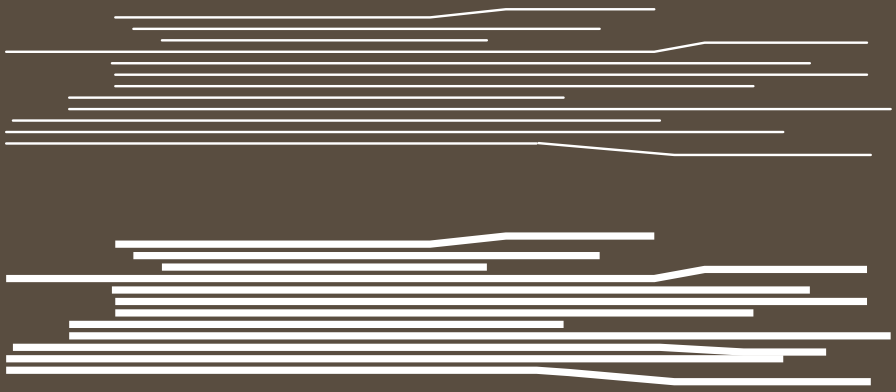
Ponte Vecchio, Florence, Photo: Theresa Flanigan, 2008
Blurring of usage boundaries: a periodic need led to the integration of commerce and traffic

The Western Wall, Jerusalem Archive, 1967
From an engineering solution to a spiritual landmark

The intermediate zone where retaining walls are located holds the potential to transform them into multi-dimensional elements. Between the wall and the ground, there exists a relationship. Currently, this relationship is disconnected and alienated. The retaining wall is perceived as a two-dimensional boundary, appearing as if rigidly glued—opaque and unresponsive to its environment, the soil, and the street. Through redesign, it is possible to create spatial solutions that realize the potential inherent in these relationships.

An urban and topographical environment requires unique solutions that enable optimal use of its limited land while promoting urban connectivity. Retaining walls are key elements in the mountain city. They characterize slope construction and currently stand as clear evidence of the failures of disciplinary division.

One way to harness the missed potential of retaining walls is by focusing on their volumetric and multifunctional possibilities. This potential exists precisely because of one of the major barriers I have described—their role as boundaries in space. That is, by their very presence at the point of contact with different domains of the urban environment, we can imagine the connections that could exist, in contrast to the separations that exist today. From this point, I began my design process.



From limiting line to usable volume

From vertical to horizontal

From Limitation to Advantage

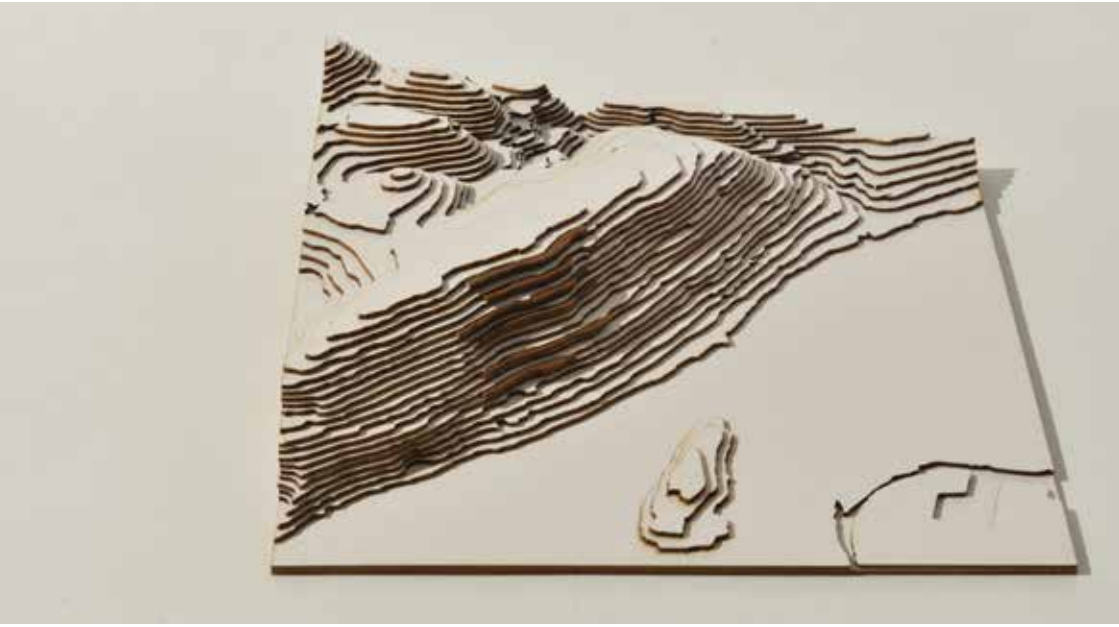
The intervention strategy I propose begins with a shift in perception: viewing topographical differences in cities as a planning advantage rather than as a limitation, as they have been treated until now. In addition, it requires looking at the existing situation with a broad perspective, free of separation between the different components of space. This perspective, together with the potential inherent in the space currently occupied by the retaining wall, initiated my process of rethinking a new spatial concept. The new space I developed, replacing the familiar retaining wall, is called the Supportive Space. This is a reimagined design for the urban and mountainous environment, leveraging the advantage of topographical differences.

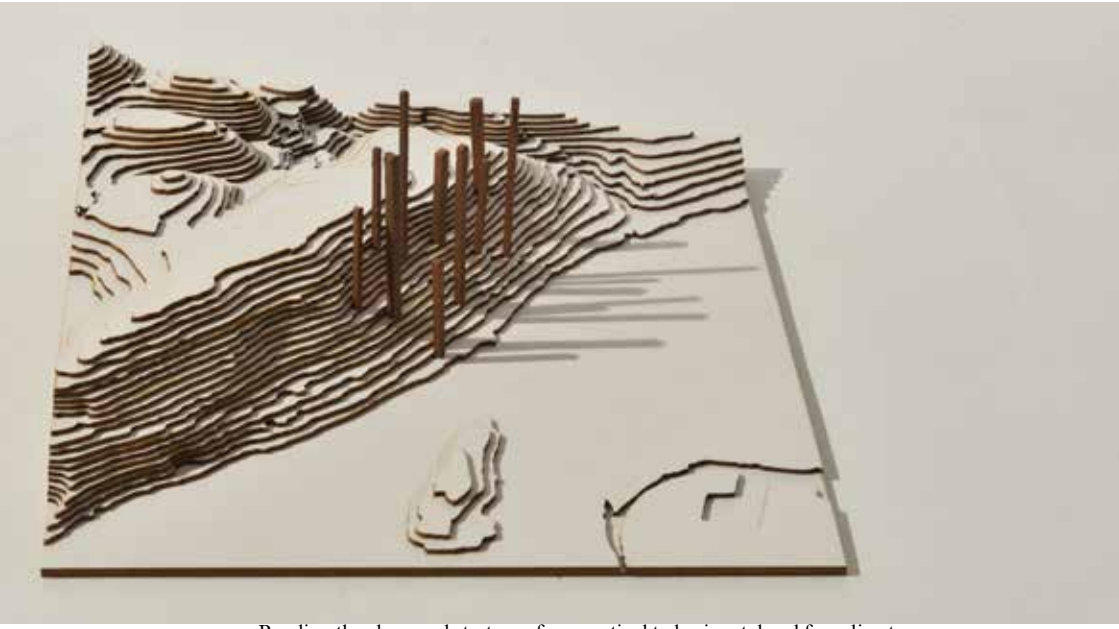
The new Supportive Space is based on two principles. The first is from line to volume: transforming the existing wall from a limiting line into a usable volume. Expanding the supporting spatial mass allows for the incorporation of functions and multifunctionality into the soil-supporting element. The second principle is from vertical to horizontal: shifting from vertical construction, which contradicts the topographical lines and currently characterizes the slope, to horizontal construction that yields to the mountain.

With these tools, the new Supportive Space combines engineering needs with the other requirements of planning—environment, architecture, landscape, and infrastructure. The new Supportive Space is built on terraces that express the principle of volumetric decomposition of the existing wall.

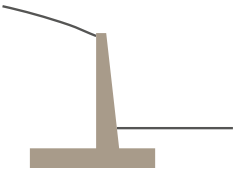
At the neighborhood scale, this decomposition enables multifunctional activity spaces. In addition, it transforms the slope into a continuous fabric where movement follows and yields to the topography, thereby harnessing natural resources to create a high-quality urban fabric.

These principles are based on the most fundamental characteristics of the mountainous city: elevation differences and the need to inhabit these terrains. Therefore, I see them as tools that can be broadly applied in the planning of mountain cities. They hold the potential to serve as a practical and effective planning method in any mountainous urban context.

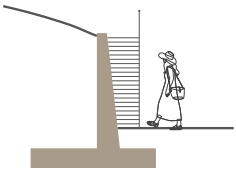




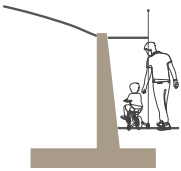
Reading the slope and strategy: from vertical to horizontal and from line to volume 1:15,000



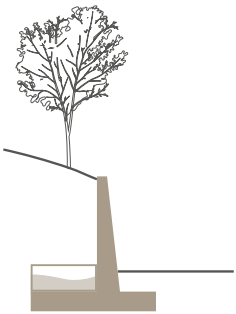
Existing condition



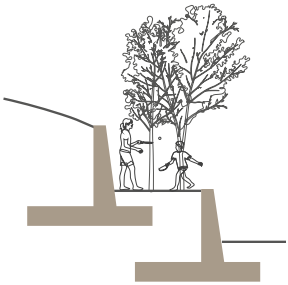
Stairs | Movement



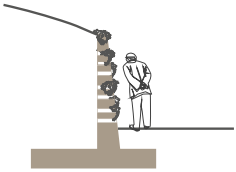
Ramp | Movement



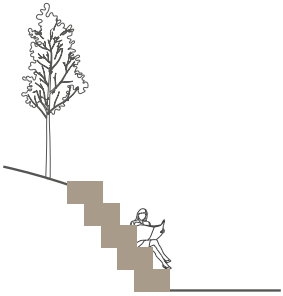
Water retention | Functional



Free terraces | Wall deconstruction



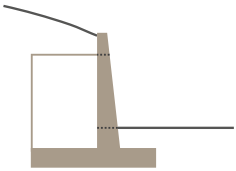
Living wall | Perforation of the wall



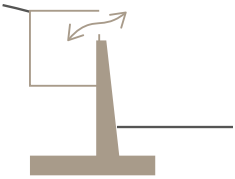
Built and open terraces | Wall deconstruction

Inverted terraces | Wall deconstruction

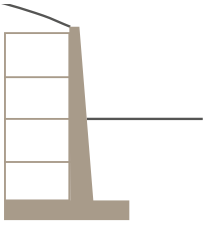
Built terraces | Wall



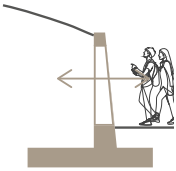
Excavated space | Adding volume



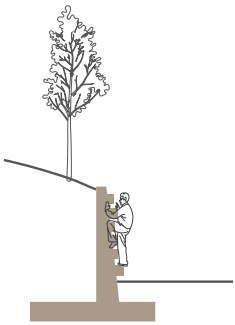
Upper volume | Adding volume



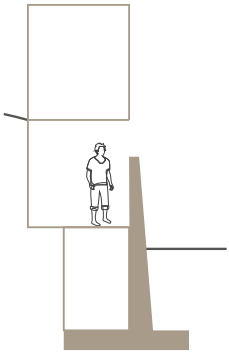
Adjacent spaces | Adding volume



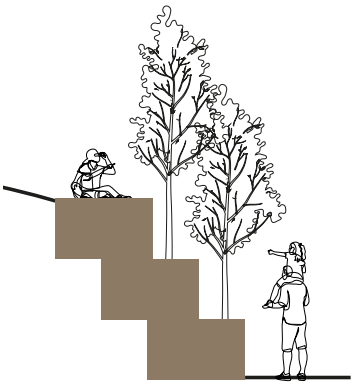
Gate | Movement



Climbing wall | Movement & play



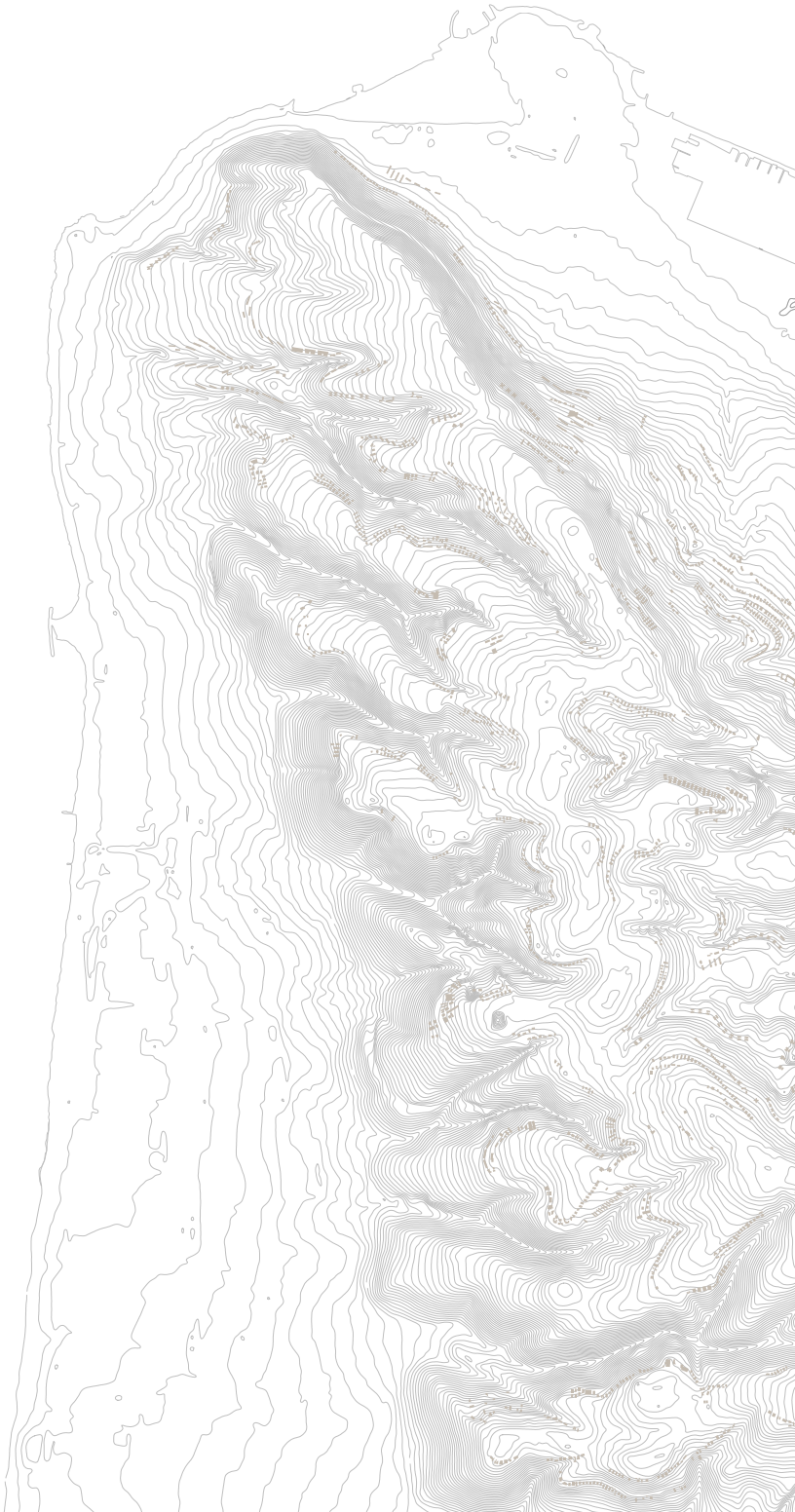
Height and depth | Adding volume



Built Terraces | Wall Deconstruction

Following discoveries of existing multifunctional spaces, I examined the volumetric potential of the retaining wall. The investigation combined the wall's engineering function of soil support with additional variable functions.

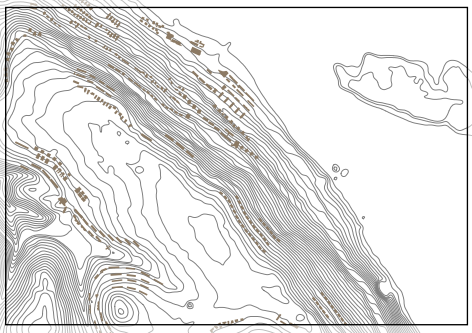
The chosen approach decomposes the wall into terraces, enabling the reconstruction of the supporting volume to allow usable levels. At the neighborhood scale, this allows the design of multifunctional spaces and the creation of a continuous slope that follows the topography.



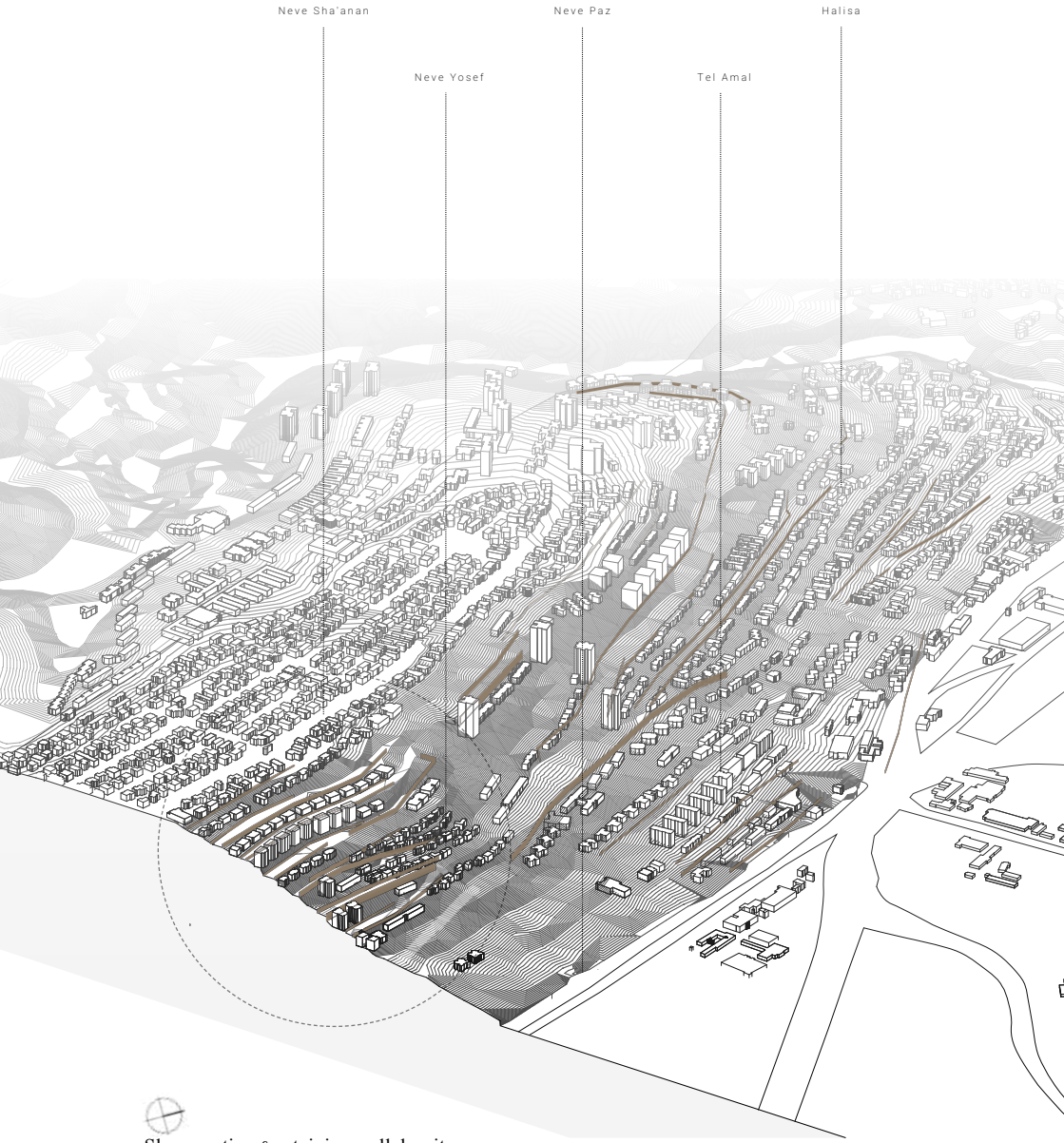
The Site, The Slopes of Neve Sha'anan, Haifa

Haifa, one of Israel's mountainous cities on the Carmel ridge, features numerous retaining walls due to its steep slopes, making it an ideal case study. City-scale mapping identified the Neve Sha'anan slopes in the southeastern part of the city, a steep area with a dense cluster of retaining walls. This area is also slated for urban renewal, including a proposed downward extension into an adjacent vacant site.[1] This plan provides an opportunity to reconsider densification through the new Supportive Space. An ecological survey showed that the planned area holds conservation value, unlike the northern vacant site, which is largely characterized by hazards.[2]

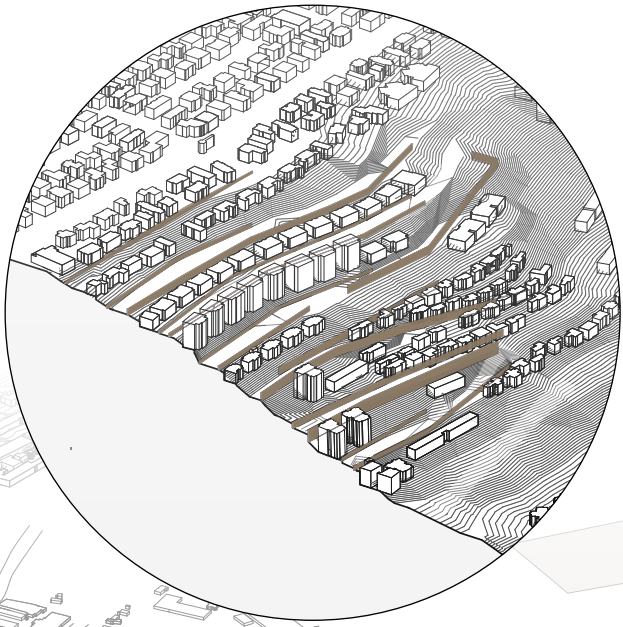
(1) From the Haifa Municipality website: Strategic Plan for NE Haifa (2020), Master Plan for Renewal of the Eastern Neighborhoods (in planning), and Detailed Plan for the Slopes of Neve Sha'anan (in planning)
(2) Based on Haifa GIS data

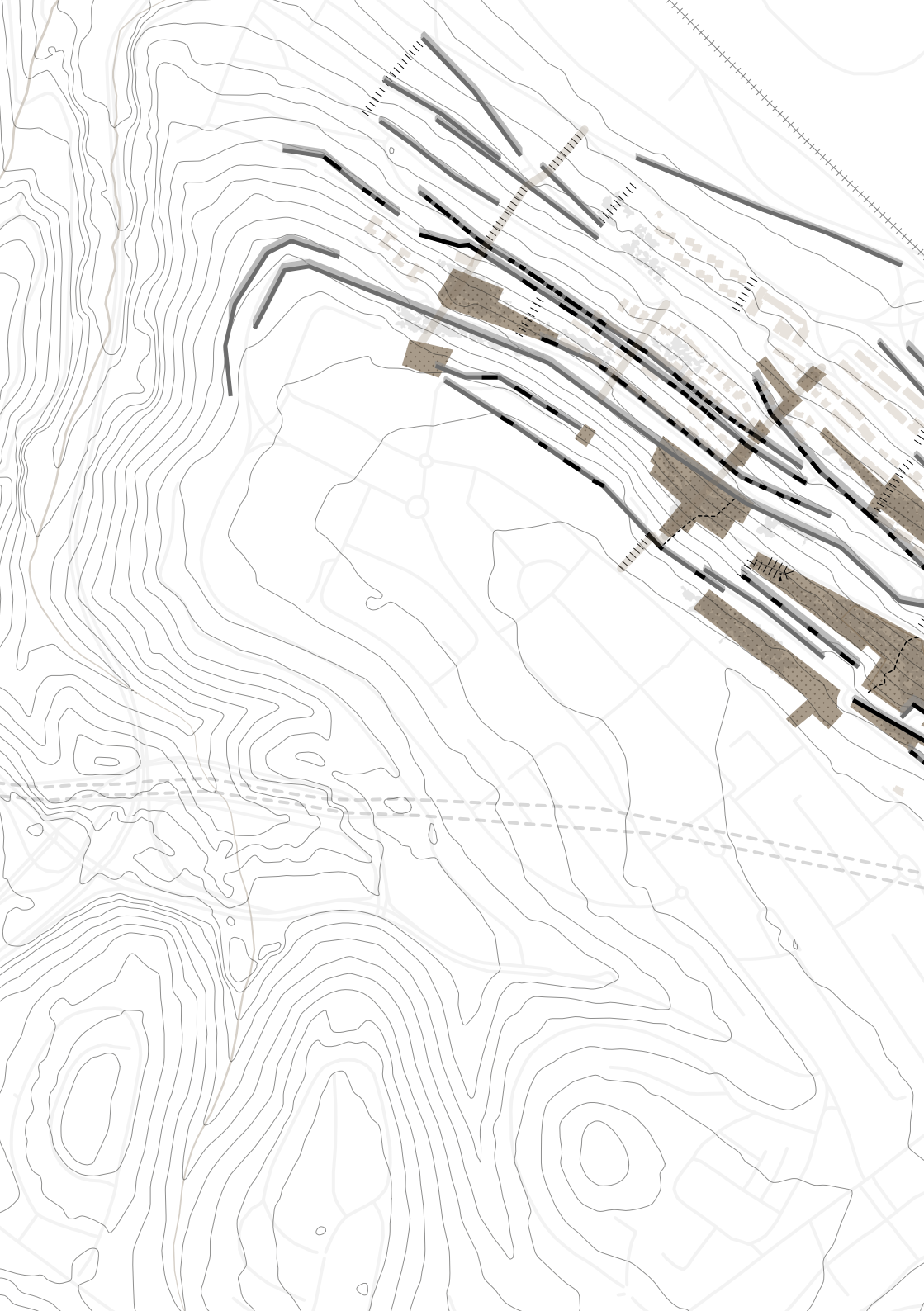


Urban mapping, Buildings supported by retaining walls in Haifa & focus area
1: 50,000

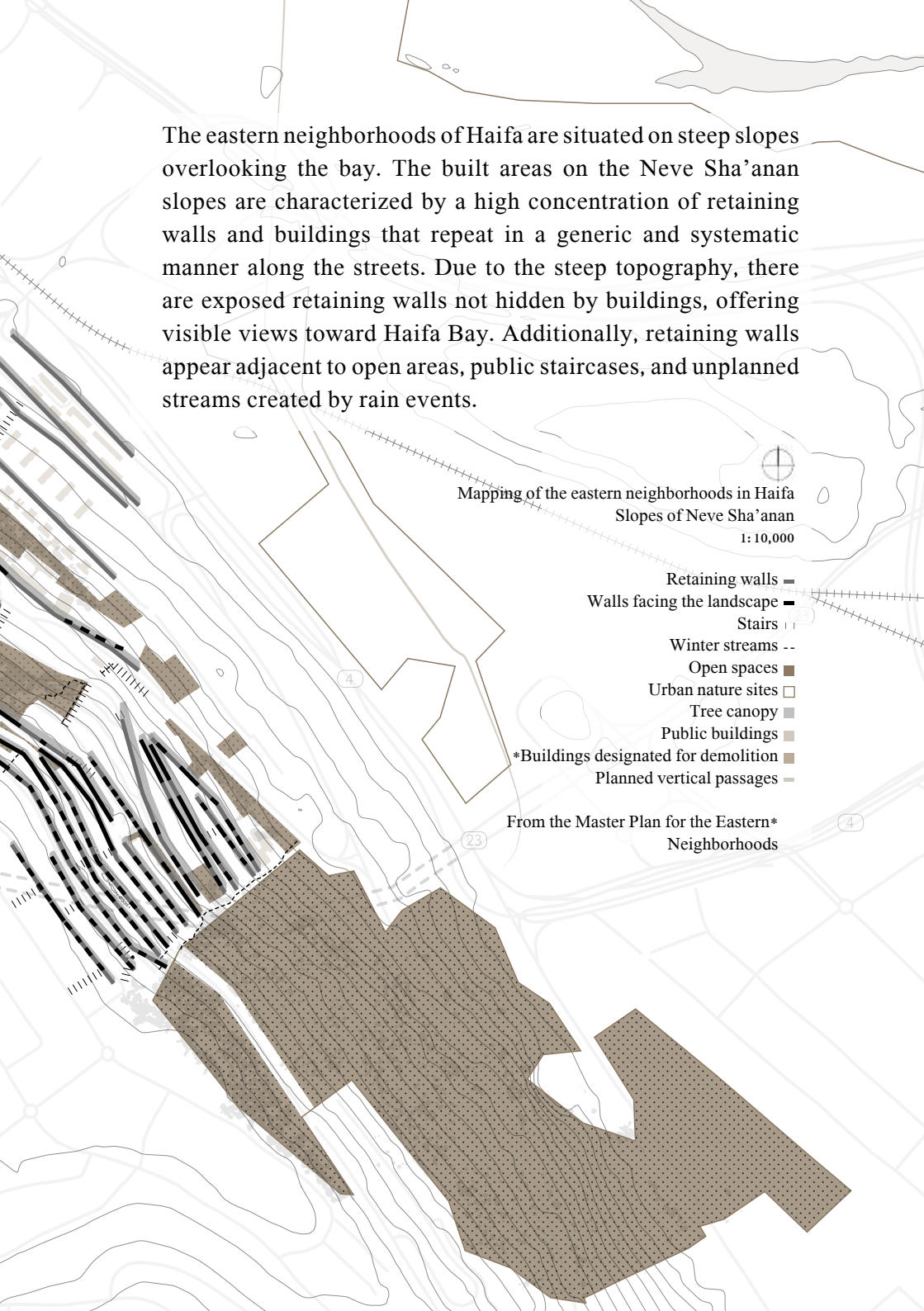


Slope section & retaining wall density





The eastern neighborhoods of Haifa are situated on steep slopes overlooking the bay. The built areas on the Neve Sha'anan slopes are characterized by a high concentration of retaining walls and buildings that repeat in a generic and systematic manner along the streets. Due to the steep topography, there are exposed retaining walls not hidden by buildings, offering visible views toward Haifa Bay. Additionally, retaining walls appear adjacent to open areas, public staircases, and unplanned streams created by rain events.



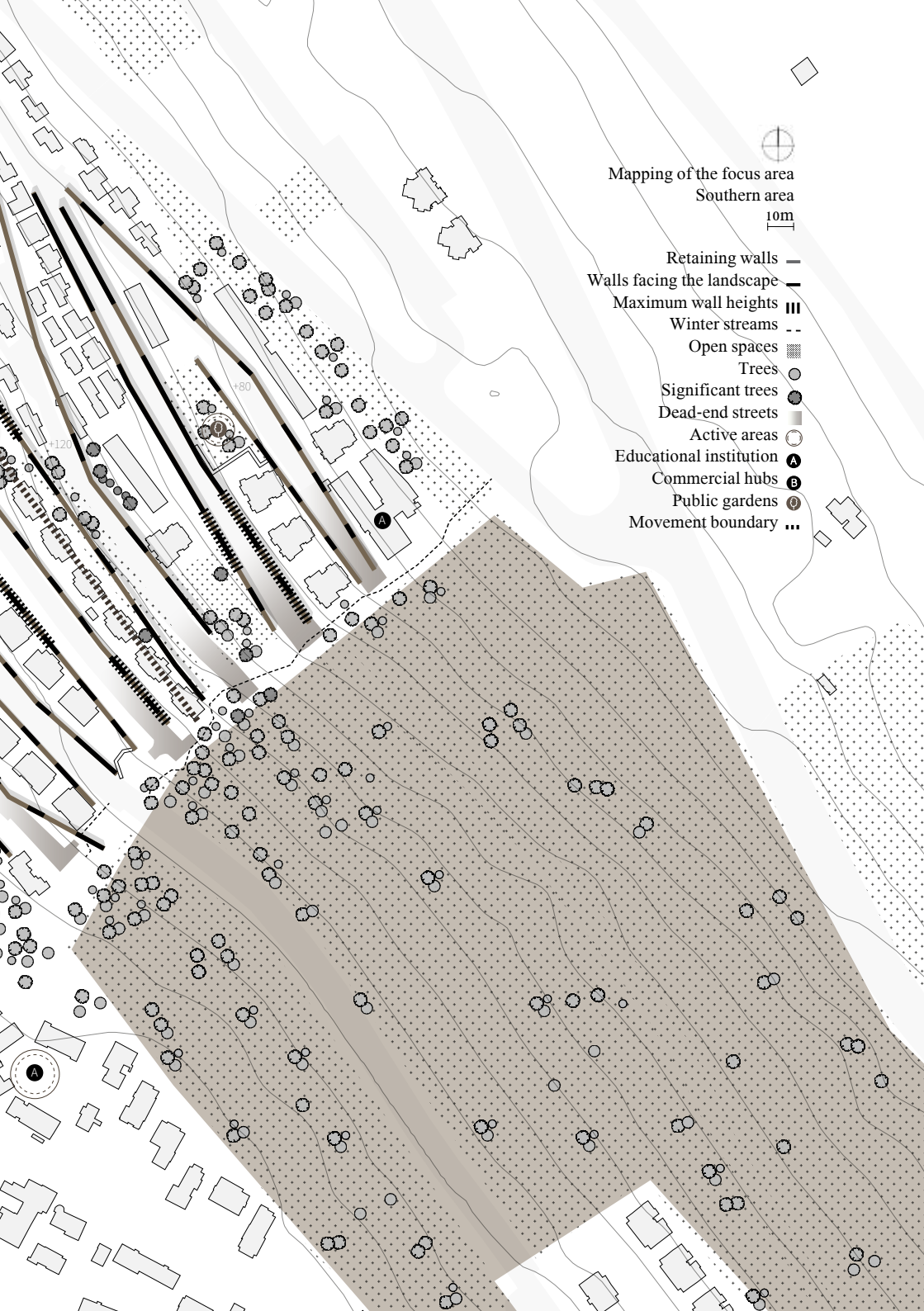
Focus Area

The existing neighborhoods are dormitory suburbs, with many retaining walls and a lack of connectivity, containing numerous dead-end streets. The abrupt halt in construction to the south is a result of the mountain's steepness. The elevation differences create planning challenges.[1] It seems that, at this point, planners simply gave up, ceasing to plan once the slope became too steep—thereby abandoning a highly strategic piece of land. This is an open and untreated area trapped between two neighborhoods. The decision to neglect it has created several problems, the main one being circulation. In the adjacent neighborhoods, many dead-end streets have emerged, leading to fragmented movement. Vertical movement is also lacking. Altogether, these conditions have made the area very non-walkable. Combined with the fact that there are no urban hubs within the neighborhoods, they remain largely empty of human activity throughout the day.

(1) Based on a personal interview, Guy Ronen, 17.06.2025

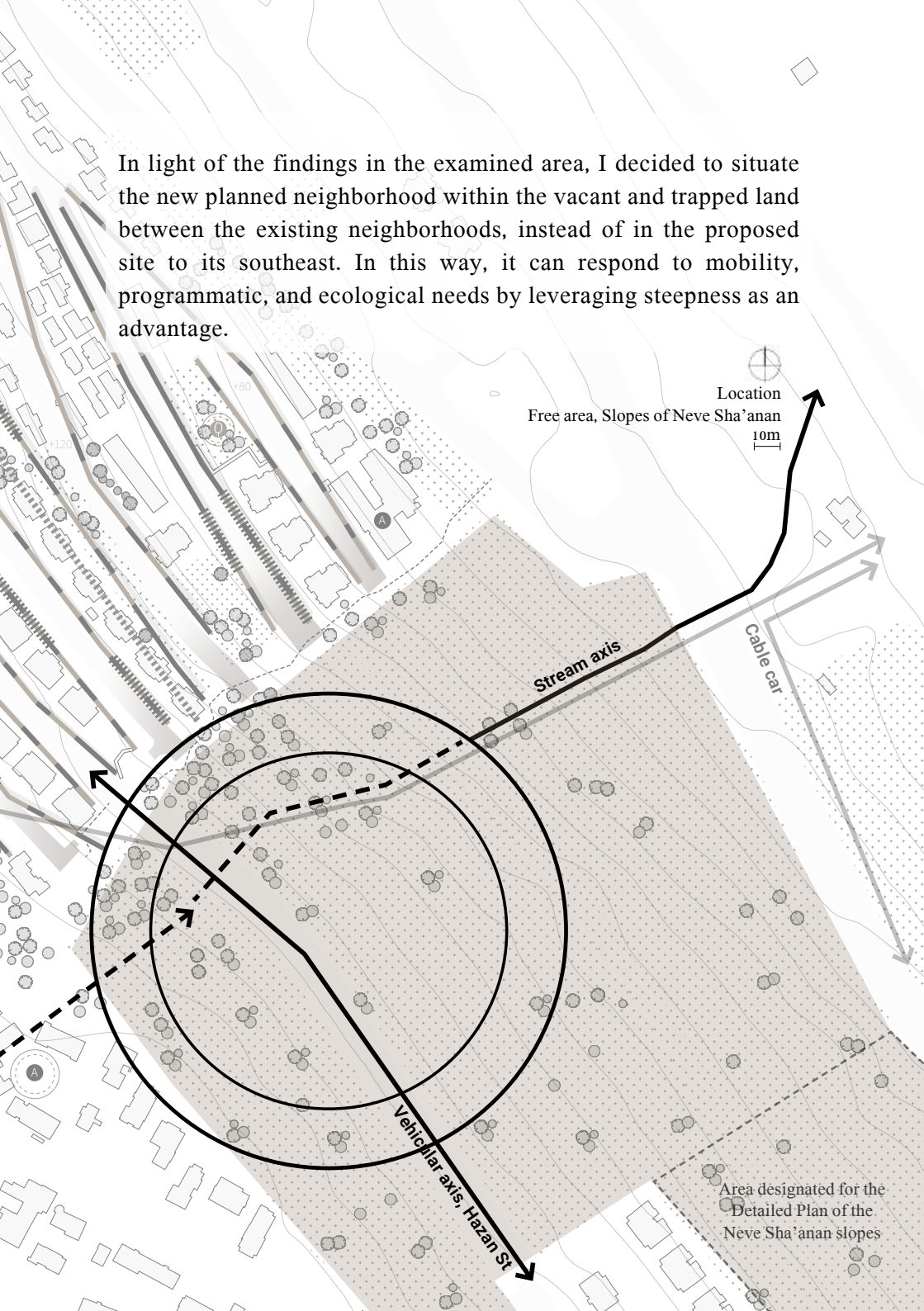
Open space potential: improvised paths in an overlooked area. Photo: Original, 2025


+160
+200


Mapping of the focus area
Southern area
10m
Retaining walls
Walls facing the landscape
Maximum wall heights
Winter streams
Open spaces
Trees
Significant trees
Dead-end streets
Active areas
Educational institution
Commercial hubs
Public gardens
Movement boundary
+80
+120


Carmel Tunnels
Pedestrian axis, Trumpeldor Blvd

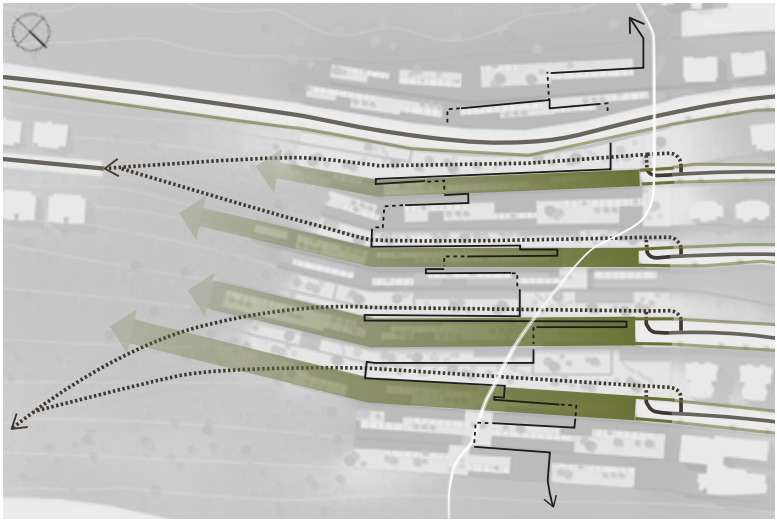
In light of the findings in the examined area, I decided to situate the new planned neighborhood within the vacant and trapped land between the existing neighborhoods, instead of in the proposed site to its southeast. In this way, it can respond to mobility, programmatic, and ecological needs by leveraging steepness as an advantage.



04 Intervention

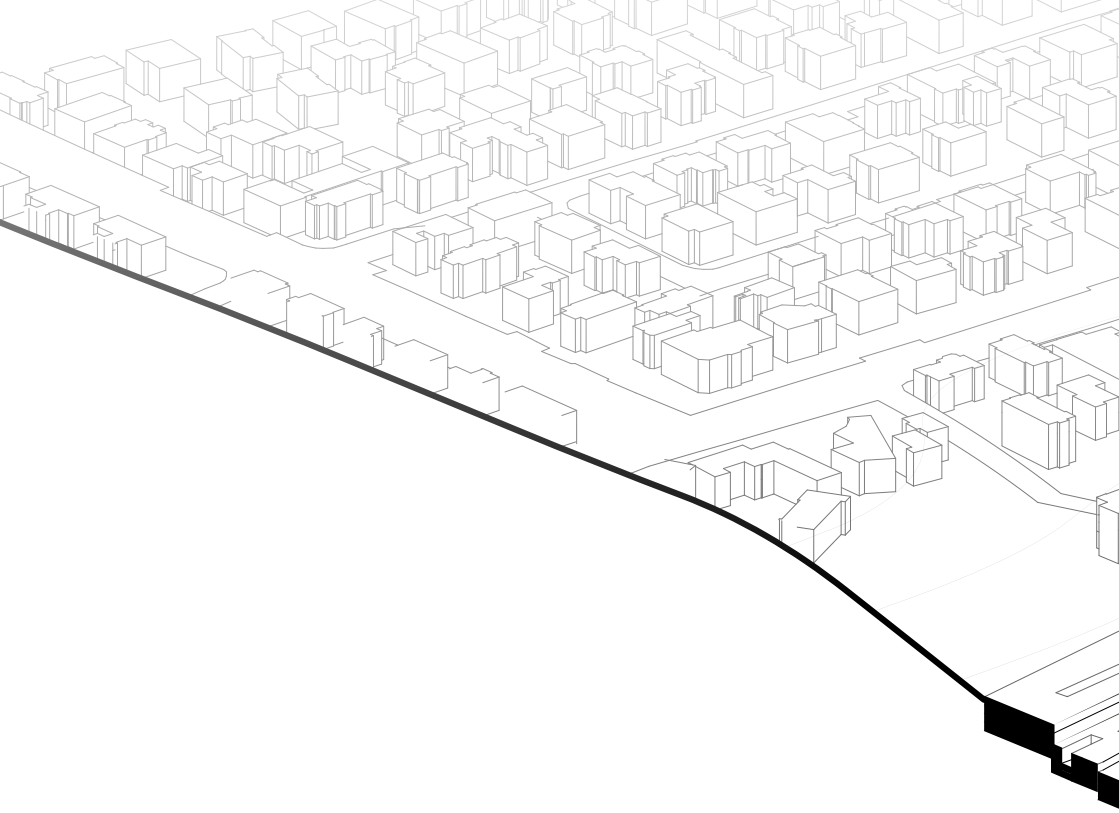
The City on the Wall

The project proposes a new Supportive Space to address densification within a topographical environment. Built at the neighborhood scale and aligned with the terrain, it supports the soil and enables multifunctionality. Guided by an environmental approach, the design enhances the existing context without removing buildings or infrastructure. Vehicular circulation follows existing streets, connecting to the southern neighborhood via a mountain tunnel that slows and conceals vehicles. At street level, pedestrian circulation expands toward the southern open space. Vertical movement continues the human axis of Trumpeldor Boulevard, with ramps and movement cores at terrace centers. A planned stream channels winter rainwater toward the Sa'adya stream.

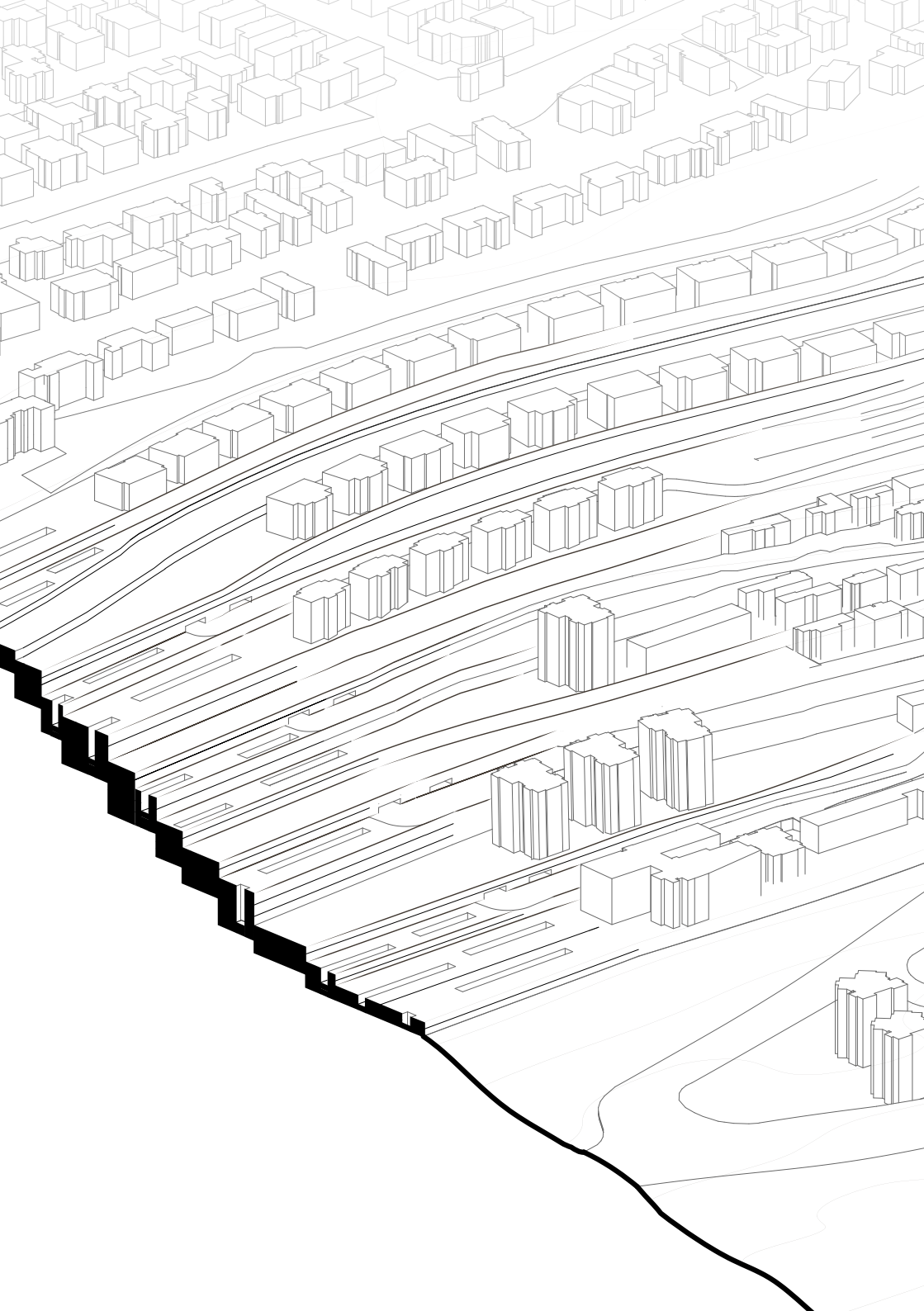


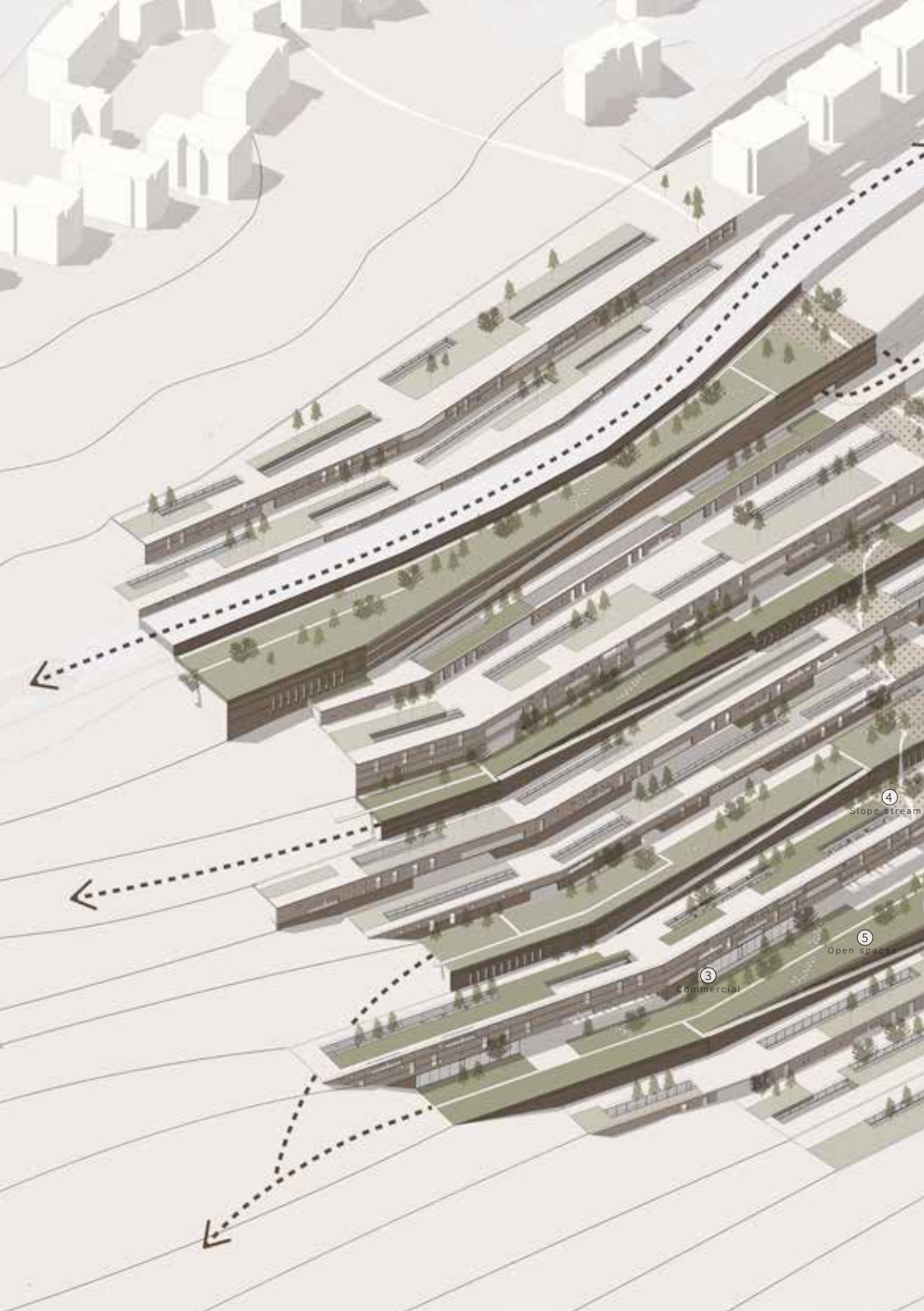
Circulation in the new Supportive Space

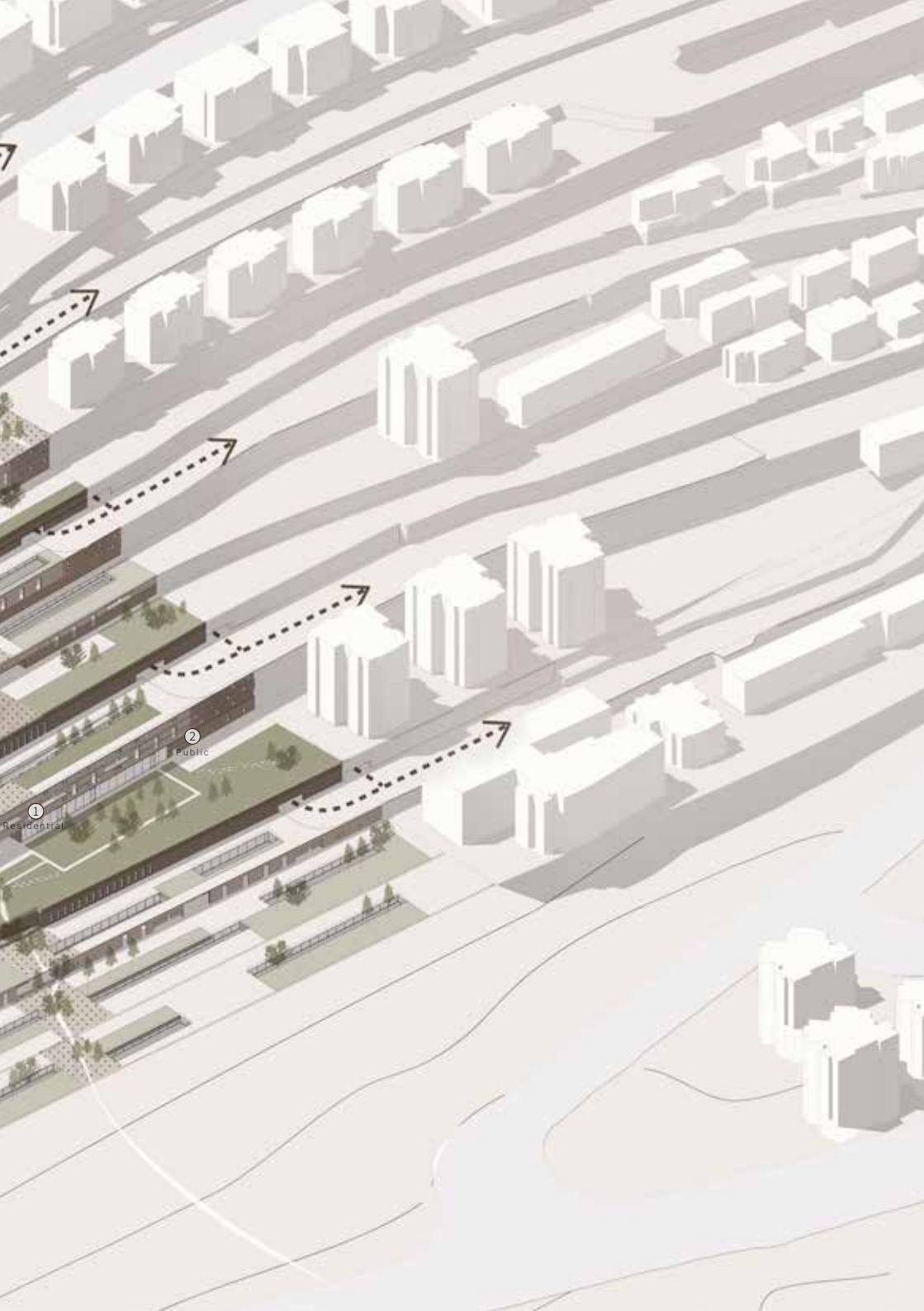
– Existing vehicular circulation – Proposed vehicular circulation – Existing pedestrian circulation – Proposed g pedestrian circulation -- Multilevel pedestrian circulation – Internal / underground circulation



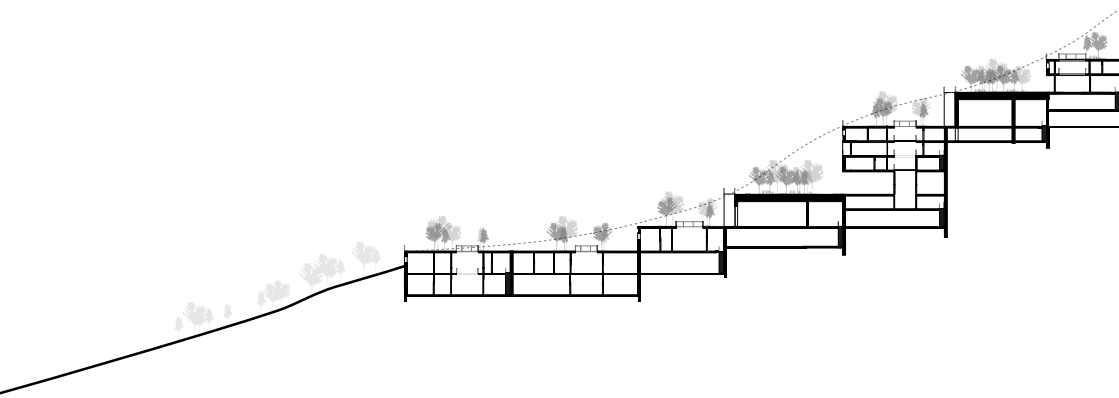
The resulting terraced construction aligns with topographical lines and offers direct continuity for pedestrian movement. It is multifunctional: it holds the soil on one side and provides usable spaces on the other.




④
Slope stream
⑤
Open spaces
③
Commercial


2
Public
1
Residential

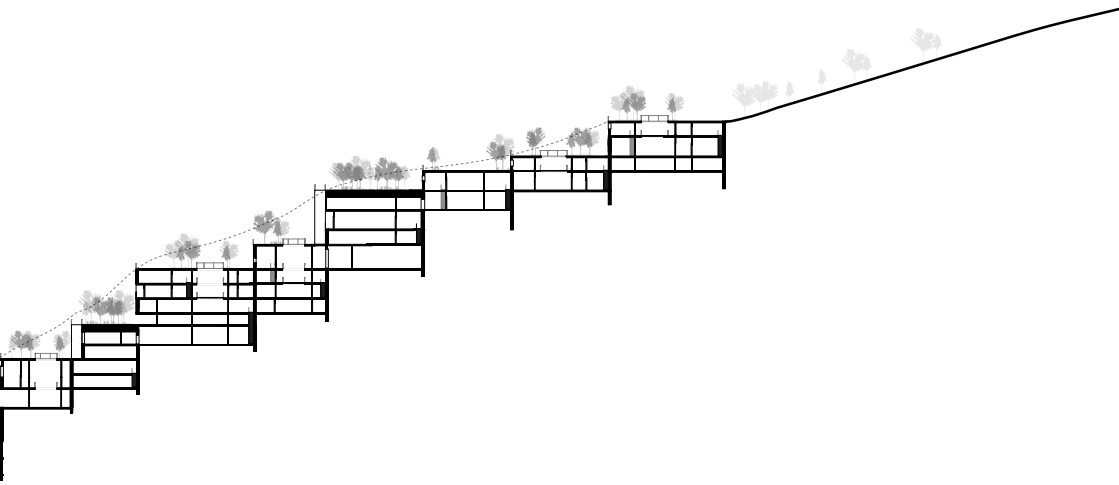
The program includes residential units on intermediate floors, with a quantitative provision of 530 housing units to replace the previously planned southern development. Public and commercial areas are located on the ground or underground floors, accessible to pedestrians. The distribution of built spaces was adapted to the quality programmatic requirements of each use. Open spaces extend along and on the roofs of the new Supportive Space. Extensive areas are positioned above vehicular service tunnels, while intensive spaces are located along the new streets. Each constructed terrace, except the service tunnels, contains openings in its center. These openings vary in size and depth to allow light and air into interior floors. All uses are integrated with one another in a way that compensates for the missing environment.

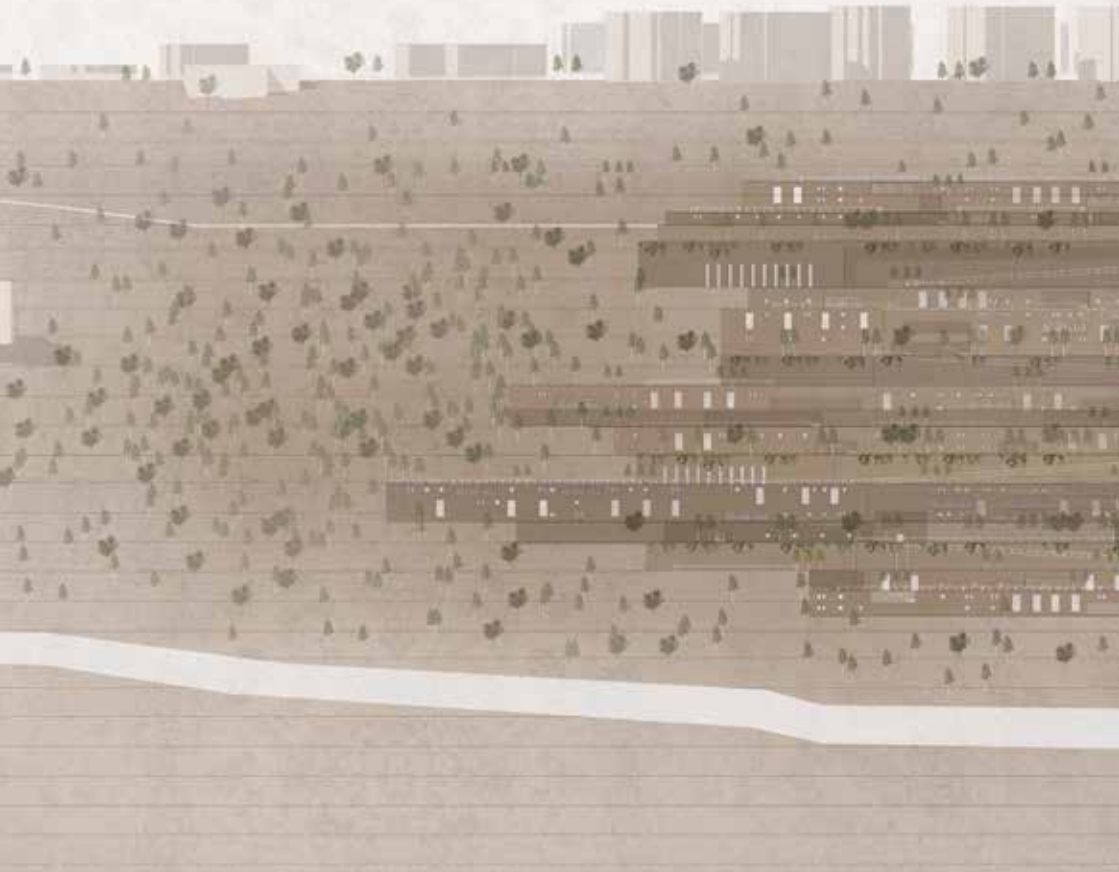


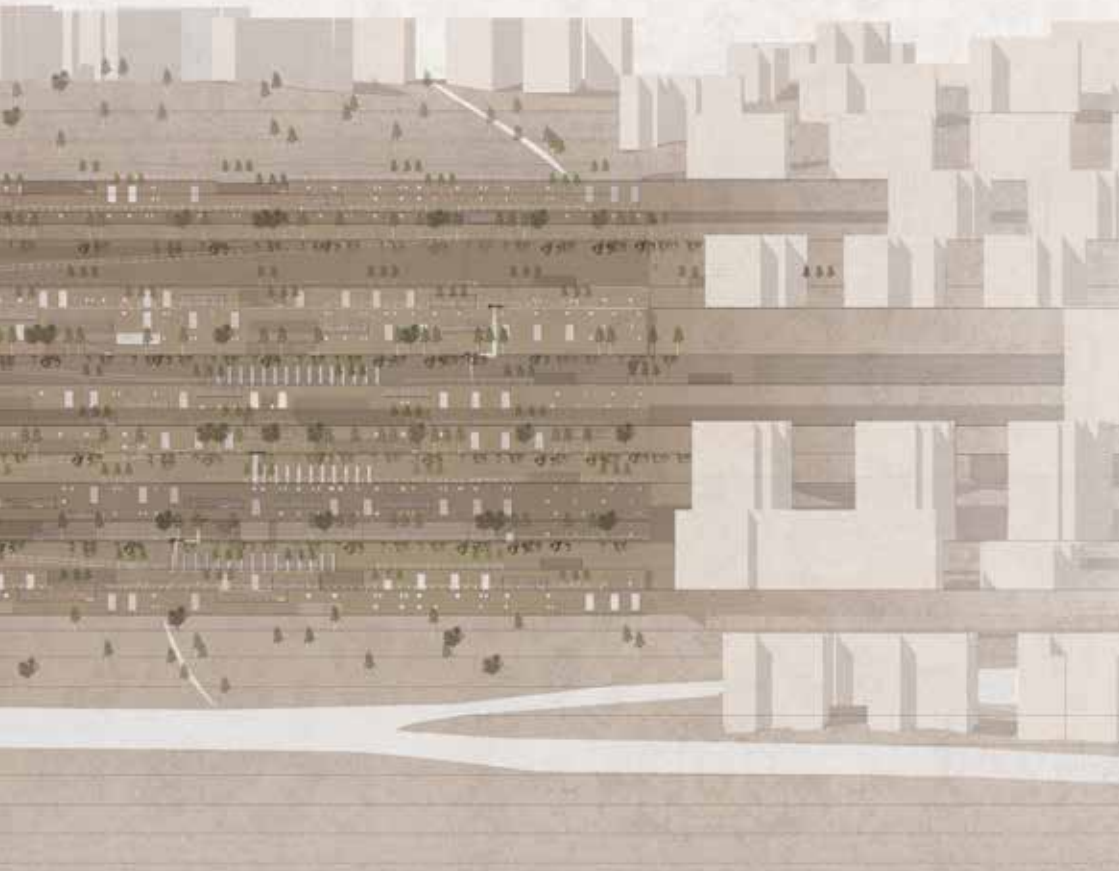
The new slope section

The proposed design follows the topography, maintaining uninterrupted views to the bay without obstructive construction. The masses that hold the soil enable activity and guide movement from the upper slope to the lower areas. Circulation elements also integrate with the Supportive Space and the topography. In this way, the built terracing is preserved throughout the neighborhood.

The new slope frontage offers a multi-layered appearance and a continuous pedestrian sequence that varies in height and material.



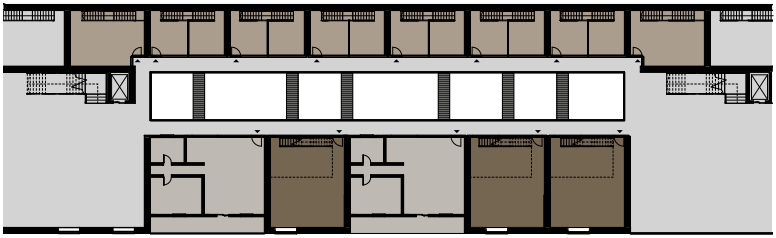




Focusing on one of the terraces, we can see the public ground floor. Here, the connection between built and open space occurs through covered intermediate zones. The linear open park invites community interaction, while the inner gardens at the terrace center provide intimate seating.

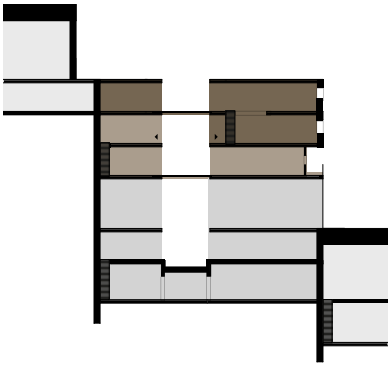
At the roof level, which also functions as the street level, we encounter intensive green spaces that transition along the same level from the existing street to the southern slopes of Neve Sha'anan. This creates a gradual, convenient pedestrian passage from the existing street, through the Supportive Space, to the intensive natural environment of the slopes. The perforated masses create a vertical sequence of light and air at the center of the terrace, allowing public passage to the residential floors and to additional terraces at the edges of the construction. This establishes a continuous movement axis throughout the space.

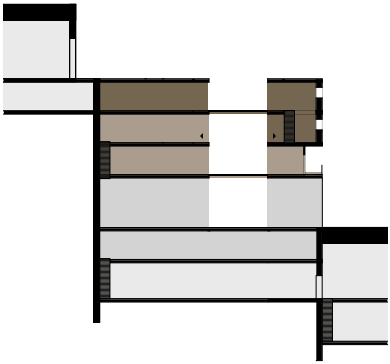
Residential floors allow for multi-layered apartments. On one façade, units are grounded to the soil, while on the other they open to the view and the sky. The variety of housing units includes single-story, duplex, and garden or balcony apartments. These units fill the soil-supporting mass multifunctionally.

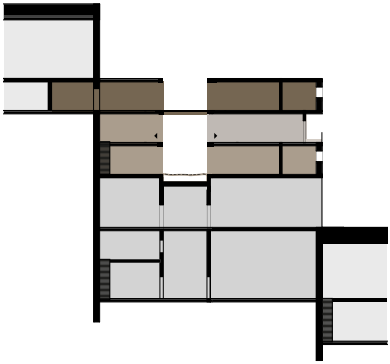


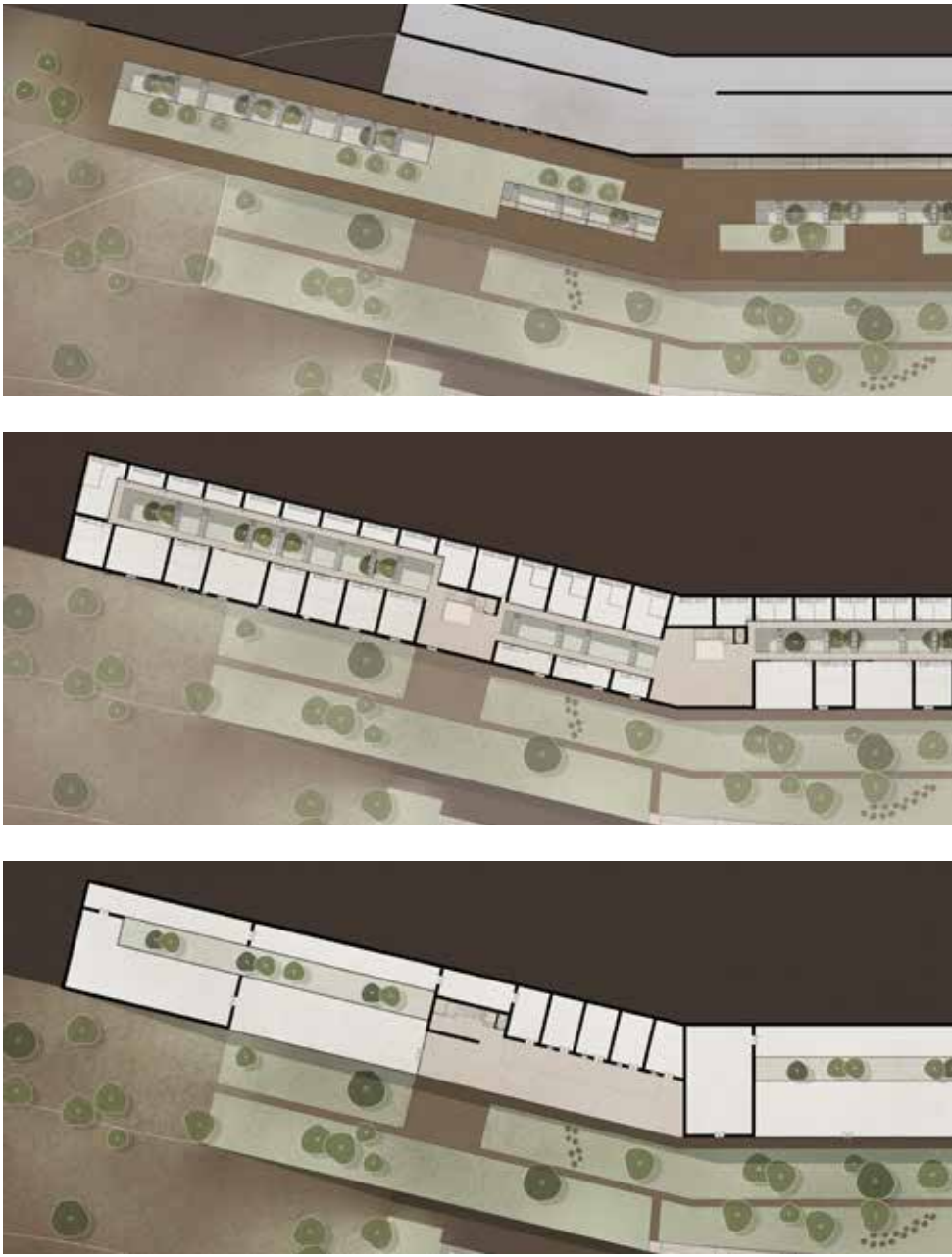
Variety of housing units

Single-story ~80 m² Two-story ~120 m² Spacious two-story ~160 m²
Public activity Service space



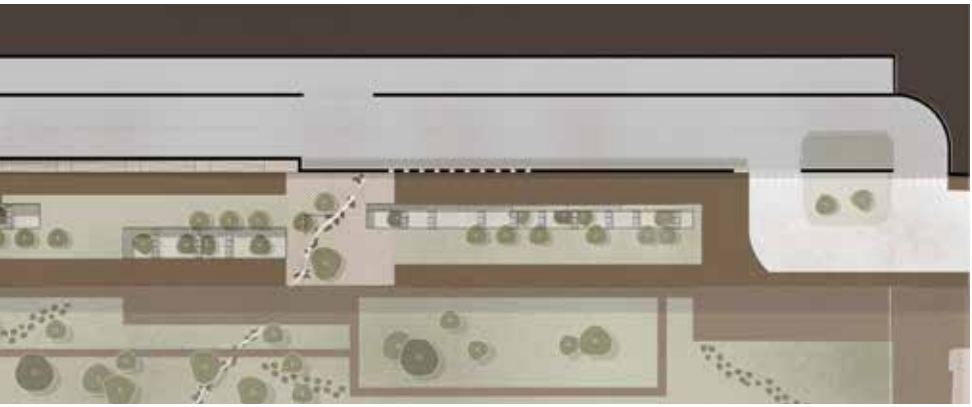


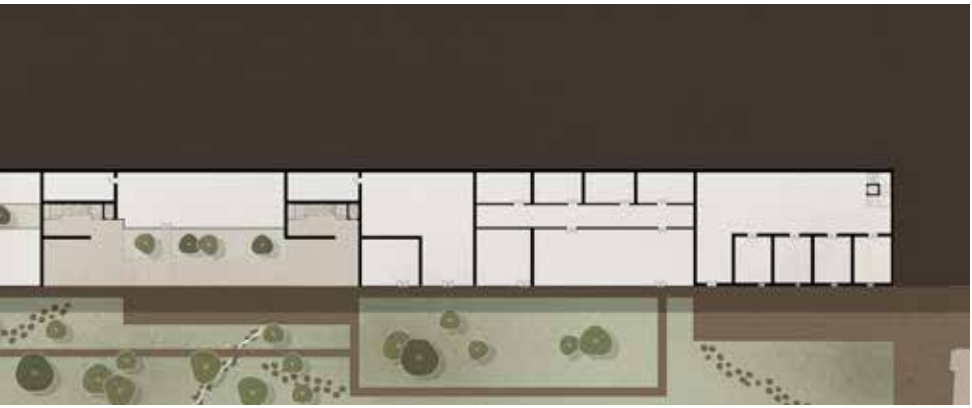




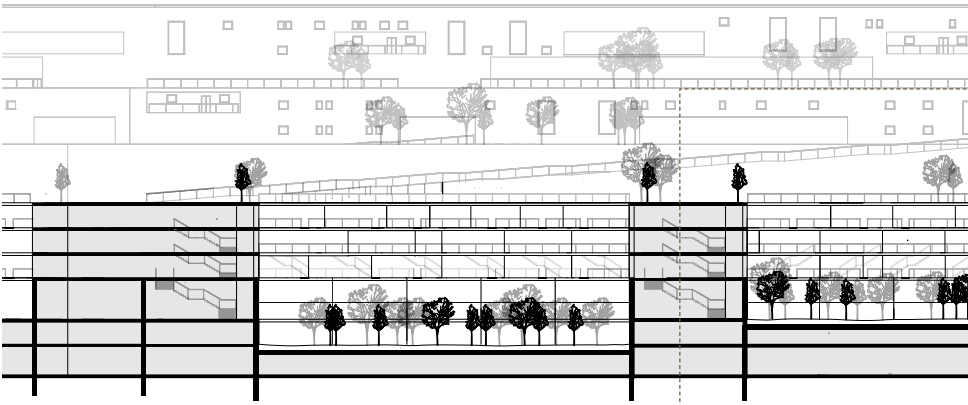
Terrace floor plans from bottom to top: ground floor, residential floor, roof floor

5m



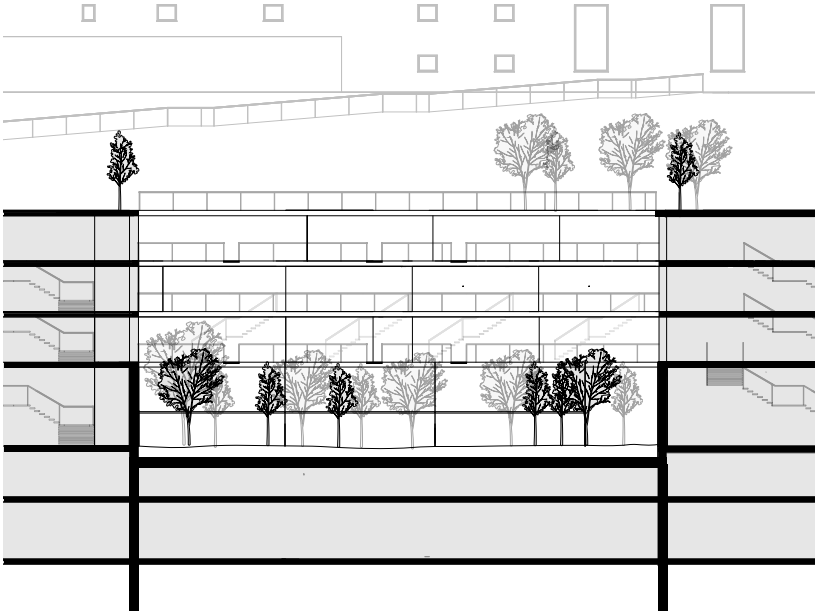


Apartment entrances occur via a shared balcony at the central intermediate-floor access point. Additionally, some apartments feature internal programmatic circulation through a private balcony on other floors, creating an integrated connection between interior and exterior spaces during daily activities. The openings at the terrace center vary in size, location, and depth, enabling a variety of apartment layouts and sizes, all supported by the built mass. This is a Supportive Space that, on one hand, stabilizes the topography, and on the other, facilitates activity.



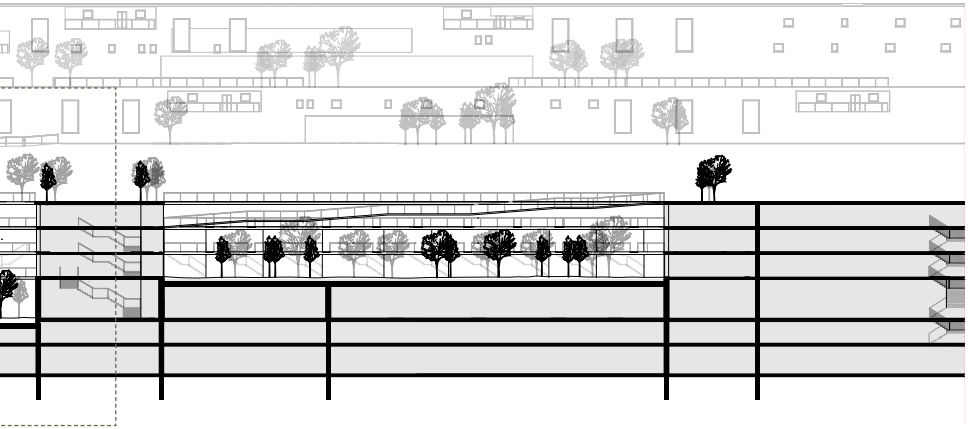
Interior-exterior flow: internal courtyards and diverse passages

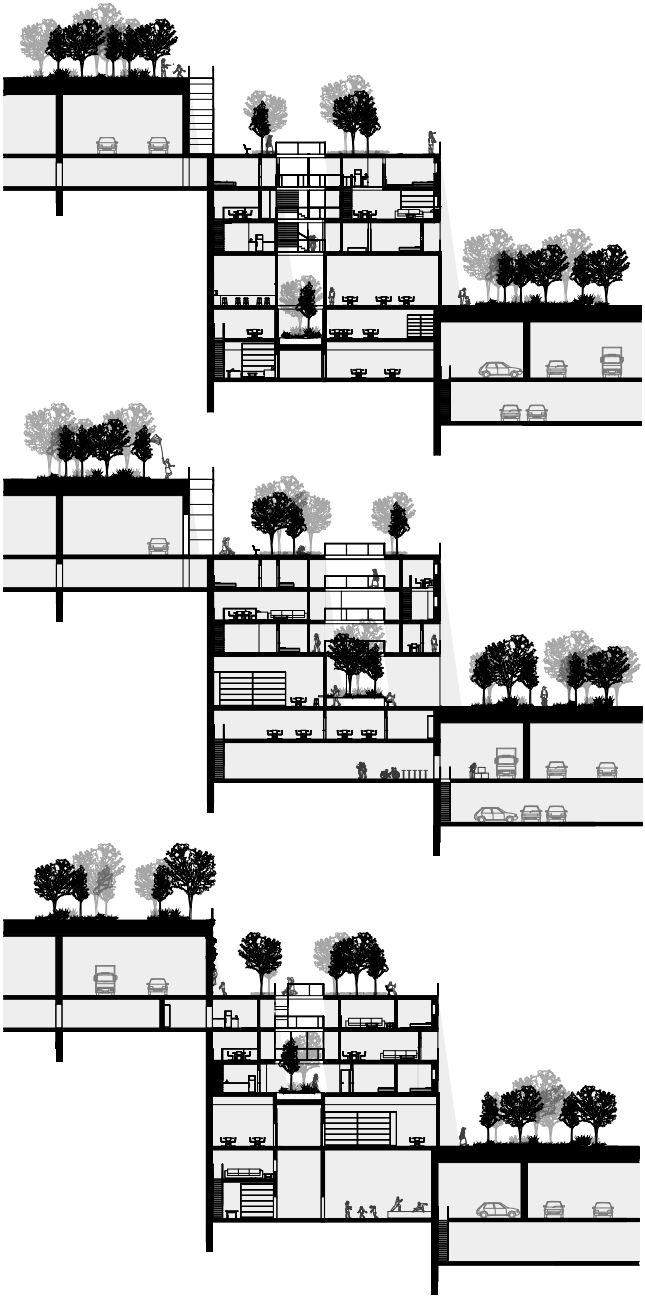
5m



Interior-exterior flow: internal courtyards

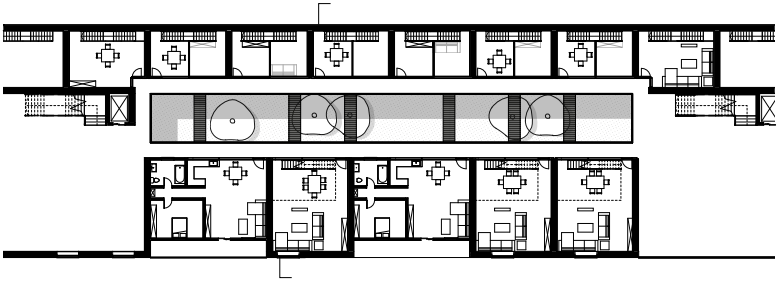
5m

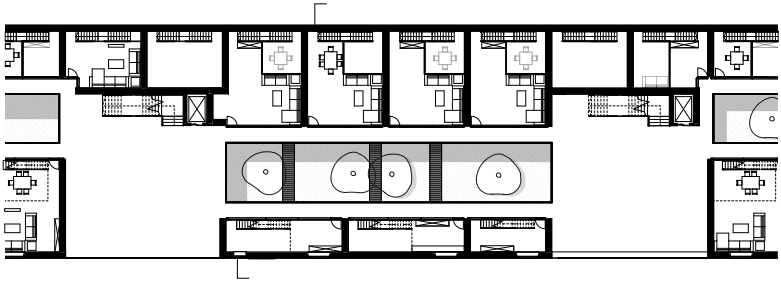


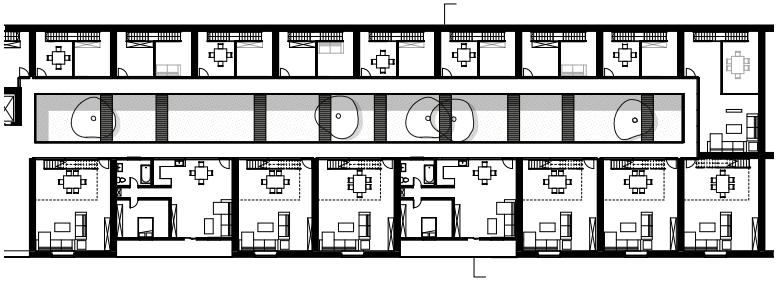


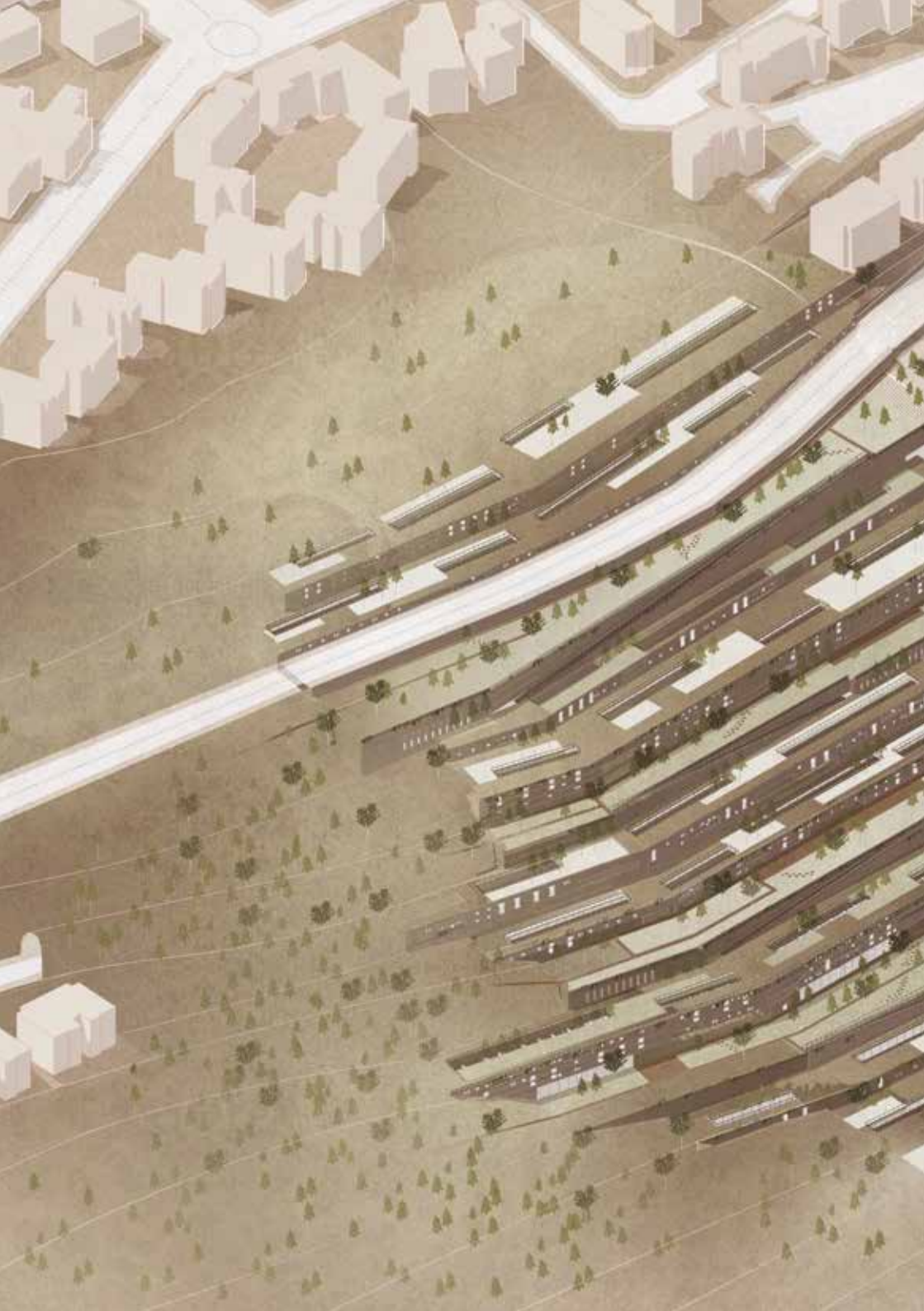
Housing from bottom to top: northern area, central area, eastern area

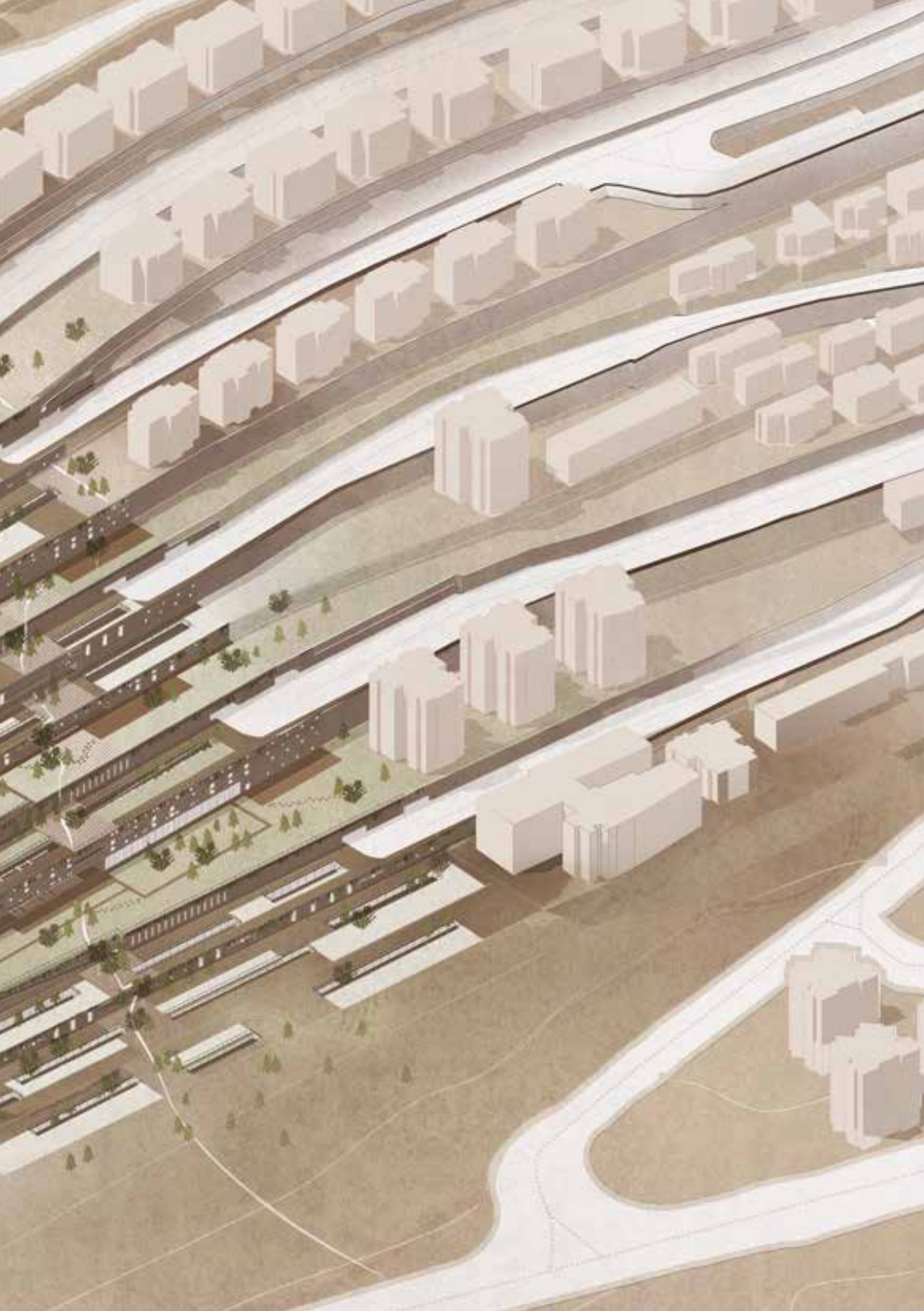
5m











The new Supportive Space 1:250

Towards the Future

The integration of planning disciplines has resulted in a new Supportive Space that transforms the trapped slope between residential streets into a continuous, functional urban fabric. By adapting volume to the topography and applying a multi-system approach, the project creates a multifunctional space that operates harmoniously across its components.

This method is relevant to many mountainous cities, where densification on slopes must be balanced with open spaces and public needs. The Supportive Space offers pedestrian-friendly, active spaces that leverage the terrain to create a connected, walkable urban fabric while maximizing functional and environmental quality.

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Today, the planning of physical space is divided across multiple disciplines, from architecture and landscape architecture to transportation engineering, infrastructure, and drainage. This professional separation—a relatively recent phenomenon—often begins in academic training, which discourages interdisciplinary integration. As a result, planners frequently focus narrowly on specific spatial segments, producing disruptions and disconnections in urban environments precisely where connectivity is most needed.

In mountainous cities, this disciplinary division often leads to binary, level-based separation between different spatial uses. Retaining walls frequently appear at critical interfaces, such as between residential buildings, sidewalks, and adjacent roads. While addressing soil-support needs, these walls have become monotonous and impermeable features that reinforce boundaries and fragment urban space. Consequently, retaining walls can be seen as underutilized spatial resources, born from narrow engineering solutions whose potential has been overlooked. This raises the question: How can we plan cities on mountainous in a way that encourage a connected, walkable urban fabric, instead of fragmentation and physical barriers?

The proposed intervention treats elevation differences as a planning advantage, transforming retaining walls into Supportive Spaces of usable, multifunctional volumes. At the neighborhood scale, this strategy converts slopes into continuous urban fabric where movement follows the topography rather than opposing it. This approach was applied on the slopes of Neve Sha'anan in Haifa, in an open area trapped between residential streets, providing an opportunity to expand the neighborhood while enhancing spatial cohesion.