ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

ACPCL | Architecture and Creative Practices
for the City and Landscape
MS programme

University of Bologna
Department of Architecture

Regenerating Bologna: A Design Journey Through Heritage, Landscape, and Community Engagement

Supervisor: Prof.ssa Saveria Olga Murielle Boulanger | Co-supervisor: Prof. Andrea Boeri

Candidate: **Muhammed Tarik Caglar** | 0001037704

A.A. 2024 / 25

Master's Degree in Architecture and Creative Practices for the Cities and Landscape

Department of Architecture | Alma Mater Studiorum University of Bologna

Acknowledgements

I would like to express my sincere gratitude to my family for their unwavering support, encouragement, and patience throughout this journey. Their belief in me has been a constant source of strength.

I am also deeply thankful to my professors and academic advisors, whose guidance, insight, and constructive feedback have been invaluable at every stage of this work. Their dedication to teaching and research has shaped both my approach to design and my understanding of architecture as a meaningful and responsible practice.

Regenerating Bologna: A Design Journey Through Heritage, Landscape, and Community Engagement

Abstract

This self-reflective portfolio thesis explores the transformation of heritage sites in Bologna through three interconnected projects: the Navile Area, Dumbo, and Osservanza. The primary aim of the projects is to preserve the unique identity of cultural heritage while developing functional and sustainable solutions that suit the dynamics of contemporary urban life. The Navile Area project reimagines public cultivation gardens into private, organized plots, complemented by a high-tech research facility for modern agriculture. The Dumbo project adapts a historically significant building into a vibrant food market and restaurant, maintaining the highest level of heritage protection. Finally, the Osservanza project converts a historic structure into classrooms for older adults, fostering digital inclusion and lifelong learning.

The thesis highlights the integration of temporary, flexible, and reversible architecture as a unifying design approach across the projects, ensuring adaptability and respect for the original structures. Furthermore, it examines the functional and thematic connections between the sites, such as the relationship between Navile's agricultural production and Dumbo's marketplace. This thesis brings together critical analysis, heritage value, and innovative design to reveal the relationship between tradition and modernity, as well as how the design approach has evolved.

Keywords: Heritage Preservation, Adaptive Reuse, Urban Regeneration, Temporary Architecture, Community-Centered Design, Sustainable Development

Table of Contents

1. Introduction

This portfolio includes three projects, Navile, Dumbo, and Osservanza. What I found particularly interesting is the approach I used in defining architectural designs that respond to different layers of urban complexity. The city of Bologna has a strong experience in supporting projects that deal with transformation across multiple domains, including the protection and reuse of cultural heritage, social inclusion, and environmental awareness.

Working within this context allowed me to explore how architecture can operate at different scales, from site-specific layouts to broader urban frameworks. We focused on designing projects that engage with multiple aspects of transformation such as spatial organisation, building technologies, and the role of cultural heritage. Rather than treating these as separate layers, we approached them as connected parts of a single design process. Each intervention aimed to respond to a specific site by proposing architectural solutions that could work at different scales, from urban structure to interior space. What I found important was how a design can support both continuity and change, protecting what is valuable while allowing space for new uses and meanings. This balance guided the way challenges were addressed related to accessibility, sustainability, and social engagement. Each project presented its own challenges, requiring me to adapt the design approach according to the site's identity, user needs, and historical background.

What I learned through this process is that architecture is not only about designing physical spaces, but also about understanding how these spaces influence everyday life, community engagement, and long-term sustainability. I aimed to develop solutions that are flexible, temporary, and reversible, allowing for gradual adaptation without compromising the integrity of existing structures. This perspective helped me see architecture as a tool to connect past and present while responding to contemporary urban needs.

Through the Navile project, I came to recognize that sustainability is not only about technological efficiency but also includes cultural practices. The transformation of existing cultivation gardens into organised plots and the design of a vertical farming research facility aimed to show how urban agriculture can function as both an ecological and social infrastructure. It demonstrated that food production can be reconnected with daily urban life. I gained important insights about urban planning principles, design approaches across different scales, and how open spaces shape the urban structure. The studies showed that sustainable urban transformation, landscape, and ecological networks need to be considered as a whole, and that design processes should not focus only on buildings but also include elements that make up the urban metabolism, such as land use, water systems, and agricultural production. Additionally, assessing how land use decisions affect public life and redefining the role of productive landscapes like agriculture within the city were among the main discussion topics of the project.

In Dumbo, I realized through the process that industrial heritage can be preserved while also supporting economic and social vitality. Designing a food market and restaurant in an old warehouse required an approach based on minimal intervention and maximum flexibility. Freestanding and reversible installations protected the original building structure while allowing different uses. In this way, I came to see architecture not only as transformative but also as a tool that facilitates continuity and change. From the studies carried out I understood that conservation and restoration approaches are related not only to the building scale but also to urban memory, user experience, and economic functionality. In the adaptive reuse of industrial heritage, the principles of preserving structural integrity, minimal intervention, and maximum flexibility were prioritised. I also observed that protecting heritage plays a critical role in strengthening the sense of identity and belonging within communities and in creating new social dynamics in public spaces. The strategies developed in the project showed that temporary structures and micro-architecture applications can provide ways to accommodate contemporary functions without damaging the historical fabric.

In the Osservanza project we aimed to expand this perspective further by transforming an old monastery complex into digital learning spaces for older adults. It showed how heritage buildings can support social connection. The use of accessible circulation, intuitive spatial layout, and flexible partitions enabled the historical monastery spaces to serve contemporary educational functions, while protecting the architectural

integrity of the building. The project demonstrated that adaptive reuse can be a strategy not only for protecting cultural assets but also for strengthening social ties. In the studies at Osservanza, topics such as environmental design strategies, building envelope performance, and user-focused spatial organisation came to the forefront. The evaluation of design principles and the impact of construction technologies on building life cycles showed that creating sustainable and flexible spaces is not only a technical issue but also a social responsibility. Including stakeholders in the process strengthened the project's goals of social inclusion and accessibility. I ovserved through the process that heritage buildings should not only be preserved but also adapted to meet the needs of new users.

A common approach emerged in all these interventions: using temporary, flexible, and reversible design strategies to protect the integrity of historic structures while keeping them up to date. This approach positions architecture not as the production of static objects, but as a process between built heritage, social needs, and environmental responsibility.

The main concept I observed from these projects is that design is a practice based on sensitivity, adaptability, and cultural awareness. Each intervention required careful reading of context and critical decision-making between preservation and innovation. Such practices contribute to ongoing discussions on how architects can approach heritage not just as a fixed background but as a resource that can support more inclusive and sustainable urban futures.

2. Methodology and design philosophy

The methodological foundation of this thesis is based on site-specific research, participatory design, and continuous testing of architectural solutions using drawings, physical models, and digital simulations. Instead of imposing a top-down solution, the process was structured to stay responsive to each site’s specific conditions and potentials. Community workshops, expert interviews, and on-site observations were important in shaping each project and understanding user needs.

The design philosophy throughout these projects is guided by three interconnected values:

Sustainability: Focusing on using resources efficiently and reducing harm to the environment. It involves selecting materials that last longer or can be reused, and designing buildings that use less energy for heating, cooling, and lighting. This approach helps create healthier and more responsible urban spaces.

Heritage Preservation: Protecting the historical and cultural meaning of a place while allowing new uses. It requires understanding what makes a site valuable and designing in ways that respect its original character. This ensures that people can still see and connect with its history even as it serves current needs.

Community-Centered Innovation: Designing spaces that improve daily life for local people. It focuses on making places inclusive, accessible, and welcoming to different user groups. This value ensures that design solutions are practical and meaningful, supporting social interaction and community well-being.

These values were applied differently depending on the project. For example, Dumbo required strict compliance with heritage conservation rules due to its industrial character, while Navile allowed more freedom to explore landscape systems and urban agriculture technologies. Osservanza required a careful balance to introduce new functions into a sensitive sacred building.

Flexibility was a key design principle in all projects. Flexibility here refers not only to changeable spatial layouts but also to the use of temporary, reversible, and removable structures. In Dumbo, freestanding structures allow the space to function as a market, exhibition hall, or event venue. In Navile, modular greenhouse systems can be reorganised for seasonal or research needs. In Osservanza, movable partitions and flexible furniture allow classrooms to adapt to different groups and educational activities. This approach shows that the usefulness of buildings and public spaces depends not just on their physical durability but also on how easily they can be adapted to new purposes.

Social cohesion was another focus. Each project aimed to bring people together and strengthen community ties. Navile connected food production with city life by allowing people to participate in growing food. Dumbo created economic opportunities for local producers and a social space around food culture. Osservanza addressed digital exclusion among older adults by providing accessible learning spaces. In all projects, public benefit, inclusivity, and accessibility guided design decisions.

Technological innovation was integrated in each design. Navile used vertical farming, hydroponic systems, and smart irrigation. Dumbo included modular market units and portable utilities. Osservanza used energy-efficient materials, natural lighting strategies, and movable interior elements. These technologies were chosen not only for performance or aesthetics but also to support sustainability goals and social needs.

The idea of using temporary and reversible structures in these projects comes from seeing change as a design opportunity. This is in line with the concept of soft architecture, which refers to light, flexible, and non-destructive interventions that can adapt over time. Such an approach helps cities respond to changing needs without harming their heritage or environment.

This thesis also draws on critical regionalism, combining global design ideas with Bologna's local identity and material culture. Heritage is treated not as a fixed object but as a base for experimentation, new uses, and community engagement. This way of thinking shaped not only the form and structure of each intervention but also broader connections between city and people, food and place, and learning and memory.

In addition, the design process focused on understanding how flexibility, community, and technology work together. Flexibility ensured spaces could be adapted for different uses without permanent change. Community aspects made sure projects responded to local needs and supported social connections. Technology provided practical solutions to improve environmental performance and user comfort.

Altogether, these projects demonstrate that architecture is not only about creating permanent structures but also about designing adaptable systems that respond to social, environmental, and cultural needs. They show how design can support more inclusive, sustainable, and resilient urban futures by working with heritage as an active resource rather than a static background.

Throughout the writing process, I occasionally used GPT-4.5 released on February 27, 2025 by OpenAI to support clarity and precision when expressing certain ideas in English. Their use was limited, carefully considered, and always subject to critical review to maintain academic integrity.

3. Project analyses

3.1 Navile: Hortus Conclusus, Hortus Communis

The Navile project is located in an area with a strong agricultural identity, historically used as communal gardens serving the city's food needs. Over time, this area became fragmented and underused, losing its role in everyday urban life. The design intervention aimed to reclaim this valuable land by transforming it into an agricultural innovation hub that combines traditional cultivation practices with modern food production technologies.

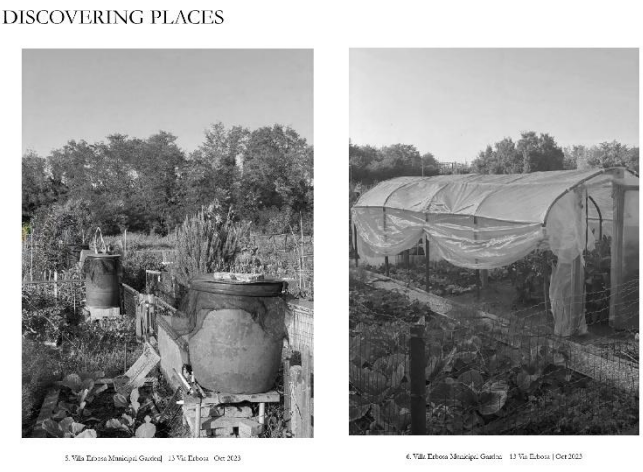

Figure 1. Existing situation of Villa Erbosa Gardens

The project began with an in-depth site analysis to understand soil conditions, existing plant species, sun exposure, and water networks. Mapping these elements helped define zones for cultivation, research, and public use. As part of this process, the design team visited the site and interviewed people who already use the gardens. They shared that, apart from gardening, they sometimes organise small events there, which shows the site's role as a social space as well as a productive one.

The landscape was reorganised into structured plots, making it easier for individual users to manage their own growing areas while still feeling part of a collective system. The layout encourages people to engage with food production processes directly and strengthens their connection to nature within the urban environment.

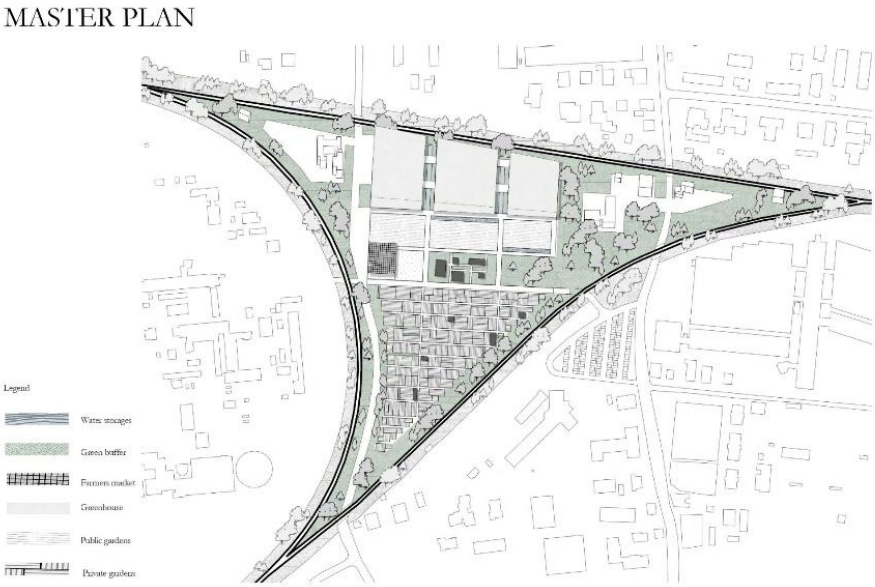

Figure 2. Master plan of the project.

The masterplan is structured around five main layers that organise the site both spatially and functionally. Each of these layers contributes to creating a multifunctional, inclusive, and productive landscape that supports both individual and collective use.

The first layer is the green buffer, formed by the existing trees surrounding the site, which creates a natural edge and provides shade, privacy, and ecological value.

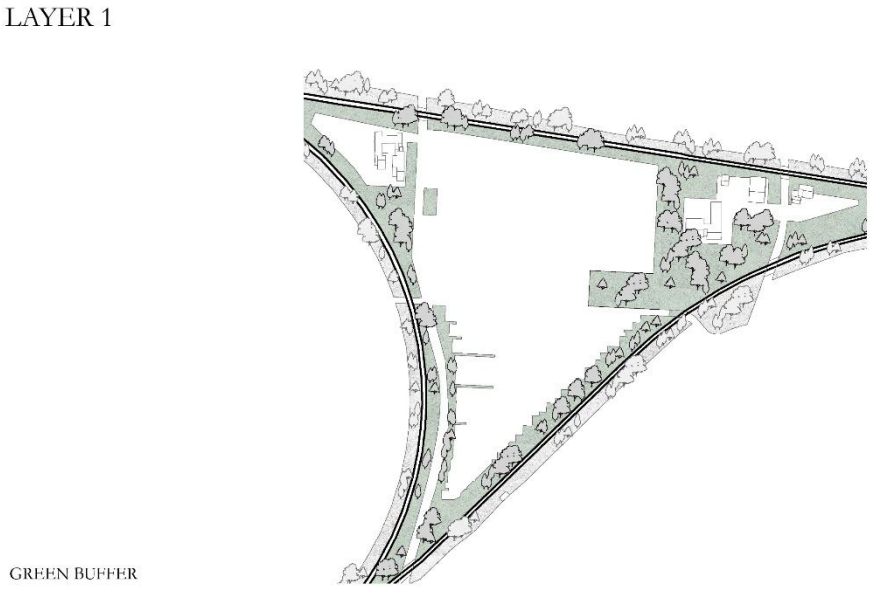

Figure 3. Layer 1, green buffer.

The second layer is the high-tech center, where the vertical farming and research facilities are located, integrating advanced agricultural technologies into the site.

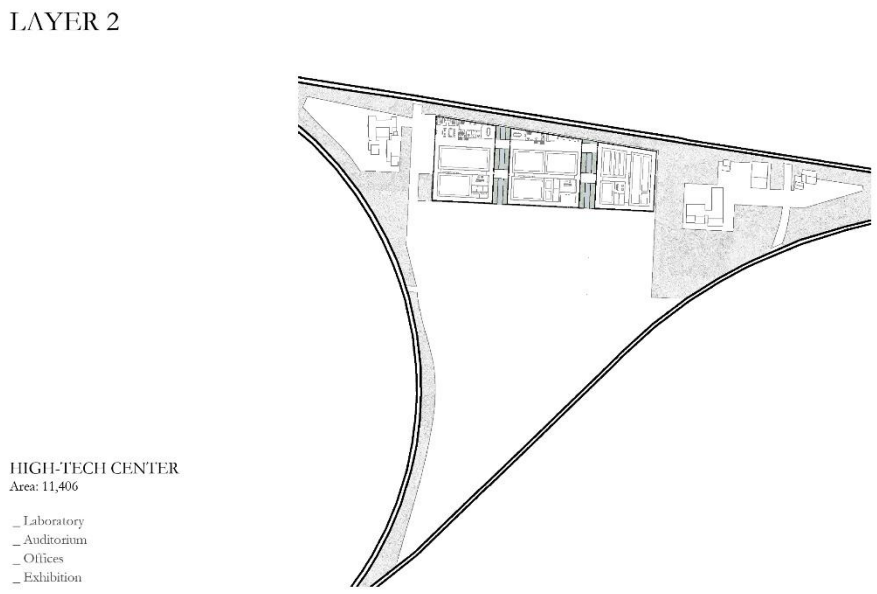

Figure 4. Layer 2, High-tech center.

The third layer is made up of community gardens, designed as shared spaces where people can work together and join educational programmes or events.

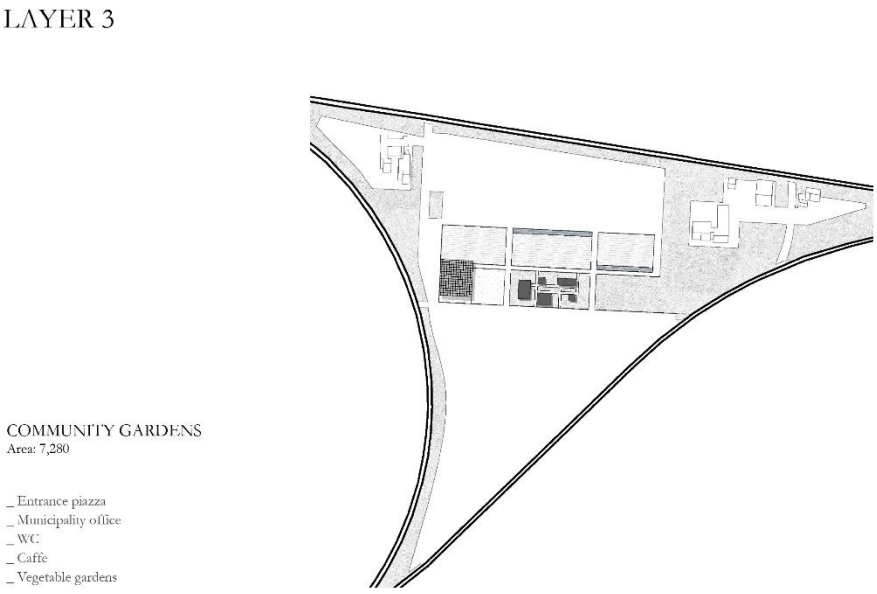

Figure 5. Layer 3, Community gardens.

The fourth layer includes the private gardens, which are small, organised plots assigned to individual users for personal cultivation.

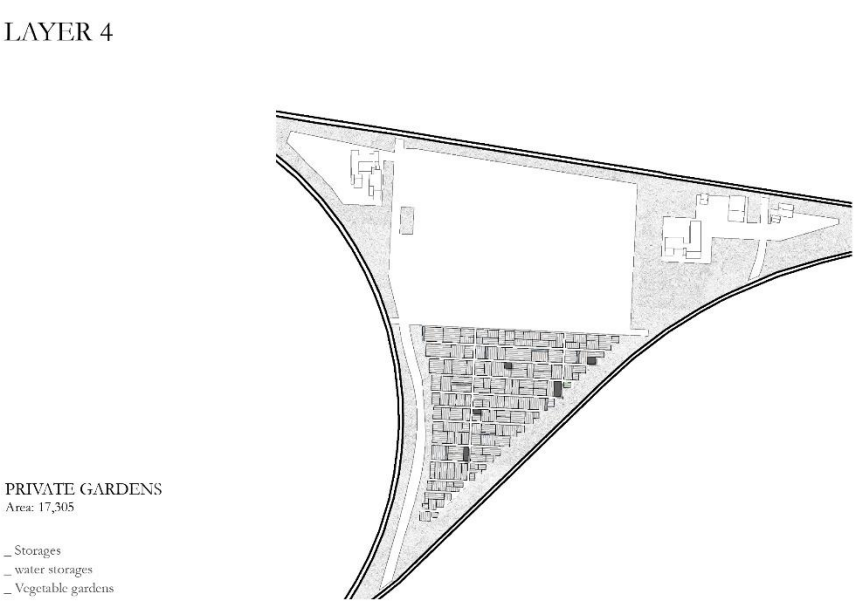

Figure 6. Layer 4, private gardens.

Lastly, the paved surfaces form the circulation routes and gathering areas, connecting all functions on the site and supporting accessibility and movement between different zones.

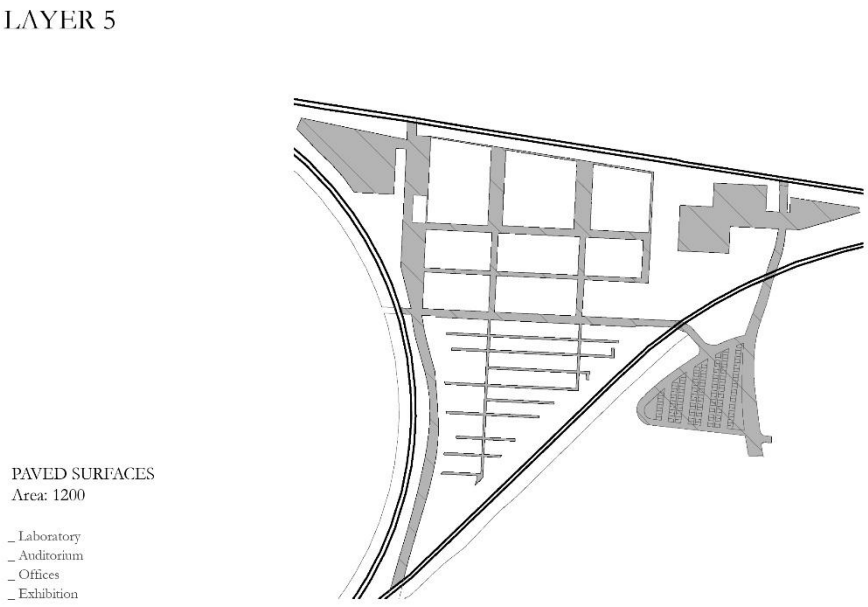

Figure 7. Layer 5, paved surfaces.

Introducing a vertical farming facility presented one of the main design challenges. The surrounding landscape is open and flat, with long views that characterise the Navile area. Placing a tall structure here risked disrupting the visual continuity. To address this, the vertical farm was designed using steel frames with transparent facades that reduce visual mass while highlighting its technological function. Its flexible interior layout allows for vertical cultivation, research activities, and community workshops, ensuring adaptability for future needs.

Figure 8. Render of high-tech center

Hortus Conclusus, Hortus Communis became the guiding concept, emphasising a balance between enclosed private cultivation plots and shared community green areas. Food is grown close to where it is consumed, knowledge is shared locally through workshops and informal learning, and residents gain health benefits from access to productive green spaces.

Technologically, the vertical farm and research facility integrate hydroponic systems, smart irrigation, and data monitoring to optimise production. These tools were selected not only for efficiency but also for their educational value, showing how traditional and modern practices can work together to address urban food needs sustainably.

Importantly, the Navile project connects thematically and materially to Dumbo. The produce grown in Navile can be sold at Dumbo's fresh market, creating a local food network that supports economic, environmental, and social sustainability. This relationship demonstrates how project interventions do not remain isolated but build systems that strengthen the city as a whole.

Reflecting on this project, it became clear how the scale of interventions, the visibility of structures within an open landscape, and community expectations all shape the design approach. Flexibility emerged as both a spatial strategy—allowing plots and structures to change over time—and a social strategy, enabling diverse users to participate in urban food systems meaningfully.

In summary, Navile shows how a historically agricultural area can be reactivated to meet contemporary urban challenges while keeping its original identity. It demonstrates that design can create spaces where production, education, and community life come together to build healthier and more resilient cities.

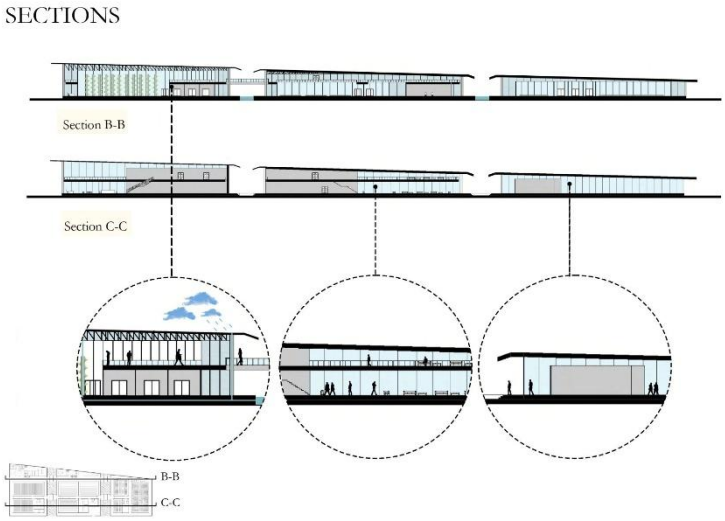

Figure 9. Sections of the High-Tech Center

Outcomes:

- Connected traditional agriculture with urban food systems.
- Created public cultivation plots and an agricultural research facility.
- Integrated landscape heritage with innovation, education, and community utility.

3.2 Dumbo: Temporanea House

Dumbo, an acronym for "Distretto Urbano Multifunzionale di Bologna," is a site of post-industrial transition. The intervention focuses on adaptive reuse, transforming a large warehouse into a public food market and restaurant. The project preserves the raw, industrial character of the original structure while introducing new programmatic layers.

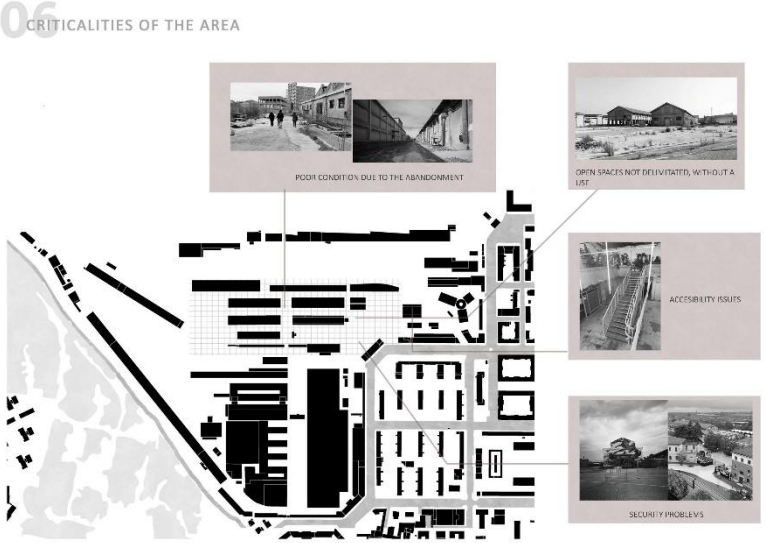

Figure 10. Current situation of the area.

The design process began with a detailed analysis of the existing structure. This included studying its construction system, material condition, and spatial qualities to understand how new uses could be introduced without damaging the heritage value. The warehouse had strong architectural features, such as exposed steel trusses and brick walls, which were kept visible in the final design to maintain its identity and atmosphere.

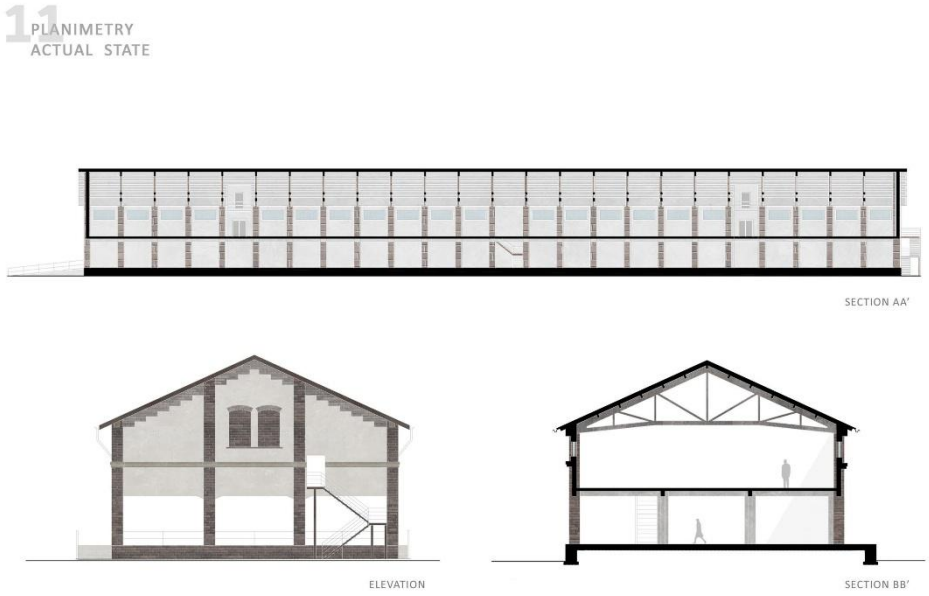

Figure 11. Current state of the structure.

Designing Dumbo required understanding heritage conservation protocols while meeting operational and accessibility standards. All new structures are freestanding steel frames, allowing easy removal or reconfiguration, ensuring the building remains flexible, adaptable, and undamaged by future changes.

Through this project, an understanding of adaptive reuse as a strategy to support local economies, activate underused spaces, and maintain heritage character was gained. It demonstrated that flexible design enhances economic resilience and community connection.

The ground floor was designed as a public food market that supports local farmers, producers, and artisans. This market creates opportunities for small-scale producers to sell their goods directly, reducing the distance between production and consumption. It also provides affordable vendor spaces, making it easier for local businesses to participate. The spatial organisation includes wide circulation paths for accessibility, flexible stall layouts that can change based on market needs, and open areas for small events or community gatherings.

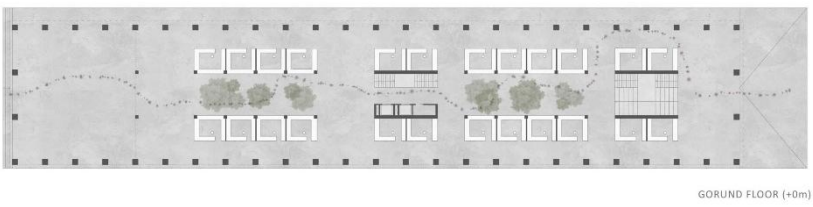

Figure 12. Ground floor plan.

On the upper floor, a restaurant was designed to use the fresh products sold in the market below. Its focus on zero-kilometre cuisine not only reduces transportation emissions but also builds strong links between producers and consumers. The restaurant layout allows for different seating arrangements, including communal tables to encourage social interaction and private tables for smaller groups.

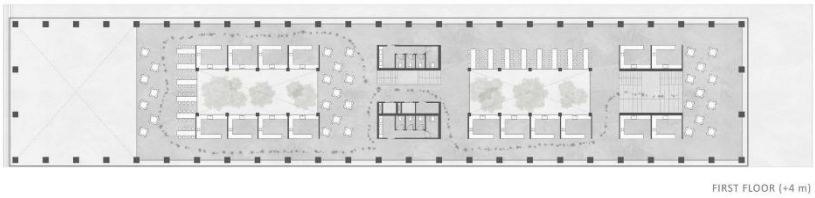

Figure 13. First floor plan.

A key design principle in Dumbo was flexibility. All new structures inside the warehouse are freestanding steel frames, meaning they do not attach to or damage the original walls or columns. These frames hold modular shelving, counters, and lighting systems, which can be removed or rearranged when needed. This ensures that the building remains adaptable for future uses, whether as a market, exhibition space, or community venue.

Figure 14. Render of ground floor.

Minimal intervention was another guiding principle. Structural reinforcements were added only where necessary for safety and building regulations. Finishes were kept simple to highlight the building's raw materials, such as concrete floors, steel beams, and brick walls. This approach maintains a sense of continuity, where the historical shell of the building becomes an active part of the new design.

Functionally, Dumbo connects directly to Navile. While Navile focuses on growing and producing food within the city, Dumbo serves as a place where this food can be sold, shared, and celebrated. This relationship between the two projects creates a small urban food network that supports local production, distribution, and community well-being. It shows that architecture is not only about designing spaces but also about supporting systems of exchange and cultural practices around food.

Figure 15. Demonstration of people grocery shopping.

Reflecting on the Dumbo project highlighted the importance of adaptive reuse as a design strategy. It showed that reusing existing structures can reduce environmental impacts by avoiding demolition and new construction. At the same time, it demonstrated how heritage buildings can be given new life through functions that serve current urban needs. Flexible design strategies used in Dumbo make it possible for the space to change over time, supporting economic resilience and strengthening the social fabric of the area.

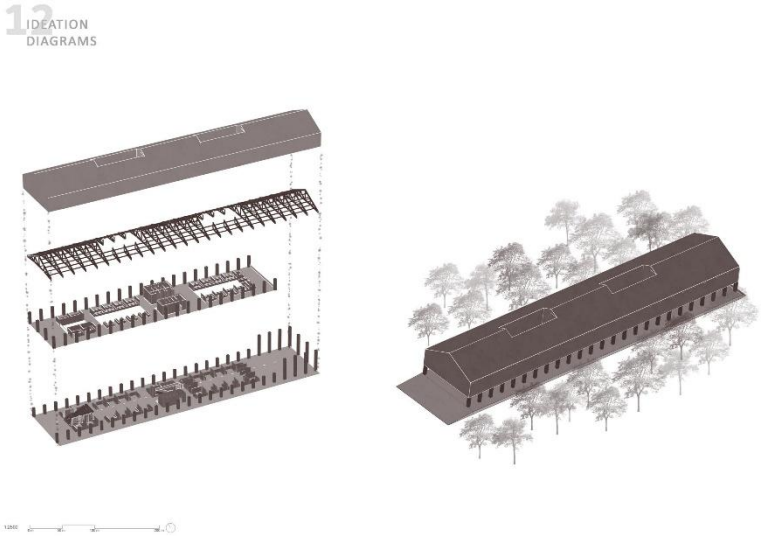

Figure 16. Diagram of the Temporanea House.

In summary, Dumbo shows how an industrial heritage site can be transformed into a vibrant community space that combines economic activity with cultural memory. It demonstrates that adaptive reuse, minimal intervention, and flexible design can work together to create spaces that respect history while remaining relevant for today's urban life.

Figure 17. Master plan of the project.

Outcomes:

- Created affordable market spaces for local producers.
- Developed a gastronomic destination supporting local food networks.
- Demonstrated adaptable design principles for heritage reuse.

3.3 Osservanza: Education and the Digital Divide

The Osservanza project is perhaps the most sensitive intervention among the three projects, as it reuses a historic monastic complex for educational purposes aimed at older adults. Before starting the design process, a survey was conducted to determine the need for digital teaching among elderly citizens. The survey results showed that many older adults felt excluded from digital services and wanted a place to learn these skills in a comfortable and supportive environment. This finding shaped the overall program and confirmed the importance of creating an inclusive learning space within the heritage context.

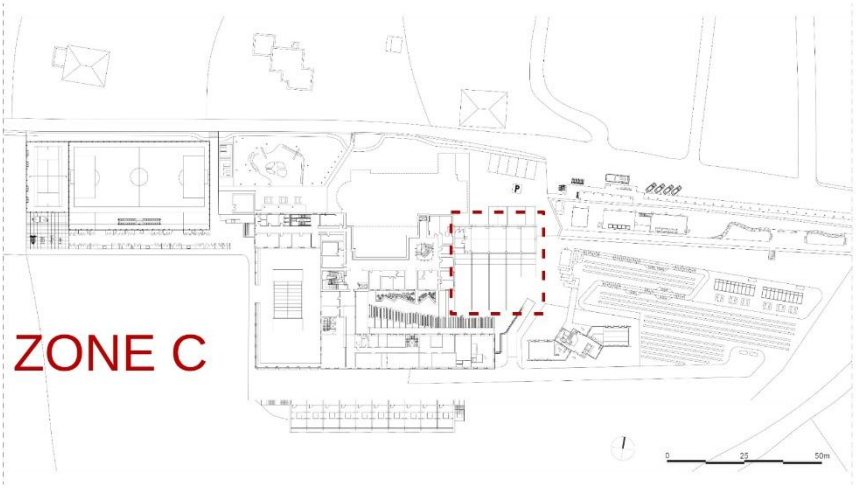

Figure 18. Project location.

The design challenge was to introduce new functions while protecting the building's spiritual atmosphere and architectural features. This required careful decisions at each stage to ensure that the heritage value of the space was not lost.

The project began with a detailed analysis of the existing building, focusing on circulation patterns, natural lighting, structural integrity, and the qualities that give the space its identity. Site visits were conducted to observe how the building is currently used and to identify areas that might be difficult for older adults to access. Interviews with potential users and staff were also carried out to understand their needs and preferences, especially regarding comfort, safety, and ease of use.

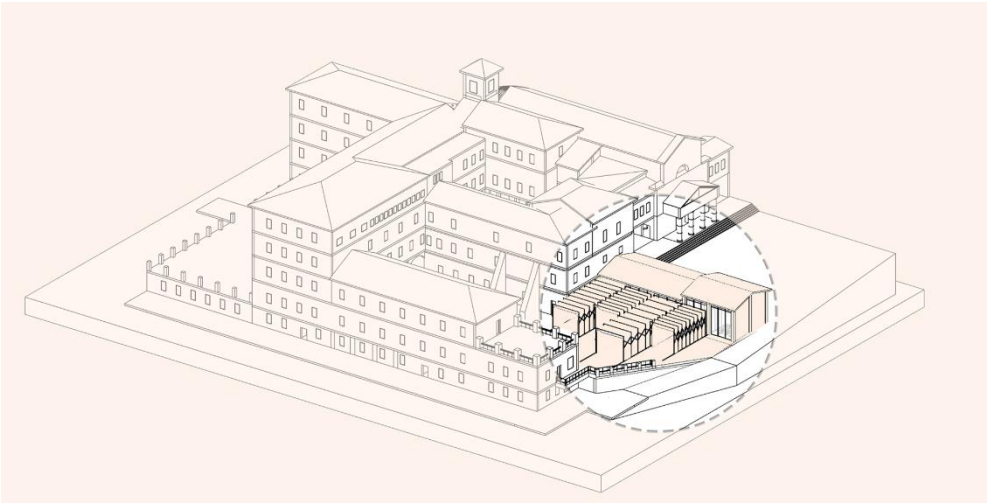

Figure 19. Monastery and the revised part.

Design solutions focused on making the space accessible and easy to navigate. Entrances and pathways were improved with ramps and non-slip surfaces to support mobility. Circulation routes were designed to be clear and intuitive, helping users move comfortably between different learning areas without confusion or unnecessary barriers.

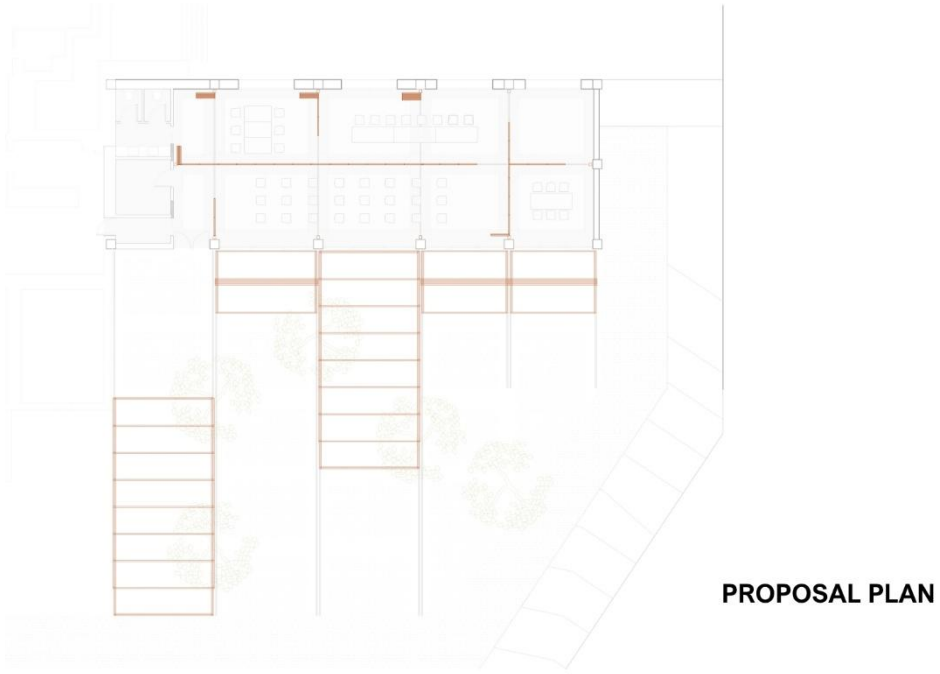

Figure 20. Proposed plan.

The intervention introduced flexible classrooms, co-learning areas, and IT labs using movable partitions and lightweight furniture. Mobile walls make it possible to reconfigure spaces quickly depending on the type of activity, whether a computer class, group discussion, or workshop. All new insertions are freestanding and designed to be clearly different from the original walls, floors, and ceilings. This ensures that if the partitions and furniture are removed in the future, the building will remain unharmed and its heritage fabric intact.

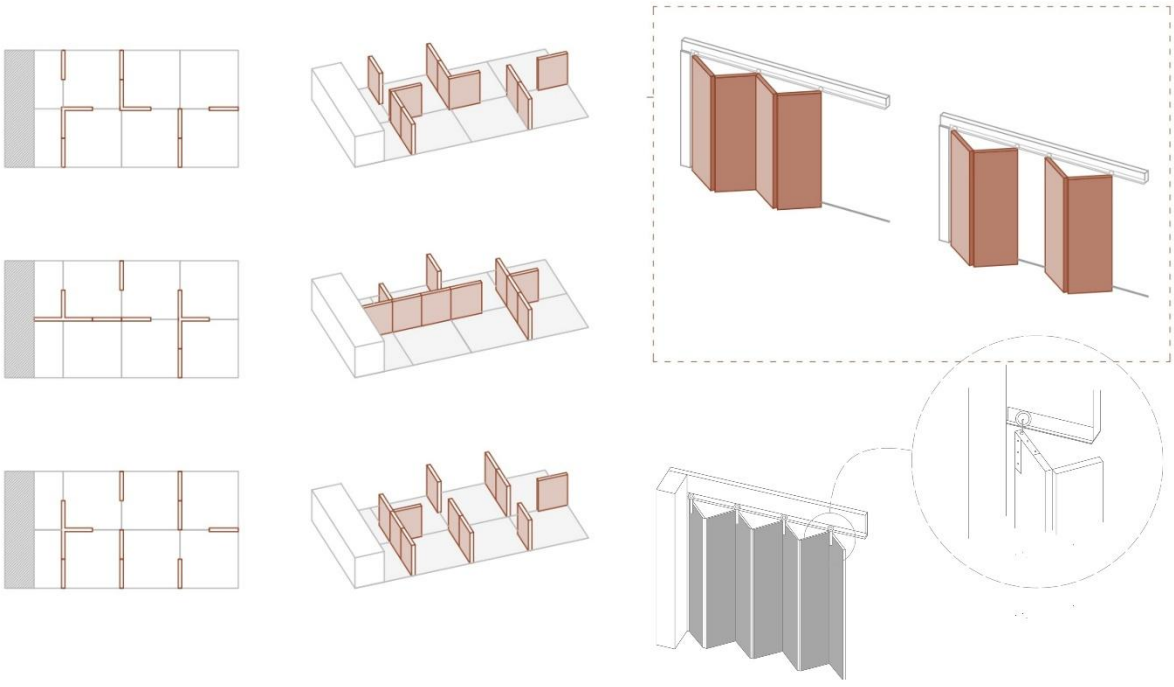

Figure 21. Diagrams of indoor mobile walls.

Designing for older adults required special attention to accessibility details. Furniture heights were selected to suit users with limited mobility. Lighting was planned to avoid glare and shadows, making it easier to see screens and printed materials. Acoustic panels were included in learning areas to reduce noise and make it easier to hear instructors during lessons.

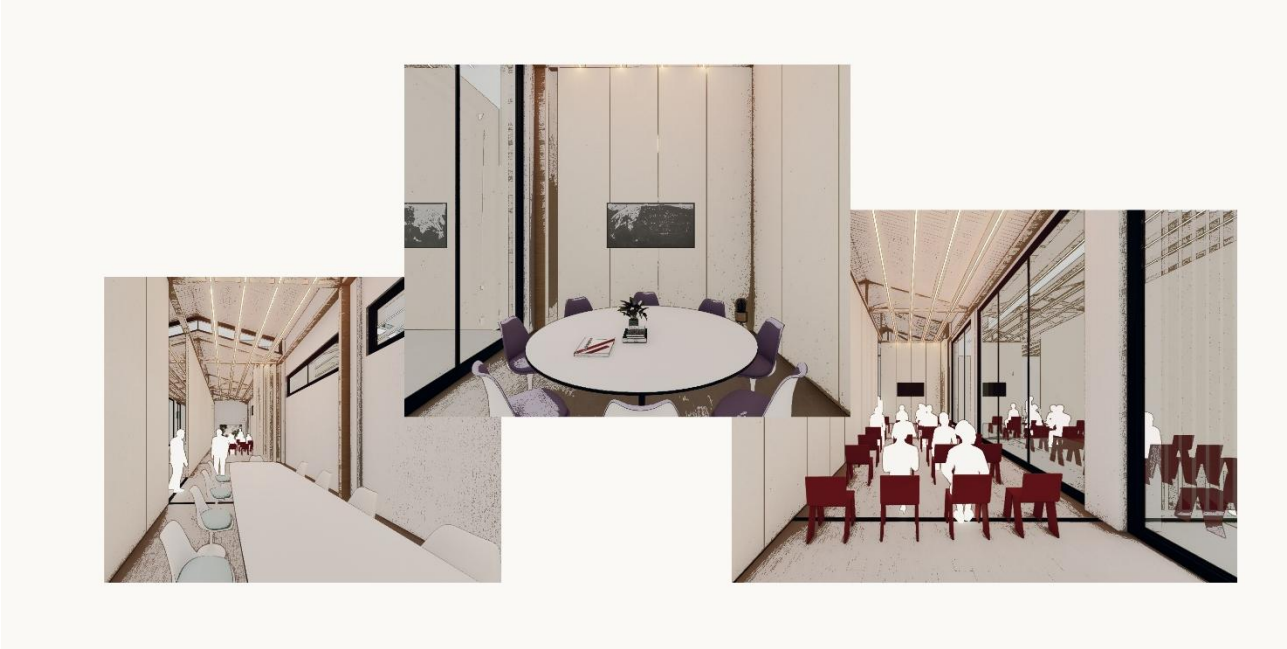

Figure 22. Renders of indoor classrooms.

The Osservanza project also creates opportunities for intergenerational connection. Younger volunteers and instructors can teach digital skills to older adults, building social bonds and mutual respect. In this way, the project not only preserves the heritage building but also adds a new layer of meaning as a place for learning, connection, and social inclusion.

Through this project, it was recognised that heritage buildings can promote social inclusion when adapted with care. It showed that adaptive reuse is not only about preserving materials or structures but also about supporting community needs in ways that respect cultural identity. This reinforces the idea that architecture carries social responsibility along with design and technical decisions.

In summary, Osservanza demonstrates that sensitive interventions can give new life to heritage buildings. By creating flexible, accessible, and inclusive learning spaces, the project meets current urban needs while protecting the building's historical and spiritual character.

Outcomes:

- Created inclusive, flexible learning environments.
- Addressed digital exclusion among older people.
- Preserved sacred architecture with non-invasive design interventions.

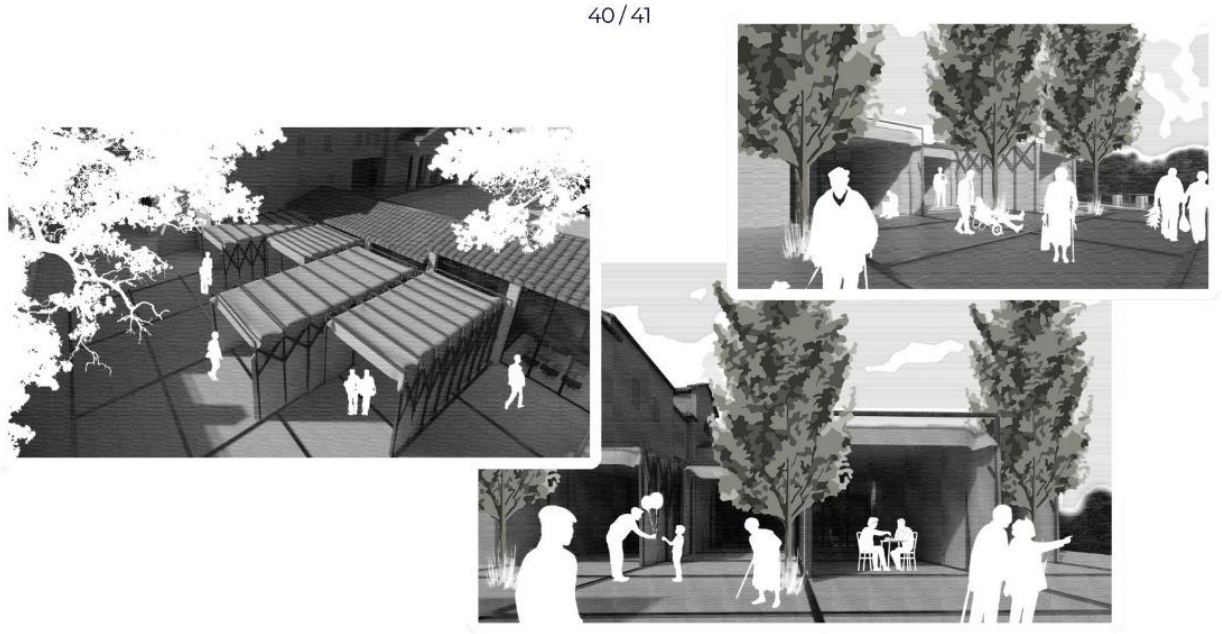

Figure 23. Renders of mobile walls.

4. Conclusion

This thesis has explored how architectural design can find a balance between preserving the memories held within historic places and meeting the changing needs of urban life today. Looking at the three projects Navile, Dumbo, and Osservanza it becomes clear that heritage is not just something to protect for its own sake. Instead, it is a living part of the city, a base upon which more inclusive, resilient, and sustainable futures can be built.

Each project uses a shared approach focused on temporary, flexible, and reversible design strategies. These choices mean that spaces remain open to change rather than being fixed into one use forever. This way of designing allows buildings and sites to adapt as community needs evolve, supporting new activities without losing their original meaning or identity. It shows that architecture can act as a gentle guide, shaping space in ways that are respectful, useful, and open-ended.

Taken together, these projects form a clear strategy for regenerative urbanism. Navile reconnects the city with its agricultural roots, creating spaces to grow food and share knowledge about sustainable living. Dumbo gives new life to an industrial building, turning it into a place where local food systems are supported and where people can come together. Osservanza opens the doors of a sacred, historic site to become a centre of learning, giving older adults the chance to develop digital skills and remain connected in a fast-changing world.

Each intervention also shows that architecture has a social role as much as a technical or artistic one. The work done in Navile, Dumbo, and Osservanza highlights that the spaces we design can improve daily life, strengthen community ties, and reduce inequalities if we approach them with care and attention to local realities. By creating spaces that are inclusive, accessible, and useful, these projects demonstrate that heritage can support social change rather than simply standing as a reminder of the past.

This thesis suggests that cities do not need to grow endlessly outward or erase what already exists to remain alive and relevant. Instead, they can evolve by reinterpreting and reusing their heritage in ways that speak to today's needs. In this way, architectural design becomes a tool not for imposing new forms, but for revealing new possibilities within what is already there.

Positioning the architect as a mediator between the past and the future, these projects contribute to a wider conversation about how to work with heritage buildings and sites. They ask us to see heritage not as a limitation but as a resource. Something that can inspire innovation, support sustainability, and build stronger, more connected communities.

In the end, with this work I intended to demonstrate that building for the future does not mean forgetting the past. It means learning how to carry it forward, adding new layers of meaning and use, so that heritage continues to shape urban life in ways that are both respectful and hopeful.