

BLOOMING TOWARDS THE SUN

An Integrated Housing-Agriculture System for Re-Building a Resilient and Thriving Kharkiv



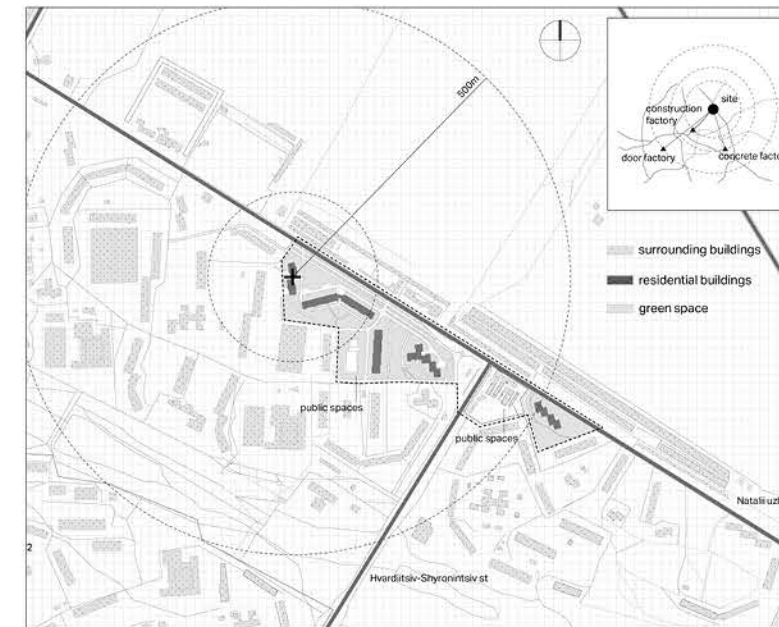
The proposal is based on understanding Kharkiv in relation to its local communities and regional neighbors. In the wake of the conflict, rebuilding means healing, both as individuals and as a collective, reconnecting families and communities, and rejuvenating life and restoring production. The design puts together a comprehensive strategy that performs simultaneously on multiple levels. Architecturally, damaged buildings are not only restored but also fortified and upgraded with better climate performance using an extensive modular system that can adapt to varying conditions of war-affected structures. Programmatically, the system combines urban sunflower agriculture with housing to foster economic security and communal healing, fostering togetherness during uncertain times. Sunflower serves both as a practical handle to reclaim the nation's status as a leading agriculture exporter and as a spiritual and cultural symbol of hope, embodying love for peace and light even in darker days. This approach aims to strengthen community bonds and pave the way for a resilient future.

BACKGROUND



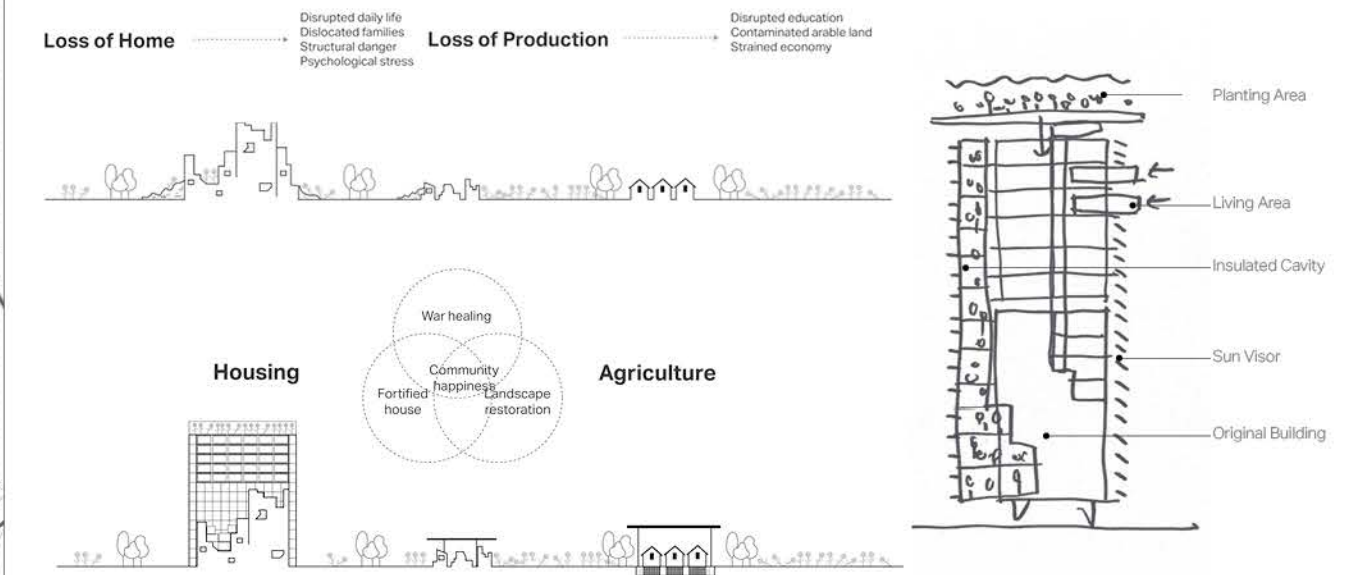
As the conflict marks its 936th day on September 18, 2024, the profound impact on civilians continues. With no clear end in sight, Ukrainians are forced to adapt to a life intertwined with the war. The prolonged emergency has reshaped daily existence, with many grappling with the loss of homes, disrupted education, contaminated agriculture, and a strained economy. Medical resources are scarce, and the weight of mental stress looms heavily over the population, causing deep and lasting harm to the community.

LOCATION



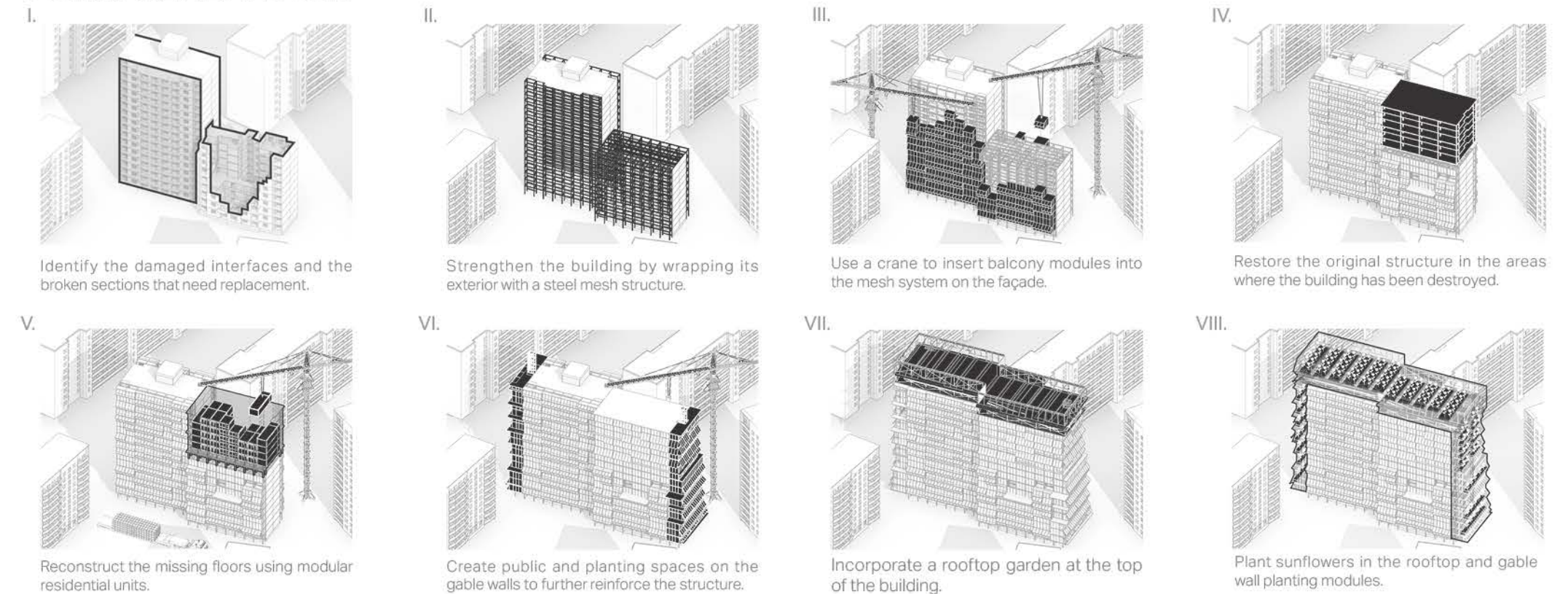
Kharkiv, an industrial city in northeastern Ukraine with 1.4 million people, faces challenges from war, including food security risks. With 1.9K square kilometers of arable land (5.9% of Ukraine), it plays a role in Ukraine's agricultural exports. However, the conflict has contaminated and mined these resources, threatening the nation's status as Europe's "breadbasket."

CONCEPT GENERATION

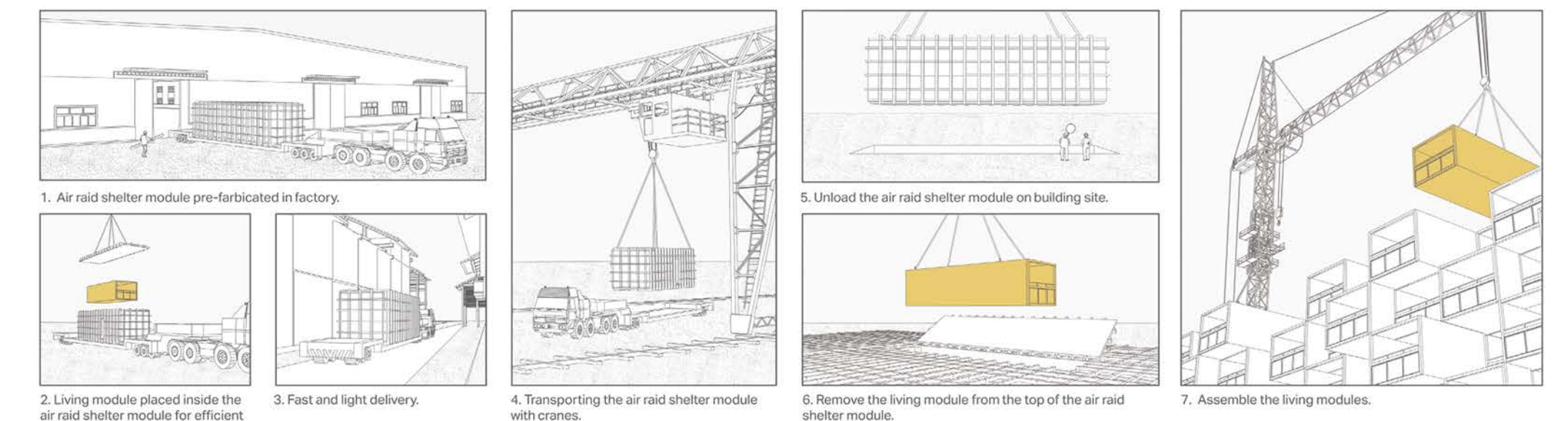


We aim to address two major losses: the destruction of homes and the decline in both knowledge and agricultural production. Sunflowers, a cultural symbol and key export, can help tackle both issues by integrating housing reconstruction with agriculture. Our concept restores building volume with a self-supporting structural frame, creating a continuous airspace around the original structure. This airspace, combined with a renovated facade, forms a vertical greenhouse that buffers weather and provides planting balconies. Sunflowers are cultivated on the roof and gable, with processing one level below. Crops are collected using vertical transportation.

FORM GENERATION

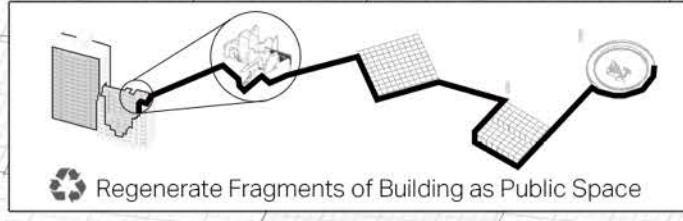
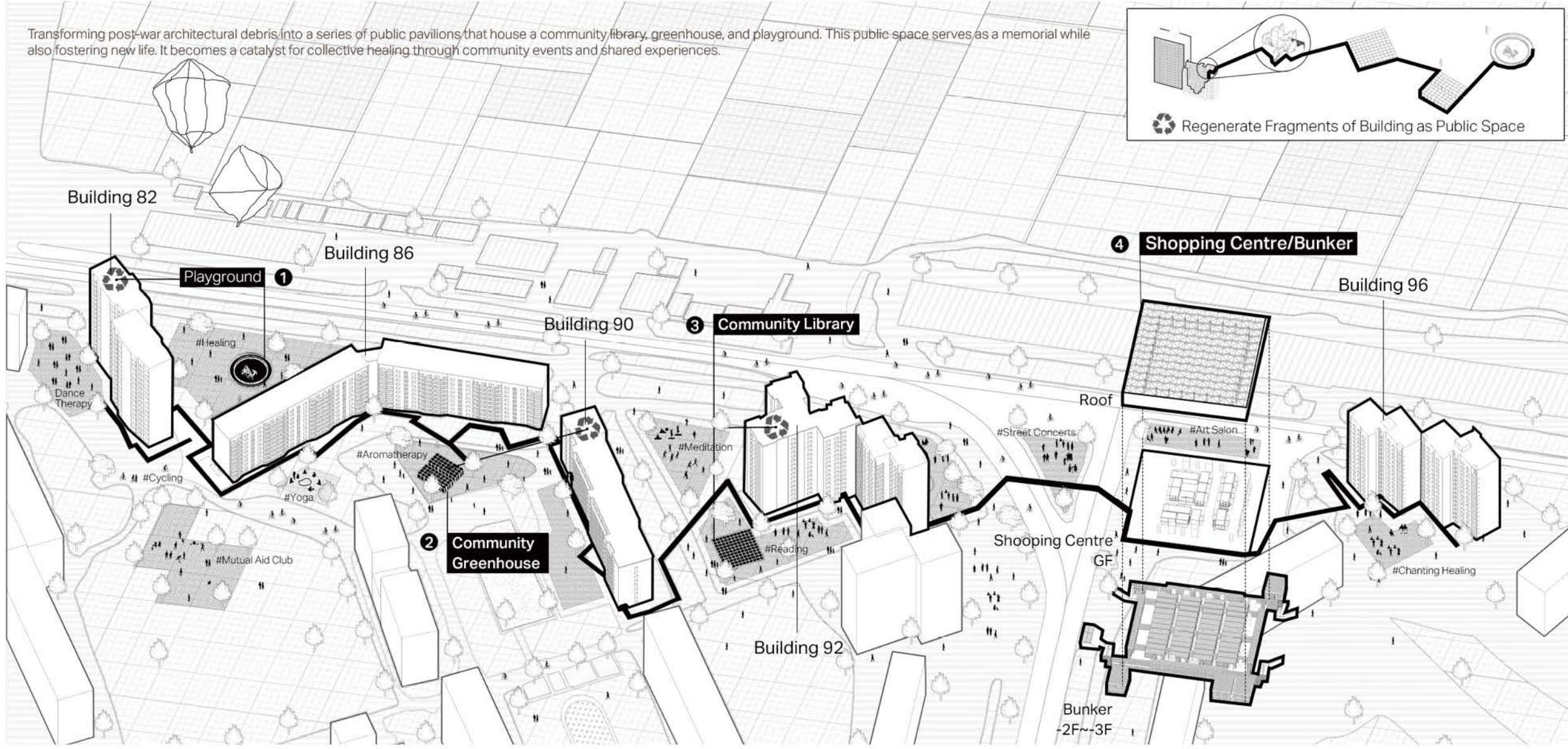


TRANSPORTATION



HEALING TOGETHER-PUBLIC SPACE AND ACTIVITY PLANNING

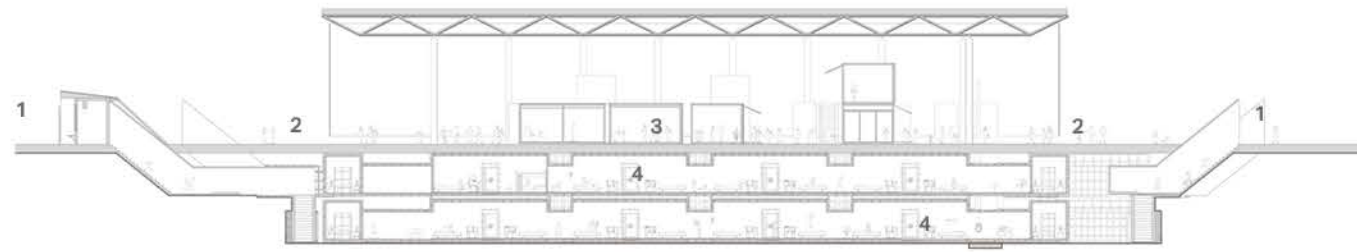
Transforming post-war architectural debris into a series of public pavilions that house a community library, greenhouse, and playground. This public space serves as a memorial while also fostering new life. It becomes a catalyst for collective healing through community events and shared experiences.



BUNKERS AND COMMERCIAL SPACES

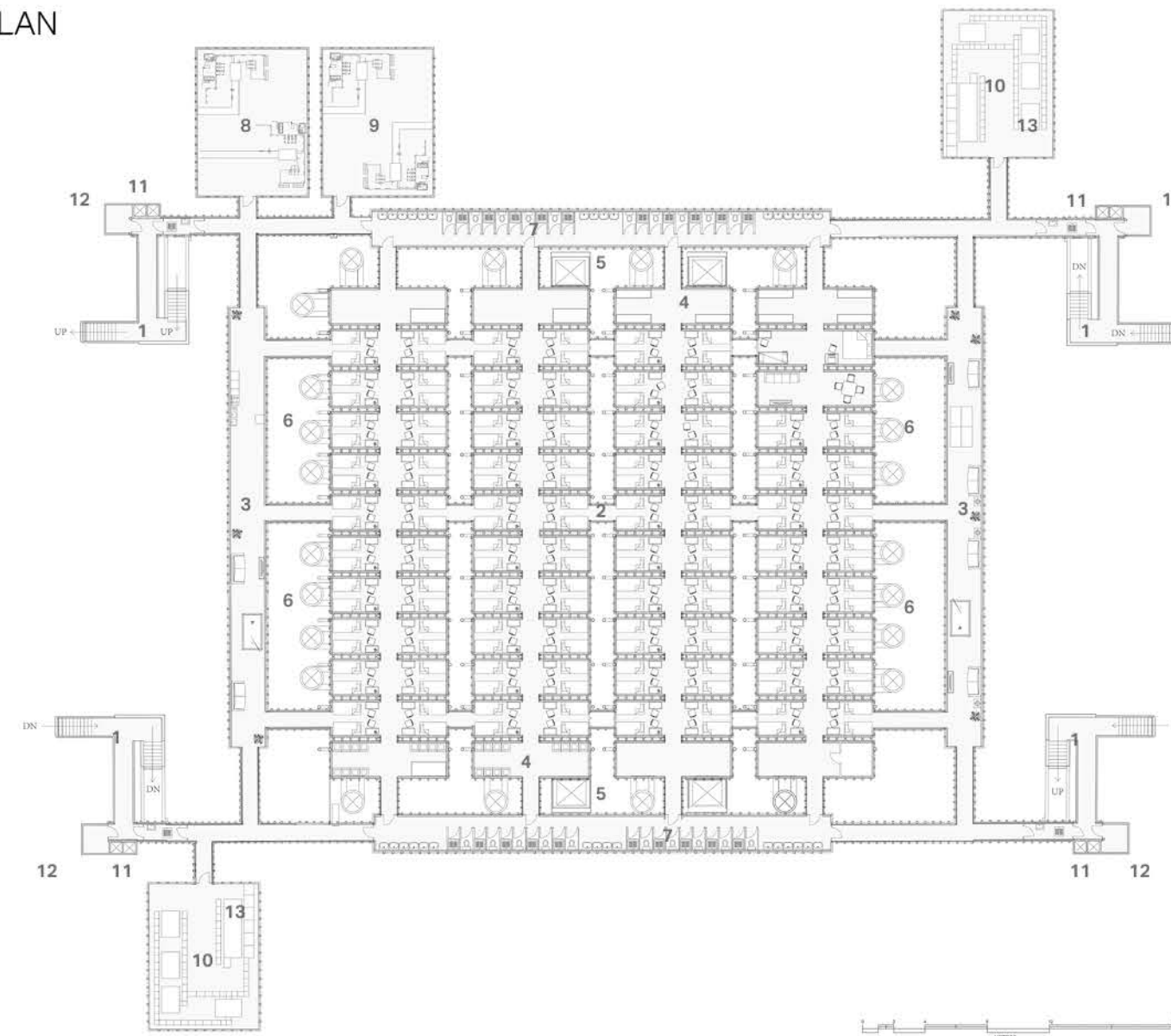
The proposal integrates an air raid shelter with commercial space by rebuilding the existing commercial zone (using Modules E1-E3) while constructing an underground shelter (using Module F). During peacetime, the shelter serves as storage for aboveground stores; in emergencies, it provides a safe haven for residents.

SECTION



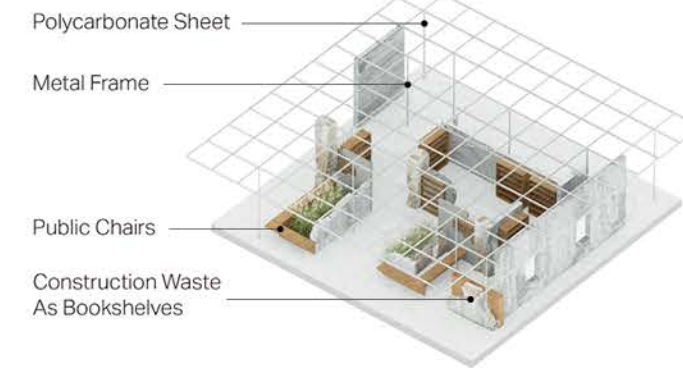
1. Entrance/Exit
2. Store/Cafe
3. Business module
4. Storing space

PLAN



1. Bunker Entrance/Exit
2. Residential Area
3. Public Space/Kitchen
4. Warehouse/Laundry Room
5. Elevator Shaft
6. Escape Duct
7. Public Restroom
8. Domestic Water Tank
9. Drinking Water Tank
10. Power Generation Room
11. Sterilization Room
12. Ventilation Shaft
13. Equipment Room

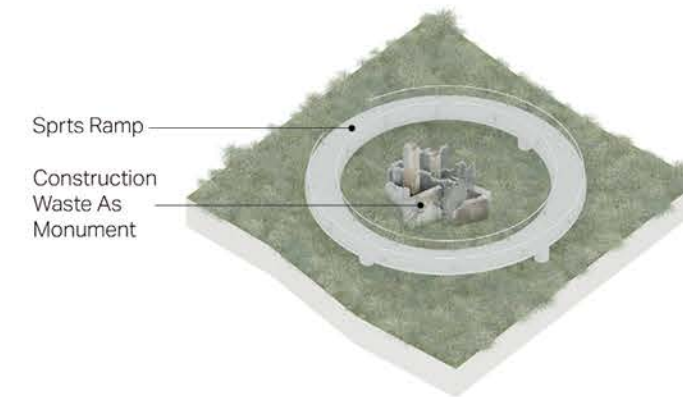
PUBLIC SPACE



COMMUNITY LIBRARY



COMMUNITY GREENHOUSE



PLAYGROUND



Community Library Built From Recycled Architectural Debris



Sunflower Farm and Processing Floor

MODULE MENU

<p>A A1</p> <p>4m Balcony module</p> <p>This module is suitable for single-story areas without balconies that require planting</p>	<p>B B1</p> <p>2m Balcony module</p> <p>This module is suitable for single-story units with an existing 1-meter balcony that require planting.</p>	<p>C C1</p> <p>Public space module</p> <p>This module is suitable for the junction between public spaces and planting balcony areas.</p>	<p>F E1</p> <p>Residential module</p> <p>Suitable for small residential units</p>
<p>A2</p> <p>This module is suitable for two-story areas without balconies that require planting</p>	<p>B2</p> <p>This module is suitable for two-story units with an existing 1-meter balcony that require planting.</p>	<p>C2</p> <p>This module is suitable for external public spaces adjacent to existing stairwells.</p>	<p>E2</p> <p>Suitable for medium-sized residential units</p>
<p>A3</p> <p>This module is suitable for three-story areas without balconies that require planting</p>	<p>B3</p> <p>This module is suitable for three-story units with an existing 1-meter balcony that require planting.</p>	<p>D D1</p> <p>Gable module</p> <p>This module is suitable for two-story gable wall areas that require planting.</p>	<p>E3</p> <p>Suitable for large residential units.</p>
<p>A4</p> <p>This module is suitable for single-story areas without balconies that do not require planting</p>	<p>B4</p> <p>This module is suitable for single-story units with an existing 1-meter balcony that do not require planting.</p>	<p>D2</p> <p>This module is suitable for single-story gable wall areas that require planting.</p>	<p>F F1</p> <p>Bunker module</p> <p>Suitable for quickly assembling bunker spaces.</p>

SYSTEM ANALYSIS

Sunflower planting and processing system

Prestressing Wires System

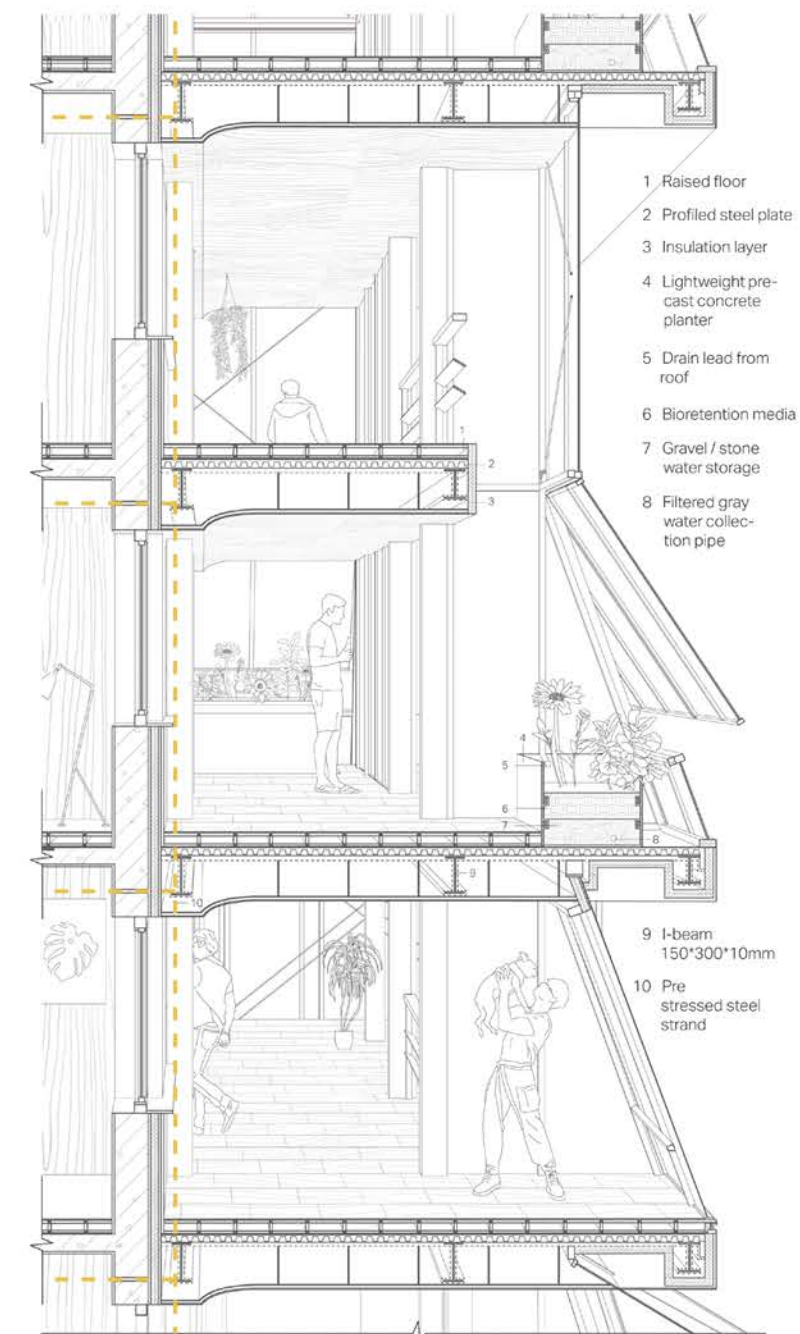
Public Space System

Water Supply System And Gshp System

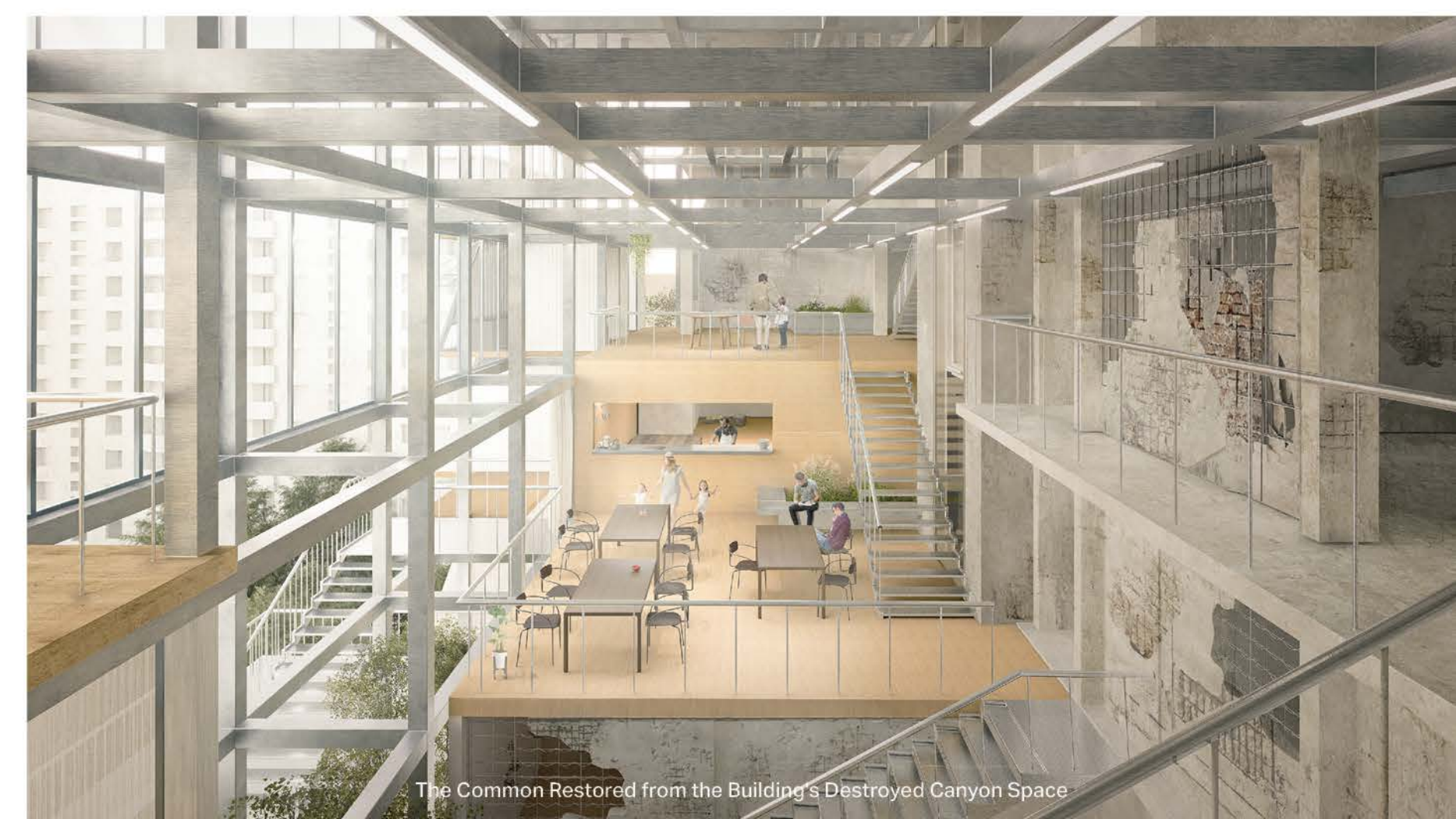
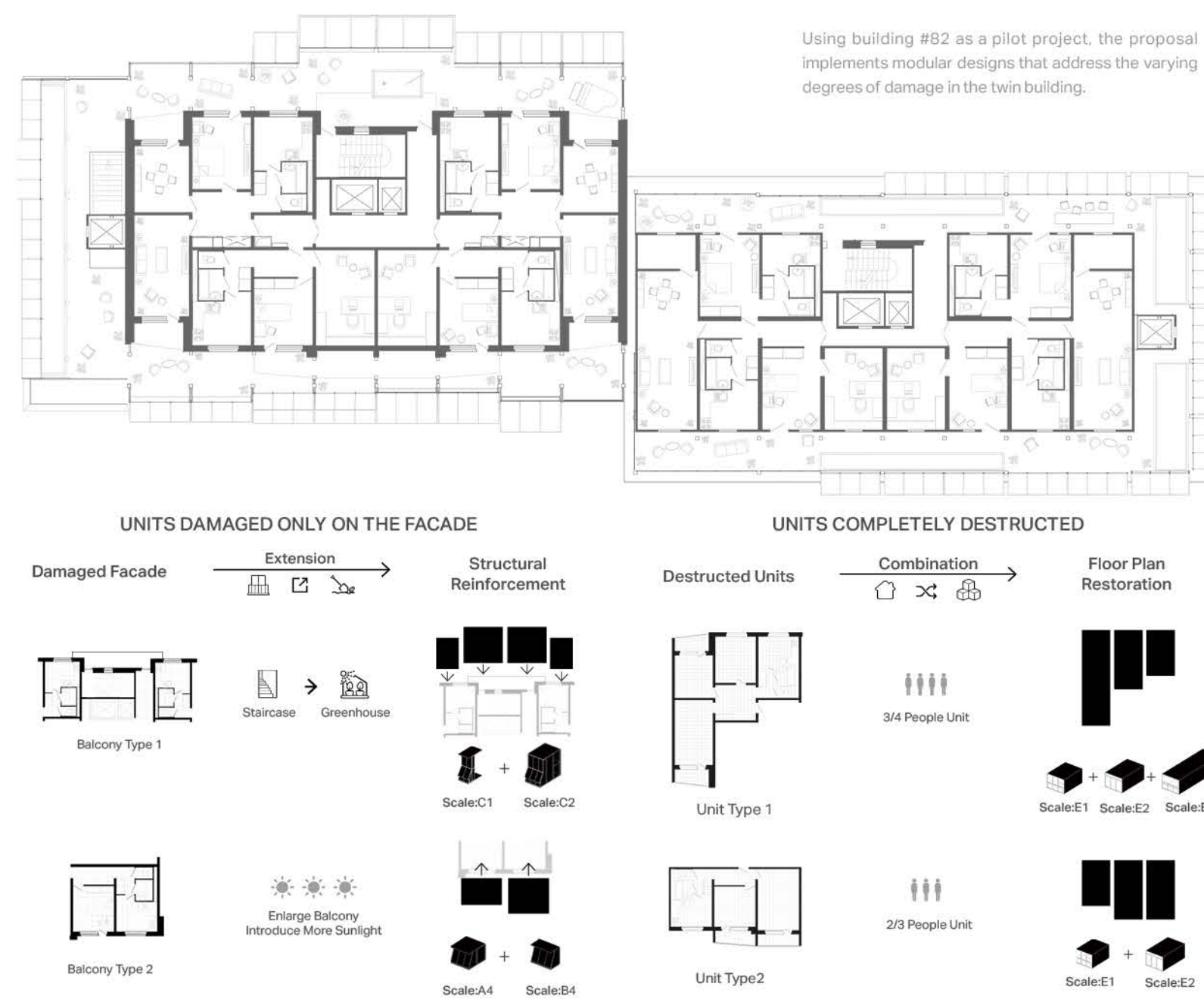
Living Modules

Insulated Cavity

DETAILS



MODULE MATCHING STRATEGY

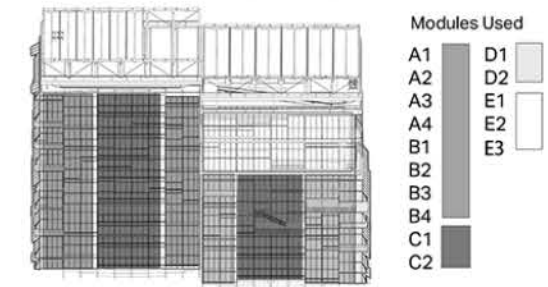
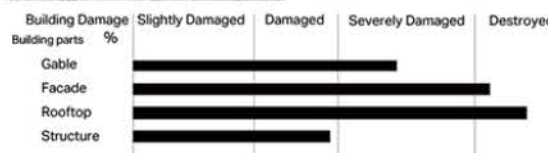




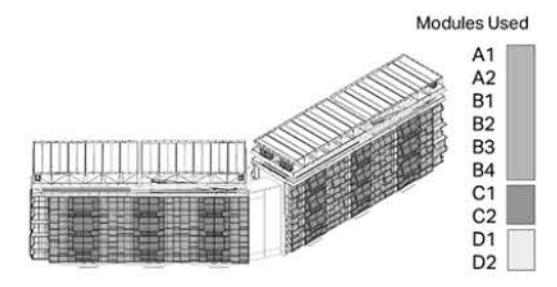
OVERALL STRATEGY



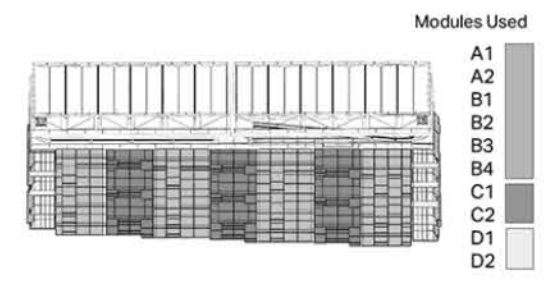
Building 82
This is our selected building. It has suffered extensive damage overall. One of its roofs and half of the facade have been completely destroyed, and the structure is severely compromised.



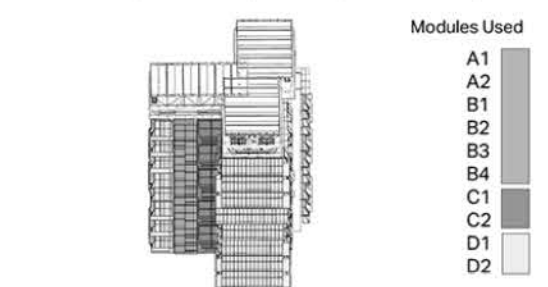
Building 86
Building 86 consists of two identical residential units connected by a corridor. The overall damage is not extensive, mainly affecting the facade.



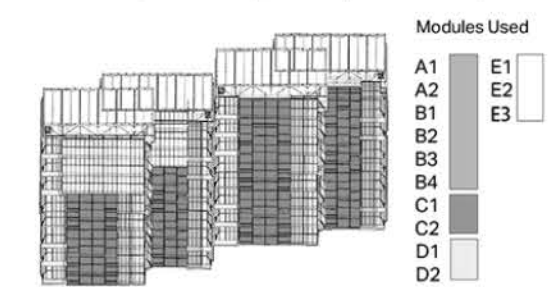
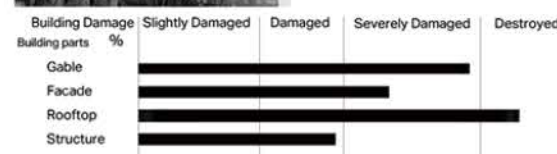
Building 90
Building 90 has a varied layout near the facade. The overall damage is not significant, with only minor damage to the facade.



Building 92
Building 92 has a low overall level of damage.



Building 96
Building 96 consists of two identical residential units, one of which has had its top floor destroyed by an explosion, with significant damage to both the facade and the structure.



The integrated system consists of modular components that enable rebuilding in layers, adapting to varying levels of damage. This approach fosters unique identities for each building while maintaining overall harmony. With the golden sunflower glowing in sunbeams, the community is connected by a continuous ribbon of sunshine.

To rebuild is not only to think over what we could do better as a collective but also to keep planting seeds whenever and wherever possible in the hope of peace and love. For once and over again, we could heal the agony, bloom towards the sun with immense resiliency, and be all in this together.