

The rebuilding of Kharkiv will embody healing, resilience, and community empowerment. It will stimulate social cohesion, emotional recovery and a strong sense of identity.

# 01 DESIGNED TO THRIVE

## HEALING KHARKIV: FROM RUBBLE TO RENEWAL

Our submission is brought together by a collective team passionate about rebuilding a sustainable, deliverable and visionary future for the Saltivka neighbourhood to **RECONNECT, REPAIR AND REBUILD** the buildings, the spaces and the community of this devastated region.

Our team includes architects, masterplanners, landscape architects, interior designers, technical modular specialists, structural engineers, MEP engineers, sustainability experts, safety advisors and a network of Ukrainian contractors, suppliers and charities.

Together we have conceived a modular system that is **versatile, adaptable and deliverable** to the typology and scale of buildings, site context and **legacy** of the Saltivka neighbourhood – it is driven by a collective passion to enhance the sense of **place and belonging** through social cohesion of the existing community. Although the residents have been through unimaginable loss and trauma, the residents of Saltivka long for a safe, joyful and rewarding place to **live and thrive**.

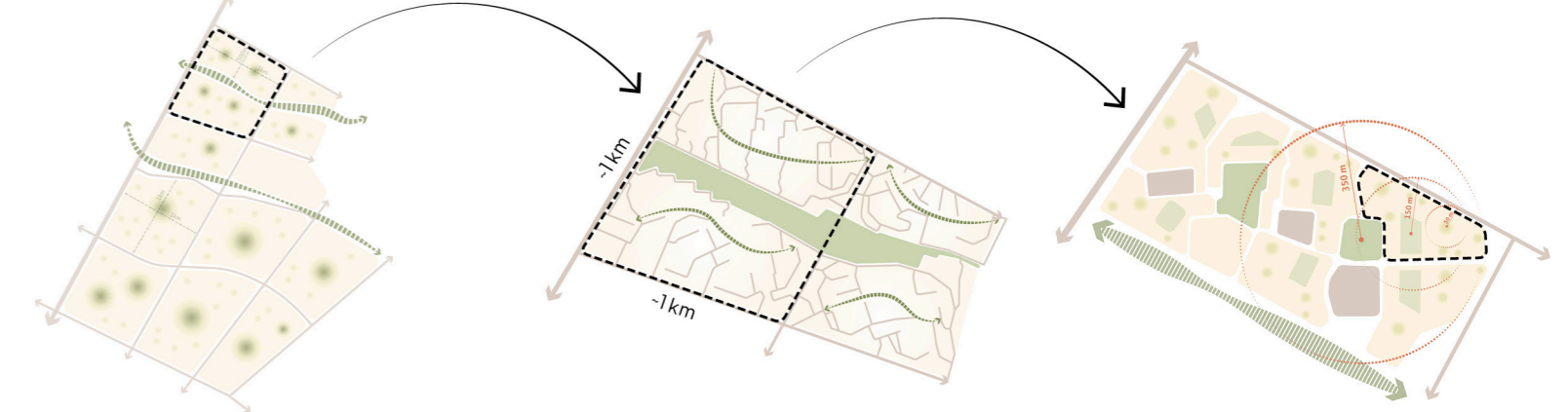
## ENHANCING A HISTORIC URBAN CONTEXT

Through our research and understanding of the urban fabric and existing buildings, our concept is scalable across Kharkiv and the Ukraine - enhancing and inspiring communities through the regeneration of long established urban fabric.

1 DISTRICT = X 10 NEIGHBOURHOODS  
Population -400,000

1 NEIGHBOURHOOD = X 16 COMMUNITIES  
Population -40,000

1 COMMUNITY = 4-6 BUILDINGS  
Population -2,500



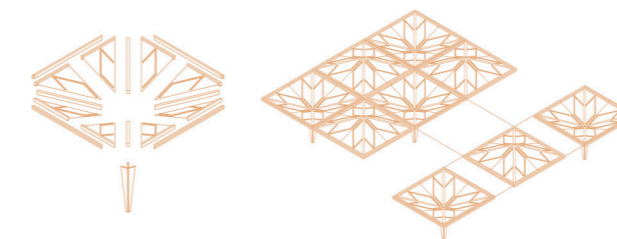
## SUSTAINABLE REUSE

Our construction partner in the Ukraine has developed an innovative and cost effective process to take the building materials from the damaged buildings and reuse them to form our concrete pre-fabricated modular system.

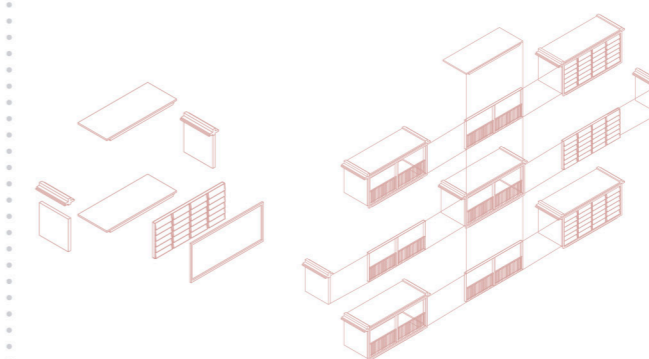


## FLEXIBLE KIT OF PARTS

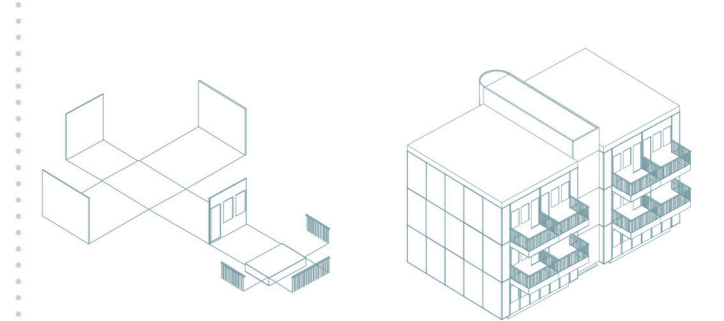
**RECONNECT** THROUGH PUBLIC SPACES



**REPAIR** THE DAMAGED BUILDINGS



**REBUILD** NEW WITHIN THE MASTERPLAN



## ADAPTABLE TO A RANGE OF SCENARIOS

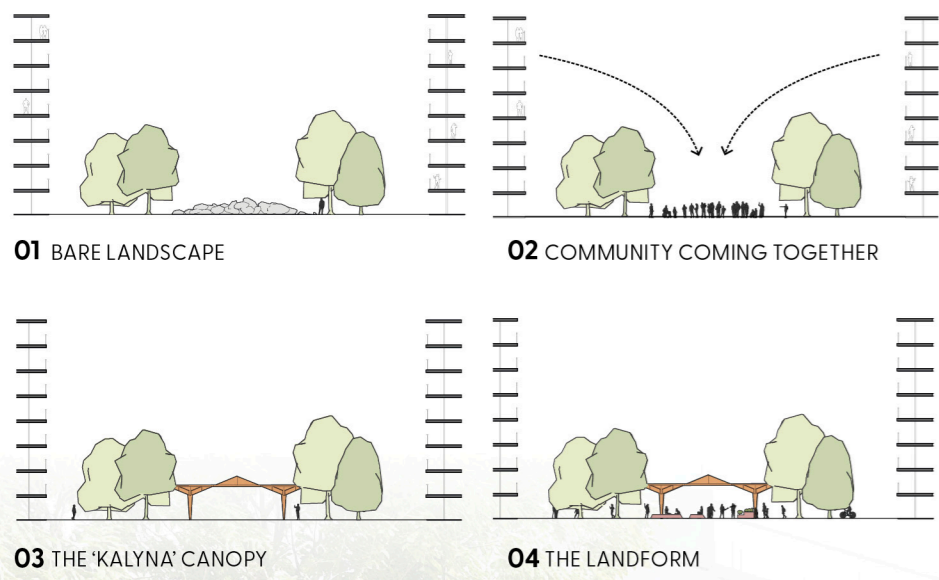


# 02 RECONNECT

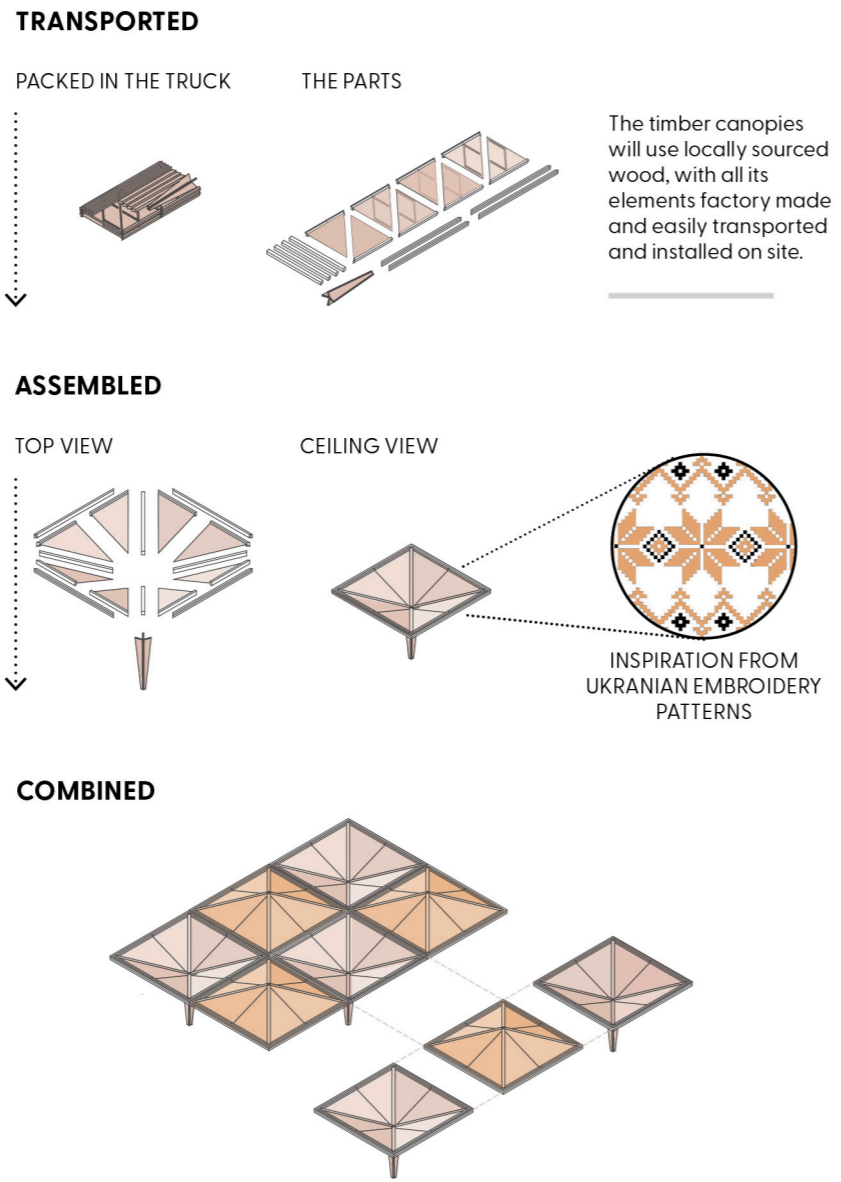
## HEALING KHARKIV: FROM RUBBLE TO RENEWAL

The public realm proposal aims to create positive change across the current underutilised outdoor spaces, with a strong focus on bringing the community together. Inspired by the existing established trees, we designed a modular system canopy that can be scaled up and down, as well as adapted to suit various contexts and requirements. On the ground plane, recycled concrete from current rubble will be cast to become a base for different uses. These include: platforms underneath the canopies that host a variety of events, seating elements and raised planters. This circular design for the canopies and landform ensures high quality and rapid delivery. These activity pockets are flexible enough to adapt to the community's needs at each moment in time and would promote longer term healing for the Saltivka's residents.

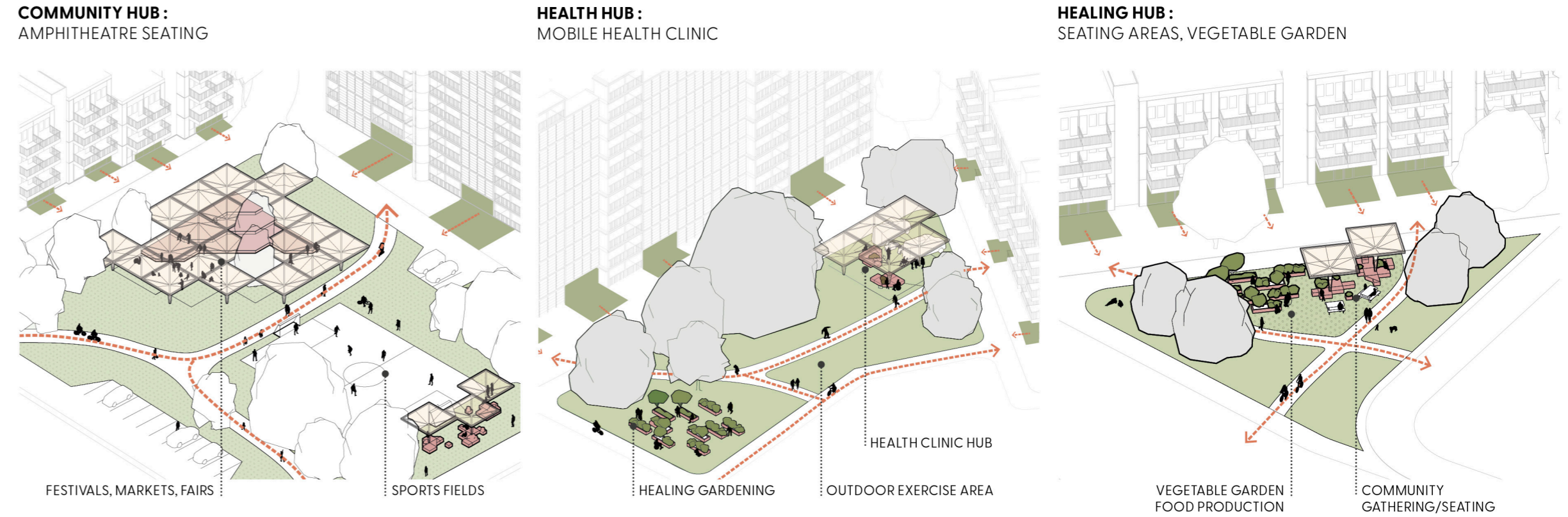
### CONCEPT



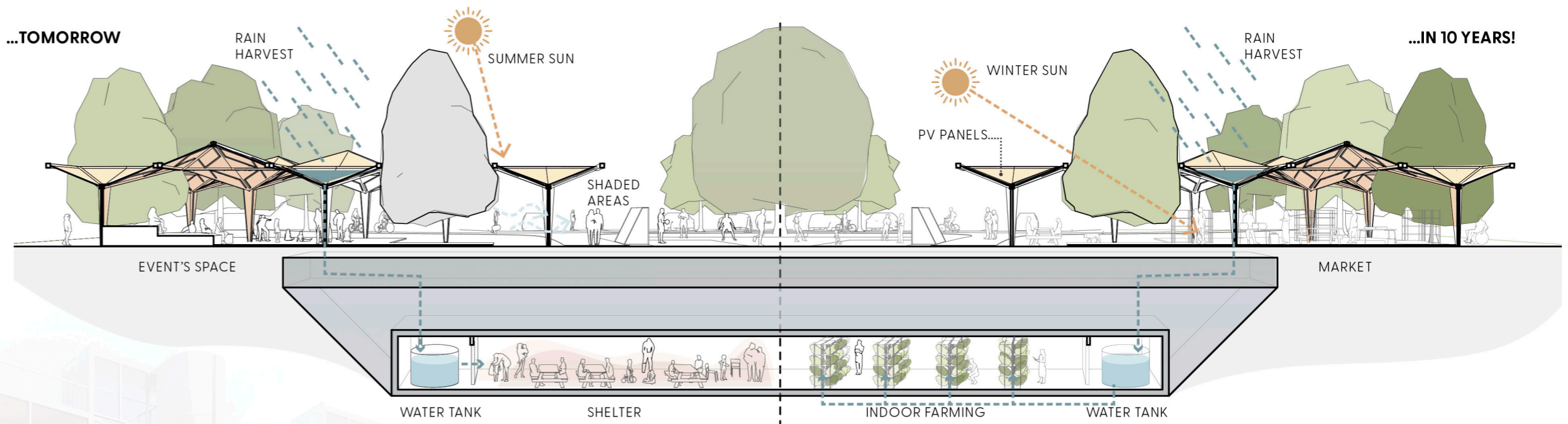
### KIT OF PARTS - THE 'KALYNA' CANOPY



### DIFFERENT SPACES - DIVERSE OPPORTUNITIES



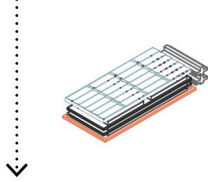
### FUTURE PROOF...



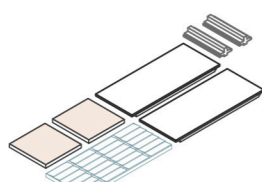
## KIT OF PARTS - THE 'BOX'

### TRANSPORTED

PACKED IN THE TRUCK

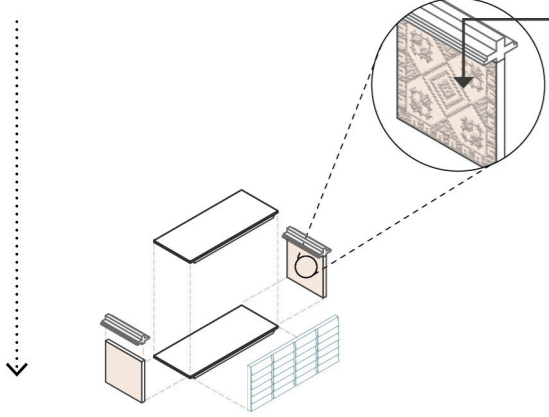


THE PARTS



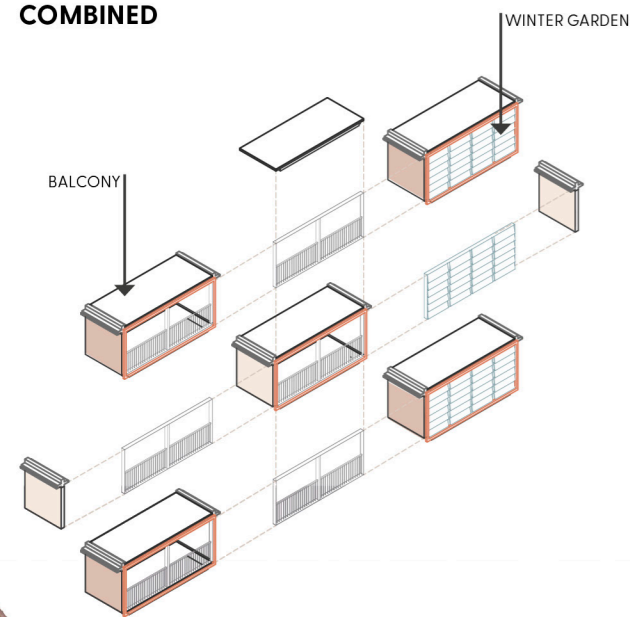
All prefabricated elements that will be shipped as flatpack and quick assembly reducing the amount of material needed on site.

### ASSEMBLED



Concrete panels are embossed during the production process with different patterns inspired by the regional embroidery motifs and compositions.

### COMBINED



Different boxes set will create different functions: winter garden, balcony, stairs and elevators.

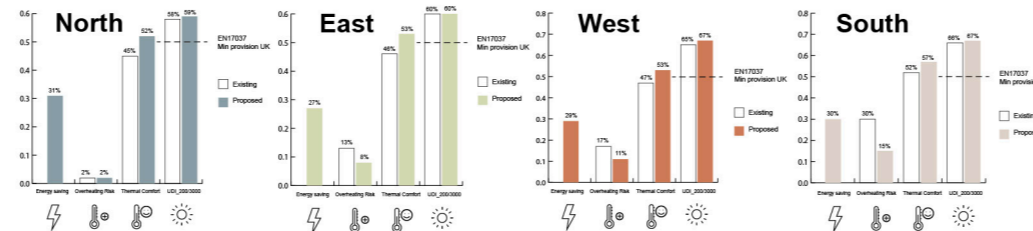
### STRUCTURAL POINT OF VIEW:

- Effective ties to eliminate risk for disproportional collapse and new frame provides robustness to the existing structure
- Acting as outriggers, stabilising the existing building
- Facilitating modification, such as extending window openings and supporting weight of external insulation panels

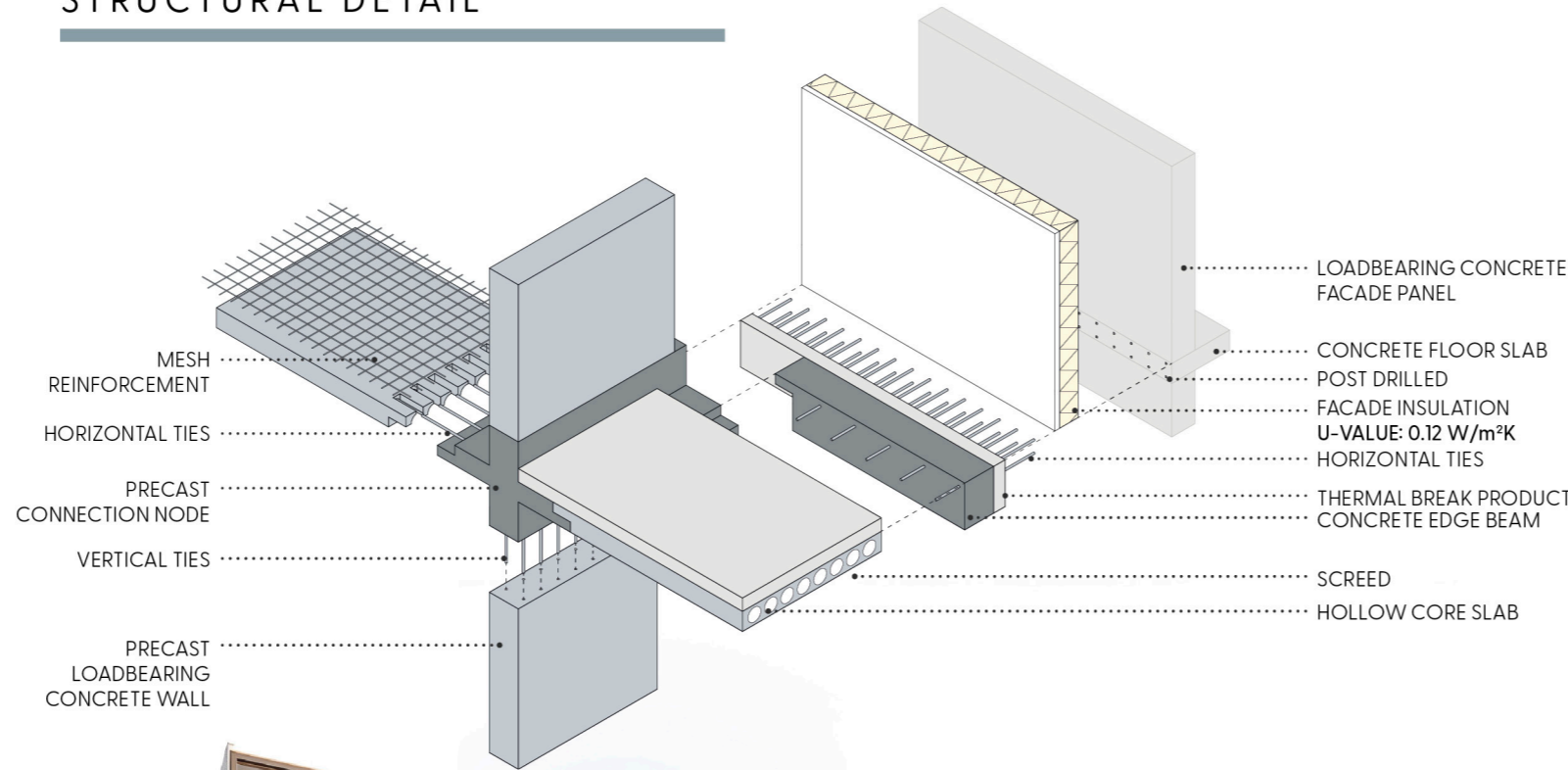
## TYPICAL FLOORPLAN



The window-to-wall ratio (WWR) and balcony depth were optimized for each different orientation. The proposed design varies for different orientations, with balcony depths ranging from full-module to half-module, and different WWRs



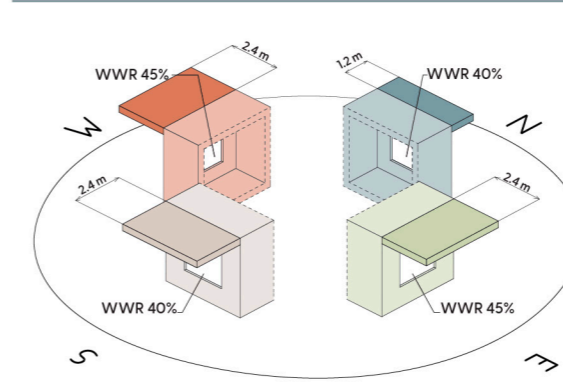
## STRUCTURAL DETAIL



- MESH REINFORCEMENT
- HORIZONTAL TIES
- PRECAST CONNECTION NODE
- VERTICAL TIES
- PRECAST LOADBEARING CONCRETE WALL

- LOADBEARING CONCRETE FACADE PANEL
- CONCRETE FLOOR SLAB
- POST DRILLED FACADE INSULATION U-VALUE: 0.12 W/m<sup>2</sup>K
- HORIZONTAL TIES
- THERMAL BREAK PRODUCT
- CONCRETE EDGE BEAM
- SCREED
- HOLLOW CORE SLAB

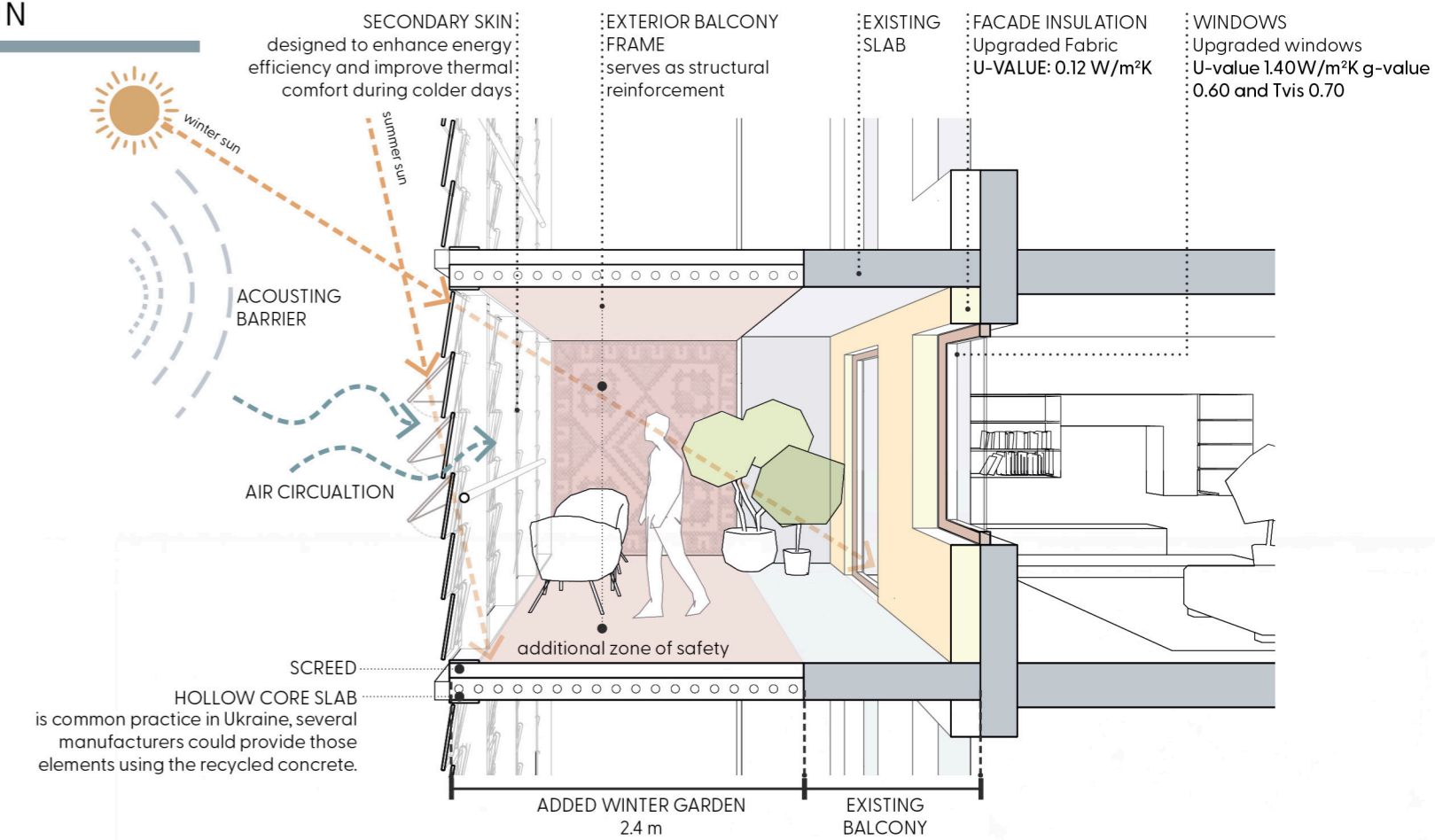
## ENVIRONMENTAL OPTIMIZATION



The addition of the balcony mitigates the overheating risk, though it may significantly impact daylight levels. Therefore, both the balcony depth and WWR were fine-tuned to address energy reduction, thermal comfort, overheating risk, and useful daylight for the proposed modules.

This resulted in approximately 30% energy savings compared to the existing residential module units, with equal or better Useful Daylight, improved overall thermal comfort throughout the year, and reduced overheating risk when upgrading the fabric. These enhancements ensure energy savings without compromising the well-being of the occupants.

## SECTION



SECONDARY SKIN: designed to enhance energy efficiency and improve thermal comfort during colder days

EXTERIOR BALCONY FRAME serves as structural reinforcement

EXISTING SLAB

FACADE INSULATION Upgraded Fabric U-VALUE: 0.12 W/m<sup>2</sup>K

WINDOWS Upgraded windows U-value 1.40W/m<sup>2</sup>K g-value 0.60 and Tvis 0.70



winter sun

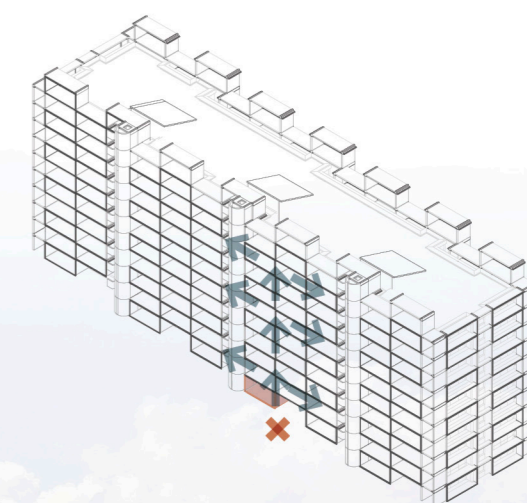
summer sun

ACOUSTIC BARRIER

AIR CIRCULATION

SCREED HOLLOW CORE SLAB is common practice in Ukraine, several manufacturers could provide those elements using the recycled concrete.

## STRUCTURAL STRATEGY



**Disproportionate collapse**  
The current building doesn't have effective ties between the elements. If a single element fails will all elements above also fail. The Box extensions will shield the "fragile" building, be more robust and designed for loss of members which will only lead to local damage.

**Stabilising**  
The extension will give us confidence in the structural integrity.

**Facilitate modifications**  
Additional structure will allow the façade to be penetrated.

**Improving building envelope**  
the additional load of the new insulation will be picked up by the new structure



# 04 REBUILD

## HEALING KHARKIV: FROM RUBBLE TO RENEWAL

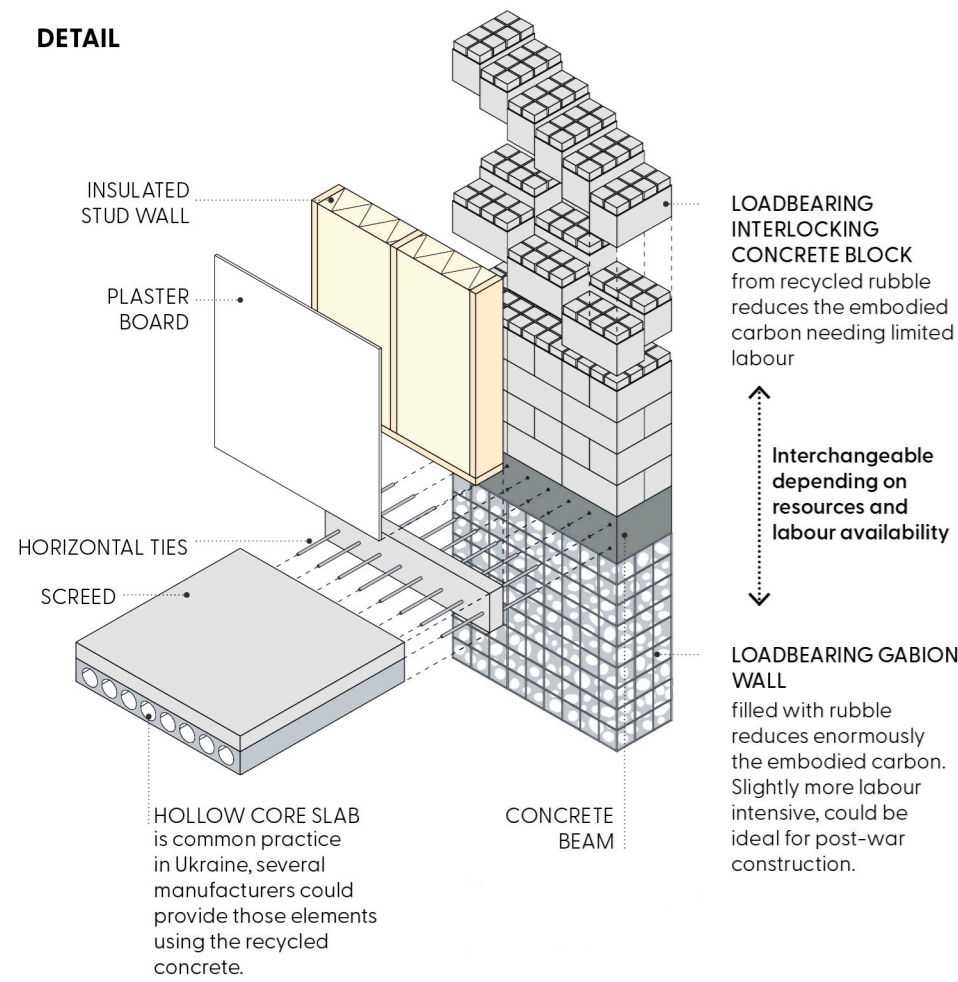
Revitalization Through Adaptability

The modular architectural and landscape architectural approach has been developed to ensure that it can respond to and respect the existing Ukrainian City Frameworks. The design modules can be applied to complement and enhance the existing urban structure, at neighborhood, district and city scale. This versatile modular system can be adapted to respond to a wide range of damage scenarios and building types, using a sustainable construction method.

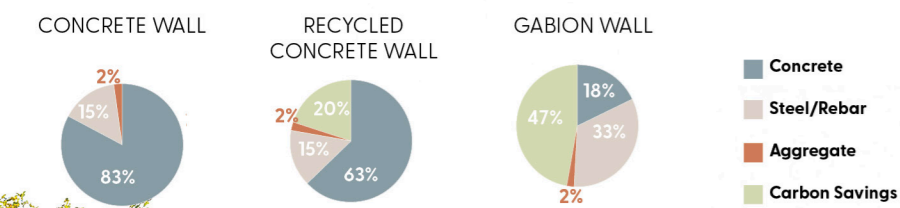
The combination of module solutions for both the architecture repair and build, and the public space activation have been designed to be implemented practically in a variety of residential settings across the Ukraine. The result is the revitalization of Ukrainian cities, but most importantly the communities.

## STRUCTURAL STRATEGY

### DETAIL



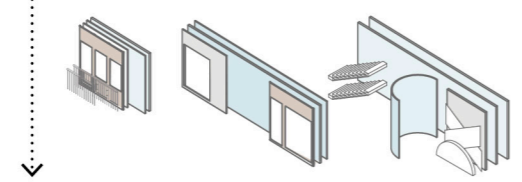
### CARBON SAVING COMPARISON



## KIT OF PARTS

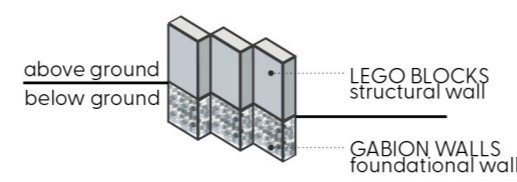
### TRANSPORTED

PACKED IN THE TRUCK

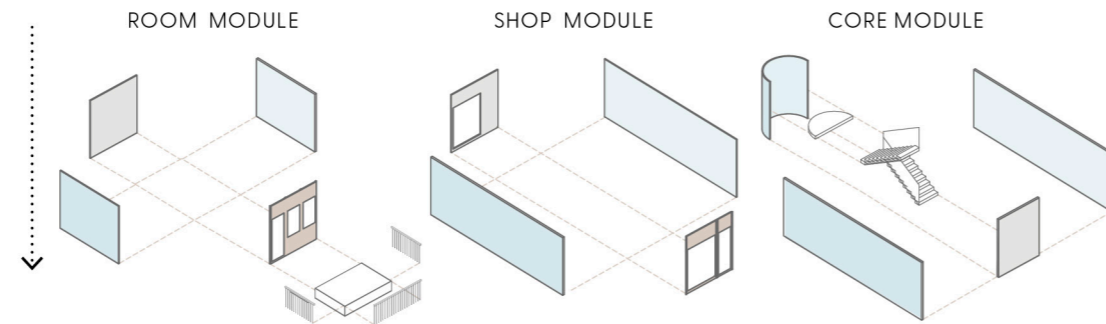


### PRODUCED IN SITU

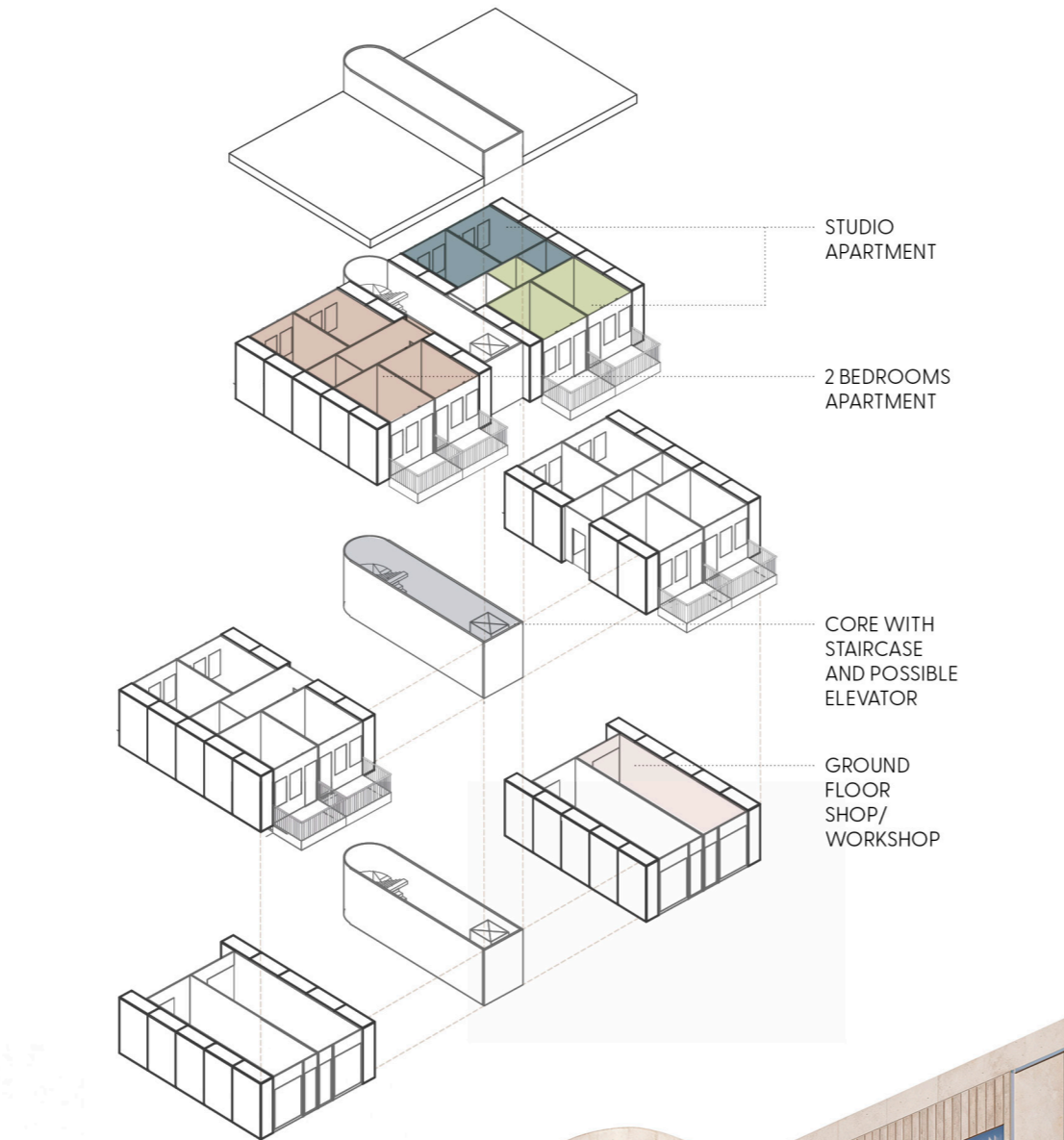
ON SITE FABRICATION OF THE INTERLOCKING BLOCKS OR GABION WALL



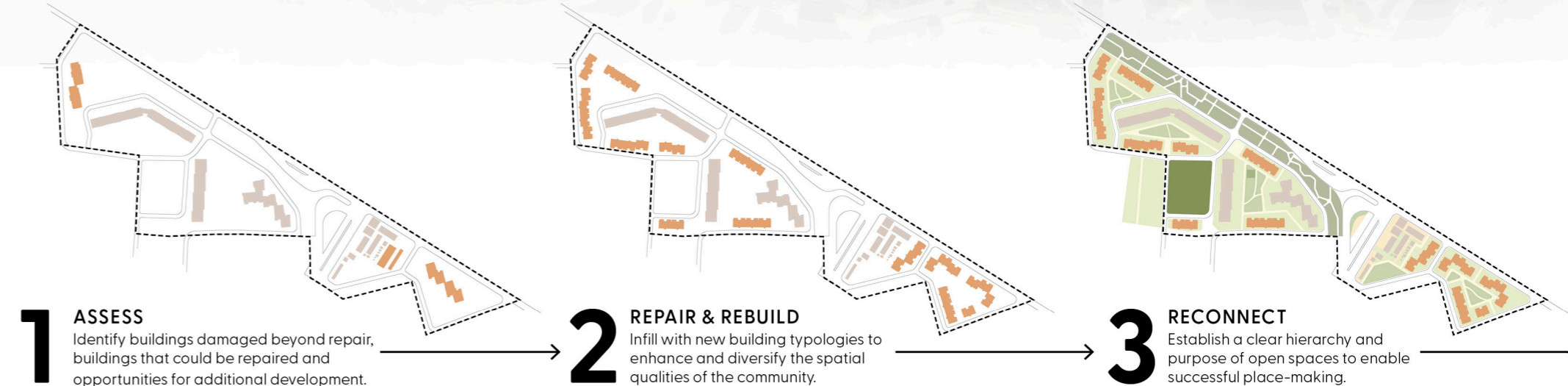
### ASSEMBLED



### COMBINED



\*\*All buildings locations/positions are subject to clause 3.13 of the state building regulations DBN 360-92360-92\*\*



KHARKIV HOUSING CHALLENGE