

ALAPON (আলাপন)

A Dialogue of Community & Resilience

Alapon is a M. Arch thesis project exploring the relationship between Architecture and Fire, rethinking fire not only as a destructive force but as a spatial, social, and environmental condition that can be understood, managed, and integrated into resilient community life. This project is a dialogue of a community. Set within Dhaka's dense informal settlements—where nearly 40% of the city's 23 million residents live in high-risk conditions—the project proposes a fire-resilient community framework grounded in social equity, inclusivity, and human dignity. Instead of conventional building blocks, the design introduces a Fire-Resilient Community Corridor that links the existing entry road to the lake. This corridor functions as a social spine—supporting informal gatherings, education, local economies, and emergency preparedness. The proposal is guided by a Community Principle Code, a flexible and adaptable framework that empowers residents to collaboratively develop safety strategies, material responses, and construction methods suited to their context.

In dense urban settlements fire is not just an event—it is a constant threat that shapes the way people build, inhabit, and negotiate space. Alapon represents the informality in architecture and it demonstrates adaptability into a fire resilient architectural strategy for a limited space, dense construction, and hazardous conditions.

This Project site is located in **korail, Dhaka, Bangladesh** which is the oldest and biggest informal settlements in dhaka with approx. 110 acres with accomodate approx. 40000- 1 hundred thousands peoples. And this site is a biggest fire hotspot in Dhaka. The context of site is surrounded by a lake ,high class residential community, economic and industrial zone which make this site more valuable to understand social inequities in the heart of the capital. From the beginning to start this project I propose six adaptive fire-resilience principles in the contrast of current rules and codes where informality has place which is-

- 1. Life First** – prioritizing human safety in all decisions.
- 2. Build to Transform, Not Replace** – enhancing existing structures rather than demolishing them.
- 3. Design with Fire** – incorporating fire as a key design driver.
- 4. Use What Is Available, Not What Is Ideal** – leveraging locally accessible materials and techniques.
- 5. Community as Code Makers** – engaging residents in decision-making and implementation.
- 6. Connect Scales: From Shelter to City** – linking individual dwellings to broader urban systems.

Following these principles, the design developed by addressing major and minor element.the major strength of the site is the southeast lake, which is occupied by informal settlements residents, the only one accessibility and economic corrdor. I utilized this element as a key component, reconnecting it with the main accessible route and make a loop, create a clear fire escape route which will act as a community resilienc corridor. And propose lake as an alternative evacuation point beside the road which will be more viable in the terms of high traffic at peak times."The community resilience corridor" forms the backbone of this project. Programs are arranged along and around this corridor to activate spaces and prevent encroachment this corridor by street vendors.

The corridor organizes four major programmatic modules:

- 1. Economic Corridor** – open market spaces, local bazaars, and small workshops to support livelihoods.
- 2. Community Corridor** – co-working spaces, emergency shelters, workshops, and facilities for women and children.
- 3. Urban Corridor** – urban functions to connect the neighborhood with the site
- 4. Recreational Corridor** – community healing gardens, fire assembly points, food cultivation, and leisure areas along the lakeside to blur boundaries blurr the line from the opposite site of the lake.

Design cocept comes from the south Asian vernacular architecture to merge the space with internal courtyard and following the old dhaka shop house trend to make the ground public and economic accessible and make the upper floor in private accommodation and more private spaces. Zooming in different spot from spt 1 is a community shed which.... Every court will act as a community education activity like craft workshop, fire drill, and also act as a fire evacuation point for the source of water which will connect with the overhanging water pipe come from the lake. So that we don't need to depend the available government water supply we create a alternative fire figting elements, every community space is surrounded with fire rated wall and water point accommodated within not less than 20m.

For the material pallete I consider the available local materials which support the principles-

- Ground floor materials:** Brick columns with ferrocement footing and a reinforced concrete slab for strength, fire resistance, and flood protection.
- **First floor materials:** Bamboo structure treated for termite and fire resistance; recycled sheet double layer wall with local insulation,
- **Roof:** Corrugated sheet(recycled) with proper overhangs for passive ventilation and rain protection.

Additional design strategies for resilience:

- Corridors ensure safe access and evacuation.
- Raised plinths protect against flooding and dampness.
- Material choice reduces combustibility while keeping costs low.
- Community spaces serve as hubs for awareness, preparedness, and collective action

Transforming an existing corridor into an active community participation space has the power to turn vulnerability into hope. And marking the first step toward a resilient, collective response to fire.

The corridor does not just prevent fire; it enables resilience, community interaction, and empowerment." It also transforms vulnerability into hope, Clearly defined escape routes and fire-resilient structures. And also develop cultural and community interaction which is absent in this communities and it will enable to share knowledge to make the change from a small shelter to city.

LIVING WITH FIRE

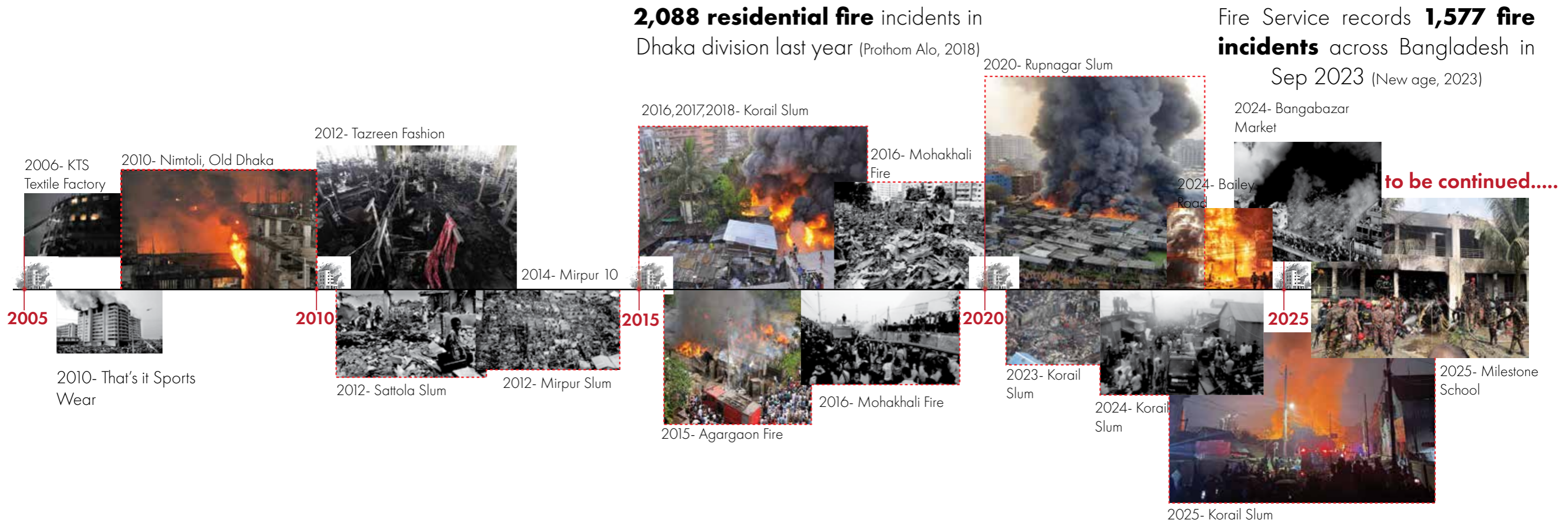
"I remember the night clearly—flames rising from the apartment next to ours. We watched from the balcony, helpless. Fear spread faster than fire. People screamed, water ran out, and we all knew: if the wind changed, it would be our home next." There were no hydrants, no escape plan—only hope."

April, 2016 _ Fire on a Apartment Building, Dhanmondi 15, Dhaka



**There were no
hydrants,
no escape plan, only
hope**

FIRE'S & LIVES



Country witnesses **26,659 fire incidents**, 140 deaths in 2024,
On an average **73 fire incidents** took place per day across the country
in 2024 (The Business Standard, 2024)

84 fire incidents reported only in **informal settlement** (The Business Standard, 2024)

MOST VULNERABLE COMMUNITIES..??

Bangladesh factory fire kills 112

"I have never seen such a fire in my life. Everything in my shop was burnt down," Abdul Mannan said.



Massive fire guts popular clothing market in Bangladesh capital

Thousands of garment shops burn down in the fire, a significant blow to businesses weeks before the Eid festival.



Bangladesh fire kills more than 80, injures 50 in capital Dhaka

Deadly fires turning Dhaka into a pyre



Bangladesh must build better safety systems, rather than scrap the Accord



Devastating fire ravaged Korail Slum, leaving thousands homeless

As families grapple with the aftermath, UNICEF provides steadfast support for restoration and nurturing hope and resilience for the community



Fire risk in slum areas

Fire risk in slum areas
For increasing fire preparedness, conventional smoke detectors are not suitable in slum environments

Bangladeshi slum fire destroys 15,000 homes, leaving thousands homeless

ROOTS of FIRE

CONSEQUENCES

CRISIS OF SHELTER...!!



Repetitive fire disasters



Lack of water storage for using fire and domestic purposes as well



Unplanned kitchen with clay burners, & LPG Cylinder Gas



Use fire as a recreational element during winter. Sometimes enjoy turns into fear with the storage of flammable materials

FLAMMABLE MATERIALS: Most of the structure built with corrugated sheet, plastic, untreated bamboo, and paper



CAUSES



Illegal electric & gas line
Narrow road with dead end



HIGH DENSITY: One million people per square kilometre. That's about one person for every single square metre of land.



CONTEXT

CODE / REALITY

National Codes

FIRE & BUILDING

1. Bangladesh National Building Code (BNBC) 2020
2. Fire Prevention and Extinction Act, 2003
3. Bangladesh Fire Service and Civil Defence (2024)
4. Bangladesh Gazette (Fire Regulation 2014)

FIRE & NATURE

1. Bangladesh Environment Conservation Act 2010
2. Bangladesh Water Act 2013



ROAD WIDTH

Entry road width should be 9m for fire truck access in high-rise or large buildings. Height of the entry gate not less than 5m & internal road turning radius width not less than 4.5m

MATERIALS & CONSTRUCTION

Fire-resistant materials are mandatory, especially for structural components. Use non combustible materials that are less likely to catch fire, such as concrete, bricks, and special fire-resistant wood. Any new, alternative, or reclaimed materials must receive prior approval and pass testing requirements

FIRE FIGHTING SYSTEMS & ALARMS

Buildings over six storeys must install Hydrant and sprinkler systems. Must be install heat, flame, rate-of-rise heat, ionization, and chemical smoke detectors. Emergency protocols and fire drills, occupant training, first-aid and firefighting plans are mandatory



ACCESS & EGRESS

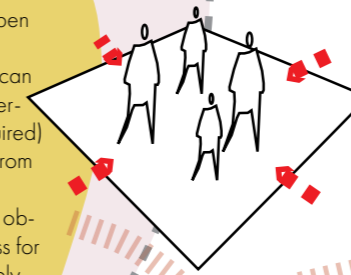
Exit Components should have exit access, exit & exit discharge. Minimum Number of Exits: Up to 50 persons 1 exit, Up to 500 persons 2 exits, Up to 1000 persons 3 exits, Over 1000 persons 4 exits. Exit Width not less than 1.0-1.5m & Travel Distance Limits not less than 23 m & not more than 45 m. Staircases must be 1.2-1.5 m width depending on use. Must be enclosed with fire-rated

walls/doors for protection. Exit Doors Min. width 0.90-1.0 m, must swing outward.

FIRE CODES

FIRE ASSEMBLY

Every exit must lead to a safe open space outside the building, at ground level, where occupants can gather. Clearly designated & permanently marked (signage required) & should be in a safe distance from the building façade. Should be Accessible from all exits without obstruction & must not block access for fire service vehicles. The Assembly Point must be sized according to the occupant load of the building



WATER

Must have dedicated firefighting water supply system; Recommends designing water reserves to cover at least 60 minutes of combined sprinkler and hose demand, the ground tank should be accessible by fire engines. water must be used in a sustainable, equitable, and environmentally sound way. Filling, obstructing, diverting, or altering natural water bodies is strictly prohibited. No industrial or commercial activity that alters the ecology.

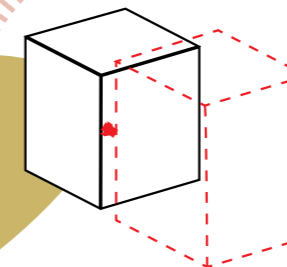
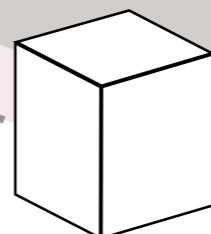


BUILDING HEIGHT

Building height is regulated based on road width: maximum height of a Type I-A or I-B building is up to $2 \times$ (front road width + front open space)

BUILDING GAP

Building gap should be not less than $1/5$ of building height (so a 20 m tall building need 4 m setback from other building).



REGULATORY VOIDS



IS THERE ANY COMMUNITY INVOLVED IN THIS CODE?

INFLEXIBILITY

No scope for incremental building, retrofitting, informal settlement or phased upgrades

UNIFORMITY

Assumes a one-size-fits-all solution to fire (not contextual to density, terrain, or social fabric)

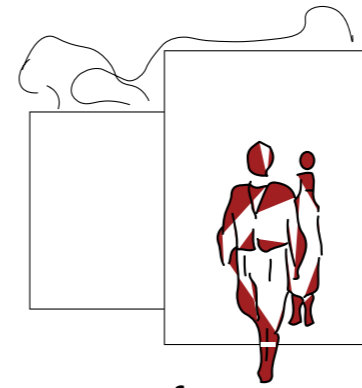
CLIMATE JUSTICE

Does not recognise fire vulnerability as an equity or socio-political issue

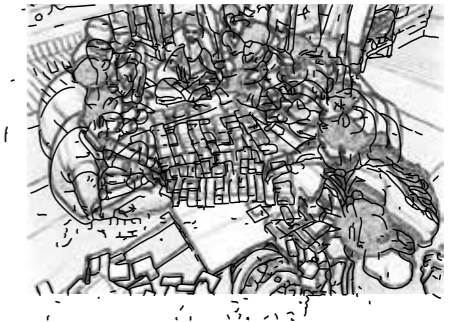
WHERE'S THE CODE THAT PROTECTS LIFE AFTER THE FLAMES ?

Adaptive Fire Resilience Principles for informal community

Make The Code Affordable And Transferable Within The Community.



“Life First”



“Use What Is Available,
Not What Is Ideal”



“Build to Transform, Not
Just to Replace”



“Design with Fire, Not
Against It”

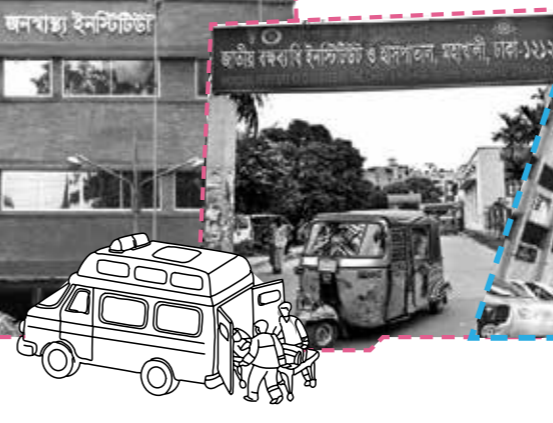
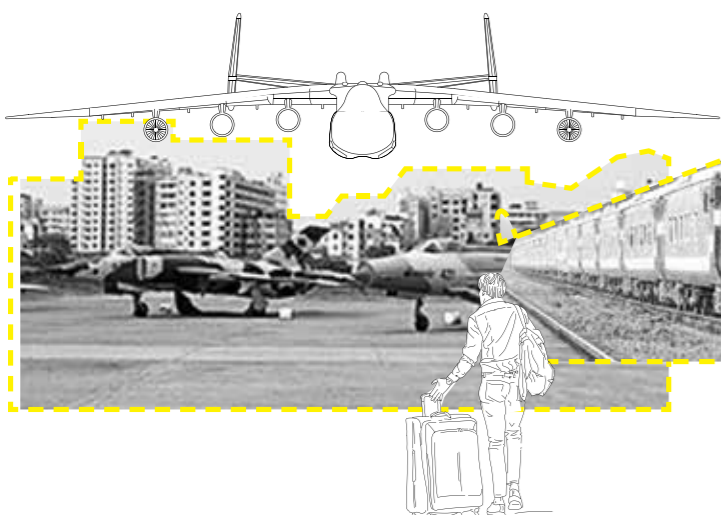
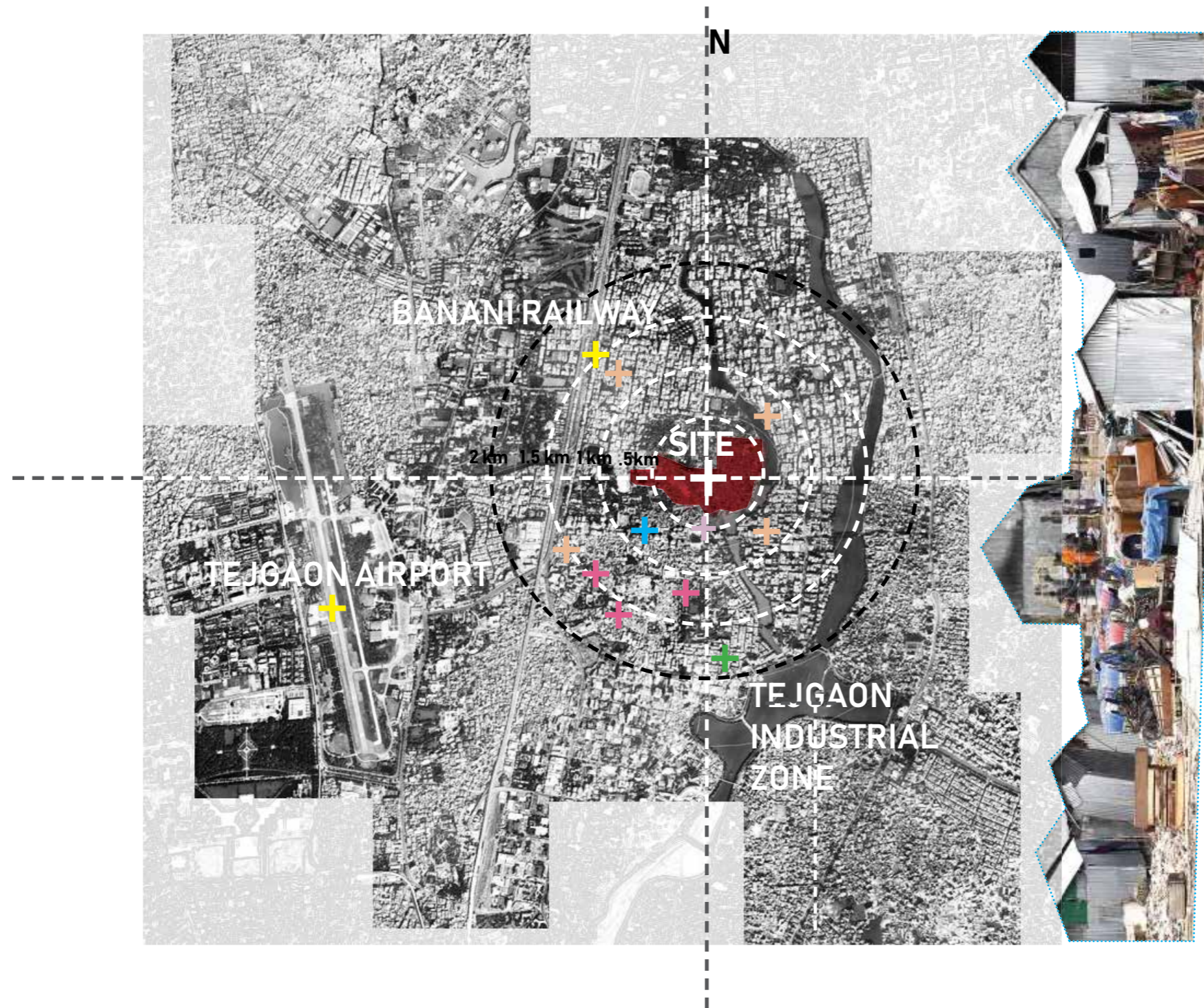


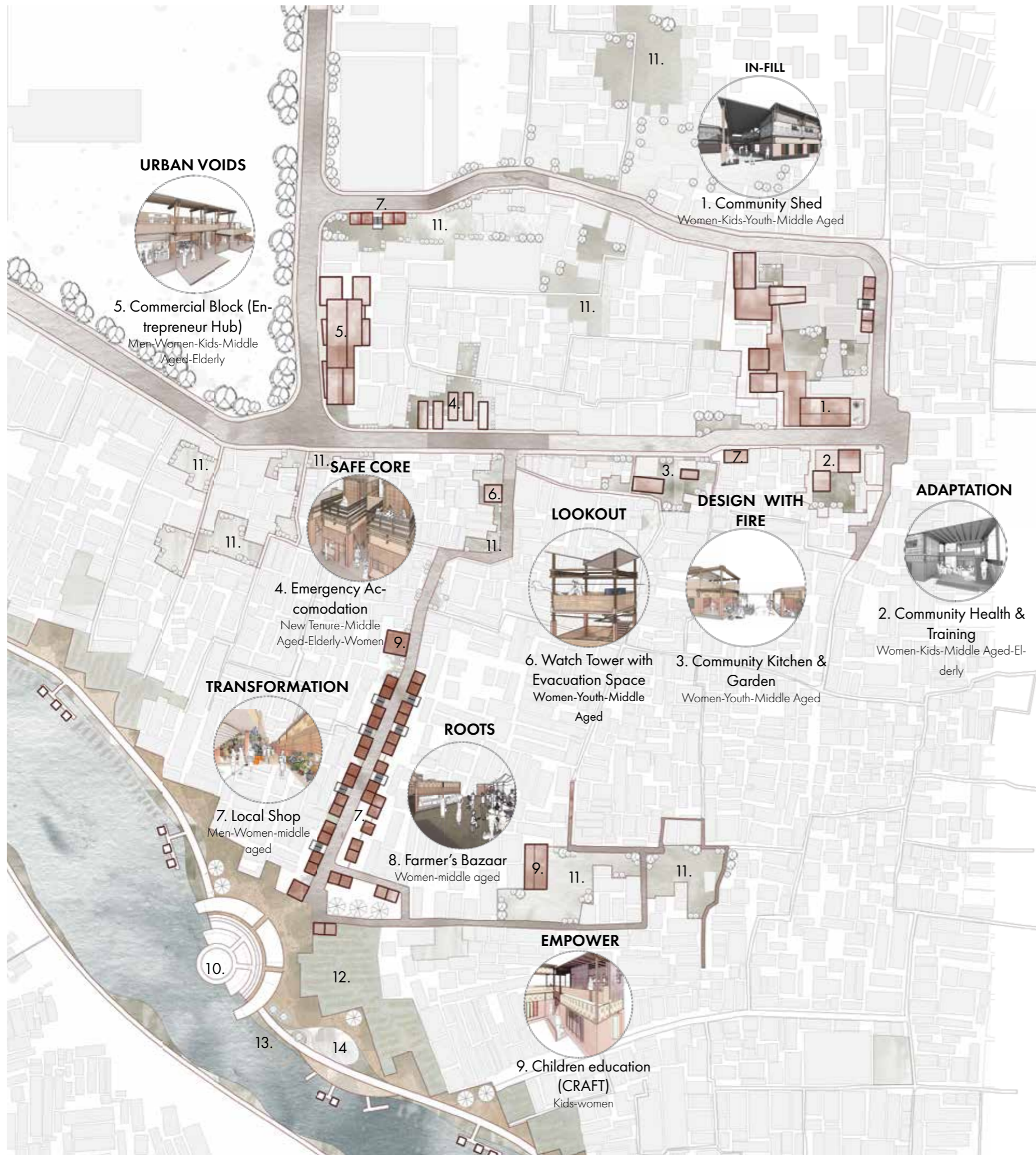
“Communities as
Code-Makers”



“Connect Scales: From
Shelter to City”

SITE & CONTEXT





1. Community shed
2. Emergency health & training
3. Community kitchen & garden
4. Emergency accomodation
5. Commercial block
6. Watch tower with evacuation spaces
7. Local hop
8. Farmar's bazaar
9. Children education (craft)
10. Amphi-theatre - water side recreational spaces and alternative evacuation point
11. Breakout spaces and emergency evacuation point
12. Local vegetables production space
13. Floating garden bed
14. Children playground

1. Women & child development
2. Craft shop
3. Workshop/training
4. Co-working space
5. Emergency health & wellness space
6. Community education
7. Emergency evacuation space/fire drilling training
8. Space for street vendors/tea shop
9. Local Shop for fine finishes products

IN-FILL

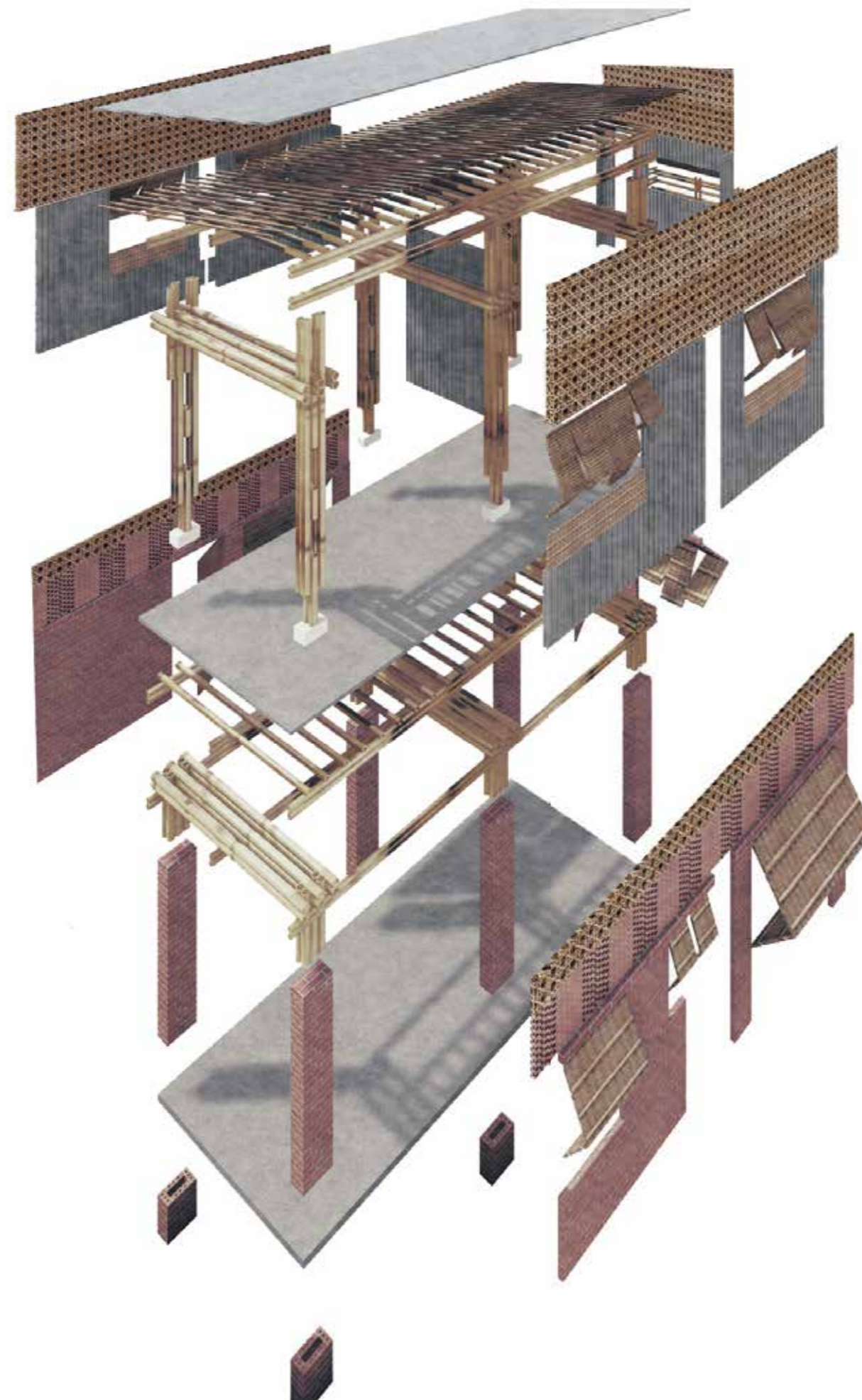
A Corridor of Connection

Corridor of Connection developed by identifying one major entry road, tracing urban voids and economic pathways, and connecting them to the existing lake, while arranging functions along the corridor to infill open spaces without removing existing structures. Shops were designed adaptively, developing the first floor initially, followed by modifications to the ground floor as needed.



1. Community Shed

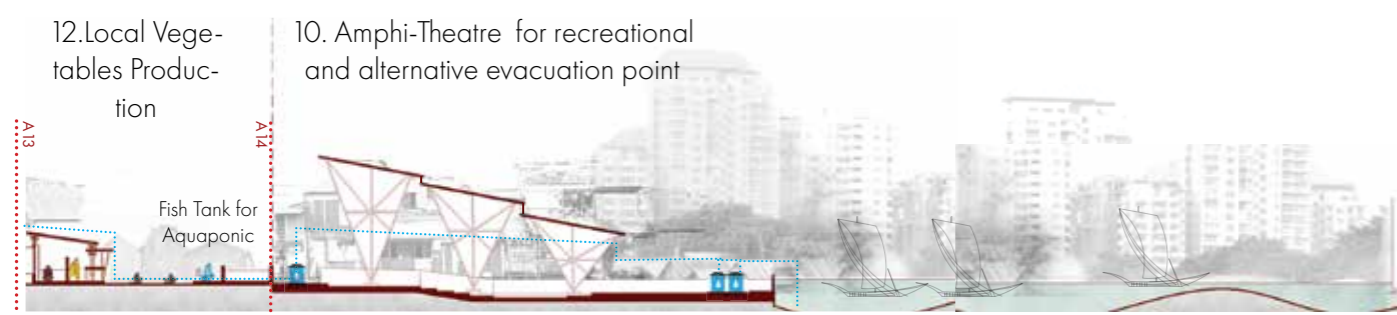
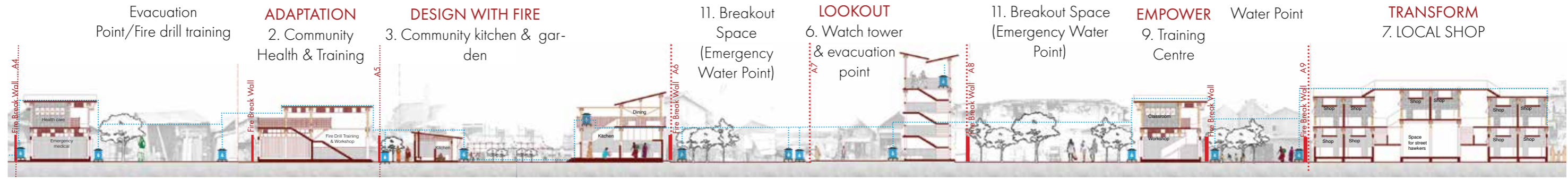
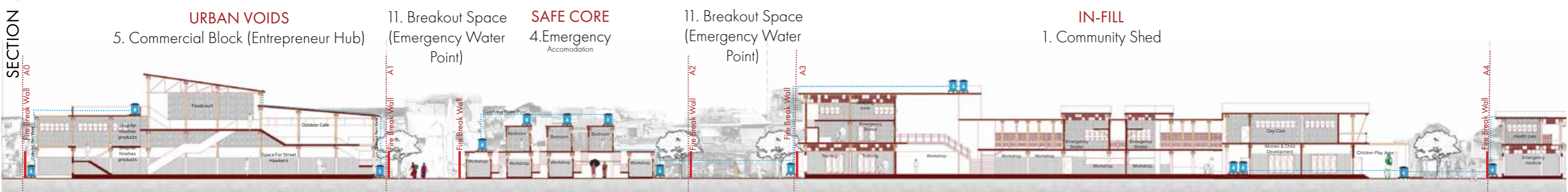
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1. Structural Footing
2. Sand Cement Floor
3. Brick Collumn (Rat trap bonding reduce brick cost)
4. Brick Wall
5. Bamboo Structure
6. Bamboo Joist
7. Sand cement screed
8. Bamboo woven pivot window
9. Perforated Brick wall
10. Bamboo perforated Culms panel
11. Bambool Structure
12. Double layer ferrocement wall and recycled sheet with coconut coir & bamboo strips natural insulation
13. Perforated bamboo screen with insect net and bamboo culms
14. Roof Joist
15. Recycle corrugated sheet

Structural Details

SECTION AA_STARTING POINT



SECTION AA_END POINT

Section of Community Corridor
Scale: 1:500



WE LEARNED TO STITCH NEW FIRE BLANKETS IN THE WOMEN'S ROOM

HEY YOUR MOTHER'S SELLING HER HANDMADE MATS IN THE CORNER STALL

WE'RE PRACTICING THE FIRE DRILL IN OUR COURT TODAY THAT'S EXCITING

I SET UP MY SEWING STAM IN THE CORRIDOR COME HERE

WE BUILT THESE STALLS OURSELVES - STRONGER AFTER THE LAST FIRE

GIVE A WAVE TO THE FIREFIGHTERS ON DUTY AT THE TOP TODAY

HEY CLEAR THE CORRIDOR - I'M TESTING THE HOSE PRESSURE

HEY COME TO THE SHED - WE'RE FIXING THE WATER PIPES TODAY

HEY WE HAVE A COMMUNITY TALK TODAY IN THE AMPHITHEATRE



COMMUNITY HEALTH

COMMUNITY MARKET





COMMUNITY MARKET