



**5000 *for* 5000**  
**HOUSING**  
**COMPETITION**

A SHELTER AFRIQUE INITIATIVE





## Foreword by the Managing Director



**Mr. Femi Adewole MBA MRICS**

Managing Director, Shelter Afrique (2018)

For the longest time, the central question for affordable housing has always been if it is indeed affordable. As with most things concerning our beloved continent, the answer is multidimensional and multifaceted, how can we expect housing to be affordable when the land it is built on is not affordable or the materials we construct with. There are still no viable value chain systems for the supply of building materials, and we continue to insist on traditional building materials and traditional architecture for housing.

Admittedly, we have seen inroads being made in the supply of cement across the continent, but there is still a lot more to be done as steel is still being imported in droves. Additionally, construction trends are very faddish, as we observe African countries moving towards more free market systems and the attendant benefits of that; an influx of new wealth, an expanded middle class, more innovative financial systems, we also observe construction trends respond in kind.

Housing is made for the nouveau rich, the upper middle class and the luxurious, and this in itself is not a bad thing. However, it means, that those at the bottom of the pyramid, often left on the fringes of society are left without access to affordable housing. It entrenches the same cycle of poverty and restriction that has come to characterise many African countries. This must stop.

It is for this reason that we at Shelter Afrique conceived the 5000 for 5000 Housing Competition, which we formally launched at the 2016 Annual General Assembly in Abuja, Nigeria. This competition aimed to challenge participants to design a habitable unit for \$5000 or less, demonstrating the applicability of their design and process, as well as clearly prove the cost and pricing.

We received over 120 submissions from various countries across the world. A panel of judges comprised of housing experts in Africa was convened in May of 2017. The judges measured each submission against the following criteria; Sustainability, Practicability, Supply Chain Innovation and beauty and aesthetic.

We are particularly pleased with the process as our new strategy emphasises innovation and large-scale development, two of the

criteria for the competition, so this announcement is very timely. We are amazed at the rich well of ideas there is for affordable housing and indeed at the response to the competition. This shows that Africa is not bereft of ideas, what we need is better execution

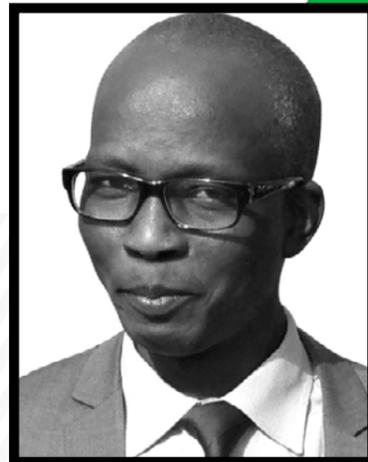
We have received a lot of interest in the submissions made, in this compendium we present the first three winners and some honourable mentions. We hope that our shareholders and indeed all interested parties will see this as a challenge and a rallying call. We have answered one half of the question; affordable housing can indeed be affordable. The other half remains, and it is a question of commitment. Will our member countries commit and if the answer is yes, then we hope this is one of the first places they start



# The 5000 for 5000 Competition Jury



**Jerry Magutu**  
Kenya



**Mamadou Gueye**  
Senegal



**Michael Majale**  
Uganda



**Nina Maritz**  
Namibia



**Steve Rukwaro**  
Kenya



# Jury Report

## 1. Introduction

### 1.1 Background

There is abounding evidence of a rising middle class in Sub-Saharan Africa's largest cities, but this does not reveal the uncomfortable and increasingly often less told story of Africa's urban poor. It is estimated that two thirds of the population in Africa's cities and townships currently live on less than US\$3.10/day.

Housing supply has almost universally failed to respond to the need of this significant and legitimate population. The cost of new housing including those built by Government agencies are significantly more than this segment of the population can afford. The consequence is the rapid growth of informal settlements on the edge of Africa's major cities with negative consequences for economic development, health, safety and security.

As Africa's primary Housing Development Finance Institution this challenge presents an opportunity for Shelter Afrique to lead a result-focused debate on how the housing market can be made to work for the more than 300 million Africans who are currently without proper housing. Also, Shelter Afrique intends to work with partners to promote innovation in low income housing developments in Sub-Saharan Africa. As an initial step towards this commitment, Shelter Afrique promoted an international design and development competition. The competition was open to all nationalities and included individuals, team of designers, artists, architects, engineers, etc. Cross disciplinary teams were welcomed as able to respond to the diverse challenges posed by the competition.

### 1.2 Design Brief:

Design for a 1 bedroom dwelling unit with a foot print area of 45 square metres, approximately, to include kitchen, bedroom, toilet and living area. The spaces had to provide for adequate lighting with adaptable design to suit a range of customers, and have generous floor to ceiling heights with options for natural ventilation as well. Participants were required to utilize eco-friendly, light-weight sustainable materials so as to achieve low cost construction. In addition, the design submitted was to be easy to replicate.

#### Submission Method:

All submissions were required to be on A3, pdf format, containing Plans, Elevations and Sections on scale 1:50, and an isometric view of the floor plan showing furniture arrangement, as well as 3D interior and exterior visualizations of the design scheme. In addition, contestants were expected to provide a short written statement explaining the concept, an illustration of how the design could be adopted in various sites and also a demonstration of how the design can be built using various methodologies.

#### Declaration Form:

All competitors were expected to duly complete, sign and include the Declaration Form to their submission.

In addition, the competition key terms included:

- Sustainability - The design solution will give important consideration to the environment, cost in use and adaptability to specific location contexts;

- Practicability - The homes will be buildable;
- Supply Chain Innovation - The proposed solutions will propose innovation along each part of the supply chain towards achieving the objective;
- Beauty and Aesthetics - Inspire a new urban aesthetic and landscape that empowers and uplifts people on low incomes.



### 1.3 The Jury

For the assessment of design proposals of this particular challenge, Shelter Afrique invited five African Jury members with particular capacity and experience in housing and sustainable construction in African countries.

The following experts participated at the Jury session:

Lead Juror, architect, lecturer & expert on low-income/ low-cost housing and urban design.	Jerry Magutu	Kenya
Civil engineer and Housing Bank executive.	Mamadou Gueye	Senegal
Architect, planner & expert on slum upgrading and housing alternatives for the urban poor.	Michael Majale	Kenya
Architect & expert on sustainable design, alternative materials, housing, urban design, landscape & regionalist architecture.	Nina Maritz	Namibia
Quantity Surveyor, project manager, arbitrator, and lead auditor in standardization of processes under ISO 9001: 2015	Steve Rukwaro	Kenya

To fulfil the condition of a jury being “independent”, it was agreed that:

- The jury deliberations would take place without the presence or intervention of any Shelter Afrique staff;
- The jury would internally agree on the assessment method and criteria to apply, based on Shelter Afrique’s competition brief.

As prior information, the Jury members received all the key documents to the competition by email: the Competition Brief, website details, and all competition submissions by Dropbox.

## 2. Jury Process and Findings

Several Skype conference call jury sessions were held, in addition to email and WhatsApp correspondence, as follows:

Date	Medium	Discussion Subject	Document
21 April	Email	Jury introductions & issue of submission documents via web link/Dropbox.	
24 April		Discussion on proposed scoring sheet	
2 - 16 May	Email	Comments on scoring system, compliance/ elimination with mandatory requirements based on declaration form, cost and submitted drawings.	Tracking list 5F5 - Compilation
17 May	WebEx	Jury meeting - Round 1: non-compliance eliminations from 116 entries	Tracking lists 5F5 - Compilation drafts 2 - 6
18 - 24 May	Email	Discussions on interpretation of criteria, compliance, etc.	
25 May	Skype	Jury meeting - Round 2: shortlisting based on qualitative evaluations to 44 entries	Tracking list 5F5 - Compilation drafts 7, 8
26 May - 12 June	Email	Individual evaluations of shortlisted candidates	
13 June	Skype	Jury meeting - Round 3: Selection of 5 finalists from 44 short-listed entries	Tracking list 5F5 - Compilation drafts 9, 10
14 - 20 June	Email	Individual jury members scoring of finalists	
20 June	Skype	Jury meeting - Round 3: Selection of winner from 5 finalists	5F5 Finalists Scores (combined).xls
28 June	Skype	Final Report	Shelter Afrique draft jury report



## 3. Final Jury Decision

Ranking	Name	Submitted by	Score
1.	Tetteh & Associates	Senyo A. Tetteh	71
2.	Morphosis Limited	Morphosis Limited	69
3.	Sharon Davis Design	Arielle Kalogrias	63
4.	Hydraform	Dionne Harber	59
5.	Adengo Architects	Doreen Adengo	58

### 3.1 The Winning Design

The winning scheme was selected from stiff competition during the finals, but was selected due to the following outstanding features:

#### Explanation:

Concise explanation of concept; the concept of ecological and social house is reflected by the plans.

#### Usability & Furnishing:

The floor plan allows efficient use of space and practical arrangement of furniture. The kitchen located far in single unit, works well when additions are done.

#### Adaptability:

The compact, almost square design makes it more easily adaptable to different sites, varying steepness and foundation conditions.

#### Climate Adaptability:

The design provides options for different climates — flat habitable roof for hot, dry climates and sloping

roof with large overhangs to protect the walls in high rainfall tropical climates. It can also be adapted to different social and cultural contexts; and also presents ideas to increase privacy.

#### Replicability:

The simplicity of the designs enables it to be easily replicated. It can also be easily expanded both horizontally and vertically.

#### Buildability:

The simple floor layout and roof design means that the house can be easily constructed by both large and small, and formal and informal builders.

#### Construction:

The design uses lightweight materials for the construction of the walls and roof, and also minimizes the amount of walling.

#### Materials:

The proposed building materials construction technology —concrete raft foundation; compressed stabilized earth blocks (CSEB) walls; sheet metal roof on timber trusses; timber & louvre windows. are durable and low-maintenance, in addition to being relatively low cost.

#### Materials:

CSEB construction is eco-friendly, healthy, renewable, local, natural, low embodied energy

#### Passive Design:

The design provides adequate natural ventilation with sufficient shading.

#### Lighting & Ventilation:

The number & arrangement of the openings is sufficient, but the closing and ceiling of the backyard may cause problem to the kitchen and toilet if the house is expanded horizontally.

#### Overall Sustainability:

The building materials and construction technology are eco-friendly. The design also includes: solar shading, rain harvest, urban agriculture.

The submission received bonus points for responding to the urban context as follows:

- Neighbourhood strategy illustrated and explained.
- Clustering and provision of amenities.

It also received bonus points for the following outstanding features:

- Simplicity of design, constructability and expandability.
- Climatic response, use of varied materials and provision for vertical and horizontal growth.
- Well thought partitioned accommodation.

In further development of the design for eventual construction as envisaged by Shelter Afrique, the following aspects should be considered and reviewed:

- costing conditions ; local labour costs and materials availability.
- monetary considerations : exchange rates.
- end users profile : pay attention to eligibility.



### 3.2 Special Mentions

The remaining finalists as well as a selected few entries which were eliminated earlier for various reasons, deserve special mention as having considerable potential as good housing solutions for particular areas or cultures. It may be that Shelter Afrique would consider the construction of these designs as well under specific local conditions.

- **Morphosis** for being second runner-up, with an innovative proposal for multi-storey incremental development, with considerable thought given to the city block, as well as adaptation to different cultures, climates, and construction methods.
- **Sharon Davis** for being third runner-up, with an interesting design using a tripartite modular system for different dwelling configurations, and a unique proposal for an innovative ferro-cement roof.
- **Hydraform** (*submitted by Dionne Harber*), for being fourth runner-up, with a design already in the process of incremental growth.
- **Adengo Architects** (*submitted by Doreen Adengo*) for being fifth runners-up, with a light-weight proposal that has considerable potential for further development.
- **XTEK Systems** (*submitted by Rolf Seeliger*), with a design making use of waste pallets in an innovative construction system aimed at incremental formalisation of informal structures.
- **Architects Collaborative** (*submitted by Tshoganetso Rantshilo*) for an innovative modular concept and several optional typologies.

### SIGNED:

Jerry Magutu, Lead Juror

Mamadou Gueye, Juror

Michael Majale, Juror

Nina Maritz, Juror/  
Rapporteur

Steve Rukwaro, Juror



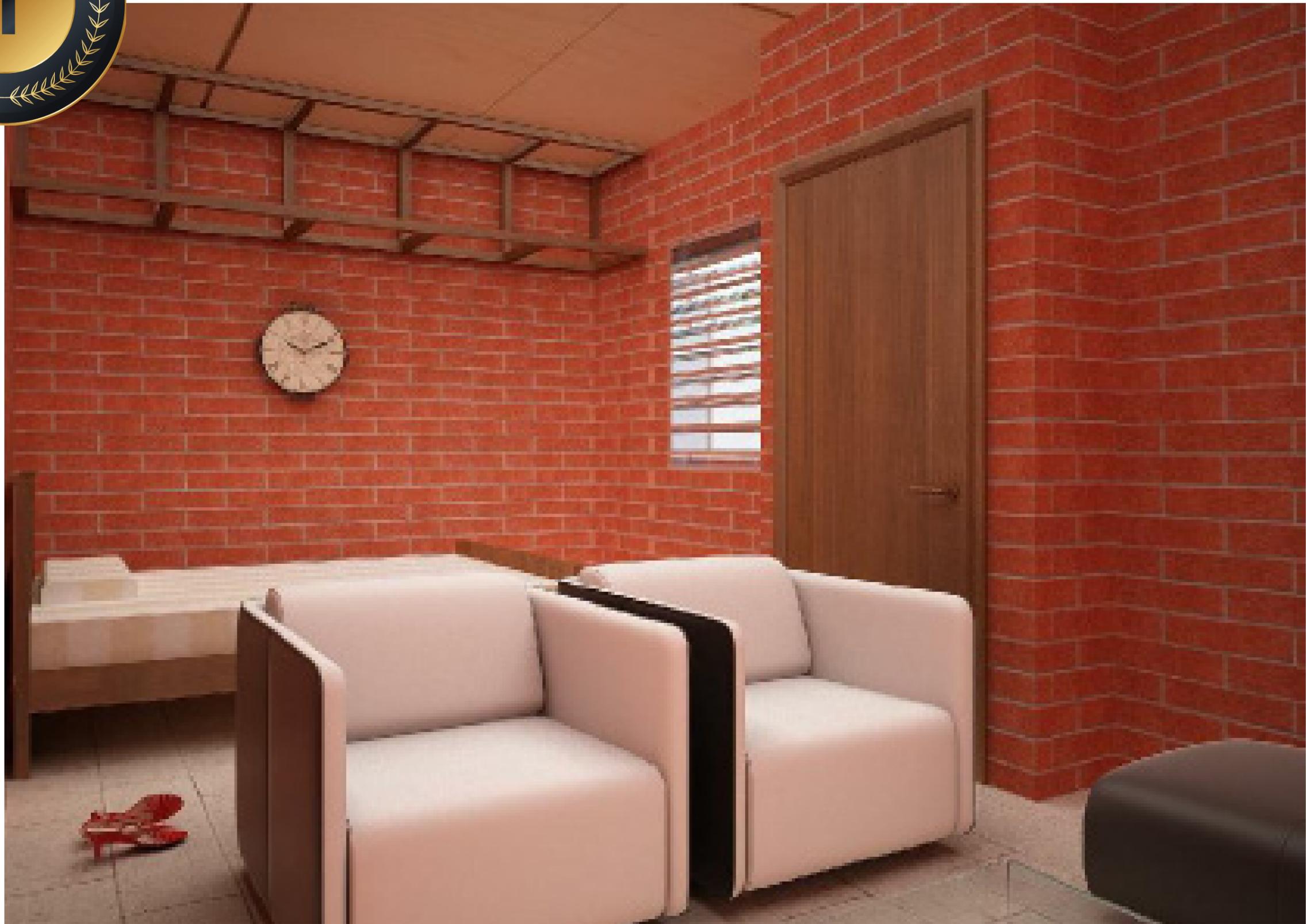
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E. [info@shelterafrique.org](mailto:info@shelterafrique.org)  
T. +254-20-4978000

Shelter Afrique,  
Longonot Road - Upper Hill,  
P.O. Box 41479 - 00100,  
Nairobi - Kenya



# S. Tetteh & Associates

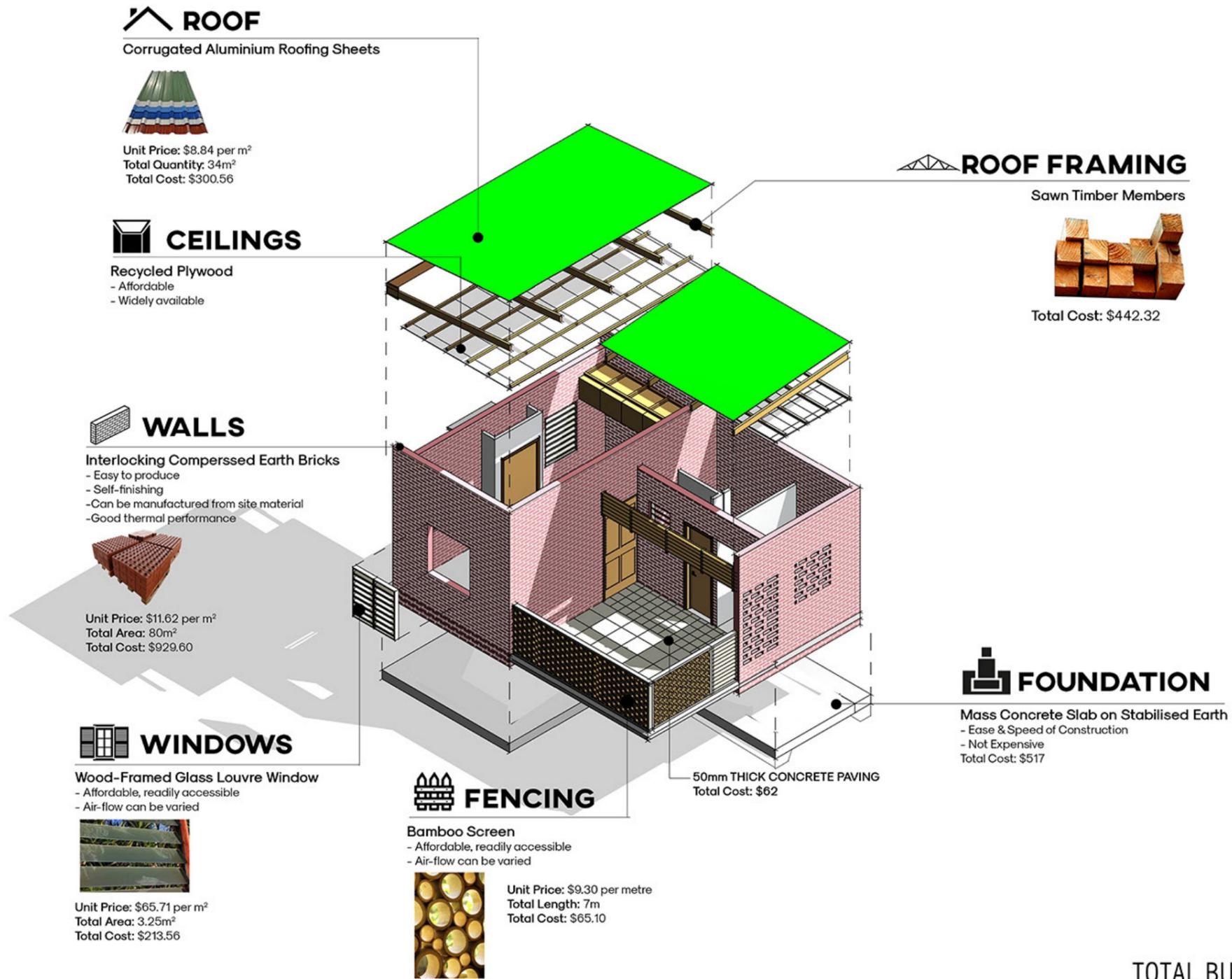
**Our intervention takes a holistic view of the widespread housing deficit and poor living conditions in cities. For us, housing is more than just the provision of shelter, and certainly more than just an event or a product. For us, housing is a process, grounded in the fact that, in Africa, a house is a family heirloom. A lifetime endeavour in which the house undergoes several modifications over a long duration, especially where there is upward income mobility. Several studies of low cost housing interventions offer valuable lessons of how small units provided in the initial stages due to low budgets are eventually expanded.**

In line with this thinking, and with the quest for optimised simplicity, we conceptualise our intervention as consisting three critical components: dwelling (living room and bedroom), support (toilet, shower, and kitchen) and court (for future expansion), which together occupy a total floor area of 45m<sup>2</sup>.

In proffering our solutions, we recognise that, African cities despite having similar problems are all unique in their own ways. Hence, we do not take the naive position of assuming that one could come up with a single solution that fits the affordable housing needs of all cities across the continent. Instead, we approach this as a myriad of generic scenarios and processes that can work with necessary modifications. In our view, this constitutes what one might call “slum logic”. Slum here used as a repository of useful ideas for the architect with a keen eye and a desire to provide affordable housing solutions.



MAIN BUILDING MATERIALS + COSTING



TOTAL BUILDINGS COST: \$4,997.48



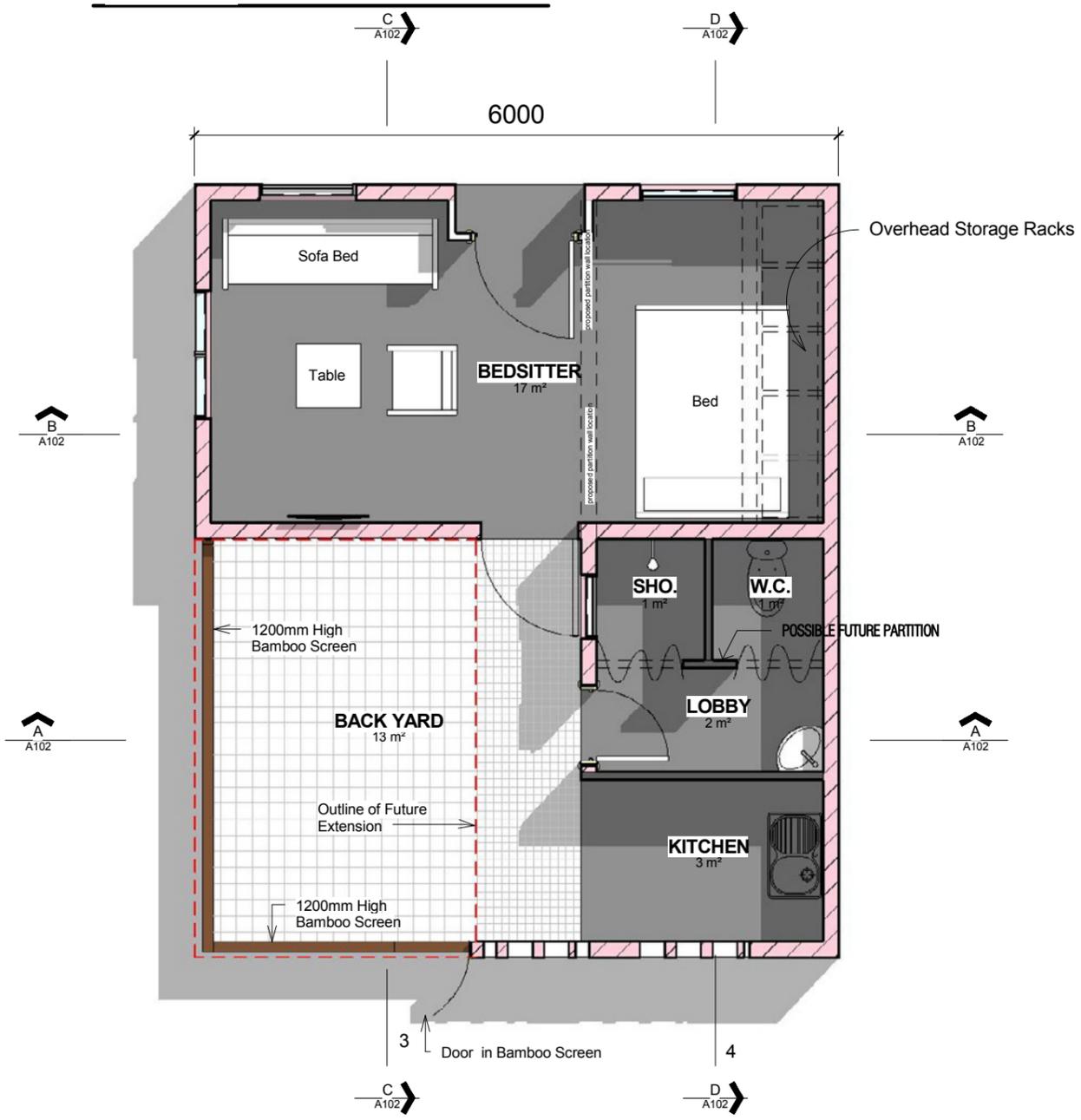
Sketch Design



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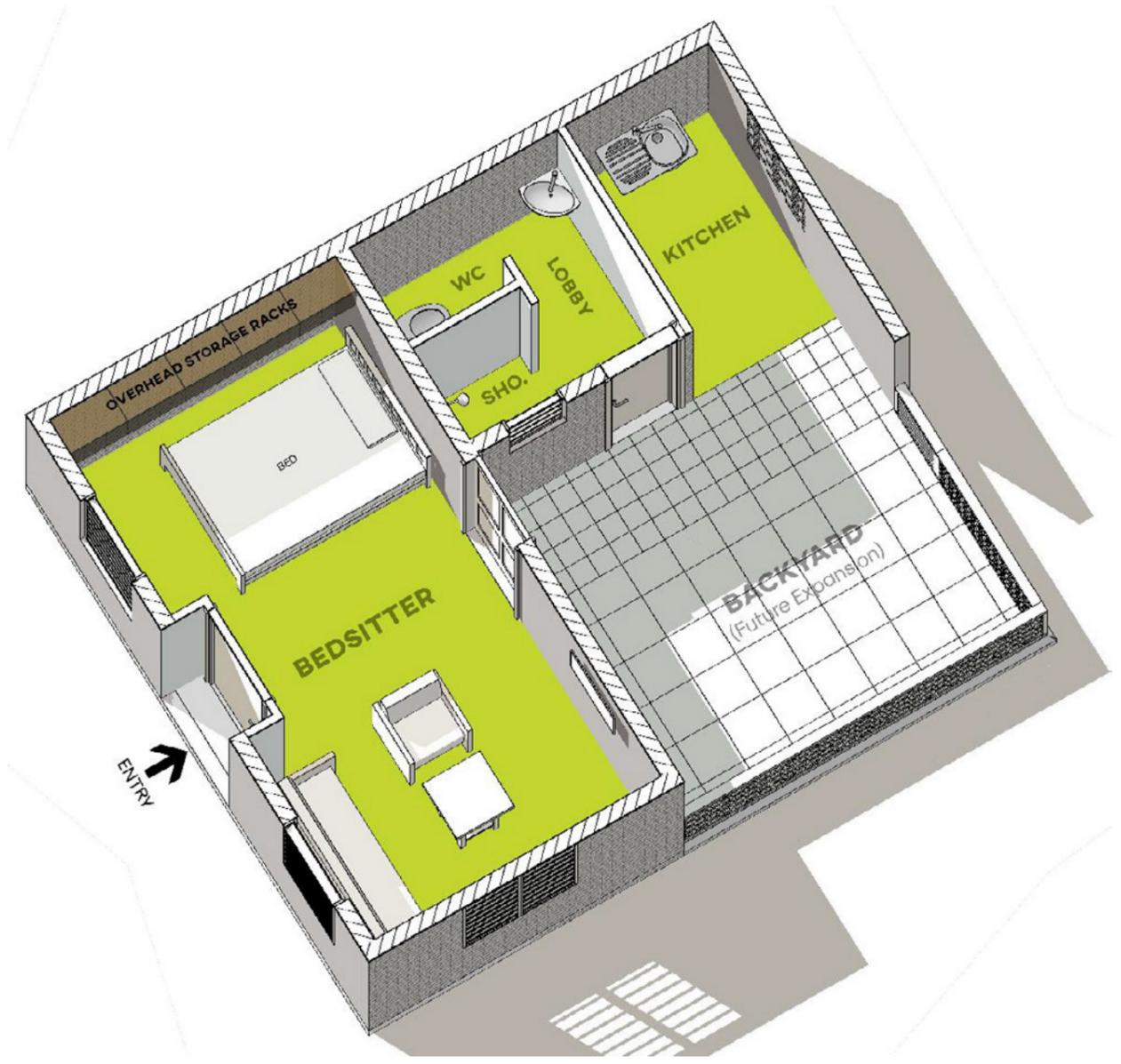


FLOOR PLAN



Gross Floor Area: 43.2sqm

1 Floor Plan  
1:50 RE:A101/B



2 Isometric View  
1:50 RE:A101/

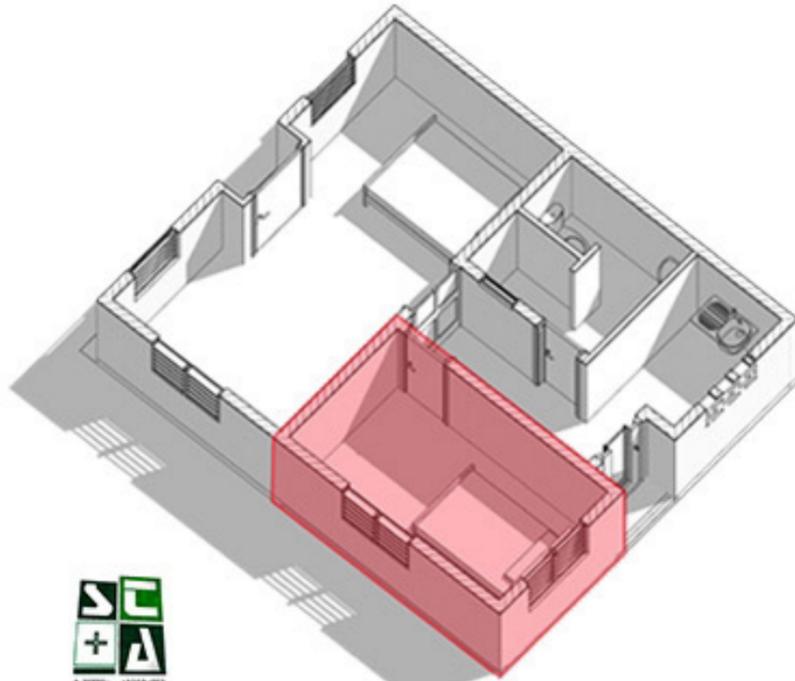
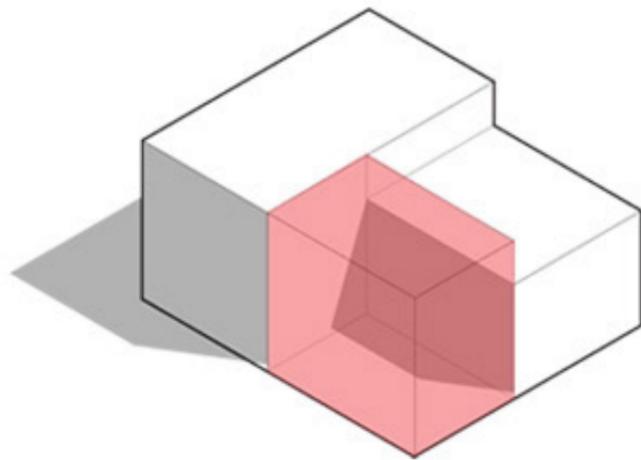


# MODULARITY AND FLEXIBILITY

## Horizontal Expansion

First phase floor area: 30 m<sup>2</sup>  
 Expandable floor Area : 15 m<sup>2</sup>  
 Volume of additional floor area : 45 m<sup>3</sup>

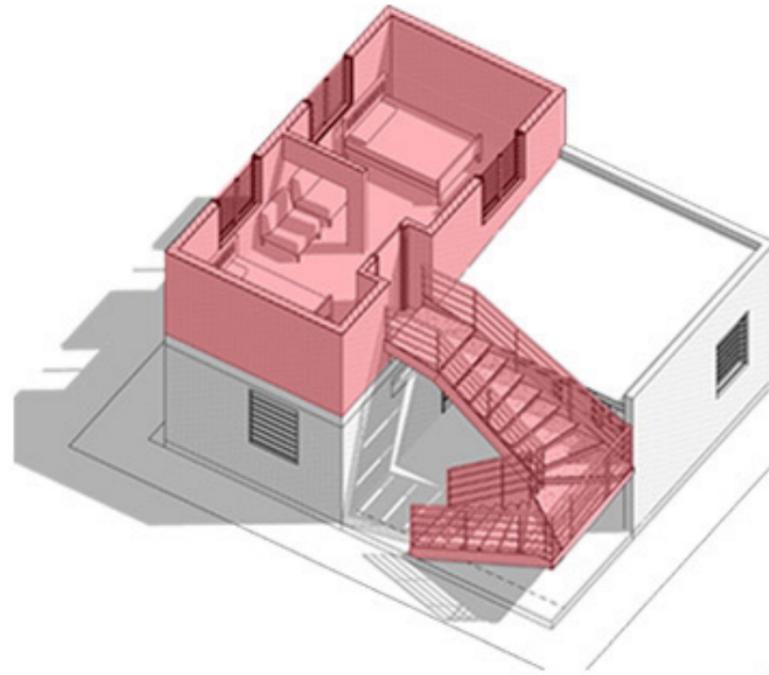
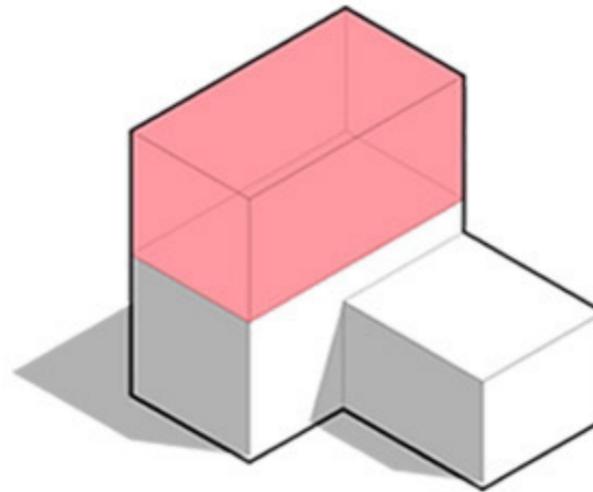
The courtyard of the basic unit can be annexed and converted into an additional room as dictated by family needs over time. This is particularly necessary for families where upward expansion is not affordable.



## Vertical Expansion

First phase floor area: 30m<sup>2</sup>  
 Expandable floor Area : 35 m<sup>2</sup>  
 Volume of additional floor area : 90 m<sup>3</sup>

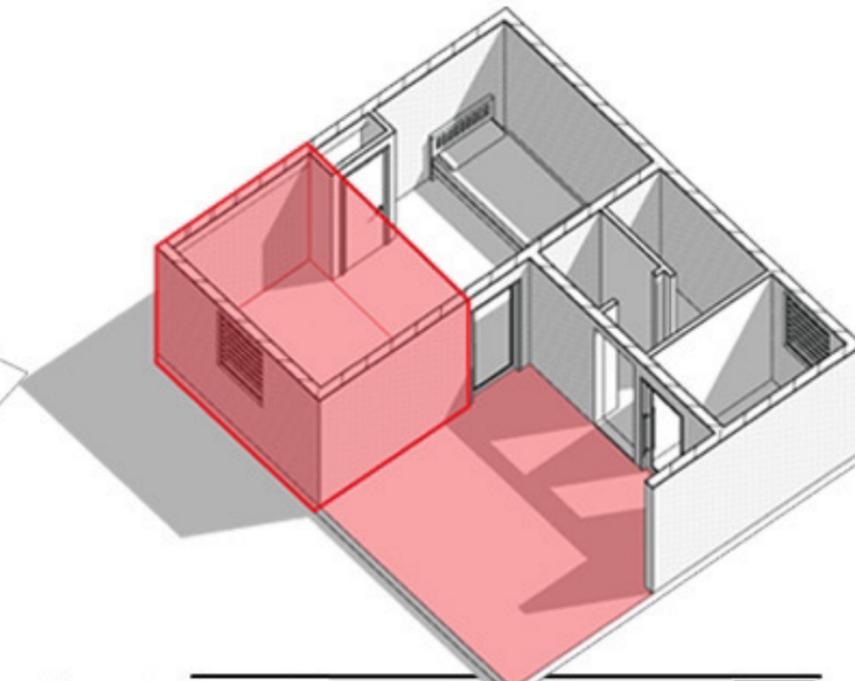
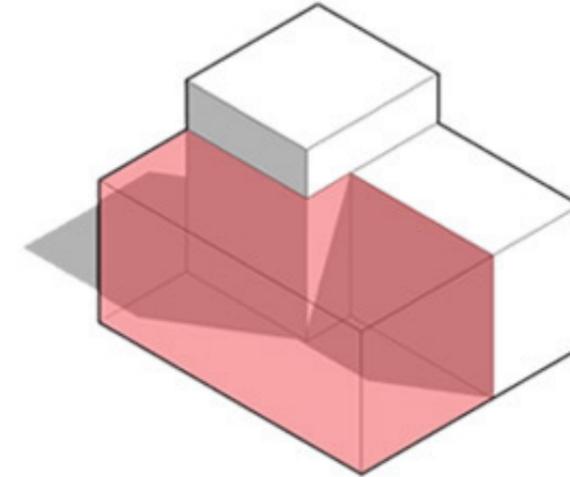
Where income levels allow it and more space is needed, the house could be expanded vertically to create extra rooms for either family use or for rent. In this case, the private court houses the staircase, and the area underneath the stair can function as storage space.



## Micro Unit Variation

First phase floor area: 21 m<sup>2</sup>  
 Expandable floor Area (on ground level) : 24 m<sup>2</sup>  
 Volume of additional floor area : 72 m<sup>3</sup>

Based on studies of existing living conditions of urban dwellers, a smaller version, called the **micro unit** can be built for those with smaller budgets and living in the most precarious urban circumstances.



Sketch Design

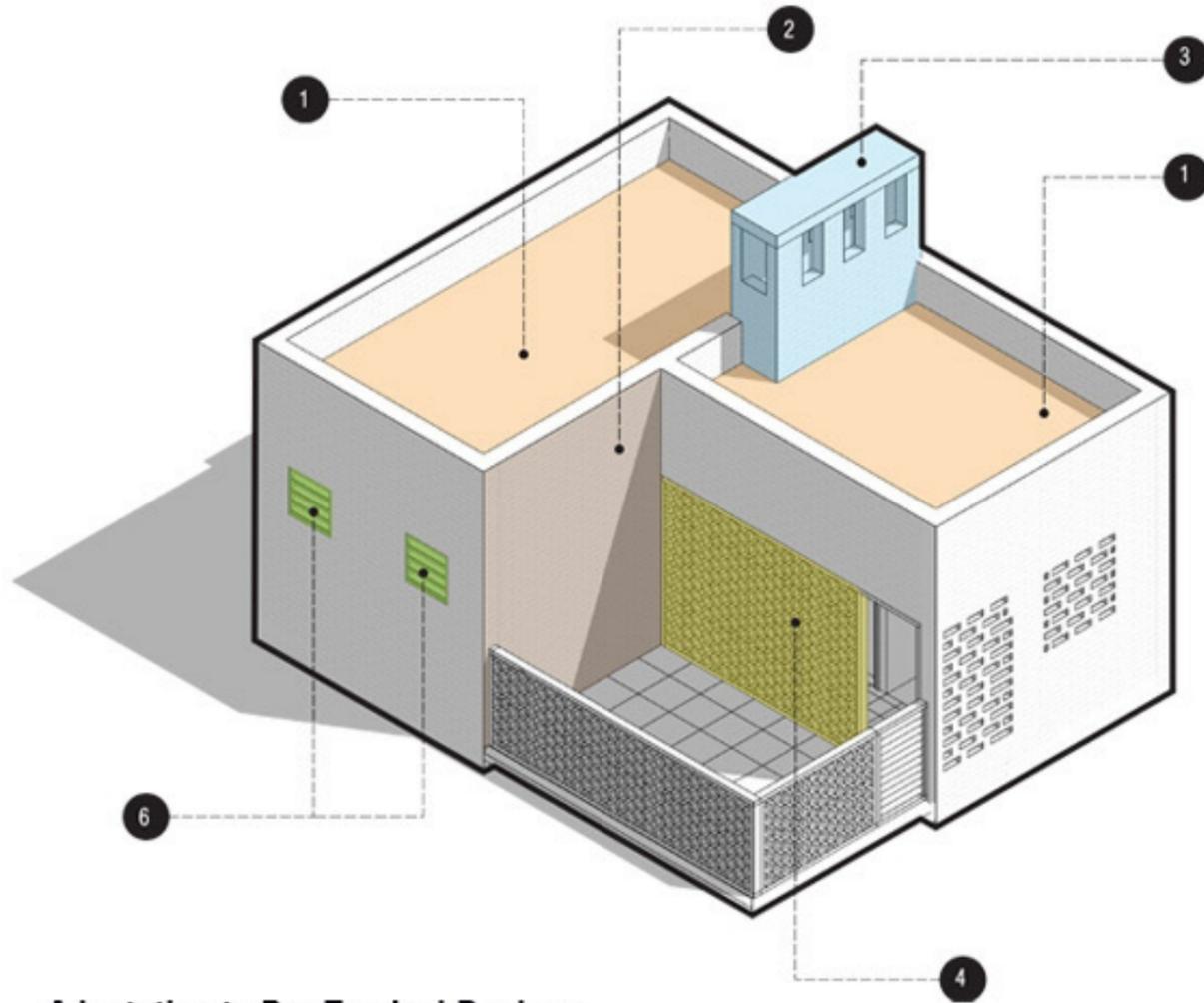


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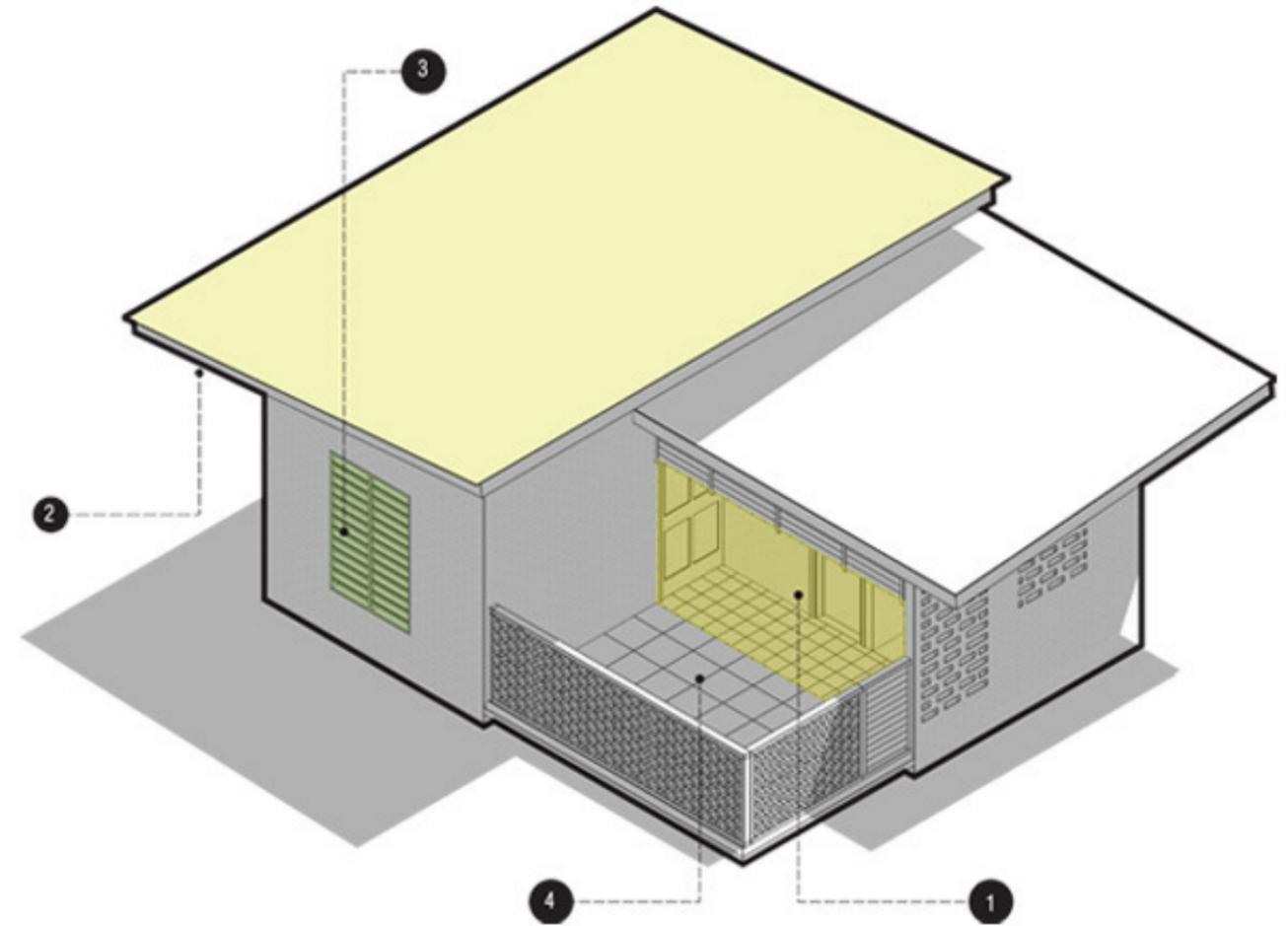
MARCH 2017

# CLIMATE ADAPTABILITY



## Adaptation to Dry Tropical Regions

1. Flat Habitable Roofs rather than overhanging roofs
2. Thicker walls
3. Wind catcher to enhance ventilation
4. Screened threshold to minimise flow of dusty air into internal spaces
5. Smaller windows



## Possible Adaptation to High Rainfall Tropical Regions

1. Open threshold to facilitate airflow
2. Large roof overhang to provide shade and protect walls
3. Large windows to enable airflow
4. Open court



Sketch Design

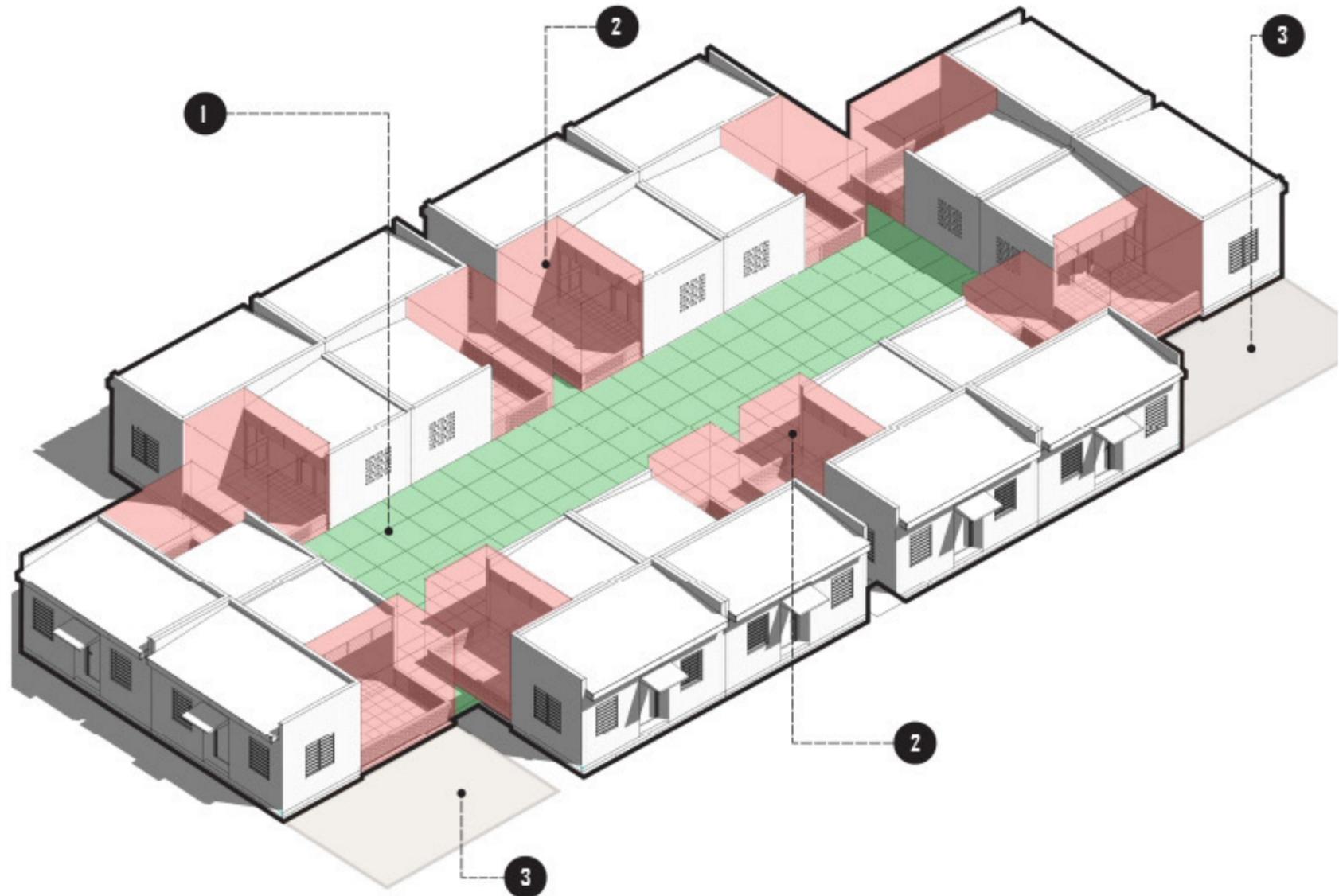
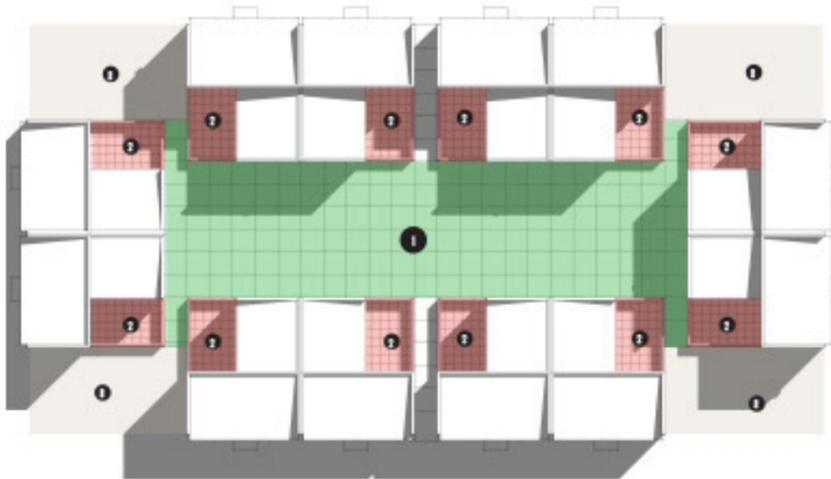
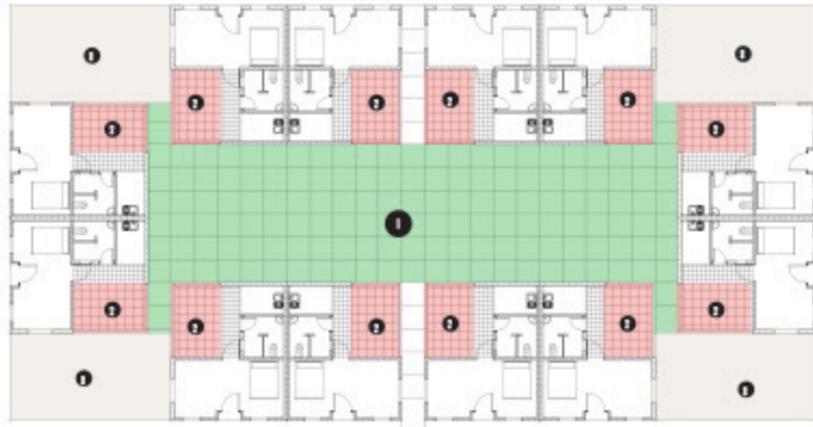


5000 for 5000 Housing Competition



MVP01/2017

# NEIGHBOURHOOD STRATEGIES



- 1. **Clustered Units Court** : Shared “semi-public” space.
- 2. **Private Court**: Acting as backyard space in phase 1 and for future expansion.
- 3. **“Leftover” Cluster Space**: for well organised commercial activities by individual households.

## CLUSTERING

The individual units are aggregated to create a cluster. Whilst the individual house is the basic unit of the cluster, the cluster is conceived off as the basic unit of the neighbourhood and the basic unit of urban governance. The central court of the cluster is considered as a public living room, with a level of privacy for those within the cluster. The courts of the individual units flow visually into the court of the cluster, for improved connectivity and social interaction. This is considered critical, as a means of preserving what is considered to be a higher psychological need amongst migrants from relatively more rural environments



Sketch Design



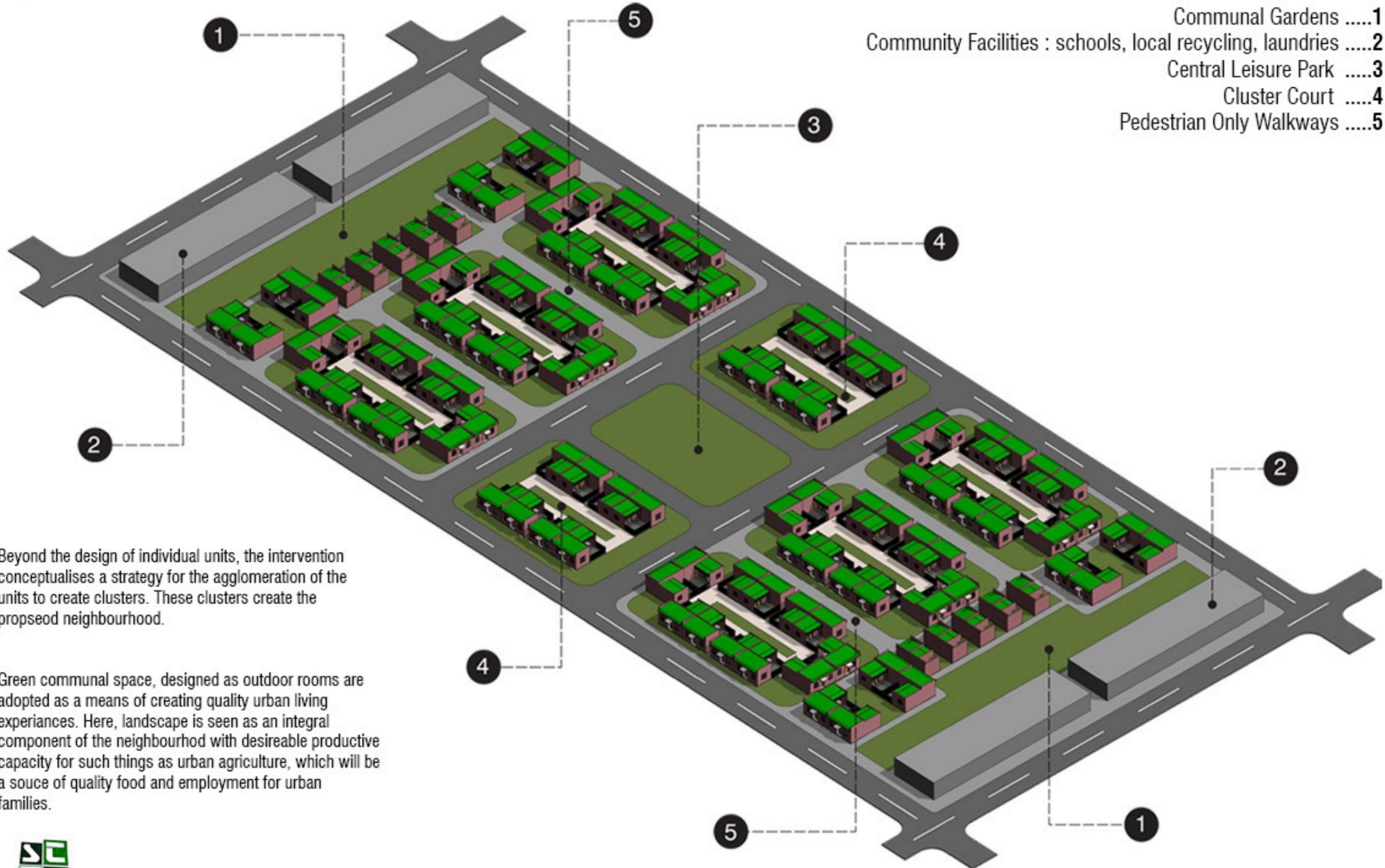
5000 for 5000 Housing Competition



WFOH 2017

## NEIGHBOURHOOD STRATEGY

## LEGEND



- Communal Gardens .....1
- Community Facilities : schools, local recycling, laundries .....2
- Central Leisure Park .....3
- Cluster Court .....4
- Pedestrian Only Walkways .....5

Beyond the design of individual units, the intervention conceptualises a strategy for the agglomeration of the units to create clusters. These clusters create the proposed neighbourhood.

Green communal space, designed as outdoor rooms are adopted as a means of creating quality urban living experiences. Here, landscape is seen as an integral component of the neighbourhood with desirable productive capacity for such things as urban agriculture, which will be a source of quality food and employment for urban families.



Sketch Design

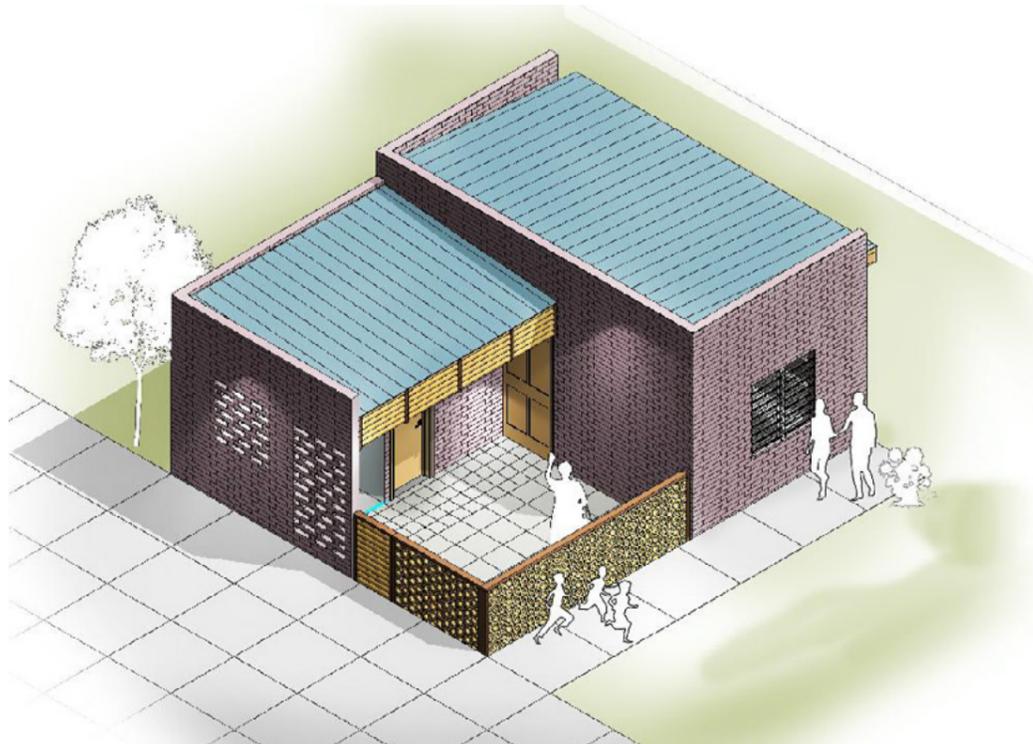


5000 for 5000 Housing Competition



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3D VIEWS



Sketch Design



5000 for 5000 Housing Competition

A105

MARCH 2017

# S. Tetteh & Associates

## Summary Bill of Costs

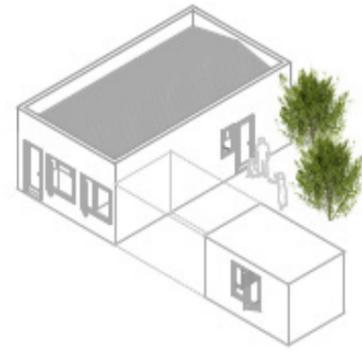
MAIN BUILDING	
SUMMARY ITEM	USD (\$)
Substructure	531.12
Concrete Work	457.54
Blockwork	929.60
Roofing	384.16
Carpentry	442.32
Joinery	542.85
Metalwork	143.81
Plumbing and Engineering Installations	548.36
Electrical Installations	636.03
Plasterwork and Other Floor, Wall and Ceiling Finishings	313.80
Painting and Decorating	67.89
<b>TOTAL</b>	<b>4,997.48</b>



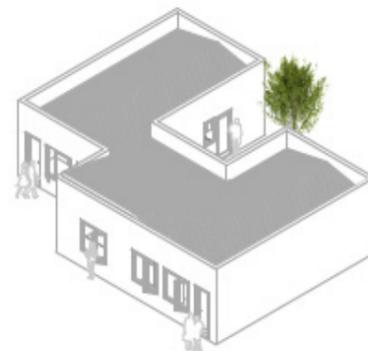
# Morphosis Limited

“Almost universally, housing supply has failed to respond to the need of a significant and legitimate population - the urban poor. The cost of new housing including those built by Government Agencies are significantly in excess of what this segment of the population can afford. The consequence is the reapid growth of informal settlements, slums on the edge of Africa’s major cities with obvious consequences for economic development, health, safety and security.”

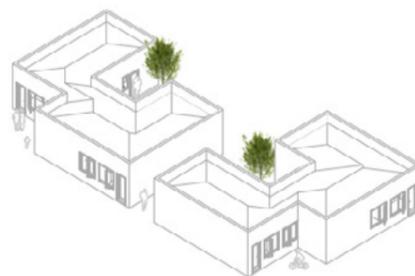
These economic development, health, safety and security consequences are issues that can be solved with proper planning and understanding how the ‘slum dweller’ lives, and designing specifically for their needs.



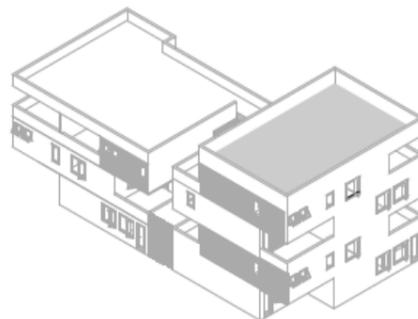
Single 45m<sup>2</sup> unit with optional 12.5m<sup>2</sup> additional extension



Typology for two families

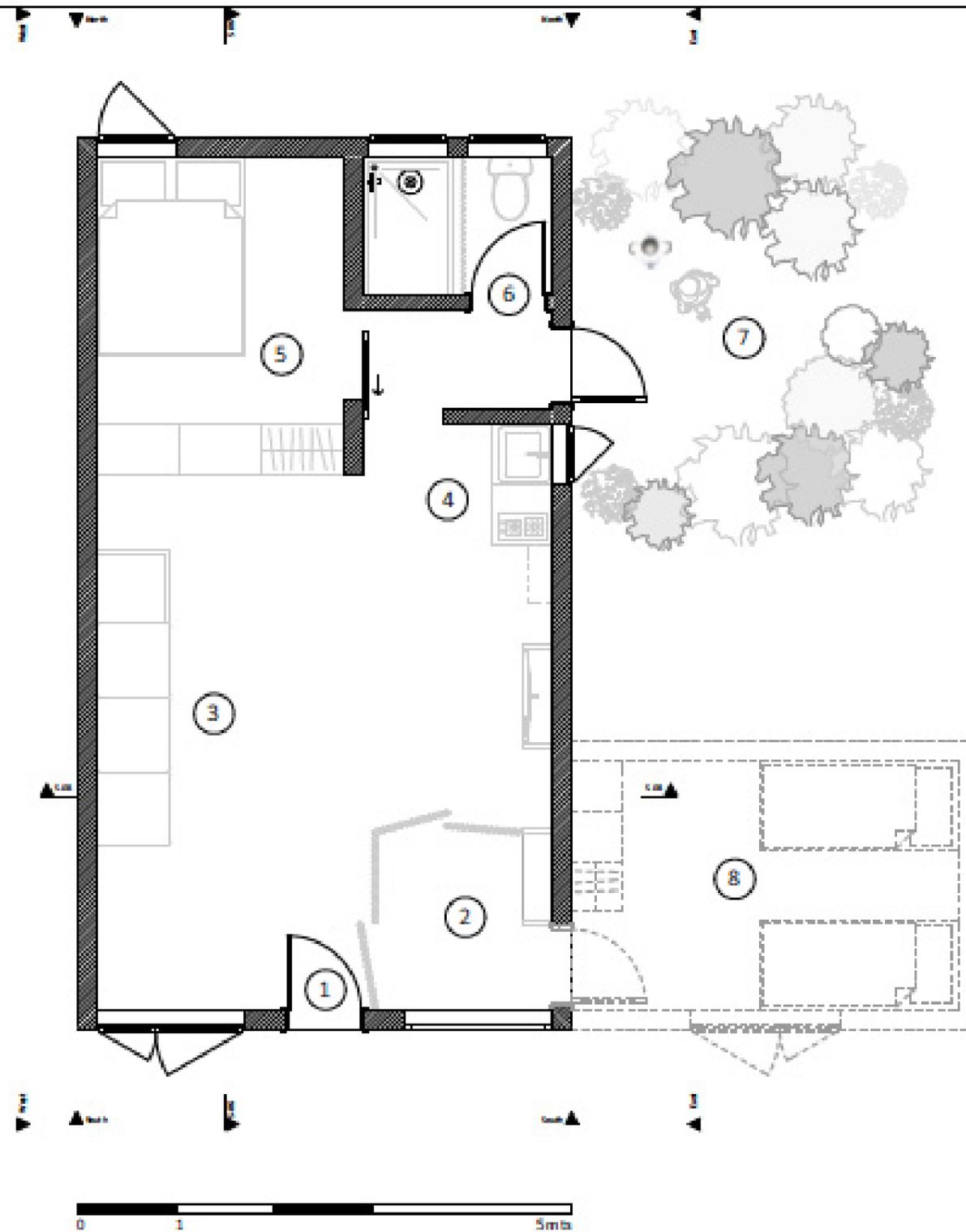


Cluster of four



Growing vertically into a community block

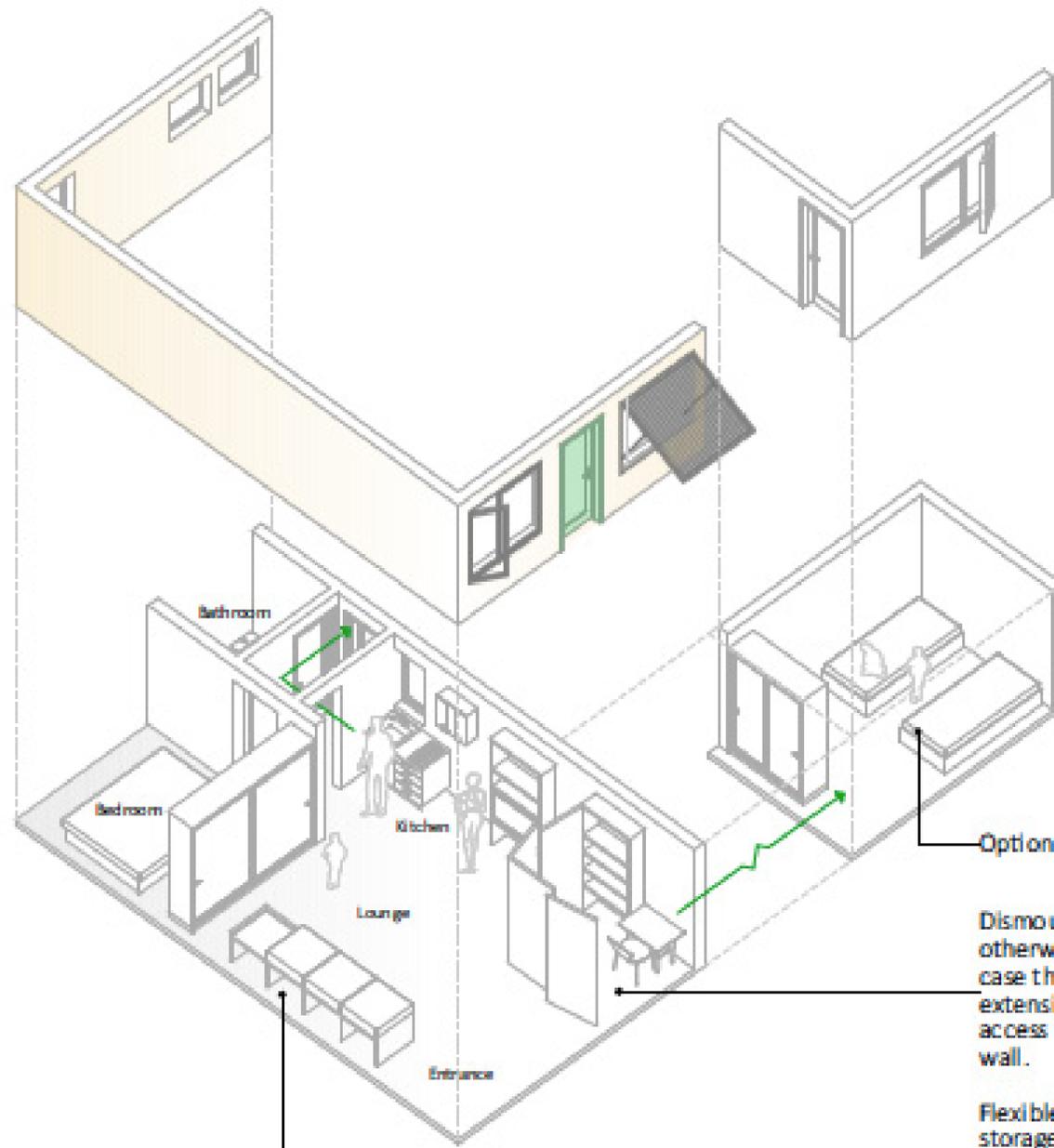
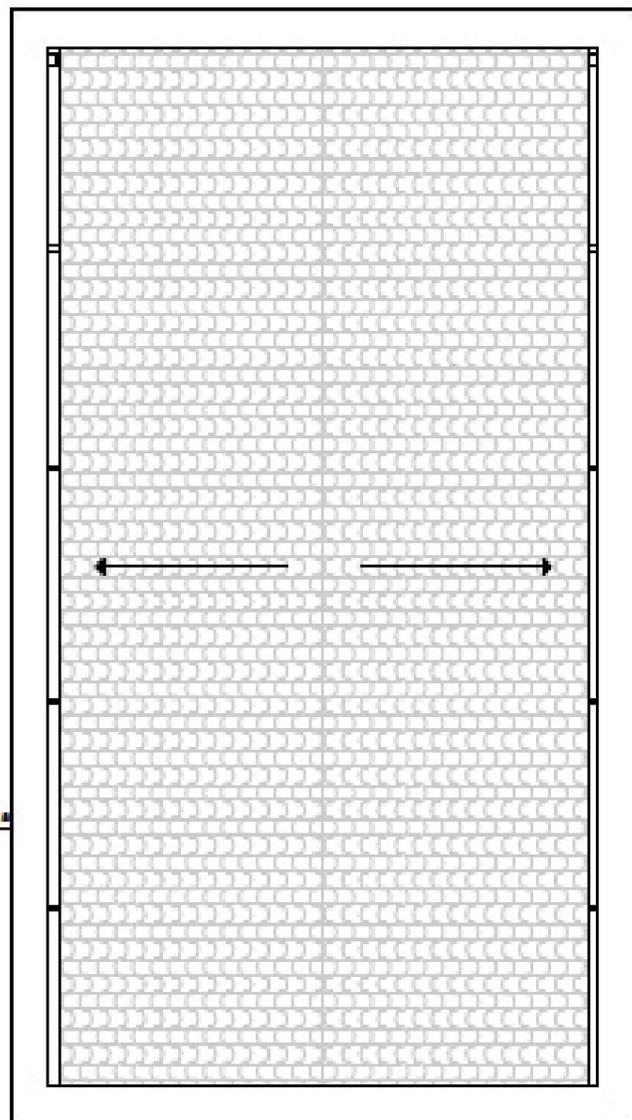




The house is designed as a 45m<sup>2</sup> unit with the intention of becoming a modular house in the case of both vertical and horizontal expansion in a community setup.

- 1 House entrance.
- 2 **Optional: Dismountable shopping space.**
- 3 **Lounge space.**  
The lounge could be left bare, with the residents installing their own furniture.
- 4 Built-in kitchen space.
- 5 Bedroom.  
The shelving acts as a divider between the room and lounge. It will offer enough sound insulation and save on costs for an additional wall.
- 6 Bathroom: Toilet and shower separated by curtain instead of a wall to save on cost.
- 7 Outdoor kitchen space ('karo').  
The placement of this karo is strategic in order for the kitchen activities to pour out of the house for washing or traditional cooking methods like a charcoal cooker, 'jiko'.
- 8 Optional 12.5m<sup>2</sup> additional bedroom.

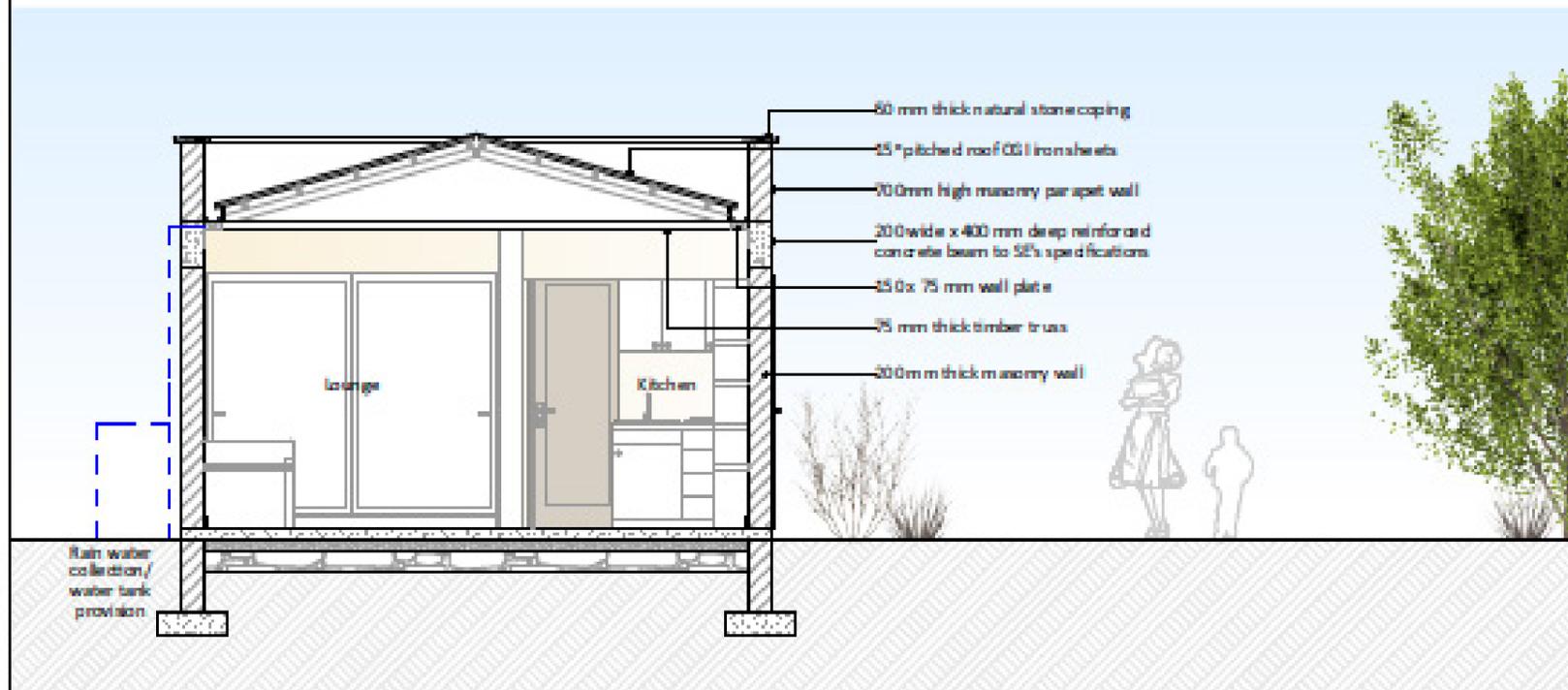
roof plan 1:50



Optional bedroom extension

Dismountable shopping space, otherwise used as study. In case the optional bedroom extension is implemented, its access will be through this wall.

Flexible furniture to allow for storage underneath, or additional sleeping space in low traffic times like at night.



The structure of the housing unit is flexible to allow for different building methodologies.

The proposal can be grouped into three 'typologies'.

### 1. Traditional construction

This typology will utilize traditional building technologies in their context. In the Kenyan market, natural stone is the cheapest building material and widely accepted. Acceptance for earth products is slowly growing, but not readily accepted as in other parts of Africa. Using the Kenyan market as reference, traditional building methods range as follows:

**Structural beams and columns** - reinforced concrete  
**Walls** - masonry (natural stone)  
**Roof structure** - timber  
**Slabs** - reinforced concrete

### 2. 'High tech' construction

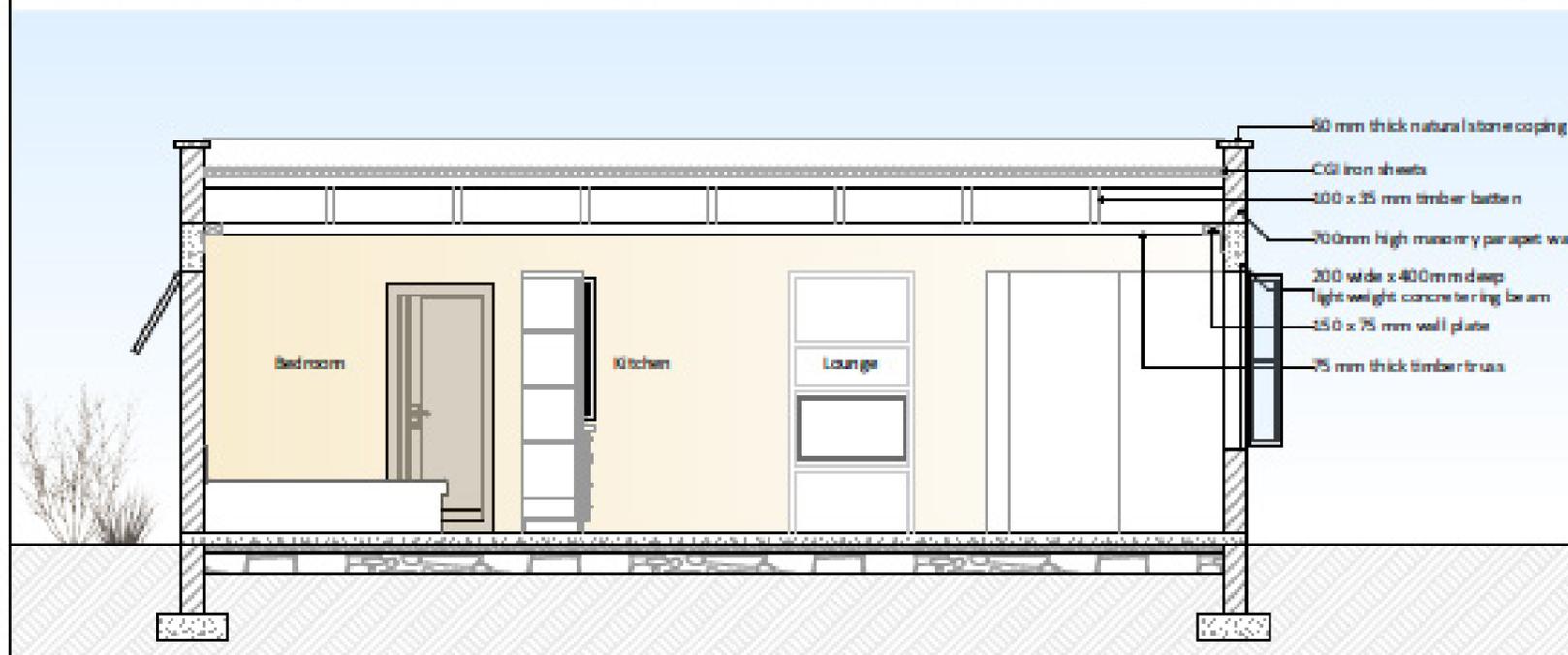
This typology works with the modular construction as a concept. Modular designs are more flexible, minimize wastage of resources and shorten construction time.

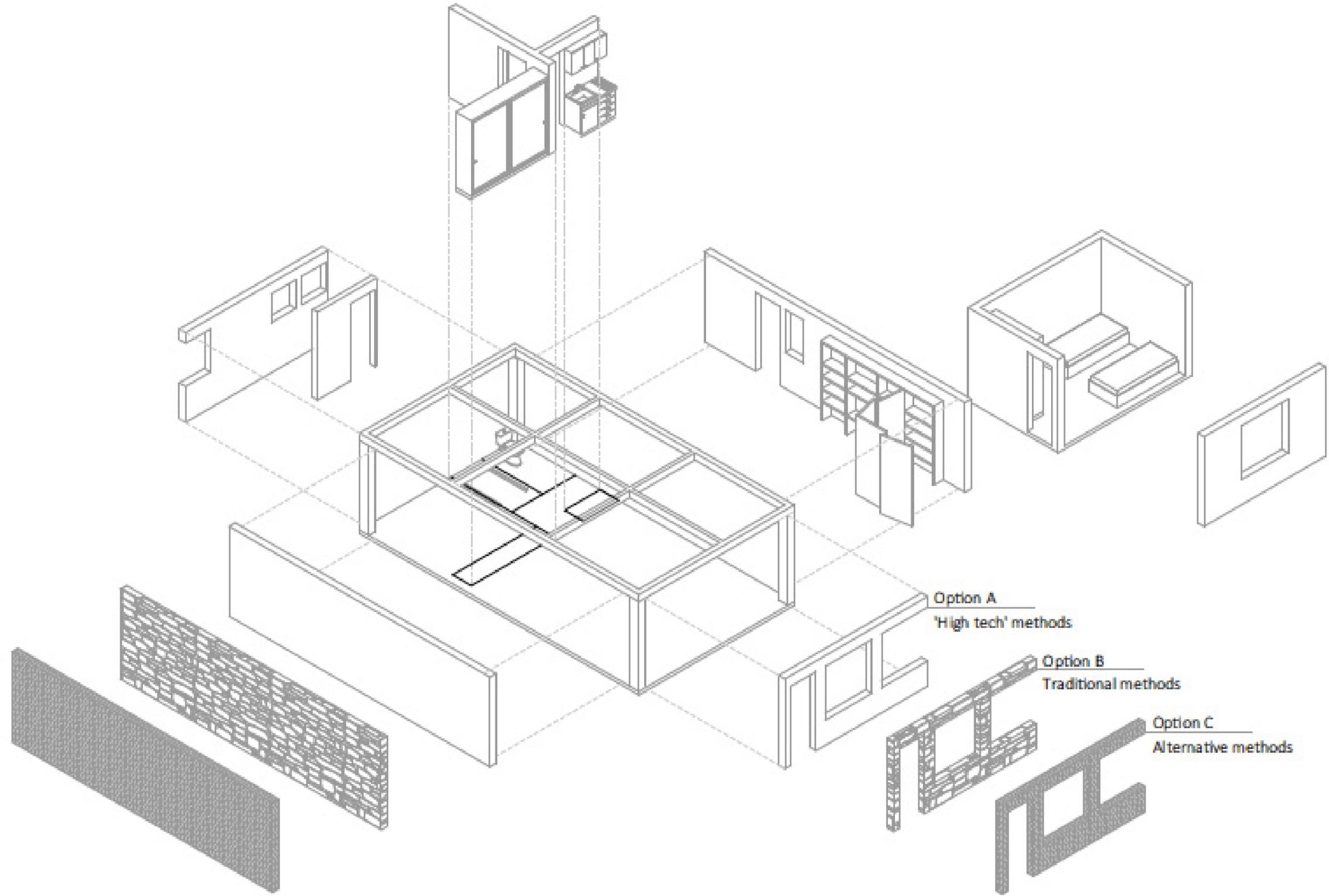
**Structural beams, columns and roof structure** - light weight steel I-sections  
**Walls** - treated wood products, such as blockboard panels.  
**Slab** - reinforced concrete

### 3. Alternative construction

This typology utilizes materials that aren't yet widely accepted within the African market but have high potential in reducing both the cost and construction time. The main material to be considered is bamboo, which offers great structural properties as well as aesthetic value in addition to being cost effective. In this case, a bamboo farm would be planted close to the construction site, offering employment to some locals.

**Structural beams, columns and roof structure** - natural cut bamboo  
**Walls** - Earth products such as rammed earth panels and adobe, as well as bamboo blockboard panels  
**Slab** - rammed earth to specifications





	1. 'High tech' - Modular	2. Traditional methods	3. Alternative
<b>Structure</b>	<b>Light gauge steel</b>	Concrete	Bamboo
Beams	100 X 430 mm I section	150 X 150 mm	Natural state
Columns	152 X 475 mm I section	200 X 300 mm	Processed bamboo
<b>Walling</b>			
External load bearing	Bamboo products Blockboard	Natural stone Burnt brick	Sun dried brick Bamboo products Blockboard
Internal partitions	Blockboard	Blockboard	Blockboard
Slab (150mm thick)	Concrete	Concrete	Rammed earth
Roof (12° degrees)	Iron sheets	Iron sheets	Thatch
Foundation	<ul style="list-style-type: none"> <li>- 100mm concrete floor slab on 1000 gauge d.p.m.</li> <li>- 100mm thick murrum blinding</li> <li>- 300mm thick well compacted hardcore</li> <li>- 200mm thick foundation wall</li> <li>- 200x600mm thick R.C. strip foundation on a layer of weak concrete mix</li> </ul>		

# Morphosis Limited

## Summary Bill of Costs

MAIN BUILDING	
SUMMARY ITEM	KES
Substructures	172,515.00
Superstructure	177,235.00
Finishes and Fixtures	94,970.00
Sub-Total	444,720.00
Allow for Labour (20%)	88,944.00
<b>Total Amount in KES</b>	<b>533,664.00</b>
<b>Total Amount in USD</b>	<b>5,086.00</b>
<i>Exchange Rate 1 KES/ USD 0.00953</i>	



# Sharon Davis Designs

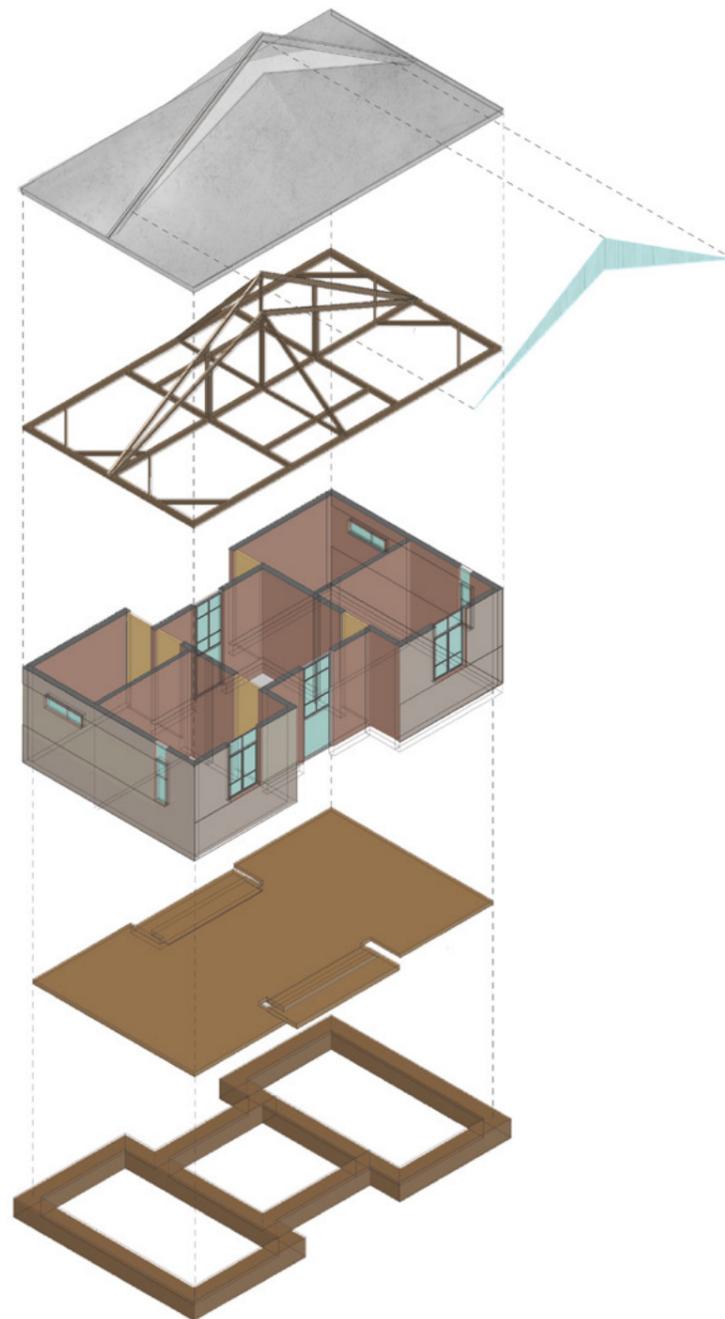
**Sharon Davis Design embraces the professional ideal of positively changing the way people live, both globally and locally, through multidisciplinary rigor and with compassion for the earth and humankind.**

At Sharon Davis Design process starts with material inquiry through which we push the social, environmental and economic objectives of the project. Through this process we strive to create material beauty that is unique to each place and brings dignity to every community.

We have worked on multiple low cost projects in Africa and Nepal with a wide range of locally appropriate sustainable materials. Earth based construction has so far been the most affordable and practical solution for mass produced housing across a varying locations.

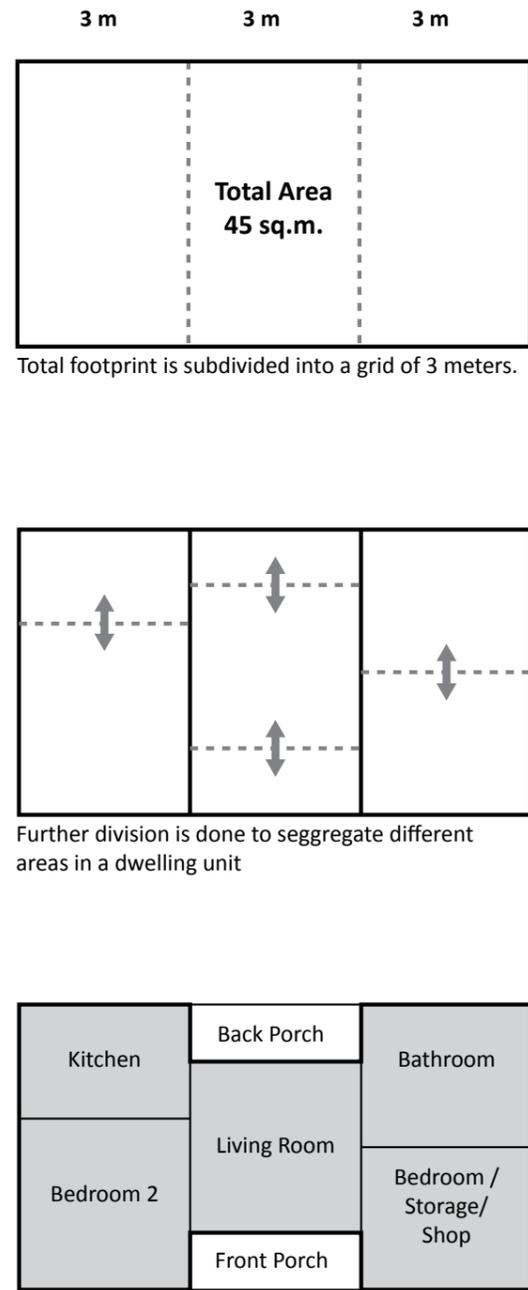
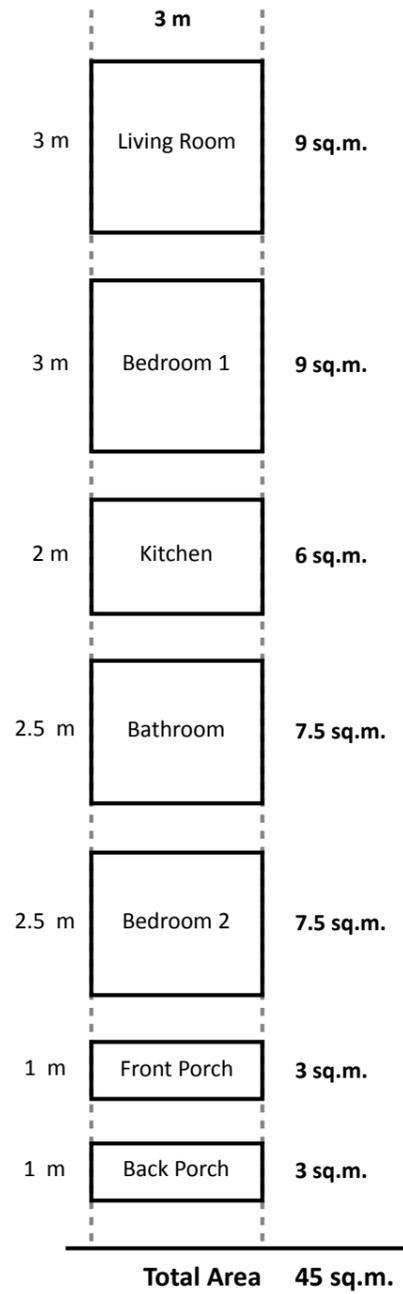
The key to affordability, is efficient, effective design and construction with locally and readily available material, and engaging local labor. Jobs and future economic opportunity for the community are created in this way while also improving construction standards. Earth Based Construction is a good vehicle for these goals.

Almost all soil types are suitable for earth based construction. Earth from the building site is used to create foundations, walls, floors, plaster and even roofing materials. Using the soil at the point of construction saves huge amounts on material cost. Earth based construction can also easily adapt to varying site conditions.



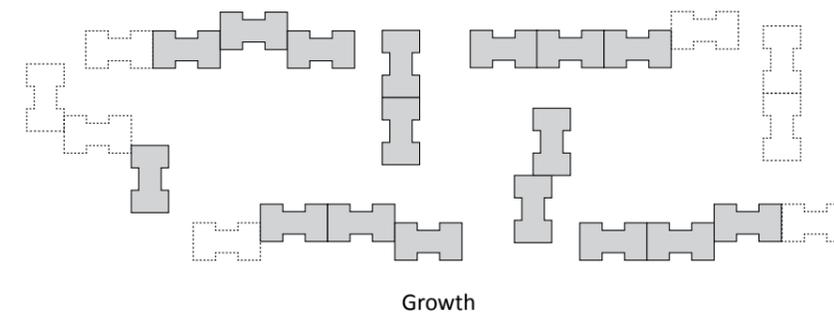
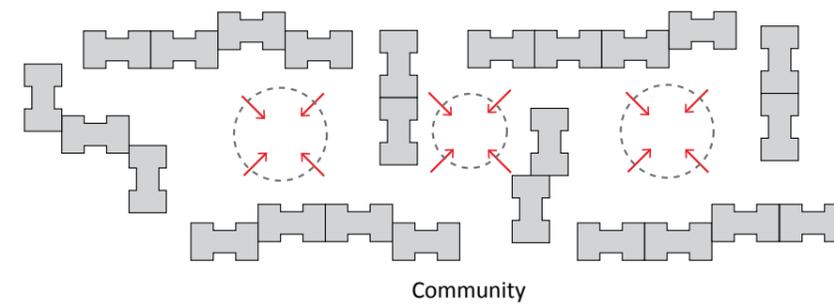
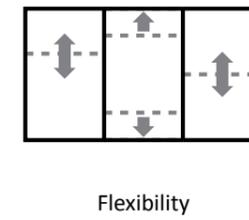
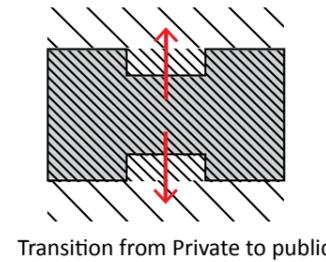
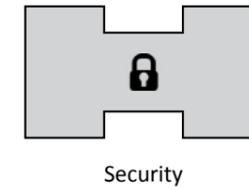
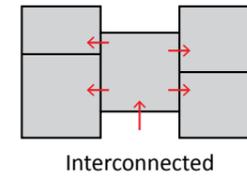
### Module Footprint

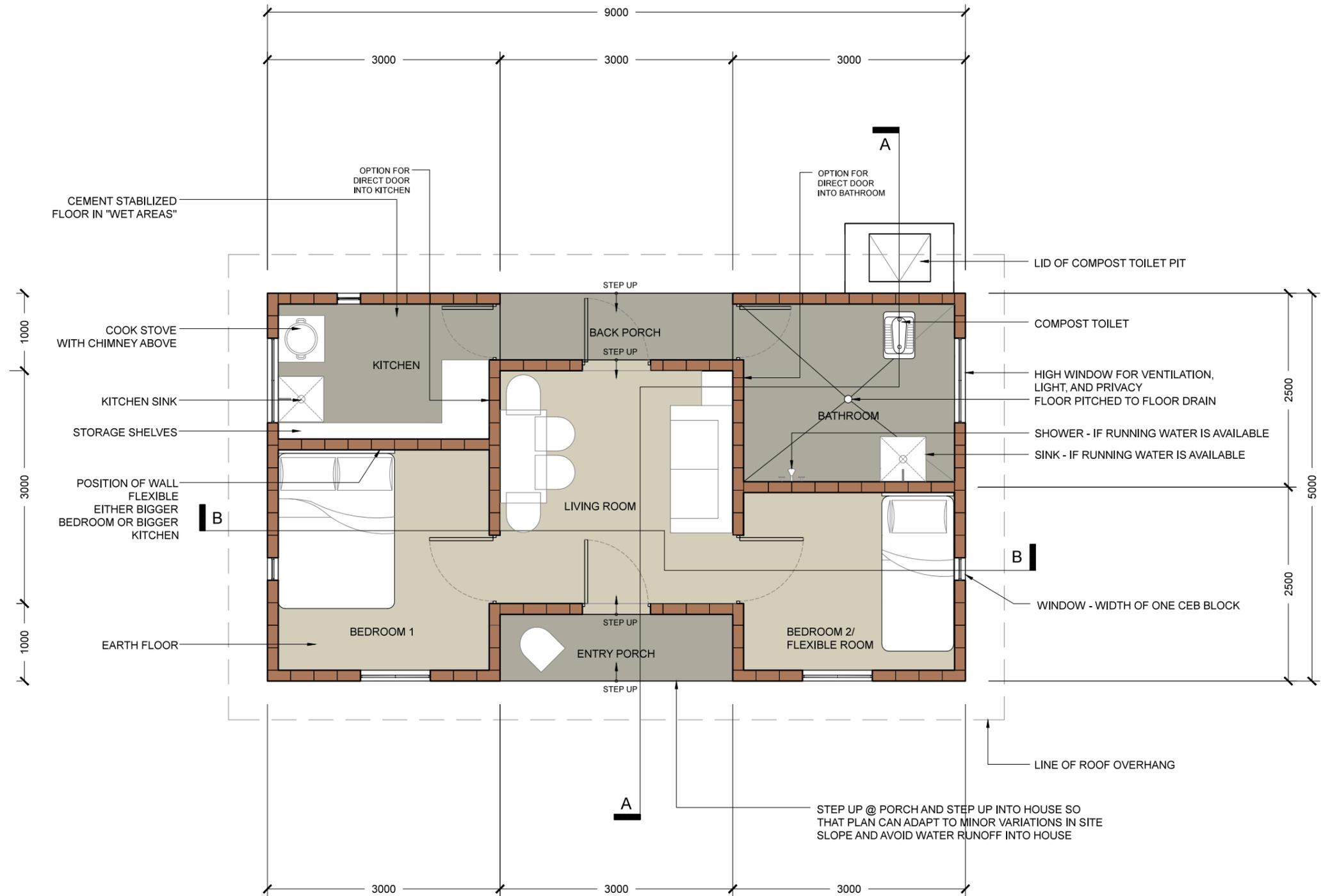
Simplicity is one of the keys to affordability. The plan consists of (3) simple 3m x 5m blocks, that can host a variety of functions, provides ease of construction, and offers covered exterior spaces.



### Space Planning Concept

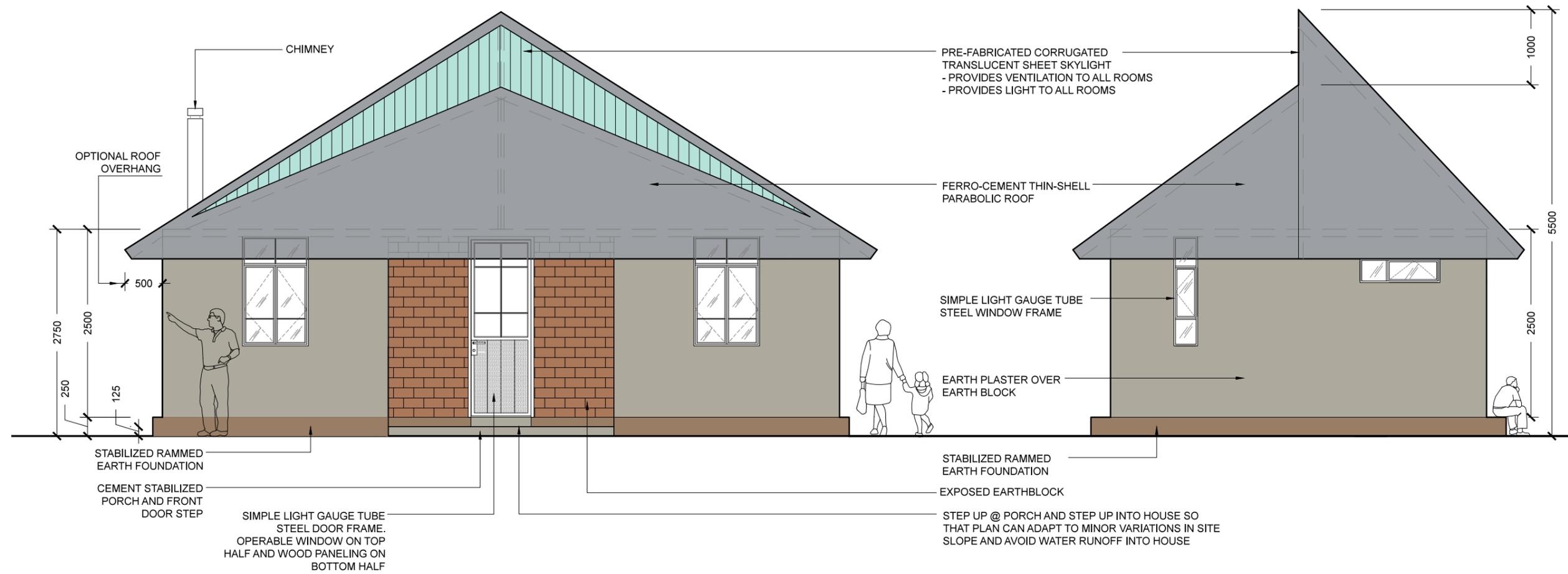
This simple floor plan eliminates internal circulation space to provide maximum usable space, and offers flexibility of interior partition locations.





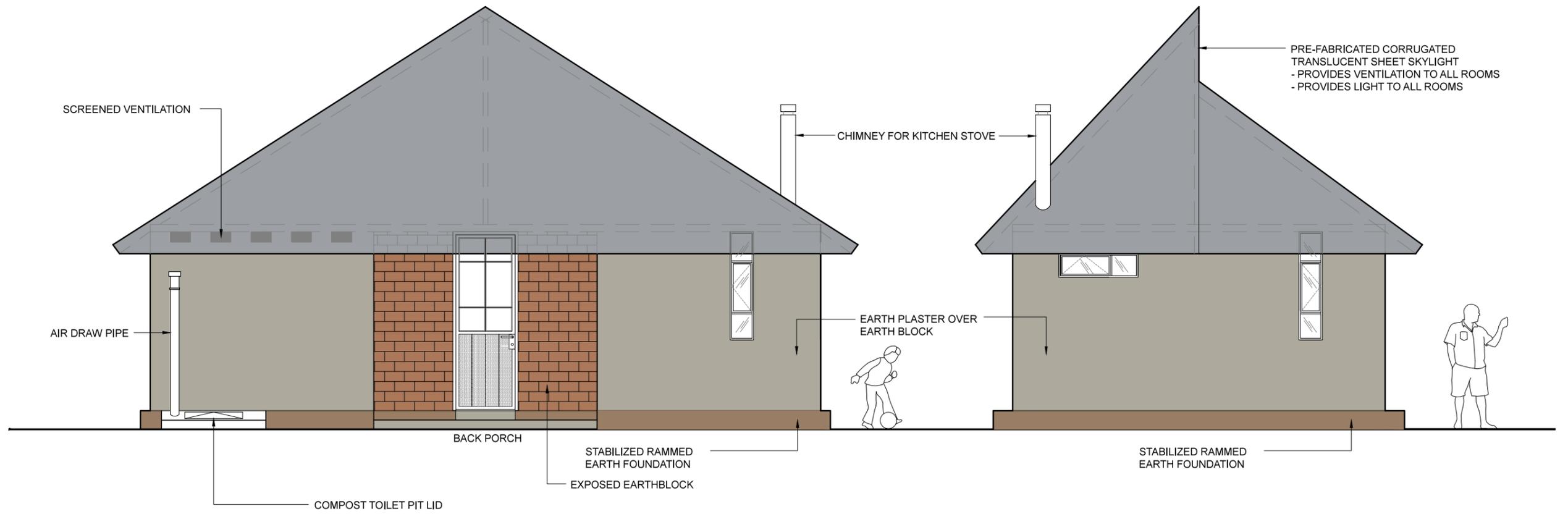
Floor Plan

scale 1:50



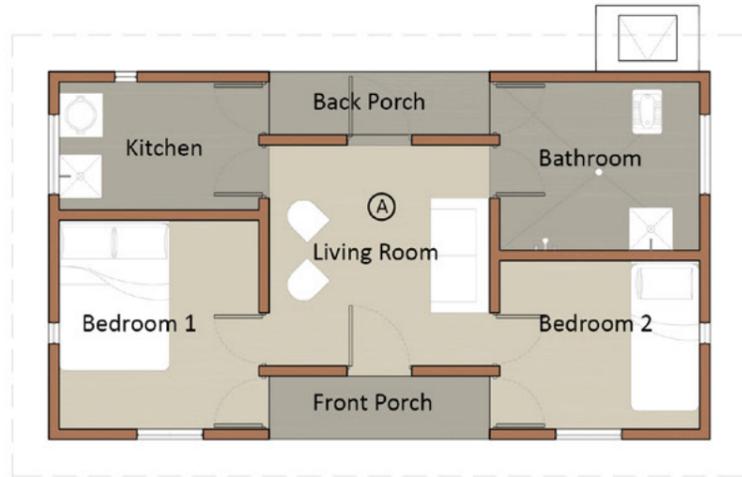
Elevations: Front and Side

scale 1:50



Elevation: Rear and Side

scale 1:50



**Multiple Door Option:**

- Internal access to kitchen and bathrooms
- Direct exterior access to bedrooms



**Income Generation:**

- Front room for store
- Back bedroom for rental
- Outdoor Kitchen



**Maximized Interior Footprint:**

- Front and/or back porch removed



**All Bedroom Option:**

- 4 Bedroom house
- Assuming exterior (possibly shared) kitchen and bathroom

**Module Flexibility**



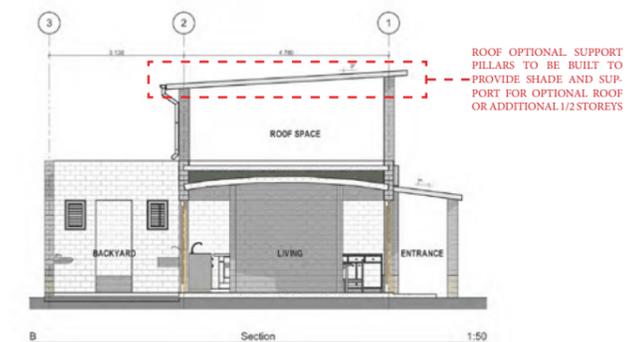
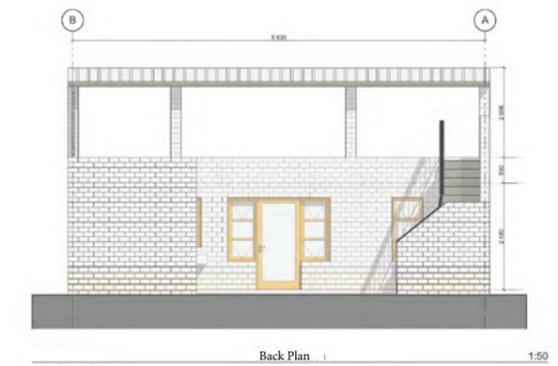
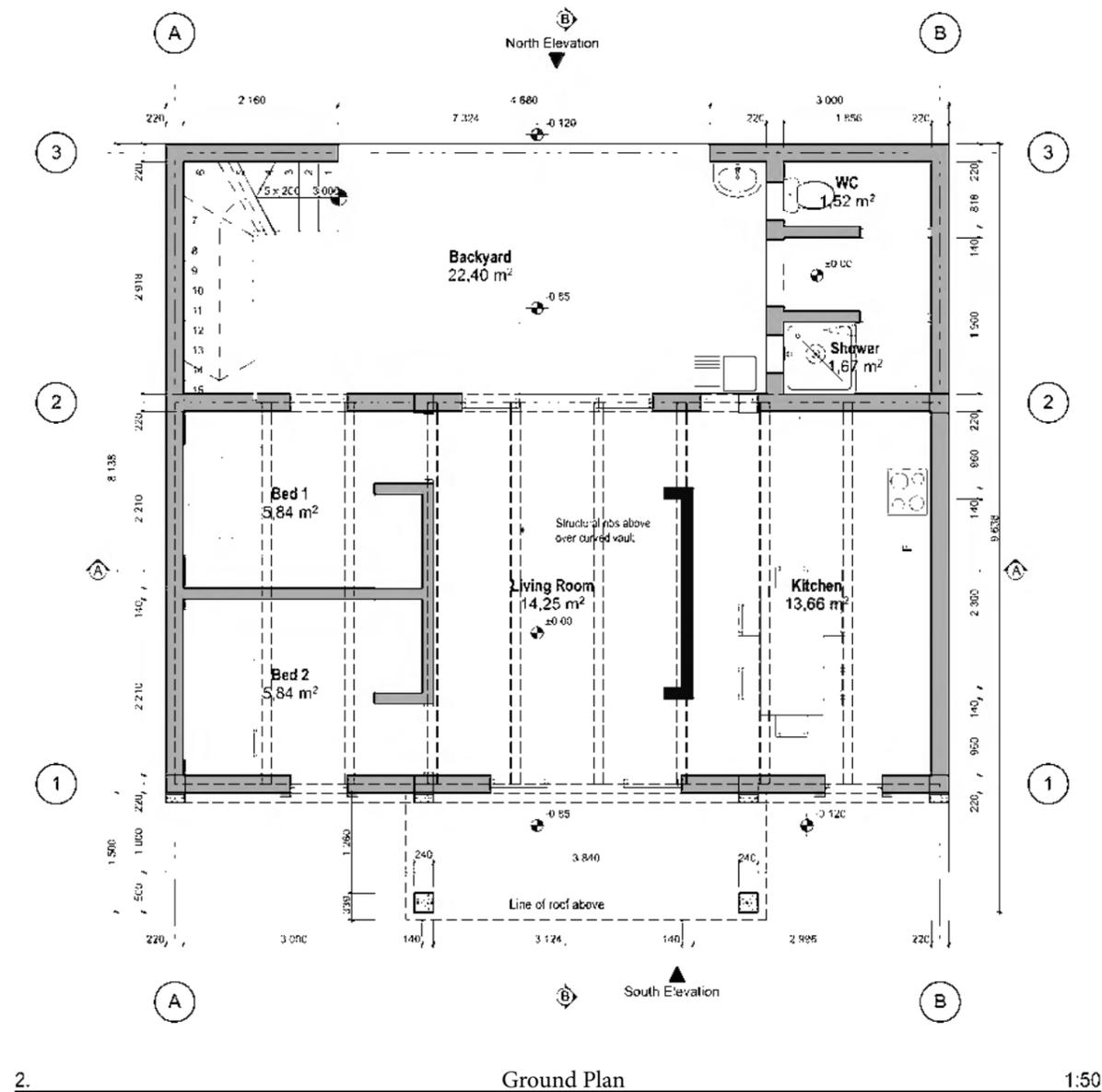
Housing clusters will depend on site by site specifics, and the degree of urbanity in which they sit. The clusters can be made more or less dense, with or without shared amenities.

## Housing Clusters

# Hydraform

The concept for making sustainable settlements and homes is based on an Ecological and Regenerative Pattern Language and Ecological Design. This pattern language is informed by local climate, topography and local knowledge. Compressed earth-block construction is a thermally and structurally sound primary material that makes up 70% of material needed in the housing unit construction. The unit is assembled in courtyards, row housing and multistory apartments configuration to achieve economically serviceable and walkable neighbourhoods in Rural, Suburban and Urban contexts in order to realize functional densities and economies of scale.

Dignified and Desirable: Building with Clay through engaging with the community has excellent African precedents and supports a reconnection of people to sustainable land and resources care. This submission builds a business case for up scaling delivery based on these rich traditions and precedents to build walkable neighborhoods with contemporary urban form-making.



# Adengo Architects

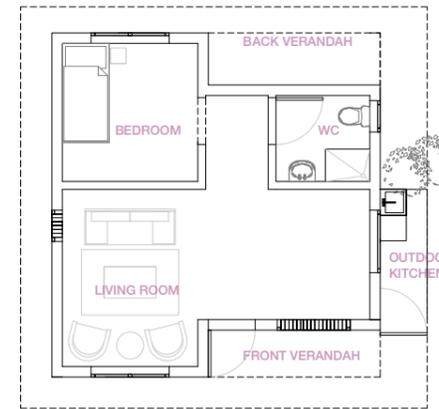
**‘House Ongeza’ translates to mean the incremental House, or the house that grows. Our cross-disciplinary team conceived of this idea based on the reality that those in need of housing are not be able to afford a complete house. We are therefore proposing a house that initially comes with the basic necessities – a simple structure with a living room, bedroom, bathroom, outdoor kitchen and a roof. The owner would then have the opportunity to complete the structure by completing the indoor kitchen, adding more wall partitions if they choose to and as well as their own choice of floor and wall finishes when they can afford to.**



Built into this concept is the idea that the house is able to ‘grow’ beyond this point; a second bedroom may be added at the back, for example. There is also an option for two units to be joined together for form a semidetached unit, creating a larger house ideal for bigger families.

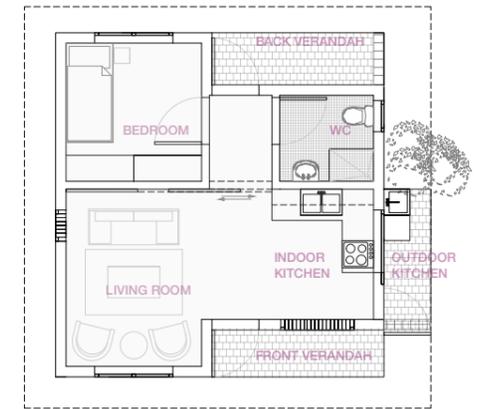
## STAGE I GROWTH

- Building structure
- Bedroom, Bathroom & Living room
- Outdoor Kitchen
- Roof



## STAGE II GROWTH

- Indoor Kitchen
- Ceiling Finish
- Interior wall and floor finishes
- Door to bedroom & back verandah
- Floor finishes at verandah
- Storage in bedroom



## FLOOR PLAN SCALE 1:50



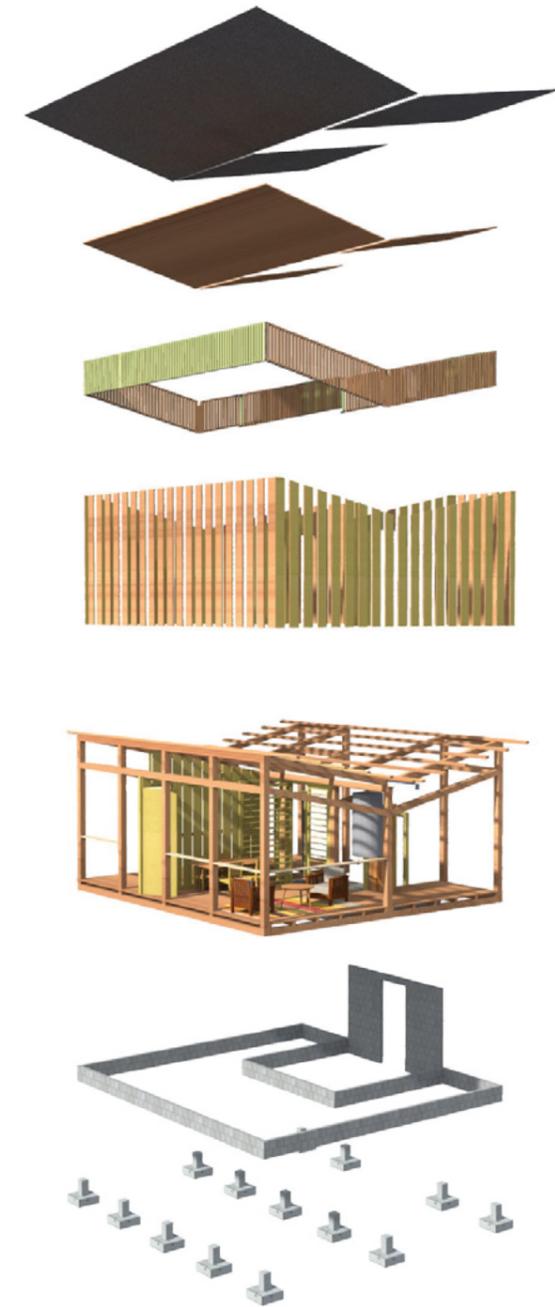
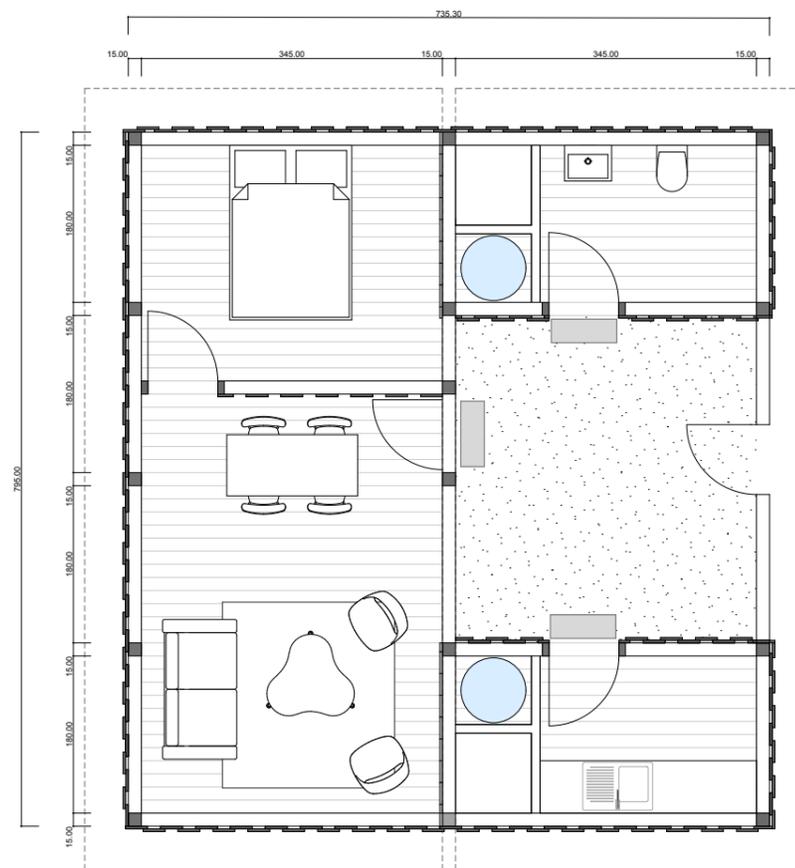
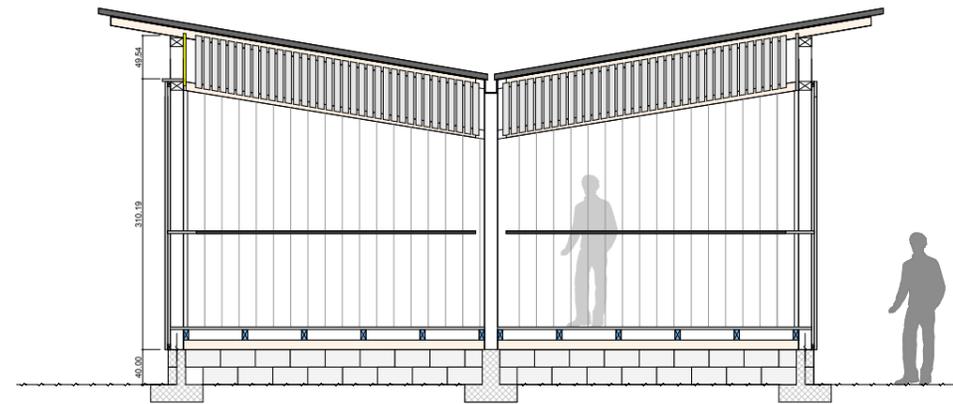
## SECTION PERSPECTIVE : SHOWING MATERIALS

# Lowcost Afrik

The project is to create a simple living cell identity that can be adapted to all regions of Africa.

The U-shaped house will generate an interior and exterior space: Inside and Out. Inside to stay, wash and sleep. Outside to transit, to take care of and to relax.

With corrugated metal sheets, the V-shaped roof will regulate the need to ventilate the house and offer the possibility of recovering rainwater.





E. [info@shelterafrique.org](mailto:info@shelterafrique.org)  
T. +254-20-4978000

Shelter Afrique,  
Longonot Road - Upper Hill,  
P.O. Box 41479 - 00100,  
Nairobi - Kenya