



THE ARMADILLO SHELL INSPIRES A FANNED FORM OF BIOMIMICRY.

THE FORM IS LIGHT, COMPACT, AND CAN FOLD IN ON ITSELF, WHILE FORMING A PROTECTIVE OUTER SHELL.

BUILDING ELEMENTS ARE ORGANIZED RADIALLY AROUND AN ORIGIN.

DESIGN LENDS ITSELF TO EITHER BLOCK OR PREFAB PANEL CONSTRUCTION.

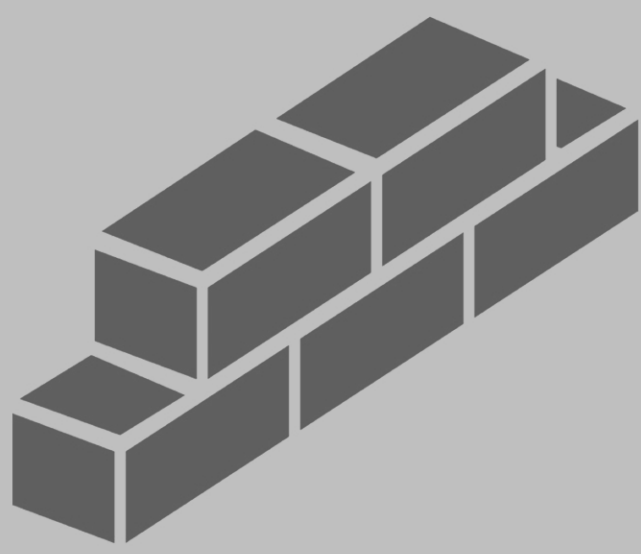


THE KANGAROO INSPIRES A NESTED FORM OF BIOMIMICRY.

THE FORM IS COMPACT AND CAN BE STORED WITHIN ITSELF.

OVERLAPPING ELEMENTS ALLOW FOR CLERESTORIES AND NATURAL VENTILATION.

DESIGN LENDS ITSELF TO EARTHEN MATERIALS AND PREFAB PANELS.



RAMMED EARTH INSPIRES A TYPE OF BIOMIMICRY FOCUSED ON MATERIAL CONSTRUCTION.

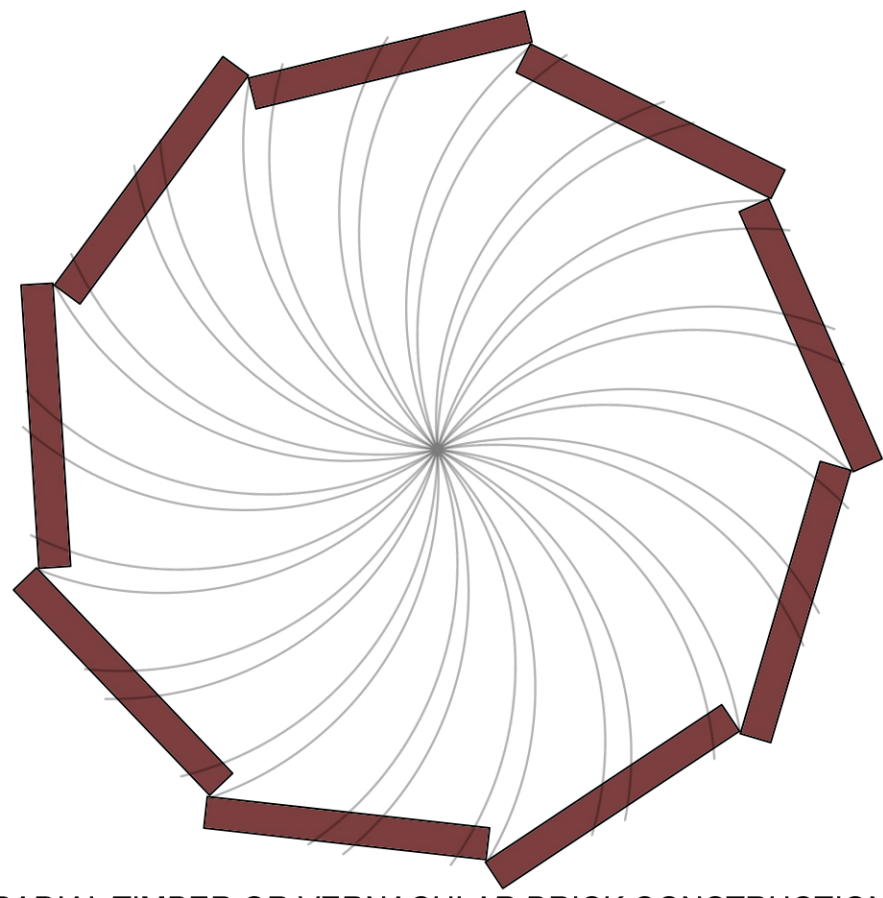
COSTE EFFECTIVE, LOCAL, AND ABUNDANTLY AVAILABLE.

CAN ONLY BE USED TO CONSTRUCT OF VERTICAL WALLS.

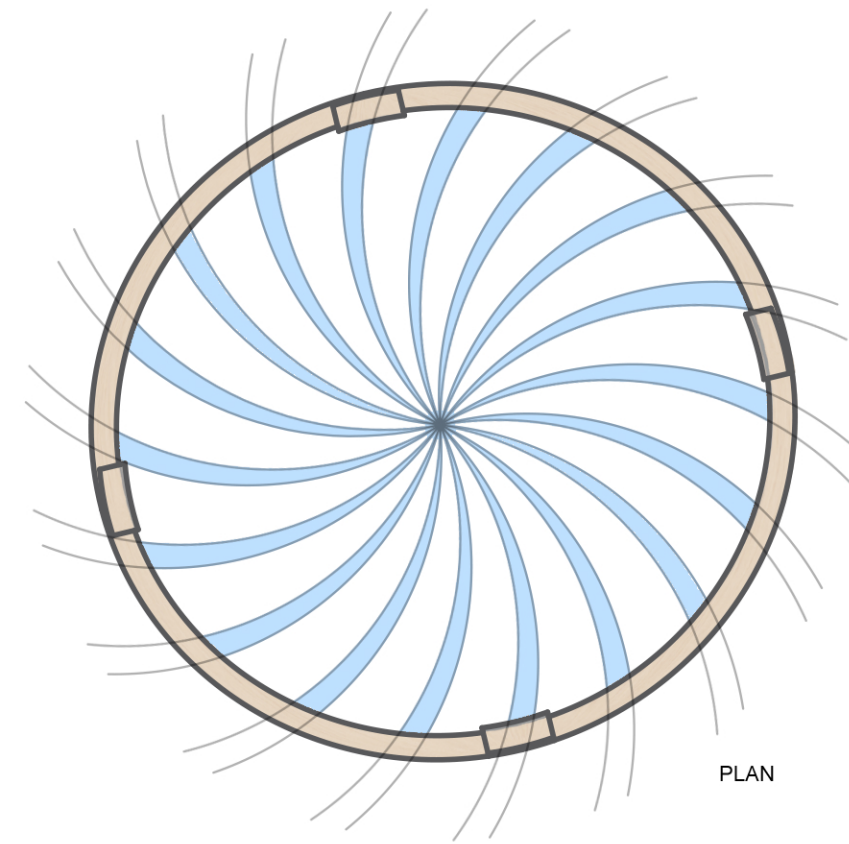
CAN BE USED IN COMBINATION WITH EFFICIENT ROOFING SYSTEM.

PUNCHED OPENINGS WOULD ALLOW FOR LIGHT & VENTILATION.

FANNED STRUCTURE



RADIAL TIMBER OR VERNACULAR BRICK CONSTRUCTION

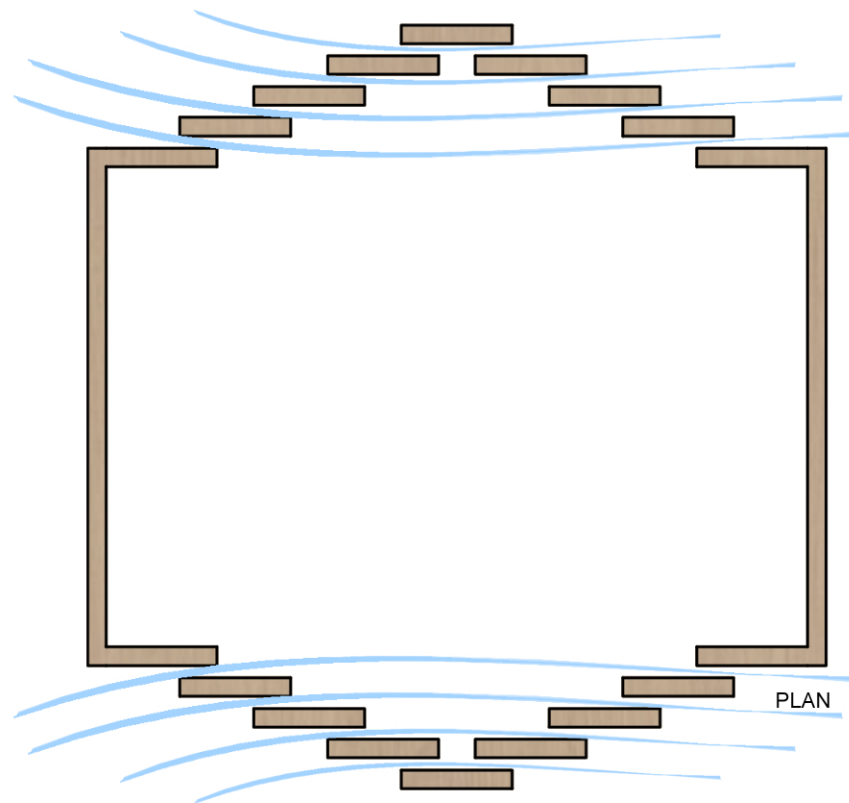


WIND ENTERING SHELTER

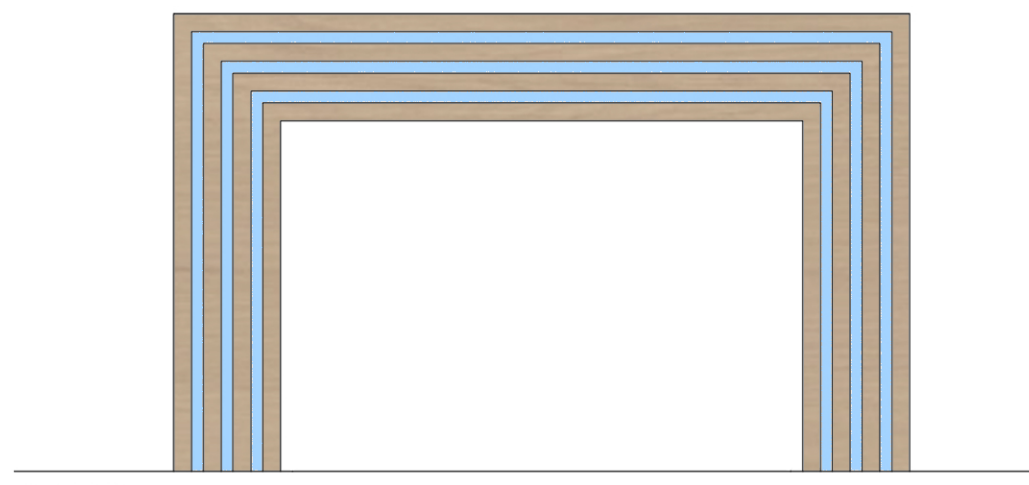


SECTION

NESTED STRUCTURE

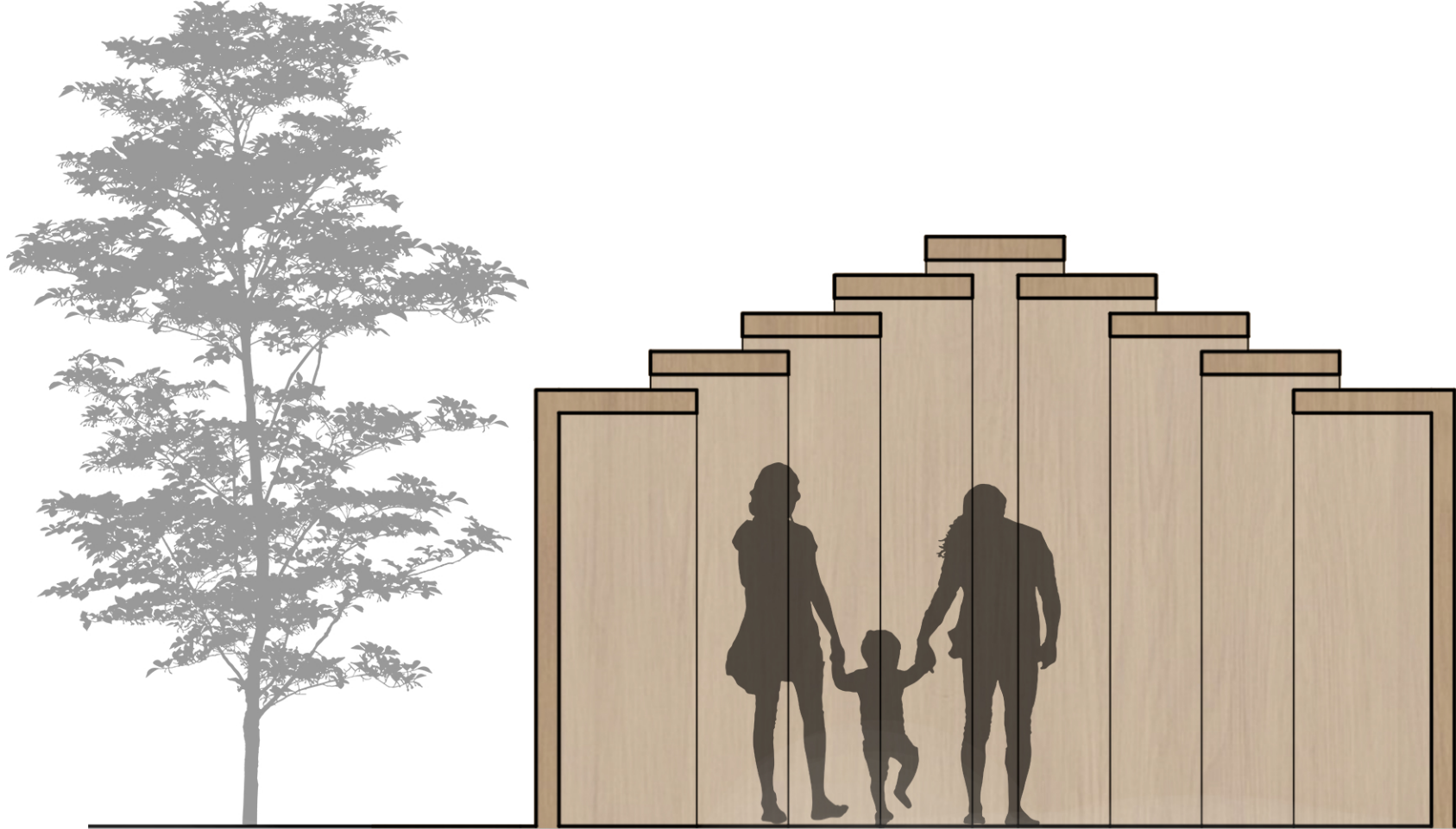


PLAN



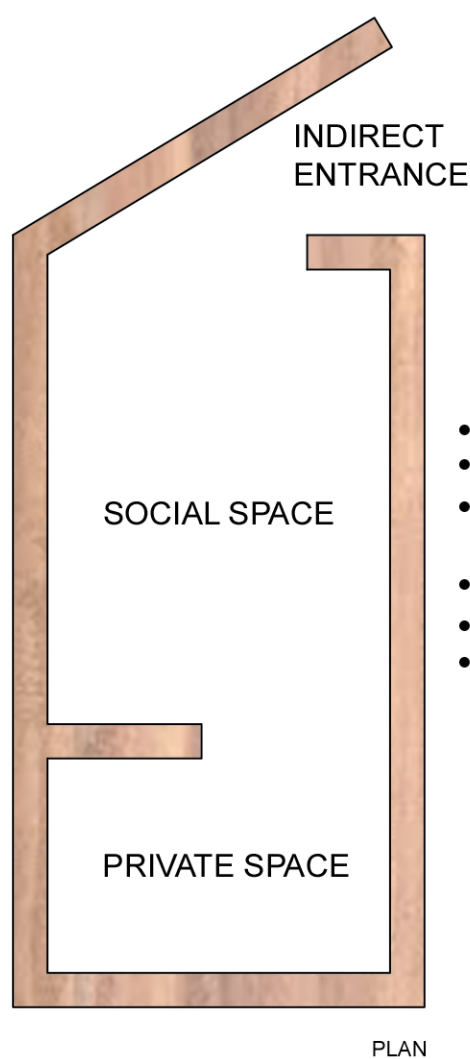
ELEVATION

ZONES FOR WIND CIRCULATION



SECTION

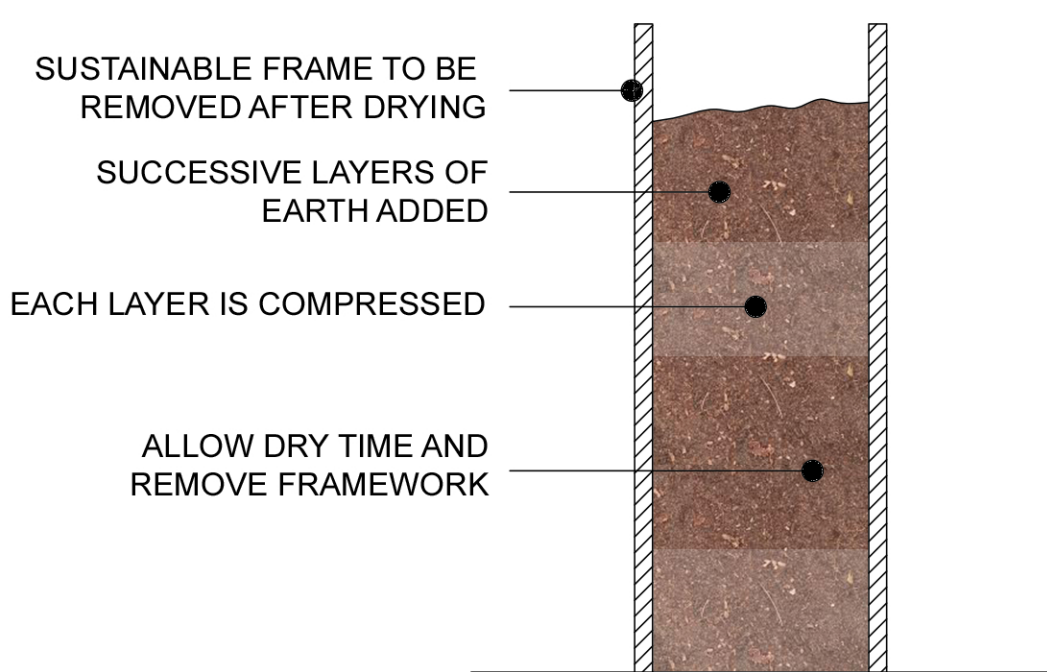
RAMMED EARTH



PLAN

DESIRED FEATURES:

- GATHERING SPACE
- PRIVATE SPACE
- INDIRECT & DIRECT SUNLIGHT
- ENTRYWAY
- VENTILATION
- MODULARITY



TYPICAL WALL SECTION



SECTION

Raw Materials: Local Timber and Earth



Balanites aegyptiaca
(Desert Date)

Can be used to create stick-style structures in addition to its bark serving as a sheathing material. The desert date holds medicinal properties and its fruit and leaves can be used for food. Lastly, one can use its branches to fence properties in camps.



Aningeria adolfi-friederici tree

The Aningeria adolfi-friederici tree is often utilized in household applications including most notably timber. Mainly the tree's trunk provides lumber for most uses such as joinery, flooring, paneling, plywood, and veneer. The tree's fruits are also a means of food.

Available Processed Materials



Concrete

Oftentimes produced in cities, this resourceful, material allows for solid construction and quick production. The material lends itself to reinforcement if necessary. The drawback associated with concrete and cement are their reliance on heat.



Stabilized Soil Brick (SSB)

The vernacular cousin to the concrete masonry unit (CMU) allows for strength and high design flexibility. The stabilized soil bricks are modular and economical. They also can be assembled without mortar and are more sustainable than fired bricks.



Cordia millenii tree

The wood of the Cordia millenii is often traded as 'Cordia wood' or 'pooli'. Used for construction, joinery, interior trim, shingles, and paneling; in addition to the production of furniture, musical instruments, toys, utensils, tools, and veneer.



Rammed Earth

Local soil can be utilized in the production of building materials. The earth is first compacted and lends itself to the formation of party walls, structures, and supports. It is a plentiful resource, but production requires



Iron

Often used as an efficient means of reinforcement, this light, but strong metal adds strength to formwork. Unfortunately, iron will eventually rust, but in the given situation, this property can be ignored.



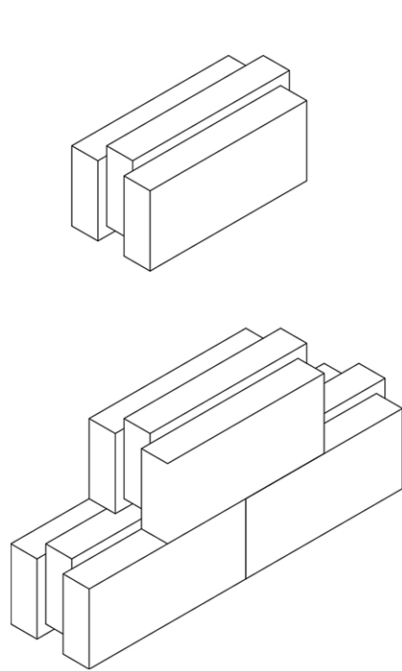
Adobe Bricks

Similar to SSB's, Adobe bricks are a vernacular solution to the standard brick. They utilize earth and act as components of a modular system. They require firing and due to this, offer a constraint in the conflict zone.

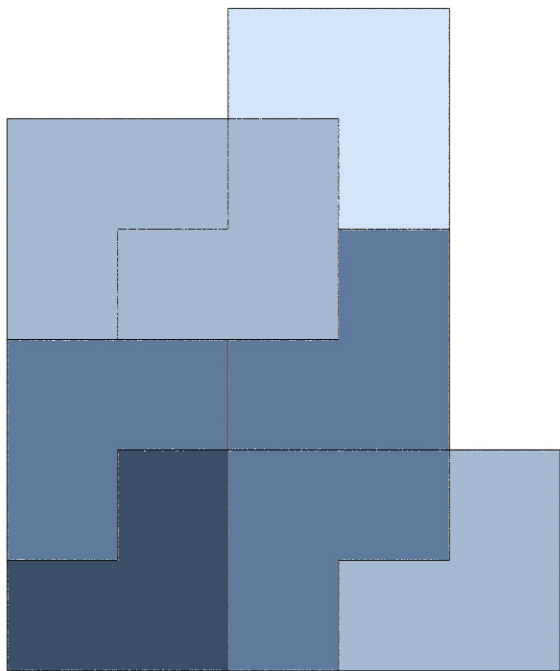
	Vertical Walls	Round Walls	Dome	Flat Roof	Gable Roof	Cost	Lifespan	Manufacturing Origin
Brick				N/A	N/A	\$14.10 / ft²	≥ 100 Years	Import
Stabilized Soil Brick (SSB)				N/A	N/A	\$6.60 / ft²	≥ 100 Years	Local
Timber		N/A				≥ \$84.00 / ft²	≥ 100 Years	Local
Earth				N/A	N/A	\$30.00 / ft²	≥ 1,000 Years	Local
Steel			Possible: Panel-construction with supports			\$14.00 / ft²	100 Years	Import
Concrete						≥ \$3.25 / ft²	≤ 100 Years	Potentially Local

SSB Modular Design	Rounded Structure
STRAIGHTFORWARD CONSTRUCTION	COMPLEX CONSTRUCTION, MAY REQUIRE SKILLED LABOR
LOCALLY SOURCED MATERIALS	NOT ENTIRELY CONSTRUCTED WITH LOCALLY SOURCED MATERIALS
UNSKILLED LABOR	LESS EFFICIENT BECAUSE OF THE NEED FOR A FRAME
COST EFFECTIVE	MORE EXPENSIVE
CONDUCTIVE TO MODULAR CONSTRUCTION & FLEXIBLE DESIGNS	NOT CONDUCTIVE TO MODULARITY
MINIMAL SHIPPING COSTS	MAY REQUIRE OVERSEAS ASSEMBLY, AND FURTHER SHIPPING COSTS
SIMPLE, ORTHOGONAL FORMS THAT DO NOT ENTIRELY LEND THEMSELVES TO BIOMIMICRY	CAN ALLOW FOR MORE COMPLEX STRUCTURES THAT EXEMPLIFY FORMS OF BIOMIMICRY
SEMI-PERMANENT STRUCTURES	SEMI-PERMANENT STRUCTURES

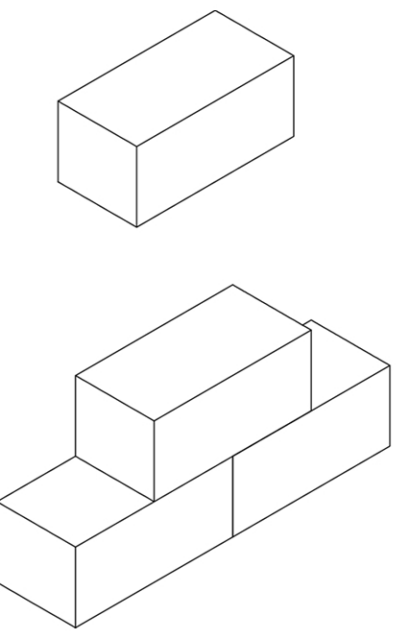
STABILIZED SOIL BLOCKS



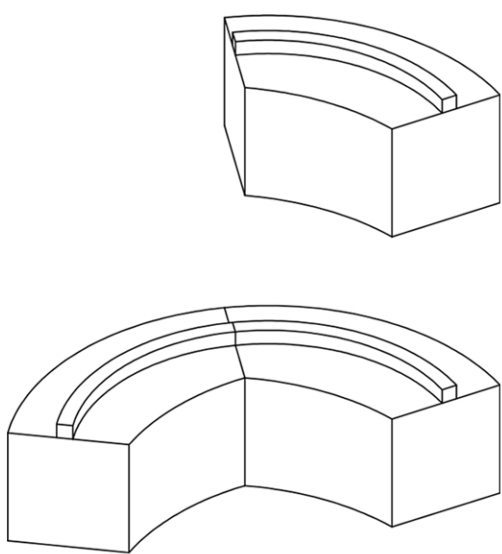
STRAIGHT INTERLOCKING



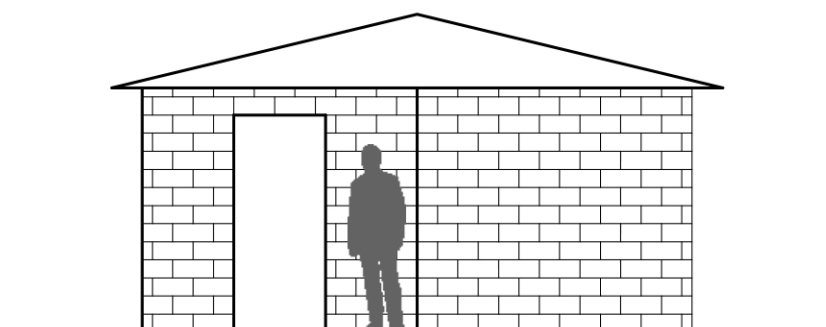
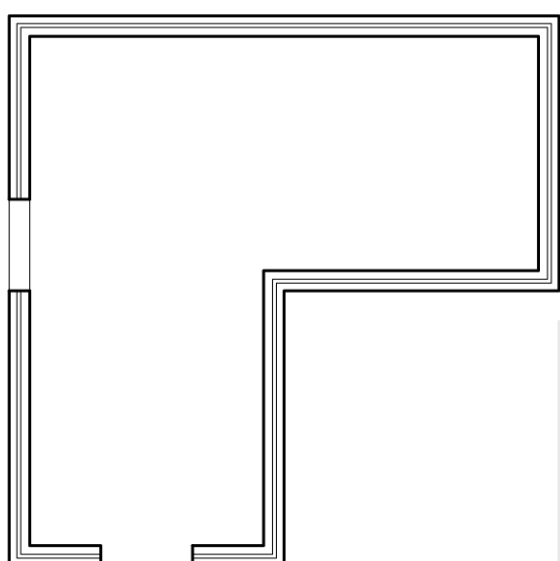
Units can be continuously expanded



STRAIGHT NON-INTERLOCKING



CURVED INTERLOCKING



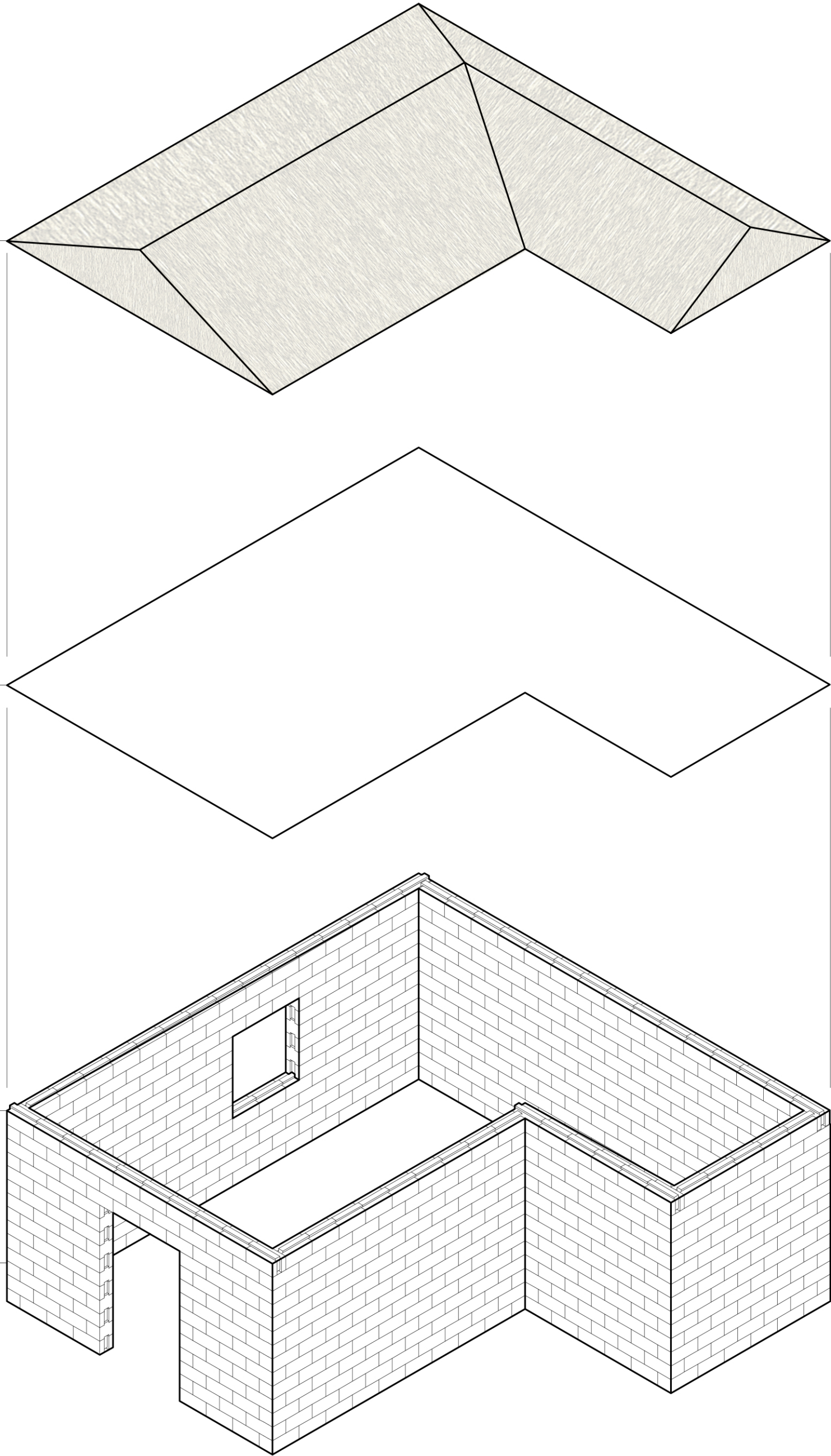
PLAN & ELEVATION

LOW-SLOPE, THATCHED ROOF UTILIZED LOCAL MATERIALS, VERNACULAR CONSTRUCTION, AND ALLOWS FOR WATER SHED

SYSTEM OF ANCHORING ROOF TO BLOCKS

MODULAR BLOCKS ALLOW FOR PUNCHED OPENINGS

L-SHAPE ALLOWS FOR RECONFIGURATION OR UNION BETWEEN TWO OR MORE UNITS



EXPLODED AXONOMETRIC