

Company Profile

Company: Tafari Engineering

Established: 21 June, 2020

Registered: 28 December, 2023

Industry: Engineering, Manufacturing, Construction

Motto: Innovating For Life

Founder: Brian Osende Mw'Afrika

Location: Kitukutwe, Kira, Wakiso, Uganda, East Africa

Contact: +256-200923368

Vision

Use engineering knowledge, exploration, and available resources to create environmentally friendly cost effective solutions to housing in Uganda and East Africa.

Mission

To deliver sustainable, affordable, and high-quality construction products and services across the East African region. Our focus is on producing innovative interlocking blocks and constructing modular homes that address the rising costs of construction and meet the growing demand for efficient, eco-friendly building solutions.

Products

1. Tafari Interlocking Block (TIB)

The Tafari Interlocking Block (TIB) is a 300 x 150 x 150 mm (12x6x6 Inches) block that does not require mortar for wall construction. 40-50mm steel pipes are used for wall reinforcement. It can be made from mortar mix (cement and stone dust), fired earth blocks, and waste plastic. The design of the block allows for efficient construction with provisions for conduit and plumbing channels.

2. Tafari Modular Construction (TMC)

This is a construction style for building walls and houses using TIBs with a modular concept incorporated. These walls and houses are assembled and can be disassembled without loss of material.

This allows for the ability to expand and shrink a wall or unit or room hence the modularity.

Tafari Interlocking Block (TIB)

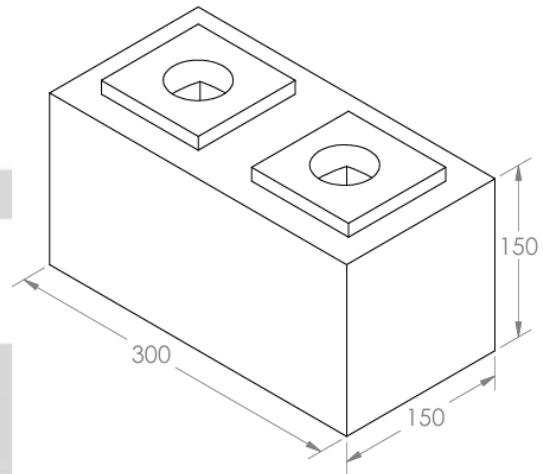
Specifications

Composition: Cement & Stone Dust

Dimensions: 300 x 150 x 150 mm (12 x 6 x 6 In)

Dry Weight: 10 Kgs (22 lbs)

Compressive Strength: 8.6 MPa



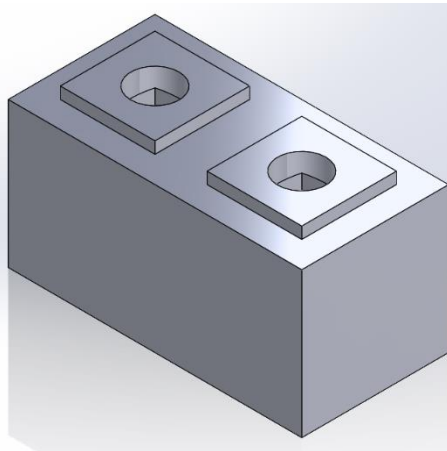
Price: Ugx. 1,500/Block

Introduction

The Tafari Interlocking Block (TIB) is a masonry block developed with the goal of reducing the cost of constructing walls in Uganda by eliminating or reducing the need to use mortar when joining blocks and allowing for modular walls that can be easily changed without destruction to the blocks. This is achieved by using a Square – into – Square lock method and interlocking the blocks with one another when assembling the wall. Applying a slurry mix of mortar at the block joints makes the wall permanent.

The blocks are locked in the X and Y axes as the lock restricts movement in either direction. The friction between the blocks combined with the weight of the blocks locks them in the Z axis. For reinforced locking and strength, 40-50mm steel pipes reinforced with concrete can be woven through the blocks.

The 50mm (2 Inch) hollow section allows for the integration of electrical conduits and plumbing without the need to break the wall.



Tafari Interlocking Block (TIB) Benefits

1. Reduced Mortar Use

The TIB eliminates the need to use mortar while constructing a wall, or a small slurry mix applied to make the wall permanent. Mortar is needed to secure the first layer of blocks. This reduces the use of mortar by over 90% in constructing the wall.

2. Reduced Construction Time

The TIB greatly reduces the time needed to construct a wall by over 90%. Using traditional blocks and construction methods, a lot of time goes into letting the mortar set to allow construction to continue. The TIB is assembled, and hence doesn't need setting time to allow for construction to continue.

3. Reduced Labor Expense

The TIB is designed to be easily assembled hence eliminating the need for trained personnel in wall construction. The locking design auto centers the block and eliminates the need of leveling the block row on every step. And time also being part of the labor cost, the labor is greatly reduced by over 80%.

4. Simplified Wall Calculation

The TIB's dimensions (300 x 150 x 150mm/12 x 6 x 6 Inches) are designed like that to make it easy for one to calculate how many blocks a wall needs. One block covers 0.5 ft² of wall surface area making it easy to calculate the number of blocks needed.

5. Reduced Need for Plaster Mortar

The TIB has smooth walls and combined with the fact no mortar is used between the blocks, a smooth wall is erected which requires little to no plaster mortar. 1-2 inches of plaster is usually applied on either side of walls. But with using the TIB, the plaster mortar can be sprayed on as a thin layer of about 0.25 inches, sufficient to seal any gaps and produce a much smoother plaster resulting in over 80% savings.

6. Eliminated Construction Waste

The TIB has a direct impact on the reduction of construction waste by making it easy to change a wall without losing the material that made the wall, hence the modular effect. Changing a wall is as easy as disassembling the wall and reassembling it. Wastage in construction accounts for over 15% of construction expenses, but the TIB brings it to near zero.

7. Earthquake Safe

Interlocking blocks are the best option for earthquake zones. Due to the fact they are assembled and not bound together by mortar, when an earthquake occurs, the blocks settle and the energy dissipates by the gaps between the blocks. This saves the entire wall from collapsing due to lack of an energy dissipation.

8. Light Weight

The TIB is a relatively light block when compared to other interlocking blocks on the market. Most interlocking blocks, made from a concrete mix, are solid, and if hollow, only less than 10% of the blocks volume and hence weight is eliminated. The TIB is made with crevices that reduce the volume and hence weight of the blocks by 38.4%.

9. Affordable Quality

Due to the over 38% reduction in volume of the block, this translates to reduced material used in making the block making it affordable. The TIB still meets and exceeds the standard block strength of 3.5 MPa. The TIB achieves over 8.6 MPa of compressive strength (See Attached Lab Test Results).

10. Improved Logistics

The lightweight nature and design of the TIB makes it easier to transport hence reducing logistical costs incurred in the transportation of the material. More blocks can be loaded on a vehicle without stressing the vehicle compared to other solid blocks.

The TIB weighs 10 kgs (22 lbs), easy to use when calculating how much a vehicle can carry based on its tonnage.

11. Easy Handling

The design of the block allows for easy handling due to the light weight and spacing between the two circular openings at the top. One only needs one hand to lift it without straining their hands or arms.

12. Plumbing and Electrical Openings

The 50mm (2 Inch) hollow crevices in the TIB are designed as such to allow for the integration of electrical conduits and plumbing without the need to break the wall.

Electrical conduits and plumbing can be routed through the wall without breaking the wall to create their space. This eliminates both waste, time wastage, redoing work and creates an organized format knowing where the utilities run.

Summary

The TIB has been designed to reduce the cost of house construction, hence the cost of housing in Uganda. When aggregated, the advantages stated above, make the TIB achieve over 40% in reduced construction costs when compared to similar material that does the same job.

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F/TR/08

ISSUE 02

GETLAB LTD
 YOUR RELIABLE ENGINEERING LABORATORY
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 Email: info@getlab.co.ug
 Web: www.getlab.co.ug

TEST CERTIFICATE

CLIENT: M/S Tafari Engineering
 Kampala Uganda

PROJECT: SELF ASSESSMENT

Narrative Description:

One (1) set of Hollow blocks (No.3) were tested at the laboratory after the specified days.

Issue Date: 18-Nov-24

Serial No: P2024324-01

Test Report: GETL/TR/TE/24/01
 Location: Kampala

Received Date: 18-Nov-24
 Test Date: 18-Nov-24

ULTIMATE COMPRESSIVE STRENGTH OF PRECAST CONCRETE MANSORY UNITS												
BS 6073-2:2008: Testing Precast Concrete Mansory Units.												
Hollow Block (300x150x150mm)			Block Volume : 0.00375 m ³			Block Area 0.025 m ²						
SNo.	Sample Ref.	Client's Ref.	Concrete Class	Date		Age (Days)	Weight	Density	Crushing Load	Ultimate Compressive Strength	Mean Strength	Remarks
				Casting	Testing		(kg)	(kg/m ³)	(kN)	(MPa)	(MPa)	
1	G/BL/24/5726	HOLLOW BLOCK (300*150*150mm)	NS	NS	18-Nov-24	>28	10.30	2746.7	239.9	9.6	8.6	Average block strength meets class 2.8, 3.5, 5.0 and 7.0 Mpa
2	G/BL/24/5727			NS	18-Nov-24	>28	10.12	2698.7	182.7	7.3		
3	G/BL/24/5728			NS	18-Nov-24	>28	10.58	2821.3	223.7	8.9		

Prepared by:

Laboratory Engineer(J.B.)

Checked by:

Senior Laboratory Engineer(O.T.A.)

Approved by:

Technical Manager (Eng. Dr. G.B.)

classes of blocks	2.8	3.5	5.0	7.0
	10	15	20.0	25.00

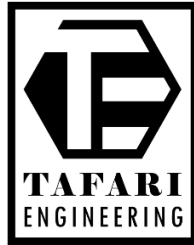
Notes:

1. DISCLAIMER-The results provided herein apply only to the samples that were tested
2. This test report shall not be reproduced except in full, without written approval of the laboratory
3. Interpretation of the results will be made at the request of the client/customer
4. NA-Not Applicable
5. NS-Not Specified



Certificate No. KENAS/TL/089

-----END OF TEST CERTIFICATE-----



Innovating for Life

Wall Construction Comparison

Item	Tafari Interlocking Block	Regular Hollow Blocks
Specifications	12 x 6x 6 Inches 300 x 150 x 150 mm 8.6 MPa	14 x 6 x 8 Inches 400 x 150 x 200 mm 2.5 - 5.5 MPa
Price	Ugx 1,500	Ugx. 2,300
Costs/SQM		
Units	22 Blocks 33,000	12 Blocks 28,000
Cement	500	9,000
Sand	150	2,000
Water	10	200
Labour	2,500	9,000
Conduits	100	2,000
Waste	240	6,000
Cost per SQM	Ugx. 36,500	Ugx. 56,200

Savings: Ugx. 19,700 (35%)

Tafari Interlocking Blocks are efficient, easy to use, and provide great utility without compromising strength.

Tafari Interlocking Blocks waste less than 2% of material compared to the industrial average of 10-15%.

Tafari Interlocking Blocks provide a path for conduits and plumbing without breaking the wall.



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Tafari Construction Services

Perimeter Wall Construction
Residential Wall Construction
Commercial Wall Construction

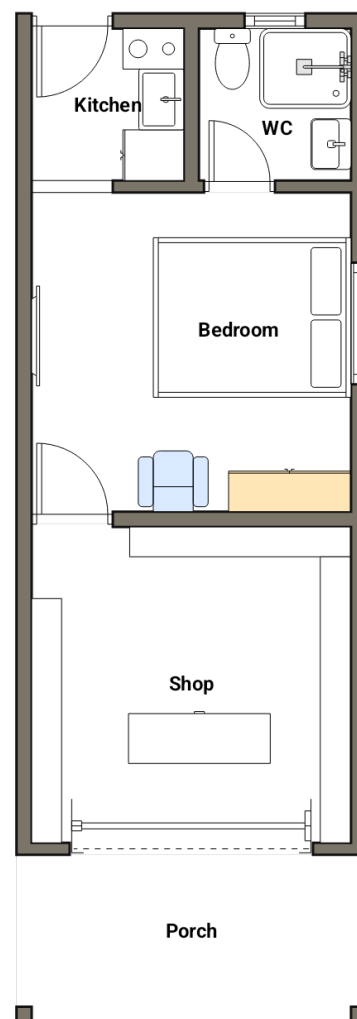


Perimeter Wall Construction

Wall Length (8 ft High)	Blocks	Wall Cost
100 ft (30 m)	1,760	Ugx. 7m
200 ft (60 m)	3,520	Ugx. 14m
50x100 Plot (285 ft/87 m)	5,020	Ugx. 18m
100x100 Plot (385 ft/117 m)	6,800	Ugx. 25m

Tafari Shops

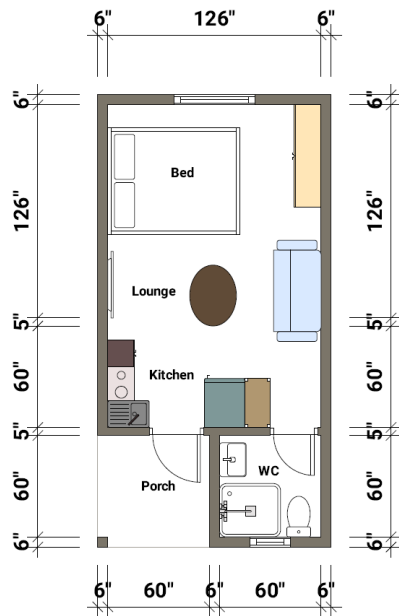
Type	Space	Cost
Shop Front 162 SFT/15 SQM	Shop Porch	Ugx. 14m \$3,800
Self-Contained Shop 215 SFT/20 SQM	Shop, Wash Closet Kitchenette	Ugx. 22m \$5,900
Studio Shop 325 SFT/30 SQM	Shop, Bedroom, Wash Closet, Kitchen	Ugx. 29m \$8,000



Affordable House Construction

Type	Cost	View
Studio Cottage 200 SFT/19 SQM Bed Area Bathroom Lounge Kitchen	Ugx. 25m \$6,900	
1 Bedroom 1 Bathroom 300 SFT/28 SQM 1 Bedroom 1 Bathroom Lounge Kitchen	Ugx. 35m \$9,600	
2 Bedroom 1 Bathroom 500 SFT/47 SQM 2 Bedroom 1 Bathroom Lounge Kitchen	Ugx. 45m \$12,300	
3 Bedroom 2 Bathroom 600 SFT/56 SQM 3 Bedroom 2 Bathroom Lounge Kitchen	Ugx. 60m \$16,400	
4 Bedroom 2 Bathroom 750 SFT/70 SQM 4 Bedroom 2 Bathroom Lounge Kitchen	Ugx. 70m \$19,200	

Studio Cottage



- Name:** One Bedroom Studio Cottage
- Floor Space:** 200 SQF/19 SQM
- Sections:** 1 Bedroom, 1 Bathroom, Lounge, Kitchen, Porch
- Walls:** Interlocking Blocks
- Roof/Style:** Corrugated Iron Sheets/Hidden
- Foundation:** Permanent/Modular
- Doors:** Steel Front Door/Wood W/C Door
- Windows:** Steel Windows
- Included:** Plumbing, Electrical, Water Tank, Painting, Sewer, Cabinets
- Not Included:** Land, Permits, Logistics, Furniture
- Price:** Ugx. 25m \$6,900

Description

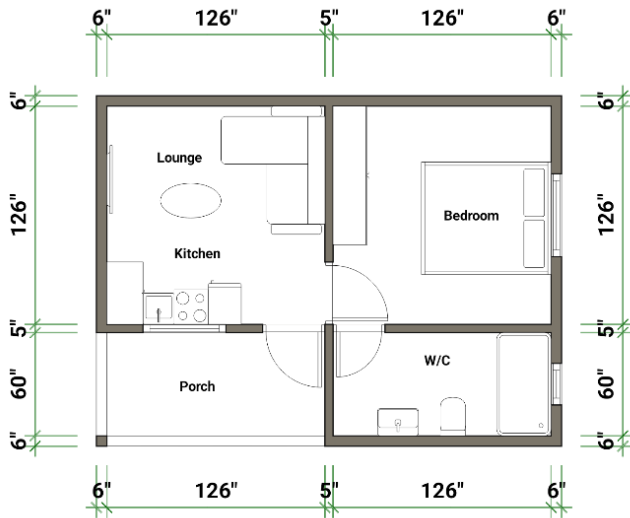
The 200 sq ft (19 sqm) one-bedroom studio cottage is a perfect blend of efficiency and charm. Built with interlocking blocks, the structure boasts a robust and eco-friendly design, providing excellent insulation and durability. The modular construction method not only ensures a sturdy and weather-resistant home but also offers remarkable flexibility for future expansion.

The interior is thoughtfully laid out to maximize the use of space, featuring a cozy bedroom area, a compact yet functional kitchen, and a well-appointed bathroom. A large window for natural light, making the space feel airy and inviting. The modular design allows for future additions and edits, should you wish to expand or customize your living area down the line.

This studio cottage is an ideal choice for those seeking a minimalist lifestyle with the potential for future growth. Its innovative construction and adaptable design ensure it will remain a cherished home for years to come.



1 Bedroom 1 Bathroom



Name:	1 Bedroom 1 Bathroom Unit
Floor Space:	300 SQF/28 SQM
Sections:	1 Bedroom, 1 Bathroom, Lounge, Kitchen, Porch
Walls:	Interlocking Blocks
Roof/Style:	Corrugated Iron Sheets/Hidden
Foundation:	Permanent/Modular
Doors:	Steel Front Door/Wood BD & W/C Door
Windows:	Steel Windows
Included:	Plumbing, Electrical, Water Tank, Painting, Sewer, Cabinets
Not Included:	Land, Permits, Logistics, Furniture
Price:	Ugx. 35m \$9,600

Description

Step into this thoughtfully designed 300 sq ft (28 sqm) one-bedroom, one-bathroom apartment, where modern convenience meets future-ready flexibility. Constructed with durable interlocking blocks, this apartment offers superior insulation and resilience, ensuring a comfortable living environment in any weather.

The modular design of the apartment not only guarantees a robust structure but also provides the flexibility for future expansion as your needs evolve. This includes a well-planned layout with a kitchen, plumbing, and electrical works, cabinets, closet, a water tank, and a sewer. With its contemporary finishes and efficient use of space, this apartment is perfect for those who appreciate both comfort and adaptability.



2 Bedroom 1 Bathroom



Description

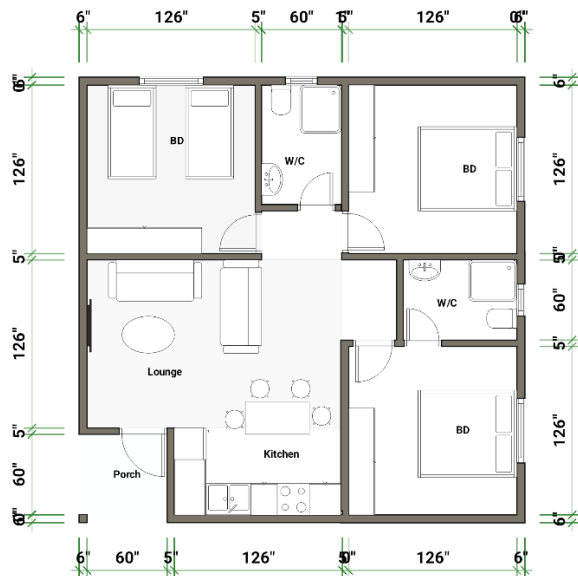
Welcome to your ideal compact living solution: a thoughtfully designed 500 sqft (47 sqm) 2-bedroom, 1-bathroom apartment. This modular gem combines efficiency with future potential, built with durable interlocking blocks to ensure both stability and aesthetic appeal. The innovative modular design not only offers immediate comfort but also allows for seamless expansion as your needs evolve. Step inside to find a well-appointed kitchen and lounge area that maximizes space and functionality. The apartment comes complete with essential amenities, including fully integrated plumbing, electrical systems, and a water tank, ensuring a move-in ready experience.

This apartment offers a perfect balance of modern convenience and flexibility, making it an excellent choice for those seeking a compact yet expandable living solution.

- Name:** 2 Bedroom 1 Bathroom Unit
- Floor Space:** 500 SQF/47 SQM
- Sections:** 2 Bedrooms, 1 Bathroom, Lounge, Kitchen, Porch
- Walls:** Interlocking Blocks
- Roof/Style:** Corrugated Iron Sheets/Hidden
- Foundation:** Permanent/Modular
- Doors:** Steel Front Door/Wood BD & W/C Door
- Windows:** Steel Windows
- Included:** Plumbing, Electrical, Water Tank, Painting, Sewer, Cabinets
- Not Included:** Land, Permits, Logistics, Furniture
- Price:** Ugx. 45m \$12,300



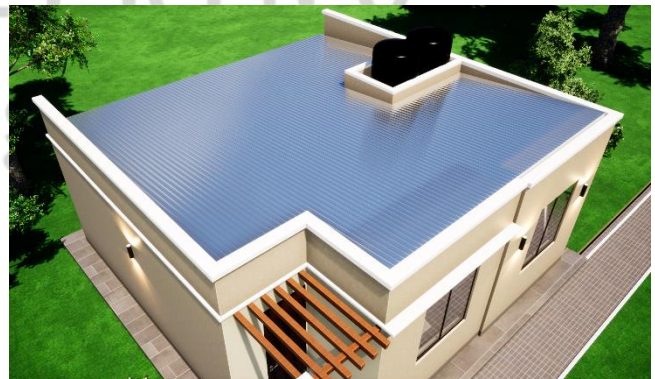
3 Bedroom 2 Bathrooms



Name:	3 Bedrooms 2 Bathrooms Unit
Floor Space:	600 SQF/56 SQM
Sections:	3 Bedrooms, 2 Bathrooms, Lounge, Kitchen, Porch
Walls:	Interlocking Blocks
Roof/Style:	Corrugated Iron Sheets/Hidden
Foundation:	Permanent/Modular
Doors:	Steel Front Door/Wood BD & W/C Door
Windows:	Steel Windows
Included:	Plumbing, Electrical, Water Tank, Painting, Sewer, Cabinets
Not Included:	Land, Permits, Logistics, Furniture
Price:	Ugx. 60m \$16,400

Description

Discover the perfect blend of modern living and future flexibility with this 600 sqft (56 sqm) apartment. Featuring 3 bedrooms and 2 bathrooms, this well-designed space includes a kitchen, lounge, and dining area, all crafted to maximize comfort and functionality. Built with durable interlocking blocks, the apartment boasts both strength and a contemporary aesthetic. The modular construction allows for easy expansion, so you can adapt and grow as your needs change. Move-in ready, the apartment comes fully equipped with essential amenities: complete plumbing, electrical systems, a water tank, and built-in closets. This home offers not just a stylish living space but also the potential for future enhancements, making it a versatile choice.



4 Bedroom 2 Bathrooms



Name:	4 Bedrooms 2 Bathrooms Unit
Floor Space:	750 SQF/70 SQM
Sections:	4 Bedrooms, 2 Bathrooms, Lounge, Dining, Kitchen, Porch
Walls:	Interlocking Blocks
Roof/Style:	Corrugated Iron Sheets/Hidden
Foundation:	Permanent/Modular
Doors:	Steel Front Door/Wood BD & W/C Door
Windows:	Steel Windows
Included:	Plumbing, Electrical, Water Tank, Painting, Sewer, Cabinets
Not Included:	Land, Permits, Logistics, Furniture
Price:	Ugx. 70m \$19,200

Description

Welcome to this spacious 750 sqft (70 sqm) apartment, designed for both comfort and future flexibility. This well-planned residence features 4 bedrooms and 2 bathrooms, complemented by a generous kitchen, lounge, and dining area.

Constructed with robust interlocking blocks, the apartment combines durability with a modern aesthetic. Its modular design ensures that you can easily expand the space to meet future needs, offering both immediate functionality and long-term versatility.

Fully move-in ready, the apartment includes essential amenities: complete plumbing, electrical systems, a water tank, and built-in closets. This home is not only ready to accommodate your current lifestyle but also adaptable for future growth, making it a smart and stylish choice for any family.

