

[Watch Webinar Recording Here](#)



Eco-brick Sisters: Engineering, Sustainability and Entrepreneurship

Thursday, 25 November 2021 | Technical Topic Webinar

Presented By

Ms. Kekeletso Tsiloane | Chief Operations Officer, Ramtsilo Manufacturing and Construction
Ms. Kedibone Tsiloane | Chief Executive Officer, Ramtsilo Manufacturing and Construction

Common questions/FAQs

Copy of slides/video recording

- Everyone registered for this webinar will receive a copy of the PDF slides and a link to the video recording within the next two business days via email. Please monitor your junk email folder.

Certificate of Attendance

- We provide a free, digital certificate of attendance for live attendees for technical topic webinars. There will be a link/QR code to a short form/survey provided at the end of this session which you need to complete in order to receive one. Once completed, we'll endeavor to send your certificate to you within the next two business days.

We are dedicated to ensuring that you receive a world-class education and gain skills that you can immediately implement in the workforce.



World-Class Australia Accredited Education

Our vocational programs and higher education degrees are registered and accredited by the Australian Government. We have programs that are also recognized under three international engineering accords.



Engineering Specialists

EIT is one of the only institutes in the world specializing in Engineering. We deliver professional certificates, diplomas, advanced diplomas, undergraduate and graduate certificates, bachelor's and master's degrees, and a Doctor of Engineering.



Industry Experienced Lecturers

Our lecturers are highly experienced engineers and subject specialists with applied knowledge. The technologies employed by EIT, both online and on-campus, enable us to source our lecturers from a large, global pool of expertise.



Industry Oriented Programs

Our programs are designed by industry experts, ensuring you graduate with cutting-edge skills that are valued by employers. Our program content remains current with rapidly changing technology and industry developments.



Unique Delivery Model

We deliver our programs via a unique methodology that makes use of live and interactive webinars, an international pool of expert lecturers, dedicated learning support officers, and state-of-the-art technologies such as hands-on workshops, remote laboratories, and simulation software.

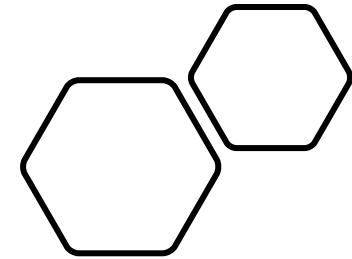
Agenda

- 1 Welcome & Introduction
- 2 About Kedibone, Kekeletso, and Ramtsilo Manufacturing and Construction
- 3 The Problem
- 4 A Solution – Plastic Bricks
- 5 Conclusion and Q&A



ECO-BRICK

Sustainable solution to a long term problem.



RAMTSILO

Welcome to the home of the
Plastic Bricks



About Us

Ramtsilo is owned by sisters, **Kekeletso** who has a **Civil Engineering** background and **Kedibone Tsiloane** an Auditor by profession originally from **Sasolburg, Free State**.

Chief Operations Officer “Keke”

- Background in Civil Engineering,
- Completed a Business Incubator Program at North-West University,
- Passionate about taking care of the environment,
- Successfully managed a number of construction projects and
- Managed deliveries of bricks to local hardware stores.

Chief Executive Officer “Kedi”

- Background in finance Honors and a Certified Internal Auditor,
- Post-Graduate Diploma in Business Administration Wits Business School,
- Passionate about female empowerment and creating jobs
- Pioneering the certification of the Plastic Bricks by Agreement South Africa for non-standardize products.

Plastics have a vital role to play in the **Healthcare industry**.

Plastic packaging material in the **Food and Retail industry**.

Plastics have a vital role to play in the **Automotive Industry**

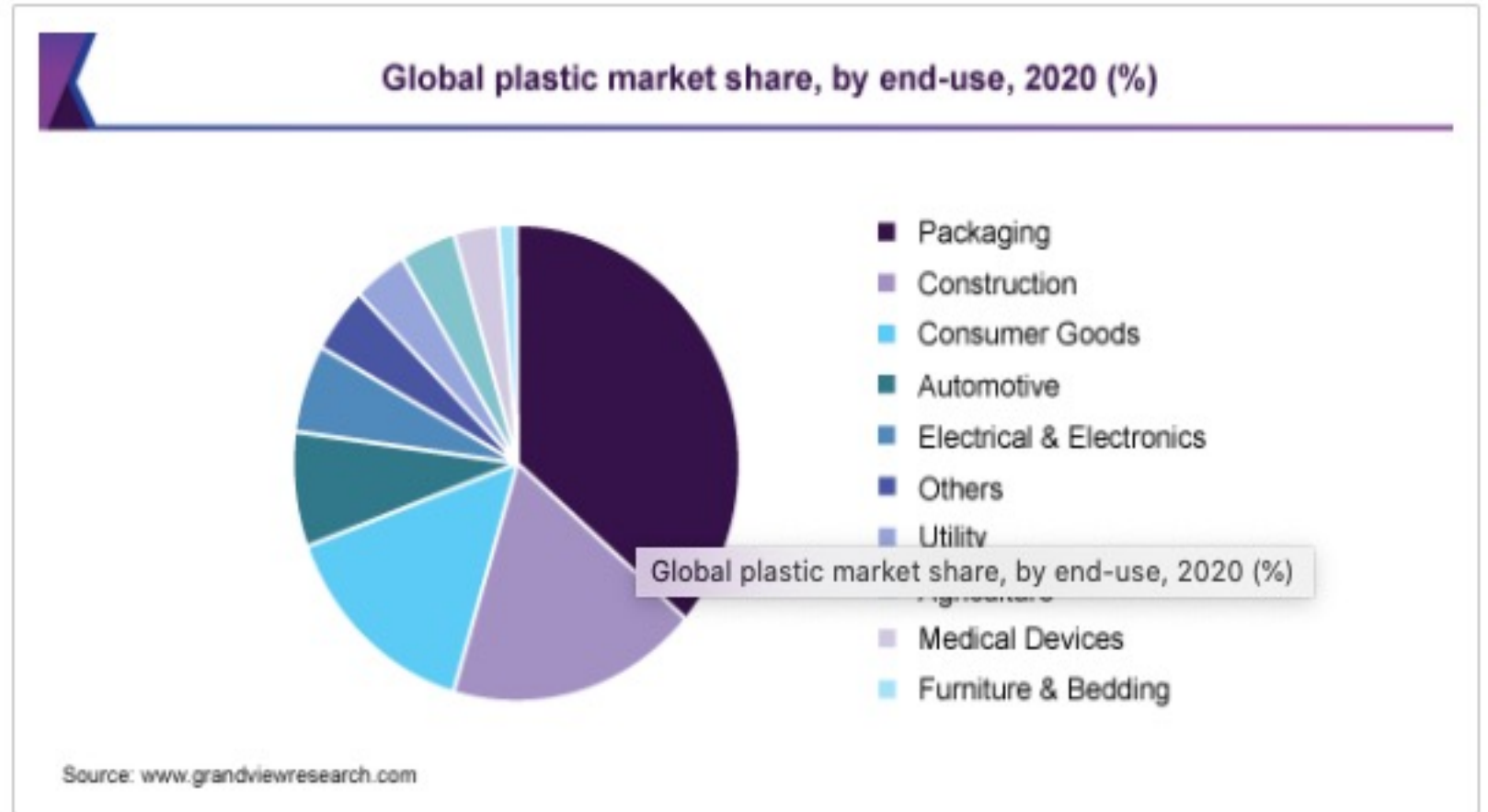
Plastics have a vital role to play in the **Construction/Infrastructure industry**

Plastics have a vital role to play in the **Electrical & Electronic industry**

Plastics have a vital role to play in the **Agriculture Industry**


Plastics have a vital role to play in the **ICT industry**

Plastics have a vital role to play in the **Furniture Industry**



**What role are you playing in the
Circular Economy?**

The Problem – South Africa



**7.2+ Millions
unemployed South
Africans**

**Growing Plastic
Pollution**

**Need for Housing, proper
sanitation and
Infrastructure**

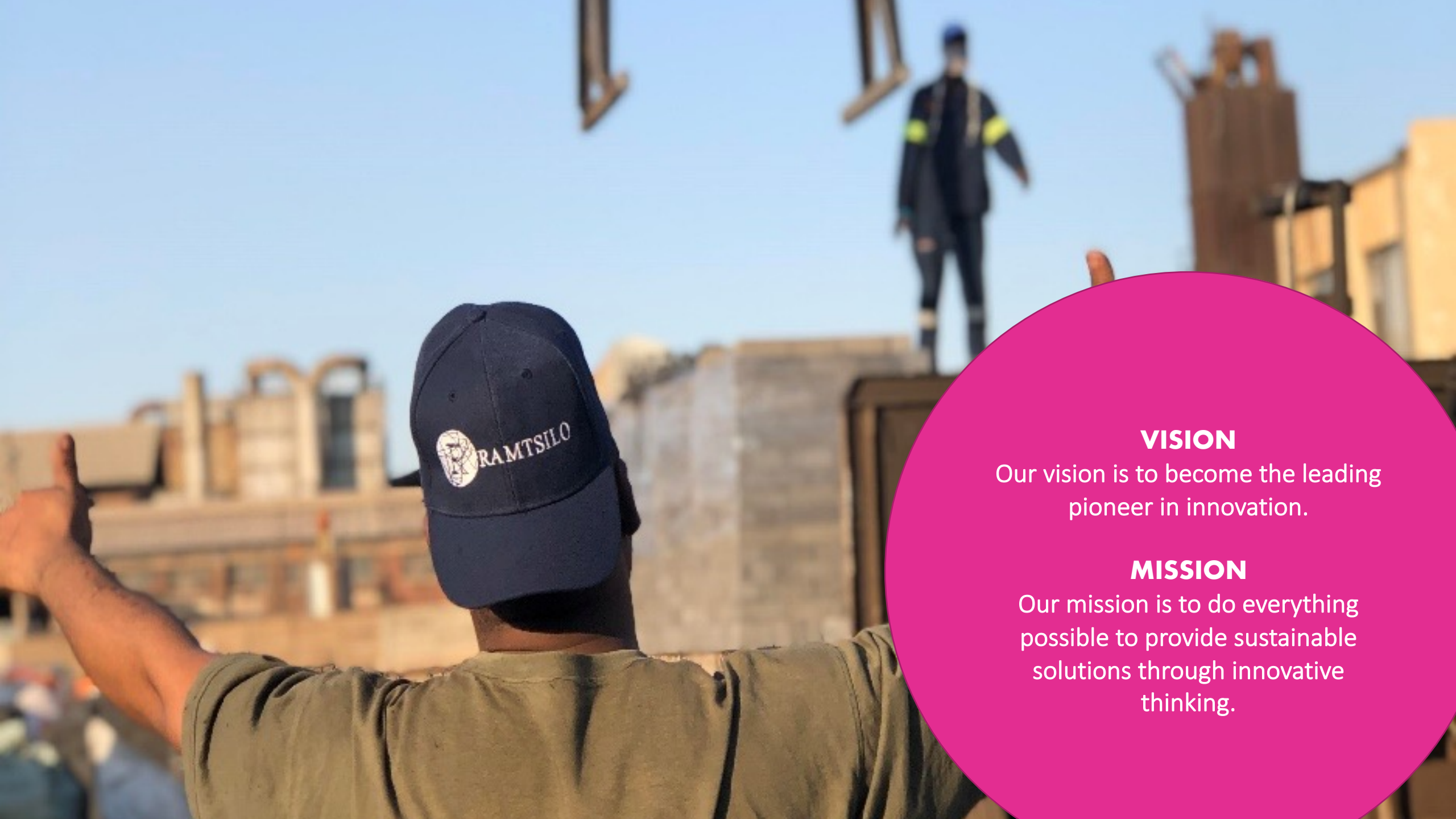
62%+ Unemployed youth

1.5M tons of plastic
consumed only 21% is
recycled

SA current national
shortfall of 2.1
million homes

SOLUTION: PLASTIC BRICK





VISION

Our vision is to become the leading pioneer in innovation.

MISSION

Our mission is to do everything possible to provide sustainable solutions through innovative thinking.



We are Guided by the following Principles;

❖ **Eliminate**

Eliminate all plastic from landfill and Oceans.

❖ **Innovate**

Innovate to ensure that the plastics we do need are fully recycled/upcycled.

❖ **Circular**

The bricks are able recycled when a building is demolished and reused in the Concrete industry.

PLASTIC BRICKS

Our Plastic Bricks comprise of 10% - 30% inert Plastic, Soil and Proprietary Additives to ensure effective fire resistance and high durability.

PRODUCT NAME:	STOCK BRICK	MAXI BRICK	PAVING BRICK
PRODUCT CATEGORY:	BRICKS	BRICKS	60/80mm PAVERS
DIMENSIONS (LxWxH):	210 X 105 X 70	290 X 140 X 90	200 X 140 X 60/80
COMPRESSIVE STRENGTH:	7 – 18 Mpa	7 – 18 Mpa	25-35Mpa
MOISTURE ABSORPTION:	2%	2-5%	2-5%
AVG WEIGHT:	2.5kg	5kg	2.5kg – 3.5kg
BRICKS PER PALLET:	500	250	480



PRODUCT & MATERIAL TESTING

- Material Characterization
- No Burning Of Plastic
- No Pyrolysis
- Cross Industrial Solution
- Net-Zero Circular Economy Model

SANS 10177-2 FIRE RESISTANCE TEST FOR BUILDING ELEMENTS COMPLIANT



TEST REPORT

Your ref: 43351
 Our ref: PPE/5488/20
 Enquiries: J Maswakeneng
 Tel: (012) 428 6010
 Report No: BCT-20910-00006
 Page: 1 of 7
 Date: 2020/09/10

SAMTSILO TRADING
 Attention: Ms. Kedibone Tsheane
 PO Box 2309
 Jeroelburg
 1949

FIRE TESTING OF MATERIALS, COMPONENTS AND ELEMENTS USED IN BUILDINGS
 SANS 10177 Part 2: 2005 "FIRE RESISTANCE TEST FOR BUILDING ELEMENTS"

1. OBJECTIVE OF TEST
- 1.1 The sample as described under section 2 of this report was tested in accordance with SANS 10177-2: 2005 "Fire resistance test for building elements"
- 1.2 The wall element as described under section 2 of this report achieved a fire resistance rating of 60 minutes. Where the addition of the measurement uncertainty to the calculated test results leads to an inconclusive statement of conformity, but the result is within the pass criteria of the specification, the outcome shall be stated as compliance.

CONCRETE MASONRY ASSESSMENT OF ACOUSTIC PERFORMANCE

PLASTIC BRICK

Page 9 of 10

Table 5-2 Result of Acoustic Evaluation. The system is Fit for Purpose in single-storey or multi-storey buildings for occupancy classes where minimum sound insulation requirements are met, as indicated in the right-hand Column. (There is no difference between the criteria for walls in single and multi-storey buildings.)

Occupancy	Building Type	Between Space 1	And Space 2	D nT,w dB Minimum	Comply Between Spaces	Fit for Purpose in Class
Composite Recycled Plastic Brick Building System						
W-Internal 2	140 mm Maxi Brick Plastered both sides			Est D nT,w = 50 dB		50
W-External 1	220 Stock Brick Plastered both sides			52 dB		dB
W-External 2	290 Maxi Brick Plastered both sides			55 dB		
A3	Schools + Instruction	Classrooms, offices, lib	Classrooms, offices Outside (External Walls)	42	YES	YES
A4	Places of Worship	N/A - No dividing walls	N/A - No dividing walls Outside (External Walls)	30	YES	
B2+B3	Commercial	Shops	Offices same tenancy Outside (External Walls)	37	YES	YES
D2+D3	Industrial	Workshops	Offices same tenancy Outside (External Walls)	30	YES	YES
F1	Shop Large	Shops	Offices same tenancy Outside (External Walls)	37	YES	YES
F2+F3	Shops Small	Shops & Offices	Offices same tenancy Outside (External Walls)	30	YES	YES
G1	Offices & Day Clinics	Offices	Offices other tenants	45	YES	YES
		Offices	Offices same tenancy	37	YES	
		Offices	Offices same tenancy	30	YES	
H1+H5	Hotel Hospitality	Bedroom	Bedroom	48	YES	YES
		Bedroom	Recreation	48	YES	
		Bedroom	Corridor, stairwell, laudy	48	YES	
		Bedroom	Foyer, Lounge	43	YES	
		Bedroom	Outside (External Walls)	30	YES	
H2	Dormitories	Dormitories	Other dormitories	37	YES	YES
		Bedroom	Bedroom	49	YES	

SANS 1215-2008 CONCRETE MASONRY UNIT COMPLIANT



COMPRESSIVE STRENGTH REPORT

Sample ID: 2945737 Client ID: Stock Brick Date: 20/07/21

Client: Ramtsilo Trading, 371 main Road, Bantem, Johannesburg, Gauteng, 1501.
 Project: Ramtsilo Trading
 Project No: S/18/001
 Comments: None

Specimen Size	Date Cast	Age (days)	Mass (kg)	Length (mm)	Breadth (mm)	Height (mm)	Force Applied (kN)	Strength (MPa)	Average (MPa)
Stock Brick	5/07/21	11	2396	210	100	70	127.2	5.1	
			2305	210	100	70	142.2	6.8	
			2490	210	100	70	202.6	9.7	
			2496	210	100	70	211.0	10.0	
			2495	210	100	70	197.8	7.5	
			2408	210	100	70	192.1	7.7	8.0
			2416	210	100	70	214.0	10.2	
			2100	210	100	70	115.6	5.5	
			2416	210	100	70	137.7	6.6	
			2399	210	100	70	200.1	9.0	

Specimens tested as per SANS 1215:2008

SANS 10400-XA: 2011 AND SANS 6946:2007 EDITION 1 AND ISO AMNDMENT 1

This report highlights some of the activities undertaken to assess the performance of the system.

Client	Ramtsilo Manufacturing & Construction
Item	Stock & maxi plastic brick walling system

The total thermal resistance (total R-value) of the walling system was determined via two methods:

1. Using DesignBuilder software [1]
2. Using the CIBSE/ISO 6946 [6] combined method for determining the thermal transmittance (U-value) for elements composed of bridged layers [3]

A further condensation analysis was conducted to determine whether condensation would occur inside the envelope fabric, and the possibility of condensation on interior surfaces.

The Ramtsilo plastic brick walling system was found to be fit for purpose in terms of thermal/energy and condensation performance in climatic zones 1, 2, 3, 4, 5 & 6. It was thus recommended for certification in climatic zones 1, 2, 3, 4, 5 & 6.



One big advantage of this technology is that it can use ALL plastics especially the “Problematic” hard to recycle plastics typically found in oceans and landfills.

The value created for the end user of the Plastic bricks:

- ❖ They use less water to manufacture and less water is used during construction,
- ❖ Have a higher compressive strength at a lesser cost,
- ❖ Are less porous thus requiring less building maintenance than conventional bricks,
- ❖ They are also fire-retardant and provide greater insulation and energy efficiency,
- ❖ The bricks have an industry leading low water absorption rate which entails minimal water penetration thus increasing the lifespan of a building
- ❖ Requires low maintenance translating into a cost saving.
- ❖ Cost effective; Competitively priced.





500KG OF PLASTIC WASTE



ONE 50 SQ METER HOME

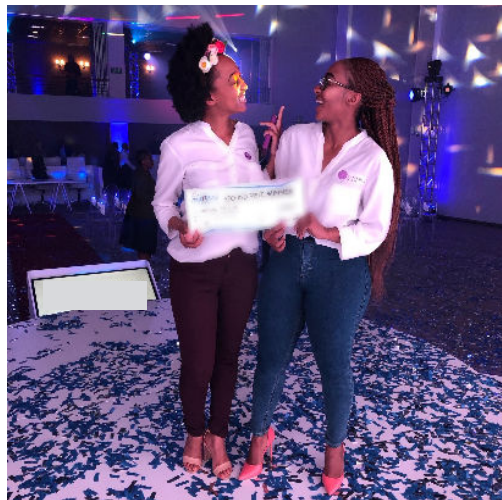
Achievements

We are proud recipients of the SAB Foundation 2019 Social innovation fund, Pitch&Polish, DBSA Youth Challenge.

We are also invited by the Department of Small Business to showcase our innovation to the President of South Africa.

Local and International Media coverage

We have been very fortunate in getting marketing opportunities through television and radio interviews on SABC, News Africa, China global television network, Lesedi Fm, Financial Mail, Radio2000, News24 as the “First Plastic brick Plant in South Africa”.



NIGERIANS IN SOUTH AFRICA Home News Covid-19 Live Updates Business

Home » Business » Self-funded sisters bring first plastic bricks to South Africa

Self-funded sisters bring first plastic bricks to South Africa

December 2, 2019 Comments 0 Adetunji Omotola

Self-funded sisters bring first plastic bricks to South Africa

Sisters introduce first plastic bricks in SA

17 December 2019

With the aim of reducing plastic waste, sisters Kedibone and Kekeletsso Pulane introduced PlastiBrick; an innovation that uses recycled plastic to manufacture sturdy, durable, fire retardant and environmentally friendly bricks.

Meet the sisters bringing the first plastic bricks to South Africa.

By Rudolph Nkgadima Dec 3, 2019

f t p w e in

Kedibone Refilwe Tsiloane and Kekeletsso Pulane Tsiloane from Sasolburg, Free State are bringing something brand new to South Africa - a plastic brick.

#SMEONPOINT

SABC NEWS

SISTERS TO BUILD PLASTIC BRICK MANUFACTURING PLANT IN SA

14:21 CAT

1:38 / 10:16

TV LESOGO MASOGA

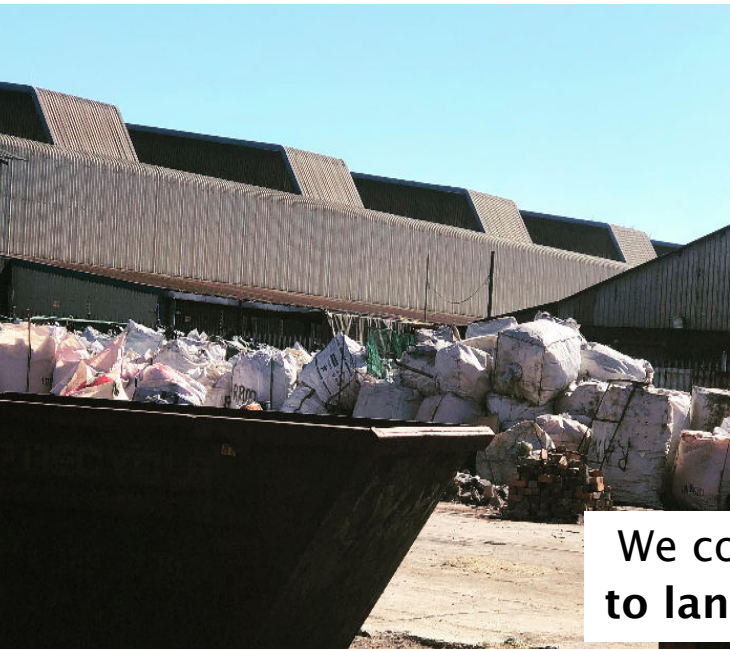
Building a strong FOUNDATION

These sisters are making bricks using recycled plastic and sand – now their environmentally-friendly products have won them an innovation award

ROWING up they were told they could...
prize at the SA Breweries Foundation Social Innovation Awards. "We've identified what's efficient... and what saves the...
product than bricks made from clay or cement, says Kedibone, who's an auditor by profession.

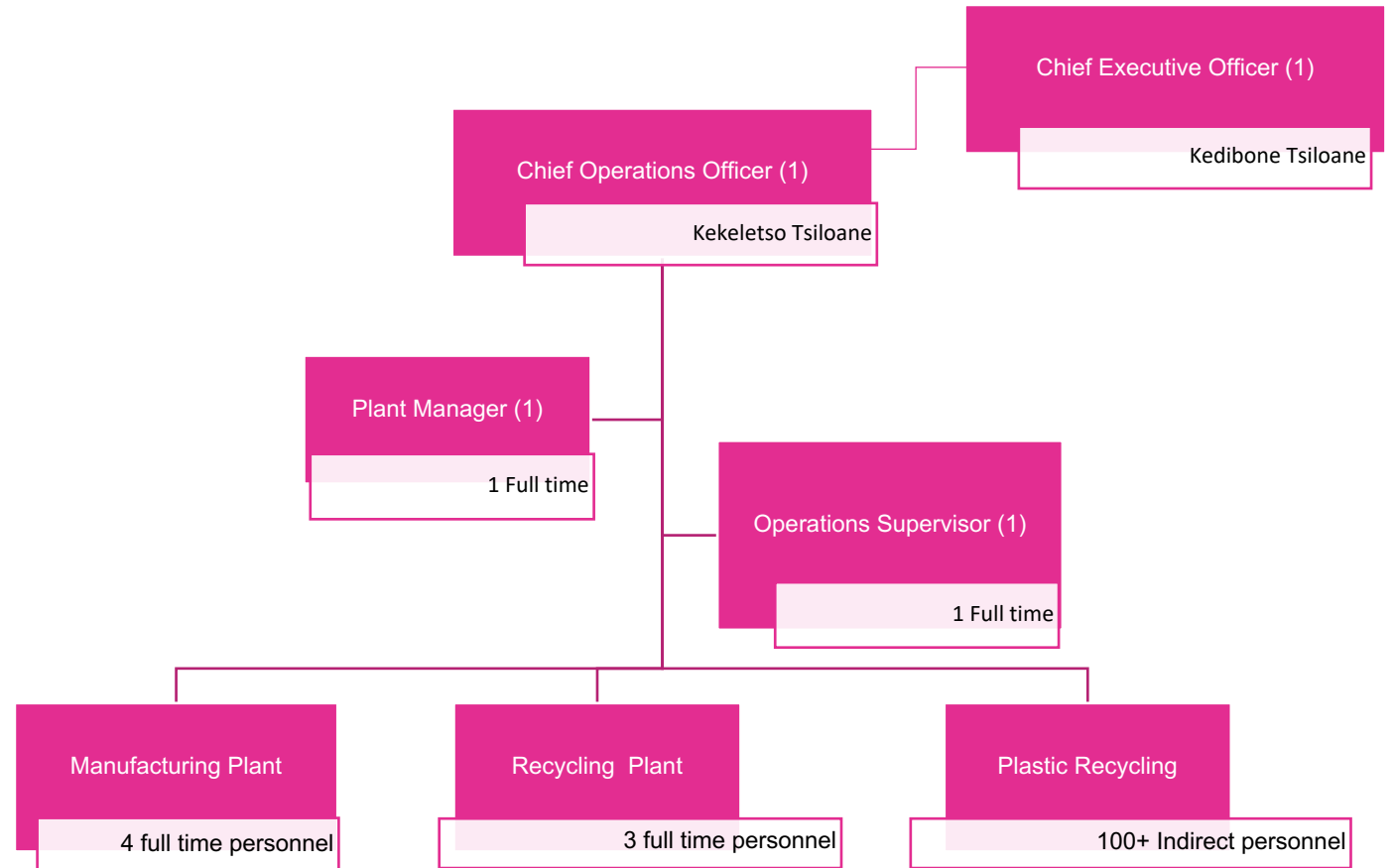


We collect, sort and recycle ALL TYPES of plastic waste on site to create a sustainable solution to the Plastic pandemic.



We constantly strive towards the principle of **ZERO WASTE** to landfill through innovation.

Direct and Indirect employment



Unsung Heros and Heroine

<u>Role of waste pickers</u>	<u>Working with Ramtsilo</u>
Save municipalities millions of Rands	Collect at a central point rather than bringing waste to us, lowering cost of transporting
More than 215k Collectors in SA	Boosting economic activity in the rural area
Collect more than 40% of recycled waste	Training on plastic collection, differentiation and sorting to help increase the value of their waste collected.
Street reclaimers often have to travel long distances and earn an average of less than R50 per day	Quotas for waste collected from women and youth
Separation outside source	Integration into the formal waste management process Donate Personal Protective Equipment





RAMTSILO Benoni Factory built using the Plastic bricks







Thank you for your time!



Free Webinar

Learning How to Learn

for Engineering Professionals

Presented by Barbara Oakley
Professor of Engineering

9.00AM - 10.00AM (AWST)
Thursday 9 December 2021

[Register Now](#)

CRICOS Provider Number: 03567C | Higher Education Provider Number: 14008 | RTO Provider Number: 51971



Upcoming webinars: <https://www.eit.edu.au/news-events/events/>

Upcoming EIT Courses

Course	Start Date
Graduate Certificates in Civil, Electrical, Mechanical, and Industrial Automation Engineering	03/01/2022
Master of Engineering degrees in Civil, Electrical, Mechanical, and Industrial Automation Engineering	03/01/2022
52882WA Advanced Diploma of Electrical and Instrumentation (E&I) Engineering for Oil and Gas Facilities	17/01/2022
Professional Certificate of Competency in Substation Design (Main Equipment)	17/01/2022
Professional Certificate of Competency in Mechanical Engineering	24/01/2022
Professional Certificate of Competency in Programmable Logic Controllers (PLCs) & SCADA Systems	24/01/2022
Doctor of Engineering	31/01/2022
Advanced Diplomas in Biomedical, Civil and Mechanical	08/02/2022
Bachelor of Science degrees in Civil, Electrical, Mechanical, and Industrial Automation Engineering	14/02/2022
Professional Certificate of Competency in Safety Instrumentation Systems for Process Industries	14/02/2022
On Campus Bachelor of Science, Master of Engineering, and Doctor of Engineering courses	21/02/2022

To receive your digital certificate of attendance for participating in this webinar, please fill out the form and survey here (or scan the QR Code)

<https://qrco.de/bcaDVS>

Please note that Certificate of Attendances will be sent out in the next 1-2 business days.



Q&A





Engineering Institute of Technology.

Thank you for attending.

Contact Us



Website

www.eit.edu.au



Head Office

1031 Wellington Street West Perth
Perth, WA 6005



Phone

Inside Australia: 1300 138 522
Outside Australia: +61 8 9321 1702



Email

webinars@eit.edu.au

