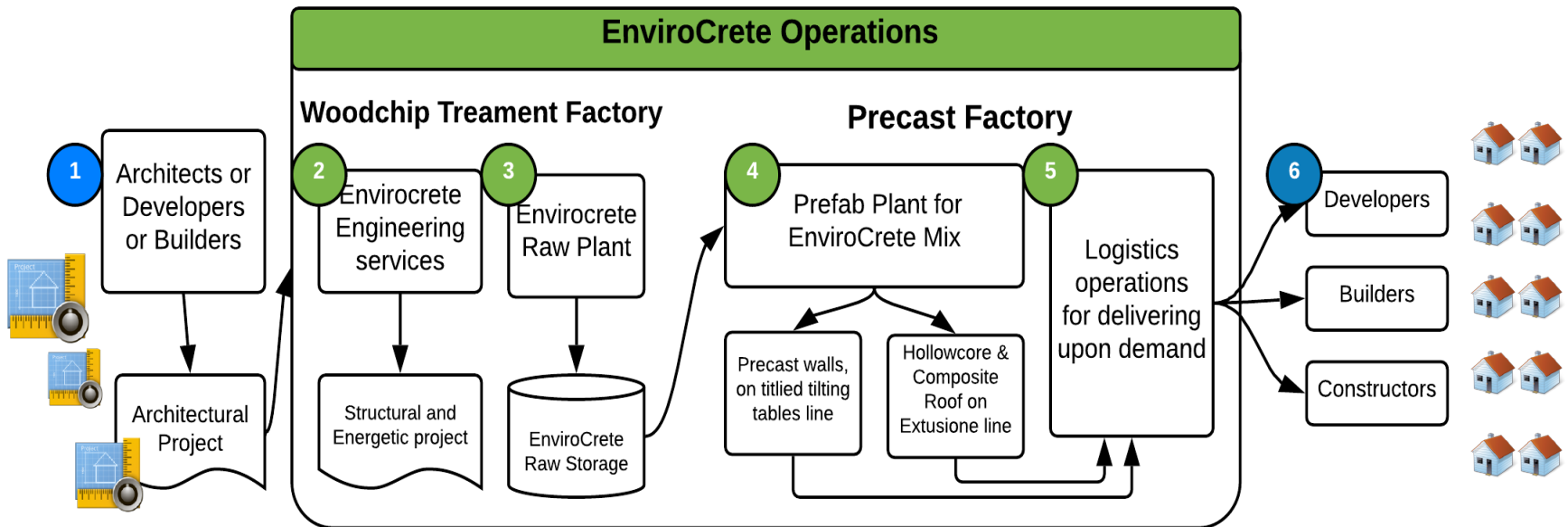




BUSINESS PLAN - EXECUTIVE SUMMERY
Envirocrete (Pty) Ltd

Envirocrete® Business Model



Envirocrete® Raw Agregate Substitute



Treated woodchips become light weight aggregate used in the **Concrete Mix Design** in 100% replacement of conventional sand and stone aggregates

Raw material Cost (data refered to Q2 2018)

	kg/m3	Cost ZAR/ton	ZAR/m ³	diff %
0-5 mm aggregate	ZAR 815,00	ZAR 220,00	179,30	
10 mm aggregate	ZAR 230,00	ZAR 265,00	60,95	
Sand	ZAR 1.100,00	ZAR 220,00	242,00	
		Total	482,25	

EnviroCrete Raw produced in South Africa

Chipped wood	ZAR 300,00	500,00	150,00	
EnviroCrete® Raw	ZAR 320,00	857,55	274,42	43% ←

Chipped Wood required	tons per day	130
	tons per year	33.696

Bio-Climatic Building System



**Aggregate
 Factory**
 (Treated woodchips)



**Off Site
 Operations**
 Precast panels & Blocks



Site operations
 Dry Joint Load bearing
 walls



Unique Result
 Solid Energy efficient
 buildings

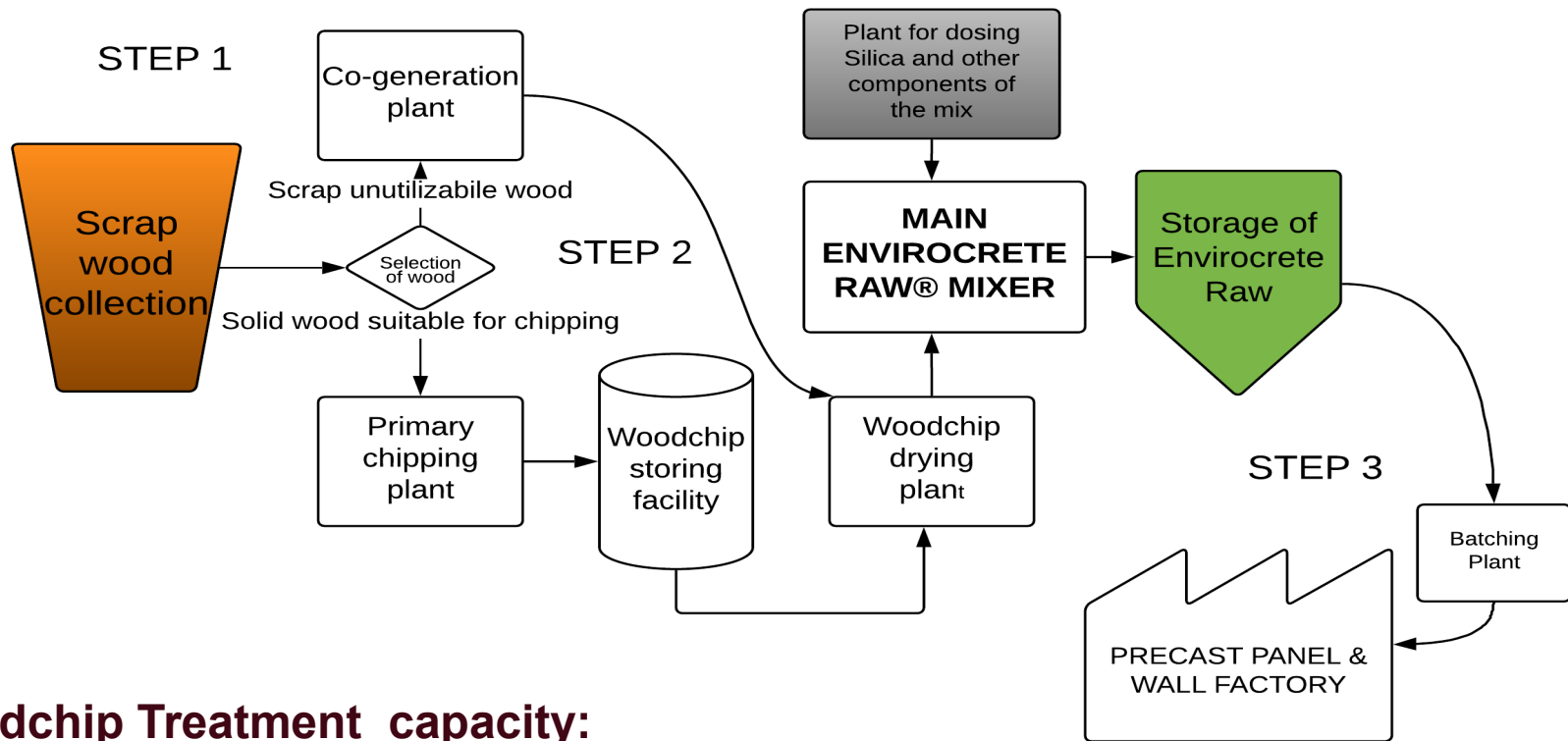


Envirocrete Building System
 Tested and approved fit-for-purpose
 when constructed as specified in
CERTIFICATE 2019/578

GRÉMENT
SOUTH AFRICA
 innovative construction product assessments

Manufacturing-Plant EnviroCrete Raw

The process for producing EnviroCrete Raw fibers requires an industrial plant with specialized equipment for screening chipping, treating and storing and conveying the product



Woodchip Treatment capacity:

Woodchips/bulk wood Input: **130 tons/per day** (2 shifts)

3000 - 4000 tons/month

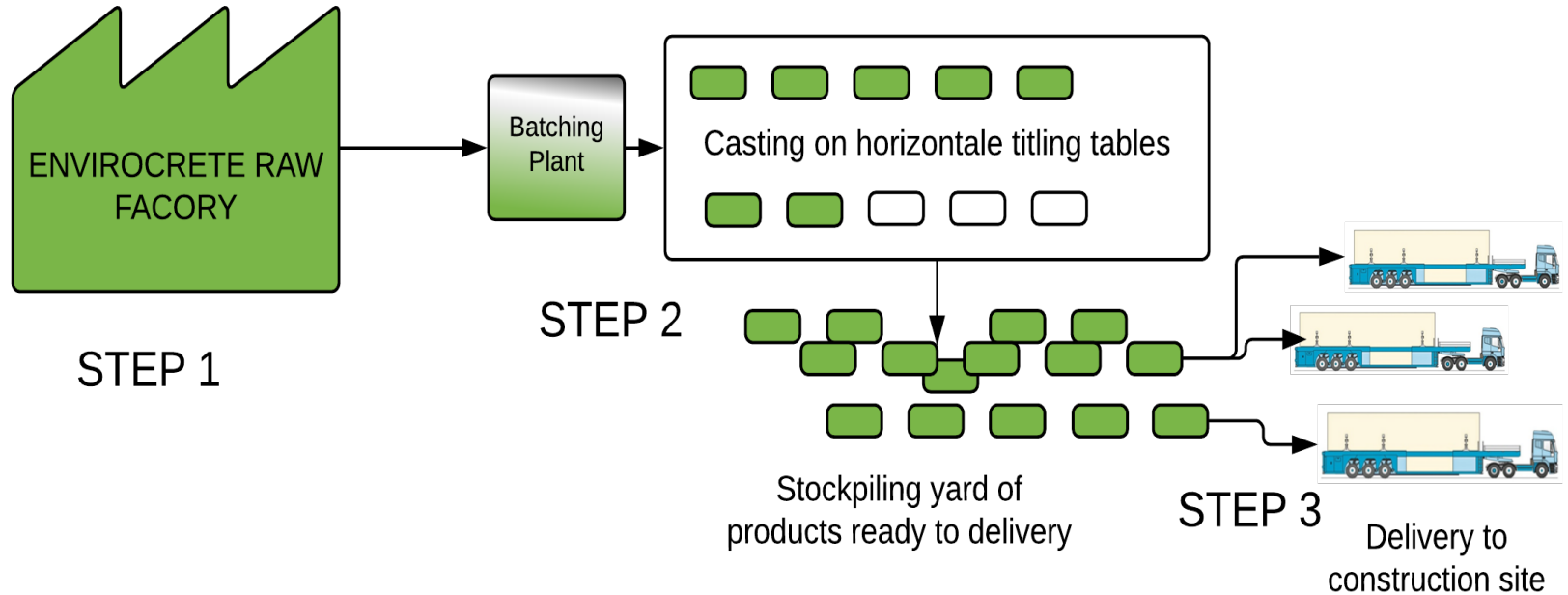
Installed capacity: 30 m³/hour

EnviroCrete Raw Output: **480 m³/day** (2 shifts)

134.784 m³ /year (80% of production capacity)

Manufacturing-Plant Precast Components

The process for producing EnviroCrete Precast components requires Precast industrial plant with specialized equipment for batching, shuttering, curing, lift and storing precast components

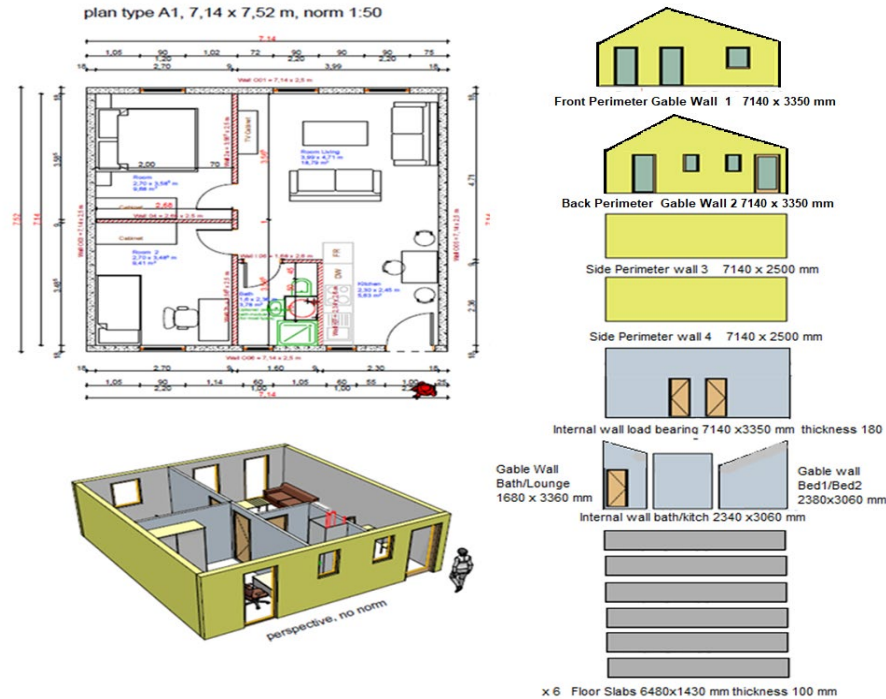


Precast capacity:

Wall panels:	634 m²/day (18 cm thick)
Total wall panel m ²	197.638 m² /year
Composite roof panels	560 m²/day (1 shift)

ECSS-50 Unit (EnviroCrete Super-Structure Unit)

In terms of what is actually the deliverable to market EnviroCrete has defined a basic deliverable kit called **ECSS-50 unit, (EnviroCrete SuperStructure -50 sqm unit)** that constitute

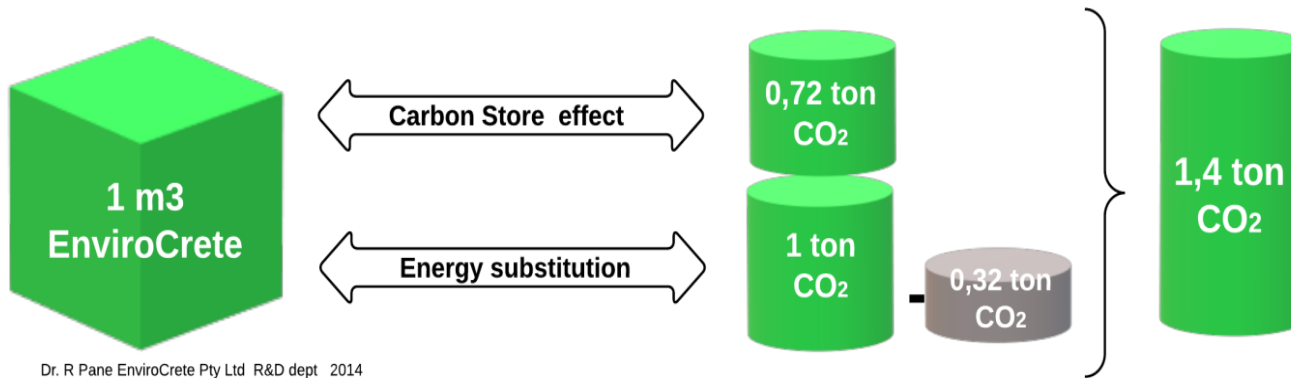


Full fledged superstructure for a 50 sqm commercial RDP housing unit
(load bearing wall pannels 180 mm thick)

- ✓ **Erection on site time: 2,5 days** (4 workers + 1 crane operator)
- ✓ **Delivery Rate: 3,7 units per day** (running at 80% production capacity)
- ✓ **Total ECSS-50: 1141 units per year**

ENERGY SAVINGS –Carbon footprint reduction

Totale CO₂ SAVING from combined carbon store and energy substitution effect



Dr. R Pane EnviroCrete Pty Ltd R&D dept 2014

ENVIROCRETE Bioclimatic-technology	Theoric	SAVING	Per single house	Units
Commercial area			50	sqm
Wall/floor/roof pannel surface			220	sqm
Volume			31,58	m ³
Weight			10,1046	tons
CO ₂ reduction by storage (sequestration)			7,07322	ton
CO ₂ reduction (material subsitution)			10,1046	ton(CO ₂ -eq)/kW·h _e
CO ₂ reduction from green contruction materials			0,685	ton(CO ₂ -eq)/kW·h _e
Energy reduction heating/cooling (GJ) Giga Joule [1]	11,46	60%	6,876	GJ/annum
Electricity savings (kWh) KiloWatt per hour			1910,02	kWh/annum
CO ₂ savings (CIPK) Carbon Intensity per kilowatt-hour [2]			1814,51	ton(CO ₂ -eq)/kW·h _e

[1] The efficacy of Bio-Climatic design and Green Building materials in subsidised housing in South Africa pg 2. A case study to rate substantial improvement the quality of life Roberto Pane; Shaiek Coe –EnviroCrete (Pty) Ltd The conservative reduction to 60% actually accounts on average for the very diffrent climate zones in SA, w ere there are very diffrent heating/cooling requirments according to the seasons (summer/w inter)

[2] Grid Emission Factor(GEF) of 0.95 t CO₂e/MWh as per Eskom 2018 Integratd Report pg 137 12-month period from 1 April 2017 to 31 March 2018

Opportunities in SA- PUBLIC SECTOR – Mega Projects



Western Cape
Government

Human Settlements

Meeting with Head of Department Mr. Thando Mguli – April 2018

Total Projects: 101

Projects already in planning phase: 98

Mega Projects (> 10.000 units): 46

Totale Budget 2018-2019-2020-2021 ZAR 114,5 bn (USD 8,07bn)

Note:

Main concern with conventional block building technology (set aside intrinsic quality issues) is very low speed of construction and security of blocks, delivered and stolen over night.

A national enquiry ongoing for finding an effective ATB (alternative building technology) to solve the above issues has, up to date, not proven completely satisfactory

RDP Housing cost bench mark:

(Reconstruction Development Program, now called BNG 'Breaking New Ground')

40 sqm RDP Unit finished delivered is payed by government

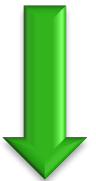
45 sqm RDP Unit (destined to NK Veterans ex armed wing of ANC)

In SA NK Veterans RDP Housing Units are 20% of every social housing project

Top Structure

ZAR 128.000

ZAR 155.000



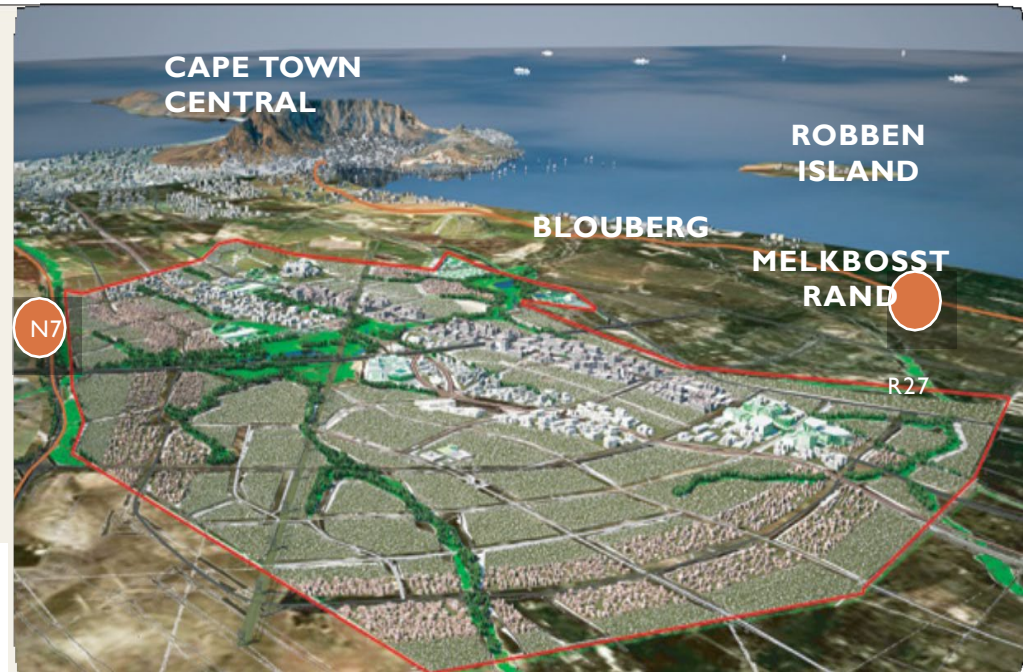
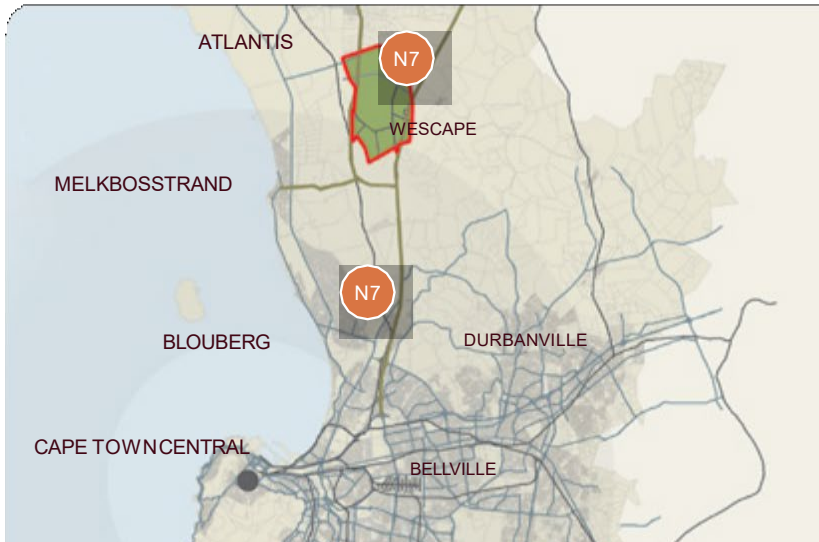
-16%

-30%

ECSS-40 Unit EnviroCrete Super-Structure FINISHED COST ZAR 2700 sqm

ZAR 108.000

Opportunities in SA - WESTCAPE DEVELOPMENT PROJECT



Westcape Site Location 25km from Cape Town City Centre

- 3,100 hectares (7,750 acres)
- Situated on N7 national highway
- 25km (15.5 miles) from Cape Town central
- **200,000 houses**
- 800,000 residents
- 300,000 jobs
- 2 million sqm of lettable commercial space
- Connected to the City of Cape Town Integrated Rapid Transport Bus Service
- Bordering national railway line
- Ecologically friendly Green City
- Walkable urban design
- 400+ educational facilities
- 90+ health, safety and community facilities
- 600+ public open spaces
- Project value ZAR200bn (USD18bn)

✓ **MOU signed for off-take Agreement with CommiTgrow (Pty) Ltd**

Envirocrete Building System has been presented to WestCape Developer in 2016. Subsequent a due diligence assesment process **EnviroCrete has been specified as preferred ABT and will be listed for tender** subject to achievment of SA Agrèment Certification and installation of the required capacity ~~for mass delivery.~~

Market rationale

Economics

Cost competitive Economic competitiveness compared with traditional construction technologies and most alternative building technologies

Quality

Superior quality houses in terms of structural stability, flexibility, durability, energy efficiency, and perceived wellness of living, Resistant to fire and earthquakes, with excellent natural thermal and acoustic insulation

Speed

Fast development based on of-site precast technology and local ready available raw constituent materials , Light weight panels system dry jointed enhance construction speed favorably reduce transport and erection costs and time

Environmentally friendly

Utilization of scrap wood instead of burning as energy source
Renewable source of natural aggregate (wood plantations) and dismissal of sand and stone aggregates
Reduction of energy for running the household heating and cooling
Global reduction of CO₂ emissions permanent and ongoing.

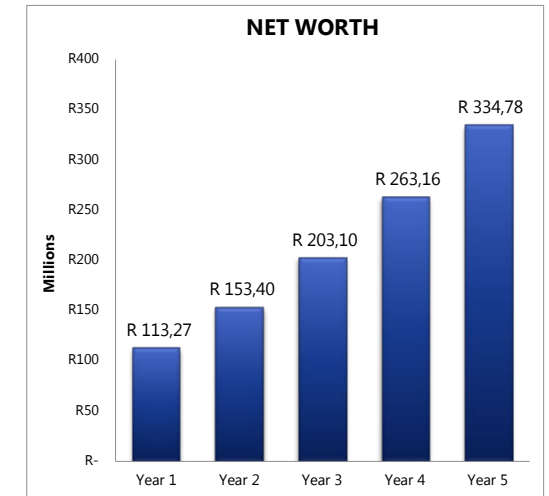
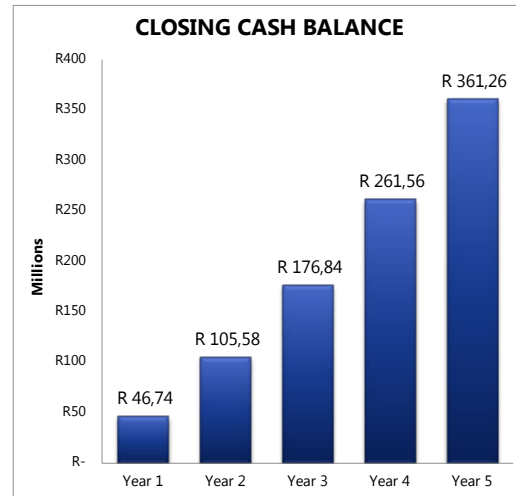
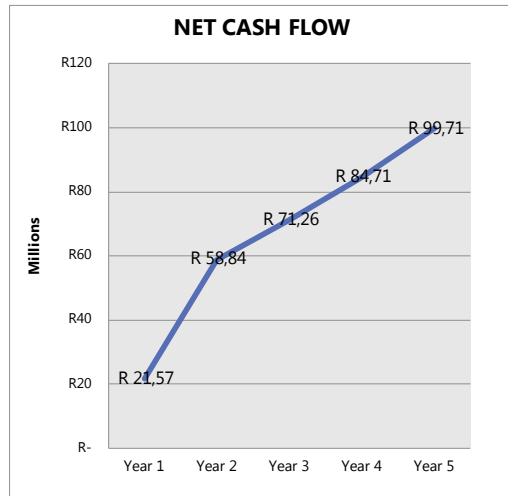
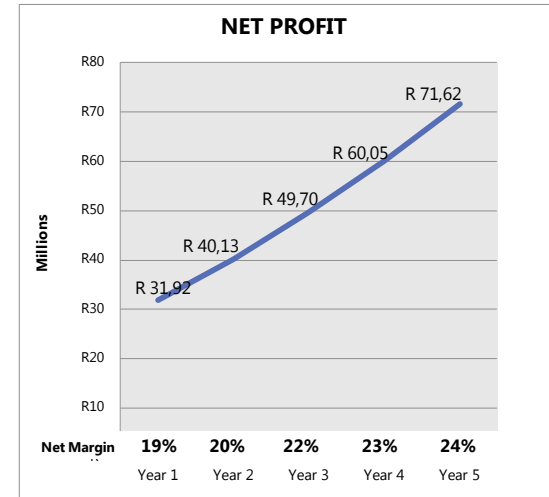
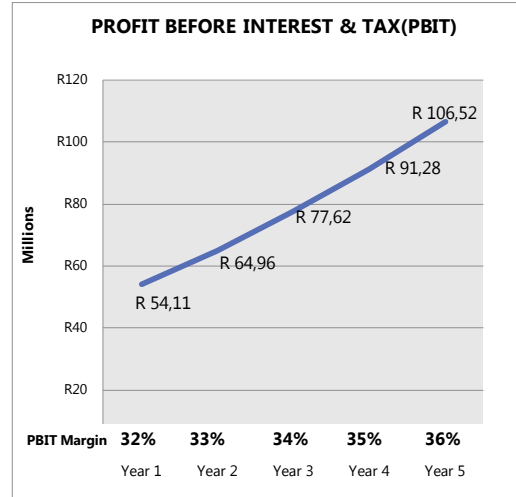
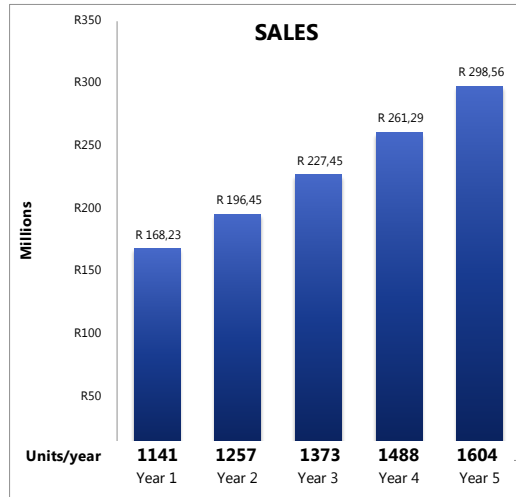
R&D, Innovation

Coordinating Product development. to bring to the market the best fabricating housing practices and composite solutions that easily adapt to local requirements and housing needs in each region of the world

Profit & Loss Statement Year 1 to 5

	Year 1	Year 2	Year 3	Year 4	Year 5
SALES	R 168.226.188	R 196.448.674	R 227.452.244	R 261.293.427	R 298.562.861
COST OF SALES	R 96.129.250	R 112.256.385	R 129.972.711	R 149.310.530	R 170.607.349
GROSS PROFIT	R 72.096.938	R 84.192.289	R 97.479.533	R 111.982.897	R 127.955.512
Gross Margin %	43%	43%	43%	43%	43%
OPERATING EXPENSES	R 17.991.490,54	R 19.230.231	R 19.857.361	R 20.703.609	R 21.435.801
PROFIT BEFORE INTEREST & TAX(PBIT)	R 54.105.446,96	R 64.962.058,00	R 77.622.172,04	R 91.279.288,26	R 106.519.711
PBIT Margin %	32%	33%	34%	35%	36%
Interest Payment on New Investment	R 9.774.705,41	R 9.219.854,96	R 8.588.417,13	R 7.869.820,38	R 7.052.034
Company Taxation	R 12.412.607,64	R 15.607.816,85	R 19.329.451,37	R 23.354.651,01	R 27.850.949,47
NET PROFIT	R31.918.134	R40.134.386	R49.704.304	R60.054.817	R71.616.727
Net Profit Margin %	19%	20%	22%	23%	24%

Financial Charts



Financial Indicators

Year	Cash inflow (net profit)	Net Cash Flow	Discounted Cash flow	Net Discounted Cash Flo	NPV	IRR
	-R158.337.386	-R158.337.386	-R158.337.386	-R158.337.386	-R158.337.386	
1	R31.918.134	-R126.419.252	R28.246.136	-R130.091.249	-R115.124.999	-80%
2	R40.134.386	-R86.284.865	R31.431.111	-R98.660.138	-R87.309.857	-39%
3	R49.704.304	-R36.580.562	R34.447.576	-R64.212.562	-R56.825.276	-11%
4	R60.054.817	R23.474.255	R36.832.744	-R27.379.818	-R24.229.928	5%
5	R71.616.727	R95.090.982	R38.870.690	R11.490.872	R10.168.913	16%
6	R77.346.065	R172.437.048	R37.150.748	R48.641.620	R43.045.682	22%
7	R83.533.751	R255.970.798	R35.506.910	R84.148.530	R74.467.726	26%
8	R90.216.451	R346.187.249	R33.935.808	R118.084.338	R104.499.414	29%
9	R97.433.767	R443.621.016	R32.434.223	R150.518.561	R133.202.266	30%
10	R105.228.468	R548.849.484	R30.999.081	R181.517.641	R160.635.081	32%

Initial Investment	R158.337.385,53	Interpretation
Discount Rate	13%	
NPV Net Present Value @10 years	R160.635.080,80	ACCEPT if the NPV is greater than Initial Investment Net present value (NPV) is the difference between the present value of cash inflows and the present value of cash outflows over a period of time. NPV is used in capital
IRR Internal Return Rate	32%	Return for cash flow per year Rate of earning
PB Payback Period	3,61	Payback Period = Cost of Project / Annual Cash Inflow s
DPB Discounted Payback Period	4,74	
PI Profitability Index	2,15	ACCEPT if >1; PI = NPV of future cash flow s / Initial Investment
PI-1	1,15	Percentage or decimal of gain for every 1 Rand of cost
AAR Average Accounting Return	43%	ARR = Average Profit / Average Investment If AAR is lower than cutoff rate IRR the project should be rejected. In this case it is superior meaning that the project makes sufficient net income to cover the costs of the initial investment

START-UP EXPENSES

START-UP EXPENSES

R25.167.874,20

	Budget/month	months	
Marketing Budget Internet /Branding/ Travel/Exhbits/Conferences	R79.875,00	9	R718.875,00
Consultancy legal/accounting	R39.937,50	6	R239.625,00
Consulting Amministration	R39.937,50	6	R239.625,00
Consultancy Industrial	R55.912,50	9	R503.212,50
Consultancy Commercial	R55.912,50	9	R503.212,50
Consultancy Architectural/Engineering	R39.937,50	4	R159.750,00
Professional Fees and QMS Consulting ISO 9001	R40.000,00	2	R80.000,00
Professional Fees and ClimateNeutralGroup	R85.000,00	18	R1.530.000,00
Professional Fees and Green Building Council South	R22.000,00	1	R22.000,00
	R458.512,50		R3.996.300,00
Treatment Factory Woodchips stock	ZAR 1.644.004	2	ZAR 3.288.008
Precast Factory Base material stock	ZAR 1.482.340	2	ZAR 2.964.680
	R3.126.344,22		R6.252.688,43
Taxes			R7.018.885,77
Working Capital			R7.900.000,00

CAPEX FOR MANUFACTURING PLANTS

Industrial Estate Land required 50.000 sqm (5 hectares)

Industrial building footprint

18344

	Area	Sqm
Building for EnviroCrete Raw Drying & Mixing	36x105	3780
Building for Wood chipping factory	40x100	4000
Building for Precast Factory	155x36	5580
Concrete Slab for Woodchip stock piling (total surface)	40x28	1344
Concrete Slab for Woodchip stock piling (total surface)	38x50	1900
Open yard with 8 ton gantry crane for stock landing	30x58	1740

ENVIROCRETE RAW Production plant

R71.347.863,04

Wood Treat Plant - machinery and equipment	R37.080.838,44
Transport ,Installation Commissioning-Start-up	R3.623.674,60
Industrial Buildings Foundations and Civil works -Services	R29.205.600,00
Vehicles- Loaders -Trucks etc	R1.437.750,00

ENVIROCRETE WALL Precast Plant

R58.023.323,28

PRECAST Plant -machninary and equipment	R30.694.958,51
Transport ,Installation Commissioning-Start-up	R5.188.289,78
Industrial Buildings Foundations and Civil works - Services	R18.354.000,00
Vehicles- Cranes - Inloader trucks etc	R3.786.075,00

FUNDING REQUIRMENTS

START-UP EXPENSE	R 25.167.874,20
Marketing	R 718.875,00
Consultancy	R 1.645.425,00
Professional Fees	R 1.632.000,00
Tax	R 7.018.885,77
stock	R 6.252.688,43
Working Capital	R 7.900.000,00
START-UP ASSETS	R 133.169.511,33
Machinery and Equipment	R 76.587.761,33
Factory Buildings	R 47.476.000,00
Vehicles	R 5.910.750,00
Accessory Equipment	R 3.195.000,00
TOTAL INVESTMENT REQUIRED	R158.337.385,53

Principal funding option	Collateral/ Equity	51%	R81.347.977,00
	Funding Required	49%	R76.989.408,53

Alternative funding option	Collateral/ Equity	20%	R31.667.477,11
	BIS DTI Grant	32%	R50.509.625,98
	BIS IDC Debt Funding	48%	R76.160.282,44

GENERAL TIMELINE





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