

MODEL
PROJECT REPORT
for
Setting up Energy Efficient Brick Kiln
for the production of
RESOURCE EFFICIENT BRICKS

Submitted to:

Corporation Bank

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Prepared by:



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1. Introduction

The construction sector is an important part of the Indian economy with the contribution of 10% in the GDP and is registering an annual growth of 9%. Clay fired bricks are the backbone of this sector. The Indian brick industry is the second largest producer of bricks in the world after China. India is estimated to produce more than 14000 crores of bricks annually, mainly by adopting age-old manual traditional processes. The brick sector consumes more than 24 million tonnes of coals annual along with huge quantity of biomass fuels. The per annum CO₂ emissions from Indian brick industry are estimated to be 42 million tonnes. Due to large scale construction activities in major towns and cities, a number of brick plants have been set up on the outskirts of these cities. These clusters are the source of local air pollution affecting local population, agriculture and vegetation.

For the production of clay bricks, top soil to the extent of 350 million tonnes is used every year, which is a reason for concern. Since this brick sector is labour intensive, it limits its capacity to produce any other type of bricks. With the introduction of NREGA scheme in various states, these labour intensive industries are facing the shortage of manpower. Thus the brick industry has started exploring other options like introduction of partial/full-scale mechanization in this sector.

While studying the market in the developed countries, it has been observed that they have completely switched over from solid brick to other resource efficient products like perforated bricks and hollow bricks. These products consume less fuel (coal, biomass etc.) and raw material (fertile top soil) for their production and have better insulation properties during its usage.

A number of legislations/ legal obligations have been passed by the Indian Government such as “Energy Conservation and Building Code (ECBC)”, which encourages construction sector to adopt energy efficient and energy saving products, leading to green building design. The use of “Resource Efficient Bricks” (REB), would also lead to the compliance of such legislations. In view of the scarcity of raw material such as top soil and coal as fuel, the production of REBs is the better option.

About UNDP-GEF Project

With an objective of reduction in energy consumption and restrict Green House Gases (GHG) emissions by creating appropriate infrastructure for sustained adoption of new and improved technologies for production and use of REBs in India, the United Nations Development Programme has sanctioned a project “Energy Efficiency Improvement in Indian Brick Industry”. Under this project, 5 Local Resource Centres (LRCs) in different regions covering North, South, East, West and North East have been set up. The LRCs would facilitate adoption of REB technologies, disseminate promotional material for REBs, create awareness amongst architects, builders and other end-users including government departments for uptake of REBs and prepare DPRs for availing loans from financial institutions and banks.

Why REBs are important?

The present day constructions have RCC (Reinforced Concrete Cement) columns and mainly bricks are used as partition walls. They are no longer being used as load bearing walls in majority of the buildings. A shift towards REBs would help saving fuel and reducing pollution in brick production process. There is also significant reduction in the consumption of top (agricultural) soil which is the main raw material in brick making. Increased use of REBs in building construction would also help in reducing the energy consumption of buildings due to their better insulation properties.

Advantage of REBs

- Uniform product size and better finish
- Improving crushing strength of extruded products (200 to 300 kg/cm²)
- Resource savings – Energy (up to 20%) and top soil (up to 30%)
- Reduction in masonry costs and plaster requirements
- Reduced cooling/heating load requirements.

Present Scenario

As mentioned in the introduction, most of the brick kiln entrepreneurs use traditional methods of green brick production, brick firing and its sale. In North India, solid clay fired bricks are available in the market. There are only a few mechanized plants involving clay preparation by machine, with limited production capacity (about 20-30% of its daily production). Due to shortage of trained manpower and labour, the quality of moulding of green brick has deteriorated with the result, percentage of first quality of fired bricks has decreased. Recently, the Delhi Administration under the Scheme Jawaharlal Nehru Low Cost Housing Scheme, has been promoting the use of energy efficient bricks such as perforated bricks. The production of REB involves mechanization in the moulding process. As a result, two mechanized plants have been set up on the outskirts of Delhi catering to the demand to certain extent. As regards the general public, the level of awareness for the use of perforated/hollow bricks is very low. Hence, they prefer to use solid bricks.

Over the years, the level of curiosity for identification of appropriate technology, suitable for their soils and requirements, has increased amongst the brick entrepreneurs. Now they are more receptive to the new ideas for improving the quality of their bricks subject to the criterion that the cost of fired brick should not be that high, which may lead them into marketing problems.

With the rise in global temperature and high electricity cost, the architects and the builders have now started catching the idea of use of resource efficient bricks. However, the level of awareness needs to be strengthened amongst them also by creating awareness through workshops/meetings.

Opportunities for the Brick Entrepreneurs

A brick kiln owner in North India, on an average, produces about 50,000-60,000 bricks a day. In the process, it engages more than 250 workers. Besides reducing the labour force by 40-45%, the introduction of mechanization in the brick making would give a leading edge to the brick entrepreneur over other manufacturers by giving him an opportunity to produce varied designs of products. The machine made bricks/blocks, definitely have better finish and strengths in comparison to hand moulded bricks. This would give him another chance to fetch better prices in comparison the fellow manufacturers.

2. Promoter's Profile

To be submitted by individual entrepreneurs.

3. Basis of Project Concept

- **Market potential and industry scenario**

The demand for bricks has been increasing with the ever increasing activities in the construction sector. In the last 10 years the demand for bricks has increased specially in the major towns and cities. As a result number of new brick plants have been set up around these cities, which are catering to the local demands. As such there is a huge market potential.

However, with the introduction of new ECBC code and concept of Green Building Act (GRIHA rating), the leading architects and builders have now started looking for options for replacing solid clay fired bricks with more energy efficient products (REBs), which will not only bring in savings to the brick manufacturers but also will benefit builders in terms of savings in steel due to lesser deadload of walls, faster pace of construction, less consumption of mortar etc. which can account for 5-7% savings in construction cost. In addition, the residents would also save in terms energy bills due to insulating properties of REBs.

The REBs are already in vogue in the State of Kerala and a no. of units are coming up around Delhi. The entrepreneur in Punjab are very likely to pickup this activity in near future in a big way.

4. Project Description

- **Objective**

The primary objective of this report is to facilitate _____ with required technical as well as financial know-how for setting up of unit for the production of resource efficient bricks. With the introduction of Green Building Act and energy efficient products in the construction sector, the requirement of REBs is likely to replace the conventional solid clay fired bricks. The report addresses all the information regarding setting of project, the technology selection, project requirements for machinery and equipment, technology, finance, project implementation, process operation, skill selection etc. This report will serve as a complete guide on starting up such a new project that all necessary feasibility criteria are looked into and are self-sustainable entity, giving reasonably handsome returns on the capital as well as investment with ample scope for scaling up the operations.

- **Output**

The total installed production capacity of the unit is about 100 lakhs REBs per annum. In the beginning of the project cycle, the throughput has been assumed as 70% for REBs.

- **Proposed Products**

The project proposes to produce perforated bricks/blocks with perforations varied from 10-20%, modular bricks and tiles.

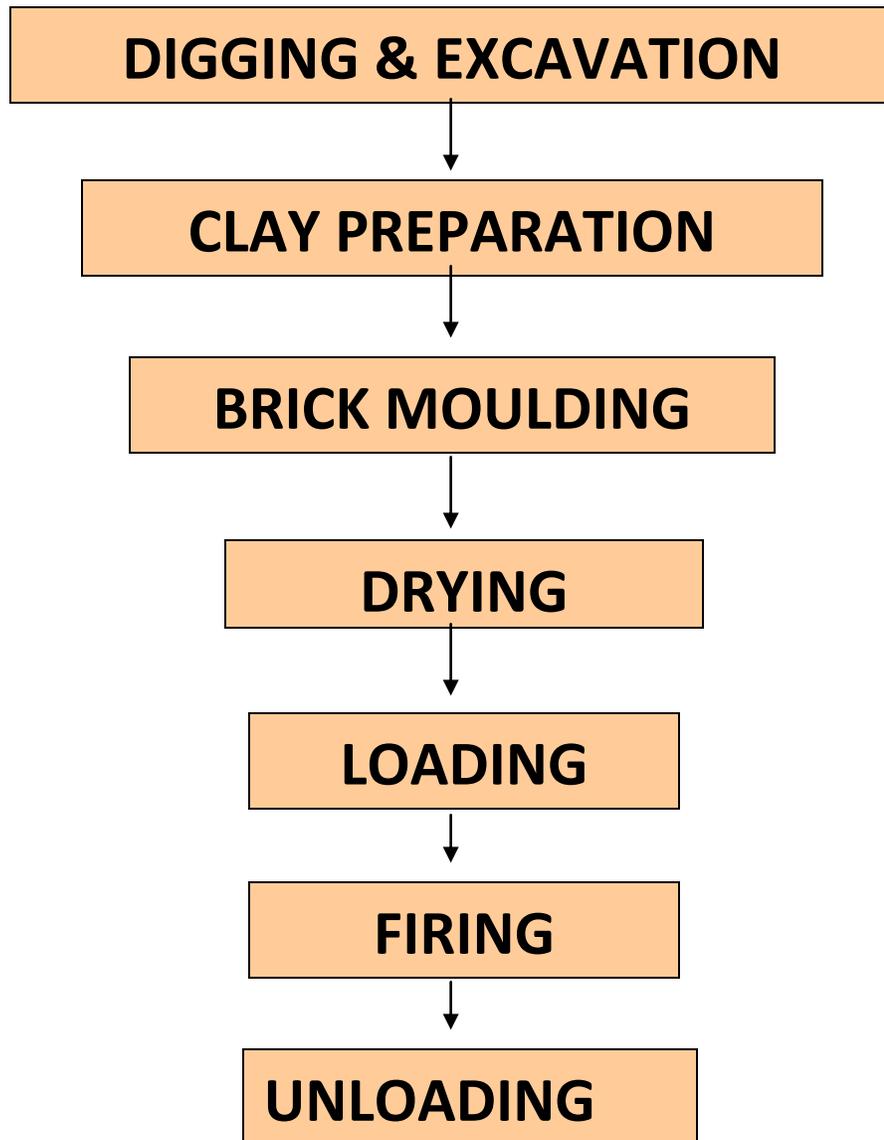
- **Know-how and Compliances**

The technical know-how for machinery would be provided by the supplier who will ensure the successful commissioning of the plant, supply its spare parts for the first year and help in troubleshooting, if any. Further, any support for production and marketing would be provided by the Local Resource Centre set up under UNDP-GEF project. If needed, LRC can arrange an expert of national/international repute through implementing agency for technical know-how. All the aspects relating to pollution control will be taken care of during construction and production process.

- **Project Profile – REBs**

- **Raw material availability**

- **Market opportunities**
- **Manufacturing process**



5. Project Financials

Major component of the project and their cost with their components are given in the table hereunder:

Cost of Project:

SI. No.	PARTICULARS	AMOUNT
		Rs. In Lacs
1	Land	On lease
2	Building & Land Development	83.56
3	Plant & Machinery	139.26
4	Misc. Fixed Assets	2.15
5	Pre-operative Expenses	25.50
6	Margin Money for Working Capital	11.88
	TOTAL : RS.	262.35

Land and building

The land has already been acquired at _____. And a total land of 5 acres is available for the project. The raw material such as clay and coal shall be dumped in the boundary area of the land. The machinery for moulding green bricks shall be installed in a shed of 50'x100' and the green bricks would be dried under shed over an area of 40000 sft. The dried green bricks would then be fired in the brick kiln and fired bricks would be stored and supplied into the market. The layout of the plant is being proposed to ensure hygienic conditions and smooth movement of materials.

Sr. No.	Item	Type	Dimensions (Ft)	Area (Sft)	Rate (Rs/sft)	Amount (Rs. In lacs)
1	Molding Machine Shed	Indl	50 X 100	5000	100	5.00
2	Drying Shed			43560	100	43.56
3	Boundary Wall					10.00
4	Dry Brick Storage Shed	Indl	50 X 100	5000	100	5.00
5	Water Storage Tanks	Sintex	5000 X 2	10000Litres	4	0.40

6	Office Building, Labour Quarters, Workshop, Toilet Block	RCC				10.00
7	Meter/ Generator Room					1.00
8	Workers Common Room					1.00
9	Parking Etc.					1.60
10	Land Development					6.00
	Total					83.56

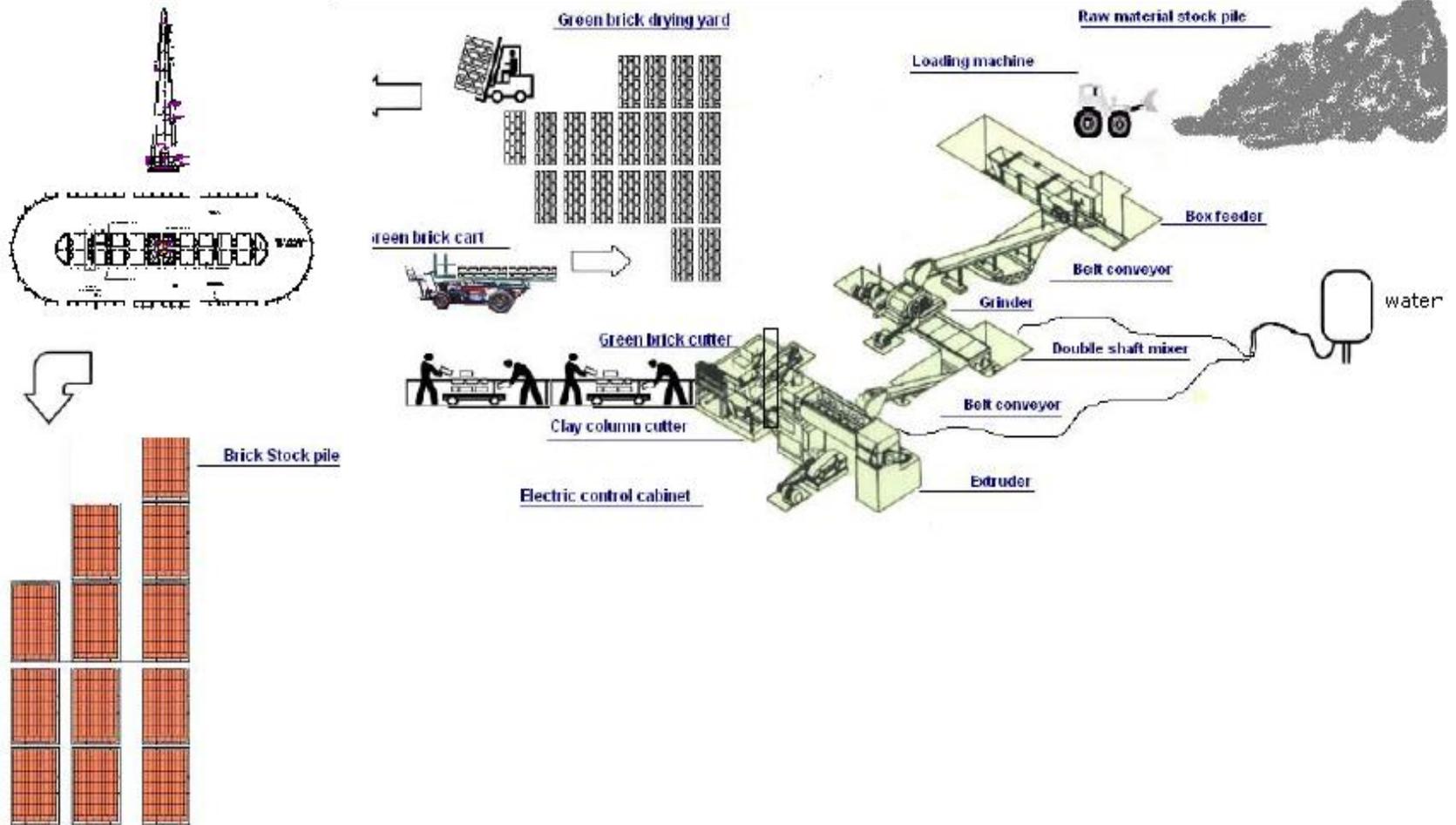
Plant and machinery

The cost of equipment is based on the estimates and quotations received. Proposed machine would require following equipments

Sr. No.	Machinery/ Equipment	Quantity	KW	Amount (Rs in Lacs)
1	Box Feeder XG 80	1	7.5	50.00
2	Double Roller Crusher GS 70	2	22	
3	Rubber Belt Conveyor	4	5.5 x 4	
4	Double Shaft Mixer SJ 240	1	37	
5	Twin Stage De- Airing Extruder JKB45/45-20	1	55+90	
6	Reciprocating Vacuum Pump	1	15	
7	Automatic Clay Slug Cutter QT100	1	1.1	
8	Green Brick Cutter	1	4	
9	Auto Billets Unloading Machine	1	-	
10	Air Compressor	2	2 X 2	
11	Electric Control Box	1	-	
12	Mould	2		
13	Motors, V Belts for all Machines above			
14	Spares and consumables for one year			
15	Generator	1	380KVA	20.00
16	Tractor with Pusher	1		6.00
17	Hand Carts	25		0.50
18	Wooden Pallets	400		0.60

19	Jute and Plastic Tarpaulins	56250 sft each		1.50
20	Gas Cutter			3.00
21	Welding Set			
22	Drill Machine			
23	Lathe Machine			
24	Lab Equipments			
25	Gen Tools			
26	BTK/HD Type Brick Kiln			5.00
27	Shed over BTK/HD Type Brick Kiln			0.00
	Total			126.60
	Add : Contingencies & Installation Charges 10 %			2.66
	Installation Charges			
	Grand Total			139.26

FLOW CHART OF BRICK PLANT:



➤ **Miscellaneous Fixed Assets:**

DETAILS OF MISCELLANEOUS FIXED ASSETS

(Rs. in lacs)

S.No.	PARTICULARS	No.	Amount	
			Rates(Rs.)	(Rs.)
1	Computer with Printers	1	0.35	0.35
2	Furniture & Fixtures	L.S	0.30	0.30
3	Other Assets	L.S	1.50	1.50
			TOTAL: (Rs.)	2.15

➤ Term Loan:

TERM LOAN REPAYMENT SCHEDULE

(Rs./Lacs)

Particulars/Year (s)	Intt. Rate	2010-11	2011- 12	2012- 13	2013- 14	2014- 15	2015- 16	2016-17
OPENING BALANCES								
Amount		-						28.12
Total		-	168.73	140.61	112.49	84.36	56.24	28.12
			168.73	140.61	112.49	84.36	56.24	
DISBURSEMENT								
Amount		168.73						-
Total		168.73	-	-	-	-	-	-
REPAYMENTS								
Amount		-						28.12
Total		-	28.12	28.12	28.12	28.12	28.12	28.12
			28.12	28.12	28.12	28.12	28.12	
CLOSING BALANCES								
Amount		168.73						(0.00)
Total		168.73	140.61	112.49	84.36	56.24	28.12	(0.00)
			140.61	112.49	84.36	56.24	28.12	
INTEREST								
<i>Project</i>		-						-
Amount	12.50%	10.55						1.76
Total		10.55	19.33	15.82	12.30	8.79	5.27	1.76
			19.33	15.82	12.30	8.79	5.27	

➤ **Collateral Securities**

To be provided by the individual.

➤ Project financials and Key Indices

PROJECTED COST OF PRODUCTION AND PROFITABILITY ESTIMATES

(Rs./Lacs)

For the year ended	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Installed Capacity (Nos. in lacs)	216	216	216	216	216	216
Production (Nos. in lacs)	88	95	101	113	113	113
Capacity Utilisation (%)	70%	75%	80%	90%	90%	90%
Net Sales	292.50	329.06	368.55	435.34	457.11	479.87
Total Income	292.50	329.06	368.55	435.34	457.11	479.87
Raw Material Consumed	131.62	148.08	154.19	195.90	205.70	215.94
Salaries and Wages	38.94	42.84	47.12	51.83	57.02	62.72
Rent	4.62	5.08	5.59	6.15	6.76	7.44
Power and Fuel	20.14	21.58	23.02	25.90	25.90	25.90
Repair & Maintenance	6.96	10.44	13.93	17.41	20.89	27.85
Machine						
Other Manufacturing	3.29	3.70	3.85	4.90	5.14	5.40
Overheads						
Selling, Administrative & Distribution Expenses	7.31	8.23	9.21	10.88	11.43	12.00
Total	212.90	239.95	256.92	312.97	332.84	357.25
Operating Profit	79.60	89.11	111.63	122.37	124.27	122.62
(Operating Profit Margin){%}	27.21%	27.08%	30.29%	28.11%	27.19%	25.55%
Interest on Term Loans	19.33	15.82	12.30	8.79	5.27	1.76
Interest on W. Capital	3.75	3.75	3.75	3.75	3.75	3.75
Gross Profit	56.52	69.54	95.58	109.83	115.25	117.11
(Gross Profit Margin) {%}	19.32%	21.13%	25.93%	25.23%	25.21%	24.41%
Depreciation	25.39	22.00	19.10	16.61	14.48	12.64
Misc. Expenditure Written off	5.10	5.10	5.10	5.10	5.10	0.00
Profit Before Tax	26.03	42.44	71.38	88.12	95.68	104.47
Tax	7.81	12.73	21.42	26.44	28.70	31.34
Net Profit	18.22	29.71	49.97	61.68	66.97	73.13
(Net Profit Margin) {%}	6.23%	9.03%	13.56%	14.17%	14.65%	15.24%
Retained Profits	18.22	29.71	49.97	61.68	66.97	73.13
Net Cash Accruals	48.71	60.20	77.07	85.88	88.68	87.60

PROJECTED BALANCE SHEET (Rs. /Lacs)

PARTICULARS/YEARS	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
<u>SOURCES OF FUNDS</u>	-	-					
Promoters Capital	84.74	93.62	105.84	126.55	167.52	217.20	272.17
Reserves & Surplus	-	18.22	29.71	49.97	61.68	66.97	73.13
Less : Withdrawals		6.00	9.00	9.00	12.00	12.00	15.00
	84.74	105.84	126.55	167.52	217.20	272.17	330.30
Term Loans	168.73	140.61	112.49	84.36	56.24	28.12	(0.00)
Working Capital Loan	-	30.00	30.00	30.00	30.00	30.00	30.00
Total	253.47	276.44	269.03	281.88	303.44	330.29	360.30
<u>APPLICATION OF FUNDS</u>	-	-					
Fixed Assets		224.97	224.97	224.97	224.97	224.97	224.97
	224.97						
Less:Depreciation	0.00	25.39	47.39	66.48	83.09	97.57	110.21
A Net Block	224.97	199.58	177.58	158.49	141.88	127.40	114.76
<u>CURRENT ASSETS</u>	-	-					
Cash & Bank Balances	3.00	14.59	30.87	64.37	101.06	146.91	188.96
Inventories	0.00	34.15	36.59	39.03	43.91	43.91	43.91
Receivables	0.00	8.36	9.40	10.53	12.44	13.06	13.71
Total Current Assets	3.00	57.09	76.86	113.93	157.40	203.87	246.57
Less: Current Liabilities	0.00	0.63	0.71	0.73	0.93	0.98	1.03
B. Net Current Assets	3.00	56.47	76.15	113.20	156.47	202.89	245.54
C. Misc. Exp. Not W/Off	25.50	20.40	15.30	10.20	5.10	0.00	0.00
Total (A+B+C)	253.47	276.44	269.03	281.88	303.44	330.29	360.30

PROJECTED CASH FLOW STATEMENT(Rs. /Lacs)

PARTICULARS/YEARS	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
SOURCES							
Net profit after tax	0.00	18.22	29.71	49.97	61.68	66.97	73.13
Add: Depreciation	0.00	25.39	22.00	19.10	16.61	14.48	12.64
Add: Misc.Expenses W/off	0.00	5.10	5.10	5.10	5.10	5.10	0.00
Add: Deff.Tax Adj.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NET CASH ACCURAL	0.00	48.71	56.81	74.16	83.39	86.55	85.77
Increase in Prop. Capital	84.74	8.88	0.00	0.00	0.00	0.00	0.00
Increase in Term Loan	168.73	-	0.00	0.00	0.00	0.00	0.00
Increase in Bank Borrowing	0.00	30.00	0.00	0.00	0.00	0.00	0.00
Increase/(Decrease) in Current Liabilities	0.00	0.63	0.08	0.03	0.20	0.05	0.05
Total	253.47	88.22	56.89	74.19	83.59	86.59	85.82
APPLICATION OF FUNDS:							
Increase in Fixed Assets	224.97		0.00	0.00	0.00	0.00	0.00
Increase in Current Assets,Loans & Advances	0.00	42.51	3.48	3.57	6.79	0.62	0.65
Repayment of Term Loan	0.00	28.12	28.12	28.12	28.12	28.12	28.12
Increase in Non Current Assets	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Increase/(Decrease) in Misc. exps	25.50	0.00	0.00	0.00	0.00	0.00	0.00
Partners Withdrawals	-	6.00	9.00	9.00	12.00	12.00	15.00
Total	250.47	76.63	40.61	40.69	46.91	40.74	43.77
Opening Balance	0.00	3.00	14.59	30.87	64.37	101.06	146.91
Surplus/ (Deficit)	3.00	11.59	16.28	33.50	36.68	45.85	42.05
Closing Balance	3.00	14.59	30.87	64.37	101.06	146.91	188.96

STATEMENT OF DEBT SERVICE COVERAGE RATIO

(Rs. /Lacs)

PARTICULARS/YEARS	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	TOTAL
A) PROFIT AFTER TAX	18.22	29.71	49.97	61.68	66.97	73.13	299.68
INTEREST ON TERM LOAN	15.82	12.30	8.79	5.27	1.76	0.00	43.94
NON CASH CHARGES (DEP+W/OFF)	30.49	27.10	24.20	21.71	19.57	12.64	135.71
TOTAL	64.53	69.11	82.95	88.66	88.30	85.77	479.33
B) COMMITMENTS							
INTEREST ON TERM LOAN	15.82	12.30	8.79	5.27	1.76	0.00	43.94
REPAYMENT OF TERM LOAN	28.12	28.12	28.12	28.12	28.12	28.12	168.73
TOTAL	43.94	40.42	36.91	33.39	29.88	28.12	212.67
DSCR	1.47	1.71	2.25	2.66	2.96	3.05	2.25
AVERAGE DSCR				2.25			

PROJECTED RATIO ANALYSIS

RATIOS/YEARS	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
PROFITABILITY RATIOS						
Operating Profit Margin (%)	27.21%	27.08%	30.29%	28.11%	27.19%	25.55%
Gross Profit Margin (%)	19.32%	21.13%	25.93%	25.23%	25.21%	24.41%
Net Profit Margin (%)	6.23%	9.03%	13.56%	14.17%	14.65%	15.24%
TURNOVER RATIOS						
Inventory Turnover Ratio	8.57	8.99	9.44	9.92	10.41	10.93
Debtor Turnover Ratio	35.00	35.00	35.00	35.00	35.00	35.00
Fixed Assets Turnover Ratio	1.47	1.85	2.33	3.07	3.59	4.18
SOLVENCY RATIO						
Current Ratio	1.86	2.50	3.71	5.09	6.58	7.95
Debt Equity Ratio	1.26	0.83	0.48	0.25	0.10	0.00
Interest Covering Ratio	3.45	4.55	6.95	9.76	13.77	22.26
EARNING RATIO						
Book Value	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Earning per Share (EPS)	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
PERFORMANCE RATIO						
Return on Investment	17.73%	22.99%	30.94%	33.07%	31.60%	30.44%
Return on Networth	16.29%	21.92%	28.31%	26.91%	23.57%	21.18%
Return on Capital Employed	17.77%	23.05%	31.02%	33.17%	31.70%	30.52%

PARTICULARS	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Sales & Other Income	292.50	329.06	368.55	435.34	457.11	479.87
Operating Profit	79.60	89.11	111.63	122.37	124.27	122.62
Financial Charges	23.08	19.57	16.05	12.54	9.02	5.51
Gross Profit	56.52	69.54	95.58	109.83	115.25	117.11
Depreciation	25.39	22.00	19.10	16.61	14.48	12.64
Profit Before Tax	26.03	42.44	71.38	88.12	95.68	104.47
Profit after Tax	18.22	29.71	49.97	61.68	66.97	73.13
DSCR	1.47	1.71	2.25	2.66	2.96	3.05
Debt Equity Ratio (DER)	1.26	0.83	0.48	0.25	0.10	0.00

6. Key Success Factors

REBs and mechanization in brick plants has majorly taken place in developed countries and has reached the Indian market. The REBs will be success in Indian market as there are legal laws like energy conservation act and Energy Conservation and Building Code (ECBC) has been passed which encourages construction of more energy efficient buildings i.e. Green buildings and REBs will be used there extensively. Also REBs that may perforated or hollow bricks uses less fuel, less raw material i.e. fertile top soil and its usage in buildings make the building more energy efficient.

It will decrease the amount of green houses being generated through production of conventional solid bricks.

PROJECT COST SUMMARY

S. N.	PARTICULARS	AMOUNT Rs. In Lacs
1	Land	On lease
2	Building & Land Development	83.56
3	Plant & Machinery	139.26
4	Misc. Fixed Assets	2.15
5	Pre-operative Expenses	25.50
6	Margin Money for Working Capital	11.88
	TOTAL : RS.	262.35

MEANS OF FINANCE

S. N.	PARTICULARS	AMOUNT Rs. In Lacs
1	Promoter's Contribution	93.62
2	Term Loan	168.73
	TOTAL : RS.	262.35

DETAILS OF BUILDING

(Rs. in lacs)

Sr. No.	Item	Type	Dimensions (Ft)	Area		Rate (Rs/sft)	Amount (Rs. In lacs)
				(Sft)			
1	Molding Machine Shed	Incl	50 X 100	5000	100	5.00	
2	Drying Shed			43560	100	43.56	
3	Boundary Wall					10.00	
4	Dry Brick Storage Shed	Incl	50 X 100	5000	100	5.00	
5	Water Storage Tanks	Sintex	5000 X 2	10000Litres	4	0.40	
6	Office Building, Labour Quarters, Workshop, Toilet Block	RCC				10.00	
7	Meter/ Generator Room					1.00	
8	Workers Common Room					1.00	
9	Parking Etc.					1.60	
10	Land Development					6.00	
	Total					83.56	

DETAILS OF PLANT & MACHINERY

Rs. in lacs

Sr. No.	Machinery/ Equipment	Quantity	KW	Amount
1	Box Feeder XG 80	1	7.5	50.00
2	Double Roller Crusher GS 70	2	22	
3	Rubber Belt Conveyor	4	5.5 x 4	
4	Double Shaft Mixer SJ 240	1	37	
5	Twin Stage De- Airing Extruder JKB45/45-20	1	55+90	
6	Reciprocating Vacuum Pump	1	15	
7	Automatic Clay Slug Cutter QT100	1	1.1	
8	Green Brick Cutter	1	4	
9	Auto Billets Unloading Machine	1	-	
10	Air Compressor	2	2 X 2	
11	Electric Control Box	1	-	
12	Mould	2		
13	Motors, V Belts for all Machines above			
14	Spares and consumables for one year			
15	Generator	1	380KVA	20.00
16	Tractor with Pusher	1		6.00
17	Hand Carts	25		0.50
18	Wooden Pallets	400		0.60
19	Jute and Plastic Tarpaulins	56250 sft each		1.50
20	Gas Cutter			3.00
21	Welding Set			
22	Drill Machine			
23	Lathe Machine			
24	Lab Equipments			
25	Gen Tools			
26	BTK/HD Type Brick Kiln			35.00
27	Shed over BTK/HD Type Brick Kiln			10.00
	Total			126.60
	Add : Contingencies & Installation Charges 10 %			12.66
	Installation Charges			
	Grand Total			139.26

DETAILS OF MISCELLANEOUS FIXED ASSETS

(Rs. in lacs)

S.No.	PARTICULARS	No.	Rates(Rs.)	Amount (Rs.)
1	Computer with Printers	1	0.35	0.35
2	Furniture & Fixtures	L.S	0.30	0.30
3	Other Assets	L.S	1.50	1.50
		TOTAL: (Rs.)		2.15

DETAILS OF PRE-OPERATIVE EXPENSES

Rs. in lacs

Sr. No.	Particulars	Amount (Rs)
1	Travelling Expenses	2.00
2	Interest during construction Period	10.55
3	Legal & Professional Charges	1.25
4	Administrative Expenses	1.50
5	Electricity Connection Charges	6.00
6	Advance Rent for Land	4.20
	Total	25.50

ESTIMATED SALARIES AND WAGES COST

(Rs. In lacs)

S.No.	DESIGNATION	NOS.	WAGES/MONTH/ PERSON	TOTAL WAGES
1	Factory Manager	1	10000	1.20
2	Inventory Controller	1	5000	0.60
3	Technician	1	10000	1.20
4	Accountant	1	6000	0.72
5	Watchman	1	4000	0.48
6	Sales Manager	1	5000	0.60
	Sub-total			4.80
	Add: Benefits @ 25%			1.20
	TOTAL	6		6.00

SCHEDULE OF WORKING CAPITAL REQUIREMENTS

Rs. In lacs

PARTICULARS	Holding Period (in weeks)	Qty. at 100% Capacity	Rate	2011-12	2012-13	2013-14	2014-15	2015-16
Clay (cft)	2	55300	2.9	1.12	1.20	1.28	1.44	1.44
Coal (mt)	2	81	8500	4.82	5.16	5.51	6.20	6.20
Green Bricks in Drying Yard	1	384000	0.65	1.75	1.87	2.00	2.25	2.25
Green Bricks Stock (Nos.)	2	720000	0.75	3.78	4.05	4.32	4.86	4.86
Work in Progress (Nos.)	4	405000	2	5.67	6.08	6.48	7.29	7.29
Work in Progress (Nos.)	4	540000	0.75	2.84	3.04	3.24	3.65	3.65
Finished Goods (Nos.)	2	675000	3	14.18	15.19	16.20	18.23	18.23
Total Inventory				34.15	36.59	39.03	43.91	43.91
Debtors								
Domestic	2			8.36	9.40	10.53	12.44	13.06
Total				42.51	45.99	49.56	56.34	56.97
Creditors	1			0.63	0.71	0.73	0.93	0.98
Total Liabilities				0.63	0.71	0.73	0.93	0.98
Net Working Capital Margin				41.88	45.29	48.82	55.41	55.99
				11.88	15.29	18.82	25.41	25.99
Bank Borrowings				30.00	30.00	30.00	30.00	30.00
Interest	12.50%			3.75	3.75	3.75	3.75	3.75
Total				3.75	3.75	3.75	3.75	3.75

PROJECTED POWER COST

Sr. No	Machinery/ Equipment	KW	Usage/Day in Hrs	KWH/Day	Usage/ Year	Total Use in Year KWH
					(Days)	
1	Complete Green Brick Set Up	279.6	8	2236.8	210 Days	469728
2	Coal Grinder	5	4	20	225	4500
3	Water Pump	3	4	12	365	4380
	Total	287.6				479608

TERM LOAN REPAYMENT SCHEDULE

(Rs./Lacs)

Particulars/Year (s)	Intt. Rate	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
OPENING BALANCES								
Amount		-	168.73	140.61	112.49	84.36	56.24	28.12
Total		-	168.73	140.61	112.49	84.36	56.24	28.12
DISBURSEMENT								
Amount		168.73	-	-	-	-	-	-
Total		168.73	-	-	-	-	-	-
REPAYMENTS								
Amount		-	28.12	28.12	28.12	28.12	28.12	28.12
Total		-	28.12	28.12	28.12	28.12	28.12	28.12
CLOSING BALANCES								
Amount		168.73	140.61	112.49	84.36	56.24	28.12	(0.00)
Total		168.73	140.61	112.49	84.36	56.24	28.12	(0.00)
INTEREST								
<i>Project</i>		-	-	-	-	-	-	-
Amount	12.50%	10.55	19.33	15.82	12.30	8.79	5.27	1.76
Total		10.55	19.33	15.82	12.30	8.79	5.27	1.76

CAPACITY, PRODUCTION, RAW MATERIALS AND SALES

(Rs./Lacs)

Particulars/Year(s)	Unit	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Installed Capacity							
Green Bricks	Nos. (in lacs)	216	216	216	216	216	216
Operational Period	Months	7	7	7	7	7	7
Utilization	%	70%	75%	80%	90%	90%	90%
Production							
Green Bricks	Nos. (in lacs)	88	95	101	113	113	113
Wastage	Nos. (in lacs)	2	2	2	2	2	2
Sales							
Green Bricks	Nos. (in lacs)	86	93	99	111	111	111
First Quality		69	74	79	89	89	89
Second Quality		10	11	12	13	13	13
Third/Over Burnt		7	7	8	9	9	9
Quality							
Sales Value	RATE/UNIT						
Green Bricks							
First Quality	3.50	242.02	259.31	276.60	311.17	311.17	311.17
Second Quality	3.00	31.12	33.34	35.56	40.01	40.01	40.01
Third/Over Burnt	2.80	19.36	20.74	22.13	24.89	24.89	24.89
Quality							
TOTAL SALES		292.50	313.39	334.29	376.07	376.07	376.07
Raw Materials Consumed							
Clay		29.25	31.34	33.43	37.61	37.61	37.61
Coal		102.37	109.69	117.00	131.62	131.62	131.62
TOTAL		131.62	141.03	150.43	169.23	169.23	169.23

Gross Profit (Gross Profit Margin) (%)	56.52 19.32%	69.54 21.13%	95.58 25.93%	109.83 25.23%	115.25 25.21%	117.11 24.41%
Depreciation	25.39	22.00	19.10	16.61	14.48	12.64
Misc. Expenditure Written off	5.10	5.10	5.10	5.10	5.10	0.00
Profit Before Tax	26.03	42.44	71.38	88.12	95.68	104.47
Tax	7.81	12.73	21.42	26.44	28.70	31.34
Net Profit (Net Profit Margin) (%)	18.22 6.23%	29.71 9.03%	49.97 13.56%	61.68 14.17%	66.97 14.65%	73.13 15.24%
Retained Profits	18.22	29.71	49.97	61.68	66.97	73.13
Net Cash Accruals	48.71	60.20	77.07	85.88	88.68	87.60

PROJECTED BALANCE SHEET

(Rs. /Lacs)

PARTICULARS/YEARS	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
<u>SOURCES OF FUNDS</u>							
Promoters Capital	84.74	93.62	105.84	126.55	167.52	217.20	272.17
Reserves & Surplus	-	18.22	29.71	49.97	61.68	66.97	73.13
Less : Withdrawals		6.00	9.00	9.00	12.00	12.00	15.00
Term Loans	84.74	105.84	126.55	167.52	217.20	272.17	330.30
Working Capital Loan	168.73	140.61	112.49	84.36	56.24	28.12	(0.00)
Total	253.47	276.44	269.03	281.88	303.44	330.29	360.30
<u>APPLICATION OF FUNDS</u>							
Fixed Assets	224.97	224.97	224.97	224.97	224.97	224.97	224.97
Less: Depreciation	0.00	25.39	47.39	66.48	83.09	97.57	110.21
A Net Block	224.97	199.58	177.58	158.49	141.88	127.40	114.76
<u>CURRENT ASSETS</u>							
Cash & Bank Balances	3.00	14.59	30.87	64.37	101.06	146.91	188.96
Inventories	0.00	34.15	36.59	39.03	43.91	43.91	43.91
Receivables	0.00	8.36	9.40	10.53	12.44	13.06	13.71
Total Current Assets	3.00	57.09	76.86	113.93	157.40	203.87	246.57
Less: Current Liabilities	0.00	0.63	0.71	0.73	0.93	0.98	1.03
B. Net Current Assets	3.00	56.47	76.15	113.20	156.47	202.89	245.54
C. Misc. Exp. Not W/Off	25.50	20.40	15.30	10.20	5.10	0.00	0.00
Total (A+B+C)	253.47	276.44	269.03	281.88	303.44	330.29	360.30

PROJECTED CASH FLOW STATEMENT

PARTICULARS/YEARS	(Rs. /Lacs)						
	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
SOURCES							
Net profit after tax	0.00	18.22	29.71	49.97	61.68	66.97	73.13
Add: Depreciation	0.00	25.39	22.00	19.10	16.61	14.48	12.64
Add: Misc. Expenses W/off	0.00	5.10	5.10	5.10	5.10	5.10	0.00
Add: Deff. Tax Adj.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NET CASH ACCURAL	0.00	48.71	56.81	74.16	83.39	86.55	85.77
Increase in Prop. Capital	84.74	8.88	0.00	0.00	0.00	0.00	0.00
Increase in Term Loan	168.73	-	0.00	0.00	0.00	0.00	0.00
Increase in Bank Borrowing	0.00	30.00	0.00	0.00	0.00	0.00	0.00
Increase/(Decrease) in Current Liabilities	0.00	0.63	0.08	0.03	0.20	0.05	0.05
Total	253.47	88.22	56.89	74.19	83.59	86.59	85.82
APPLICATION OF FUNDS:							
Increase in Fixed Assets	224.97		0.00	0.00	0.00	0.00	0.00
Increase in Current Assets, Loans & Advances	0.00	42.51	3.48	3.57	6.79	0.62	0.65
Repayment of Term Loan	0.00	28.12	28.12	28.12	28.12	28.12	28.12
Increase in Non Current Assets	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Increase/(Decrease) in Misc. exps	25.50	0.00	0.00	0.00	0.00	0.00	0.00
Partners Withdrawals	-	6.00	9.00	9.00	12.00	12.00	15.00
Total	250.47	76.63	40.61	40.69	46.91	40.74	43.77
Opening Balance	0.00	3.00	14.59	30.87	64.37	101.06	146.91
Surplus/ (Deficit)	3.00	11.59	16.28	33.50	36.68	45.85	42.05
Closing Balance	3.00	14.59	30.87	64.37	101.06	146.91	188.96

STATEMENT OF DEBT SERVICE COVERAGE RATIO

(Rs. /Lacs)

PARTICULARS/YEARS	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	TOTAL
A) PROFIT AFTER TAX	18.22	29.71	49.97	61.68	66.97	73.13	299.68
INTEREST ON TERM LOAN	15.82	12.30	8.79	5.27	1.76	0.00	43.94
NON CASH CHARGES (DEP+W/OFF)	30.49	27.10	24.20	21.71	19.57	12.64	135.71
TOTAL	64.53	69.11	82.95	88.66	88.30	85.77	479.33
B) COMMITMENTS							
INTEREST ON TERM LOAN	15.82	12.30	8.79	5.27	1.76	0.00	43.94
REPAYMENT OF TERM LOAN	28.12	28.12	28.12	28.12	28.12	28.12	168.73
TOTAL	43.94	40.42	36.91	33.39	29.88	28.12	212.67
DSCR	1.47	1.71	2.25	2.66	2.96	3.05	2.25
AVERAGE DSCR				2.25			

PARTICULARS	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Sales & Other Income	292.50	329.06	368.55	435.34	457.11	479.87
Operating Profit	79.60	89.11	111.63	122.37	124.27	122.62
Financial Charges	23.08	19.57	16.05	12.54	9.02	5.51
Gross Profit	56.52	69.54	95.58	109.83	115.25	117.11
Depreciation	25.39	22.00	19.10	16.61	14.48	12.64
Profit Before Tax	26.03	42.44	71.38	88.12	95.68	104.47
Profit after Tax	18.22	29.71	49.97	61.68	66.97	73.13
DSCR	1.47	1.71	2.25	2.66	2.96	3.05
Debt Equity Ratio (DER)	1.26	0.83	0.48	0.25	0.10	0.00

DETAIL OF FIXED ASETS AND DEPRECIATION

DEPRECIATION AS PER INCOME TAX ACT

(Rs./Lacs)

Type of Assets	Building	P & M	MFA	Total
Rate of Depreciation	5.00%	15.00%	15.00%	
Original Cost	83.56	139.26	2.15	224.97
Depreciation 2011-12	4.18	20.89	0.32	25.39
Value as at 31.03.2012	79.38	118.37	1.83	199.58
Additions/Adj. during the year	-	-	-	-
Depreciation 2012-13	3.97	17.76	0.27	22.00
Value as at 31.03.2013	75.41	100.62	1.55	177.58
Additions/Adj. during the year	-	-	-	-
Depreciation 2013-14	3.77	15.09	0.23	19.10
Value as at 31.03.2014	71.64	85.52	1.32	158.49
Additions/Adj. during the year	-	-	-	-
Depreciation 2014-15	3.58	12.83	0.20	16.61
Value as at 31.03.2015	68.06	72.69	1.12	141.88
Additions/Adj. during the year	-	-	-	-
Depreciation 2015-16	3.40	10.90	0.17	14.48
Value as at 31.03.2016	64.66	61.79	0.95	127.40
Additions/Adj. during the year	-	-	-	-
Depreciation 2016-17	3.23	9.27	0.14	12.64
Value as at 31.03.2017	61.42	52.52	0.81	114.76

CALCULATION OF BREAK EVEN POINT AT 70% CAPACITY
UTILISATION IN FIRST YEAR OF PRODUCTION

Sr.	PARTICULARS	AMOUNT (RS.)	AMOUNT (RS) (RS. IN LACS)
1	SALES		292.50
2	VARIABLE COST		
	Raw Material	131.62	
	Salary and Wages (60%)	23.37	
	Rent	4.62	
	Power & Fuel	20.14	
	Other Manufacturing Overheads	3.29	
	Repair & Maintenance	6.96	
	Selling, Administrative & Distribution Expenses (60 %)	4.39	
	Interest on Working Capital Loan	3.75	
	Total Variable Cost		198.15
3	CONTRIBUTION (1-2)		94.35
4	FIXED COSTS		
	Interest on Term Loan	19.33	
	Depreciation	25.39	
	Salary & Wages (40%)	15.58	
	Administrative Expenses (40 %)	2.92	
			63.23
5	BREAK EVEN POINT AT 70% CAPACITY UTILISATION		67.01%
6	CASH BREAK EVEN POINT AT 70% CAPACITY UTILISATION		40.10%