#### **PROJECT REPORT**

Of

# **INTERLOCKING BRICKS**

#### **PURPOSE OF THE DOCUMENT**

This particular pre-feasibility is regarding Interlocking Brciks.

The objective of the pre-feasibility report is primarily to facilitate potential entrepreneurs in project identification for investment and in order to serve his objective; the document covers various aspects of the project concept development, start-up, marketing, finance and management.

[We can modify the project capacity and project cost as per your requirement. We can also prepare project report on any subject as per your requirement.]



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#### PROJECT AT A GLANCE

1 Name of the Entreprenuer xxxxxxxxx 2 Constitution (legal Status) xxxxxxxxx

3 Father / Spouse Name xxxxxxxxxx

4 Unit Address xxxxxxxxxxxxxxxxx

> District: xxxxxxx

Pin: Mobile xxxxxxxState: xxxxxxxxxx

xxxxxxx

5 Product and By Product INTERLOCKING BRICKS

INTERLOCKING BRICKS MAKING UNIT

Rs.20.08 Lakhs 7 Cost of Project

8 Means of Finance

Term Loan Own Capital Rs.15.57 Lakhs Rs.2.01 Lakhs Rs.2.5 Lakhs Working capital

9 Debt Service Coverage Ratio 2.03

10 Pay Back Period 5 Years 11 Project Implementation Period 5-6 Months

12 Break Even Point 29%

13 Employment 8 Persons 14 Power Requirement 30.00 HP 15 Major Raw materials Portland cement, Sand, Dust, Jelly and other materials 16 Estimated Annual Sales Turnover (Max Capacity) 46.74 Lakhs

17 Detailed Cost of Project & Means of Finance

COST OF PROJECT (Rs. In Lakhs)

Particulars	Amount
Land	Own/Rented
Building /Shed 1000 Sq ft	5.00
Plant & Machinery	10.80
Furniture & Fixtures	1.50
Working Capital	2.78
Total	20.08

MEANS OF FINANCE

Particulars	Amount
Own Contribution	2.01
Working Capital(Finance)	2.50
Term Loan	15.57
Total	20.08

### **INTERLOCKING BRICKS**

Introduction: The block's sizes are modular and rectangular (250 mm length, 210 mm wide and 125 mm high) in shape. Corner or junction block is required to maintain right angle corner or a proper T-junction. The interlocking block is different from conventional blocks or bricks since they do not require mortar for its laying work. Because of this characteristic, the process of building walls and other structures are faster as the blocks are laid dry and lock into place. Almost any type of building can be constructed with interlocking blocks, which has projection and depression to key each other. They are pre-cast solid products made out of cement concrete. The product is made in various sizes and shapes viz. rectangular, square and round blocks of different dimensions with designs for interlocking of adjacent tiles blocks.



**Shapes & sizes:** A variety of interlocking blocks have been developed during the past years, differing in shapes and sizes, depending on the required strengths and uses. The system developed has the following shapes and forms:

- (i) Full blocks  $(300 \times 125 150 \times 100 \text{ mm})$  for all standard walls (single or double block thick).
- (ii) Half blocks ( $150 \times 125 150 \times 100 \text{ mm}$ ), which can be molded to size, or made by cutting freshly molded full blocks in half.
- (iii) Channel blocks, same sizes as full and half blocks, but with a channel along the long axis, into which reinforcing steel and concrete can be placed to form lintels or ring beams.
- (iv) The vertical sides of the blocks can be flat or have recesses, and the vertical grout holes can be square or round.
- (v) Inserts for electrical switch housing and conduits as well as water piping outlets can be incorporated.
- (vi) Special blocks for window sills.

### **Advantages of Interlocking Block:**

The advantages of interlocking Block are:

- (i) Construction with interlocking block saves time and ample amount of mortar concrete compared to conventional masonry block laid with mortar
- (ii) Areas prone to earthquake uses hollow interlocking block with the strength improved with grout and reinforcement throughout the height of the wall to resist the effect of earthquake, thus, providing adequate structural stability against collapse
- (iii) Having formed the base course, other course can be assembled by unskilled labour
- (iv) Dismantling of the blocks in case of temporary structure does not incur much damages as in blocks laid with mortar
- (v) Cost of construction is relatively less.

Market Potential: Interlocking cement tiles and paving blocks find applications in pavements, footpaths, gardens, passenger waiting sheds, bus-stops, industry and other public places. The product is commonly used in urban areas for the above applications. Hence, the unit may be set up in urban and semi-urban areas, near the market. A lot of face-lift is being given to roads, footpaths along the roadside. These bricks are ideal materials on the footpaths for easy laying, better look and finish. Whereas the tiles find extensive use outside the large building and houses, lots of these materials are also used in flooring in the open areas of public offices and commercial buildings and residential apartments.

#### **Machinery & equipment requirement:** Basic machines & equipments are:

Name	Qty	Price
Hydraulically operated Concrete block making	3	800000
machine		
Concrete mixer capacity	1	90000
Water pump	1	40000
Colour mixer	1	100000
Other machines & equipments		50000

### **Raw materials:** Basic raw material requirements are as follows:

- 1. Portland cement
- 2. Sand
- 3. Jelly
- 4. Dust
- 5. Other material & consumables

**Manufacturing Process:** The process of Manufacture of interlocking bricks involves the following steps:

- a) Proportioning
- b) Mixing
- c) Compacting
- d) Curing
- e) Drying

#### Area:

The industrial setup requires space for Inventory, workshop or manufacturing area, space for power supply utilities and auxiliary like Generator setup. Also some of the area of building is required for office staff facilities, documentation, office furniture, etc. Thus, the approximate total area required for complete industrial setup is 1000 to 1400Sqft. Civil work will cost around 5 Lac (approx.)

**Power Requirement** – The power consumption required to run all the machinery could be approximated as 30 hp.

Manpower Requirement - There are requirement of skilled machine operators to run the machine set. Experience quality engineers are required for desired quality control. Some helpers are also required to transfer the material from one work station to other. Office staffs are required to maintain the documentation. The approximate manpower required is 8 including 1 Supervisor, 1 Plant operator, 1 unskilled worker, 1 Helper and 1 security Guard. 3 Skilled worker including Accountant, Manager and sales personal each.

## **Approvals & Registration Requirement:**

Basic registration required in this project:

- GST Registration
- Udyog Aadhar Registration (Optional)
- Choice of a Brand Name of the product and secure the name with Trademark if require

**Bank Term Loan:** Rate of Interest is assumed to be at 11%

**<u>Depreciation:</u>** Depreciation has been calculated as per the Provisions of Income Tax Act, 1961

# **Implementation Schedule:**

S No.	Activity	Time required
1.	Acquisition of premises	1-2 Months
2.	Procurement & installation of Plant & Machinery	1-2 Months
3.	Arrangement of Finance	1.5-2 Months
4.	Requirement of required Manpower	1 Month
5.	Commercial Trial Runs	1 Month
	Total time Required (some activities shall run	5-6 Months
	concurrently)	

# **FINANCIALS**

PROJECTED CASH FLOW STATE	MENT				
PARTICULARS	I	II	III	IV	v
SOURCES OF FUND					
Own Contribution	2.01	-			
Reserve & Surplus	3.68	5.20	6.70	8.35	10.33
Depriciation & Exp. W/off	2.27	1.96	1.70	1.47	1.27
Increase In Cash Credit	2.50				
Increase In Term Loan	15.57	-	-	-	-
Increase in Creditors	0.18	0.03	0.02	0.02	0.02
TOTAL:	26.21	7.19	8.42	9.84	11.62
APPLICATION OF FUND					
Increase in Fixed Assets	17.30	-	-	-	-
Increase in Stock	0.51	0.08	0.08	0.09	0.09
Increase in Debtors	2.66	0.49	0.48	0.51	0.54
Repayment of Term Loan	1.73	3.46	3.46	3.46	3.46
Taxation	-	-	1.67	2.09	2.58
Drawings	2.00	2.50	2.50	3.00	4.00
TOTAL:	24.19	6.53	8.20	9.14	10.67
Opening Cash & Bank Balance	-	2.01	2.67	2.89	3.58
Add : Surplus	2.01	0.65	0.22	0.70	0.95
Closing Cash & Bank Balance	2.01	2.67	2.89	3.58	4.53

PROJECTED BALANCE CITE					
PROJECTED BALANCE SHEET	<u> </u>	1			
		+			
PARTICULARS	I	II	III	IV	V
SOURCES OF FUND					
Capital Account					
Opening Balance	-	3.69	6.39	8.91	12.17
Add: Additions	2.01	-	-	-	-
Add: Net Profit	3.68	5.20	5.02	6.26	7.75
Less: Drawings	2.00	2.50	2.50	3.00	4.00
Closing Balance	3.69	6.39	8.91	12.17	15.92
CC Limit	2.50	2.50	2.50	2.50	2.50
Term Loan	13.84	10.38	6.92	3.46	-
Sundry Creditors	0.18	0.21	0.23	0.25	0.27
TOTAL:	20.21	19.47	18.56	18.38	18.69
APPLICATION OF FUND					
Fixed Assets (Gross)	17.30	17.30	17.30	17.30	17.30
Gross Dep.	2.27	4.23	5.93	7.40	8.67
Net Fixed Assets	15.03	13.07	11.37	9.90	8.63
Current Assets					
Sundry Debtors	2.66	3.14	3.62	4.13	4.67
Stock in Hand	0.51	0.59	0.68	0.76	0.85
Cash and Bank	2.01	2.67	2.89	3.58	4.53
TOTAL:	20.21	19.47	18.56	18.38	18.69

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PROJECTED PROFITABILITY STATE	<u>rement</u>				
PARTICULARS	I	II	III	IV	v
A) SALES					
Gross Sale	26.55	31.45	36.25	41.34	46.74
Total (A)	26.55	31.45	36.25	41.34	46.74
B) COST OF SALES					
Raw Material Consumed	7.57	8.83	9.71	10.60	11.48
Elecricity Expenses	2.05	2.28	2.51	2.74	2.97
Repair & Maintenance	1.06	2.20	3.26	4.13	4.67
Labour & Wages	4.79	5.31	6.11	7.03	8.01
Depreciation	2.27	1.96	1.70	1.47	1.27
Cost of Production	17.74	20.59	23.30	25.97	28.41
Add: Opening Stock /WIP	_	0.38	0.45	0.51	0.59
Less: Closing Stock/WIP	0.38	0.45	0.51	0.59	0.66
Less. Closing Stock/WII	0.36	0.43	0.51	0.57	0.00
Cost of Sales (B)	17.36	20.53	23.23	25.90	28.33
C) GROSS PROFIT (A-B)	9.19	10.92	13.02	15.45	18.41
C) GROSS I ROFII (A-B)	34.61%	34.72%		37.36%	39.39%
D) Bank Interest (Term Loan )	1.69	1.38	1.00	0.62	0.24
ii) Interest On Working Capital	0.28	0.28	0.28	0.28	0.28
E) Salary to Staff	3.28	3.44	3.96	4.55	5.23
F) Selling & Adm Expenses Exp.	0.27	0.63	1.09	1.65	2.34
TOTAL (D.F.)			( 22	7.10	0.00
TOTAL (D+E)	5.51	5.72	6.32	7.10	8.08
H) NET PROFIT	3.68	5.20	6.70	8.35	10.33
	13.9%	16.5%	18.5%	20.2%	22.1%
I) Taxation			1.67	2.09	2.58
J) PROFIT (After Tax)	3.68	5.20	5.02	6.26	7.75
Raw Material Consumed	Capacity Utilisation		Amount (Rs.)		
I	45%		7.57		
II	50%			5% Increase in	n Cost
III	55%		9.71	5% Increase in	
IV	60%			5% Increase in	
V	65%			5% Increase in	

#### COMPUTATION OF SALE

Particulars	I	II	III	IV	V
Op Stock	-	4,500.00	5,000.00	5,500.00	6,000.00
D 1 .:	2.70.000.00	2 00 000 00	2 20 000 00	2 (0 000 00	2 00 000 00
Production	2,70,000.00	3,00,000.00	3,30,000.00	3,60,000.00	3,90,000.00
	2,70,000.00	3,04,500.00	3,35,000.00	3,65,500.00	3,96,000.00
Less : Closing Stock(5 Days)	4,500.00	5,000.00	5,500.00	6,000.00	6,500.00
Net Sale	2,65,500.00	2,99,500.00	3,29,500.00	3,59,500.00	3,89,500.00
1 vet buie	2,00,000.00	2,77,500.00	3,23,500.00	3,23,200.00	3,03,000.00
Sale Price per brick	10.00	10.50	11.00	11.50	12.00
Sale (in Lacs)	26.55	31.45	36.25	41.34	46.74

COMPUTATION OF MAKING OF INTERLOCKING	BRICKS	
Item to be Manufactured Interlocking brick		
Manufacturing Capacity per day	2,000	bricks
No. of Working Hour	8	
No of Working Days per month	25	
No. of Working Day per annum	300	
Total Production per Annum	6,00,000	bricks
Total Production per Annum	6,00,000	bricks
•		INTERLOCKING
Year	Capacity	BRICKS
	Utilisation	
I	45%	2,70,000.00
II	50%	3,00,000.00
III	55%	3,30,000.00
IV	60%	3,60,000.00
V	65%	3,90,000.00

#### COMPUTATION OF RAW MATERIAL

	Quantity of Raw	Unit	Unit Rate of	Total CostPer
Item Name	Material	Oilit	Offit Rate of	Annum (100%)
Portland cement	170.00	Ton	6,500.00	11,05,000.00
Sand	95.00	Ton	4,000.00	3,80,000.00
Jelly	60.00	Ton	1,200.00	72,000.00
Dust	45.00	Ton	1,000.00	45,000.00
Other material & consumables				80,000.00
Total				16,82,000.00
Total Raw material in Rs lacs				16.82

COMPUTATION OF CLOSING STOCK & WORKING CAPITAL							
PARTICULARS	I	п	III	IV	v		
Finished Goods							
(5 Days requirement)	0.38	0.45	0.51	0.59	0.66		
Raw Material							
(5 Days requirement)	0.13	0.15	0.16	0.18	0.19		
Closing Stock	0.51	0.59	0.68	0.76	0.85		

COMPUTATION OF WORKING CAPIT	AL REQUIREMENT		
Particulars	Amount	Margin(10%)	Net
			Amount
Stock in Hand	0.51		
Less:			
Sundry Creditors	0.18		
Paid Stock	0.33	0.03	0.30
Sundry Debtors	2.66	0.27	2.39
Working Capital Requirement			2.69
Margin			0.30
MPBF			2.69
Working Capital Demand			2.50

BREAK UP OF LABOUR			
Particulars	Wages	No of	Total
	Per Month	Employees	Salary
Supervisor	12,000.00	1	12,000.0
Plant Operator	10,000.00	1	10,000.0
Unskilled Worker	6,000.00	1	6,000.0
Helper	4,000.00	1	4,000.0
Security Guard	6,000.00	1	6,000.0
			38,000.0
Add: 5% Fringe Benefit			1,900.0
Total Labour Cost Per Month			39,900.0
Total Labour Cost for the year (In Rs. Lakhs)		5	4.7

y No	of	Total
nth Empl	loyees	Salary
00.00	1	12,000.00
00.00	1	8,000.00
00.00	1	6,000.00
		26,000.00
		1,300.00
		27,300.00
	- 2	3.28
		3

COMPUTATION OF DEPRECIATIO	N				
Description	Land	Building/shed	Plant & Machinery	Furniture	TOTAL
Rate of Depreciation		10.00%	15.00%	10.00%	
Opening Balance	Leased	10.00 / 0	-	-	-
Addition	_	5.00	10.80	1.50	17.30
	_	5.00	10.80	1.50	17.30
		-	-	-	
TOTAL		5.00	10.80	1.50	17.30
Less : Depreciation	-	0.50	1.62	0.15	2.27
WDV at end of Ist year	-	4.50	9.18	1.35	15.03
Additions During The Year	-	-	-	-	-
	-	4.50	9.18	1.35	15.03
Less: Depreciation	-	0.45	1.38	0.14	1.96
WDV at end of IInd Year	-	4.05	7.80	1.22	13.07
Additions During The Year	-	-	-	-	-
	-	4.05	7.80	1.22	13.07
Less : Depreciation	-	0.41	1.17	0.12	1.70
WDV at end of IIIrd year	-	3.65	6.63	1.09	11.37
Additions During The Year	-	-	-	-	-
	-	3.65	6.63	1.09	11.37
Less : Depreciation	-	0.36	0.99	0.11	1.47
WDV at end of IV year	-	3.28	5.64	0.98	9.90
Additions During The Year	-	-	-	-	-
	-	3.28	5.64	0.98	9.90
Less : Depreciation	-	0.33	0.85	0.10	1.27

2.95

4.79

0.89

8.63

WDV at end of Vth year

REPAYMEN	SCHEDULE OF TERM LOAN					11.0%	
Year	Particulars	Amount	Addition	Total	Interest	Repayment	Cl Balance
I	Opening Balance						
	Ist Quarter	15.57	-	15.57	0.43	-	15.57
	Iind Quarter	15.57	-	15.57	0.43	-	15.57
	IIIrd Quarter	15.57	-	15.57	0.43	0.87	14.71
	Ivth Quarter	14.71	-	14.71	0.40	0.87	13.84
					1.69	1.73	
II	Opening Balance						
	Ist Quarter	13.84	-	13.84	0.38	0.87	12.98
	Iind Quarter	12.98	-	12.98	0.36	0.87	12.11
	IIIrd Quarter	12.11	-	12.11	0.33	0.87	11.25
	Ivth Quarter	11.25		11.25	0.31	0.87	10.38
					1.38	3.46	
III	Opening Balance						
	Ist Quarter	10.38	-	10.38	0.29	0.87	9.52
	Iind Quarter	9.52	_	9.52	0.26	0.87	8.65
	IIIrd Quarter	8.65	-	8.65	0.24	0.87	7.79
	Ivth Quarter	7.79		7.79	0.21	0.87	6.92
					1.00	3.46	
IV	Opening Balance						
	Ist Quarter	6.92	-	6.92	0.19	0.87	6.06
	Iind Quarter	6.06	-	6.06	0.17	0.87	5.19
	IIIrd Quarter	5.19	-	5.19	0.14	0.87	4.33
	Ivth Quarter	4.33		4.33	0.12	0.87	3.46
					0.62	3.46	
v	Opening Balance						
	Ist Quarter	3.46	-	3.46	0.10	0.87	2.60
	Iind Quarter	2.60	-	2.60	0.07	0.87	1.73
	IIIrd Quarter	1.73	-	1.73	0.05	0.87	0.86
	Ivth Quarter	0.86		0.86	0.02	0.87	- 0.00
					0.24	3.46	

Door to Door Period60MonthsMoratorium Period6MonthsRepayment Period54Months

CALCULATION OF D.S.C.R					
PARTICULARS	I	II	III	IV	V
CASH ACCRUALS	5.95	7.16	6.72	7.73	9.02
Interest on Term Loan	1.69	1.38	1.00	0.62	0.24
Total	7.64	8.54	7.72	8.35	9.26
<u>REPAYMENT</u>					
Repayment of Term Loan	1.73	3.46	3.46	3.46	3.46
Interest on Term Loan	1.69	1.38	1.00	0.62	0.24
Total	3.42	4.84	4.46	4.08	3.70
DEBT SERVICE COVERAGE RATIO	2.24	1.76	1.73	2.05	2.50
AVERAGE D.S.C.R.			2.03		

COMPUTATION OF ELECTRICITY			
(A) POWER CONNECTION			
Total Working Hour per day	Hours	8	
Electric Load Required	HP	30	
Load Factor		0.7460	
Electricity Charges	per unit	7.50	
Total Working Days		300	
Electricity Charges			4,02,840.00
Add : Minimim Charges (@ 10%)			
(B) DG set			
No. of Working Days		300	days
No of Working Hours		0.3	Hour per day
Total no of Hour		90	
Diesel Consumption per Hour		8	
Total Consumption of Diesel		720	
Cost of Diesel		65.00	Rs. /Ltr
Total cost of Diesel		0.47	
Add : Lube Cost @15%		0.07	
Total		0.54	
Total cost of Power & Fuel at 100%			4.57
Year	Capacity		Amount
	1 1		(in Lacs)
I	45%		2.05
II	50%		2.28
III	55%		2.51
IV	60%		2.74
V	65%		2.97



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