PROJECT PROFILE ON SEMI MECHANISED BUILDING BRICKS

Product	::	Semi Mechanized Building Bricks
Production Capacity	::	Bricks 45 lakhs Nos. per annum Value : Rs.100.35 lakhs
Month & Year of preparation	::	March, 2010
Prepared by	::	Glass & Ceramics Dvn., MSME-Development Institute, Balanagar, Narasapur Cross Roads, Hyderabad – 500 037 Telephone : 040-23078131-132-133 Telefax : 040-23078857 Web : http://msmehyd.ap.nic.in; http://www.dcmsme.gov.in Email: dcdi-hyd@dcmsme.gov.in

Introduction:

Semi Mechanised Building Bricks are made out of mixture of tank clay and lean clay. The clay mixture extruded from pug mill, at one end of the pug mill mouth piece attached to the wire cutting table, where the bricks are cut into size and then they are kept for drying. The drying of the bricks is carried out under thatched sheds or tiles roofing sheds or in the open yard depending upon the characteristic of place available as well as local climatic conditions. The firing operation will be done utilising coal as a fuel. These bricks are used in construction of all types of buildings and the standard size of the brick is 9" x 4 1/2' x 3".

Plant capacity per annum : Bricks 45 lakhs Nos. per annum
Value : Rs.100.35 lakhs

Market & Demand:

Due to the rapid increase in construction activities both in private, public sectors and also various Govt. housing schemes, these bricks are having very good demand for construction purposes.

Raw materials : Clay from tank or from land is the major raw material. Available locally.

Technical Aspects:

1. **Manufacturing Process & source of Technology :**

Tank clay is the main raw material for the manufacture of wire cut building bricks. In order to get good results a mixture of two or three clays are used. The clay should possess good plasticity. If a highly plastic clay is used it is blended with suitable quality of lean clay say a sandy clay to improve the workability. To decrease the shrinkage powdered burnt clay bricks in the form of grog is used. The mixture of various clays are thoroughly blended in a thorough mixer and then fed into the roller of pug mill where the clay is pugged well and extruded through auger. The mouth of the auger is fixed with a rectangular die of the desired brick dimension. The extruded clay is cut into brick lengths with the help of wire cutting arrangement. The wire cut bricks are then sent for drying. After drying for a week they are loaded in a bull's kiln and fired to a temperature of 850 to 900^0C. Fired bricks are unloaded and sent to market. Coal is the fuel used for firing bricks in bulls kiln.

Bureau of Indian Standards: has laid down the specifications for this product as:

IS: 1077 - 1976 - Common burnt clay building bricks.
IS: 2180 - 1970 - Heavy duty burnt clay bricks.

Basis & Presumptions:

1. It is proposed to manufacture 15,000 nos. bricks per day on single shift basis and 300 working days per annum are taken into consideration.
2. The firing of bricks is done in Chamber kilns systems; the usual operation is continuous nature.
3. The unit shall invariably be located at a distance of 10 to 20 kms. from the clay deposits and market area to avoid heavy transport cost.

The price of raw materials are taken as per the local rates

Production Capacity : 40,50,000 Nos. per annum (After rejections & Breakages)
Value : Rs.100.35 lakhs

Utilities per month:

Power 70HP working at 10 hrs./day will consume 13000 @ Rs.4.0 per unit	52,000

E. **Financial Aspects:**

1. Fixed Capital:

Land 2 acres @ Rs.20 lakhs per acre	40,00,000

Building:

a.	Machinery shed 1000 sq. ft. @ Rs.200 per sq. ft.	2,50,000
b.	Drying sheds (Roofing tiles) 40'X80'X4 sheds 12800sft.@ Rs.100/-	12,80,000
c.	Kiln shed 4000 sq. ft. @ Rs.100 sq.ft.	4,00,000
d.	Office building 500 sq. ft. @ Rs.300 per sq. ft.	1,50,000
e.	Bore well and water tank etc.	1,00,000
	TOTAL	**59,30,000**

2. Machinery & Equipments.

	Description	Qty.	Rate	Value
1.	Pug mill with shaft with 30 HP motor capacity to produce 1000 nos. p.hr.	2	2,00,00	4,00,000
2.	Brick cutting table	2	30,000	60,000
3.	Belt drive equipment for pug mill to horizontal clay mixer with 3 HP motor	1	50,000	50,000
4.	Horizontal clay mixer with 25 HP motor	1	1,50,000	1,50,000
5.	Mouth piece for pug mill, working tools, pallets etc.	LS		60,000
6.	24 chambers high draught kiln size 20'x10'x7' capacity of each chamber is 20000 with chimney and blowers etc.			7,00,000
7.	Electrification and installation on 10% of the cost of machinery			1,42,000
8.	Office furniture and equipment			50,000
	Total			**16,12,000**

Pre-operative expenses:

Deposits with electricity board and other misc. preliminary expenses etc. **2,00,000**

Total Fixed Capital:

i.	Land and Building	59,30,000
ii.	Machinery & Equipment	16,12,000
iii.	Preoperative expenses :	2,00,000
	TOTAL:	**77,42,000**

Working capital per month:

Personnel:

S. No.	Description	No.	Salary	Total
1.	Manager	1	15000	15,000
2.	Supervisor	3	8,000	24,000
3.	Accountant cum Clerk	1	5,000	5,000
4.	Machine operator	2	3,500	7,000
5.	Firemen	2	3,500	7,000
6.	Skilled Workers	4	4,000	12,000
7.	Unskilled workers	4	3000	12,000
8.	Semi skilled workers	20	3000	60,000
9.	Watchman & Peon	3	2500	7,500
	Add: Perquisites @ 15%			**22,425**

	Total :	**1,71,925**
		Say: 1,72,000/-

Raw material per month:

1.	Clay from tank or from land 1200 MT @ Rs.80 per MT	96,000
2.	Coal 60 MT @ Rs.2500 per MT	1,50,000
	Total :	**2,46,000**

Other expenses:

Postage & Stationery	1,000
Telephones	1,500
Repairs & Maintenance	10,000
Transport & conveyance	10,000
Lubricants	2,000
Miscellaneous Expenses	3,000
Total :	**36,500/-**

Total Recurring Expenditure per month:

Personnel	1,72,000
Raw Materials	2,46,000
Utilities	52,000
Other expenses	36,500
Total :	**5,06,500/-**

Working Capital for 3 months :

5,06,500x3 + 15,19,500 or Say Rs.15,19,500/-

Total Capital Investment:

a.	**Fixed Capital**	77,42,000
b.	**Working Capital for 3 months**	15,19,500
	Total :	**92,61,500/-**

F. **Financial Analysis:**

1. Cost of Production per annum:

Total recurring cost	60,78,000
Depreciation on building @ 5%	1,04,000
Depreciation on machinery & equipment @ 10%	72,000
Depreciation on kiln @ 20%	1,40,000
Interest on capital investment @16%	14,82,000
Total :	**78,76,000/-**

2. Turnover per year:

By sale of 45,00,000 lack bricks @ 2.70 per brick 1,12,50,000

	Less: 10% rejections	
	(handling, loading & inflation in kilns etc)	12,15,000
	Total :	**1,00,35,000/-**

3. Net Profit per year: Sales - Cost of production =

= 1,00,35,000 – 78,76,000 = **21,59,000**

4. (a) Net profit ratio:

Net Profit per year X 100 / Turnover =

21,59,000 x 100 / 10,03,500 = **21%**

(b) Rate of Return

=21,59,000 x100 / 10,03,500 = 23%

5. Break Even Analysis (BEP):

1. Fixed Cost:

a.	Depreciation on building @ 5%	1,04,000
b.	Depreciation on machinery @ 10%	72,000
c.	Depreciation on kiln @ 20%	1,40,000
d.	Interest on capital investment @ 16%	14,82,080
e.	40% on salaries	8,25,600
f.	40% other expenses	1,75,200
	TOTAL:	**27,98,880/-**

BEP : Fixed Cost X 100 / Fixed Cost + Profit =

27,98,880 X 100 / 49,57,880 = 56%

Addresses of machinery suppliers:

1. M/s. Building Enterprises, S.No.315,Muthuswamynagar, Mamartholam Road, Ganapathupuder,Coimbatore – 641006
2. M/s. Chendur Machineries, 110 Parasakthinagar, Avamlapuram(PO) Madhurai-625012

Raw material suppliers : Tank clays or clay from land abundantly available Locally.

Resource centre of Technology : Technical guidance that would be provided by the CBRI, CGCRI & machinery suppliers would be adequate for this product

List of units set up using this project profile