Detailed project Report on

CERAMIC GLAZED WALL TILES

(Small Scale production Enterprise)

1.Product :- Ceramic Glazed Wall Tiles

2.NIC Code (NIC1998):-

3.Product Code (ASICC-2000) :-

4.Production Capacity :- 2160T/ Capacity per year
(Valued Rs. 257.28 Lakhs)

5.Month& Year of Preparation :-11th March ,2011

6.Prepared by : Br.MSME-DI
W.B.S.I.D.C Industrial Estate
J.P.Avenue, Durgapur-12
Phone No. 0343-2557129

CERAMIC GLAZED WALL TILES

Introduction:

This project envisages production of Ceramic Glazed Tiles which is having a very bright prospect in bathrooms and kitchen in modern housing and in Analytical Laboratories and toilets attached to Railway stations. Due to the liberalized economic policy followed and encouragement by Govt.of India future prosperity of this product in the eastern zone is obviously bright.Moreover there is not a single MSEs in manufacturing ceramic glazed tiles in total Eastern Region which has a vast demand of this product.

Uses of Ceramic Glazed Tiles:

Ceramic Glazed tiles are made of porous body with a coating of white or colored Glaze. These are used extensively in the Bathrooms, Kitchen in modern buildings and in Hospitals and Analytical Laboratories, Toiletries attached to Railway platforms. This is because of this products have properties like good resistance to weather and chemicals, having high strength, hard, glossy surface with different colors and pleasing appearance. In the near future the chances for replacing these items by other materials look very bleak. These tiles are rather cheap, easy to clean, have more life and are available in pleasing colours.

Market Potential:

The market of ceramic glazed Tiles are very bright since its demand is increasing at a faster rate.The reasons are not far to seek.The improved living standard coupled with good economic situation along with supporting Govt. policies for housing sector speak itself for the demand for these products. Side by side population growth is also creating a positive demand position of these products. These items form an essential and integral part of consuming sector like housing, educational and research institutions, hospitals, Industries, hotels, restaurants, cinema halls and other public places. The demands of these products also increase

by the need of renovation works of the old above similar buildings. The housing Development Finance Corporation and other Govt.Corporations and Banks for financing housing will go a long way for the demand of these products.The private sector which accounts for the lion's share of the investment in housing and construction is bound to increase further.Further Govt. of India as well as State Govt.is taking more care for the up-keeping of rural sanitation and water supply systems which will indirectly influence and increase the demand of ceramic glazed tiles. Further during the last few years before global economic recession the export opportunities of these tiles from Middle East and Developing countries was very encouraging and hopefully after the recession export opportunities of these tiles will come back.At present there are over 13 Medium scale enterprises and 60 small scale enterprises are in this field but there are no enterprises in Eastern and North Eastern area. The units that register EM-II Under small scale Enterprises will go on enjoying the prevailing State Govt. Incentives and Central Govt. Incentives as per new Industrial Policy 2006.Considering these opportunities new generation entrepreneurs could think of manufacturing this products" **Glazed Ceramic Tiles**"

Quality Control and Standards:

The raw materials are tested before taken into use for production and after the result is satisfactory they are used .During the manufacturing process quality is checked at the times of grinding ,mixing and pressing .Finally finished products are selected at random and tested to ascertain its asset values with the help of Modulus of Rupture test(MOR), Warpage, Apparent porosity ,Bulk density, Crazing test, Scratch Hardness test on a regular basis as per BIS specification.

The standards being followed while making Ceramic Glazed Wall Tiles are:

IS : 777-1970 –Glazed tiles

IS :2840-1965 –China clay for ceramic Industry

IS :4589-1979 –Plastic clay for Ceramic Industry

Manufacturing Process:

The raw materials like local clay,Chinaclay,Ball clay ,Wollastonite chips and pitchers are mixed and ground thoroughly to form an uniform slip. They are unloaded in an agitator. The slip is screened, magnetized and kept in agitating tank with addition of required deflocculants . The material is then passed through filter press to get rid of soluble salts to make a plastic body.The plastic body is dried in a dryer to get the dried mass of 5-6 % moisture.The dried mass is subsequently fed into a pan mill. The output of the pan mill is stored in vertical silos.The mixture is now ready for pressing tiles.The pressed green tiles are stacked on the kiln car in a stack of 3 ft.height and dried by using hot waste air from the kiln. The green tiles are dried for 20 hrs.The dried tiles are pushed along with the kiln car and allowed for firing for 20 hrs.The outputs are known as Biscuits. The hot tiles at above 250-300C are allowed to cool in nature normally.The cooled tiles when come at normal room temperature 30-40C are screened through online sorting followed by Hammer test and Brushing,water spraying and Glazing.Then the Glazed wares are loaded into refractory cassettes on an endless moving conveyor.

The cassettes are loaded onto Glost Kiln car and allowed for firing at a temperature of 1040C for a cycle of 18 hrs. The cooled tiles are unloaded from the cassettes and allowed for online inspection. The tiles are checked into 1^{st}i.e Prime,2^{nd} as commercial grade,3^{rd}as Reject Variety. After sorting the tiles are packed and stripped and stamped and sent to stockyard. A single pack of tile weighs 16 kg and ready for sale.

Pollution Control:

Glaze tile has a share in the present Environmental Degradation. So it is advisable to get NOC from Pollution Control Authority as per statutory norms. In this project it would be better if the installed chimney height is of 30 ft and all the machineries are fitted with pollution arresting measures.

Energy Conservation:

Considering the fuel reserves and its spiraling price it is essential to adopt energy conservation system by the entrepreneur. The efficiency of a furnace will depend

on how efficient the combustion system is and secondly how best the generated heat is utilized.

Energy conservation could be achieved through following process:

1) Complete combustion with minimum excess air.
2) Proper heat distribution.
3) Operating the kiln at desired temperature.
4) Reducing heat losses from the openings.
5) Minimizing wall losses.
6) Waste heat recovery from fuel gasses and utilization for Drying Tiles
7) Control of Chimney draught and kiln pressure
8) Use of lubricants and proper maintenance

   So the efficiency of a kiln will depend on how efficient the combustion system is and secondly how best the generated waste heat is utilized .So, it is always recommended that standard and good quality of fuel should be used.

Basis & Presumptions:

1. The estimates are drawn for a capacity ,generally considered techno economically viable for a model type of manufacturing unit.
2. The cost in respect of office space,auxiliarymachineries,raw materials and the service charges are generally considered the market value prevails at the time of preparation of the project report and may vary depending upon various factors.
3. Salaries and wages to be given to the officers and employees are in accordance to the present wage structure of Govt.of West Bengal.
4. Considering inflation rate and present Global economy condition interest rate for Term Loan and Working Capital Loan are considered to be @ 16% per annum
5. Margin Money from the promoters will be 25% for fixed Assets and 25% for working capital
6. Calculations have been made on the basis of three shifts operation and at 60% capacity utilization initially.

Project Implementation:

It is expected that nine months will be sufficient to complete all activities of the project till commercial production is achieved.

Infrastructural Facilities:

1. Power 205 h.p of power will be required for this project.The entrepreneur should approach appropriate authority accordingly.
2. Raw material availability : Except one raw material from Janshi and other raw material are locally available.
3. Water: Sufficient water @ 10KL will be required daily and suitable bore water will suffice if normal supply water from corporation is not available.
4. Transport: The unit should be in a place where it should be connected with road and Rail transport, so that there should be no problem in arranging raw materials and also dispatches of finished products.
5. Man power: Total man heads requirement for this project will be around 20 and since it is an established technology and as such there will no problem in getting suitable manheads for this project.
6. Registration & Licenses: The entrepreneur should obtain all relevant registration from DIC and other Govt. offices before commencement of business activities. This is must.
7. Pollution : There will be no harmful disposal of effluents .However entrepreneur should obtain NOC From pollution control board as per statutory norms.

Preoperative Expenses:

Sl.no	Particulars	Amount in Rs
01.	Company formation and legal expenses	4,00,000/-
02.	Project Report ,Technical assistance ,Civil plan and Estimates	2,50,000/-
03.	Travelling expenses	75,000/-
04.	Miscellaneous expenses	20,000/-
	Total: Rs.	7,45,000/-

Description of land and Building:

Sl.no	Particulars	Specifications	Amount in Rs.
01.	Land @ Rs.4.5 lac/Acre + 10% registration expenses	02 Acre	9,90,000/-
02.	Work shed @ Rs.325/- sq/ft Raw material processing area 7000sq.ft Processing Zone 1000sq.ft. Conveyor Area 2000 sq.ft Glazing Bay 7200 sq.ft. Kiln area 4000 sq.ft. Finished Goods area 4000sq.ft.	25200 sq.ft	81,90,000/-
03.	Boundary wall	1176 rft.	2,35,200/-
04.	Office @ Rs.350/sq.ft.	400 sq.ft.	1,40,000/-
05.	Security office and Gate	L.S.	20,000/-
06.	Staff room and Toilet @ Rs.250/ - sq.ft.	600 sq.ft.	1,50,000/-
07.	Laboratory Room @ Rs.350/- sq.ft.	800 sq.ft.	2,80,000/-
08.	Land development	L.S.	50,000/-
09.	Deep Tube Well 6”	L.S.	80,000/-
10.	Cake dryer	l.s.	3,00,000/-
11.	Glazing Tanks 02 t cap 06 nos.	L.S.	2,30,000/-
12.	Generator Room		50,000/-
		Total Rs.	107,15,200/-

List of Plant and Machinery:

Sl.no.	Particulars	Specifications	Amount In Rs.
01.	Ball Mill 04 T Cap.02 nos Connected with 20 H.P.motor and accessories each.	5’x3’	10,00,000/-
02.	Agitator 02 T one no. with 10H.P.motor and accessories	02 t	6,00,000/-
03.	Hydraulic filter press 120 plates with 05 H.P.pump and	MS.	7,30,000/-

	filter clothes 01 set extra 02 nos		
04.	Pan Mill 01 no Connected with 7.5 H.P. motor complete	01 no	2,60,000/-
05.	Bucket Elevators and Silos		6,00,000/-
06.	80 T Hydraulic press connected with 15 H.P.motor and suitable dies	03 nos	14,00,000/-
07.	Glazing line conveyor connected with 02 H.P.Motor two nos. and online blower 05 H.P.04 nos		4,00,000/-
08.	Ball Mill for glazing of 500 kg capacity connected with 05 H.P.motor	06 nos	4,50,000/-
09.	Glaze vat with vertical Pump arrangement with agitators connected with 0.5 H.P.motor	03 nos s.s.vat	1,50,000/-
10.	Pot Mill connected with 04 pot attachment and 01 H.P.motor	01 no	50,000/-
11.	Drier and Shuttle kiln with 18 cars attachment with transfer car arrangement	20 H.P. 02 Nos	30,00,000/-
12.	Buller Ring Apparatus		20,000/-
13.	Laboratory Equipments		5,50,000/-
		Total Rs.	92,10,000/-
	Add sales tax		7,37,000/-
	Cost of Plant & Machinery	Rs.	**99,47,000**/-

Packing ,Forwarding ,Insurance, Frieght @15% Rs.14,92,000/-

Erection and Installation of Shuttle kiln Rs.13,00,000/-

Electrification and Installation & Security deposits Rs. 17,00,000/-

Generator 125 KVA 02 nos Rs.14,00,000/-

Cost of Transformer Rs.8,50,000/-

Moulds and Assembly Rs.7,50,000/-

Pollution Control Equipments Rs.6,00,000/-

Total Rs.80,92,000/-

Other Fixed Assets:

Sl.no.	Particulars	Amount in Rs.
01.	Furnitures	10,000/-
02.	Electrification	20,000/-
03.	Computer ,Printer ,UPS ,Fax,	80,000/-
04.	Miscellaneous	10,000/-
	Total Rs.	1,20,000/-

Total Fixed Capital (Amount in lac):

Preoperative expenses	7,45,000/-
Land & Building	107,15,200/-
Plant & Machinery	99,47,000/-
Errection ,Installation ,Electrification ,Forwarding,Packaging,Transportation,Generator, Auxillary items and Pollution control equipment	80,92,000/-
Other Fixed Assets	1,20,000/-
Total	**296,19,200/-**

Salaries and Wages per month:

Sl.no.	Particulars	No.	Rate	Amount In Rs.
01.	Works Manager	01	15,000/-	15,000/-
02.	Supervisor	01	6500/-	6500/-
03.	Electrician	01	5000/-	5,000/-
04.	Accountant	01	3000/-	3,000/-
05.	Salesman	02	5000/-	10,000/-
06.	Skilled workers	04	3000/-	12,000/-
07.	Semi skilled workers	08	2000/-	16,000/-
08.	Watchman	02	1200/-	2400/-
			Total Rs.	69,900/-
	Fringe benefits @ 15%			10,485/-
			Total Rs.	80,385/-

Raw Materials per month (in Rs.)

Sl.no.	Particulars	Rate	Quantity	Amount In Rs.
01.	Local clay	500/- M.T.	173.5 T	87,000/-
02.	Wollastonite	4000/- M.T.	21 T	84,000/-
03.	Talc	2000/M.T.	12.5 T	25,000/-
04.	Glaze	40,000/ M.T.	6.30T	2,52,000/-
			Total Rs.	**4,48,000/-**

Utilities and Fuel Per Month:

Sl.no.	Particulars	Amount
01.	Electric Power (32600 units)	1,48,000/-
02.	Furnace oil (27600 lts)	414,000/-
03.	Diesel 2400 lts	41,000/-
	Total Rs.	**6,03,000/-**

Consumables per month:

Sl.no.	Particulars	Quantity	Rate	Amount
01.	Cardboard box	11250 noa	Rs.10/- per box	1,12,500/-
02.	Tile cassettes	3500 nos	Rs.80/- per p	2,80,000/-
			Total Rs.	3,92,500/-
Other expenses per month				
Sl.no.	Particulars			Amount
01.	Postages			1,000/-
02.	Tax & Insurance			5,000/-
03.	Travelling and conveyance			15,000/-
04.	Frieght& Carriage			30,000/-
05.	Other consumables like oil & lubricants			5,000/-
06.	Repairs and Maintenance			25,000/-
07.	Miscellaneous			10,000/-
			Total :	91,000/-
Working capital Assessment				
Sl.no.	Particulars			Amount in Rs
01.	Fuel stock (2 days)			36,400/-
02.	Raw materials (10 weeks)			11,20,000/-
03.	Work in progress (01 week)			4,52,168/-
04.	Finished stock (14 days)			9,04,336/-
05.	Sundry Debtors (8 weeks)			32,29,770/-
			Total :	57,42,770/-

Total Capital Investment :

Total Fixed Capital Rs.296,19,200/-

Working Capital Requirement Rs.57,42,500/-

Total : Rs. 353,61,700/-

Manufacturing cost Per Month :

Raw materials	4,48,000/-
Salary and wages	80,000/-
Utilities and Fuels	6,03,000/-
Consumables	3,93,000/-
Other expenses	91,000/-
Depreciation on Building @5%	41,000/-
Depreciation on Plant and M@10%	1,50,000/-
Depreciation on other Fixed Assets @20%	2000/-
Interest on Term Loan @16%	2,79,000/-
Interest on Working Capital @ 16	57,000/-
Total :	21,44,000/-
Manufacturing cost per annum	257,28,000/-
Total production Per Month	180 T

Sales Proceeds per month :

@ Rs.19,000/-M.T. = Rs.36,00,000/-

Gross Sales Proceeds per annum = Rs.432,00,000/-

Net sales per annum (less excise) = Rs.378,00,000/-

Profit per month = Rs.10,13,000/-

Profit per annum = Rs.121,60,000/-

Return on sales = 28.15 %

Return on Investment = 34.30%

Break Even Analysis:

Contribution = 199.36 lacs

Variable cost :Sales – contribution = 378-199.36 =178.64 lac

Fixed cost per month :

Salary and Wages (40%) Rs. 32,000/-

Utilities (20%) Rs. 1,21,000/-

Other Expenses (25%) Rs. 23,000/-

Depreciation Rs. 1,93,000/-

Interest On Term loan Rs. 2,79,000/-

Total Rs. 6,48,000/-

Fixed cost per annum Rs. 77.76 lacs

Break Even Sales (BES) = F/(C/S) = 77.76/ (199.36/378) =77.76/0.527

= 147.55Lacs or 39% of net sales

Depreciation Analysis :(Amount in Lacs)

Year	Building	P&M	Oth.Asst	5% dep .on building	10% dep.on machine	20% dep.on other	Total Depr.
01	97.25	180.39	1.2	4.86	18.04	0.24	23.14
02	92.39	162.35	0.96	4.62	16.24	0.19	21.05
03	87.77	146.11	0.77	4.39	14.61	0.15	19.15
04	83.38	131.50	0.61	4.17	13.15	0.12	17.44
05	79.21	118.35	0.49	3.96	11.84	0.10	15.90
06	75.25	106.52	0.39	3.76	10.65	0.08	14.49

Sources of Finance (Rs.in lacs)

Description	Total	Own Margin	Margin Amount	Financial Margin	Institute Amount
Preoperative expenses	7.45	100%	7.45	-	-
Land	9.90	100%	9.90	-	-
Civil construction	97.25	25%	24.31	75%	72.94
Plant & Machinery	180.39	25%	45.10	75%	135.29
Other fixed assets	1.20	25%	0.30	75%	0.90
Working Capital	57.43	25%	14.36	75%	43.07
Total	353.62		101.42		252.22

Term Loan Rs. 209.13 lacs

Working capital Loan Rs. 43.07 lacs

Own Margin Rs.101.42 lacs

TOTAL Rs.353.62 lacs

Term Loan Repayment Schedule :

(Interest Rate 16% per annum)

Year	Opening balance	Interest, Rate 16%	Repayment	Closing Balance
1	209.13	33.46	41.83	167.30
2	167.30	26.77	41.83	125.47
3	125.47	20.08	41.83	83.64
4	83.64	13.38	41.83	41.81
5	41.81	6.69	41.81	-

PROJECTED PROFITABILITY AND PERFORMANCE ANALYSIS:

Sl.no.	Capacity Utilization	60%	70%	80%	85%	90%
B	Production/annum	2160T	2520t	2880t	3060t	3240t
C	Gross Sales Less Excise Net Sales	432 53.12 378.88	504 64.64 439.36	576 76.16 499.84	612 81.92 530.08	648 87.68 560.32
D	Cost of Production					
1	Raw material consumed	53.76	62.72	71.68	76.16	80.64
2	Power and Fuel	72.36	84.42	96.48	102.51	108.54
3	Direct Labor and Wages	9.65	9.65	10.62	10.62	11.68
4	Consumable store	47.1	54.95	62.8	66.73	70.65
5	Repairs and Mint	3.0	3.0	3.5	3.5	4.0
6	Other manufacturing exp.	7.92	7.92	8.71	8.71	9.58
7	Depreciation	23.14	21.04	19.15	17.44	15.90
	Total cost of production	216.93	243.70	272.94	285.67	300.99
8	Add .opening balance of SIP&FPS	-	25.12	29.31	33.50	35.39
9	Ded.closing balance of SIP &FPS	25.12	29.31	33.50	35.59	37.68
E	Cost of Sales	191.81	239.51	268.75	283.58	298.90
F	Gross Profit(c-E)	187.07	199.85	231.09	246.50	261.42
G	Interest on					
	Term Loan	33.46	26.77	20.08	13.38	6.69
	W.C.Loan	6.89	6.89	6.89	6.89	6.89
H	Selling, General, Adman.expenses	20	25	35	50	65
I	Profit Before Tax	126.72	141.19	169.12	176.23	182.83
J	Provision for Tax @33%	41.82	46.59	55.81	58.16	60.34
K	Net profit	84.90	94.6	113.31	118.07	122.50
L	Depreciation	23.14	21.04	19.15	17.44	15.90
M	Net cash Accrual	108.04	115.64	132.46	135.51	138.40
N	Repayment					

	Obligation 1)Towards Term loan 2)Interest on Term Loan	41.83 33.46	41.83 26.77	41.83 20.08	41.83 13.38	41.83 6.69
O	DSCR	2.58	2.76	3.17	3.23	3.31

Projected Balance sheet:

Liabilities:

Year	1st	2nd	3rd	4th	5th
Equity Share capital	101.42	110.99	120.57	125.35	130.13
Reserve and surplus	84.90	94.6	113.31	118.07	122.50
Term Loan	167.30	125.47	83.64	41.81	-
W.C.Loan	43.07	43.07	43.07	43.07	43.07
Other liabilities	41.82	46.59	55.81	58.16	60.34
Sundry Creditors	-	11.00	11.00	32.00	59.00
Total	438.51	431.72	427.40	418.46	415.04

Assets:

Net Block Investment	255.70	234.65	215.50	198.06	182.16
Investments	40.00	42.00	45.00	44.00	48.00
Dividend	30.00	30.00	30.00	30.00	30.00
Current Assets	57.42	66.99	76.56	81.35	86.13
Cash & Bank Balances	55.39	58.08	60.34	65.05	68.75
Total	438.15	431.72	427.40	418.46	415.04

Internal Rate of Return (IRR):

Initial Investment : Rs.353.62 lacs

Year end	Cash inflow	Discounting Rate @31%	Present Value Rs.lac	Discounting Rate @32%	Present Value Rs.lac
1st	126.72	0.763	96.69	0.758	96.05
2nd	141.19	0.583	82.31	0.574	81.01
3rd	169.12	0.446	75.43	0.435	73.57
4th	176.23	0.340	59.92	0.329	57.98
5th	182.84	0.260	47.54	0.250	45.71
			361.89		354.32

+ve fig at 31%

IRR = 31% + ----------x (32-31)

+ ve fig at 31% + -ve fig at 32%

= 31% + 0.92% = 31.92%

List of Suppliers addresses for:

Plant and Machinery :

1) M/s.Galaxy Conveyors Pvt.Ltd., 30 AhiyaComm .Centre,Gondal Road, Rajkot , Pin :360002
2) M/s.Neptune Engineering Co., 252, GIDC ,IndustrialEstate,Phase:II, ModheraRoad,Dediasan (Mehsana),India 384002

3) M/s.Ghosh Engineering Works, Gohramora,Sreerampore,Hooghly,W.B

Raw materials:

1). J.K.Minerals, Station Road,Janshi

2). Golab Chand Kotcher,AjmerRoad,Bikaneer

3). Plastic Clay and China Clay; Md.Bazar,Birbhum,W.B.

Resource Centre of Technology:

1. Br.MSME-DI,Govt.of India,J.P.Avenue,Durgapur 12, W.B
2. Central Glass and Ceramic Research Institute,Jadavpur,Kolkata,
3. Govt. College of Engg. & Ceramic Technology, A.C.BanerjeeLane, Kol 10

List of the units set up by using this project Report:

It is completely a new detailed project Report prepared for the eastern Zone of India keeping technology at per with the technology being used in western zone of India. At present the tiles are coming from Western Zone,Southern Zone of India due to availability of better quality of fuel e.g.Natural Gas Or. CNG. In the eastern Zone now a days CNG is approachableand with this any new entrepreneur may find enough potential for this product in the eastern Zone of India.