PRECAST CEMENT PRODUCTS

1. INTRODCUTION:

Reinforced cement concrete products are becoming popular as modular house and apartment buildings are based on standard designs. There are large no of architectural products required like window sills/ lintels, door frames, slabs for floors and roofs, wall panels etc.

Similarly modern planning of water supply, storm water, sewage systems, electricity supply, road rail construction requiring culverts etc. are likely to need good quality products in huge volumes.

2. PRODUCT & ITS APPLICATION:

Various products are becoming popular in this sector for variety of applications as listed above. Entrepreneur can look at popular products on internet produced by leading units all over the world to narrow down his product selection. Some are listed below

Prefabricated Building Products:
Door frames, windows frames, Columns, chaijahs, roof slabs, lintels, ventilators, wall partition panels, compound wall segments, cement concrete small pillars for compound wall, slabs for canal lining, tiles, personal linings, sills, trusses etc.

Reinforced cement concrete spun pipes and Boxes:
RCC Spun pipes are used for small culverts, water supply, and storm water drainage and sewerage systems. Pipes up to 1000 mm Dia were exclusively reserved for manufacture in

the SSI sector. However several large units are in this sector. These pipes are widely used for water drainage, sewerage, culverts and irrigation. RCC pipes are classified as pressure and non-pressure pipes viz. NPI, NP2, NP3, P1, P2, P3 for use in specific conditions. PrecastSquare box are used in culverts on large road/ rail projects.

3. DESIRED QUALIFICATIONS FOR PROMOTER:

The promoter with experience in construction business and training civil engineering will be able to be able to manage the project well.

4. MARKET POTENTIAL AND MARKETING ISSUES. IF ANY:

All the Precast products are consumed by construction activities carried out by Housing sector builders, Public Health Engineering Department, Public Works Departments, Agriculture and Forest Department, National Highways, Environment Engineering Department, Panchayats Municipal Corporations etc. These are the bulk consumers of RCC Products and spun pipes. Most of the Govt agencies retain contractors for such works and approved civil contractors executing the works of the Government Department and Public Sector Undertakings are main contractors. Presently government is giving stress on rural irrigation and improving methods of water supply scheme, so the demand for pipes is increasing.

5. RAW MATERIAL REQUIREMENTS:

These products are made from cement, coarse and fine aggregate, sand, mild steel and HT rods and bars as per the need of several projects.

6. MANUFACTURING PROCESS:

RCC casting uses seasoned teak wooden moulds or steel fabrication for the manufacture depending upon their shape, size, design and specifications.

Cement sand and aggregate in proper ratio with adequate water are mixed in concrete mixer. Sometimes the concrete mix of different ratios isrequired to be tested for the desired strength etc. properties. As per design the wooden or steel moulds are selected

and the moulds are well lubricated to ensure release of cast and get good surface. The moulds are filled with concrete mixture to desired thickness. Then the mould filled with concrete mixture is put under the vibrator process. The filled mould has to be filled by removing the air bubbles and loose water.

The mould is allowed to dry till the setting time of cast. After removing from the mould the précised material is cured for 15~20 days. After inspection the products are ready for dispatch.

RCC spun pipe is prepared in proportion of 1:2:5:2:5 of cement stone, metal and sand respectively. The cement concrete is fed into the moulds during rotation which spreads inside evenly. These pipes are also reinforced the time required for completion of this operation depends upon the diameter and class of the pipe. The pipes are kept in the mould for 24 hours. On the following day the pipes are removed from the moulds and submersed in water in the curing tank for about 15-20 days depending upon the class of the pipe. The specimens of the pipes are subject to the following tests viz: Hydrostatic pressure test, three edge load bearing test and Absorption test.

7. MANPOWER REQUIREMENT:

The unit shall require highly skilled service persons. The unit can start from _10_employees initially and increase to _26_ or more depending on business volume.

Sr. No.	Type of Employees	Monthly Salary	No of Employees				
			Year 1	Year 2	Year 3	Year 4	Year 5
1	Skilled Operators	18000	1	2	4	4	4
2	Semi-Skilled/ Helpers	8000	6	6	12	16	16
3	Supervisor/ Manager	25000	1	1	2	2	2
4	Accounts/ Marketing	18000	1	1	2	2	2
5	Other Staff	7000	1	2	2	2	2
	TOTAL		10	12	22	26	26

8. IMPLEMENTATION SCHEDULE:

The unit can be implemented within 6 months from the serious initiation of project work. The unit is based on selection of location, renting premises for the unit.

Sr. No.	Activities	Time Required in Months
1	Acquisition of Premises	2
2	Construction (if Applicable)	2
3	Procurement and Installation of Plant and Machinery	2
4	Arrangement of Finance	2
5	Manpower Recruitment and start up	1
	Total Time Required (Some Activities run concurrently)	6

9. COST OF PROJECT:

The unit will require total project cost of Rs _125.74_ lakhs as shown below:

Sr. No.	Particulars	In Lakhs
1	Land	20.00
2	Building	20.00
3	Plant and Machinery	35.95
4	Fixtures and Electrical Installation	4.10
5	Other Assets/ Preliminary and Preoperative Expenses	2.00
6	Margin for working Capital	43.69
	TOTAL PROJECT COST	125.74

10. MEANS OF FINANCE:

The project will require promoter to invest about Rs 68.71 lakhs and seek bank loans of Rs 57.44 lakhs based on 70% loan on fixed assets.

Sr. No.	Particulars	In Lakhs
1	Promoters Contribution	68.31
2	Loan Finance	57.44
	TOTAL :	125.74

11. WORKING CAPITAL REQUIREMENTS:

Working capital requirements are calculated as below:

Sr. No.	Particulars	Gross Amount	Margin %	Margin Amount	Bank Finance
1	Inventories	53.59	40	21.44	32.16
2	receivables	22.50	50	11.25	11.25
3	Overheads	2.00	100	2.00	0.00
4	Creditors	22.50	40	9.00	13.50
	TOTAL	100.60		43.69	56.91

12. LIST OF MACHINERY REQUIRED:

Sr. No.	Particulars	UOM	Quantity	Rate	Total Value
	Main Machines/ Equipments				
1	Pipe Moulding Machine	Nos.	1	350000	350000
2	Slab / Wall panel Casting machine	Nos.	1	1200000	1200000
3	Cement Concrete Batch mixing Plant	Nos.	1	600000	600000
4	Vibrators	Nos.	4	30000	120000
5	Gantry / OHT cranes	Nos.	1	300000	300000
6	Fork Lifts	Nos.	1	600000	600000
7	Pipe Moulds (300 to 1200 mm dia)	Nos.	30	8000	240000
8	Testing machines	Nos.	5	20000	100000
	subtotal :				3510000
1	Tools and Ancillaries				
2	Misc. product Moulds	Nos.	10	4000	40000
3	Other Tools	Nos.	1	15000	15000
4	Misc. Tools / spares	LS	5	6000	30000
	subtotal :				85000
	Fixtures and Elect Installation				
	Mould storage racks	Nos.	5	8000	40000
	Other Furnitures	LS	2	10000	20000
	Telephones/ Computer	LS	2	25000	50000
	Electrical Installation	LS	1	300000	300000
	subtotal :				410000
	Other Assets/ Preliminary and Preoperative Expenses	LS	1	200000	200000
	TOTAL PLANT MACHINERY COST				4205000

13. PROFITABILITY CALCULATIONS:

Sr. No.	Particulars	UOM	Year Wise estimates				
			Year1	Year 2	Year 3	Year 4	Year 5
1	Sales	Rs Lakhs	270.00	360.00	450.00	540.00	630.00
2	Raw Materials & Other Direct Inputs	Rs Lakhs	214.37	285.83	357.29	428.74	500.20
3	Gross Margin	Rs Lakhs	55.63	74.17	92.71	111.26	129.80
4	Overheads Except Interest	Rs Lakhs	24.05	24.05	24.05	24.05	24.05
5	Interest	Rs Lakhs	6.89	6.89	6.89	6.89	6.89
6	Depreciation	Rs Lakhs	6.21	6.21	6.21	6.21	6.21
7	Net Profit Before Tax	Rs Lakhs	18.48	37.03	55.57	74.11	92.65

14. BREAKEVEN ANALYSIS

The project is can reach break-even capacity at _20.03_% of the installed capacity as depicted herebelow:

Sr. No.	Particulars	UOM	Value
1	Sales at Full Capacity	Rs Lakhs	900.00
2	Variable Costs	Rs Lakhs	714.57
3	Fixed Cost incl. Interest	Rs Lakhs	37.15
4	Break Even Capacity	% of Inst Capacity	20.03

15. REMARKS

The precast has become very popular and an innovative approach to building construction design and planning is likely to increase the use of different types of products. Entrepreneurs designing and developing products for upcoming projects shall be very successful.