PROJECT PROFILE

PRODUCT: GLASS REINFORCE CEMENT PRODUCT

QUALITY STANDARD: **Nil**

PROJECT COST : **Rs. 14,58,000/-**

MONTH AND YEAR OF PREPARATION: **June - 2021**

PREPARED BY:

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INTRODUCTION:

The concept of using fibers as reinforcement is not new. Fibers have been used as reinforcement since ancient times. Historically, horsehair was used in mortar and straw in mud bricks. In the early 1900s, asbestos fibers were used in concrete, and in the 1950s the concept of composite materials came into being and fiber reinforced concrete was one of the topics of interest. There was a need to find a replacement for the asbestos used in concrete and other building materials once the health risks associated with the substance were discovered. By the 1960s, steel, glass (GRC), and synthetic fibers such as polypropylene fibers were used in concrete, and research into new fiber reinforced concretes continues today. GRC was originally developed in the 1940's in Russia, but it wasn't until the 1970's
that the current form came into widespread use

Glass fiber reinforced concrete is an engineered material that contains cement, polymers, and glass fibers that are ingrained in the cementious matrix. Basically, GRC is an ultra-strong composite made of Portland cement infused with randomly dispersed glass fibers that reinforce the concrete and increase its load-bearing capacity. GRC has all the characteristics of regular concrete. A number of additional qualities, however, give GRC significant advantages. Most obviously, GRC is up to 80% lighter than concrete, so it's easier to work with and install. Despite its light weight, GRC also boasts superior strength and durability, making GRC a material that can stand the test of time. Add the fact that GRC is easily moulded into intricate and detailed designs in a wide selection of colors, forms and textures, and it is a perfect replacement for precast concrete and an ideal material for a range of creative projects.

As an engineered material, the properties of GRC can vary depending upon mix design, glass content and production methods. Glass fiber used in GRC has a higher tensile strength than steel. As a general rule, the higher the fiber content, the higher the strength. A typical mix with 5% glass fiber has a compressive strength of 6,000 to 8,000 psi

APPLICATION OF GRC:-

Commercially, GRC is used to make large, lightweight panels that are often used as façades. These panels are considered non-structural, in that they are designed to support their own weight plus seismic and wind loadings, much in the way glass window curtain walls are designed. The panels are considered lightweight because of the thinness of the material, not because

GRC concrete has a significantly lower density than normal concrete. On average it weighs about the same as ordinary concrete on a volume basis. Façade panels are normally bonded to a structural steel frame which supports the panel and provides connection points for hanging.

GRC can be used as wall panels, window surrounds, spandrels, column covers, soffits, cornices, brackets, quoins, railings, pilasters, copings, domes, etc. The basic flexibility of use makes this an ideal use for many landscaping jobs. Uses in landscape as well as including site furnishings, planters, bollards, urns, tables, fountains, marine structures, pools, and rock formations. GRC is used in historical restorations and renovations, for the replication of building ornaments of terra-cotta, carved stone and even wood. GRC panels have the color, texture and shape versatility to faithfully reproduce almost any existing non glazed exterior façade and are up to 80% lighter than precast concrete panels, and can often be installed directly over existing facades without imposing excessive superimposed loads on the building structure

MARKET

Fibre reinforce product are of lightweight and are durable. Various household articles like door, window pillar, sky light, dust bin, decorative items, have items are very good market potential now a days. These products are water resistant and are attractive in nature. Due to light weight these items are easily transportable. Tent house owner's hotels are procuring such items in large quantity. In readymade mandap/ Stage/ Function place, Pillars, dustbins, cabins, are fitted directly in open space to create aesthetic beauty. Some units are functioning in big cities but there exist scope of setting up of more number of unit in small and medium towns throughout TN. Educational institute, factories, corporate houses, marriage mandaps, recreation centre, clubs, require such items regularly for their uses in conducting functions/programmes etc

BASIS AND PRESUMPTION

1. The unit will work 300 working days in a year on single shifts basis.
2. Labour and wages will be as per the prescribed minimum wages.
3. The rate of interest for both the fixed and working capital has been considered as 13%.
4. About 2% raw material may be wasted during processing.

IMPLEMENTATION SCHEDULE

The regular commencement of production will take around six months after availability of finance from financial Institution.

i)	Survey for collection of data in respect of Demand, availability of power, water and Raw materials, etc.	0-1st month
ii)	Preparation of Project document regn.	1st-2nd month
iii)	Financial assistance	2nd-4th month
iv)	Selection of site and development of land	3rd-4th month
v)	Power and water tie up for availability	-do-
vi)	Purchase of Machinery & equipment	-do-
vii)	Procurement of raw materials & recruitment of personnel	7th-8th month
viii)	Trial production	9th month

TECHNICAL ASPECTS

Process of Manufacture:

After selecting a particular design, job frame is constructed by light wood / tin material. Then above the job frame is applied with synthetic resin by melting. Then above it fibre glass is fitted, and cement/ sand mixture is applied above the glass mat. After drying, the product is cured by spraying water. After one week desired putty and paint are applied to get the finished product.

FINANCIAL ASPECTS :

Land & Building
Covered shed of 1000sft with open land of 1400 sft on rent Rs. 10,000 /-Pm

Machinery and Equipment:

1.	Compressor	1 no.	13,500
2.	Hand Grinder(A-G 4)	1 no.	2,250
3.	Drill 13 cm	1No	3,100
4.	Hammer drill	2 nos.	17,000
5.	Jigsaw	2	10,400
6.	Sander	2	17,000
7.	Titter	2	6,400
8.	Marble cutter	1	3,600
9.	Chap sow	1	7,900
10	Plammer	2	9,900
11	Concreet mixture with motor	1	38,000
12.	Blower	2	3,800
13.	Water pump with 1 HP motor	1	4,300
14.	1" stand drill with motor	1	12,500
15.	Weighing machine (300 kg)	1	50,000
		Total	1,99,650
16.	Tax @ 13.5%		26,953
		Total	2,26,603
17.	Tools & Office furniture	LS	20,000
		G.Total	**Rs.2,46,603/-**

Total Fixed capital:

1.	Plant and Machinery:		2,46,603
2	Pre-operative expenses		20,000
		Total	**2,66,603**
		Say	**2,67,000/-**

Recurring expenses (Per Month):

i) Personnel:

1.	Manager	1 no.	15,000
2.	Supervisor	1 no.	10,000
3.	Skilled worker	2 nos. @ 6,000/-	12,000
4.	Unskilled workers	4 nos. @ 4,000/-	16,000
5.	Watchman, office peon	1 no. @ 4,000/-	4,000
6.	Perks @ 15%		8,550
		TOTAL	**65,550**

Raw Materials for GRP (FRP):

a)	White cement	1200 kg @ Rs. 14/- kg	16,800
b)	Sand	1500 kg @ Rs. 2/- kg	3,000
c)	Gel Coat	320 kg @ Rs. 300/- kg	96,000
d)	Glass Fiber	310 kg @ Rs. 350/- kg	1,08,500
e)	Fiber mat	400 kg @ Rs. 300/- kg	1,20,000
f)	G P Resin	850 kg @ Rs. 170/- kg	1,44,500
g)	Catalyst	3 ltrs @ Rs. 150/- ltr	450
h)	Cobalt	3 ltrs @ Rs. 150/- ltr	450
i)	Thinner	20 ltrs @ Rs. 130/- ltr	2,600
j)	Doctor fix it	21 ltrs @ Rs. 120/- ltr	2,520
k)	Kerosin	6 ltrs @ Rs. 20/- ltr	120
l)	Mobil oil	2 ltrs @ Rs. 150/- ltr	300
m)	Brush	5 Brush @ Rs. 20/- brush	100
		TOTAL	**4,95,340/-**

iii) Utility (P.M.):

a)	Electricity 2000 KWH @ 6/-		12,000
b)	Machine consumables		1,000
		Total	**13,000**

iv) Other Contingent expenses (P.M.):

1.	Postage/stationery		420
2.	Telephone		1000
3.	Repair and maintenance		2000
4.	Travelling and transport		5000
5.	Rent		10000
6.	Misc. other, advt. And publicity		3000
		Total	21**,420**

Total Recurring Expenditure (P.M.):

1.	Manpower		65,550
2.	Raw material		4,95,340
3.	Utility		13,000
4.	Other contingent expr.		21,420
		Total	5,95,310

Total Capital Investment:

1.	Fixed capital		2,67,000
2.	Working capital for 2 month		11,90,620
		Total	**Rs. 14,57,620**
			Say : Rs.14,58,000/-

FINANCIAL ANALYSIS:

Cost of production (Per Annum):

1.	Total recurring cost per annum		71,43,720
2.	Depreciation on machinery and equipt. @ 10%		19,965
3.	Depreciation on office furniture wooden pallet @ 20%		4,000
4.	Interest on capital invt. @ 13% avg.		1,89,540
		Total	**73,57,225**
			Say Rs.73,57,000/-

Turnover (Per Annum):

By sale of Glass Reinforced concrete product 67,200 Sqft @ Rs. 120 /- sqft	80,64,000
Total sales revenue	**Rs.80,64,000/-**

PROFITABILITY:

Net Profit (P)	**7,07,000/-**
Net profit ratio (%)	8.76%
Net Profit Return (%):	**48.49%**

Fixed cost (FC):

1.	Total depreciation	23,965
2.	Interest on total capital investment	1,89,540
3.	40% salary and wages	3,14,640
4.	40% of other exp. excluding rent	54,816
5.	Rent	24,000
	Total	**Rs. 6,06,961/-**

B.E.P. = $\frac{FC \times 100}{FC + profit}$ = 46.19%

All Machineries, Tools and Raw-materials are available with Local dealers.