Laminated Safety Glass

PRODUCT CODE	:	94105
QUALITY AND STANDARDS	:	IS 2553:1971 IS 6480:1971 IS 6640:1972 IS 2533:1976
PRODUCTION CAPACITY	:	Quantity: 13,800 Sq.mtrs. Value : Rs. 49,68,000
MONTH AND YEAR OF PREPARATION	:	March, 2003
PREPARED BY	:	Small Industries Service Institute Rajajinagar, Bangalore-560 044 Phone Nos.: 3351581-82 Fax No. : 3351583/3204018 E-Mail: sisibng@bgl.vsnl.net.in

Introduction

Laminated safety glass has good industrial potential due to its multiple advantages in commercial and industrial applications though the product is not as popular as toughened glass. The main applications of laminated safety glass are:

i. Automobiles,
ii. Railways,
iii. Marine vessels,
iv. Aircrafts,
v. Defence,
vi. Household construction applications, and
vii. Other industrial applications.

The main advantages of laminated safety glass are:

i. On accidents the glass does not harm/injure the body,
ii. It acts as a good insulator,
iii. It is sound proof, and
iv. It has got a good strength compared to toughened and other sheet glasses.

Laminated safety glass is a sandwich made up of a PVC interlayer or interlayers adhered between two glass sheets. Laminated glass is more resistant to fracture than monolithic glass, but in case of fracture, the PVC interlayer holds the fragments in place.

Market Potential

There is a very good demand for setting up this product in small scale sector, in commercial and industrial applications. The main consumer of these products are Railways, Automobiles, Defence, Aircrafts, Marine vessels and in domestic applications. The growth of laminated safety glass industry depends

upon the development of automobile industry and also in construction of multi-storeyed buildings. As the automobile industry is steadily growing, the demand for laminated safety glass is also increasing. Besides this, there is considerable demand for laminated safety glass as spares for replacement purposes. Therefore, there is good scope for setting up new units.

BASIS AND PRESUMPTIONS

i. The production capacity of the unit has been worked out on the basis of single shift basis of 8 hours per day for 300 working days in a year.

ii. The unit is capable of manufacturing the laminated safety glass sheets in different shapes, sizes and thickness.

iii. The costs of machinery, equipments and raw materials are as prevailing at the time of preparation of this report.

iv. The wages proposed in the profile as per the prevailing wage practice.

v. The rate of interest of 14% is considered both for recurring and non-recurring investment.

vi. Margin money is generally about 25%, however, this varies according to the type of entrepreneur.

vii. Operative period of the project is around 12 years considering technology obsolescence rate and period of repayment of loan.

viii. To achieve full plant capacity 1 to 2 months trial production is required.

IMPLEMENTATION SCHEDULE

Sl. No.	*Activity*	*Period*
1.	Survey for collection of data in respect of demand, raw material including power availability and technology	0 to 1 month
2.	Arrangement for margin money	1 to 2 month
3.	Preparation of project document and registration	1 to 2 month
4.	Financial assistance	3 to 4 month
5.	Selection of rented premises	3 to 4 month
6.	Electricity and water - tie up for availability	4 to 5 month
7.	Construction/selection of machinery	4 to 6 month
8.	Placement of order (machine)	5th month
9.	Erection and commissioning	7th month
10.	Recruitment of staff and labour	6 to 7th month
11.	Procurement of raw materials	7th month
12.	Trial run/modification	8th month

From inception to implementation of the project, it will take approximately eight months.

Technical Aspects

Process of Manufacture

The raw materials for manufacturing the laminated safety glass are ordinary sheet glass/float glass and PVC sheet. Sheet glass/float glass suitable for this product should be of good quality i.e. free from stone, weariness, stresses, strains, scratches and other surface defects. The important stages in the manufacture of laminated sheet glass are:

i. Raw glass sheet inspection
ii. Glass cutting
iii. Glass washing
iv. PVC interlayer cutting
v. Preparing the resin
vi. Assembly of sheet glass and interlayer
vii. Pouring resin on each side of the PVC between it and the glass
viii. Rolling and pressing
ix. Drying
x. Edge finishing
xi. Final inspection
xii. Packing

Quality Control and Standards

Generally quality product should be free from defects and foreign materials which creates problems when it is in use. These defects can be controlled at every stage of the operations of the process by thorough checking, right from raw materials selection to finished products and packing. The relevant Bureau of Indian Standards are as follows:

IS 2553:1971	Safety glasses
IS 6480:1971	Toughened safety glass for ship side scuttles
IS 6640:1972	Toughened safety glass for windows
IS 2533:1976	Safety glass (Second revision) with amendments No. 1 and 2 and reaffirmed in 1976

Production Capacity (per annum)

Qty. : 13, 800 sq.mtrs. of Laminated safety glass

Value : Rs. 53, 82, 000.

Motive Power 10 HP.

Pollution Control

The product does not create any noise or water pollution. The air pollution will have to be continuously monitored.

Energy Conservation

Not applicable as far as fuel is concerned. Simple precautions and knowledge of effective utilisation of electric power is necessary.

Financial Aspects

A. Fixed Capital

(i) Land and building	
Rented building: Covered area 1500 sq.ft.	5,000 per month

(ii) Machinery and Equipments

Description	Qty. (Nos.)	Amount (Rs.)
Glass washing and drying machine with blower	1	30,000
Hand operated glass lamination machine with accessories	1	1,50,000
Edge cutting and finishing machine	2	60,000
Glass cutting machine with arm table cutting rail and swivel cutting head (for shaping)	1	70,000
Racks for raw sheet glass	LS	10,000

Description	Qty. (Nos.)	Amount (Rs.)
Electric oven size 8 × 8 × 8 with fan and temp. indicator	1	40,000
Working tables	4	10,000
Misc. equipments, grinding wheels, tools, balance, diamond cutter, electric stove etc.		20,000
Office furniture		30,000
Electrification and installation charges @ 10%		35,000
Total		4,55,000
(iii) Pre-operative Expenses/ Project Cost and Non-refundable Deposits etc.		25,000
Total		4,80,000

B. Working Capital (Per Month)

(i) Personnel (per month)

Designation	No.	Salary/ month (Rs.)	Total (Rs.)
Production Supervisor	1	4,500	4,500
Cashier-cum-Accountant	1	3,500	3,500
Skilled workers	2	2,200	4,400
Un-skilled workers	4	1,800	7,200
Peon	1	1,500	1,500
Watchman	2	1,500	3,000
Total			24,100
+ 15% perquisites			3,615
Total			27,715

(ii) Raw Materials (per month)

Particulars	Qty.	Rate (Rs.)	Value (Rs.)
3 mm thickness sheet float glass	2500 sq.mtrs.	100 per sq.mtr.	2,50,000
PVC sheet	1250 mtrs.	34/mtr.	42,500
Lamination chemicals	LS		15,000
Packing materials	LS		5,000
Total			3,12,500

(iii) Utilities (per month)	(Rs.)
Power 1125 kWH @ Rs.4/unit	4,500
Water	500
Total	5,000

(iv) Other Contingent Expenses (per month)	(Rs.)
Rent	5,000
Postage and stationery	500
Telephone	500
Consumable stores	1,000
Repairs and maintenance	1,500
Transport and conveyance	2,500
Advertisement and publicity	1,500
Insurance	1,500
Other unforeseen expenses	1,000
Total	15,000

(v) Total Recurring Expenditure (per month)	(Rs.)
Personnel	27,715
Raw materials	3,12,500
Utilities	5,000
Other contingent expenses	15,000
Total	3,60,215
(vi) Working Capital (for 3 months)	10,80,645

C. Total Capital Investment

Fixed capital	Rs. 4,80,000
Working capital for 3 months	Rs. 10,80,645
Total	Rs. 15,60,645

FINANCIAL ANALYSIS

(1) Cost of Production (per annum)	
Total recurring expenditure	43,22,580
Depreciation on furniture @ 20%	6,000
Depreciation on machinery @ 10%	36,000
Interest on total capital investment @ 14%	2,18,490
Total	45,83,070

(2) Turnover (per annum)	
Sale of 13,800 sq.mtr. of laminated safety glass @ Rs.390 sq.mtr. (after allowing 5% rejection)	53,82,000
Total	53,82,000

(3) Net Profit (per year)

= Turn over – Cost of production

= Rs. 53,82,000 – 45,83,070

= Rs. 7,98,930

(4) Net Profit Ratio

$$= \frac{\text{Net profit x 100}}{\text{Turnover}}$$

$$= \frac{7,98,930 \times 100}{53,82,000}$$

= 14.84%

(5) Rate of Return

$$= \frac{\text{Net profit x 100}}{\text{Total investment}}$$

$$= \frac{7,98,930 \times 100}{15,60,645}$$

= 51.2%

(6) Break-even Point

Fixed cost	(Rs.)
Depreciation on machinery	36,000
Depreciation on furniture	6,000
Interest on total capital investment	2,18,490
Rent	60,000
40% of salaries	1,33,032
40% of other contingent expenditure (excluding insurance)	64,800
Insurance	18,000
Total	5,36,322

$$\text{B.E.P.} = \frac{\text{Fixed cost x 100}}{\text{Fixed cost + Net profit}}$$

$$= \frac{5,36,322 \times 100}{5,36,322 + 7,98,930}$$

$$= \frac{5,36,322 \times 100}{13,35,252}$$

= 40.2%

Addresses of Machinery and Equipment Suppliers

1. M/s. Wessmake Industrial Products
   B-104, Mayapuri, Phase-I,
   New Delhi-64.
2. M/s. Mansfield Conveyors (P) Ltd.
   S-77, Baddi Indl. Estate,
   Delhi-42.
3. M/s. Wildbar Field (India) Ltd.
   Mohur Street Building, 25-A,
   Dr. Annie Besant Road,
   Mumbai-18.

Raw Material Suppliers

1. M/s. Sri Jagadamba Plywoods
   33/1, BVK Iyengar Road,
   Bangalore-53.
2. M/s. A.S. Glass and Plywoods
   8, Mysore Road, New Tharagupet,
   Bangalore-2.
3. M/s. Dhariwal Glass
   58, 2nd Floor, 21,
   Killari Road,
   Opp. T.V. Complex,
   Bangalore-53.
4. M/s. Mahaveer Glass House
   32, BVK Iyengar Road,
   Bangalore-53.
5. M/s. Rachana Enterprises
   69/1, 2nd Main,
   8th Block,
   Jayanagar,
   Bangalore-82.
6. M/s. Deepak Enterprises
   39B, Mamulpet,
   Bangalore-53.