

PROJECT PROFILE ON ALUMINIUM FABRICATION

PRODUCT : Aluminium Fabrication

QUALITY STANDARDS : IS: 1948-1961

IS: 1949-1961

PRODUCTION
CAPACITY :

S.No.	Description	Qty.	Value (Rs.in Lakhs)
a	Stair case hand rails	1700 Mtr.	11.9
b	Doors } c Windows }	2500 Sq. m.	47.5

MONTH AND YEAR : March, 2011

Updated by:-- : Mech. Division
MSME Development Institute,
SOLAN (HP)

(A) INTRODUCTION:

Aluminum fabricated items like doors, windows, staircase, hand rails and supports, railings for verandas, corridors etc. have become that standard accepted feature in most modern buildings, The use of aluminum in business and office complexes , buildings, theatres ,auditorium is very extensive for functional as well as decorative purposes. Similarly in residential buildings also aluminum doors, windows, railings, grill works etc. are used extensively. Textile shops and other trading shops in lighter materials too are going in for shelves made of aluminum for tacking purposes.

The many advantages of aluminum such as lightweight, strength, corrosion resistance, durability, ease in fabrication, attractive appearance and easy maintenance make it a popular material for use in modern building. Aluminum required for use in buildings are available from large scale manufacturers-such as Balco, Jindal, Hindalco etc. as extruded sections in various shapes and sizes for specific uses. These sections are also available through their local dealers. The usual length of these sections is 12 ft. 24 meters. Fabricators anodized these to desired colours and fabricate the items as per the customer's requirements. These items have good appearance and finish and the maintenance expenses are almost nil while steel and wooden items require regular painting and polishing periodically.

(B) MARKET:

The development and construction activities being interlinked, there is good scope for aluminium fabrication units for meeting the growing demand of new building for offices, business and shopping complexes theatres etc. Aluminium fabricated and anodized items like doors, windows, railings, staircases, shelves; ladders, etc. are being increasingly used in the modern constructions on considerations of durability and appearance. In the present trend , theatres restaurants, hotels, shopping complexes, office premises and other luxurious building are fast replacing wooden materials with aluminium-fabricated items. The consumption of these items is on the increase.

(C) BASIS AND PRESUMPTIONS:

Efficiency & working hours considered	8 hours shift working basis, at 75 % efficiency capacity utilization. (25 working days a month)
Time period for achieving full/ envisaged capacity utilisation	Approx. 7 to 8 Months
Labour Wages rate	Un-skilled worker @ Rs. 115 /- per day, Skilled worker @ Rs 170 /- per day
Interest rates for fixed capital	12 %
Interest rates for working capital	12 %
Payback period for the project	Around 5 years at 80 % capacity utilisation.
Land & construction cost OR rental value per month (Approximate details.)	On Rental Basis @ Rs. 2000/- per month

(D) IMPLEMENTATIONS SCHEDULE:

The envisaged time frame from conception of project to commercial production is about 8 month.

Sl. No.	Name of Activity	Period
1.	Preparation of project report:	
	(a) Calling Quotations	5 weeks
	(b) Scheme Preparation	2 weeks
2.	Filing Entrepreneur Memorandum Part-I	1 week
3.	Financial arrangement from financial institutions and others	12 weeks
4.	Purchase and procurement	8 weeks

	of machinery and equipment	
5.	Erection and electrification	3 weeks
6.	Recruitment of personnel	4 weeks

Some activities shown above can be undertaken simultaneously in order to minimise the period of completion of the project.

(E) TECHNICAL ASPECTS

(i) Manufacturing process:

Manufacturing Process involves anodizing the aluminium-extruded sections first and then fabrication. Anodising process involves buffing, pickling, in acid solution then cleaning in water, neutralizing in chemical and keeping the extruded sections in anodizing tank for specified time. These are again washed in water and dried in sun or by any other means. After anodizing the sections are to be fabricated as per design and sizes of customers by cutting, bending, joining by screwing or riveting, assembling with glass/board and beading wherever necessary. Handles, locks, tower bolts, stoppers etc. are also fitted as per requirements.

(ii)Quality specifications: Following relevant quality specifications to Aluminium fabrication work.

IS: 1948-1961:- Specification for aluminium doors, windows and ventilators: Specifies requirements regarding materials, fabrication and dimensions of aluminium doors, windows and ventilators manufactured from extruded aluminium alloy sections of standard sizes and designs completed with fittings ready for fixing with buildings. This standard does not cover the requirements for industrial doors, windows and ventilators.

IS: 1949-1961:- Specification for Aluminium Windows for Industrial Buildings: deals with aluminium windows suitable for use in industrial buildings. Aluminium doors, windows, stair case hand rails etc. are made as per the customers' specifications and requirements. Workmanship and high finish

are main criteria for these kind of products. Care should be taken in joining and assembling to get better appearance and finish.

Manual on Doors & Widows details for Residential Buildings, Vol.-I of CPWD (GoI)

IS: 4571-1977:- Specification for Aluminium Extension Ladders for Fire Brigade use

(iii) Production Capacity Per Annum

S.No.	Description	Qty.	ValueLakh(Rs.)
a	Stair case hand rails	1700 Mtr.	11.9
b	Doors	2500 Sq. m.	47.5
c	Windows		

(iv) Motive Power required : 10 HP

(v) Pollution Control :

The anodizing process using acid solution may leave residual solution which has to be disposed of periodically. This may lead to some pollution in the water source if the disposal of such residual solution is not done taking due precautions. The local pollution control board may be consulted for appropriate method of disposal of these solutions.

(vi) Energy Conservation

Energy conservation of this unit is on the low side since the lower powered motors are used in the production activity. The workers of the unit should be made aware of the need to conserve energy by switching off the energy sources when not required.

(F) FINANCIAL ASPECTS

(1) Fixed Capital

Land and building:

Rented shed 200 sq. m (covered) - Rs. 2000 per month rent.

(2) Machinery and Equipments

S No.	Description	Quantity	Price (Rs.)	Amount (Rs. in Lakhs)
1.	Heavy duty cut off machine with 2 HP motor, Starter etc.	1	32000	32000
2.	Drilling Machine 12 mm cap. with 0.5 HP motor	1	17000	17000
3.	Portable Electric Drill	2	2500	5000
4.	Double ended Bench Grinder 200 mm dia. with 0.75 HP Motor	1	9000	9000
5.	Anodising Plant Complete with Rectifier 500 Amps., 30 Volts, Completed with necessary tanks of 14 ft. length and initial chemicals	1	700000	700000
6.	Buffing Machines with 2HP motors	2	10000	20000
7.	Hand tools, work benches etc.,		-	25000
8.	Office furniture and equipment			50000
9.	Erection and installation charges			37500
				895500
10.	Pre-operative expenses			15000
			TOTAL	910500

II) WORKING CAPITAL:

i) Personnel (Salaries & Wages PM):

S No	Designation	Nos.	Salary/Wage (p.m.)	Total Amt. (Rs.)
1	Supervisor	02	8000/-	16000
2	Skilled worker	02	5000/-	10000
3	Semi-Skilled worker	03	4000/-	12000
4	Unskilled worker (Helper)	03	3500/-	10500
5	Accountant/Clerk	Part time	2000/-	2000
6	Sweeper	Part Time	500/-	500
			Sum	51000
			Benefits @ 10 % of salaries (Approx.)	5000
			Total	56000

Raw Materials & Direct Consumables (per month):-

S. No.	Description	Qty. Units	Amount Rs.
1.	Aluminium Extruded Sections such as- Book Type Hand Rail 100 mm size	144 Meters	30000
2.	25 mm Sq. Pipe	900 Meters	40000
3.	Flat 50 mm X 1.5 mm Thick	144 Mtrs	11000
4.	112 mmX50 mm Section	100 Mtrs.	18000
5.	63 mm X 38 mm section	360 Mtrs	40000
6.	50 mm X 25 mm Section	360 Mtrs	14000
7.	Handle Section for Doors	18 Mtrs.	2800
8.	Clips	1260 Mtrs	25000
9.	Glass Sheet/ Board 3mm/4.5 mm	173 Sq. Mtrs	80000
10.	Chemical for Anodising	LS	15000
11.	Misc. items such as hinges, Screws, Rubber Beadings, Tower Bolts, Locks, Wooden/Plastic Plugs	LS	50000
		Total	325800

ii) Utilities (Per Month):-

S No	Description	Qty.	Rate (Rs.)	Amt. (Rs.)
1.	Power	3.0 KWH	4/-	21600
2.	Water	-	LS	400
			Total	22000

iv) Other Contingent Expenses (Per Month) :-

S No	Description	Amt. (Rs.)
1.	Rent for premises	2000
2.	Postage & stationery	800
3.	Telephone expenses	500
4.	Consumable etc.	500
5.	Repairs & Maintenance expenses	500
6.	Transportation & Cartage expenses	2000
7.	Advertisement, Publicity & Travelling & Sales expenses	2000
8.	Insurance	700
9.	Misc.	1000
	Total	10000

v) Total Recurring Expenses (per month)= 0.56+ 3.26+ 0.22+ 0.10 = Rs. 4.14 Lakh

vi) Working Capital Requirement for 3 months : Rs. 12.42 Lakh

(III) TOTAL CAPITAL INVESTMENT:

i)	Fixed capital	:	8.785
ii)	Working capital		12.420
	Total :- Rs.		21.205

(G) Machinery Utilisation: In case of spare capacity, the same set up can be used for fabrication of Aluminium Ladders for domestic, industrial or fire brigade use.

(H) FINANCIAL ANALYSIS:

1. Cost of production (per year)

S No	Description	Rate %	Amt. (Rs. in
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			Lakhs)
1.	Total Recurring Cost	-	49.700
2.	Depreciation on production equipment (including electrification)	@ 10 %	1.520
3.	Dep. on Tooling & Accessories and Hand Tools	@ 25 %	0.060
	Dep. on Office Furniture & Eqpt.	@ 20 %	0.100
4.	Interest on Fixed investment & Working Capital	@ 12 %	2.550
Total			53.93
Say ≡			54.00

2. Turn-over /Sale (per annum)

By sale of aluminium fabricated items such as:-

S.No	Item	Qty Unit	Rate Rs.	Amount (Rs. in Lakhs)
1.	Stare Case Hand Rails	1700 Mtr.	700	11.9
2.	Doors, Windows & Partitions	2500 Sq m.	1900	47.5
3.	Sale of Scrap	LS		1.0
TOTAL				60.4
Say ≡				60.0

3. Net Profit per year (H.2-H.1) = 60.4 - 54.00 = **6.00 Lakh** (before Income Tax)

4. Net Profit Ratio :- $\frac{\text{Net Profit Per Year} \times 100}{\text{Turn-over per year}} = \frac{6}{60} = 10.00 \%$

5. Rate of Return:- $\frac{\text{Net Profit Per Year} \times 100}{\text{Total Investment}} = \frac{6.00}{21.205} = 28 \%$ (On 100 % Capacity utilization)

6. Break-even Analysis (% age of total production envisaged):

(i) Fixed Cost : (Rs. in Lakhs)

a) Depreciations (all types) :	1.680
b) Interest on investments :	2.550
c) Insurance :	0.840
d) 40 % of salaries & wages :	2.688
e) 40 % of O.Es. less insurance & rent:	0.350

Total:- 8.108 Lakh

(ii) Net Profit per year (as at S. No. H.3):- Rs. 6.00 Lakh

Break-even Point (B.E.P):- $\frac{\text{Fixed Cost} \times 100}{\text{Fixed Cost} + \text{Profit}} = 57.5 \%$

(I) Addresses of Machinery & Equipment Suppliers:

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| <p>1. M/s Engineering Tools & Equipments, Post Box No. 1972
64-S.B.Singh Road, Fort,Mumbai-23</p> | <p>2. M/s. India Machine Tools Company, Pulikwal Buildings, Post Box No. 1781, M.G. Road, Eranakulam, Cochin - 670002.</p> |
| <p>3. M/s. Archem Industries
1/IC, Abdul Halim Lane, Kolkata - 700016.</p> | <p>4. M/s. Hind Rectifier Ltd.
Lake Road, Bhandup, Mumbai - 400078.</p> |
| <p>5. M/s. C M F Engineering
3-A, Continental Plaza, 705, Annasalai, Chennai - 600006.</p> | <p>6. M/s Alfinstro
D-404,Neelpadm kunj, Vaishali Ghaziabad, Uttar Pradesh- 201 010</p> |
| <p>7. M/s Beena Equipments
B-2, Patil Compound, Opposite D-26,
MIDC, Phase-2, Kalyan, Thane, Maharashtra - 421 204</p> | |

(J) Addresses of Raw Material Suppliers:

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| <p>1. M/s. Hindustan Aluminium Corpn. Ltd.,
Industry House,
159, Church Gate Reclamation, Mumbai - 400020.</p> | <p>2. M/s. Jindal Aluminium Company Ltd.
Tumkur Road, 7th Mile Stone, Bangalore.</p> |
| <p>3. M/s. Aluminium Corporation of India Ltd., 7 - Council Street, Kolkata - 700001.</p> | <p>4. M/s. Premier Metals and Engg. Company, T. D. Road, Eranakulam - 682018.</p> |
| <p>5. M/s. Bhoruka Aluminium Ltd.,
K. R. S. Road, Matagally, Mysore - 570016.</p> | |