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PROJECT REPORT

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PROJECT:

UPVC DOORS & WINDOWS

PROJECT REPORT

Of

UPVC DOORS & WINDOWS

PURPOSE OF THE DOCUMENT

This particular pre-feasibility is regarding **UPVC Doors & Windows**.

The objective of the pre-feasibility report is primarily to facilitate potential entrepreneurs in project identification for investment and in order to serve his objective; the document covers various aspects of the project concept development, start-up, marketing, finance and management.

[We can modify the project capacity and project cost as per your requirement. We can also prepare project report on any subject as per your requirement.]

UPVC DOORS AND WINDOWS



Introduction

UPVC, also known as Unplasticized Polyvinyl Chloride, is a lowmaintenance building material used as a substitute for painted wood, mostly for window frames and doors. UPVC is a cheaper alternative to expensive hardwood timber and aluminium. It is a popular material due to its durability and it is a cost-effective option. UPVC is proven to offer excellent performance and durability; it is long-lasting and requires very little maintenance making it the perfect material for doors and windows. It is also recognized for its thermal efficiency, sound insulation, and great value for money.

Features of UPVC Doors and Windows

1. One of the best properties of uPVC is that it is incredibly strong despite being lightweight, and uPVC doors and windows can be secured with multi-point locking systems.
2. UPVC is very easy to install, remove, repair and reinstall, and all this can be done without causing any structural damage to your walls or columns.
3. When combined with the right noise-cancelling door or window glass, UPVC is highly effective in providing acoustic insulation to your retail store.
4. UPVC as a material is extremely efficient at keeping external heat at bay, providing a strong insulating layer between the outdoors and the indoors.

Types of Product Manufactured

1. UPVC Doors
2. UPVC Windows

Manufacturing process of UPVC Doors and Windows Process Flow:

The raw material is procured from the authorized vendor and stored in the inventory. At first, the PVC resin, stabilizer, lubricant, and coloring pigment is added to the Pellet mixer in the required ratio. The mixer rotates at high speed to spread the pellets evenly. The profile dies are mounted at the end of the extruder to give the desired shape of the UPVC structure profile; after approval from the production department. After this, the barrel heaters are started and brought to the desired temperature and pressure.

The raw material is fed into the hopper of the extruder. From the hopper, these plastic pellets come into the feed section of the barrel. There is a screw inside the barrel which rotates about the vertical axis and compresses the pellets along its length. Pellets get melts down and flown plastically out through the extruder. This molten plastic is fed into shaped and drawn dies having the desired profile of the structure. After this, cooling and solidification of the molten plastic are performed using suitable cooling arrangements. After this, the solidified UPVC structures are fed into a cutting machine where these structures are cut down as per the desired length with allowable tolerance and stored in the inventory.

In the next step, the sheet metal roll is brought from the inventory and fed into the sheet metal slitting machine. The sheet roll is arranged in such a way that one end of sheet roll is fed through the machine and the remaining coil set will unfold as the sheet fed through the machine.

This machine cuts the sheet into fine strips along its length as per the desired width. Rotary cutters are arranged at precise locations to perform slitting operation. These fine strips of slitting sheets are winded over rolls using sheet winding machine.

In the next step, these slitting sheets are fed into the Automatic roll forming machine. There is an arrangement of a series of rollers, with each of these rollers adding shape to the metal. The rolls work together and precisely produce very high volumes of the reinforced sheets of the desired crosssection. After this finished MS sheets are fed into cutting machine where the rotary cutter cuts the sheets as per the desired length. In the next step, these reinforced sheets are fed into punching the press to punch the desired slots at the required location.

In the next step, drilling is performed as per the desired profile over the surface of the UPVC structure for routing and drainage. This helps the removal of rainwater from the surface. Automatic Multi-axis drilling machines are used to perform these operations.

In the next step, these reinforced sheets are inserted into UPVC structures and fixed firmly with screws. Torque guns are used at sufficient speed to impart the desired momentum in the screws. After this, welding of the reinforcement sheets is performed using the UPVC welding machine as per the desired profile of windows and doors. The welding machine holds the parts to be weld and uses high-frequency acoustic vibrations to produce dynamic shear stress with frictional heat generation. This leads to plastic deformation and weld formation.

After this, these welded sheets are fed into the UPVC profile cleaning machine to trims off the burr, weld slag, and excess material. In the next step, an oil gasket is pasted firmly at the corners and faces assembled sheets using a gasket tool. The gasket acts as a seal to make the doors and windows sound and waterproof.

In the next step, door and window handles, latches, locks are assembled using screw and torque gun. After this glass cutting is performed as per the desired profile of the doors and windows using a glass cutting tool. The glass beads are cut at an angle of 45° using a glass beading cutting machine. These glass and glass beads are assembled to the doors and windows using suitable glazing and gasket seals.

In the next step, these doors and windows are precisely checked as per the desired quality standards. After this, they are safely packed and dispatched in the required quantity.

UPVC Doors and Windows Market analysis

The Indian uPVC doors and windows market is expected to grow at a CAGR of 7.0% during 2015-2020. The major drivers of the Indian uPVC doors and windows market are increasing new housing construction and replacement activities, which have contributed to the growth of this market. Another important factor that drives this market is their tangible and intangible benefiting features, such as the uPVC doors and windows are thermal, and water- and wind-resistant. They are corrosion-free. These doors and windows are termite free, highly sound insulated, dustproof, highly durable, and need no maintenance. They are energy efficient and could save energy up to 25% to 30%.

Land & Building required:

Land required 3,000 square feet

Approximate rent for the same is Rs. 35,000 per month.

Machinery & Equipment's required:

Name	Cost (Rs.)
Double head cutting machine	480000
Glazing bead Cutting saw	80000
Manual end Milling Machine	55000
Upvc window 2 head seamless welding machine	460000
Portable Copy Router	45000
Manual tool for cleaning pneumatic	17500
Manual tool for water slot	10500
Manual V Welding tool	18000

Sub total	1166000
GST @ 18%	209880
Total Machine cost	1375880

Cost of the machine is other than transportation cost.

Raw Material Requirement

Following raw material is required as the major raw material for the UPVC Doors and Windows Manufacturing process.

- a) Reinforcement steel
- b) Screws & Hooks
- c) Glass
- d) Rubber Gasket
- e) Mosquito mesh
- f) Wheel for smooth sliding
- g) Lockers etc.

This project report is prepared on the basis of average size of upvc doors and windows, which are as follows:

- Average Window size is 4*4 sq ft = 16 sq ft.
- Average Door size is 6*4 sq ft = 24 sq ft.
- Average Raw Material Cost Per square Feet is approx. Rs.150.

Labour & Staff Requirement:

8 Manpower are required for the UPVC Doors and Windows unit.

Includes:

4 Skilled Labour

2 Unskilled Labour

2 Helper

UPVC Doors and Windows License & registration

For Proprietor:

- Obtain the GST registration.
- Additionally, obtain the Udyog Aadhar registration Number.
- Fire/pollution license as required.
- Choice of a Brand Name of the product and secure the name with Trademark if required.

Implementation Schedule

S.N.	Activity	Time Required (in Months)
1	Acquisition Of premises	1
2	Construction (if Applicable)	1- 2 Months
3	Procurement & installation of Plant & Machinery	2
4	Arrangement of Finance	1
5	Requirement of required Manpower	1
	Total time Required (some activities shall run concurrently)	3-4 Months

FINANCIAL ASSISTANCE REQUIRED

Term Loan of Rs. 13.5 lakh and Working Capital limit of Rs. 5 Lacs

(in Lacs)

<u>COST OF PROJECT</u>	PARTICULARS	Amount	Own Contribution	Bank Finance
				10.00%
	Building Civil Work			
	Plant & Machinery	13.76	1.38	12.38
	Furniture & Fixtures and Other Assets	1.24	0.12	1.12
	Working capital	5.55	0.56	5.00
	Total	20.55	2.05	19.52

<u>MEANS OF FINANCE</u>	PARTICULARS	AMOUNT
		Own Contribution
	Bank Loan	13.50
	Working capital Limit	5.00
	Total	20.55

COMPUTATION OF PRODUCTION OF UPVC DOORS AND WINDOWS

Items to be Manufactured

UPVC Doors and Windows

Machine capacity Day	200	Square Feet
working Days in a month	25	
Working Days per annum	300	
Production capacity per Annum	60,000	Square feet

Production of UPVC Doors and Windows		
Production	Capacity	Square Feet
1st year	50%	30,000
2nd year	55%	33,000
3rd year	60%	36,000
4th year	65%	39,000
5th year	70%	42,000

Raw Material Cost			
Year	Capacity Utilisation	Rate (Per Square Feet)	Amount (Rs. in lacs)
1st year	50%	150.00	45.00
2nd year	55%	155.00	51.15
3rd year	60%	160.00	57.60
4th year	65%	165.00	64.35
5th year	70%	170.00	71.40

<u>COMPUTATION OF SALE OF UPV</u>	<u>AND</u>	
<u>WINDOWS</u>		(In Lacs)

Particulars	1st year	2nd year	3rd year	4th year	5th year
Op Stock	-	1,000	1,100	1,200	1,300
Production	30,000	33,000	36,000	39,000	42,000
Less : Closing Stock	1,000	1,100	1,200	1,300	1,400
Net Sale	29,000	32,900	35,900	38,900	41,900
sale price per Square Feet	250.00	257.50	265.23	273.18	281.38
Sales (in Lacs)	72.50	84.72	95.22	106.27	117.90

BREAK UP OF LABOUR CHARGES

Particulars	Wages Rs. per Month	No of Employees	Total Salary
Skilled (in thousand rupees)	18,000	4	72,000
Unskilled (in thousand rupees)	10,000	2	20,000
Helper	8,000	2	16,000
Total salary per month			108,000
Total annual labour charges			12.96
	(in lacs)		

Utility Charges at 100% capacity (per month)

Particulars	value	Description
Power connection required	12.5	KWH
consumption per day	100	units
Consumption per month	2,500	units
Rate per Unit	7	Rs.
power Bill per month	17,500	Rs.

PROJECTED PROFITABILITY STATEMENT

(In Lacs)

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year
Capacity Utilisation %	50%	55%	60%	65%	70%
SALES					
Gross Sale					
UPVC Doors & Windows	72.50	84.72	95.22	106.27	117.90
Total	72.50	84.72	95.22	106.27	117.90
COST OF SALES					
Raw Material Consumed	45.00	51.15	57.60	64.35	71.40
Electricity Expenses	1.05	1.16	1.26	1.37	1.47
Depreciation	2.19	1.87	1.59	1.36	1.16
Labour	12.96	13.61	14.29	15.00	15.90
Repair & maintenance	1.81	2.54	2.86	3.19	3.54
consumables	1.31	1.52	1.71	1.91	2.24
other direct expenses	0.73	1.02	1.14	1.28	1.41
Cost of Production	65.04	72.86	80.45	88.45	97.12
Add: Opening Stock /WIP	-	2.17	2.43	2.68	2.95
Less: Closing Stock /WIP	2.17	2.43	2.68	2.95	3.24
Cost of Sales	62.87	72.60	80.20	88.19	96.83
GROSS PROFIT	9.63	12.12	15.02	18.08	21.06
Gross PROFIT %	13%	14%	16%	17%	18%
Interest on Term Loan	1.21	1.06	0.76	0.46	0.16
Interest on working Capital	0.50	0.50	0.50	0.50	0.50
Selling & distribution Expenses	0.73	1.02	1.19	1.59	1.77
Rent	4.20	4.62	5.08	5.59	6.15

TOTAL	6.63	7.20	7.53	8.15	8.58
NET PROFIT	3.00	4.92	7.48	9.94	12.48
Taxation			0.26	0.64	1.69
PROFIT (After Tax)	3.00	4.92	7.22	9.30	10.80

PROJECTED BALANCE SHEET					(In Lacs)
PARTICULARS	1st year	2nd year	3rd year	4th year	5th year

Liabilities					
Capital opening balance		2.05	3.46	6.69	9.48
<i>Add:- Own Capital</i>	2.05				
Add:- Retained Profit	3.00	4.92	7.22	9.30	10.80
Less:- Drawings	3.00	3.50	4.00	6.50	8.00
Closing Blance	2.05	3.46	6.69	9.48	12.28
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Term Loan	12.00	9.00	6.00	3.00	-
Working Capital Limit	5.00	5.00	5.00	5.00	5.00
Sundry Creditors	1.50	1.71	1.92	2.15	2.38
Provisions & Other Liab	0.20	0.30	0.45	0.54	0.68
TOTAL :	20.75	19.47	20.06	20.17	20.33
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Assets					
Fixed Assets (Gross)	15.00	15.00	15.00	15.00	15.00
Gross Dep.	2.19	4.05	5.65	7.00	8.16
Net Fixed Assets	12.81	10.95	9.35	8.00	6.84
Current Assets					
Sundry Debtors	3.63	4.24	5.71	6.38	7.07
Stock in Hand	3.67	4.13	4.60	5.09	5.62
Cash and Bank	0.64	0.15	0.39	0.70	0.81
TOTAL :	20.75	19.47	20.06	20.17	20.33

PROJECTED CASH FLOW STATEMENT

(In Lacs)

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year
<i>SOURCES OF FUND</i>					
Own Margin	2.05				
Net Profit	3.00	4.92	7.48	9.94	12.48
Depreciation & Exp. W/off	2.19	1.87	1.59	1.36	1.16
Increase in Cash Credit	5.00	-	-	-	-
Increase In Term Loan	13.50	-	-	-	-
Increase in Creditors	1.50	0.21	0.22	0.23	0.24
Increase in Provisions & Oth lib	0.20	0.10	0.15	0.09	0.14
TOTAL :	27.43	7.09	9.44	11.61	14.01
<i>APPLICATION OF FUND</i>					
Increase in Fixed Assets	15.00				
Increase in Stock	3.67	0.47	0.47	0.49	0.52
Increase in Debtors	3.63	0.61	1.48	0.66	0.70
Repayment of Term Loan	1.50	3.00	3.00	3.00	3.00
Drawings	3.00	3.50	4.00	6.50	8.00
Taxation	-	-	0.26	0.64	1.69
TOTAL :	26.79	7.58	9.20	11.29	13.91
Opening Cash & Bank Balance	-	0.64	0.15	0.39	0.70
Add : Surplus	0.64	(0.49)	0.23	0.31	0.10
Closing Cash & Bank Balance	0.64	0.15	0.39	0.70	0.81
COMPUTATION OF CLOSING STOCK & WORKING CAPITAL				<u>(In Lacs)</u>	

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year
Finished Goods					
	2.17	2.43	2.68	2.95	3.24
Raw Material					
	1.50	1.71	1.92	2.15	2.38
Closing Stock	3.67	4.13	4.60	5.09	5.62

COMPUTATION OF WORKING CAPITAL REQUIREMENT					<u>(In Lacs)</u>	
TRADITIONAL METHOD						
Particulars	Amount	Own contribution		Bank Finance		
Finished Goods & Raw Material	3.67	10%	0.37	90%	3.30	
Less : Creditors	1.50	10%	0.15	90%	1.35	
Paid stock	2.17	10%	0.22	90%	1.95	
Sundry Debtors	3.63	10%	0.36	90%	3.26	
	5.79	10%	0.58	90%	5.21	
Working Capital Required					5.00	

COMPUTATION OF DEPRECIATION

Description	Plant & Machinery	Furniture	TOTAL
Rate of Depreciation	15.00%	10.00%	
Opening Balance	-	-	-
Addition	13.76	1.24	15.00
Total	13.76	1.24	15.00
Less : Depreciation	2.06	0.12	2.19
WDV at end of Year	11.69	1.12	12.81
Additions During The Year	-	-	-
Total	11.69	1.12	12.81
Less : Depreciation	1.75	0.11	1.87
WDV at end of Year	9.94	1.00	10.95
Additions During The Year	-	-	-
Total	9.94	1.00	10.95
Less : Depreciation	1.49	0.10	1.59
WDV at end of Year	8.45	0.90	9.35
Additions During The Year	-	-	-
Total	8.45	0.90	9.35
Less : Depreciation	1.27	0.09	1.36
WDV at end of Year	7.18	0.81	8.00
Additions During The Year	-	-	-
Total	7.18	0.81	8.00

Less : Depreciation	1.08	0.08	1.16
WDV at end of Year	6.10	0.73	6.84

CALCULATION OF D.S.C.R

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year
CASH ACCRUALS	5.18	6.78	8.81	10.65	11.95
Interest on Term Loan	1.21	1.06	0.76	0.46	0.16
Total	6.39	7.85	9.58	11.12	12.12
<u>REPAYMENT</u>					
Instalment of Term Loan	1.50	3.00	3.00	3.00	3.00
Interest on Term Loan	1.21	1.06	0.76	0.46	0.16
Total	2.71	4.06	3.76	3.46	3.16
DEBT SERVICE COVERAGE RATIO	2.36	1.93	2.55	3.21	3.83
AVERAGE D.S.C.R.	2.78				

REPAYMENT SCHEDULE OF <u>TERM LOAN</u>							
						Interest	10%
Year	Particulars	Amount	Addition	<u>Total</u>	<u>Interest</u>	<u>Repayment</u>	<u>Closing Balance</u>
1st	Opening Balance						
	1st month	-	13.50	13.50	-	-	13.50
	2nd month	13.50	-	13.50	0.11	-	13.50
	3rd month	13.50	-	13.50	0.11	-	13.50
	4th month	13.50	-	13.50	0.11	-	13.50
	5th month	13.50	-	13.50	0.11	-	13.50
	6th month	13.50	-	13.50	0.11	-	13.50
	7th month	13.50	-	13.50	0.11	0.25	13.25
	8th month	13.25	-	13.25	0.11	0.25	13.00
	9th month	13.00	-	13.00	0.11	0.25	12.75
	10th month	12.75	-	12.75	0.11	0.25	12.50
	11th month	12.50	-	12.50	0.10	0.25	12.25
	12th month	12.25	-	12.25	0.10	0.25	12.00
					1.21	1.50	
2nd	Opening Balance						
	1st month	12.00	-	12.00	0.10	0.25	11.75
	2nd month	11.75	-	11.75	0.10	0.25	11.50
	3rd month	11.50	-	11.50	0.10	0.25	11.25
	4th month	11.25	-	11.25	0.09	0.25	11.00
	5th month	11.00	-	11.00	0.09	0.25	10.75
	6th month	10.75	-	10.75	0.09	0.25	10.50
	7th month	10.50	-	10.50	0.09	0.25	10.25
	8th month	10.25	-	10.25	0.09	0.25	10.00
	9th month	10.00	-	10.00	0.08	0.25	9.75
	10th month	9.75	-	9.75	0.08	0.25	9.50
	11th month	9.50	-	9.50	0.08	0.25	9.25
	12th month	9.25	-	<u>9.25</u>	0.08	0.25	9.00
					1.06	3.00	

3rd	Opening Balance						
1st month	9.00	-	9.00	0.07	0.25	8.75	
2nd month	8.75	-	8.75	0.07	0.25	8.50	
3rd month	8.50	-	8.50	0.07	0.25	8.25	
4th month	8.25	-	8.25	0.07	0.25	8.00	
5th month	8.00	-	8.00	0.07	0.25	7.75	
6th month	7.75	-	7.75	0.06	0.25	7.50	
7th month	7.50	-	7.50	0.06	0.25	7.25	
8th month	7.25	-	7.25	0.06	0.25	7.00	
9th month	7.00	-	7.00	0.06	0.25	6.75	
10th month	6.75	-	6.75	0.06	0.25	6.50	
11th month	6.50	-	6.50	0.05	0.25	6.25	
12th month	6.25	-	<u>6.25</u>	0.05	0.25	6.00	
				0.76	3.00		

4th	Opening Balance						
1st month	6.00	-	6.00	0.05	0.25	5.75	
2nd month	5.75	-	5.75	0.05	0.25	5.50	
3rd month	5.50	-	5.50	0.05	0.25	5.25	
4th month	5.25	-	5.25	0.04	0.25	5.00	
5th month	5.00	-	5.00	0.04	0.25	4.75	
6th month	4.75	-	4.75	0.04	0.25	4.50	
7th month	4.50	-	4.50	0.04	0.25	4.25	
8th month	4.25	-	4.25	0.04	0.25	4.00	
9th month	4.00	-	4.00	0.03	0.25	3.75	
10th month	3.75	-	3.75	0.03	0.25	3.50	
11th month	3.50	-	3.50	0.03	0.25	3.25	
12th month(Subsidy adjusted)	3.25	-	<u>3.25</u>	0.03	0.25	3.00	
				0.46	3.00		

5th	Opening Balance						
1st month	3.00	-	3.00	0.02	0.25	2.75	
2nd month	2.75	-	2.75	0.02	0.25	2.50	
3rd month	2.50	-	2.50	0.02	0.25	2.25	
4th month	2.25	-	2.25	0.02	0.25	2.00	
5th month	2.00	-	2.00	0.02	0.25	1.75	
6th month	1.75	-	1.75	0.01	0.25	1.50	
7th month	1.50	-	1.50	0.01	0.25	1.25	

8th month	1.25	-	1.25	0.01	0.25	1.00
9th month	1.00	-	1.00	0.01	0.25	0.75
10th month	0.75	-	0.75	0.01	0.25	0.50
11th month	0.50	-	0.50	0.00	0.25	0.25
12th month	0.25	-	0.25	0.00	0.25	-
				0.16	3.00	

DOOR TO DOOR	60	MONTHS
MORATORIUM PERIOD	6	MONTHS
REPAYMENT PERIOD	54	MONTHS

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