



“STUDY ON VALUATION OF PLANT AND MACHINERY – CASE STUDY OF CORRUGATED BOX MANUFACTURER”

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Abstract: Value is determined on basis of its selling price and rent or income it can fetch. This study covers the methodology verified by the government approved valuer and concerned field expert. Valuation is the analytical process of determining the current worth of an asset or a company. Simply, valuation is the technique of determining the current market value of the property such as industrial, residential, commercial, agricultural land. The purpose of this is to introduce people with general field practice of valuation. The finding of this study is likely to have important implications in the valuation profession. This study directly introduces users with actual practice of valuation carried out in the field so that they can compare the theories and actual methodology. This study will result in stimulating debate and a realization of a need for a theory which supports a validated process of valuation.

The objective of this is to identify the market value of plant and machinery properties for purpose To Assess the Fair Market Value of single face corrugation machine, sheet cutter machine and corrugated box stitching machine in jai ganesh enterprises is situated in sinnar (Maharashtra), India. This study helps owner to know the actual condition of industry and simplify the finance amount of the property. The valuation of the property helps the owner of the property to know the actual rate of the property.

Keywords: Methodology, Industrial Property, Field practice, Valuer, Valuation, Market Value, Finance.

I. INTRODUCTION

'Plant and Machinery' refers to 'installations and support facilities to manufacturing in an industry designed to perform a specific predetermined function, whether used singly or in combination with other items to enhance the productivity or operating facility; and includes all devices in fixed or movable form, other than real estate, deployed in manufacturing, processing or assembling of products from the stage of raw materials to finished goods. In a heavy engineering industry, plant and machinery would refer to machine tools & equipment and other support facilities installed/used for production, maintenance, services, material handling, testing, inspection and other support functions etc.

The valuation of plant and machinery is a complex process, as it pertains to wide spectrum of equipment with its own inherent characteristics and functions. Its value would depend on many factors which are unique to each machine. Amongst the issues to be considered in the valuation of plant and machinery are the specific utility or usefulness of the asset, its contribution to the production of goods and services for which it was designed and deployed for and its potential to produce and contribute to the profitability of the business

Valuation can be defined as the process of estimating value. Value of the property depends on the circumstances of the case such as structure, life, maintenance, location, etc. Valuation of firms and projects is the core topic in business and finance. Valuation is carried out basically for financial activities in the economy i.e. Investment, buying and selling, loan and mortgage etc.

A property valuation is an inspection carried out to help determine the current market value of a property. It is usually undertaken by an estate agent or an independent valuer, typically acting on the instructions of the vendor or a lending institution who are considering funding its purchase. Buyers may also request a property valuation if they are considering purchasing a property, in addition to structural surveys that assess its physical condition.

Before providing a mortgage or refinancing, a lending institution (such as a bank) may request a valuation to ensure the loan can be covered by the security value of the property. This gives them with the confidence to lend the capital, knowing that if the mortgage goes unpaid, they can recover any outstanding amount by re-selling the property.

Preferred licensed property valuers tend to be used by lending institutions. Estate agents tend to conduct property valuations for sellers of the property. The valuation provided by an estate agent and that provided by a licensed valuer may be different. This is because estate agents are working for the vendor (i.e. the seller), and receive commission based on the price that the property is sold at. They may, therefore, be more optimistic in their assessment of the property's worth than a licensed valuer who is legally responsible for the information provided by them, so must produce their valuation based on facts and accurate up-to-date data.

It is important that sellers ensure the property is in as clean and tidy a condition as possible prior to the valuation, as this can have an impact, as can the state and style of decorations, furnishings, and so on.

A property valuation is typically produced as a report and, in addition to photographs and plans may contain the following information:

- Age of the machine/equipment.
- A description of the construction of the industry.
- Size of the land and building for the industry.
- Utilization of the machine.
- Details of fixtures and fittings.
- Physical condition, wear and tear, etc.
- Details of any issues that need addressing.
- Deterioration due to environmental conditions.
- Comparative sales in the area.
- Use class and extant permissions such as planning permission.
- Development plans that might change the value of the property in the future.
- Impairment of functional capacity.
- Efficiency of the machine.
- Power Consumption of the equipment.
- Raw Material availability

In order for the valuation to be as fair and accurate as possible, a property will typically be compared with other similar properties in the local area. Valuers will examine planning restrictions, by-laws, council zoning, and so on. Factors such as local infrastructure, reputation and attractiveness of the neighborhood, market demand, and amenities (e.g. schools, hospitals, green spaces, and so on), will also be taken into consideration.

II. DEPRECIATION

It is derived from the Latin word “DEPRETIATUM”. Depreciation can be defined as loss in service value due to usage of an asset and passage of time. The result of depreciation is that sooner or later the asset will become useless.

Depreciation is either ‘curable’ defined as “that part of physical deterioration and functional obsolescence which is economically feasible to rectify”, or ‘incurable’ – “that part of which it is not economically feasible to deal with” (IVSC, 2010).

The factors that cause depreciation are:

- ❖ Wear and tear
- ❖ Obsolescence
- ❖ Fall in Market Value
- ❖ Decay
- ❖ Accidents like fall of a tree
- ❖ Change in demands
- ❖ Changes in Arts and fashion
- ❖ Structural deterioration
- ❖ Calamity like flood, lightning etc.
- ❖ Actions of elements of nature like heat, cold, wind etc.

In Accounting, there are various methods for calculating depreciation. A company can adopt any of these methods of calculating depreciation depending on its needs. Some of the methods for calculating depreciation are:

- Straight-line method
- Written down Value method
- Annuity method
- Sinking Fund method
- Production Unit method

So let us study the methods of calculating depreciation in detail.

1. Straight-line Method

The straight-line method of depreciation is the most simple and easy to use depreciation method. It is the most commonly used method of depreciation. It is also called the Original cost method, Fixed Instalment method or Equal Instalment method. Under this method, the depreciation calculation is done by deducting the residual value from the Cost of the asset and then the amount is divided by the number of years the asset was used for or its useful life. The same amount of depreciation is charged every year on the original cost of the asset. The amount of depreciation is charged to the Profit and Loss Account every year. For better understanding, we have given the straight-line depreciation formula.

Straight-line Method Formula is:

$$\text{Depreciation Formula: } \frac{\text{Cost of Asset} - \text{Residual Value}}{\text{Useful life of the}}$$

$$\text{Depreciation Rate Formula: } \frac{\text{Amount of Depreciation}}{\text{Original Cost of the Asset}} \times 100$$

2. Written Down Value Method

The written down value method also known as diminishing balance method or reducing balance method is a method of calculating depreciation in which a fixed percentage of depreciation is charged on the reducing value of the asset every year. While calculating depreciation in the diminishing balance method, the salvage value of the asset is not taken into consideration. The amount of depreciation decreases every year under this method. The diminishing depreciation method is calculated by the formula:

$$\text{Depreciation, reducing balance method: } \frac{\text{Rate of Depreciation}}{100} \times \text{Book Value}$$

$$\text{Calculation of depreciation rate under diminishing balance method: } 1 - (s/c)^{1/n} \times 100$$

Where, S is the scrap value of the asset

C is the cost of the asset and n is the useful life of the asset.

Some companies or organizations also use the double-declining balance method, which results in a large amount of depreciation expense. Double declining balance method is a type of diminishing balance method in which the depreciation factor is 2X than the straight-line method.

Double Declining Balance Method Formula:

$$\text{Depreciation} = 2 \times \text{SLDP} \times \text{BV}$$

Where, SLDP is Straight-line Depreciation Percentage

BV is Book Value

3. Annuity Method

The annuity method of depreciation calculates depreciation on the asset by calculating its rate of return. This method considers the asset as an investment. It takes into consideration the internal rate of returns on the cash outflows and inflows of the asset.

Depreciation cost formula under the annuity method is:

$$\text{Depreciation} = (\text{Cost of the Asset} - \text{Residual Value}) \times \text{Annuity factor}$$

4. Sinking Fund Method

The Sinking fund method of depreciation is a method of calculating depreciation where enough amount is accumulated at the end to replace the asset at the end of its useful life. Here the amount of depreciation is charged to a sinking fund account which is invested in various government bonds and securities. The interest earned from these securities is used to replace the asset.

Sinking Fund Depreciation Method Formula:

Depreciation Value Formula: $(\text{Cost of the asset} - \text{Residual value}) \times \text{Present value of Rs. 1 at sinking fund tables for a given rate of interest}$

5. Production Unit Method

The Production unit method takes into consideration the number of units that the machine has produced in a year. The depreciation cost depends on how much the machine or asset has been used over a year. The amount of depreciation formula under this method is:

$$\text{Depreciation} = \frac{\text{Estimated Total Cost} - \text{Residual Value}}{\text{Estimated Total Output}} \times \text{Actual Output during the year}$$

❖ Features of Depreciation and the Methods

Every asset has only a timely use. And with that, the value has declined accordingly. So the measure of declination of asset value over the period is calculated with depreciation. And the following methods; straight-line method, written down value method, production unit method, annuity method, sinking fund method have their features making the depreciation process unique.

The major features of depreciation are listed below:

- By the usage, obsolescence or time that have passed, there is a loss of value occurred for the assets. And it is included in it.
- The booked value of fixed assets that have affected a declination is what depreciation is.
- Depreciation is a continuous process until the useful life period of the asset.
- We must deduct the cost of expiration, that is depreciation before calculating the taxable profit.
- It doesn't involve cash flow. Hence it can be called a non-cash expense.
- The loss measured must be constant and gradual.
- In depreciation, maintenance cannot be included.

III. CASE STUDY

VALUATION REPORT	
Year	2021- 2022
Property Owner Name	Mr. Shivaji Baviskar
Property Address	Plot No. B-153/3, MIDC Malegaon, Tal : Sinnar, Dist : Nashik-42211
If the asset is under joint Ownership/Co-ownership, share of each owner	Private Limited Company
Latitude, Longitude	18.5314° N, 73.8446° E
Reference Date	2021
Valuer	XYZ
Valuer Address	----
Date of Inspection	May 2022
Valuation	For study purpose
Purpose of Valuation	To Assess the Fair Market Value of corrugated machine
Brief Description	This Industry is Located in the well-known area of sinnar It is Near Highway.
Age of Company	8 years

VALUATION OF PLANT AND MACHINERY (corrugation machine) at JAI GANESH ENTERPRISES.

Sr. No.	Description of M/C	Qty.	Present day Replacement value of identical M/C	Age of M/C	expected life of machine	Assessed fair Market Value As on 2022
			(Rs.)	(Yrs.)	(Yrs.)	(Rs.)
1	single face corrugation machine working speed – 80/pm frequency- 50 Hz voltage- 300 V driven type- electric phase- 3 phase	1	8,00,000	5	10	4,40,000
2	Sheet cutting machine Capacity- 1.5 ton/ 8 Hrs Electric motor- 2 HP Gear set – 21 Nos. Machine body material- casting (C.I.) Blade material- high carbon high chromium steel	1	2,77,000,	5	10	1,52,350
3	Corrugated box stitching machine Voltage- 380 V Weight- 550 Kg Motor HP- 0.5 HP Dimension 1800*700*1600 mm	1	70,000	5	10	38,500
					TOTAL	Rs. 6,30,850
	Less, Obsolescence Factor** @ 7.5%- on Rs. 6,30,850 OBsolescence FACTOR** With the rapid				Sub- Total: Say,	(-) Rs.47313 Rs.5,83,536 Rs.5,84,000

	technological development Modern day Machines with advanced Features and latest design are more precise, faster in production, economical in working, less labor oriented and more reliable. As such, an Obsolescence factor of 7.5% has been adopted to arrive at the fair Assessed Value.				
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BASIS OF VALUATION

The valuation of plant and machinery is a complex process, as it pertains to wide spectrum of equipment with its own inherent characteristics and functions. Its value would depend on many factors which are unique to each machine. Amongst the issues to be considered in the valuation of plant and machinery are the specific utility or usefulness of the asset, its contribution to the production of goods and services for which it was designed and deployed for and its potential to produce and contribute to the profitability of the business.

The Equipment's are of reputed 'Make' and have been found well maintained and in satisfactory working condition.

Column No.4 shows the replacement value of a new and almost identical Machine. This is the price one is required to incur if Equipment having almost identical specification is procured as on date of valuation. This has been arrived at adding the basic price (as given by supplier/manufacturer with the freight and transit insurance charges and also includes the installation expenses).

Column No.5 shows the age of machine and Col. No.6 in the report shows its expected Useful working life-depending on the plant-load duty and the overall condition. The Estimated Useful life of a Machine/Equipment is the period/duration of time the asset is productively employed. The Equipment may be operated even beyond the estimated Useful life-which is known as its "Physical Life"-but only at a heavy maintenance cost, high fuel/energy consumption and unreliable output because of frequent breakdowns.

For calculating depreciation, straight line method of depreciation has been adopted, a suitable and reasonable usable future expected life of Equipment has been presumed after giving strictly due consideration to its actual present day overall operating condition, maintenance, extent of wear sustained owing to the nature of plant duty and the formula used to arrive at the depreciation is as:

$$Depeciation" F" = \frac{Age\ in\ year}{(Age\ in\ year + Future\ life\ expectancy\ in\ years)} \times 0.90^*$$

* Salvage value has been considered as 10%

Total Depreciation = Replacement Value x F

And, Fair Assessed Value = (Replacement Value - Total Depreciation)

IV. RESULT AND DISCUSSION

As a result of thorough inspection, appraisal and analysis and taking into consideration present day replacement cost of similar machines, their general overall condition, upkeep and other factors such as age, obsolescence and economy of operation-viz-a-viz latest and new items incorporating improved design/ technique, in my considered opinion, Fair Market Value of the single face corrugation machine, sheet cutting machine and corrugation box stitching machine under reference as on date works out as Rs 5,84,000 lakh (five lakh eighty four thousand only).

V. CONCLUSION

This project is done for understanding the valuation process of plant and machinery in guidance of Mr. Amol Raundal my project guide. This project gives the knowledge of calculating the Fair Market Value of the property.

The assessment of the Fair Market value was carried out at asset level. The aggregate of the individual Fair Values presented here takes account of the marketing period and the transaction costs of the individual assets and does not reflect any discounts or premiums on the sales of the whole portfolio or if part of the portfolio were to be marketed simultaneously or in lots.

The industry under valuation is JAI GANESH ENTERPRISES . Plot No. B-153/3, MIDC Malegaon, Tal : Sinnar, Dist : Nashik-42211 The age of company is approx. 10 years. The company activity of To Assess the Fair Market Value of single face corrugation machine, Sheet cutting machine, Corrugated box stitching machine. There are no negative values to the report.

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