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# Comparative Study On Valuation of Green And Conventional Factory Building-case study

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**Abstract -** *Value is determined on basis of its marketing price and rent or income it can get. The purpose of this study is to make known to people with general field practice of valuation of real estate assets. The objective of this study is to identify the market value of properties for bank finance purpose which is situated in semi urban and rural area of Nashik (Maharashtra), India.*

*This research study is carried out under the supervision of government Authorized valuer who is working in Nashik City. Green structure offers proper environment by controlling solar emission heat, energy efficiency, water preservation using domestic management plant and indoor air quality. The key objective of green constructions is to reduce the environmental consequence of new buildings.*

*The sustainability in the surroundings can be soundly accomplished by decreasing the energy radiation and consumption by the structures. Green Construction denotes to a construction that is naturally accountable and resource-efficient throughout a building's lifespan-cycle. The purpose of this project is to conduct a relative study on conventional as well as green Factory building.*

***Key Words*:**

## 1.INTRODUCTION

**By** valuation the current value of a property is distinct, and it may be certain by its selling value, or income or rent it may realize. The price of property depends on its construction, lifecycle, maintenance, area, bank loan interest, etc. Building industry is an directory of growth of a country. At present, the structure industry is the second major providing work for trained and semiskilled labour later agriculture and plays an imperative role in nation's economy. Current studies directed the significance of correct cost evaluations, there has been additional work focused at improving the cost evaluations methods, specifically for building manufacture projects Valuing building expenditures can be demanding as most building projects are exclusive.

In present scenarios the estimators (Engineers, Architects, Contractors) estimating valuations of project is based on general approach without considering difficulty of construction based on construction techniques of Load Bearing Structures. 1)RCC Framed Structures. 2) Steel Framed Structures 3)Pre& Post Tensioned Structures. 4) Pre-Fabricated Structures. 5)Green building Technology.

### 1.1 Aim of the study

Before The aim of study is to determining the fair price means to consider all the suspicions of project based on construction techniques & Designs. All capricious has to be appropriately predictable based on appropriate study, earlier knowledge and research to estimate total venture cost of construction. Based on construction technique & design the cost of structure is differs depends locally on availability of Skilled labour, material cost, plans & specification, administration, Time of construction, Tools & Technology, Erection & Performance, Environmental impact, Size & type of project.

### 1.2 Objectives

To calculate the exact cost of construction of factory building. To assumes technique to covert factory Building into Green Building. To protect the natural resources, decreasing the soil waste, better-quality water superiority, safeguard of ecosystem and Biodiversity Thus moderating the adversative effect of the built environment on Human healt Because of the comparison of valuation of factory building we can get exact valu variance in building with and without green building concept.

## 2. LITERATURE REVIEW

**The Study** and the valuation report was done by **"Mr. Prashant H, Patil"** illustrate the stronger report on the valuation of the factory of building for the Bank loan purpose this study provides the comprehensive investigation between the actual cost of construction of the building and the present value of the factory building. Also in this report physical characteristic, town planning parameters, legal aspect, socio cultural Aspect, functional and utilitarian aspects are taken in consideration with proper and deep study of the premises of building.

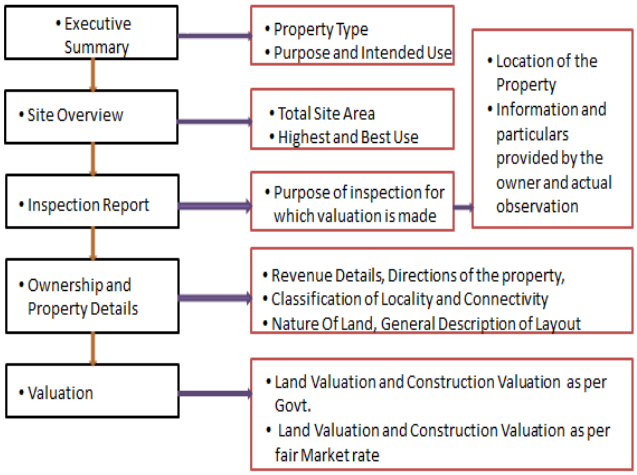
**Abhishekh Golcha** et. al. (2016) the purpose of this work was to learn the market value of structure for bank finance purpose which is located in urban, semi urban and rural region of Chhattisgarh, India. This study assistance to bank to know the honest condition of structure and simplify the bank finance amount to holder of the property. The valuation of

assets helps to both owner of the assets and the bank to know the actual value of the assets.

**Minal P. Chaudhari** (2019) the purpose of her research paper is to examine valuation of residential and commercial building by conveyance a case study. Various aspects affecting the value of an property are indicated. She also adds relationship between market rates and government rates.

**Avinash Shivajirao Pawar**. "Green buildings". Paper of Engineering Research and Studies focused to design green building in appreciation to decrease the demand on nonrenewable fortune, maximize the reuse, recycle and advance the use of onsite resources. Paper outlines that the green building experiences in India have been sensational and perplexing as well and serves to assist the country to conserve energy and natural resources by impelling increased recovery and recycling of building materials.

### 3. RESEARCH METHODOLOGY




The research work initiated with study of valuation techniques and past valuation report data collected from government authorized valuer to find the market value of the property for bank finance purpose. Documents related to property are studied.

For our study of valuation of Factory Building we have used the **LAND AND BUILDING** technique for calculating the fair market value of assets.

**Value of property = (Current value of land + Current value of building)-Depreciation + Amenities and services**

### 4. CASE STUDY –

- Name of the Owner - M/s. Mukesh Industries partnership firm through partner Mr. Manish Jayantiprasad Gupta
- Location of Property - Survey No. Gat No. 570 Part
- Address - Near Jai Vaishanavi Nursury, Jaulake - Janori Road At.- Janori, Tal.- Dindori, Dist- Nashik
- Type of Construction - R.C.C. frame structure. & Steel Structure.

**Table -1:** Valuation Of Conventional Factory building.

| Description | Area (sq.m) | Market Rate (Rs./ Sq.m) | Estimated Market Value (Rs.) | Govt. Guideline Rate (Rs.) (per Sq.m) | Guideline value (Rs.) |
|---|---|---|---|---|---|
| Land | 3138 | 3000/- | 94,14,000 /- | 780/- | 24,47,640/- |
| Parking Area | 400 | 1500/- | 6,00,000/ - | 780/- | 3,12,000 /- |
| B/up of shade 1 | 893.78 | 15390 /- | 1,37,55,274/- | - | - |
| B/up of shade 2 | 550.13 | 15390 /- | 84,66,500 /- | - | - |
| Total value | - | - | 3,22,35,774/- | - | 27,59,640/- |
| Realisable value (90%) | - | - | 2,90,12,196/- | - | - |
| Distress value (80%) | - | - | 2,57,88,619/- | - | |

### 5. CONVERSION TO GREEN BUILDING

Green building mentions to both a construction and the using of practices that are environmentally accountable and resource-effectual throughout a building's lifespan from laying to plan, construction, operation, preservation, restoration, and destruction. In other words, green structure design includes finding the stability between homebuilding and the ecological environment.

#### 5.1 REDUCING ENVIRONMENTAL EFFECT:

Use energy further resourcefully. Producing Electricity and delivering it to installing Renewable Sources such as Solar Roof top can reduce effect on the environmental expressively while depressing energy bill. Conserve Water , energy is used

to heat the water used in facility and process waste water. "**Reduce** , **Reuse**, **Recycle**" environmental footprint goes elsewhere energy use. And the last one is Considering Adjacent Sourcing, all business require resources to function , weather it is office supplies or raw material for manufacturing , transporting this resources to door uses energy and creates emanation.

**5.2 GOALS OF GREEN BUILDING :**

Structure design effectiveness, Energy effectiveness. water effectiveness. Materials effectiveness. Man oeuvres and Maintenance Optimization. Waste Reduction.

**5.3 RAIN WATER HARVESTING:**

It is the pool and circulation of rainwater for exhausting in daily life, rather than permitting it to run off. Rainwater is generally collected from roof tops. Then it is placed in a reservoir with percolation. It is used for gardening, cultivation and internal uses. The collected water can also be used as ground water boost. Lack of water is affected by climate alteration, lack of planning of water consumptions, rapidly growing water pollution and cumulative population.

So, under such circumstances some severe stages towards conservation of water must be adopted. Rain is a natural source of water. So, if it can be collected and preserved, it can be used as clean water. It is a inexpensive and simple technology, so it can be simply installed in normal families and a lot of water can be saved.

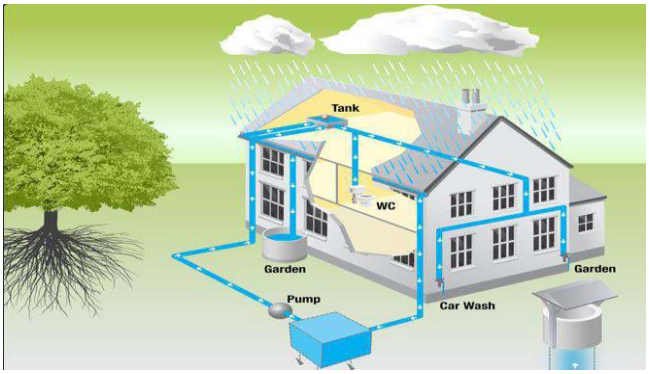



**Fig.1**: Rain Water Harvesting

**5.3.1 CONSTITUENT RAIN WATER HARVESTING:**

Catchment: the surface of the building. Land or open space from which rainwater is collected for storage in collection tank. Catchment region is the area of that landscaped area or from rooftop or from paved flooring, usually calculated in $m^2$

Sewage canals and Down take pipelines: lead the water from the catchment surface to the storage tank or collection tank.

Screens and first flush maneuvers: eliminate grit, dry leaves and dust that the rainwater may carry from the catchment zone, before the water come into the storage tank. When it rains after a extended gap, the rooftops are usually very unclean and the rainwater also brings with it a lot of dissolved air pollutants. A first flush device turns away the water from the first rain so that it does not come into the storage tank.

Storage containers: These can be overhead the ground or under the ground.

Supply systems: Piping systems that transmit the stored rainwater till the point of finale-use.

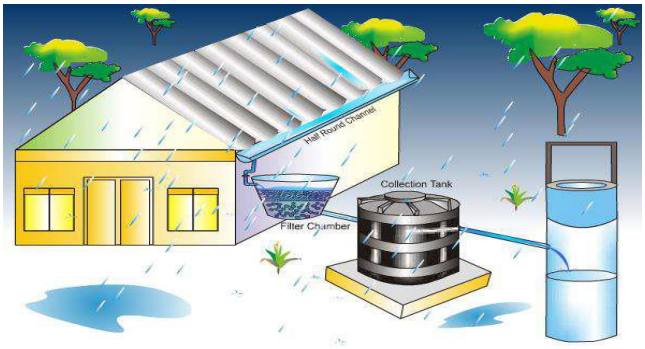



**Fig -2**:Rain Water Collection in Asbestos Roofs

**5.4 SOLAR PANEL SYSTEM:**

Solar power is the exchange of energy from sunlight into electricity, either straight by means of photovoltaic (PV), ultimately using concerted solar power, or a mixture. Focused solar power systems use lenses or mirrors and solar tracing systems to concentrate a large region of sunlight into a minor sunbeam. Photovoltaic chambers transform light into an electric current by means of the photovoltaic effect.

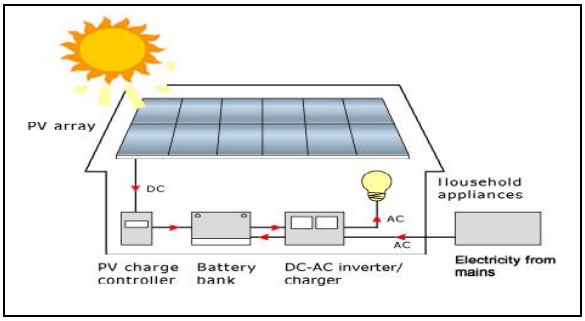



**Fig -3**:Typical Rooftop Solar System

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### 5.4.1 SOLAR ROOFTOP CALCULATOR:

**Fig 4:** Solar System for Factory.

Average solar irradiation in MAHARASHTRA state is 1266.52 W / sq.m. 1kWp solar rooftop plant will generate on an average over the year 5.0 kWh of electricity per day (considering 5.5 sunshine hours).

**Size of Power Plant** : Feasible Plant size as per your Roof Top Area : 122.8Kw

**Cost of the Plant** :

MNRE current Benchmark Cost : Rs. 36000 Rs. / kW Without subsidy (Based on current MNRE benchmark) :Rs. 4420800 /-

With subsidy 0 (Based on current MNRE benchmark) : Rs. 4420800/-

**Total Electricity Generation from Solar Plant :**

Annual : 184200kWh

Life-Time (25 years):4605000kWh

**Financial Savings :**

a) Tariff @ Rs.11/ kWh (for top slab of traffic) - No increase assumed over 25 years :

Monthly : Rs. 168850 /- Annually : Rs. 2026200 /-

Life-Time (25 years) :Rs. 50655000 /-

Carbon dioxide emissions mitigated is 3776 tonnes.

This installation will be equivalent to planting 6042Teak trees over the life time. (Data from IISc)

### 6. VALUATION TO GREEN BUILDING:

| Description | Area (sq.m) | Market Rate (Rs./ Sq.m) | Estimated Market Value (Rs.) | Govt. Guideline Rate (Rs.) (per Sq.m) | Guideline value (Rs.) |
|---|---|---|---|---|---|
| Land | 3138 | 3000/- | 94,14,000/- | 780/- | 24,47,640/- |
| Parking Area | 400 | 1500/- | 6,00,000/- | 780/- | 3,12,000/- |
| B/up of shade 1 | 893.78 | 18196.50/- | 1,62,62,212/- | - | - |
| B/up of shade 2 | 550.13 | 18196.50/- | 1,00,10,440/- | - | - |
| Total value | - | - | 3,62,86,652/- | - | 27,59,640/- |
| Realisable value 90% | - | - | 3,26,57,987/- | - | - |
| Distress value 80% | - | - | 2,90,29,322/- | - | |

### 7. BENEFITS OF GREEN BUILDING OVER COMMERCIAL FACTORY BUILDING:

However the preliminary cost of execution of green buildings is high, it will ascertain to be cost effective in upcoming. It also assurances an environmental means of livelihood. This setting up will be corresponding to planting 6042 Teak trees above the life time. It benefits humanizing Green Environs. Government suggestions an extra FAR of 3%, 5% and 7% for Green Constructions rated as Silver, Gold and Platinum respectively by IGBC than the Commercial Construction.

Rain Water Harvesting enhances the Ground Water level as it similarly consume for drinking and other purposes. Green construction offers suitable environment by monitoring solar radiation temperature, energy effectiveness, water maintenance using domestic cure plant and indoor air excellence.

**8. VALUATION TO GREEN BUILDING:**

This study aims to investigate valuation of factory building by conducting a case study on the basis of this study the results are drawn below;

1. The overall value of the property is dependent on Zone of the building, Front part of building, life of the structure and the Existence of the building.

2. The land rate is always increasing as the days goes on but b/up rate is always decreasing because of its wear and tear, etc. this concept called depreciation.

3. The market value of the assets is thoroughly different from the government rate. 4. The age/ life of structure theatres significant character in the estimation of construction.

5. The value of the structure is also reliant on the improvement of surrounding region. 6. The verification of documents of property on site is very necessary.

7. Value Engineering (VE) is a executive procedure that seeks the superlative efficient Balance between rate, reliability and performance of a product, project, process or service.

**9. CONCLUSION:**

So From this study we come to know how valuation of factory structure (Real Estate) is done practically. It is extremely necessary to perfectly categorize the method of design, technique and valuation method to impact the rate proportions. As we compare the valuation between green structure and conventional structure we found that the valuation of green building is much more than conventional. Also the beneficiary schemes which are given by government are more helpful for the factory or industries. Rainwater harvesting in order to reduce water scarcity in dry period. Solar panels help to produce necessary amount of electricity for household purposes. As the real assets is taken as safety against the loan fees, it is very significant for the money offering organizations to know real market value of the security guaranteed for debt. It is valuable that the financial organizations are awake of basic valuation approaches and are also familiar with the various terminologies used in the Valuation Report.

Green building is not only about sustainable proposal and construction; it is also about integrating the latest technologies in building design to ensure rational use of natural resource

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