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Cost of Construction: User-Friendly Method

The construction cost of a building/structure plays a crucial role in the valuation of the asset, especially when the cost approach method is adopted. In general practice, we adopt the prevailing cost of construction in Rs/sq. ft. or Rs/sq. m., as detailed estimation is very tedious and time-consuming due to the unavailability of sufficient data related to that building/structure.

In this article, we will discuss some of the easy methods for estimating the cost of construction of a building/structure.

Construction Cost

Construction cost refers to the total expense incurred in building a structure, which includes all the financial outlays required to complete the project.

It mainly consists of 3Ms = Material + Machinery + Manpower

01. Materials Costs:

Expenses for raw materials like cement, steel, bricks, wood, glass, and finishing items.

02. Machinery or Equipment Costs:

Costs for machinery and tools used in construction, such as cranes, bulldozers, or concrete mixers.

03. Labour Costs:

Wages and salaries for workers, engineers, architects, and other professionals.

Other expenditures associated with overall construction work are:

04. Permits and Approvals:

Fees for legal permissions, permits, and compliance with regulations.

05. Contingencies:

A buffer for unforeseen expenses or cost overruns.

06. Overhead Costs

General expenses like administrative costs, insurance, and utilities for the construction site.

07. Financing Costs

Interest on loans or other financing, used for the project.

Factors Affecting Construction Cost

Several factors influence construction costs, some of which are mentioned below:

01. Location

Geography: Costs may vary by region due to differences in material availability, transportation and labour rates.

Accessibility: Remote sites often incur higher transportation and logistics costs.

02. Project Size and Scope

Larger and complex projects typically require more materials, labour, and time, increasing overall costs.

03. Material Costs

Fluctuations in the prices of materials like cement, steel, etc. due to supply-demand dynamics or global market trends.

Quality and type of materials used also significantly affect costs.

04. Labor Costs

Availability of skilled and unskilled labour.

Wage rates, which differ by region and labour market conditions.

05. Design and Specifications

Complex and unique architectural designs increase costs due to specialized requirements.

High-end finishing and custom features raise material and labour expenses.

06. Regulatory and Compliance Requirements

Costs associated with obtaining permits, adhering to building codes, and meeting environmental and safety regulations.

07. Construction Methods and Technology

The use of advanced construction technologies or techniques like prefabrication, may reduce costs or initially, increase them.

Replacement Construction Cost for the Valuation Purpose

The Valuer is required to determine the present replacement cost of construction while valuing a structure/Building. The replacement/construction cost refers to the expense required to rebuild the structure with the same utility, materials, and design quality at current market prices, excluding depreciation or age-related deterioration. It represents the cost of restoring the building to its original condition. Based on the age and physical condition of the structure/building, the depreciated replacement cost is calculated.

To calculate the replacement cost, we can use this formula:

Construction Cost of a building = (Present Cost of Construction per Sq. ft. or sq. m.) X Total Area of the Building + Other cost if any

Cost per sq. ft. or sq. m. = Cost determined based on current market rates for similar construction in the area.

Total Area = Construction area measured in sq. ft. or sq. m.

Other Costs = Includes permits, fees, and code compliance.

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There are various means and methods to find out the Prevailing Replacement/ Construction cost.

In this regard, we propose three easy methods for determining the cost of building construction, which may be very useful for professionals.

01. Based on PAR (Plinth Area Rate) published by CPWD

Plinth area rates (PAR) published by the Central Public Works Department (CPWD) are one of the most comprehensive and useful technical documents used by the Central Govt, State Govt, PSU, Engineers and Valuation professionals for the preparation of Cost estimates of Residential and non-residential buildings/structures such as Offices, colleges, hospitals, hostels, schools, Quarters, etc. PAR calculation is as per the provision of IS:3681-2002, " Method and Measurement of Plinth, Carpet area and Rentable areas of Building"

This is the most suitable and readily available data being frequently used by professional Engineers and valuers. The PAR rates can be adjusted based on the specification, nature of the structure, revision of the Cost Index, and location (city) of the subject asset. The latest version of Plinth Area Rates-2023 is the 11th edition since 1955.

The present Residential Building (Quarters 3m floor height) Rate is 23,530/sqm (with base 01.04.2023 as 100).

Further Building a Cost Index over plinth area rates 2023 for Delhi, Base is revised as 103 on 01.04.2024 with base 100 as on 01.04.2023.

Hence, the Present Residential Building (Quarters 3m floor height) for Delhi as of 01.04.2024 = Rs 23,530 x 103/100 = Rs 24,236/sqm

02. Estimate of the building cost as per Local Material and labour Rate

We can determine the cost by adding the cost of materials and labour associated with the building's construction, as shown in the table below, This is an approximate method for a building's basic cost of construction in Rs/sq. ft.

The cost of other items like boundary walls, lift, external lighting, firefighting, horticulture, external sewage, development of the site, landscaping, rainwater harvesting, etc, needs to be added over the basic cost.

To explain this method, a building of 1000 sq. ft. built-area is considered as shown below,

Built-up area = 1000 sq. ft.

Location = Faridabad (Haryana)

Material	Unit	*Qty for 1000 Sq. ft. for RCC framed Structure as per Ultratech Cement House Building Guide	*Material Rate (Faridabad)	Amount for 1000 sq. ft.	% of Material/Labour w.r.t total cost of Building
1	2	3	4	5	6
Cement	Bags	450	₹382	₹1,71,900	11%
Steel	kg	3500	₹50	₹1,75,000	12%
Sand	cft	2000	₹44	₹88,000	6%
Aggregate	cft	1900	₹33	₹62,700	4%
Brick Work	No	19000	₹8	₹1,52,000	10%
Flooring/Tiles		1000	₹127	₹1,27,000	8%
Window	sqft	170	₹263	₹44,710	3%
Doors	sqft	180	₹415	₹74,700	5%
Painting	sqft	6000	₹30	₹1,80,000	12%
Electrical fittings	sqft	150	₹77	₹11,550	1%
Sanitary Fitting	sqft	1000	₹83	₹83,000	6%
Kitchen	sqft	55	₹1,468	₹80,760	5%
Labor (Skilled & Unskilled)	sqft	1000	₹235	₹2,35,000	16%
Total				₹14,86,320	
Consultancy /Design 1%				₹14,863	1%
Total				₹15,01,183	100%
Area				₹1,000	
Cost/Sq. ft				₹1,501	

*Source for Material Qty and Rate

<https://www.ultratechcement.com/for-homebuilders/homebuilding-explained/home-planning-tools/cost-calculator>

As per the above table, the basic cost of construction is Rs 1500/ sq. ft. for Faridabad City. Adopting the same method, we can determine the construction cost for any location by modifying the material and labour rates.

Please note that if a higher grade of material is used, then the rates will revised accordingly. (For example, if Marble/granite is used for flooring instead of normal tiles.)

02. Construction Rate issued by the State Revenue Department or Guideline rates for construction.

Every State Revenue Department issues a guideline rate for different types of buildings/structures for stamp duty purposes These rates can be referred to as the prevailing cost of construction.

Conclusion

The construction cost can be determined by using the above-given methods as per the convenience of the professionals.

