



COST ANALYSIS FOR A VILLA TYPE MODERN HOUSE IN HOKANDARA, SRI LANKA

- 2023 -

INTRODUCTION

The construction industry in Sri Lanka has been growing steadily in recent years, driven by increased investment in infrastructure development and a growing demand for commercial and residential properties. The industry is one of the major contributors to Sri Lanka's economy, accounting for approximately 6.1% of the country's GDP in 2020, according to the Sri Lanka Central Bank.

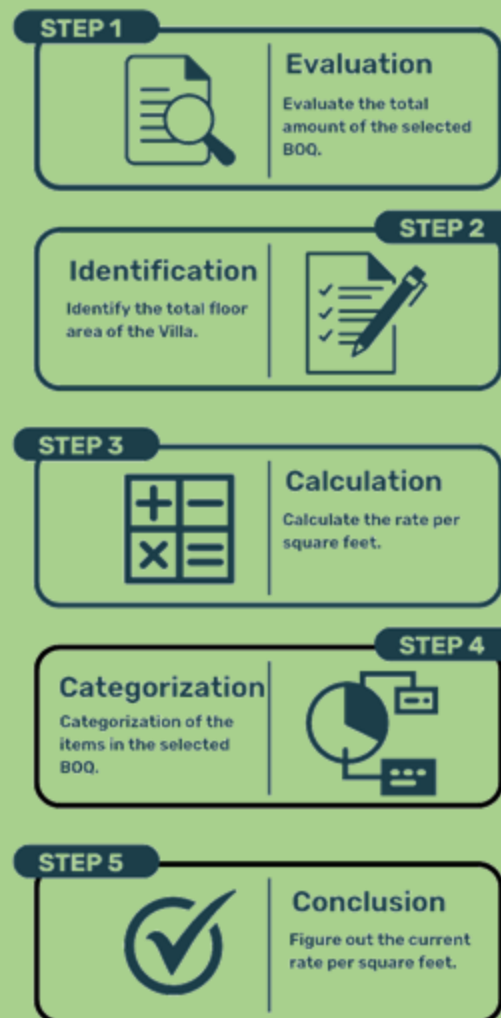
The construction industry is a vital component of any economy, and its growth could have a significant impact on overall economic development. The construction industry involves the creation of construction-related goods, the use of resources, and investments that support Sri Lanka's economic growth and the establishment of jobs. But, due to an unmanageable debt burden and ongoing deficits on both the government budget and the international balance of payments, Sri Lanka is currently experiencing an economic crisis. As a result of this crisis it has been extremely difficult to calculate the square feet rate for various types of buildings.

This article shows the current square feet rate for a villa type modern house located in Hokandara, Western province. All the calculations were done with the basis of contractor's BOQ (Bill of Quantities) and CIDA (Construction Industry Development Authority) 2023.

PROCESS

Following Diagram illustrates how the process is going. For a comprehensive

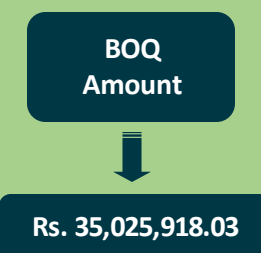
understanding the process has divided into five steps.



ANALYSIS

1. Evaluation

Total BOQ amount for a villa type modern house in Hokandara, Western province estimated in 2022 January.

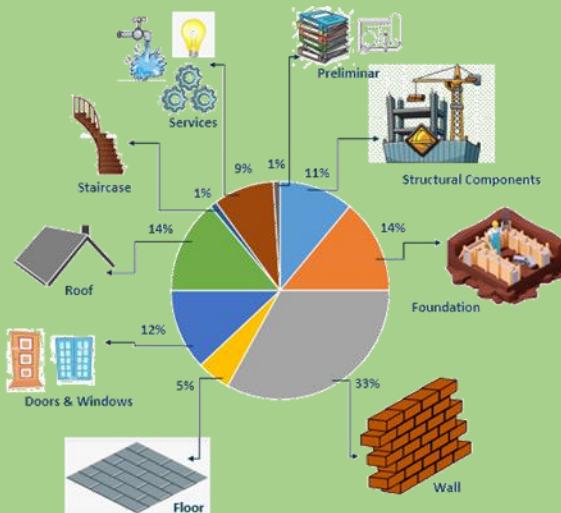


Rate per Square Feet,

Rate per Sq. ft. in
January, 2022

Rs. 9,961.75

The following table and pie chart illustrates the proportions of total construction cost of a villa type modern house allocated to different categories.



Elements	Percentage	Rate per 1 sq. ft. (Rs.)
Preliminary works	1%	99.62
Substructure	14%	1394.65
Structural components (Superstructure)	11%	1095.79
Walls	33%	3287.38
Floors	5%	498.09
Roofs	14%	1394.65
Staircase	1%	99.62
Doors & Windows	12%	1195.41
Services	9%	896.56
Total	100%	9,961.75

2. Identification

This Villa type modern house contains two stories. Following diagram illustrates the floor areas of the two separate floors and the total floor area.



3. Calculation

I. Calculating percentage of the growth in price index

- Base Date :- January, 2022
- Base index :- 1086
- Current Date :- January, 2023
- Current index:- 1651.3

$$\begin{aligned} \text{Growth in price index} &= \frac{(\text{current index} - \text{base index})}{\text{Base index}} \\ &= \frac{(1651.3 - 1086)}{1086} \times 100\% \\ &= 52.05\% \\ &\approx 52\% \end{aligned}$$

II. Finding the growth in the BOQ Amount

Multiplying the growth in price index with Previous BOQ amount to find the growth BOQ Amount.

Growth in the BOQ
Amount

Rs. 18, 213, 477. 38

III. Finding the current BOQ Amount

Adding the growth of the BOQ amount to the previous BOQ amount in order to find the current BOQ amount.



IV. Finding the current rate per sq. ft.

Dividing current BOQ amount by the total floor area of the building.



4. Categorization

Current square feet rates,

Elements	Percentage	Rate per 1 sq. ft. (Rs.)
Preliminary works	1%	151.42
Substructure	14%	2119.86
Structural components (Superstructure)	11%	1665.60
Walls	33%	4996.81
Floors	5%	757.09
Roofs	14%	2119.86
Staircase	1%	151.42
Doors & Windows	12%	1817.02
Services	9%	1362.77
Total	100%	15,141.86

The overall cost of such a home will be significantly influenced by the basic materials used in its construction.

The graph below depicts the behavior of the price index of construction materials used to build a wall, which accounts for the greatest percentage (33%) of construction costs.



Source: CIDA Bulletin (2023)

5. Conclusion

Based on the calculations, the cost per square foot of this villa is Rs. 15,141.86. However, when calculating the entire cost of the property, the value of the land must also be included along with the cost of the house. The estimated cost of the property should include the physical structure of the house, landscape cost, land development and improvements where the house is built, and any other associated costs. Therefore, an additional 23% of the cost per square foot is added as the value of the property improvements. This represents the value additions to the property and is included in the final cost per square foot calculation.

$$\text{Added value} = 15,141.86 \times 23\% = 3,482.63$$

Value added cost of rate per square feet of the villa



6. summary

With the gradual growth of the construction industry in our country, construction has developed into a foundational sector of the economy. Since building materials form the foundation for all building production processes, including architectural design, building structure, construction, and building economy, they are a crucial part of the building engineering field. It is crucial to control these factors because shifts in the price of construction materials have a big effect on the project. The construction expense has changed significantly as a consequence of Sri Lanka's current economic crisis.

This case study provides an overview of the current square feet rate for the chosen villa, which has changed as a result of increases in building material prices. Based on the data gathered from the contractor's BOQ and CIDA bulletin 2022, an analysis was completed. Generally, compared to the date the BOQ was produced, the current square feet rate has changed by about 52 percent. (January-2022)

7. Limitations

- There is only one case was studied.
- This is limited to a villa which is under construction and also the necessary adjustments have done.
- Only the building has taken for the analysis; no landscaping, no sanitary fittings
- This rate analysis is totally depending on contractors BOQ which is made in 2022 January.