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Building Economics

Introduction

Building Economics is about economizing the use of scarce resources throughout the life cycle of a building. The most “Economic” is the one that provides the value required at the lowest cost. – Gary Mulliga

 Need for cost control

It is vital to operate an effective cost control procedure during the design stage of a project in order to keep the total of the scheme with the building client’s budget. The implementation of effective cost control procedure enables the architect to be kept fully informed of the cost implication of all his design decisions.

An important part of the quantity surveyor’s function is concerned with ensuring that the client receives value for money in building work. Advice may be given on the strategic planning of a project which will affect the decision whether or not to build, where to build, how quickly to build, and the effect of time on costs or price and on profitability.

During the design stage, advice is needed on the relationship of capital costs to maintenance costs and on the implications of design variables and differing constructional techniques.

The cost control process should be continued through the construction period to ensure that the cost of the building is kept within the agreed cost limits. A client is very much concerned with quality, cost and time: he wants the building to be soundly constructed at a reasonable cost within a specified period of time. -. Building Economics, 4th Edition. –Ivor H. Seeley

Substructure

The cost of substructure is influence by site condition, such as type of soil, groundwater level and presence of sulphates and other contaminants or obstructions, as well as by the type of building to be erected.

Quality Assurance

All building sites require formal, simple and effective documentation system to improve their efficiency, and provide evidence that the specific Quality has been achieved at first attempt. Quality assurance introduces a series of a checklist, identifying the stage at which it can be verified that the works comply with specific requirements and each must be agreed be proceeding to the next. - Building Economics, 4th Edition. –Ivor H. Seeley

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My site story

Since building economics is all about management of resources, I will like to share a story on how we were privileged to help our client [Mr Chemiezie] to manage his resources.

Mr. chiemiezie is a business man with one wife and three children, an origin of Imo state, he is a supplier of plumping materials in zaria, Nigeria.

In 2019 I was privileged to designed a two bedroom bungalow for Mr. Chiemizie

 during the design he wanted to use 9 inch block for the whole building and the price of 9 inch block at that time was N170, So we encouraged him to buy 7 and half inch block which was N150. The reason we use 7 and half inch block was because the soil is good and the building is not a storey building.

 Because of the advice we gave to him, he was able to save N20 [20 naira] on each block. We use about 2,000 seven inch block in his construction site. If you are to calculate N20 x 2000 you will have N40,000. Thank God that he listened to our advice, if not he would have wasted N40,000. We use 7 and half inch block for the fence and exterior walls.

All through the foundation we use 7 and half inch block so that we can have a very strong foundation. But after the dpc we also advice him to use 6 inch block for interior or partition walls, the reason we advice him to buy 6 inch block is so that there will be additional spaces in the room and at the same time save cost. The price of 6 inch block at that time was N130 and we use 2,340 six inch block in that site, if you are to calculate N20 x 2,340 you will have N46, 800.

Now let’s calculate the total amount he saved on blocks [N40,000 on 7 inch block + N46,800 on six inch blocks] you will have N86,800.

Site/land management

The knowledge of building economics also deals with helping clients to manage their land properly, I have seen a building that a client arrested his builder because he wasted his land. So for any builder to manage a land he or she needs to have a good understanding of a site plan.

The knowledge of a good site plan helps a builder or an architect to know the position where the main building need to be, where you need to position your care park, walk way, landscape etc.

Before we start the design of Mr. chiemizie plot we measured the size of the land but after measuring the land we discovered that the land will not be able to contain ” twin two bedroom” because our client’s desire was to have a “ twin two bedroom”, and his reason for that is so that he can have a place to stay and at the same time a place where he can rent out. His plot is not squared and is not big enough but God help us to design a “twin two bedroom bungalow” by reducing the sizes of blocks and reducing the sizes of the rooms.

Concrete facial/parapet

A concrete facial is concrete design that is done in a building in the place of facial board. We have different design for concrete facial. So in Mr. chimiezie building we use a simple and beautiful design that will not consume much materials such as iron rod, cement, gravels etc.

This has also helped our client to save money.

Mr. ifeayin site

Mr. ifeayin is a business man with one wife, four children who sales building materials in zaria.

We were privileged to build a three and two bedroom bungalow for him.

According to research building economics also deals with advice, that is, as a builder or an architect you can advice client on things he needed to do In order to have a strong structure.

We always ask Mr. Ifeayin to pour water on the building three times a day for two days whenever we close from site. The importance of pouring [ curing] is that, it helps the cement to reach a certain strength thereby helping the building to be firm.

Mr. Ifeayin did all we asked him to do and at the end of it he was able to have a strong structure.

 Fence building experience

Recently we built a fence for one of our client. We don’t normal measure sharp sand in most of our building site, but when we start using wheel barrow to measure sand, gravel and other building materials we discover that we don’t use to waste cement like before.

Each time we use wheel barrow to measure sand we learned that we use less cement to do big work. So using wheel barrow to measure sand and gravel has helped us to improve our work and manage our client resources.

Another way we manage resources at the site is through the use of good sharp sand. One of the advantage of using good sharp sand that we discover is that, any concrete that is properly mixed using good sharp sand tend to be more stronger compare to the one that is done with poor sharp sand.

Conclusion

The economics of building has helped me to discover different ways to manage resources, save time, and encourage me to take advantage of natural resources such as sunlight and ventilation in order to save client’s cost of running and maintaining his building properly.

 Furthermore, If there is adequate sunlight in a building, it will help the client not to use artificial light source in the afternoon. And when there is adequate ventilation in a building, there will be no need for AC and fan all the time. So designing building with proper sunlight and adequate ventilation helps the client not to waste his money on fuel all the time. Thanks.

Reference

. Building Economics, 4th Edition. –Ivor H. Seeley

. Your Green Home: A Guide to planning a Healthy, Environmentally friendly New Home. – Alex Wilson

. The architecture of light, 2nd edition – Sage Russel

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