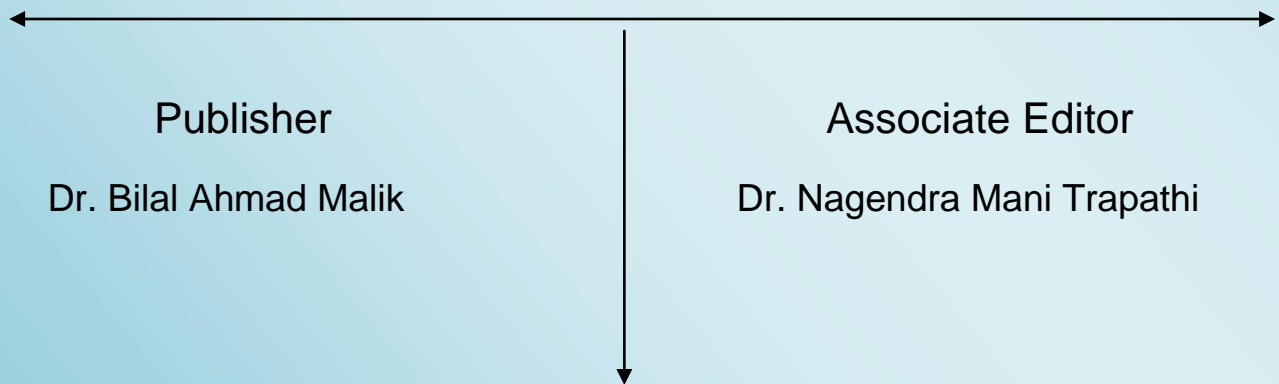


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HOW TO SAVE COSTS IN CONSTRUCTION OF MULTI STOREYED BUILDINGS

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ABSTRACT

Land is becoming costlier day by day. Consequent to rapid industrialization and widespread employment opportunities, the interest on agriculture is waning and traditional agriculturists also prefer to sell their piece of land to real estate promoters.

The movement of people from rural areas to urban areas seeking employment, necessitate construction of multiple floor apartments. This is on the rise in the outskirts of the city.

One more reason that could be attributed to this is the increased disposable income of people. The easier availability of loan with extended period of repayment induces people, especially the youngsters to embark on purchase of apartments.

All these result in momentum in construction activities. Apart from traditional builders, a number of new entrants also venture in multi storeyed apartments building.

Keywords: *Multi Storeyed Buildings, Self- Compacting Concrete (SCC), Fly Ash (FA), Ground Granulated Blast Furnace Slag (GGBFS).*

SCOPE OF RESEARCH

The study is restricted to six construction sites in the Chennai City/outskirts and the availability of secondary data.

DISCUSSION

Description	Details
No. of sites visited	6
Construction of floors ranging from	4 – 10
Apartments in each floor	4 – 6
Lifts available	2 – 4
Apartments size	900 – 2200 Sq Ft
Swimming Pool, Club House/Gym etc.,	@ 2 sites only

WHAT IS MULTI STOREYED BUILDING AND THE NEED FOR SAME?

Generally, any apartment with more than three floors is considered to be a Multi Storeyed Building.

The growing population and mainly the increased income levels of people lead to construction of more dwelling places. The fast movement of people from rural areas to urban areas is one other reason.

Sale of cultivable lands to land promoters is yet another reason.

It is also a fact that people prefer to have gregarious living style. From independent houses, people prefer to live in apartments, even if it is costing them more. Their cosmopolitan outlook induces them to live in posh apartments.

Last but not the least; land is becoming very scarce and costly of late. The price of land is prohibitive that individuals cannot afford to construct independent houses. Hence, their preference is for multi storeyed apartments where they have all the facilities and an esteemed style of living.

From the point of builders also, planning permission is only a onetime affair and within the permissible limit, they can go ahead with construction. Land cost is only a one time affair. As such, builders too prefer in construction of Multi Storeyed Buildings.

MAJOR COST ATTRIBUTES

The cost comprises Men and Material Costs.

We hardly have any choice in labour cost, as the construction industry in our country is still a labour intensive one only. Whereas, in Material costs, we can make cost economics going by our requirements and suppliers.

Bricks

Cement/Concrete

Sand

Tiles/Marble

Steel Rods

Pipes

Paints

CAREFUL DESIGN LEADS TO COMFORTABLE CONSTRUCTION

What is most essential in construction is a well thought out Designing and Planning. A carefully drawn Design gives enough place to accommodate maximum comforts from the point of view of prospective buyers.

There are so many things that can be designed well without eating away the space reserved for room or hall. The space under staircase is one such an important thing. Many eminent builders make excellent use of this. Construction costs for such a thing is also not very costly. What is needed is perfect designing in not wasting even an inch of precious space.

It is an interesting thing to note that from 2 bedroom, 3 bedroom, the builders make smart construction by calling 2, 2 ½ and 3 bedrooms etc., A prospective buyer is privileged to get ½ a bed room extra, though he is paying for same.

A careful design is credited with space management. [1]

BUILD ONLY WHAT IS PERMITTED

The Builders general practice is that while they proceed with permitted construction activities initially, later on, they would be inclined to construct one or two floors extra with a hope to dispose them off to “cash parties”.

It is now gratifying to note that buyers are not interested to purchase anything which is not validated by planning permit. Even Cash parties are not willing to take risks on such a purchase.

One more thing that is laudable is that the Authorities are taking stringent action on “unauthorised construction”. Not only such a thing is demolished, but also the builder is made to pay a heavy fine for such a violation.

This is being strictly followed now by both the Authorities and also the Builders. Builders are not swayed away by unauthorized sales income and equally, customers are also very educated and they do not want to go in for anything ‘unapproved’, however enticing the price is.

Standardise Flooring

Choice of customers is endless. Wise Builders always standardize their construction. If they were to go by choice of individual purchasers, they are sure to be engulfed by over costs. The price per sq ft being a fixed one, there is no place for buyers’ choice and it is to be decided and determined by builders only.

Flooring taking a good chunk of construction costs, builders always standardize the flooring. Marble or Tiles. Even in this, same quality and colour of marble is used in all the floors. Besides quality (that is price), even the colour is also standardized. This is important. Flooring with different colours gives an odd look.

Bathroom with essential fittings only

Wise builders always present the bath rooms with essential fittings only. Some builders, for the sake of being showy, stuff the bath room with too many items, many unwanted and sophisticated items.

In one site, the Author was quite surprised to see that the bath room looked like a “Pilot Cabin” with so many things and controls. Sophistication in bathroom is only burning away of money. Neither the people have the desire to use all the comforts in a bathroom nor do they have the time for the same. Clever Builders are clever on this.

Be shrewd in Wood

It is an accepted fact in construction field that wood work is costly, slow and time consuming. While carpenters cannot be accelerated beyond a point, the builder enjoys the smart choice of selection of wood.

There are equally and even better than Teak, woods are available in the Market. These woods are comparable in price and have better durability.

For large scale construction, selection of wood is also very important and the builder has enormous savings in this.

Marble Vs Tiles

It is a known fact that compared to Tiles, Marble is quite costly.

In Tiles, there are a good number of options available to choose. From the conventional tiles, it is 2X2 tile that is gaining momentum now. The large size tile looks like marble. At the same time, it is cost saving too.

By and large, builders use only tiles in their site, except, of course, a few builders, who build for the sake of posh and grandeur. It is opined that durability is also quite good in tiles.

The easy availability of tiles is yet another comfort in this.

Marbles, no doubt, are costly. The price is, of course, justified by the excellent durability and the pretty look of the house.

In one of the sites visited, it was noticed that all the apartments are moderately luxurious. The builder, still, unlike others, chose to offer marble flooring. The price is definitely costlier than the tiled ones, on comparison. Yet, there are takers of middle class also, who prefer to have their apartments with marble flooring.

One important thing observed in this was that all the marbles were procured locally. In City, almost, all the quarry owners, have their retail outlets. In addition, a number of major dealers are also there who offer the marble with a reasonable price (they are happy with large profits from large sale – thanks to reasonable pricing).

The Builder, who is basically a Civil Engineer, said that it is always advisable to procure the materials locally. He said that all the marbles were bought locally.

He further exhorted that many people would be allured by the low price, if bought from the quarry, which is in a different state. They forget one thing. They pay heavily for transportation.

Two risk factors are there in this purchase.

First, timely delivery is not guaranteed because transportation takes longer time. Many a time, dispute arises amongst Seller, Transporter and the Buyer. The delay is shifted on one another for justification. The labourers have to be paid irrespective of whether the marbles arrived or not.

Second, however carefully driven, breakage or more particularly, cracks are inevitable. Cracks of not easily visible nature, occur in almost 20% cases. Rejecting the piece will only lead to mounting up the cost to builder.

If the builder ventures to fix the marble with patch up, credibility of his will be lost at the end.

Hence, a wise builder exerts care and caution for local purchase.

Always, hire Experienced Labour Contractor

Construction Industry, especially in India, is labour intensive one. An experienced labour contractor is of course, costly. But it is always safe and sound. On the contrary, unsound contractors may offer attractive package, but it is quite risky and double expensive.

Any job repeated in construction will jack up the cost considerably.

It is always, advisable to enter into Contract Agreement with the labour contractor. If labour does not turn up for one day, whole activities will come to a standstill. A stop of work by a day will shoot up the cost of construction and it is only to be borne by the builder.

Accumulated cases of such, will erode the profitability of the project.

Any loss incurred by the builder on account of the faults conducted by the labour, such losses are to be borne by the labour contractor only. Hence, in order to protect their interest, the builder is expected to enter into a clear

labour contract for safety of business. The labour contract is very clear that labourers are to be paid the wages, even if they do not have work, if the situation arose due to the fault of the builder.

For example, if the marble is delivered late in the evening only, the labourers are still expected to be paid the wages for the day, as it is not their fault.

Avoid Change Orders

It is acceptable to take longer time for designing and selection of vendors, but once project is taken off, no change in design or vendors will be permitted. If done so, the impact will be huge. Besides monetary loss, enormous delays will also occur. This will considerably wipe out the profits of the builder and will also jeopardize the reputation of the builder.

Once design change is allowed, it will inevitably become a practice. Uniformity will be loosened. It is to be remembered that major design changes require permission from the competent authorities who have accorded approval for the project plan.

In the absence of this, heavy penalty will be imposed on the builder by the Authorities.

Depending on the severity of the changes, further construction may also be stopped.

Hence, it is always advised that once design is frozen, no looking back and only go forward with construction. [2]

Lesser use of Cement with Wiser mix of Concrete

Mr S A Reddi, Deputy Managing Director (Retd), Gammon India Limited offers excellent advice. His rich experience and vast knowledge is regarded as a treasure, especially by builders.

As per him, India is witnessing very interesting projects in all sectors of infrastructure. Majority of the structures are in structural concrete. High Strength Concrete and Self Compacting Concrete are gaining widespread acceptance. Apart from the basic structural materials, modern projects require a variety of secondary materials for a variety of purposes such as construction chemicals, water proofing materials, durability aids etc.,

As per this Doyen, the concrete is required to have more of the fine aggregates and compulsorily any of the mineral admixtures – Fly Ash (FC), Ground Granulated Blast Furnace Slag (GGBFS), Silica Fume, Metakaolin, Rice Husk Ash etc.,

Fly Ash is abundantly available as a waste product at all the thermal power stations being offered free of cost.

GGBFS is again a byproduct of the steel mills. During the production of steel, a molten steel is poured from blast furnaces and travels in special channels, leaving the impurities on top of the stream. The waste material, being lighter moves on top and easily diverted away from the usable steel.

The diverted slag is quenched and forms small nodules. These nodules are crushed and granulated into very fine product, with particle size smaller than that of cement.

For the concrete components of the structure for Bandra and Worli sewage outfalls in Mumbai, the German prime contractor insisted on compulsory use of GGBFS for the M40 concrete in order to improve the durability of concrete.

Further, the concrete from being a product made of three or four materials (cement, aggregates, and water), today, a typical durable concrete consists of six or more materials.

The use of low water cement ratio enables a reduction in the volume and size of capillary voids in concrete.

Concrete mixes with fewer micro cracks can be produced by blending the cement with mineral admixtures either in the batching plant or in the cement plant. This enhances the service life of concrete structures in a cost effective manner. [3]

Bricks and Sand

Construction Industry is associated with the use of traditional red clay bricks. With continuous improvement in the field, Fly Ash Bricks have been formed. These seem to be having sturdier qualities and longer durability compared to the red bricks.

While the concept is yet to gain popularity here, considering the enormous future need of construction activities, it is necessary that the substitute Fly Ash Bricks are to be widely used. The propagation of Fly Ash Bricks concept is to be given due attention.

Similarly, Sand has become scarce now. The transportation cost (from the river bed to the site) is getting on the increase. The scarce availability and the higher cost of transportation, make it prohibitive for construction.

The need for Artificial Sand has been felt. With continuous research and development activities, Man Made Sand (artificial sand) has come into being now.

Fly Ash Bricks and Artificial Sand are considered to be the Boon to Construction Industry. Supply is securely ensured and price is also cheaper. With the twin benefits of Price and Availability, these two will rule the construction industry in the near future. The significant advantage is that the construction cost will considerably come down, making the price more attractive to buyers. This will enable both the Builder and also the Buyer cost benefits.

Plumbing, Wiring and Painting

Fix small taps in areas where less water is used. This saves not only the money, but also the water.

Best quality switches are needed for the frequently used places such as hall, kitchen, bath room etc., whereas ordinary quality switches are enough for places less frequently used such as store room, terrace etc.,

For exterior painting, use weather coat paints to save on maintenance costs.

Also, up to 7.5 feet, expensive paint can be used and beyond which normal paint can be applied. This tremendously saves the costs. [4]

CONCLUSION

Except in just two sites, in all other sites, the Site in charge officials lacked the site knowledge. They were more like upgraded workers. The maintenance of the site was not commensurate to the quantum of activities being done.

In one site, work suddenly came to a virtual halt due to liquidity problem. It regained after about a week. The loss of 5 – 6 days, especially in a mega project, is definitely crucial and will have a sharp bearing on the cost and time of execution of the project.

The important lesson to be learnt here is that Always make a Broader Budget but Operate within the Budget. This will minimize the chances of cash crunch and consequential losses and delays.

In one project, it was observed that use of man power was less but machinery more.

Booking of apartments is only slow and not to the expectation of the builders. This is due to the reason that so many high rise buildings are simultaneously taken up by different builders. While the Builders are more in number, Buyers are actually less. This is the scenario, almost everywhere.

Builders have to patiently wait for booking. The slow and delayed bookings, lead to longer completion period. This is only causing strains to the builders.

With more builders in the field, it can be said that the buyers have more apartments to choose and the price benefit. With the vigorous search in various sites, it is understood that the basic things are same in terms of construction, space availability and price; but only some benefits that are discretionally offered by builders selectively to buyers.

RECOMMENDATIONS

Even established builders and mega builders suffered on capital issue, often. They had to slow down work due to paucity of funds.

Labour problem was expressed by almost all the builders. As the workers are basically contract labour, no loyalty is there.

One Builder made an off the record remark that though he is having business with the same Labour Contractor for many of his projects for years, his commitment level is still not up to the mark. This is inevitable and the builder only has to reconcile to reality.

One Builder who is doing both small construction and also mega construction said that apartments in small constructions get booked and serviced faster compared to the bigger ones.

Price of apartments always matters a lot to both the builder as also the purchaser.

Wider use of Fly Ash Bricks, Artificial Sand will contribute to cost reduction.

Never go beyond the budget. Make a bigger budget but operate within that.

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