



## Research Article – Business Management

# Cost economics in construction of multi storied buildings

S. Radhakrishnan, K.G. Selvan\*

PRIST School of Business, PRIST University, Thanjavur- 613 403, Tamil Nadu, India

(Received: 21-03-2019; Accepted 09-04-2019; Published Online 13-04-2019)

\* Corresponding author (E-mail.: srk1960@yahoo.in [SK], drcsrv@gmail.com[KGS])

### Abstract

India is fast moving forward from agrarian economy to Industrial Economy. Our country is considered to be a safe platform for industrial investment by the world. Global Leaders and very many MNCs (Multi-National Companies) are evincing keen interest in having Joint Venture or opening their manufacturing facility in India. India is witnessing a boom in industrialisation. This leads to vast employment opportunities to people of all walks of life. People are moving from rural areas to urban areas for occupational needs. This leads to mass arrival of people to city and consequently the rental costs also shoot up substantially. The industrial wage structure being reasonable with assured disposable income, people who prefer to stay in city start comparing rental costs versus paying EMI towards owning an apartment for themselves. The idea gets strong rooted with the easily available institutional finance to people, especially to youngsters with longer duration of EMI. All these result in a sustained demand for apartments. The builders, particularly in the city, are cashing in on the opportunity by embarking upon construction of multi storied buildings in the city and also the outskirts of same.

**Keywords:** land cost, simple design, selection of contractor, supply chain management, prefabricated products

### Introduction

#### Research Methodology

Personal visits to the sites. Observation Method and Discussion with site personnel.

Contours	Details
No. of sites visited	2
No. of floors in each	4 and 6
Compliance in regard to Competent Authority/RERA	Total compliance to both, by both
Essential features such as Covered Car Park, CCTV, Round the Clock Security and Power Back Up	Available in both the sites.
Gym, Community Hall and Super Market	Only in the Second Site
Connectivity to important places such as Schools, Bus Stand and Temples etc.,	Both sites enjoy the locational advantage.

#### Multi Storied Building

Generally, a building with three and more floors is considered to be a Multi Storied Building. The land being very limited and also the cost of same becoming dearer day by day, it is increasingly difficult for all to construct individual houses. This is more so in the city and also the outskirts of same. As such, people prefer to own an apartment. The source of income being taxable and by and large by way of salary, the middle class people always prefer to own an apartment and thereby avail tax benefits. This gives them the dual advantage of owning an apartment by paying EMI (instead of giving soaring rent) and also taking the benefit of tax savings as well.

The majority of apartment owners are salaried people. Another important reason for people choosing an apartment in a multi storied building is safety and security point of view. All the multi storied apartments have round the clock security in the premises. Nowadays, CCTV is installed, as a normal feature. The general attitude of city people is 'elite style of living'. This mind set induces them to move in for an apartment in a multi storied building. Instead of choosing an apartment in a flat of two floors (Ground and First Floor),

they prefer to fix it in a multi storied building of four floors and above. The difference in price is not that huge. Not only that, the benefits they get much offset the price difference. The social status plays a predominant role in the minds of people to anchor on multi storied building apartments. It is also interesting to note that the builders who were restricting their construction business to two to three floors have graduated now to building more than four floors. Their only concern is to look out for a plot of reasonable size to accommodate five floors (of four apartments in each) and they are happy to buy the same for whatever be the price. The construction costs being almost same, irrespective of number of units, (in fact, they gain more when they construct more), the concentration now is only on multi storied building construction.

In a way, it is beneficial to both the builders as also the purchasers. This is the main reason that the city is witnessing, like never before, widespread multi storied buildings coming up, almost everywhere in the city. The interesting scene in the city now is that the Big Builders eye in on old spacious bungalows and convert them (either in the name of joint venture or outright purchase) into multi storied

building apartments. This fetches them high sale price and more profits.

### ***Saving on Costs is adding on Profits***

Many things can be brought under this column. However, going by the nature of importance, a very few critical things are only discussed below. A carefully planned action on these will definitely make the construction of multi storied buildings, a viable one from the point of view of the builder for profits and also a reasonably priced one for the purchasers to decide favourably in the acquisition of the apartment.

### **Land is of Paramount Importance**

This basic tenet applies to all businesses and construction industry is no exception. The main determinant of the price of an apartment is land cost. When the land is procured at a higher cost, goes without saying that whatever be the savings attributable to the builder by way of practising anything goes unnoticed and the final price of an apartment is only on the higher side. Buying a piece of land at the peak of the price is totally imprudent. This would, at times, leaves the builder with negative profit.

The wise builders always adopt the strategy of buying lands at cheaper price, fencing the same for some period of time and then starting the construction activities when the area develops in to a reasonable structure. The cost of lands, by now, would have also shot up tremendously. It is a foregone conclusion that the builders who buy the plots then would, in no way, be able to match the price of the builder who bought it quite earlier. They have to necessarily match their prices on par with the advantageous builder by substantially foregoing their profits. By virtue of selling the flats at the prevailing price of the market, the previous builder stands to, literally, amass profits. The recent trend in the industry is that big builders start selling plots as well. They do not worry much about the unsold plots. Such plots can always be used for construction of multi storied buildings by them. The area would have also become reasonably developed by then. This multipurpose action of theirs is also one of the reasons for the exorbitant price of the plots. Another important thing to be borne in mind is that no area is remote, nowadays. With the rapid expansion of city limits, the remote areas of a decade back have become the heart of the city now. The influx into the cities from rural areas is also on the increase. Even the traditional agriculturists prefer to abandon agriculture for obvious reasons and move to city for job purposes.

Most of the agricultural lands are now fast turning into layouts. Never buy any plot at an unduly over price which is sure to prove only negative. Buying a large piece of plot at a reasonable price is ideal for construction of multi storied buildings. The emerging trend is that people prefer to have as much open space available, as possible. They shun purchasing apartments in a congested area, however luxurious they are. It has become a practice with almost all the builders that they make it prominent in their advertisements that their apartments have 'ample open space'. Another thing, a fact of overwhelming importance, is that many builders who built 'extremely luxurious' ready to move in apartments in palatial pattern, in the city are pumping in vast money in media to have the flats sold out early. For some apartments, the ads keep coming for weeks.

This evidently proves that these apartments, though 100% ready for possession, remain unsold purely on price consideration. And another important thing is that they are in a 'crowded area'. The customers are quite aware that facing the sea is only a charm of a few hours whereas living in a congested area is a pain for years. There are many multi storied buildings in the city falling under this category. What this conspicuously drives is that price and place are the important determinants of purchase decision of the buyers. The present condition in the city (Chennai City) is that numerous apartments, which are just ready for possession, remain unsold. The builders are waiting for takers. Even big builders are in financial crunch due to many flats remaining unsold. Some builders have gone to the extent of even alluring the customers that they can pay the price for a 2 BHK and take a readily available 3 BHK. Though not widely published in media, some builders are even ready to offer up to 20% discount in the final price. This is the actual state. Nevertheless, construction activities are going on in full swing.

### ***Simple Design means Ample Space***

It is not a slogan but a factual statement. Complicated designs eat away more space. Manoeuvrability is also a concern during construction. Except adding, perhaps, aesthetics, it does not contribute much to anyone. It is true that cost is also more for complicated designs. A sound Architect is a blessing to the builder. Keep the designs Simple, Deep and Strong. The skyscraper is safe for ages. Never add dead weights to make the structure beautiful. It is a concealed threat in the long run. While the opinions differ, the Engineers generally opine that constructing a multi storied building near water areas (such as Lake, River and Sea) poses a threat. The undercurrent of water cannot be predicted and the risk element is always there. Well laid out designs are defied by nature. They also say, off the record, that complicated designs are "store of vulnerability". They are susceptible to cracks or breaks, even under mild tremors. A complicated design is an invitation to problem and as such should be avoided in multi storied building construction. In this regard, it is worthwhile noting that "a structural system, whatever its shape and size and materials of construction, should be basically strong, stiff and stable to withstand the loads coming on it by way of its functional uses and also by way of it being subjected to natural phenomena" (Thandavamoorthy, 2005).

### ***Selection of Contractor***

The builder entrusts the responsibility of construction to the Contractor only. There are builders who simultaneously undertake many projects at different places. It is literally not possible for the builder to monitor each and every project himself. Assigning the responsibility is the only answer. As such, the contractor chosen should be a reliable, honest and experienced person. Eminent builders have a long list of attributes which determine the contractor to be chosen by them. Some of the important points to be bestowed careful attention are given below.

### ***Experience of the Contractor***

There are a number of contractors – big and small – available in the market doing construction activities. Many of them are new and making a bold venture into construction field. Money is not a problem as they do many businesses.

They carry out their activities largely by their contacts and sub contracts. Their physical involvement in the work is far from satisfactory. In order to clinch the deal, their rates are also lower than that of other contractors. They are more concerned in acquiring more number of contracts, for obvious reasons. It is not advisable to choose such contractors as their commitment level is questionable. A wise builder would always insist on the number of projects finished by the contractor, before entrusting his assignment. A contractor who has completed more number of projects satisfactorily is the person to be chosen by the builder. More the number of projects completed, greater will be his reputation in the field. Goes without saying that more will also be his demand. Well constructed apartments which stand the test of time bring great glory to the contractor. In fact, one of the important conditions of RERA (Real Estate Regulation Act) is that the Builder who is applying for RERA approval must mention the number of previous projects completed by him. Whatever is said of Contractor equally applies to Builder also, if he is constructing himself. This is given greater importance as the purchasers should have a bother free and comfortable stay in the apartments. They must have a sense of satisfaction that they have bought an Asset. If a builder is entangled in any litigation with the purchasers, his name is tarnished and his future business would be at stake. This assumes critical importance in as much as the website of RERA would also inform the details of litigation of the buyers with the builders. It is true that a sound contractor charges marginally more and those who are new and inexperienced, much less. If a builder is misled, he is doomed. Price alone is not to be the criterion at all, in the selection of the contractor. In this regard, it is of good relevance to note that “selecting a vendor by choosing the lowest quote, then offering the contract on the condition they reduce the price a further ten percent, may well work for purchasing office stationery, but not for strategic sourcing” (Kobayashi-Hillary, 2005).

Choosing a sound contractor means half the job well done. The builder can concentrate his time and efforts in mobilising capital and be bother free from construction. Cost should be given lesser importance when it is the question of selecting a right contractor. Rework costs the earth to the builder. Hence, the builder should always bear in mind that cost is only of secondary importance and the primary one is for the experience of the contractor. It is reiterated that the experienced contractor is an asset to the builder. There are contractors who would not mind doing any extra work at no extra cost. If the Builder and the Contractor have excellent understanding, then automatically cost issues go to the bottom.

#### *Believe the Contractor and allow him freedom of operation*

What is more important is freedom of operation for the contractor. Once a contract is signed, it is the duty of the builder to wholly entrust the assignment to the contractor with full belief in him. Frequent inspection of the work is only considered as an intervention by the contractor. This does not, of course, mean that the builder should be off from the site. What should be borne in mind is that his presence should not be a cause for annoyance to the contractor. There is always a tussle between the contractor and the builder. This is generally prevalent with small builders. Small builders are always over cautious (to an extent, even be suspicious) and frequently, issues crop up between them. This is not the case with large

and established builders. The reason is so simple. They are in the field for years and they know the construction activities, brick by brick, themselves. Their choosing of contractors is purely by merit only and those people are with them for years. Mutual trust and a sort of bond exist between them. They are given total freedom of operation and the builder hardly intervenes in the construction activities. This is the major reason for their roaring success.

#### *Be vigilant on Cost at Every Stage*

Construction is a laborious and cost spiralling business. The price of construction materials is always volatile. It is a common thing that the budget provision made at the start of the project will have no relevance at the midway resulting in a wide gap between projected and incurred. Cash crunch is a common thing in construction business. Normally, the big builders who undertake many projects at a time, at different places, manage the cash flow issues by rotation of money of various projects. This is totally prohibited now. The rules of RERA strictly enforce that the money collected from the customers should be used only for that particular project. A separate account should be opened for this purpose and there should be periodic statement from the Bank to be filed with the RERA Authorities confirming this. The present situation is that builders resort to open market borrowing, ie, from private money lenders. This is at an exorbitant rates. Interest is calculated on daily rate. If the loan is not repaid within the agreed period, there is a likelihood that the loan amount will become more than double, within three months. In such a risky circumstance only, builders are managing capital issue. Many projects have been abandoned due to capital problem and litigations are going on in the courts. If the cost is not controlled, danger is manifold in attacking the builder.

#### *Never do rework*

Rework is normally a matter of routine with small builders. They would mend to the requirements of each and every purchaser and internal rework is not a thing of uncommon with them. This kind of unproductive expenses would only add on to costs. This also erodes the legitimate profits of the builder.

#### *Never pile up materials*

Material cost plays a predominant role in determining the overall cost of the project. For the sake of availing trade discount, some builders buy materials in bulk and store them. Trade Discount is a carrot used by Traders and builders should not fall a prey to that.

The interest cost on the money spent for the materials will be quite huge and the gain of discount will nowhere be near that. The concept of JIT (Just In Time) is the business terms demanded by many eminent builders. The responsibility rests with the Supplier to deliver the materials dot on time. For any delay, the supplier is to accept liquidated damages levied by the builder. This enables the builders to precisely plan their cash flow requirements. Be Prudent.

#### *Practise Supply Chain Management and Labour Contract*

Supply Chain Management is the concept gaining popularity with almost all major builders. They do not treat Suppliers as mere Sellers but prefer to partner with them in the mutual progress and prosperity. They openly share the technical details with the suppliers and expect them to

upgrade themselves to suit their specific requirements. The Vendors are also pleased to enter into Memorandum of Understanding (MoU) with the builders. The reputed builders who have been in the field for decades have SCM and MoU with their Suppliers. Their purchase pattern is through Annual Rate Contract. Requirements, taking into account the many projects undertaken by them, are consolidated and orders issued on the suppliers spelling out delivery requirements project wise. It is well in the context to note that the latest trend in SCM is CPFR. “A Supply Chain Initiative that focusses on information sharing among supply chain trading partners in planning, forecasting and inventory replenishment – Collaborative Planning, Forecasting and Replenishment (CPFR)” (Stevenson, 2014).

The suppliers are happy in clinching the order on an Annual Off take from the Builder and the Builder too is happy in getting protected from any price escalations, during the currency of the contract, which is normally an year. As they have Rate Contract for materials, they follow the same practice for Labour Contract also. Almost, all big builders have very limited number of personnel only in their permanent payroll. They comprise Project Manager, Site Engineer, Finance Manager, Administration Manager etc., and all working personnel (labour/staff) are outsourced from Labour Contractors. In this way, they are both free and gain substantially on administrative costs.

#### **Promote Prefabricated Products and Technology**

Prefabricated products are always cost effective. Technology is the order of the day. Traditionally, all the items were made at the site itself. The site would be flooded with plenty of people working in groups on the different items required for construction. Masons, Helpers, Carpenters and a host of others leaving hardly any space to move around. It is gradually changing now. This has to be in full swing to so as to be cost effective and also for speedy execution of the projects. Ready Mixed Concrete (RMC) is superior in quality (some engineers still advocate for site mixed concrete) and also saving on costs. What is essential is that the site should be completely ready so that once the RMC arrives, the job should straightaway be carried out. The whole exercise can be completed in a remarkable time scale. It is also true that the benefits that accrue to the builder in terms of monetary gains and time saving are just remarkable. Almost, all the builders in the city are using only RMC in the construction of multi storied buildings. Another commendable improvement in construction field today is widespread use of prefabricated products. The superiority of prefabricated products is ‘factory finish and excellent quality’.

Concrete beams are available with the shine of marble. These are made to order in any length and breadth. The suppliers also undertake the responsibility of erecting the same at the site, if needed. It all goes by the order terms of the builder on the supplier. While construction, per se, is a labour oriented activity, for multi storied buildings, more of the use of machineries is also a must. It is not possible, even for a group of people, to lift and erect a concrete beam. It is risky too – both to the personnel as well as to the beam. Construction Equipments should be pressed into service. These are safe and speedy. There are a number of construction equipments suppliers who supply these

machineries at a reasonable rental charges. Higher the use of equipments supplemented by labour, speedier will be the execution and greater will be the savings – both time and money. Years ago, floor tiles were supplied in smaller sizes only and whereas now, the floor tiles are being made available in larger sizes (3x3, 4x4 etc.,) and they resemble marble, in sheen. With the use of prefabricated products and technology, project completion is accelerated. The builder gets the cost advantage and the customers enjoy the timely possession. One important thing is that the personnel who operate such sophisticated things must be skilled enough in the job. Otherwise, accidents are prone to take place at the site. It would be advisable, while placing the order for major prefabricated items, the terms of order should clearly specify “including erection and commissioning”. This means that supplier is accountable till the products are commissioned to the satisfaction of the builder. Order terms must be thorough and clear.

#### **Conclusion**

Both sites have the locational advantage and comply with the statutory regulations. In the second site, it was observed that more of prefabricated products were pressed into use. Commendable use of construction equipments was also observed. In the first site, a sort of miscommunication (disobedience) was noticed between the Site Engineer and the operating personnel. While this is basically a HR issue to be handled tactfully, if not immediately solved, would lead to concomitant effects on the project completion (waste of materials and time). A Sr. Official of the second site made a private remark that capital is not an issue to them and none of their projects ever suffered due to cash crunch. Either a wealthy builder or a master of cash management!

#### **Recommendations**

Check the costs at each and every stage. Always, compare the incurrence with the projected. A marginal variance of 10 – 15% is always acceptable (inevitable too), major variance is to be arrested immediately. If not, it would bring the project to a grinding halt. A Sr. Official of the second site made a brilliant statement. They would always compare the Cost Vs Actuals throughout the project execution. This exercise would be done every fortnight and arresting action (corrective action) would be initiated then and there. Probably, this would be one of the reasons for their reputation in the field. Fast forward to use of prefabricated products. It is economical in price and excellent in quality. Project execution is also smooth and fast. Make the best use of Supply Chain Management and also be clear and thorough in entering into Contracts (Material/Labour and also with prospective buyers).

#### **References**

- Thandavamoorthy, T.S. (2005). Analysis of Structures (Strength and Behaviour). 1<sup>st</sup> Eds. Oxford University Press, New Delhi. p 15.
- Kobayashi-Hillary, M. (2005). Outsourcing to India-The Offshore Advantage. 2<sup>nd</sup> Eds. Springer-Verlag Berlin Heidelberg. Germany. Pp. 1-320.
- Stevenson, W.J. (2014) Operations Management. 12<sup>th</sup> Edition, McGraw-Hill Education, New York.