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IMPORTANT ASPECTS FOR MULTI STOREY BUILDING CONSTRUCTION

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ABSTRACT

The Construction Industry in India is fast growing now. From the traditional construction of individual houses, the concept of apartments had gained popularity decades ago in places like Delhi, Mumbai, Kolkatta and Chennai.

The apartments are broadly classified into Residential Apartments and Commercial Apartments. Even in Residential Apartments, the surge now is towards "luxurious apartments" which offer striking luxuries to inmates for whom price is of least consideration.

Customers are no longer "price sensitive" and are inclined towards "posh living".

Another thing to be borne in mind is that Government is also very keen in ensuring "House for All" to people and in this regard various projects and schemes are being introduced by the Government.

The scarcity of land and also the whooping cost of same is yet another reason for construction of multi storey building where so many families live in one apartment.

Fifteen floors, twenty floors and more are the common sights in Chennai and its outskirts.

KEYWORDS: Project Phase, Contractor Selection, Supplier Base, Quality of Labour, Time Management.

I. INTRODUCTION

Scope of Research

Personal visit to sites and discussion with personnel there.

Contours	Details
No. of sites visited	2
No. of Floors in each	10 floors and 14 floors
Availability of Swimming Pool	Yes
GYM	Yes
Round the Clock Security	Yes
Camera Coverage	Yes
Proximity to Schools, Hospitals etc.,	Yes
Total compliance with CMDA/RERA	Yes
Choice for selection	2 BHK to 4 BHK

Strength of Builders

Both the Builders are in the field for decades and have constructed hundreds of apartments of different floors in various places. Both enjoy excellent reputation. Quality and Timeliness are their identity.

By virtue of their Experience and Back ground (both technical and financial), they command customer confidence and respect.

The discussion with them revealed many important things and aspects for venturing into multi storey building construction.

Selection of Project

Selection of the Project is the first and foremost thing in Multi Storey Building construction.

Land cost is no longer a matter for consideration. There are a slew of other important things that deserve the critical attention of builders.

Whatever be the Engineering marvel that can be put into practice while construction, the sites near Lakes always pose a kind of "natural threat". It is not flood of waters. They say it is not a threat at all, as it hardly takes place or never. Even so, it is only transitory.

The actual threat is soil condition.

While the builders take great care in structural abilities and concrete stabilities, they have no control over the soil condition beneath the lakes. Larger the size of the lakes greater the risk elements and similarly taller the floors more are the problems imminent.

He said that this is one of the main reasons for their taking up the projects in the city.

It is worthwhile noting that "The most important thing is the "Pre Project Phase". Emergence of idea or perception of building a project is the first step. The Planning and Designing comes in this stage and weighing of various things before embarkation of the project takes place at this stage. Utmost care is to be bestowed in Pre Project Phase as this will only determine whether the project is to be taken up at all or worthwhile abandoning the idea.

After thorough satisfaction and confirmation on Pre Project Phase, the activities can be started with full confidence for successful completion. There are other Phases such as Contractor Selection Phase, Project Operation Phase and Project Close out Phase etc., and all these will have scope and merit only after the first and foremost step of Pre Project Phase passes through the acid test.

Foundation Construction and Design

It is worthwhile to have patient waiting till all the basic parameters are fully verified, tested and satisfied. This is the most vital one as the foundation rests safely on this only. If the soil condition shows even the most minimal threat, even in the too distant future, it is only risky to proceed further.

With engineering expertise and construction technology, multi storey buildings can be built, but the testimony of 'time test' will become suspect in these situations.

There are cases abroad also where well built structures tumbled due to design and structural flaws.

If the design and structural capabilities are for a given number of floors, it is, on the safer side, to go ahead with construction, for a floor or two, less. In other words, what this succinctly means is that the design and structural capabilities must be to withstand more number of floors that what are built. The efficiency and efficacy should be such that.

In fact, one of the reasons attributed for the miserable collapse of the 11 storey building at Moulivakkam, near Porur, Chennai was "Design and Structural Deficiency".

It is pertinent to note that "Foundation construction is vital to the success of the project. Money spent on foundation is money well spent. It must be considered as an investment in the structural integrity of the building. The consequences of foundation failure can be huge and may even threaten personal safety"

II. MATERIALS MANAGEMENT

Men and Materials are the two essential ones that should always be available at the right combination at all times. Any mismatch will only lead to waste of time and money.

Good Quality Materials are easily available everywhere. The important point to be borne in mind is that the "same brand" items are only to be used. This is quite essential for Cement and Steel.
The above two major builders use the Cement and Steel of a particular brand only. No compromise on this. Considering the huge demand and also the necessity for timely supply, they have two – three suppliers.

One of the builders made a private remark that while all the cement conform to the quality standards prescribed by the industry, each manufacturer has his own superiority in the blend and hence, they always go in for the cement of that particular manufacturer only. The same is equally applicable to steel as well.

He exhorted that using different brands of cement in the concrete mix may lead to quality problems, later. Extreme care should be ensured in the selection and application of steel also. The life of a concrete building is expected to be anywhere around 100 years. Cement and Steel play a pivotal role in determining the life of the building.

Both the builders have rate contract with the suppliers and enjoy assured supply at the agreed price throughout the year. This gives them the two pronged benefits of unstinted supply and also the price protection. In other words, they are protected from market volatilities.

As they are working in the projects at different places, throughout the year, they are comfortable in making a realistic projection of off take for the next year. Going by the next year requirement and also the spill over of the current year, their procurement forecast is always realistic and reliable.

This absolutely helps the management in making good bargain with the suppliers and greatly contributes to their cost economics.

Another important thing observed was that they always keep the "people concerned" - both at their end and also at the suppliers' end, totally in the loop. There is no communication gap at all.
The best in the communication technology is at their possession. From production stage to physical delivery at their sites, they are able to track the movement details. No truck will get struck at the check posts or lorry waiting for personnel to offload the items.

They are always able to take advance action to surmount any difficulty. They ensure military alert of all their site personnel and they also demand the same from their suppliers. This is the main reason for their success in the field.

It is worthwhile noting that "Regardless of the construction contracting mode, the materials management programme must be started early in the project. All Key Players in the materials management plan must be made aware of the need to order early and expedite delivery of those items."

III. NEED FOR PROJECT MEETING

These builders are known for their quality standards in multi storey building construction. Their commitment in the completion of the projects as per schedule always keeps them top in the list.

One builder proudly said that committed human resource is their strength. Even though they resort to only Labour Contractors for workers (barring their essential permanent staff), they ensure and maintain "excellent human values" at the work site.

As they do outsourcing from specific contractors only over a period of time, they enjoy a sort of intimacy amongst themselves. The workers also feel quite at ease at the work site. Their permanent staff are well versed with Hindi also and hence language problem with migrated workers is greatly reduced.

It is a fact that most of the HR related problems erupt due to mutual distrust. Language problem is major reason. The quality of workers is that they are prepared to work for extended hours also, even without demanding extra wages in order to finish the work. At the same time, if they are rubbed, they would not mind abandoning the work also.

Construction workers are always in demand in the city. Skilled workers are the asset to the companies.

In most of the sites, the problems occur due to the rude behaviour of the Site Engineer or the Site In Charge. The ultimate delay in completion of the project and consequent losses are to be borne only by the builder.

Both the builders met are quite aware of this aspect. They happily say that their staff are their 'praised possession'.

By virtue of their vast experience in the field, they know the importance of humane approach with people. That is the secret of their success.

They conduct, once in a fortnight, Project Meeting in which all the people, including the workers are advised to participate.

Progress of work is happily shared with them. Any extra efforts needed are explained to them and their co-operation is sought.

This Fortnightly Meeting helps them in ensuring timely arrival of materials and availability of labour to proceed with the work without any delay.

The peculiarity of the situation in construction industry is that if there is a delay of two days in arrival of sand or bricks, the workers would just remain idle. They have to be, however, paid their wages. (as the delay is not due to them, they should not be penalised|).

In this regard, it is worthwhile noting the gist of important points, under "Need for Project Meeting", in the reference given below. "The purpose of project meeting is to assess the progress of the performance of construction activities. It is a comparison of Plan Vs Actuals. Problems are addressed, Constraints explained and solutions are made. Since corrective action taken, work suffering is reduced. This applies right from Materials to House Keeping".

IV. THINK DEEP ACT FAST

The success story of great builders lies in the basic fact of 'Think Deep and Act Fast'. This is truly practised in all their activities.
They never allow problems to counter their progress, but on the other hand, they envisage problems and take preventive action so as not to succumb to pressure or delay.

They are not only experts in foreseeing the problems that may assault them next month, but are also adept in adapting themselves to any immediate demanding scenario which may be due to HR conflict or market volatilities to successfully get over them.

Their farsighted approach is the reason for their glory in the field.

Experience Enlightens Perfection. Nothing is a Task and No work is a Burden. A knowledgeable and Practical Site Engineer would be an expert in thinning down the major task into fragments of burden. This is technically called "Work Breakdown Structure – WBS".

The people at both the sites enjoy freedom of operation. The Site Engineers are expert in analysing the problems and are, indeed, great trouble shooters. They take proactive action which eliminates many possible negative events, which, otherwise would have occurred.

The important thing is that the Site Engineer should be a Practical Planner than a Great Thinker|.

Accumulated small slip ups may end up in a Big Mistake leading to enormous delay and colossal waste. For example, scant attention paid in a Cement Godown. A few minutes shower on cement bags will make them a useless junk.|

It is pertinent to note the following gist. "Time Management, Close Supervision and co-ordination with various people at the project is a Must. While Future is important, Present is More Important than Future.

The farther out you plan, the more uncertainty increases. And, the closer in you stay, the more certain things are. Time and Energy should be spent more on next week details, rather than the details for next month.

However, do spend some time on next month or you will be rudely surprised"

V. SUPPLY CHAIN MANAGEMENT

Both these builders enjoy the vast benefits of Supply Chain Management. Since their activities are huge by nature and vast by way of many projects in different places, they fully reap the advantages of supply chain management system.

All activities need Money. In Construction industry especially, uninterrupted flow of capital is a Must. A small delay of just a few days in making available the required capital will drive the project to a standstill.

It is practically not possible to stop payment to workers who would turn up for duty but would be idle due to non receipt of material or other reason.

In large sites, there are minimum 200 people working (contract labour). Suppose a marginal delay of 4 – 5 days occurs in receipt of materials, the five day wages for two hundred workers for zero productivity comes to lakhs. This simply erodes the profitability of the builder. (as the price of the apartment is prefixed, such losses only eat away the legitimate profits of the builder).

While this cannot be fully overcome, with proper Scheduling of Activities, at all ends, this can be greatly avoided.

The demand for critical items such as Sand and Brick is always more and the supply is invariably less and erratic. The JIT (Just In Time) system would work out well with Cement, Steel, Paint and other Plumbing items. For the critical items, it is always advisable to have them in good stock. There should not be undue cost consideration for the stocking. The suffering of work and wasteful payment to workers will lead to alarming situation.

Practically, the JIT will not work with Sand Suppliers. There are unscrupulous suppliers who mix sea sand with river sand. Usage of such sand will spoil the concrete and the construction will become susceptible to collapse soon.

VI. HAVE PRUDENT SCHEDULING

One of the builders said that though they have more than three suppliers of repute in their supply chain, sand availability is always a cause for concern. Many a time, they had to reschedule their construction activities on this score.

The overall demand being quite huge and the quality river sand availability having shrunk badly (undue excavation has literally wiped out many river bands), this is inevitable and the builders have to put up with. Another reason is that, these suppliers have a tight commitment schedule to other builders as well.

Sand Suppliers are not prepared to have "One to One Contract", however big the builders are and whatever assured business is.

The only option is starting early and monitoring carefully the project controlling activities.

At the project conception stage itself, the first activity assuming Top Priority is assured supply of quality river sand. Prioritising the purchasing schedule is of paramount importance and only a few builders are successful in this.

A prudent builder gives equal importance to the capability of the suppliers also while making assessment about himself.

In the present situation, a reliable supplier enjoys a large clientele. The suppliers are finding it difficult to cope with the overwhelming demand from various builders.

In his own interest, the Builder should take all possible proactive initiatives while starting the project itself.
It is appropriate here to mention the gist of advice of Mr S W Nunnally, as under.

Establish a logical sequence of operations, Do not exceed the capabilities of the resources that are available, Provide for continuity of operation. Above all, Start Project Controlling Activities early.

VII. CONCLUSION

Even large scale builders are running in to sand problem. In fact, this is the major issue in the construction industry today.

Many small builders are worst hit and their activities had come to a grinding halt.

A sudden unemployment situation is felt, mainly in rural areas where majority of constructions are in small scale level.

The success of established builders lies in their "project planning and scheduling of activities".

By virtue of their large scale operations, they enjoy cost economics. Supply Chain Management is actively pursued by them which gives them rich dividends.

VIII. RECOMMENDATIONS

M Sand (Artificial Sand/Man Made Sand) is to be widely used in construction.

It is also easy to make it in the fine sizes of requirements. Government should popularise large scale use of this. Unauthorised quarrying should be prohibited.

There is an apprehension in the minds of builders to use M Sand in lieu of River Sand. This fear should be removed and the builders may be encouraged to confidently use M Sand. It would be a welcoming effort, if Government takes initiative in popularising M Sand for River Sand.

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