

**INTERNATIONAL JOURNAL OF ENGINEERING SCIENCES & RESEARCH  
TECHNOLOGY****ANALYTIC STUDY OF RESIDENTIAL PROJECT TO FIND VARIOUS  
DIFFICULTIES FACED DURING CONSTRUCTION & GIVE SOLUTIONS FOR  
COST & TIME OPTIMIZATION****T.S.Nikumbh, Prof. D.P.Patil**

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**ABSTRACT**

The time allowed for construction project performance is usually an important consideration for both the project owner and the project contractor. Delay in construction projects is considered one of the most common problems causing a multitude of negative effects on the project and its participating parties. Therefore obstruction is a situation when the actual progress of a construction project is slower than the planned schedule or late completion of the projects. There are two main type of obstruction : excusable obstruction and non excusable obstruction . list of obstruction causes was subjected to a questionnaire survey for quantitative confirmation and identification of the most important causes of obstruction . Results' analyses suggest that in order to significantly reduce obstruction a joint effort based on teamwork is required.

**KEYWORDS:** Obstructions, delay**1. INTRODUCTION**

A number of reports indicate that most construction projects are obstruction due to obstruction. To a project owner who counted on revenue from the project commencing from a specific date in order to comply with the schedule for repayment of the project finance, obstruction of even a week is not only an embarrassment, but also a serious risk of financial failure of the whole enterprise.

**2. OBJECTIVES**

- [1] To study the reasons of obstructions in the construction process from literature.
- [2] To find out the effects of obstruction on the schedule & cost of the construction process.
- [3] To propose the model framework to optimize the schedule & cost of project obstruction.
- [4] To provide solutions for difficulties faced to reduce further delays due to difficulties.

**3. METHODOLOGY**

- [1] Collection and study of related literature.
- [2] To identify top difficulty factors which hamper profit margin by survey and questionnaires? Study of Cash flows with respect to time and work of selected (case study) construction project.
- [3] Using RII method for analysis.
- [4] The above concept is elaborated taking a case study of a residential project.

#### 4. CASE STUDY

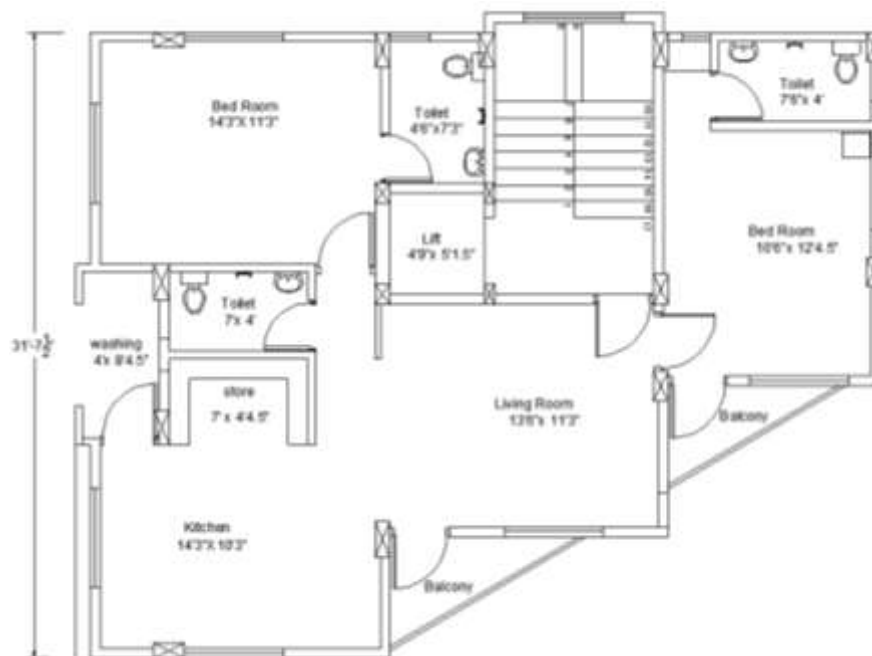


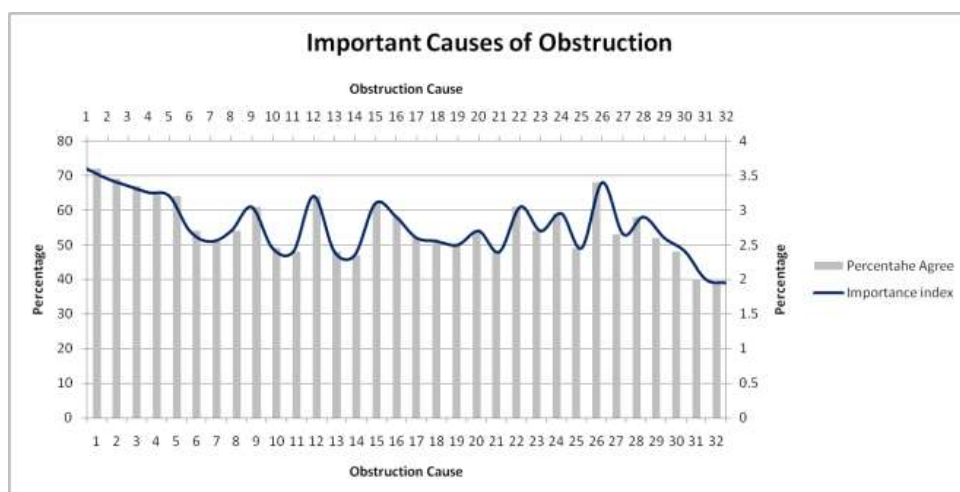
Figure1. Building Plan

Sr. No	Description Of Item	Quantity	Unit	Rate (₹)	Amount(₹)
1	Excavation for column pits in soft soil etc.	59.34	Cum	270	16020.28
2	P.C.C. for footing	3.96	Cum	3800	15031.38
3	R.C.C. footing	12.86	Cum	8500	109335.5
4	R.C.C. column up to plinth	1.122	Cum	10050	11276.1
5	R.C.C plinth beam	3.946	Cum	10050	39657.3
8	Murum filling in plinth	41.11	Cum	550	22607.78
9	P.C.C for plinth 1:3:6	8.225	Cum	3700	30432.5
10	R.C.C column in super structure	23.688	Cum	10000	236880
11	R.C.C beam	47.968	Cum	12000	575616
12	R.C.C staircase	14.856	Cum	13500	200556
13	Providing brick work for superstructure 0.15 m brick wall	114.875	Cum	5000	574375
14	R.C.C lintel beam, R.C.C loft & chajja	13.6	Cum	9000	122400
15	R.C.C slab with w.p.finishing	58.141	Cum	8500	494198.5
16	Providing Sand faced plaster for External Wall including scaffolding, curing etc.	644.916	Sqm	435	280538.5
17	Providing Neeru Finish plaster for Internal Wall including scaffolding, curing etc	1709.84	Sqm	370	632640.8
18	Providing & laying coloured glazed tiles for flooring & dado etc. .comp	231.095	Sqm	1005	232250.5

19	Providing & laying Vetrified Tile Flooring on a lime mortar bed including filling joints with cement slurry curing ,polishing etc	359.9325	Sqm	1150	413922.4
20	Providing & Fixing C.T.W door with frame & fixture ,oil paint etc. comp.	12	Nos	22500	270000
21	Providing & fixing Black coated Aluminium Section window with grill& glass fitting etc.	86.42	Sqm	5000	432100
22	Providing Granite Kitchen otta with tile Fitting, Granite cup - Board ,etc comp.	1	Nos	37000	37000
23	Providing Over Head Water Tank With ,cover etc.	1500	Lit.	5	7500
24	Providing Underground Water Tank with cover etc	20000	Lit.	5	100000
		Cost			4854338
		4% Electrification			194173.5
		3% Water Supply & Sanitation			145630.2
		5%Supervision charges			242716.9
		<b>Total Cost Rs.</b>			<b>5436859</b>
		<b>Say Rs.</b>			<b>5436859/</b>

**5. RESULT AND DISCUSSION**

The cause of Obstruction due to project considered was done in detail with the type of project arrangement and facilities available. The survey was found the component affecting Obstruction but if directly consulted with the profit of project. The correlation of the profit with the Obstruction cause was studied on bases of the experience of different person on the site and the office management team.

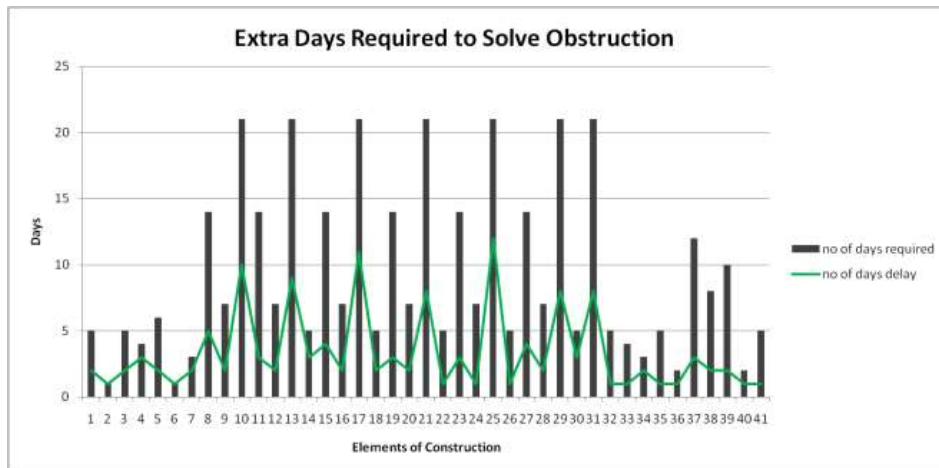


*Important Causes of Obstructions*

Important causes of Obstructions –

- Financing by contractor during construction.
- Obstructions in contractor’s payment by owner.

- Design changes by owner or his agent during construction.
- Partial payments during construction.
- Non-utilization of professional construction & contractual management.



Extra Days Required to Solve the Obstructions

Sr. No.	Description	Starting Date	No Of Days Required	No Of Days Delay	Comple tion Date	Reason Of Delay
1	Excavation For Column Pits In Soft Soil Etc.	21-Oct-16	5	2	28-Oct-16	Availability Of Machine
2	P.C.C. For Footing	29-Oct-16	1	1	31-Oct-16	Absence Of Labour
3	R.C.C. Footing	01-Nov-16	5	2	08-Nov-16	Shuttering Problem
4	R.C.C. Column up to Plinth	09-Nov-16	4	3	16-Nov-16	Shuttering Problem
5	R.C.C Plinth Beam	17-Nov-16	6	2	25-Nov-16	Absence Of Labour

## 6. CONCLUSION

- [1] Particularly, the purpose of the study was to understand the priority of causes affecting time and the project duration focusing on profitability attributes. Top ten factors were identified as main causes of Difficulty: (1) contractor organization attributes, (2) labor shortness, (3) external factors, (4) material deficiency, (5) design issues, (6) owner attributes, (7) technology restriction, (8) consultant attributes and (9) project attributes. As the result shows, the factors affect Difficulty directly and profitability indirectly in construction industry.
- [2] The Difficulty on construction site in time affects the time and cost schedule of whole project directly. As the time elapses more funds are incorporated to complete the pending work which at times produces unnecessary consciences and disputes. The Difficulty not only affects the time and schedule but also affects the profitability on a major scale.
- [3] The relation between the profit and Difficulty causes are studied conducting survey with respondents and experienced members and was found that main causes of Difficulty affecting schedule and cost are related to site related and authority related factors. The main factors are Difficulty in material delivery, poor organizational structure, inadequate experience of contractor and increase in scope of work.



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