

Cash-Flow Management of High Rise Building By Using MSP Software

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Abstract - The study shows cash flow for profit optimization and handles scheduling of multiple projects. By identifying the amount and timing of individual inflow and outflow at each period, construction contractors can observe the cash flow at specific time point according to project progress. Since most contractors handles multiple projects simultaneously, so managing project finance becomes complicated and tough job for contractors. Therefore in this study a profit optimization model has been proposed, and the capability of model is checked by using MSP software over building construction projects handle by single contractor. Using MSP software, we get total profit amount of a project in given days and also get one of the most profitable building with time and cost from all buildings.

Key Words: Inflow, Cash Outflow, Multiple Projects, Profit Optimization, Financial Gap.

1. INTRODUCTION

The study is on cash flow for profit optimization and handles scheduling problems in multi-project environment. By identifying the amount and timing of individual inflow or outflow at the end of each period, contractors can observe the cash flow at specific time points according to project progress. most companies handle multiple Since projects simultaneously, managing project finance becomes complicated and tough for contractors. Therefore, the study considers cash flow and the financial requirements of contractors working in a multiple-project environment and proposes a profit optimization model for multi-project scheduling problems using constraint software's.

Cash flow at the project level comprises a complete history of all cash disbursements (cash outflow) and earnings (cash inflow) received from project execution, and net difference between the cash inflow and outflow is the overdraft. The concern focuses not just on the amount of cash flow but also on its timing, which is critical to effective budget management during construction. By identifying the amount and timing of individual inflow or outflow at the end of each period, contractor can observe cash flow at a specific time point according to project progress. For example, contractor can determine the amount and timing of borrowing from bank to smooth financial conflicts, such as budget overruns. Due to the importance of project finance, therefore, numerous researchers employed techniques and tried to solve project scheduling problems by integrating scheduling and financial factors assist contractors in assessing overall performance when minimizing project duration or maximizing project profit.

In addition, contractors always execute multiple construction projects simultaneously and thus face challenges in project financing to ensure long term financial health of their operations. The dissertation thus presents an optimization model considering cash flow for multi project scheduling problems and determines periodic cash flow using the proposed model in an effort to maximize overall profit.

Cash flow is the difference between cash spent and cash received by a firm during a specific period of time. Cash flow management mandates the application of practices in managing project cash flow against a set baseline. Actually, the accurate estimation of cash flow in the early stages of a project is considered a vital factor that provides an indication of the project's financial significance.

2. PROPOSED METHODOLOGY

- Literature Study
- Site visit
- Meeting with building construction contractors
- Data collection and analysis

3. LITERATURE REVIEW

A. CASH FLOW PROCESS

The preparation of the cash flow projection can be divided into three phase and they are as follows:

a) Prepare a job operation schedules.

b) Prepare the cash flow projection of current and expected contract.

c) Prepare the project wise cash flow projection which will include every detail of the jobs.

A job operating schedule is a month by month analysis of expected contract production, progress bills and revenue recognition for each contract. The developing of the schedule starts from the estimate phase when the contract was first estimated and bid. The schedule should include the timing of the labour, sub- contractors, materials and equipment used in the contract. Once the schedule was prepared, the job cash flow projection can be accomplished. This projection indicates the cost incurrence and expecting to be paid and when progress bills are collected. Some of the factors in developing these projections are such as the contractor's payment policies and past history with customer.

The operating schedule of job or task and a cash flow projection of project must be different, which are usually different for every contract. This is done when the contractor



expects to expand their financial resources or to collect funds during the planning period where this include the current contracts, anticipated work and closed contract with remaining receivable balance. This schedule should be updated monthly in order to shown the changes the contract pricing, costs and timing. [6]

B. CASH FLOW MANAGEMENT IN CONSTRUCTION FIRM

The level of insolvencies in the construction industry is high, when compared to other industry sectors. Given the management expertise and experience that is available to the construction industry, it seems strange that, according to the literature, the major causes of failure are lack of financial control and poor management. This indicates that with a good cash flow management, companies could be kept operating and financially healthy. It is possible to prevent failure. Although there are financial models that can be used to predict failure, they are based on company accounts, which have been shown to be an unreliable source of data. There are models available for cash flow management and forecasting and these could be used as a starting point for managers in rethinking their cash flow management practices. The research reported here has reached the stage of formulating researchable questions for an in-depth study including issues such as how contractors manage their cash flow, how payment practices can be managed without damaging others in the supply chain and the relationships between companies financial structures and the payment regimes to which they are subjected.

Since the 1970s, many researchers have applied financial models to predict failure. Financial ratios, however, reveal only the symptoms, rather than the causes of failure. There is some confusion between causes and symptoms of failure, but researchers highlight important aspects of the distinction and cite the most important causes and symptoms. The literature shows that apart from poor management, lack of adequate financial control is the most common characteristic of declining firms. In construction, failure studies have focused on explaining failure at the project level, rather than the company level, where there has been comparatively little work. Several authors have investigated the causes of failure. Their results show that cash flow problems and poor management are the main causes. It is possible to reduce these levels, since the major causes are known. Therefore, research on how to avoid the causes should be encouraged. In other words, the most important step to take is to help construction companies to develop good cash flow management practices. [1]

C. METHODS IN CASH FLOW PROJECTION

For the study of cash flow, basically there are two type of cash flow projection method in the construction industry and their projection is based on planning techniques and based on the Standard 'S' curves.

Most of the medium and large construction project will have their own program developed to assist in the cash flow projection. Some of the convenient planned techniques are such as using the bar charts. Critical path method, Precedence diagrams and line of balance. From these program developed, they can be assisted in the cost of various resources needed for their operations, credit conditions, sub- contractors, material supplier and so on.

Secondly, cash flow projection can be assisted based on the developed of the Standard 'S' curves. Some of the past cost information and details of completed projects have shown its enormous value in cost planning at the initial stage of design. Such information can be utilized for establishing cash flow in different type of projects. Besides it also can be utilized for the cash flow planning for both the client and contractors considerations. The standard cumulative value versus time curves based on the past information of the completed project can be developed. [5]

4. METHODOLOGY

CASH FLOW

Cash flow refers to the movement of money in and out of the business in terms of income and expenditure. Ideally, a positive cash flow is expected meaning that more money is coming in to the business than goes out. If there is a positive cash flow, the business will be able to settle its bills and invest in growth. A negative cash flow means there is a need to find an alternative source of income to be able to pay off debts.

It is defined as, "The cash receipts or net income from one or more assets for a given period, reckoned after taxes and other disbursements, and often used as a measure of corporate worth". It is also defined as, "the pattern of receipts and expenditures of a company, government, etc., resulting in the availability or non-availability of cash"

To work out the net cash flow, add up all of the cash payments over a set period (typically a month) and take that away from the cash receipts. It is important not to get too hung up on one particular month, however, cash flow can be more accurately judged over a period of three months or more since most businesses will, naturally, have peaks and troughs.

While the turnover might be a nice big number that gives confidence that the business is doing well. It's the cash flow that offers a better insight into how well the business is managing. As the old saying goes turnover is vanity, profit is sanity and cash flow is reality.

MICROSOFT PROJECT SOFTWARE

Microsoft Project is a project management software program, developed and sold by Microsoft, which is designed to assist a project manager in developing a plan, assigning resources to tasks, tracking progress, managing the budget and analyzing workloads. Project creates budgets based on assignment work and resource rates. Resource includes people, equipment and materials. Each resource can have its own calendar, which defines what days and shifts a resource is available. Resource rates are used to calculate resource assignment costs which are rolled up and summarized at the resource level. Each resource can be assigned to multiple tasks in multiple plans and each task can be assigned multiple resources, and the application schedules task work based on the resource availability as defined in the resource calendars.

USE OF SOFTWARE'S

Scheduling Techniques:

The scheduling techniques widely used in construction projects are:

Bar Charts and Linked Bar Charts



- Network Analysis and Critical Path Method
- Line of Balance
- 1. Bar Charts and Linked Bar Charts:

Bar Charts are the easiest and most widely used form of scheduling in construction management. Even with other scheduling techniques the eventual schedule is presented the form of a bar chart. A typical Bar chart is a list of activities with the start, duration and finish of each activity shown as a bar plotted to a time scale. The level of detail of the activities depends on the intended use of the schedule. To reduce the tedious work of calculation in arranging & scheduling of activities, software 'Microsoft Office Project Document' (MSP) has been used.

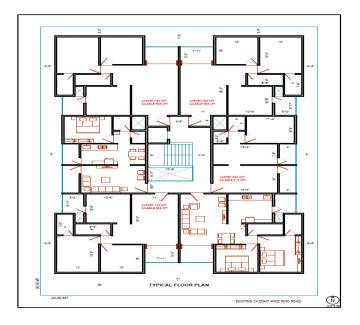


Fig 1: Typical Floor Plan

This is a typical floor plan of a G+4 high rise building. The important information about the given project site is as follows:

Name of Site: Green rose Location: Ravet, Pune Type of project: High Rise Building (Wing A,B,C) Project Manager: Mr. Vikram Sakad Site Engineer: Mr. Akash Rathod

Methodology adapted to get cash flow with the help of Microsoft project softwarei. First set activities and its durations.

ii. Then assign the resources to the activities.

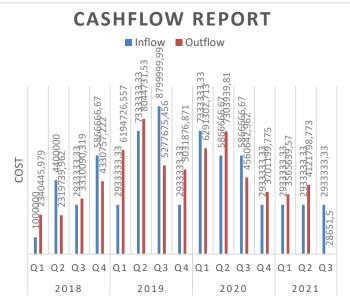
iii. Then tracking is done to get planned and actual duration of the project.

iv. Then from the visual reports selecting resource summary report get resource summary report.

v. And then from visual reports selecting cash flow report, cash flow get generated.

5. RESULTS AND CONCLUSIONS

After applying model to all projects, the finding are than represented in graphical format, which shows the cash flow profile for each project. In this graph, X-axis denotes the number of quarters in years and Y-axis shows cash flow of the project. To read the graph, for e.g. up to Q1 of 2018 cash outflow is Rs 2340445.979 and after cash inflow is Rs 13,40,445 denoted by vertical line at first quarter of 2018, this cash inflow is payment made for activities finished in 1st quarter



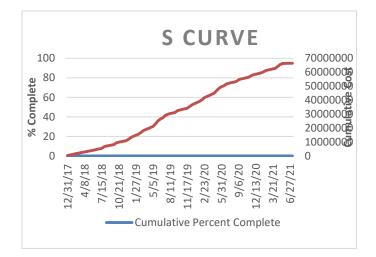
Graph 1: Combination of Cash Inflow and Outflow Report

S-Curve

S curve report shows the graph Time vs. Cumulative cost. It shows the progress of the project after feeding all required data and costs it get generated from the visual reports. It means adding every month outflow one by one so final we get sum that is cumulative cost. It shows the progress and flow of the total project.

Graph 2 shows the cumulative cost of overall project, which can help contractors in periodically inspecting project financing. The profile reveals that maximum overall project profit (Rs) 576781 occurs on Day 1246, later than the overall completion time (Day 1246) owing to payment delay. Overall Project cost is (Rs) 6,64,23,219.





Graph 2: S Curve

Individual Profit:

Name	Remaining Cost	Actual Cost	Cost
G+ 4 WING A	रु 22,155,123.00	रु 0.00	रु 22,155,123.00
G+ 4 WING B	रु 22,134,048.00	रु 0.00	रु 22,134,048.00
G+4 WING C	रु 22,134,048.00	रु 0.00	रु 22,134,048.00

Table 1: Project Profit

Table 1 shows the remaining cost or the profit cost of all the projects. And Table 2 shows the completion date of Project 3 (Day 1246) is later than that of Projects 1 and 2.

Overall Profit:

Overall Project Start	Duration of Days	Completion Day	Overall Profit
Day			(Rs.)
0	1246	1246	5,76,781

Table 2: Overall Profit

Resource cost summary report generated by adding resources as shown below-



Graph 3: Resource Cost Summery

Schedule, cost & payment details of Building 1 (Wing A):

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1		-	+ G+ 4 WING A	507.88 days	Mon 01-01-18	Thu 15-08-19		
2	-	-	* MOBILINATION	5 days	Mon 01-01-18	Fri 05-01-18		
3		-	Mobilization of site	2 days	Mon 01-01-18	Tue 02-01-18		
4		-	Mobilisation of Civil contractor	3 days	Wed 03-01-18	Fri 05-01-18	-	
5		-	* SUBSTRUCTURE	96.88 days	Mon 08-01-18	Mon 30-04-18		
6		-	EARTH WORK	4 days	Mon 08-01-18	Thu 11-01-18	JCB,Labour 1,Labour 2	
7		•	EXCAVATION - Tower Area	7 days	Fri 12-01-18	Mon 22-01-18	JCB,Labour 1,Labour 2	
8		-	POC below footings	6 days	Tue 23-01-18	Tue 30-01-18	Labour 1,Labour 2,Aggregate[5 Brass],C	Cement[50 bag], Sand[5 Brass]
9		-	Centre line checking and approval from Arch.	3 days	Tue 30-01-18	Fri 02-02-18	1	
10		-	Footing Shuttering	4 days	Mon 05-02-18	Thu 08-02-18	Carpainter 1, Carpainter 2, Carpainter	r 3,Carpainter 4,Carpainter 5,Shutte
11		-	Footing Reinforcment	3 days	Fri 09-02-18	Tue 13-02-18	Fitter 1, Fitter 2, Fitter 3, Fitter 4, Fit	tter 5,Steel[1 kg]
11		-	Footing Casting	8 days	Wed 14-02-18	Fri 23-02-18	Labour 1,Labour 2,Labour 3,L	abour 4,Labour 5,Labour 6,Aggrega
13		-	Plinft column Stattering	6 days	Mon 26-02-18	Mon 05-03-18	Carpainter 1, Carpainter 2	Carpainter 3, Carpainter 4, Carpaint
13 14		-	Plinth Column Reinforcment	4 days	Tue 06-03-18	Fri 09-03-18	Fitter 1, Fitter 2, Fitter 3,	,Fitter 4,Fitter 5,Steel[1 kg]
15		-	Plinth column Casting	9 days	Mon 12-03-18	Thu 22-03-18	Aggregate[1 Brass	s],Cement[1 bag],Labour 1,Labour 2,
16		-	Footing Excavation Filling	4 days	Fri 23-03-18	Wed 28-03-18	JCB,Labour 1,La	abour 2,Labour 3
17		-	Plinth Beam Shuttering	7 days	Thu 29-03-18	Fri 06-04-18	Carpainter 1	1, Carpainter 2, Carpainter 3, Carpaint
18		-	Plinft beam Reinforcemnt	4 days	Mon 09-04-18	Thu 12-04-18	Fitter 1, Fi	itter 2, Fitter 3, Fitter 4, Fitter 5, Fitter
19		•	Plinth Beam casting	4 days	Fri 13-04-18	Wed 18-04-18		gate[1 Brass].Cement[1 bag].Labour
20		-	Filling	3 days	Thu 19-04-18	Mon 23-04-18	in JCB	
21		4	Compaction	2 days	Tue 24-04-18	Wed 25-04-18	Lab	our 1, Vibrator
22		-	Plinth Level Slab Casting	3 days	Thu 26-04-18	Mon 30-04-18	A 💼	iggregate[1 Brass],Cement[1 bag],La
23		-	Plinth	0 days	Mon 30-04-18	Mon 30-04-18	43	30-04
24		-	* SUPERSTRUCTURE	404.55 days	Tue 01-05-18	Thu 15-08-19	t	
25		-	+ RCC WORk	347.85 days	Tue 01-05-18	Mon 10-06-19	-	

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	-	* Ground floor	77.38 days	Tue 01-05-18	Mon 30-07-18	<u>}</u>	80	-	4th Slab Pending And Carring	3 days	Wed 27-02-19	Fri 01-03-19	Labour 1,Labour 2
	-	Ground Floor Column Reinforcment	13 days	Tue 01-05-18	Thu 17-05-18	Fitter 1, Fitter 2, Fitter 3, Fitter 4, Fitter 5, Fitter 6, Fitter 7, Steel[1 kg]	81	-	4h SLAB Complete	0 days	Fri 01-03-19	Fri 01-03-19	01-03
	-	Ground Floor Column Shuttering	11 days	Fri 18-05-18	Fri 01-06-18	Carpainter 1, Carpainter 2, Carpainter 3, Carpainter 4, Carpainter 5, Carpaint	82	-	4th Slab Deshuttering	1 days	Mon 04-03-19	Tue 05-03-19	Carpainter 1,Carpainter 2
		Ground floor Column Custing	14 days	Mon 04-06-18	Thu 21-06-18	Aggregate[1 Brass],Cement[1 bag],Labour 1,Labour 2,Labour 3,La	83	-	4 4th Floor	62.88 days	Wed 06-03-19	Fri 17-05-19	
	-	Ground to 1st slab Staincase Shuttering	2 days	Fri 22-06-18	Mon 25-06-18	Carpainter 1, Carpainter 2, Shuttering [1 Plates]	84	-	4th Floor Column Reinforcment	10 days	Wed 06-03-19	Tue 19-03-19	Fitter 1, Fitter 2, Fitter 3, Fitter 4, Steel[1 kg]
	-	1st Slab Stuttering	7.5 days	Tue 26-06-18	Thu 05-07-18	Carpainter 3, Carpainter 4, Carpainter 5, Carpainter 7	85	-	4th Floor Column Shuttering	I days	Wed 20-03-19	Fri 29-03-19	Carpainter 1, Carpainter 2, Carpainter 3, Carpainter 4, Shuttering
	•	Groung to 1st slab Staircase Reinforcement	2 days	Thu 05-07-18	Mon 09-07-18	Fitter 1,Fitter 2,Steel[1 kg]	85	-	4th Floer Column Cassing	30 days	Mon 01-04-19	Fri 12-04-19	Aggregate[1 Brass],Cement[1 bag],Labour 1,Labour 2,La
	-	1st Slab Reinforcement	5 days	Mon 09-07-18	Mon 16-07-18	Fitter 3, Fitter 4, Fitter 5, Fitter 6, Fitter 7, Steel[1 kg]	87	-	4th to 5th shib Staircase Shattering	2 days	Mon 15-04-19	Tue 16-04-19	Carpainter 1, Carpainter 2, Shuttering[1 Plates]
	•	1st Slab ROC Consultant Checking	1 day	Mos 16-07-18	Tue 17-07-18		88	-	5th Slab Shattering	5 days	Wed 17-04-19	Tue 23-04-19	Carpainter 3, Carpainter 4, Carpainter 5, Carpainter 7,
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	•	+ 1st Floor	62 days	Mon 30-07-18	Wed 10-10-18		95	-	3th SLAB Complete	0 days	Wed 15-05-19	Wed 15-05-19	15-05
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	-	1st to 2nd slab Staircase Shattering	2 days	Thu 06-09-18	Mon 10-09-18	Carpainter 4, Carpainter 3, Shutt	99	-	Column Stattering	2 days	Wed 22-05-19	Thu 23-05-19	Carpainter 1, Carpainter 2, Carpainter 3,
	•	2nd Slab Shuttering	Sdays	Mon 10-09-18	Mon 17-09-18	Carpainter 5, Carpainter 7, Sh	100	-	Column casing	1 day	Fri 24-05-19	Fri 24-05-19	Aggregate[1 Brass],Cement[1 bag],Lab
	•	1st to 2nd slab Staincase Reinforcement	2 days	Mon 17-09-18	Wed 19-09-18	Fitter 1,Fitter 2,Steel[1 kg]	101	-	Sab shateing	1 day	Mon 27-05-19	Mon 27-05-19	Carpainter 1, Carpainter 2, Carpainter 3
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	-	2nd Slab RCC Consultant Checking	1 day	Wed 26-09-18	Thu 27-09-18		103	-	Sah Casting	1 day	Wed 29-05-19	Wed 29-05-19	Aggregate[1 Brass], Cement[1 bag], La

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	5	Ind Floor Column Stattering	8 days	Wed 24-10-18	Mon 05-11-18	Carpainter 5, Carpainter 4, Carpainter 3, Shuttering[1 Plates]	105 🤜	Water Tank Wall Shuttering	2 days	Mon 03-06-19	Tue 04-06-19	10-		Carpainter 3, Carpainter 4, Carpainter 5,
	•	2nd Floor Column Casting	10 days	Mon 05-11-18	Mon 19-11-18	Aggregate[1 Brass].Cement[1 bag].Labour 1.Labour 2.Lab	106 🔜	Water Tank Wall Custing	1 day	Wed 05-06-19	Wed 05-06-19	10		Aggregate[1 Brass],Cement[1 bag],Lab
	4	2nd to 3rd slab Staincase Shuttering	2 days	Mon 19-11-18	Wed 21-11-18	Carpainter 1, Carpainter 2, Shuttering [1 Plates]	107 🔜	Water Tank wall top slab shottering	1 day	Thu 06-06-19	Thu 05-05-19	10		Carpainter 1, Carpainter 2, Carpainter 3,
	5	Ind. Slab Shuttering	5 days	Wed 21-11-18	Wed 28-11-18	Carpainter 3, Carpainter 4, Carpainter 5, Carpainter 7, Sl	108 🔜	Water Task wal top slab reinforcement	1 day	Fri 07-06-19	Fri 07-06-19	10		Fitter 1,Fitter 2,Fitter 3,Steel[1 kg]
	-	Ind to Ird slab Staircase Reinforcement	2 days	Wed 28-11-18	Fri 30-11-18	Fitter 1, Fitter 2, Fitter 3, Steel[1 kg]	109 🔜	Water Tank wall top slab Casting	1 day	Mon 10-06-19	Mon 10-06-19	10		Aggregate[1 Brass], Cement[1 bag], Lab
	•	Inf. Slab Reinforcement	5 days	Fri 30-11-18	Fri 07-12-18	Fitter 4, Fitter 5, Fitter 6, Fitter 7, Steel[1 kg]	110 🤜	O.H.W complete	0 days	Mon 10-05-19	Mon 10-06-19	10		÷ 10-06
	4	Ind Slah RCC Consultant Checking	1 day	Fri 07-12-18	Sat 08-12-18	-	111 🔜	BRICK WORK	270.5 days	Mon 30-07-18	Mon 10-06-19	39		1
	•	Int slab casting	3 days	Mon 10-12-18	Wed 12-12-18	Aggregate[1 Brass],Cement[1 bag],Labour 1,Lab	112 🤜	Ground Floer	8 days	Mon 30-07-18	Thu 09-08-18	39		bag], Mistri 1, Mistri 2, Mistri 3, Mistri 4, M
		Ind to Ird Floor Staircase Casting	3 days	Wed 12-12-18	Sat 15-12-18	1	113 🗬	1st Floor	8 days	Wed 10-10-18	Mon 22-10-18	54		ent[10 bag],Mistri 1,Mistri 2,Mistri 3,Mis
	•	Ind Slab Pending And Curring	3 days	Mon 17-12-18	Wed 19-12-18	Labour 1,Labour 2	H 114	2nd Floor	8 days	Mon 24-12-18	Wed 02-01-19	68)],Cement[10 bag],Mistri 1,Mistri 2,Mistri
	۹.	Ini SLAB Complete	0 days	Wed 19-12-18	Wed 19-12-18	19-12	115 🔜	3rd Floor	8 days	Wed 06-03-19	Fri 15-03-19	82	•	50,000],Cement[10 bag],Mistri 1,Mistri 2
	-	Inf Slab Desluttering	2 days	Thu 20-12-18	Fri 21-12-18	Carpainter 1, Carpainter 2	Ng 116 🔜	4th Floor	8 days	Mon 20-05-19	Wed 29-05-19	96		Brick[50,000],Cement[10 bag],Mistri 1,I
	•	4 3rd Floor	61.88 days	Mon 24-12-18	Tue 05-03-19		117 🤜	Parapet Wall	8 days	Thu 30-05-19	Mon 10-06-19	110		Brick[25,000],Cement[8 bag],Mistri 1,M
	۹.	Ind Floor Column Reinforcment	10 days	Mon 24-12-18	Fri 04-01-19	Fitter 1, Fitter 2, Fitter 3, Fitter 4, Steel	118 🤜	 PLASTER 	300.5 days	Thu 09-08-18	Thu 25-07-19	11	ř.	
	-	Ind Floor Column Shuttering	8 days	Mon 07-01-19	Wed 16-01-19	Carpainter 7, Carpainter 5, Carpai	119 🤜	+ INTERNAL	267.5 days	Thu 09-08-18	Mon 17-06-19	11	ř · · · · · ·	†
	•	Int Floor Column Casting	10 days	Thu 17-01-19	Wed 30-01-19	Aggregate[1 Brass],Cemen	120 🤜	Ground Floor	5 days	Thu 09-08-18	Thu 16-08-18	11.		Aistri 2, Mistri 3, Mistri 4, Mistri 5, Mistri 6,
	-	ind to 4th slab Staircase Shattering	2 days	Thu 31-01-19	Fri 01-02-19	Carpainter 4, Carpainter 3,	121 🔜	1st Floer	5 days	Mon 22-10-18	Mon 29-10-18	11	Cement(1 bag),Mis	stri 1,Mistri 2,Mistri 3,Mistri 4,Mistri 5,M
	4	4th Slab Shuttering	5 days	Fri 01-02-19	Thu 07-02-19		122 🤜	Ind Floor	5 days	Thu 03-01-19	Wed 09-01-19	11-	Cement[1 bi	ag],Mistri 1,Mistri 2,Mistri 3,Mistri 4,Mis
	-	3rd to 4th slab Staircase Reinforcement	2 days	Fri 08-02-19	Mon 11-02-19	Fitter 1,Fitter 2,Steel[123 🔜	Ird Floer	5 days	Mon 18-03-19	Fri 22-03-19	11		nt[1 bag],Mistri 1,Mistri 2,Mistri 3,Mistri
	4	4th Slab Reinforcement	S days	Tue 12-02-19	Mon 18-02-19	🔚 Fitter 3, Fitter 4, Fit	124 🔜	4th Floor	5 days	Thu 30-05-19	Wed 05-06-19	110	1	Cement[1 bag],Mistri 1,Mistri 2,Mistri :
	۹.	4th Slab RCC Consultant Checking	1 day	Mon 18-02-19	Tue 19-02-19		125 🤜	Parapet Wall	5 days	Tue 11-06-19	Mon 17-06-19	11		Cement[1 bag],Mistri 1,Mistri 2,Mistri
	=	4th slab casting	3 days	Wed 20-02-19	Fri 22-02-19	Aggregate[1 Bra	126 🤜	+ EXTERNAL	32.88 days	Tue 18-06-19	Thu 25-07-19	12		h
		Ind to 4th Floor Staircase Casting	3 days	Fri 22-02-19	Tue 26-02-19		127 🤜	East	7 days	Tue 18-06-19	Wed 26-06-19	12		Cement[1 bag], Mistri 1, Mistri 2, Mistr
							125							IIIk alteration of the second

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•	8 S.	rop · matPainter B I U Q·A· 2.3 ↔ ∞	Respect Links Mar Harthiste Sch	asily Auto Inspect Mov	e Mode Task Summ		Notes	10 IBSK
1	Cipb	oard Fort is the stroked	Scheckle	Tasks		itset.	Properties provide	Editing
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		tribune (sribune	togane	3d Quarter	/eQu	n	3d Querry	te Quarter Jac Quarter
	Ny 31	4		Add tasks with	dates to the timeline			16573
	Task					2018	Qtr 4, 2018 Qtr 1, 2019 Qtr 2, 2	119 QH 3, 2019 QH 4, 2019 QH 1, 2020
	Mode *	TaskName	 Duration 	 Start 	 Finish 	• Pet Aug Sep	Oct Nov Dec Jun Feb Mar Apr M	lay Jun Jul Aug Sep Oct Nov Dec Jun Feb Mar
126		* EXTERNAL	32.88 days	Tue 18-05-19	Thu 25-07-19	12		
127		East	7 days	Tue 18-06-19	Wed 26-06-19	12'		Cement(1 bag),Mistri 1,Mistri 2,Mistri
128	•	West	7 days	Thu 27-06-19	Fri 05-07-19	12		Cement[1 bag],Mistri 1,Mistri 2,Mistri
129	•	Nath	7 days	Mon 08-07-19	Tue 16-07-19	12/		Cement[1 bag],Mistri 1,Mistri 2,Mis
130	-	South	7 days	Wed 17-07-19	Thu 25-07-19	12		Cement[1 bag], Mistri 1, Mistri 2, Mi
131	•	* PLUMBING & SANOTTARY	312.5 days	Thu 09-08-18	Thu 08-08-19	u ř		
132	4	 INTERNAL (CONCEALED OPIC) 	266.5 days	Thu 09-08-18	Sat 15-06-19	u (
133		Ground Floor	5 days	Thu 09-08-18	Wed 15-08-18	11: Plum	iber[1 Bathroom],Plumber WC[1 1	2 No. 1 No. 1 No. 1 No. 1
134	-	lst Floor	5 days	Mon 22-10-18	Sat 27-10-18	11	Plumber[1 Bathroom],Plum	
135	-	2nd Floor	5 days	Wed 02-01-19	Tue 08-01-19	114	1. Control 10 (2010)	com],Plumber WC[1 WC]
136	-	Ind Floor	5 days	Fri 15-03-19	Thu 21-03-19	11	Plumb	er[1 Bathroom],Plumber WC[1 WC]
137	•	4h Florr	5 days	Wed 29-05-19	Tue 04-06-19	110		Plumber[1 Bathroom], Plumber WC[1 WC]
138	-	0 H.W. Tank	5 days	Mon 10-06-19	Sat 15-06-19	11		Plumber[1 Bathroom]
139	4	4 FLUSH TANK AND DIVERTOR	10 days	Mon 17-06-19	Fri 28-05-19	21/		F)
140	4	Ground Floer	2 days	Mon 17-06-19	Wed 19-06-19	210		
141	4	lot Floor	2 days	Wed 19-06-19	Fri 21-06-19	21:		
142	4	Ind Floor	2 days	Fri 21-06-19	Man 24-06-19	21.		
143	-	hd Hor	2 days	Mon 24-06-19	Wed 26-06-19	21		
144	٩.	4h Floer	2 days	Wed 26-06-19	Fri 28-05-19	214		
145	-	4 EXTERNAL PLUMBING	37 days	Wed 26-06-19	Thu 08-08-19	12		lt-1
146	а,	Balcery Down Take	4 days	Wed 26-06-19	Man 01-07-19	12		
147	а,	Main Terrace Down take	4 days	Fri 05-07-19	Wed 10-07-19	12		1
148	4	Water sapply Line	4 days	Tue 16-07-19	Sat 20-07-19	12'		t i
149	-	Sever fine down take	4 days	Sat 20-07-19	Thu 25-07-19	14		1
150		Terrace Looping	4 605	Thu 25-07-19	Tue 30-07-19	14		l t

	AFind - Scroll Clear - to Task Fill - 5ding	TH Details	Information	e Deliverable	nary Miesto	Task Sur	Nove Mo	Auto Schedule	Manualt	■ Mark on Track	€.3 ÷ © ¢	Times New Ro - 9 B I U O - A	ut opy * ormat Painter toerd	aste 💰 F	
	carry	порелез		tar 21-06-20	1005	Today		600		10495		Wed 27	1000	. up	
Jis Curry	, ht Sunter		, No Game		Larar	_		Jud Quarter		/it Quarter	c.m		/in Durite		
Reb						o the timelin	uith data	Add tarks					34		
341547.0				-		0.044.00050	muruate	200 (894)						No.2-	
	Qtr 3, 2019 Qtr 4	1, 2019 Off 2, 2019		18 Qtr 4						and an owner				Jask	
Nov Dec Jan Feb N	An Al Aug Sep Oct	1 Feb Mar Apr May J	Nor Dec Jan	ig sep od	+ HE 2 17-	sh d 10-07-19	* 5	 Start Mon 08-07-19 		Duration 2 days	Flats.	Fixing of Exhaust Fan inside	Task Name		175
	1				17	12-07-19		Wed 10-07-19		2 dans		Light Fintures in Common A			175
	1				17	n 15-07-19		Fri 12-07-19		2 days		Testing and Commissioning		30	177
	1				17	19-07-19		Mon 15-07-19		4 600		Parking Level & SubStation			
					17	n 22-07-19		Fri 19-07-19		2 days	in	Electrical Trench and Substa			179
					17	d 24-07-19		Mon 22-07-19		2 days	d	Electrical Equipment and Pa			160
					18	26-07-19		Wed 24-07-19		2 days		Installation of Electrical wor		-	181
					18	n 29-07-19		Fri 26-07-19		2 days		Testing & Conissioning		-	182
					13	18-06-19		Wed 15-08-18		263.5 days		ER PROOFING	4 WAT	-	183
	ater proofing[1 Sqft]	g],Sand(1 Brass],Wat	ment[1 bag	Brick[1],C	13	17-08-18		Wed 15-08-18		2 days		cound Floor	G	-	184
g[1 Sqft]	1 Brass), Water proofin	ment[1 bag],Sand[1	Brick[1].Cer	1	13	30-10-18	T	Sat 27-10-18		2 days		t Floer	lg	-	185
er proofing[1 Sqft	pag],Sand[1 Brass],Wa	Brick[1],Cement[1 ba			13	10-01-19	T	Tue 08-01-19		2 days		d Flox	h	-	186
Brass], Water proof		Brick[1],C			13	23-03-19	s	Thu 21-03-19		2 days		t Flor	Int	-	187
g],Sand[1 Brass],V	Brick[1],Cement[1 b				13	06-06-19	Т	Tue 04-06-19		2 days		h Floor	48	-	168
bag],Sand[1 Brass]	Brick[1],Cement[1				13	18-06-19	T	Sat 15-06-19		2 days		H.W. Task	0	-	189
	-			-	12	27-06-19	T	Thu 16-08-18		270.5 days		ORING	4 FL00	۳,	150
	1		-	-	12	4-06-19	F	Thu 16-08-18		259.5 days	ic.	LOORING AND SKERTI	· FL	-	191
Sqft]	[100 box], Tile Mistri[1	d[4 Brass], Tile Box [1	0 bag],San	Cement[1	12	25-08-18	s	Thu 16-08-18		8 days		Ground Filter		-	192
le Mistri[1 Sqft]	s],Tile Box [100 box],1	0 bag] Sand[4 Brass]	Cement[10		12	d 07-11-18	N	Mon 29-10-18		8 days		list Floor		-	193
00 box], Tile Mistr	and [4 Brass], Tile Box	Cement[10 bag],San	1		12.	18-01-19	F	Wed 09-01-19		8 days		2nd Floer		4	194
Tile Box (100 box)	[10 bag],Sand[4 Brass	Cement[1			12	n 01-04-19	٨	Fri 22-03-19		8 days		ind Floor		-	195
ıd[4 Brass],Tile Bos	Cement[10 bag],Sa				124	14-06-19	F	Wed 05-06-19		8 days		4th Floer		۹.	196
	'n				19	d 26-06-19	٧	Fri 14-06-19		10 days	E	INDOW MARBLE FRAM		٩.	197
bal[1 Sqft], Tile Mi	Cement[1 bag],Ma				19	n 17-06-19	٨	Fri 14-05-19		2 days		Ground Floer		4	198
bal[1 Sqft],Tile M	Cement[1 bag],Ma				19	d 19-06-19	N	Mon 17-06-19		2 days		1st Floor		-	199
															4

Screenshot no: 6



Screenshot no: 7

Screenshot no: 8

RE	TASK 1	escurce report project view	FORMAT						Sign in 🖸 🗄 🗄
Santt Nart * Verv	Paste of fo	$\frac{\operatorname{Imes hew so \cdot p}}{\operatorname{mat Pairter}} = \frac{\operatorname{Imes hew so \cdot p}}{\operatorname{B} I \downarrow \underline{\diamond} \cdot \underline{A}} \cdot \overline{a} + \overline{a} = \overline{a}$		Manually Auto Schedule Schedule	Ne Mode Task Sum	many Milestone Deli	Notes	Scroll Clear*	
	3 No 11-21-	n Sunter Jol Guesse	(that	A SEAR AND A SEARCH ANN A SEARCH AN A SEARCH AN A SEARCH AN A SEARCH ANN ANN A SEARCH ANN A SEARCH ANN ANN A SEARCH ANN A SEARCH ANN A SEARCH ANN A SEARCH ANN ANN A SEARCH ANN ANN A SEARCH ANN ANN A SEARCH ANN ANN ANN ANN ANN ANN ANN ANN ANN AN	The last of the timeline	une L	Jin Sume	a Gaw	Set Quarue Frain The (Sel2)
	Task		2	2.1			6 Jun 119 23 Jun 119	30 Jun '19	07 Al 19 14 Al 19
	Node 🔻	Task Name Ist Floer	 Duration 2 days 	 Start Mon 17-06-19 	 Finish Wed 19-06-19 	• PEFSS	Cement[1 bag],Marbal[1		
200		Ind Floor	2 days	Won 17-06-19 Wed 19-06-19	Web 19-06-19 Fri 21-06-19	19	Cement[1 bag],Marbal[1		
		ind Florr	2 days	Fri 21-06-19	Mon 24-06-19	20		ag],Marbal[1 Sqft]	
200		4b Floor	2 days	Mon 24-05-19	Wed 26-06-19	20			Saft], Tile Mistri(1 Saft)
		4 TOILET FLOORING	11 des	Fri 14-06-19	Thu 27-06-19	19	cento	eft orditumont.	selection ansarts select
204		Ground Floor	3 dans	Fri 14-06-19	Tue 18-05-19	19	Cementi1 bagi Sandi1 Brass	I Tile Daddolf hov	Tile Mistril1 Coff1
205		Lat Flour	3 days	Mon 17-06-19	Thu 20-05-19	19			1 box),Tile Mistri(1 Sqft)
200		Ind Floor	3 days	Wed 19-06-19	Sat 22-06-19	19			addo(1 box), Tile Mistri(1 Sq
		ind Florr	3 davs	Fri 21-06-19	Tue 25-05-19	20			Tile Daddo(1 box), Tile Mit
200		4h Floor	3 days	Mon 24-05-19	Thu 27-05-19	20			Brass], Tile Daddo(1 box), Ti
205		4 TOILET DADO	10 days	Fri 14-06-19	Wed 26-05-19	19		urud i noditraund i	analise analisation
210		Grand Floer	2 days	Fri 14-06-19	Mon 17-06-19	19	Cement[1 bag],Tile Daddo[1 b	wl Tile Mistrif1 So	fen .
		1st Floer	2 days	Mon 17-05-19	Wed 19-06-19	19	Cement(1 bag), Tile Dadd		
		Ind Floor	2 davs	Wed 19-05-19	Fri 21-06-19	19	Cement[1 bag],Tile		
		ind Floer	2 days	Fri 21-06-19	Mon 24-06-19	20			ax),Tile Mistri(1 Sqft)
		4h Flaor	2 days	Mon 24-06-19	Wed 26-06-19	20	100 million (100 m		o[1 box], Tile Mistri[1 Sqft]
		* PAINITING WORK	51 days	Mon 17-06-19	Thu 15-08-19	21			
		4 INTERNAL PAINTING	26 days	Mon 17-06-19	Wed 17-07-19	21/	-	_	
		Ground Floer	ó davs	Mon 17-06-19	Mon 24-06-19	210	Painting Int	ernal[1 Sqft]	
		Int Floer	6 days	Wed 19-05-19	Wed 26-06-19	21		ng Internal(1 Sqft)	
		and Floor	6 days	Fri 21-06-19	Fri 28-06-19	21	A CONTRACTOR OF	ainting Internal[1	Sqft]
220		ind Floor	6 days	Mon 24-06-19	Mon 01-07-19	21		Painting Int	ternal (1 Sqft)
221		4h Floor	6 days	Wed 26-06-19	Wed 03-07-19	214		Painti	ng Internal[1 Sqft]
		Lift machine room	6 days	Wed 03-07-19	Wed 10-07-19	22		-	Painting Inten
223		Lower parking	6 davs	Wed 10-07-19	Wed 17-07-19	22			

Screenshot no: 9

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	ate • fo			y Auto e Schedule	e Mode Task Summ	ay Miestore Deliverabl	Information	Scool Bill *	
1	Cipb	and Fort 4 Schedule		Tisis estatul	0.9.9	isset.	Ropeties	Editing	
			8		lidey				
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	893.0	-11		Add tasks with	i dates to the timeline				76 5452
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	Mode *		Duration	• Start	 Finish 	• Pre C6 11 14 17	20 23 26 29 02 05 08 11 14 17		3 16 19 22 25 28 31 0
223		Lower parking	6 days	Wed 10-07-19	Wed 17-07-19	22	Pi Pi	inting Internal(1 Sqft]	
224		4 EXTERNAL PAINTING	25 days	Wed 17-07-19	Thu 15-08-19	22	t t	traces part and	٦
225		East side	5 days	Wed 17-07-19	Tue 23-07-19	22		Painting External[1 !	A 44
226		West side	5 days	Tue 23-07-19	Man 29-07-19	22		Painting Exter	
227		Darts	5 days	Mon 29-07-19	Sat 03-08-19	221		_	External [1 Sqft]
228		South side	5 days	Sat 03-08-19	Fri 09-08-19	22		Pai	nting External(1 Sqft
229		North side	5 days	Fri 09-08-19	Thu 15-08-19	221			Painting External(1
230		 CARPENTRY WORK 	12 days	Mon 17-06-19	Mon 01-07-19	19			
231		Ground Floor	2 days	Mon 17-06-19	Wed 19-06-19	19			
232		IstFloor	2 days	Wed 19-06-19	Fri 21-05-19	19	Door Frame[1 no]		
233	4	Ind Floor	2 days	Fri 21-06-19	Mon 24-06-19	20	Door Frame[1 no]		
234	•	Jed Floer	2 days	Mon 24-06-19	Wed 26-06-19	20:	Door Frame[1 no]		
235		-thFlor	2 days	Wed 26-06-19	Fri 28-05-19	20.	Door Frame[1 no]		
236	•	Lift-machine room	2 days	Fri 28-06-19	Man 01-07-19	235	Door Frame[1 no]		
237	4	* FIXING OF DOOR PANELS AND DOOR ACCESSORIES	12 days	Wed 19-06-19	Wed 03-07-19	23.	· · · · ·		
238	4	Grand Floor	2 days	Wed 19-06-19	Fri 21-05-19	23			
239	•	Lst Floor	2 days	Fri 21-06-19	Man 24-06-19	23.			
240	-	Ind Floor	2 days	Mon 24-05-19	Wed 26-06-19	23.			
241	4	Ind Floor	2 days	Wed 26-06-19	Fri 28-05-19	23/	1		
242	-	4hFlor	2 days	Fri 28-06-19	Mon 01-07-19	235			
243	4	Lift machine room	2 days	Mon 01-07-19	Wed 03-07-19	234	1		
244	-	 UPIC WINDOWS 	10 days	Wed 19-06-19	Mon 01-07-19	19			
245	4	Ground Floor	2 days	Wed 19-06-19	Fri 21-05-19	19			
246		lst Floor	2 days	Wed 19-06-19	Fri 21-05-19	19	Window(1 no)		
147		Ted Flow	1 Are	0.1 38 AC 80	14 14 AC 14		Windowit nol		

Screenshot no: 10

t: N	ucha -	af Times New Ro.•9 • • • • • • • • • • • • • • • • • •	Respect Linis Ma	Auto Inspect Meximally Auto Inspect Meximally		ary Milestone Deliver	able Information 🙀 Add to Timeline Properties	Clear - Social Clear - to Task Fill - Esting	
	1 North 21	Int Conv jit Conv Int	16 Queter) de Querter	h dates to the timeline	an a	3d Quee	10 Curte	Hi Queter Institution The ISBN 3
	Task			1		lane 2019	3.dy.2019	kgis	
		Task Name 4 UPVC WINDOWS	 Dutation 	 Start 			11 14 17 20 23 26 29 02 05 08 11	14 17 20 23 26 29 01 04	07 10 13 16 19 22 25 3
244		Grand Flor	10 days 2 days	Wed 19-06-19	Mon 01-07-19	19			
245 246		ist Floor	2 dans	Wed 19-06-19	Fri 21-06-19	15	Window[1 no]		
	-	and Floor	2 days 2 days	Wed 19-06-19	Fri 21-06-19	19	Window[1 no]		
247 248		ind Floor	2 days	Fri 21-06-19	Mon 24-06-19	201	Window[1 no]		
245		4h Floor	2 days	Mon 24-06-19	Wed 26-06-19	20:	Window(1 no)		
250		Lift machine room	2 days	Wed 26-06-19 Fri 28-06-19	Fri 28-06-19 Man 01-07-19	20.	Window[1 r	al la	
		4 LIFT LOBBY (STONE CLADOING)	é dars				manoni i		
252		Grand Flor	2 dars	Wed 19-06-19	Wed 26-06-19	19			
252		Ist Floor	2 days	Wed 19-06-19	Fri 21-06-19	19	1.0		
254		In Four	2 days	Wed 19-06-19 Wed 19-06-19	Fri 21-06-19 Fri 21-06-19	19			
255		Ind Floor	2 dans	Fri 21-06-19	Mon 24-06-19	20			
256		4th Floor	2 dans	Mon 24-06-19	Wed 26-06-19	20			
250		+ MS WORK (RAILING AND GRILL)	267.5 days	Thu 16-08-18	Mon 24-06-19	120	-		
258		4 MS RAILING FOR BALCONY	254.5 days	Thu 16-08-18	Sat 08-06-19	12			
259		Grand Floar	3 days	Thu 16-08-18	Man 20-08-18	12			
		1st Floor	3 dars	Mon 29-10-18	Thu 01-11-18	12			
		2nd Floor	3 days	Wed 09-01-19	Sat 12-01-19	12			
		Ind Floor	3 dans	Fri 22-03-19	Tue 26-03-19	12			
		4h Floor	3 dars	Wed 05-06-19	Sat 08-06-19		siling[1 Rmt]		
		4 MS WORK FOR LMR AND OHWT	6 days	Mon 17-06-19	Mon 24-06-19	12			
	-	MS WORK Staircase for LMR.	3 dans	Mon 17-06-19	Thu 20-06-19	26			
	-	MS WORK FOR UGWT (Ladder)	3 days	Thu 20-06-19	Mon 24-06-19	26			
		4 MS RAILING FOR STAIRCASE	264.5 days	Thu 16-08-18	Thu 20-06-19	12			
		Ground Floer	3 days	Thu 16-08-18	Mon 20-08-18	12	1		

Screenshot no: 11

E		TASK		WAT TOCKS 1572 Imat	547324270_G + 4 WING A, B, C -	nojeti nalesitra (n	COSCI HELIIGISCI THI					7 - 5 Signin 🖸 8
Gart Cart Chart Viev	8	este 📢 F	omat Painter B / U (2 · A · 7 3 4 a	Markon Track -	Manually Auto Schedule Schedule Tacks	love Mode Task S	nmary Wiestore I		ntormation 😭 Prop	Notes Details Add to Timelin eries	Scoll @ Fill *	
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		Sec. 21.			Add tasks i	with dates to the time	ine					5-552
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	68		Ground Floor	3 days	Thu 15-08-18	Mon 20-08-18	128					
	¥9		Lst Floer	3 days	Mon 29-10-18	Thu 01-11-18	12:	Railing	(1 Rmt]			
	70		Ind Floor	3 days	Wed 09-01-19	Sat 12-01-19	12:		Railing(1	A COLORADO		
	51	-	htHon	3 days	Fri 22-03-19	Tue 26-03-19	12:			Railing[1		
	52	•	#h Flor	3 days	Wed 05-06-19	Sat 08-06-19	12)			1	Railing[1 Rmt]	
	33	٩.	Lift machine room	3 days	Mon 17-06-19	Thu 20-06-19	12!				Railing[1 Rmt]	
	54	4	* LIFT (ELEVATORS)	18 days	Fri 14-06-19	Fri 05-07-19	19			1	'n	
	5	•	Architect Design Approval	2 days	Fri 14-06-19	Mon 17-06-19	191				Lift[3 No]	
	76	4	Material Code creation	2 days	Mon 17-06-19	Wed 19-06-19	27:				ξ	
	π	-	PR. Raise	2 days	Wed 19-06-19	Fri 21-05-19	27)				1	
	78	4	Finalization of Centractor	2 days	Fri 21-06-19	Mon 24-06-19	27				1	
	59	4	Installation	2 days	Mon 24-06-19	Wed 26-06-19	271				t	
	80	٩.	Pre-commissioning, Testing	2 days	Wed 26-06-19	Fri 28-05-19	27!				ţ.	
	81	-	Testing And Commissioning	2 days	Fri 28-06-19	Mon 01-07-19	28				1	
	82	۹.	NOC	2 days	Mon 81-07-19	Wed 03-07-19	28				1	
	83	4	Handing Over	2 days	Wed 03-07-19	Fri 05-07-19	28.				1	
	84	٩.	# HANDING OVER	10 days	Fri 05-07-19	Wed 17-07-19	28:				ň	
	85	4	Handing over to Sales for OC	6 days	Fri 05-07-19	Fri 12-07-19	28				1	
	86	4	Handing over with OC to Matrix	4 days	Fri 12-07-19	Wed 17-07-19	28!				I.	
	87	4	PROJECT HANDOVER	0 days	Wed 17-07-19	Wed 17-07-19	281				a 17-07	
	98	٩.	+ G+ 4 WING B	505 days	Wed 19-12-18	Thu 30-07-20	67	i	-			
	89	4	# MOBILISATION	5 days	Wed 19-12-18	Tue 25-12-18	67	i	i			
	90	٩.	Mohilization of site	2 days	Wed 19-12-18	Fri 21-12-18	67					
	91		Mobilisation of Civil contractor	3 days	Fri 21-12-18	Tue 25-12-18	291		t,			
	92	4	* SUBSTRUCTURE	95 days	Tue 25-12-18	Mon 15-04-19	29:		t –			
) (-			

Screenshot no: 12

As per above screenshots of msp sheets, Schedule, cost & payment detail of building no 1 (Wing A), building no 2 (Wing B) and building no 3 (Wing C) also has been design and find all the calculations and results. Also all required resources are inserted in resource sheet in Microsoft project software and its per unit cost also given and it gives amount of each resources which shows in above graph no. 3.

CONCLUSION

The study considers cash flow, establishes a mathematical model using MSP for multiproject scheduling problems, and performs periodic financial inspection on behalf of contractors. This work creates an overall time framework and integrates cash flow and financial elements into the model to assist evaluating project financing in a multiproject environment. Scenario analysis employs buildings for model illustration, and the prepared schedule is conducted to pursue overall maximum profit. Consequently, the proposed model identifies an appropriate scheduling plan to fulfil contractor financial needs related to multiproject scheduling problems.

A project cannot proceed without an adequate financing, and the cost of providing an adequate financing can be quite large. For these reasons, the attention to the project finance is an important aspect of project management. Technique used for scheduling and financing will vary depending upon the project's size, complexity, duration, working capital cost and Contractor requirements. The study presented calculations of cash flows for construction projects to demonstrate their functioning and to present improvements in analysing and optimizing the relationship between the timing of activities in the schedule, their direct costs plus any indirect costs. So by arranging activity schedule, on



multiprojects scheduling helps contractors to smoothen financial conflict.

From all above things we can conclude that-

- a. Cash flow is the backbone of any construction project and if we fail to manage that then project can fail.
- b. All the items should be considered in cash flow like material cost according to its quantity charges, labour wages, fixed cost, overhead expenses and all direct and indirect cost expenses.
- c. Poor cash flow hampers on construction project and results in delay of project completion, increase in costs etc.
- d. Special attention required in case of execution of High Rise Buildings due to increase in variables, which needs special study and analysis experienced at different stages in construction.
- e. Cash flow is essential to work out because it gives total inflow and outflow of the project and combination of it gives cash flow of the project. And from that easy to determine profit of the project.
- f. The cash flow generation with the help of Microsoft project software.
- g. Using MSP software for this project is beneficial and gives total profit amount as Rs 5,76,781 in 1246 days. Building no 2 (Wing B) is most profitable than others with cost and time.

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VAIDEHI NIRMAL M. E. (CEM)

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