

APPLY CRITICAL CHAIN PROJECT MANAGEMENT IN RESIDENTIAL PROJECT

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Abstract – in the construction industry time is important to the all client and contractor and site all the member but the in many project delay in India or other country. We have to manage the time to this method and we have to reduce the time all the project and the guide to the all staff of the site in all activity limitation on the site Use the CPM method for the construction industry and complete the project before their time period but the big project we don't calculate the buffer in the CPM method also we don't calculate the resource buffer and do not planning in CPM method in critical chain project management we have to focus on the buffer. We can easily calculate all buffer in critical chain project management for saving each activity buffer duration for project to complete before time period or on time period. Hence, suggestion is made to use or to take advantages of CCPM method in order to successfully complete project before desired time period.

Key Words: Construction industry, time management, project development,

1. INTRODUCTION

In the age of new construction, the increasing demand for project management is increasing and the use for construction is increasing due to the attractive demand. Such management was becoming a necessary and essential good for construction. In 1997, Goldratt (1997), Associate Israel Alley Initiative Management, applied the principle of extreme restriction of management project management (TOC), then proposed the additional project timetable management method - Essential Chain Project Management (CCPM). here are a variety of international high profile that fail to deliver in time and in budget. Chunnel project is produce a collaborative degree submarine linking between France and therefore the UK is perhaps the most recognized example, although without a doubt, most readers remember on a small scale, impending their effort environment that futile despondently. Unwanted characteristics related to many failed projects Field unit: Exceeded budget, compromised project condition and unintelligible goals. As a result, the 3 basic parameters of project success (time, price and quality) area unit is particularly at risk. In his well-known business novel, "Critical Chain", argued that the

point required more than the price for project managers

1.1 Definition

Critical chain management method is management of project and focus on the all resources required in which time and execute the planning and project task

1.2 Project Buffer

In the project buffer very uncertain for the all organization because the competitive the all business in the construction industry all the manager tired tried to delay the all project and they have applied in this project buffer we have to add the buffer in the project critical task and the reduced the total project duration.

1.3 Feeding Buffer

In this buffer we have to apply the non-critical activity and we have to reduce the project duration. There can be many chains in similar to all come, although mainly, only one is the longest. This buffer use in the non-critical path.

1.4 Resource Buffer

One of the main reasons for the end projects is that resources are not available when they are needed or are not available in quantities. In this buffer to main in the construction. We have no proper viability of resource then the project delay change is the very higher. In PB and FB reduce the duration work not completed the PB and fb told the project manager we have to require the resource to finish this work.

2 THEORY OF CONSTRAIN

CCPM applies the TOC to project management. Goldratt first described TOC in The Goal (1984) when applied it to production systems. TOC can be summarized by: "Any system must have a constraint. Otherwise, its output would increase without bound, or go to zero." Most people readily accept this statement as self-evident fact. The primary message of The Goal is focus. Focus on the goal of the company. Focus on the constraint that blocks achieving the goal of the company. The Goal ends with five focusing steps, which apply to any physical system.

Steps are:

1. Identify the system constraint.
2. Exploit the system constraint.
3. Subordinate everything else to the system constraint.
4. Elevate the system constraint
5. If, in the previous step, a new constraint has been uncovered, repeat the process.

2.1 Student Syndrome

In this syndrome apply to a task at the last potential flash before a target. In this syndrome this student assignment deadline is one so the student thinks "one month is too much time" then the remaining of 15 days so the student thinks ohh its 15 days to the submitting it's a to much time so they have not completed then remaining the five or seven days they have start their assignment and they have don't completed or completed the last moment.

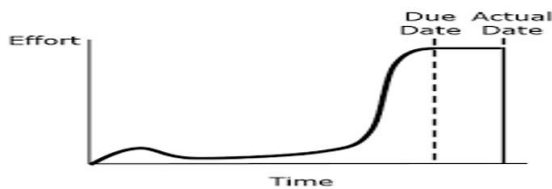


Fig 1: Student Syndrome

So the construction industry the student type behavior in footing time they have told ohm 18 month remaining and the last month reaming the work they have don't completed their work. In this finger we have to see the difference of the effort vs time the completed project is due date and actual date.

3 NETWORK SCHEDULING TECHNIQUES

1. Critical path method
2. Program evaluation and review technique
3. Gant or bar chart
4. Critical chain project management

3.1 Cpm history

project management, a crucial path was the classification of project network events that increase over a fairly lengthy period of time, shortest time to finished that project. There may be a 'total float' on the conclusive method. The network path with the longest total period was the complex route The critical method to effectively complete a project was a short period.

3.2 Ccpm history

Critical Chain Project Management (CCPM) can be a technique that comes with designing and managing which makes the project delivery time absolutely perfect. CCPM Elijah m. theory relies on strategies derived from cost

construction. It is a very new way of thinking, with stress on the aggressive timeline for actions, critical chain project management (CCPM), entered in 1997 with her book Critical Chain. Critical chain project management can be a designing technique for management. With critical chain project management, organizations are not ready to run dissolve, however, to run economically.

3.3 What is Critical Chain Project Management (CCPM)?

CCPM can be a method for designing, planning, and handling in a stand-alone and project environment that puts the greatest strain on the resources needed to execute. However, the importance of well-known techniques such as PERT / CPM cannot be completely underestimated. The framer of the "Theory of Constructions", introduces yet another landmark concept known as the "critical chain" and incorporates further analysis into the field to give CCPM proper recognition, and this is the main purpose of this paper. To make an effort. All of the higher options mentioned distinguish it (CCPM) from different ancient project management techniques. Important chain project management is the use of speculation of controls following expansion and even project management. At its heart is the development of that vital chain. The sequence of activities may be:

Very seldom changes the life time in the project
 Includes each precedes and resources decencies
 Define the length of project Time connected order
 The winning criteria however scales back prices and improves compliance with the specification. The most intangible parts of the CCPM Area Unit are listed below, in terms of implementation and continuous improvement, along with differences.

3.3 Problem of Statement

Project delays due to mismanagement of resources and quality of work.

3.4 Need study

Improvements coming with the system.
 Focus on large and significant activities
 Reduce the time required for additional resources. Reduce the overall length of the project.
 Reduce uncertainty in activities

3.5 Research Aim

Apply CCPM to a residential project for proper planning of resources and minimize the total duration of the project.

3.6 Objective of Study

Design Improving designing.

Reduce the overall length of the project by applying CP CCPM.

Target Efficient use of resources through critical chain activities

3.7 Scope of Study

First of all, we did an overall study of the construction project then we applied at the regional level

4. METHODOLOGY

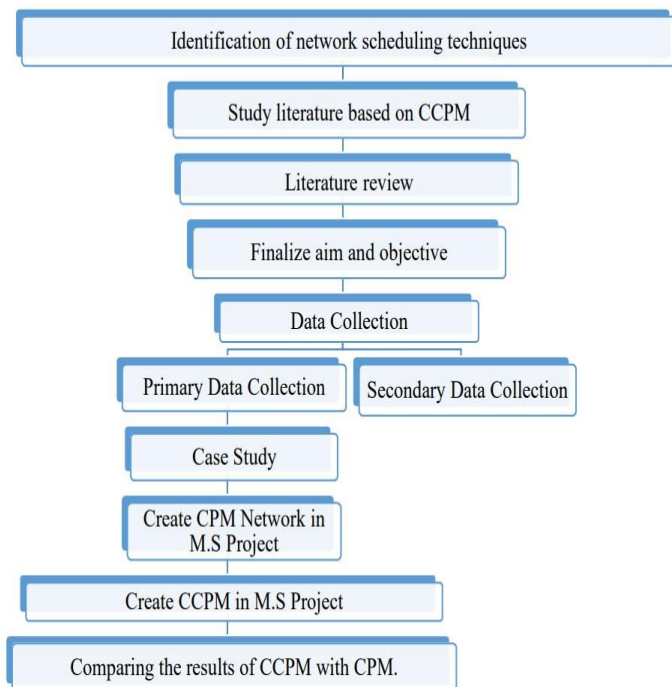


Fig 2: Methodology

5. RESULT

I am meet the CEO of M/S Patel Construction and we have to discuss about the project and their schedule they guide me and make the schedule of the class one building.

They have to apply this concept of the other building work. And we have to reduce the 12 day in the project. They have to guide me in the all activity and we have to find out the actual duration of the building. In this duration we show in the figure

1	Project 1	89 days	Mon 01-03-21
2	Site clearance	2 days	Mon 01-03-21
3	site clearince	1 day	Mon 01-03-21
4	Plot leveling	1 day	Tue 02-03-21
5	Plan draw at site	1 day	Tue 02-03-21
6	Excavation	14 days	Wed 03-03-21
7	Excavation	1 day	Wed 03-03-21
8	PCC	1 day	Thu 04-03-21
9	Curing	3 days	Fri 05-03-21
10	Footing centering	1 day	Sat 06-03-21
11	Step footing with brick work	3 days	Mon 08-03-21
12	Column bar cutting	1 day	Sun 07-03-21
13	Fix bar for rcc pad	1 day	Thu 11-03-21
14	Shuttering for rcc pad	1 day	Fri 12-03-21
15	concreting rcc pad	1 day	Sat 13-03-21
16	Deshuttering rcc pad	1 day	Sun 14-03-21
17	Curing	3 days	Sun 14-03-21
18	Plinth level	18 days	Sun 14-03-21
19	RCC	11 days	Sun 14-03-21
20	Column steel work up to P.L	12 days	Sun 14-03-21
21	column Shuttering	1 day	Tue 16-03-21
22	Concreting	1 day	Wed 17-03-21
23	Column Deshuttering	1 day	Thu 18-03-21
24	Curing	7 days	Thu 18-03-21
25	Filling sand	1 day	Sat 20-03-21
26	Brickwork up to P.L	3 days	Sun 21-03-21
27	Back filling up to P.L.	2 days	Wed 24-03-21
28	Plinth filling	1 day	Wed 24-03-21
29	Curing	1 day	Thu 25-03-21
30	Flooring work	8 days	Wed 24-03-21
31	Steel work	1 day	Wed 24-03-21
32	Floor concreting	1 day	Fri 26-03-21
33	curing	5 days	Sat 27-03-21
34	Ground Level	7 days	Mon 29-03-21
35	Brickwork up to sill level	3 days	Mon 29-03-21
36	Sill level	1 day	Thu 01-04-21
37	Brickwork up to lintel level	1 day	Fri 02-04-21
38	lintel level	9 days	Mon 05-04-21
39	Formwork	9 days	Mon 05-04-21
40	Steel work	1 day	Mon 05-04-21
41	Concreting	1 day	Tue 06-04-21
42	Deshuttering Lintel level	1 day	Sat 10-04-21
43	Curing	7 days	Wed 07-04-21
44	Brickwork up to slab	2 days	Fri 09-04-21
45	Column	11 days	Sun 11-04-21
46	Steel work	2 days	Sun 11-04-21

Fig 3: Actual duration on site

ID	Task Mode	Task Name	Duration	Start
47		Shuttering work	1 day	Tue 13-04-21
48		Concreting work	1 day	Wed 14-04-21
49		Curing	7 days	Thu 15-04-21
50		Deshuttering	1 day	Thu 15-04-21
51		Slab & Beam	21 days	Sun 11-04-21
52		Formwork	3 days	Sat 17-04-21
53		Steel cutting	1 day	Sun 11-04-21
54		Steel work	2 days	Tue 20-04-21
55		Electrical pipe work	1 day	Thu 22-04-21
56		Concreting	1 day	Fri 23-04-21
57		Deshuttering for slab	1 day	Sat 01-05-21
58		Curing	7 days	Sat 24-04-21
59		Prarapet wall	3 days	Sun 02-05-21
60		Internal electrical work	3 days	Sun 02-05-21
61		Internal Plumbing work	4 days	Sun 02-05-21
62		Door & Window Framing	2 days	Sat 01-05-21
63		Internal Plaster	3 days	Thu 06-05-21
64		External plaster	4 days	Wed 05-05-21
65		Tilework kitchen & bathroom	3 days	Sun 09-05-21
66		Tile flooring	3 days	Wed 12-05-21
67		Door & Window	4 days	Sat 15-05-21
68		Whitewash	3 days	Wed 19-05-21
69		Colouring	3 days	Sat 22-05-21
70		Electrical appliances	2 days	Tue 25-05-21
71		Plumbing appliances	2 days	Tue 25-05-21
72		Finishing work	2 days	Thu 27-05-21

Fig 4: Actual duration on site

6. CONCLUSIONS

We assume that each activity in Critical Chain Project Management has its own buffer, so we provide a complete project buffer at the end of the complex chain as a project buffer for proper resource planning to complete the project or to complete the desired time. The Critical Chain Project Management Network diagram is created from the Critical Path Method diagram by reducing the duration of all activities by 50% and provides 50% of the time of a single period. Feeding buffer and project buffer. The maximum duration route is known as the critical chain of the whole project. Reduces the duration of complex chain activities by 50% and 50% as project buffers. Reduces non-critical path duration by 50% and provides as 50% feeding buffer. We have created a complex path method network diagram in MS project according to data collection. The total number of activities is 70, non-critical activities 15 and complex activities 50. The duration of the complex chain as a total duration of the project is 101 days. C.P.P. Network Diagram CPM Constructed from a network diagram and reduces the total project duration days by 50% as 0% and as project buffer by 0%. Reduces non-critical path duration by 50% and 50% as feeding buffer. After implementing CCPM we can easily calculate the entire project buffer for the next critical path activity.

The CCPM has focused on critical chains to improve or alter resource planning. After applying CCPM we can easily find out about the limitations of the source. We can easily know how much buffer we have after 0% completion of the project. If the buffer used in any way becomes more than 50% of the buffer provided later, we will have to change the complex route or improve the planning of resources or add additional resources. If we use less than 50% buffer in the middle of the project, there is no need to change the complex chain. If we then focus on the success of serious road activities, we can easily complete the project on or before the planned date.

7. FUTURE SCOPE

In this topic very important to construction industry. This topic important to the boost all the delay project completed to their time. The ccpm important to the complete construction project before time and on time so this topic important to future. The main reason delay in construction industry is time so the ccpm important to the all delay project in future

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