

Asta Powerproject

MANAGING TARGET PROGRAMMES WITH ASTA POWERPROJECT

This paper builds on some of the ideas about critical chain and using buffer tasks which were addressed in my previous paper.

Asta Development provides a complete range of project management software solutions for managing all types and sizes of construction and engineering projects. **Asta Powerproject** comes with all the features to support critical chain project management without the need for add-ons or additional products.



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Contractors often have to manage a contract and target programme. Using buffer tasks we can attempt to manage both programmes as explained in the last paper.

Previously I stated that we can monitor progress by seeing how much of the buffer has been consumed. This is acceptable but does not tell us if we are consuming at an appropriate rate. By using a series of spreadsheet columns and formulae we can achieve this and better monitor project progress.

Good project management relies on forward planning, estimating durations based on scope, resource, equipment and material availability. Once a project starts, tasks are monitored in accordance with how they were planned and quality is monitored.

Often though, it is difficult to see the importance of timely completion of every task especially early in projects when the project completion date is far into the future. Also, committing contractors to a fixed schedule can be problematic. If other tasks are delayed this can be a double-edged sword as contractors who are delayed in starting on site or access to areas or scope are in a position to claim.

This method of buffer management takes the average of all tasks performed and allows variance whilst still providing a clear performance reference to use. It also allows a predictive date to be nominated based on current project performance.

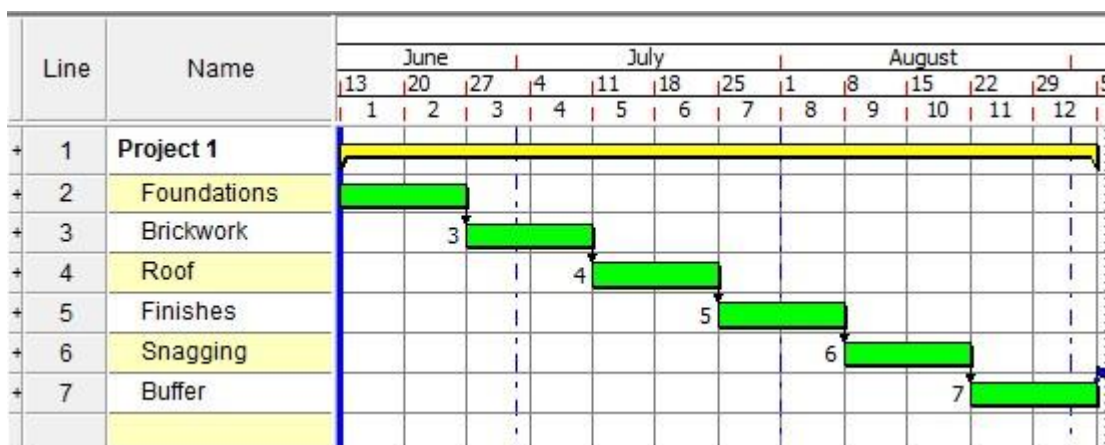
To estimate the proposed buffer consumption from the date the buffer is applied, divide the total project duration up to the start of the buffer into the duration of the original buffer. The answer from this equation is the amount of buffer that can be consumed on a daily basis. If 100% of the buffer consumption percentage is being consumed on a daily basis then, theoretically, the entire buffer will be consumed by the end of the project. If 100% or less is being consumed, then the project is likely to complete closer to the target date rather than the margin allowed.

The starting point is a fully linked schedule with a buffer task at the end of each project which contains our buffer i.e. the difference between the target and contract finish dates.

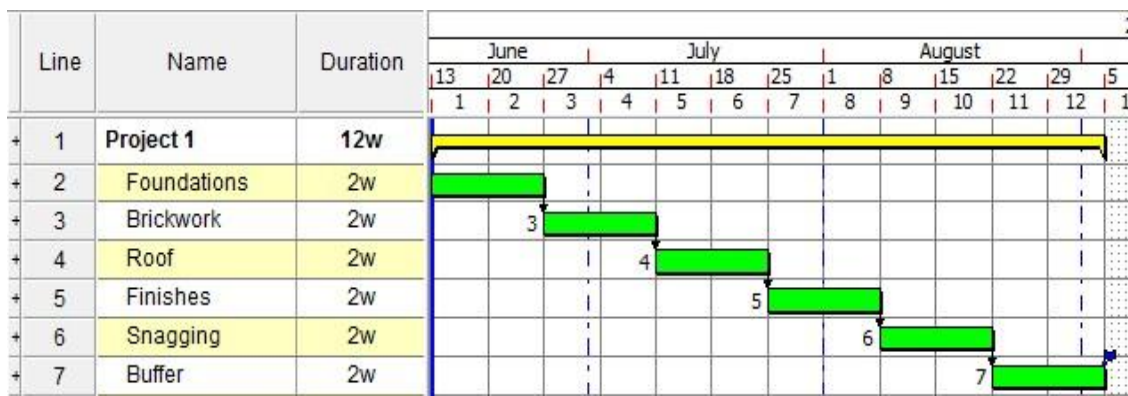
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This theory can be used in any project where margin or contingency have been applied and the additional duration is aggregated in the buffer task.



Fundamentally, we are going to monitor how much buffer we have consumed as opposed to what we planned. Let's assume that our project is 12 weeks long and this includes our 2 week buffer task.

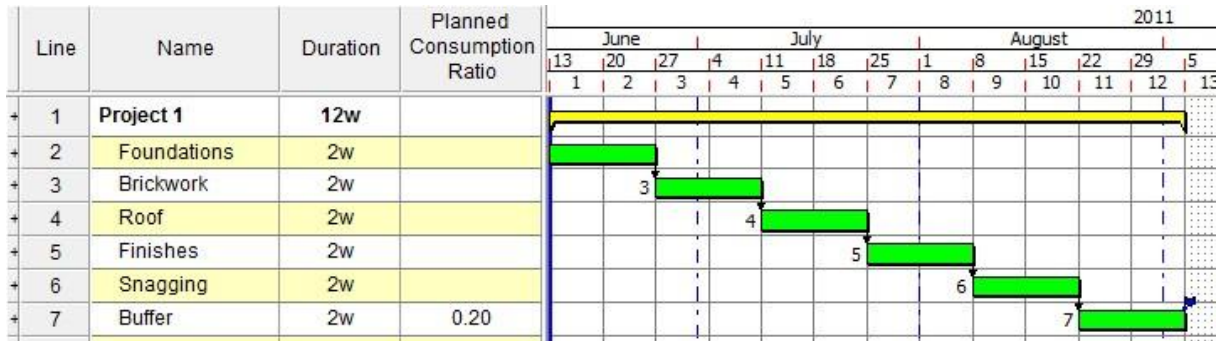


Therefore our target programme is in fact 10 weeks long (duration of project . duration of buffer). We can assume that to safely complete the contract programme in time, for every one day of the project we complete we can consume 0.2 days of the buffer (duration of buffer / duration of target programme i.e. 2/10).

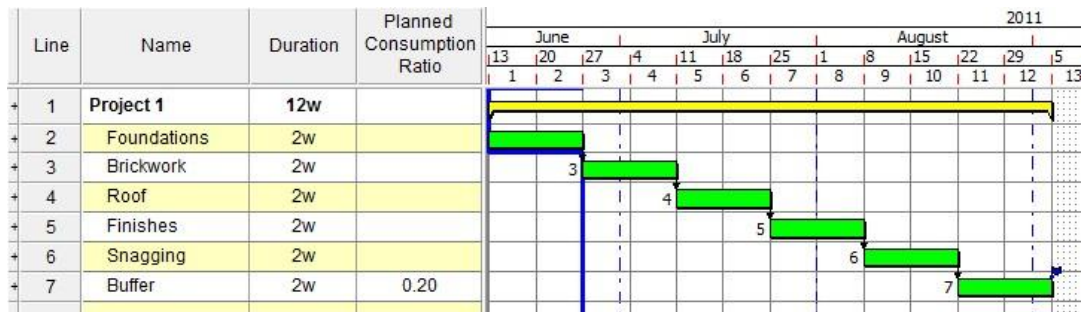
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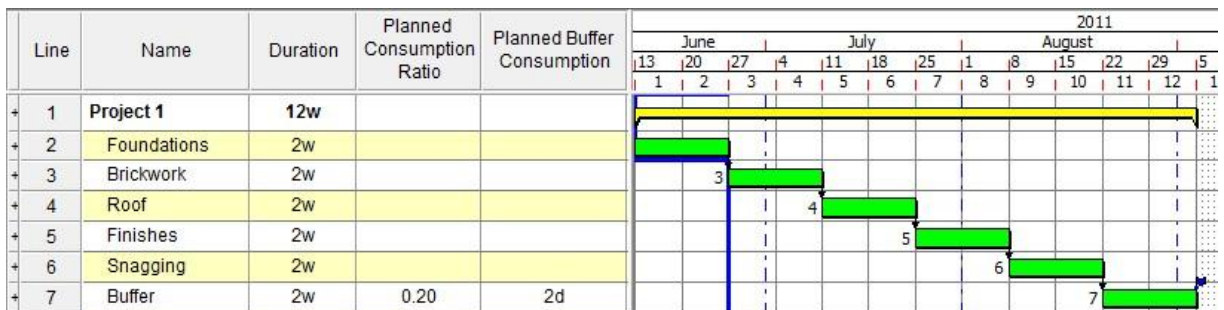
This can be displayed in a column using a formula.



As we progress the project it will be useful to know the duration of the buffer that should have been consumed at that point by applying the ratio we calculated above. Let's assume the report date has changed to 10 working days after the project started.



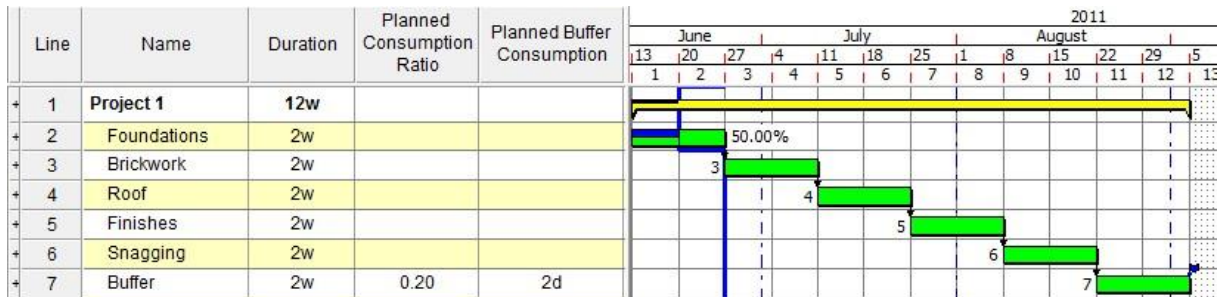
Using this information, we can display the duration of the buffer that should have been consumed at that date. We calculate this by multiplying the duration between the report date and the start of the project by the ratio calculated before. In this case, the duration is 10 days and our planned buffer ratio was 0.2. Therefore our planned buffer consumption duration is 2 days (10×0.2).



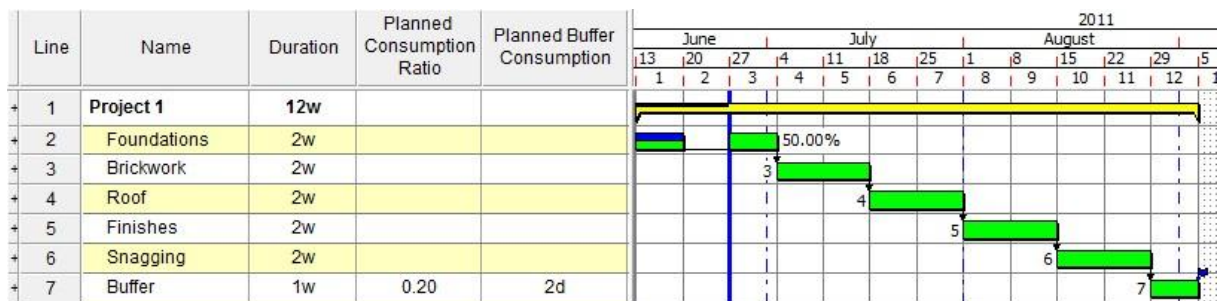
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Now we would add any progress to the tasks. We will assume Foundations is 50% complete.



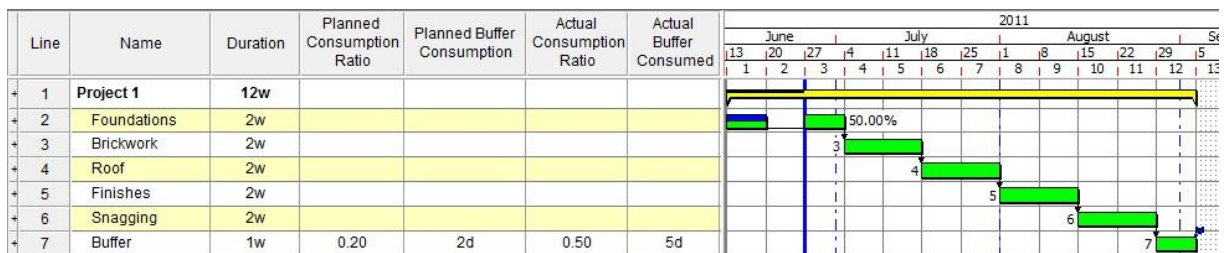
The next step is to reschedule the project and calculate the new project finish date. As we were behind programme some of the buffer has been consumed.



We can now calculate the actual buffer consumption ratio. This is done by working out how much of the buffer has been consumed and dividing this by the duration between the report date and the start of the project.

After rescheduling the project, 5 days of the buffer were consumed. The duration between the report date and the start of the project was 10 days. Our actual buffer consumption ratio is therefore 5/10 i.e. 0.5. This means for every day of project progress we have consumed 0.5 days of the buffer.

Remember that our planned ratio was 0.2? We can immediately see we have consumed too much buffer and that if we carry on at this rate we will be late.



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Using another formula we can see the % increase in buffer consumption ratio by dividing the actual consumption ratio by the planned consumption ratio. In this case it is 0.5/0.2 which as a percentage gives us a 250% increase over what we should have consumed.

Line	Name	Duration	Planned Consumption Ratio	Planned Buffer Consumption	Actual Consumption Ratio	Actual Buffer Consumed	Actual v Planned % Usage Ratio	2011												
								June	July	August	S									
1	Project 1	12w						13	20	27	4	11	18	25	1	8	15	22	29	
2	Foundations	2w						1	2	3	4	5	6	7	8	9	10	11	12	
3	Brickwork	2w																		
4	Roof	2w																		
5	Finishes	2w																		
6	Snagging	2w																		
7	Buffer	1w	0.20	2d	0.50	5d	250.00													

This can be displayed as a traffic light warning system if required. In this case I have said that if we are consuming below 50% of what we planned it will show green (i.e. we are performing well), if it's between 50% and 80% we display amber (i.e. we are still on track but getting to close to full consumption) and it will show red if the ratio is above 80%. These thresholds can be set to whatever you feel is relevant to your project and company.

In this case, as we are consuming at 250%, the column will show red.





Line	Name	Duration	Planned Consumption Ratio	Planned Buffer Consumption	Actual Consumption Ratio	Actual Buffer Consumed	Actual v Planned % Usage Ratio	Traffic Light	2011											
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If you are managing multiple projects or phases, it is possible to set up a report which shows the buffer usage on all of your projects.

Using this method, you can get early warnings and see trends on how you are performing against the target programme and see whether the contract programme finish date is in jeopardy.

Line	Project	Planned Consumption Ratio	Planned Buffer Consumption	Actual Consumption Ratio	Actual Buffer Consumed	Actual v Planned % Usage Ratio	Traffic Light
+ 1	Project 1	0.26	2d 4.57h	0.50	5d	194.44	
+ 2	Project 1	0.31	4d 2.76h	-0.29	-4d	-92.06	
+ 3	Project 1	0.35	3d 4h	0.20	2d	57.14	
+ 4	Project 1	0.10	1d	-0.40	-4d	-400.00	

Further to this, you can provide a predicted completion date based on the current buffer percentage consumption.

To do this, you take the % buffer consumption and apply it to the original buffer allowance. For example, if the original buffer allowed was 10% of the project duration and current buffer consumption is 50% then apply 5% to the remaining for a snapshot of when the project will complete based on current progress.

Whilst tasks vary in their complexity and future prediction using this method is not fool proof, the premise is based on an average performance of all tasks contributing to the project rather than specific tasks.

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Asta Powerproject Overview

Asta Powerproject is a project management software tool, which is widely used both in the UK and internationally to manage construction and engineering projects of all types and sizes.

Launched in 1988, Asta Powerproject is well-proven as an easy-to-use, powerful professional project management system. It is used to manage all aspects of construction and engineering projects such as producing tender plans, delivering against the contract programme, reporting progress to clients and management, controlling costs and resources, mitigating against the risk of delay and disruption, and producing robust schedules that reflect exactly what happens on site.

Asta Powerproject is used by both small and large organisations, including some of the world's largest construction and engineering companies. It is available as standalone software for individual users, networked software and as an enterprise system for managing complex projects where three or more planners need to work on the same project at the same time.

High profile projects where Asta Powerproject has been used include The London Eye; the Eden Project in the UK, the Space Shuttle, Schipol Airport in the Netherlands, Hong Kong Airport, Petronas Towers in Malaysia, Jumeirah Park, Dubai, Renewable Energy Projects in France, the Commonwealth Games Village in India and the Reichstag in Berlin. It is also used on everyday projects such as house building programmes, refurbishment, highways maintenance and commercial developments.

For further information on this topic or other information on using **Asta Powerproject**, please contact Asta Development on:

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Discover more at www.astadev.com

