

ANALYSIS OF TIME ACCELERATION OF THE XYZ BUILDING PROJECT

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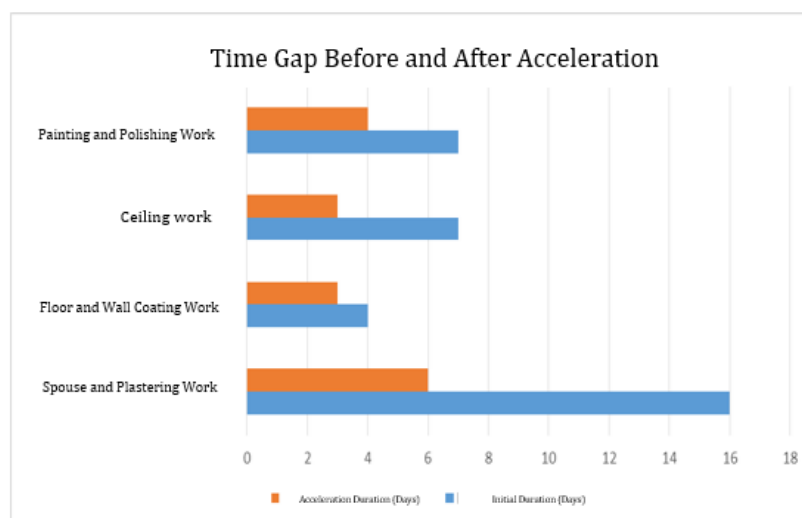
ABSTRACT

Contract time that has been decided in the beginning is the time for contractors to start and finish the project. But if the contractor should finish the project early from the contract, it should be accelerated. The consequence of accelerating will increase cost, caused by increased working time or manpower. The purpose of this research is to know the increasing cost amount after accelerating the project XYZ building. Quantitative descriptive is used in this study, with critical path & MS Project method. The result of this research is to count the additional cost after acceleration as 3 times more than begging. We can conclude that acceleration will increase more cost. We suggest the contractor ask for additional costs from the owner, so the project acceleration can be done in time.

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1. INTRODUCTION

The XYZ building project is a project implemented in a province in Indonesia. This building will later contain the main building and several rooms. In this study, PT A, as the project owner, has entrusted the construction of the building to PT K, where PT K is the contractor who will build this building. This study's gaps include the following: The construction of the XYZ building will be carried out on February 21 and is planned to be completed no later than November 17. However, due to the demand for this building to be used sooner than the specified date, this project must be completed in August. As a result, PT K, the contractor, must expedite work on this project. This acceleration will be used as a fact or phenomenon that must be faced here.



Source: PT K Project XYZ

The project that was originally scheduled to be completed in nine months but had to be changed to six months will definitely cause some problems. The main problem is cost. Of course, working on a project faster will incur additional costs where costs can be offset by additional manpower, enabling projects to be completed earlier than expected. Based on the above, the scope of this research is limited to the construction of one of the rooms and only on the work of floors, walls, and ceilings. The Microsoft Project application is also used in this study. This study aims to determine the project work schedule and the additional costs needed to accelerate the construction of the XYZ building.

2. METHOD

Research Type/Design

This study uses a quantitative descriptive method, which aims to use numbers to create an objective picture or description of a situation, starting with data collection, data interpretation, and appearance and results.

Data collection technique

The analytical tool used is Microsoft Project. Field research is a method used to collect data that involves obtaining information directly from companies, such as:

- 1) List of project work
- 2) Work schedule
- 3) Data on the number of workers in the initial plan.

Data Analysis Methods

The following steps were performed during the data analysis process:

- 1) Identify the work of floors, walls, and ceilings.
- 2) estimating additional workforce and arranging schedules using the Microsoft Project program.

3. RELUST AND DISCUSSION

Project General Data

The following is some general data about the XYZ Building Construction Project:

- Project Owner: PT B
- Construction Management: PT C
- Contractor : PT K
- Work start date: February 21st
- Early completion date: November 17th
- Expiration date after expedited: August 30th
- The scope of work to be analyzed will focus on one of the buildings.

Job Breakdown Structure

The list of project work below is a project activity sorted by type of work.

Table 2. Work breakdown structure of PT. K in the XYZ Building Development Project

No	Work	Sub Jobs
1	Pairing and Plastering Work	a) Light masonry b) Plastering c) damn
2	Floor and Wall Coating Work	a) Granite floor pair 60 x 60 cm

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No	Work	Sub Jobs
3	Ceiling work	a) 9 mm gypsum ceiling + metal furing frame b) List of wooden ceiling 60 x 60 mm
4	Painting and Polishing Work	a) ICI interior paint b) Weathershield exterior paint c) ICI ceiling paint d) ICI drop ceiling paint

Source: PT K Project XYZ

Manpower Requirements according to the Initial Plan

Below is the required workforce data prior to the acceleration.

Table 3. Manpower Requirements according to the Initial Plan

No	Work	Labor (people)
1	Masonry and plastering work	3
2	Floor and wall cladding work	2
3	Ceiling work	2
4	Painting and polishing work	2

Source: PT K Project XYZ

Activity Time Duration

Activity Time Duration according to the Initial Plan

Based on the details of the work above as well as data on the workforce in the project, below is the duration of activity time for each job.

Table 4. Activity Time Duration according to the Initial Plan

No	Work	Duration (days)
1	Masonry and plastering work	16
2	Floor and wall cladding work	4
3	Ceiling work	7
4	Painting and polishing work	7

Source: PT K Project XYZ

Duration of Activity Time after Acceleration

After acceleration, there will be a change in the duration of the activity from what has been determined. Here is the time duration.

Table 5. Activity Time Duration After Acceleration

No	Work	Duration (days)
1	Pairing and Plastering Work	11
2	Floor and Wall Coating Work	2

3	Ceiling work	3
4	Painting and Polishing Work	2

Source: PT K Project XYZ

Scheduling using Microsoft Project

Microsoft Project can be used to continue this research based on the data mentioned above.

Scheduling according to the Initial Plan

Enter the existing data into the Microsoft Project program, so that the following results are obtained.

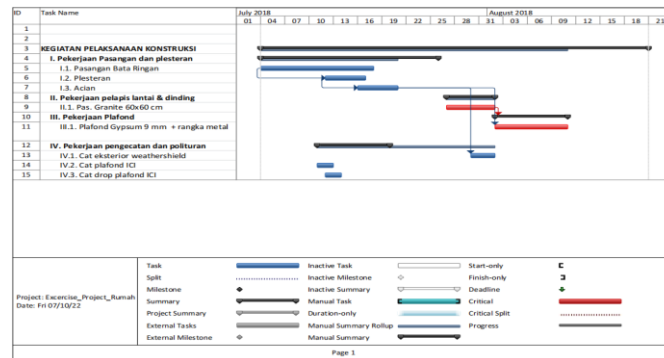


Figure 1. Critical Path Results by Entering the Initial Plan Time Duration

As shown above, the results of entering the duration of the initial plan produce a Gantt Chart. The work that has a critical path is the granite pair measuring 60 x 60 cm and the 9-mm gypsum ceiling with a metal frame.

Scheduling after Acceleration

With acceleration, there will be changes to the existing schedule. So the following results will be obtained.

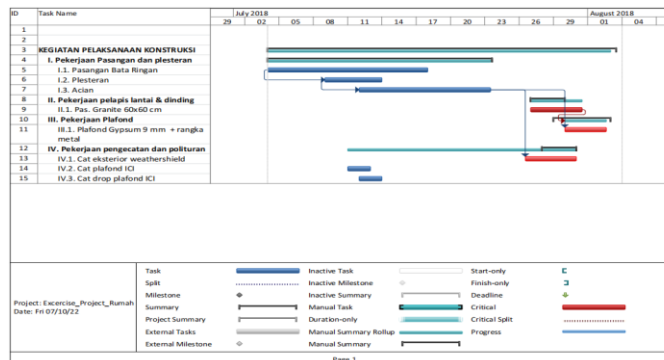
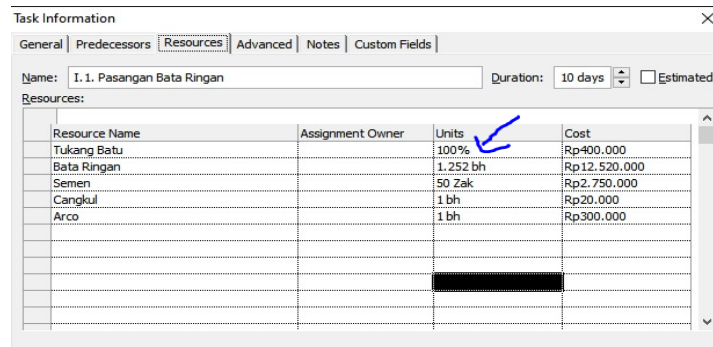


Figure 2. Critical Path results by entering the Acceleration Time Duration

The results obtained by entering the acceleration time duration produce a Gantt chart as above. Where apart from the 60 x 60 cm granite work and the 9 mm Gypsum ceiling work + metal frame, the paint job is also a critical path. From the results above, it was also found that the masonry and plastering work were things that could not last the duration of the work because they had an impact on further work, namely the ceiling work and paint work.

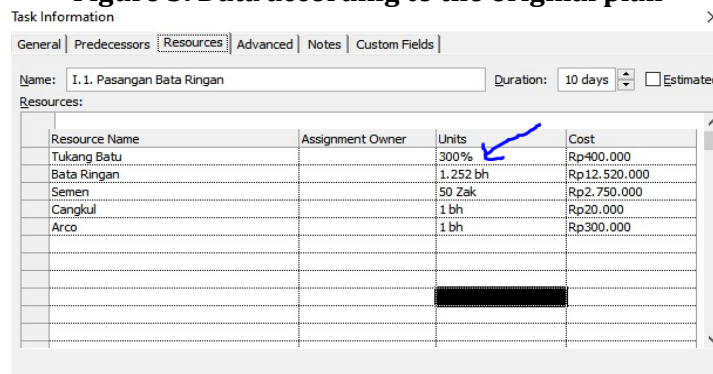
Manpower Requirement After Acceleration

By entering workforce data according to the initial plan into Microsoft Project, workforce data will be obtained after acceleration as follows:



Resource Name	Assignment Owner	Units	Cost
Tukang Batu		100%	Rp400.000
Bata Ringan		1.252 bh	Rp12.520.000
Semen		50 Zak	Rp2.750.000
Cangkul		1 bh	Rp20.000
Arco		1 bh	Rp300.000

Figure 3. Data according to the original plan



Resource Name	Assignment Owner	Units	Cost
Tukang Batu		300%	Rp400.000
Bata Ringan		1.252 bh	Rp12.520.000
Semen		50 Zak	Rp2.750.000
Cangkul		1 bh	Rp20.000
Arco		1 bh	Rp300.000

Figure 4. Results after Accelerated Duration

From the results above it can be seen that the number of workers needed must be three times more than the initial requirement. So it can be concluded, the total workforce after acceleration is as follows.

Table 6. Manpower Needs after Acceleration

No	Work	Labor (people)
1	Masonry and plastering work	9
2	Floor and wall cladding work	6
3	Ceiling work	6
4	Painting and polishing work	6

Source: Data processing, 2022

4. CONCLUSION

Acceleration of a project will result in additional costs. These costs can be generated from the addition of labor to the project. As one example, the XYZ building construction project This project is being accelerated due to the demand for the building to be used. thus resulting in the addition of three times more labor costs than the original plan. These costs will be borne by the contractor, then paid back by the project owner.

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