

Analysis Quality Control in Project Development Warehouse PT Santos Jaya Abadi Sidoarjo Using the Process Decision Program Chart Method

Yohanes Usman Nandyanto¹, Michella Beatrix², Masca Indra Triana³.

Email: yohanesnandyanto@gmail.com, michella@untag-sby.ac.id, mascatriana@untag-sby.ac.id

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Abstract: *The rapid development of the construction world today, competition in the construction world is also increasingly fierce so that assurance and control of quality are demanded higher. One form of realization in facing competition and meeting these demands is the preparation of quality control. The purpose of this study is to determine the implementation of quality control in warehouse construction projects and to determine the risk analysis of existing structural work so that quality control can be implemented better. This research begins with data collection through a questionnaire method distributed to construction project workers, with respondents being the project managers to workers. Furthermore, the collected questionnaire data was analyzed using BIM SPSS and the process decision program chart method. The results of the analysis show that the implementation of warehouse construction projects, especially in column and beam structure work, has a percentage of 76%, and in-floor plate work has a percentage of 72%. So that quality control is carried out effectively and level risk at a medium risk level.*

Keywords: *analysis risk; process decision program chart; quality control*

^{1,2,3} Civil Engineering, Undergraduate Program, Universitas 17 Agustus 1945 Surabaya

INTRODUCTION

Quality control is a systematic step needed to provide confidence that the work to be realized can meet the desired standards. In quality control, there are three stages, namely monitoring, checking, and testing in the construction project area. If quality control is carried out properly, it will avoid quality that exceeds the specifications stated in the contract to avoid unnecessary costs (Santosa et al., 2019). However, the news article in the KOMPAS Daily Newspaper on 02 November 2020 with the title of the article The Number of Human Resources in the World of Construction in Indonesia is Low, informing that the quality of construction in Indonesia is still very low.

Based on the facts above, quality control is required to achieve work results per the quality requirements set out in the technical specifications. Quality control is an activity that includes monitoring,

checking, and testing actions to control and ensure that the quality of materials, implementation methods, and project work results, follow predetermined technical specifications. However, the implementation of quality control often has several obstacles. This causes delays in the implementation of construction projects, which impacts the achievement of project performance

This happens because of two factors, namely internal factors and external factors in the construction project area. Internal factors are factors that cause quality control that come from within the construction project. while external factors are factors that come from outside the construction project. Internal factors or external factors can cause these obstacles or constraints. In the implementation of construction projects, quality control is needed so that the

implemented project can run well according to plan.

Process Decision Program Chart is one of the methods used to take each branch obtained by anticipating possible problems and analyzing countermeasures that can prevent the development of wider problems. In every quality control, there must be a risk for the work done. In conducting risk assessment, AS/NZS regulations are used. Risk assessment is an essential and decisive step in overall risk management. Risks that have been identified and known potential risks must be controlled appropriately, effectively, and following the capabilities and conditions of the company (Winda, 2012).

From the explanation above, the researcher is interested in examining the quality control carried out and the level of risk in structural work. The researcher intends to find quality control and factors that are carried out quality control in warehouse construction projects and the value of structural work of columns, beams, and floor plates by conducting field observations.

RESEARCH METHOD

This research generally consists of two stages, namely quality control research carried out and risk analysis data processing. Data is processed using survey and PDPC methods and SPSS, namely distributing questionnaires to respondents.

The research conducted by the researcher was a study to identify the quality control analysis and risk analysis of the structural work of columns, beams, and floor plates, the research was conducted through a survey, namely distributing questionnaires to workers in the construction area

This research was conducted on the implementation of warehouse construction projects. The object of this research is the project workers, namely the Project Manager, Site Engineer, Site Manager, Consultant and Executor, safety supervisor, and management of warehouse

construction project implementation. The data from this study were obtained by distributing questionnaires and conducting data processing

The data processing stage is processing 15 questionnaire data from the results of the respondents' answers that have been collected, the questionnaire data consists of an assessment of the possibility and impact assessment on the structural work carried out. In addition to the questionnaire, the researcher made observations related to quality control carried out based on existing factors

The first stage is the quality control that is carried out. The factors that become quality control are materials, machines, people, environment, method, and finance. this stage uses the processing with a process decision program chart to find causes and solutions that can be obtained

The second stage is risk analysis. Risk analysis is the analysis in structural work to determine the magnitude of a risk that is reflected in the possibility and impact caused. the variable elements used are reinforcing formwork and casting.

RESULTS AND DISCUSSION

The results of research on quality control and risk analysis in structural work are as follows

The achievements that have been made in quality control in the PT Santos Jaya Abadi warehouse construction project can be seen as follows:

1. Briefings before carrying out construction activities



Fig. 1. Briefing of Workers

This activity aims to encourage and motivate workers to carry out activities in

construction projects quickly, efficiently, and safely. The picture shows the coordination between the contractor and the workers before carrying out activities on the construction project. The workers are responsible for the work to be done while the contractor is responsible for ensuring the workers have a single understanding of what the contractor is saying.

2. Conduct Column Vibrator



Fig. 2. Column Vibrator

This tool serves to compact the concrete mixture that is inserted into the formwork. The goal is that the wind or air that is still in the dough can come out so that it does not cause cavities or holes.

3. Conduct Concrete Quality Control



Fig. 3. Hammer Test

The Hammer test is a test conducted to determine the compressive strength value of installed concrete based on the hardness of the concrete surface. This test needs to be done to get the quality of concrete in accordance with the plan.

The risk assessment came from a questionnaire that had been distributed to workers on the construction project. The structural works carried out were concreting, fixings, and casting. The risk level is derived from the likelihood assessment multiplied by the likelihood of impact. The risk level obtained will be used for the risk category for each job. Table 1. Recapitulation of Risk Levels Work

No	Item Structure Work	Level Risk
1	Reinforcing Column	6,91
2	Formwork Column	6,82
3	Casting Column	8,54
4	Reinforcing Beam	7,13
5	Formwork Beam	7,72
6	Casting Beam	7,62
7	Reinforcing Floor Plate	5,93
8	Formwork Floor Plate	4,88
9	Casting Floor Plate	8,49

In determining the risk analysis. the highest assessment is the column casting work with a risk level of 8.54 and is a moderate risk category. then for the floor plate fixing has the lowest risk level of 4.88 with a low risk category.

Table 2. Value of Quality Control Successes

No	Indicator	Value	Caption
1	Reinforcing Work	79%	Effective
	Fixing Work	69%	Effective
	Casting Work	79%	Effective
2	Reinforcing Work	80%	Effective
	Fixing Work	76%	Effective
	Casting Work	72%	Effective
3	Reinforcing Work	67%	Effective
	Fixing Work	63%	Effective
	Casting Work	85%	Very Effective
Average		74%	Effective

In determining whether the quality control carried out is successful or not based on the impact assessment. The floor plate casting work has the best percentage with a value of 85%, while the floor plate

decking work has the lowest percentage of 63%.

CONCLUSION

Based on the assessment that has been carried out on the structural work of beams, columns, and floor plate, beam work and column work have the average of reinforcing, formwork, and casting each structure work. Column work and beam work have a percentage of 76% in the effective category because it is in the value range of 61% - 80%. The floor plate work has a percentage of 72% in the effective category because it is in the value range of 61% - 80%.

SUGGESTIONS

Use quality control research conducted from the beginning to the end. the data obtained was processed using the software BIM dRofus for efficient project construction validation.

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