

Factors Cause of Kingpost Structure in the Work of Column Basement Science (Case Study of Indonesia Project 1)

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Abstract:- In the current construction services business activities, service users are increasingly innovative with the use of construction methods. This they do in addition to reduce production costs (project implementation costs), is also done to speed up construction time. One method of construction implementation used is the topdown method. Topdown method is a method that has not been widely used in Indonesia. In the Indonesian Project 1, the system of basement work performed using topdown method. The topdown method uses the kingpost structure as the main structure of temporary column replacement. The kingpost structure has a function to hold the floor load above it in order to continue the work of the floor structure underneath. In the implementation of contractors encountered many problems, one of which is the tilt of kingpost structure that impact on design changes, design changes in this case is the magnification of the dimensions of the basement column structure. The purpose of this research is to find the variables that cause the slope of kingpost structure in the project with the implementation system using the topdown method, determine the most dominant variable that affect the slope of kingpost structure in Indonesian Project 1 – Jakarta Pusat.

The research method used in this research is a quantitative descriptive approach with questionnaires distributed to respondents in this case is a competent source and directly related to the topic being discussed.

From result of research got 12 factor which become cause of slope of kingpost structure. After analyzing using SPSS vs.20 software, there are 4 most dominant factors such as: Skill from unpopular workforce, work tool reading error, weather condition condition, and coordination among deviations that do not work well.

I. INTRODUCING

The slope of the kingpost structure raises the problem of basement column structure work. This is certainly not expected by the contractor and owner. There are many factors affecting the slope of the kingpost structure. Among them are the factors of its human resources, tools or machinery, as well as the implementation and supervision at the time of execution of the worker installation of the kingpost structure. According to Park (1979) cited in the Journal of Civil Engineering by Idzurnida Ismail and Junaidi (2014), the failure of contractors in the implementation of construction projects in this case the kingpost structure often occurs due to factors incompetenci, lack of managerial experience, unbalanced experience, lack experience in the

line, fraud disaster.

This research is aimed to discuss the factors causing the rise of the slope of the kingpost structure which resulted in the design change of the structure of the basement column of the Indonesian project 1. With the hope of the results of this study can be used as reference material for the same work in the future. The consideration in this research is due to the extent of slope on the kingpost structure and the design change of basement column structure.

II. RESEARCH METHODS

The research method is the flow of thought taken in determining the method analysis of this research. A process for solving problems based on facts obtained from the field. In this research problem its application is using quantitative research method.

Quantitative research is factual research, free of prejudice using principles of analysis, using hypotheses, using objective measures and using quantitative data quantized. Quantitative data data is expressed in the form of numbers let nominal data ie data classification or categorization that shows a certain level or description.

III. RESULTS AND ANALYSIS

The research data was collected in three stages through the distribution of questionnaires whose variables have been determined. The first stage is the validation of expert research in the field of construction. Having obtained the variables that have been approved by the expert, the second stage of data collection is the distribution of questionnaires to the construction executor to obtain the impact of the variable. Data obtained in phase two were analyzed using statistical calculations and program assistance like SPSS V. 20 so as to get the biggest factor ranking cause the slope of kingpost structure. The third stage of data collection is the final validation of the variables obtained from the analysis to the expert to get input / comments on the impact of these variables on the slope of the kingpost structure. More details are explained in the following sections.

A. First Stage Data Collection

Spreading of the first stage questionnaire is a step to validate the variables contained in the questionnaire by experts in the field of construction who have extensive experience and knowledge. Experts provide comments agree or disagree and response to research variables. The output obtained from the validation of the expert in the form of changes in writing sentences, adding variables and the

reduction of variables that are considered irrelevant to the purpose of the study.

B. Second Stage Data Collection

The second stage of data collection is the dissemination of questionnaires to the respondents who are competent and experienced at least 3 years in the field of construction. Questionnaire distributed as many as 30 pieces.

C. Test Instrument Research

The research instrument test is conducted to test whether the result of the questionnaire that has been collected is valid and correct data. The instrument test in this study using SPSS Version 20, validity test, reliability test, multiple linear regression analysis, f test and t test.

IV. CONCLUSION

From the result of the research, there are 12 factors causing the slope of the kingpost structure on the work of the structure of the project basement column of Indonesia 1:

1. Limitations of the number of skilled laborers in the execution of the installation work of the kingpost structure. In this case due to lack of preparation to plan how many experts are needed.
2. Skills / skills (skill) of the workforce that has not qualified. Due to the absence of training on the workforce.
3. Lack of experience from human resources / staff in the implementation of the work of installing kingpost. Due to the lack of training of staff owned.
4. Limitations of the number of experts in the direction and supervision during the installation of kingpost. In this case due to lack of preparation to plan how many experts are needed.
5. Skill operator of heavy equipment that is not qualified. Still found only one operator and if the operator can not work due to illness or something else, there is only a deputy operator that can replace and the skill is still lacking, and it inhibits the installation work of the kingpost structure.
6. The work tools used by the surveyor team have not been calibrated or damaged. Found in the field when the job equipment work that should be re-calibrated but still used.
7. Limitations on the number of work aids (*auto level* dan *total station*) during the execution of the installation work of the kingpost structure. When performing the installation work of the kingpost structure of a working aid there is only one pair, there should be one more as a backup if the work tool has a problem or needs to be re-calibrated.
8. There was a reading error when using the work tool (*auto level* dan *total station*) on the installation of the kingpost structure. In this case completely the negligence and responsibility of the surveyor team, this should not happen.
9. The existence of disturbances of weather conditions, natural disturbances that hamper work activities. At the time of execution of the installation of kingpost

structure is often the rain that interfere with the implementation process.

10. Work instructions or work directions that are not delivered properly. Lack of training to the construction team how to instruct or deliver work.
11. Lack of understanding of work methods and procedures that are not executed correctly. The lack of socialization conducted by the team engineer to the construction team made the supervisor wrong in the installation procedure of the kingpost structure.
12. Coordination between divisions that did not go well during the execution of the job of installing the kingpost structure. Coordination meetings are not carried out routinely.

From 12 factors causing the slope of kingpost structure obtained four dominant factors causing the slope of kingpost structure of Indonesia's construction project 1.

- Skill of the workforce that has not been qualified. Due to the absence of training on the workforce.
- There was an error reading while using the work tool (*auto level* dan *total station*) on the installation of the kingpost structure. In this case fully the responsibility of the surveyor team.
- The presence of weather conditions, natural disturbances that hamper work activities. At the time of execution of the installation of kingpost structure is often the rain that interfere with the implementation process.
- Coordination between divisions that did not go well during the execution of the work of the kingpost structure. Coordination meetings are not carried out routinely.

REFERENCES

- [1]. Bintang Nopirin, Bagaskara Mahayekti, Wibowo Agung, Hidayat Arif. (2015). "Kajian Pemilihan Pekerjaan Basement Pada Bangunan Bertingkat Tinggi Menggunakan Metode Top Down Sebagai Inovasi Metode Pelaksanaan (Studi Kasus: Proyek Sudirman Suites Hotel dan Apartment Jakarta)", Jurnal Teknik Sipil, Universitas Diponegoro.
- [2]. Budi Santoso, S. M. (2016). Metodologi Penelitian, "Metode Penelitian", Modul Perkuliahan, Universitas Mercu Buana.
- [3]. Choiriyah Siti. (2015). "Analisis Pekerjaan Basement (Pekerjaan Galian dan Diafragma Wall) Dengan Alat Berat Ditinjau Dari Aspek Teknis", Jurnal Teknik Sipil, Universitas 17 Agustus 1945 Surabaya.
- [4]. Dipohusodo Istimawan. (1994). "Definisi Struktur Kolom", Departemen Pekerjaan Umum RI, Jakarta.
- [5]. Hidayat Arifal. (2013). "Analisis Kinerja Tim Proyek Terhadap Keberhasilan Proyek". Jurnal Teknik Sipil, Universitas Pasir Pangaraian.
- [6]. Idzurnaidi Ismail, Junaidi. (2014). "Identifikasi Faktor-Faktor Yang Mempengaruhi Keterlambatan Pelaksanaan Pekerjaan Pada Proyek Pembangunan Gedung Di Kota Bukittinggi", Jurnal Teknik Sipil, Fakultas Teknik Sipil dan Perencanaan Intitute

Teknologi Padang.

- [7]. Mirnayani, ST, M. (2015). Manajemen Konstruksi. Modul Perkuliahan, Manajemen Konstruksi, Modul 1, Universitas Mercu Buana.
- [8]. Mistra. (2012). “Struktur dan Konstruksi Bangunan Tinggi Sistem Top and Down”. Edisi 1, Griya Kreasi, Jakarta.
- [9]. Prasetyo Bambang, Jannah Lina. (2005). “Metode Penelitian Kuantitatif”, Edisi 1, PT. Raja Grafindo Persada, Jakarta.
- [10]. Project Mnagement Institute. (2016). “Construction Extension to the PMBOK Guide”, Global Standard, Campus Boulevard.
- [11]. Sunyoto Danang. (2012). “Analisis Validitas dan Asumsi Klasik”, Edisi 1, Gava Medika, Yogyakarta.
- [12]. Tanubrata Maksum. (2015). “Pelaksanaan Konstruksi Dengan Sistem Top–Down”, Jurnal Teknik Sipil, Universitas Kristen Maranatha.