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**Research Paper**

# Risk Dominant for Lump Sum and Milestone Project, Case Study of Arumaya Office Project, Jakarta

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***ABSTRACT:*** *Facing this era of globalization, the development of physical facilities in Indonesia is increasingly rapid along with the progress of modernization by the government with the aim of welcoming the global era. The importance of the construction industry in advancing the economy, construction companies need to identify the main factors in carrying out construction projects by prioritizing efficiency and effectiveness. There are several alternative contract characteristics for high-rise building projects, the lump sum contract nature is the most widely used contract nature. The nature of this contract is very beneficial for users of construction services because it provides a definite figure for the cost of the development project, making it easier to prepare a budget for posting capital expenditure. A lump sum contract, also known as a fixed price contract, is a type of contract used in construction or service projects where the overall total price is predetermined and agreed upon by both parties. Milestone is a term commonly used in project management to make it easier to estimate the completion time of work. With milestones, workers can complete work according to the specified duration or time. Milestone is a term commonly used in project management to make it easier to estimate the completion time of work. With milestones, workers can complete work according to the specified duration or time.*

***KEYWORDS:*** *Milestone, Lump Sum, Risk Management, Contract, Construction*

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## I. INTRODUCTION

Facing this era of globalization, the development of physical facilities in Indonesia is increasingly rapid along with the progress of modernization by the government with the aim of welcoming the global era. According to Yurazak et al., (2022), the importance of the construction industry in advancing the economy, construction companies need to identify the main factors in carrying out construction projects by prioritizing efficiency and effectiveness.

There are several alternative contract characteristics for high-rise building projects, the lump sum contract nature is the most widely used contract nature. The nature of this contract is very beneficial for users of construction services because it provides a definite figure for the cost of the development project, making it easier to prepare a budget for posting capital expenditure. According to Muhammad Hidayat (2023).

A lump sum contract, also known as a fixed price contract, is a type of contract used in construction or service projects where the overall total price is predetermined and agreed upon by both parties. Milestone is a term commonly used in project management to make it easier to estimate the completion time of work. With milestones, workers can complete work according to the specified duration or time. Apart from that, milestones are also useful for including work time schedules which are usually included in contract documents. In other words, a milestone can be used to symbolize anything that has been started or completed.

This research is interesting to use as a case study because the contract value is large and the building being built is a typical building in a metropolitan city, namely a high-rise building with 4 basements..

## II. LITERATURE REVIEW

Risk management is carried out to reduce, avoid, accommodate a risk through a number of sequential activities, namely risk identification, risk analysis, risk control. Risk Identification is the process of identifying

individual project risks as well as the sources of overall project risk, and documenting their characteristics. The main benefit of this process is the documentation of each existing project risk and the sources of overall project risk. Risk analysis is a process of identification and assessment. According to Godfrey, risk analysis carried out systematically can help to identify, assess and rank risks clearly, focus attention on main risks, clarify limits regarding losses, minimize potential damage if the worst circumstances arise, control uncertainty in the project, clarify and emphasize the role of each person/agency involved in risk management. Risk Responses is the process of developing options, selecting strategies, and agreeing on actions to address overall project risk exposure, as well as address individual project risks. The main benefit of this process is identifying appropriate ways to address overall project risks and individual project risks. This process also allocates resources and incorporates activities into project documents and project management plans as needed. This process is carried out throughout the project.

Risks can be categorized based on the level of risk impact that occurs. The main risk category (major risks), has a large and widespread impact, which requires management, while the minor risk category (minor risks), does not require special treatment because the risk level is within acceptable limits.

## III. RESEARCH METHODOLOGY

Respondents were selected based on a purposive sampling method, namely those involved in implementing building construction projects. Respondents can provide opinions openly regarding mitigation actions that need to be taken to deal with and reduce the risks that occur. The data sources or respondents are construction experts, consultants, owners.

Analytical Hierarchy Process (AHP) is a general theory of measurement. It is used to find ratio scales for both discrete and continuous pair comparisons. This comparison can be taken from actual measurements or from a basic scale that reflects the strength of feelings and relative preferences.

Scale of probability frequency as follows : (1) Very Rare, chance of occurrence is very small, 0-1 occurrence during project construction, probability up to 10%; (2) Rare, chance of occurrence is quite moderate, 2-3 times during project construction, probability 11%-30%; (3) Occasional, chances of occurring are moderate, 4-5 occurrences during project construction, probability 31%-45% ; (4) Frequent, opportunities occur quite frequently, 6-7 times during project construction, probability 46%-50%; (5) Very Often, opportunities occur more than 8 times during project construction, probability more than 50%.

Scale of consequence was defined as follow : (1) Very Small, does not really affect the cost and time of the project; (2) Small, less influence on project costs and time; (3) Moderate, moderately affects project costs and time; (4) Big, have a big influence on project costs and time; (5) Very Big, very large impact on project costs and time.

## IV. DATA ANALYSIS

Risk Response and Risk Mitigation from Respondents, for the 2 biggest risk:

1. Variable : X18. Incomplete design data causes assumptions at the time of tender to be inaccurate, causing additional costs.
    a. Case : Homogeneous tile work on sherwall walls mentioned at specification wet method of installation, but the owner asked for a dry method of installation.
        (1) Avoid : The contractor shall write a letter advising him not to accept the job.
        (2) Accept : The contractor shall ask Site Instruction for additional work regarding the dry installation method.
        (3) Transfer : The contractor shall hand over the scope or area of work to Direct Contractor.
        (4) Mitigate : The contractor shall divide the work area with DC.
    b. Case : At the tender drawing, the slopping design does not state how many percentage, but at the construction stage, the owner asked for 1% to be done, causing the level adjustment to be too wide adjusting.
        (1) Avoid : The contractor shall write a letter advising him not to accept the job.
        (2) Accept : The contractor shall continue to work.
        (3) Transfer : Not applicable.
        (4) Mitigate : The contractor shall use local soil materials for level adjustments.
    c. Case : Bored pile work for basement walls (by Direct Contractor), the elevation designation in the design is inaccurate so that the top pile level is below than it should be
        (1) Avoid : The contractor shall write a letter advising him not to accept the job, so that the risk becomes the scope of the Owner

(2) Accept : The contractor shall continue to work by recording additional implementation time and its impact on the master schedule .
(3) Transfer : Submit a request for an additional time and costs.
(4) Mitigate : Work that is not related to the foundation is carried out first to get a start and not go back too far.

2. Variable : X22. Errors in estimating the implementation stages and implementation time at the time of tendering cause additional implementation time and additional general field costs (site expenses).
   a. Case : The capping beam work sequence, at the time of the tender, was planned to start from zone A first, but field conditions required implementation from side B first, so the completion of the work was delayed.
      (1) Avoid : Making work sequence plans must be more thorough and involve internal company experts
      (2) Accept : Carry out the work sequence according to field conditions, while continuing to accelerate the Capping Beam work..
      (3) Transfer : Proposing that the Owner bear the risk of field conditions that were not previously visible.
      (4) Mitigate : Accelerate with additional manpower and pull work that is behind to the front, to increase the billing progress percentage.
   b. Case : Several small areas of excavation left behind cause obstacles in the basement wall implementation stage.
      (1) Avoid : Complete work in each zone so that no work is left behind
      (2) Accept : Accelerate work in these areas with separate teams.
      (3) Transfer : Proposing that the Owner bear the risk of field conditions that were not previously visible.
      (4) Mitigate : Send the mini excavator in the area.

## V. CONCLUSION

The most big the risk are :
1. Variable : X18. Incomplete design data causes assumptions at the time of tender to be inaccurate, causing additional costs
2. Variable : X22. Errors in estimating the implementation stages and implementation time at the time of tendering cause additional implementation time and additional general field costs (site expenses).

## REFERENCES

[1] Soeharto I, Project Management: from Conceptual to Operational. Jakarta: Erlangga. 1999
[2] Vaughan, E. J, Fundamentals of Risk and Insurance. Second Edition. New York. John Willey & sons, Inc., 1978
[3] Darmawi, H, Risk Management. Tenth Printing. Jakarta: Bumi Aksara, 2006
[4] Godfrey, P.S., Sir William Halcrow and Partners Ltd., Control of Risk A Guide to Systematic Management Of Risk from Construction. Westminster London: Construction Industry Research and Information Association (CIRIA), 1996
[5] Dwi Dinariana, Enma Mediawati, Hary Agus Raharjo, Risk Management of Multi-Storey Building Projects at PT XYZ in Jakarta on Time Performance, 2018
[6] Dwi Dinariana, Sanny Stephanie, Project Planning and Controlling Rusunawa Building, University of Indonesia with Ms Project, 2016
[7] Dwi Dinariana, Yoga Dwi Wuryanto, Rescheduling Construction Projects Using Scheduling Software Case Study of Phase 1 Cadet Squadron Office Heavy Renovation Project at Yogyakarta Air Force Academy
[8] Dwi Dinariana, Fitri Suryani, Ryan Nurachman, Project Planning And Controlling The Construction Project Of A Hospital Hemodialysis Unit Located In Tangerang Using The Crashing Method.
[9] Dwi Dinariana, Fitri Suryani, Adria Febrian, Risk Management Of Road Segment Long Preservation On Time Performance
[10] Fitri Suryani, Agus Herliandre, Application of Lean Construction in Building Construction in Bintaro, 2018
[11] Fitri Suryani, Dwi Dinariana, The Risk Management Of The Bogor – Sukabumi Cross – Rail Dual – Track Construction Project On Time Control. 2022Fitri Suryani, Arman Jayadi, Reynaldo Pratama, Implementation Of Construction Phase Risk Management On Fire Station Project In Seribu Islands Regency, 2023
[12] Arman Jayadi, Edwin Moerdianto, Risk Management Of Time Control On The Construction Of Saumlaki Port, 2022