

# Stakeholder Identification In Internal Control Of Building Construction Using Design And Build Contract To Improve Efficiency And Effectiveness

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## Abstract.

*The amount of infrastructure development in Jakarta makes internal control of the implementation of design and build contracts for the construction of state buildings need attention. The problem in internal control is there are still some recurring findings and supervisory findings that are not detected by Government Internal Supervisory Apparatus (APIP) but found by external auditors, as well as delays in completing assignments. The problems include a limited number of technical auditors, uneven knowledge, and experience of construction supervision, overlapping assignments, and a report process that takes time. These problems can have an impact on the implementation of internal control, that is lack of achievement of internal control objectives and the potential for non-compliance with the construction process with laws and regulations, thus showing that internal control of construction is not running effectively and efficiently. To improve efficient and effective internal supervision of construction, it is necessary to standardize operational procedures (SOP) or work procedures for internal control of construction, especially for design and build contracts. This research aims to identify stakeholders and the roles and responsibilities of each party in internal control of building construction using design and build contract to improve efficiency and effectiveness. The results reveal a set of internal and external stakeholders as well as the form of organizational structure and the relationship of coordination and responsibility lines. The results of this research also emphasize the roles and responsibilities of each stakeholder so that each party fully understands the obligation to carry out internal supervision assignments for design and build construction.*

**Keywords:** Design and Build, Internal Control, Project Management and Stakeholder.

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## I. INTRODUCTION

Jakarta as the capital city of Indonesia is placed in a more special position in terms of development compared to other cities. Based on data from the Central Statistics Agency (BPS), the Jakarta Provincial Government is the Regional Government that has the largest Regional Budget (APBD) compared to other provinces in Indonesia, which is IDR 60-80 trillion in 2019-2023. Jakarta Provincial Government has carried out various infrastructure developments to encourage economic growth or increase public facilities that can be used by the people of Jakarta, including improving health facilities, education facilities, road, bridge, and sidewalk facilities, water resources facilities, housing facilities, waste processing facilities, green open space facilities, sports facilities, and others throughout 2019 to 2022. In the context of accelerated construction development, the process of procuring goods / services is encouraged to be carried out through an integrated Design and Build (DB) method. According to the Regulation of the Minister of Public Works and Public Housing No. 25 of 2020, design and build is all work related to the construction of a building, where the provider has a single responsibility for design and construction execution.

The procurement stages required by users are much shorter and can be carried out simultaneously. The benefits of DB method can reduce bureaucratic and communication channels between planners and executors and can realize time and cost savings. This creates added value for users to plan the procurement of goods and services economically, effectively, and efficiently [5]. The criteria for design and build work include: 1) Complex work; or 2) Urgent work. Complex work if it meets the criteria: a) High risk; b) Requires high technology; c) Using specially designed equipment; d) Have difficulty being technically defined in terms of how to meet procurement needs and objectives; and/or e) High unforeseen condition. Urgent work if it meets the criteria: a) Economically and/or socially provide; b) More benefit value to the community; c) Immediately utilized; and d) Design and construction work are not have enough time to be carried out separately. Determination of DB work based on the above criteria is determined by the Minister or the Governor or Regent/Mayor depending on the funds. Some of the state building and infrastructure development works in Jakarta Province that use the design and build contract method include:

**Table 1.** Construction with Design and Build Contract in Jakarta 2019-2023

No	Project	Year	Budget (IDR)
1	Construction / Revitalization of 11 High-Rise Flats Sites	2019-2022	2,49 trillion
2	Rehabilitation of school buildings	2019-2023	2,85 trillion
3	Construction of flyovers and underpasses	2019-2021	862,99 billion
4	Construction of landfill mining and RDF plant waste processing facilities	2021-2022	884,17 billion
5	Construction of Jakarta International Stadium (JIS)	2019-2022	4,09 trillion
6	Revitalization of education, arts and culture center, Taman Ismail Marzuki (TIM)	2019-2022	1,4 trillion
7	Construction of reservoirs and their appurtenances	2021-2022	763,88 billion
8	Construction of flood control polder system	2021-2022	780,17 billion

In the implementation of construction with design and build contracts in government, it cannot be separated from a supervision or audit activity. Supervision in government is divided into two, that are external supervisors and internal supervisors. External government supervisors are carried out by the Supreme Audit Agency (BPK), while internal supervisors are carried out by the Government Internal Supervisory Apparatus (APIP) within the organization, BPKP, Inspectorate and UKI (Internal Compliance Unit). The establishment of these two institutions in accordance with their authority aims to assist government management to improve the performance of government agencies and provide recommendations for improving auditee management operations [13]. APIP function that runs well can prevent fraud, produce valuable outputs to be input for external auditors, executives, and legislators in improving the management and accountability of local finances in the future.

BPK can utilize the results of APIP supervision, especially from the results of reviews of government financial reports, supporting local government management in implementing BPK recommendations and improving the internal control system [12]. However, even though Inspectorate has carried out guidance and supervision oriented towards improvement and early warning, there are still some examination findings that have similarities with findings in previous years or are repeated [3][7]. In addition, the quality of internal control carried out by Inspectorate is currently still in the spotlight, this is due to the many supervisory findings that are not detected by the inspectorate as internal supervisors but are found by external auditors (BPK) [11]. As an example, in the examination of local government financial reports in 2022, BPK found overpayments and non-receipt of late fines from construction providers worth IDR45.87 billion and an overpayment of wastewater management projects in Jakarta worth IDR1.59 billion. In addition, there are still delays in completing the internal control report, which is 1-4 months late. Below are some of the results of the Inspectorate's supervision which were later found by BPK:

**Table 2.** Inspectorate and BPK Supervision Results

No	Inspectorate Supervision / Finding	BPK Supervision / Finding
1	High-rise flat construction Not equipped with a Governor Decree, minus deviation of work progress, work implementation is not in accordance with the provisions of the service user (KPJ).	Implementation of the work package is not in accordance with the contract or KPJ specifications, thus requiring expert opinion for structural evaluation, late penalty.
2	Rehabilitation of school building Implementation of Construction Management consultant work is not in accordance with the contract, late penalty.	Late penalty, lack of construction works volume, overpayments.
3	Flyover construction The construction of flyover is inadequate, the Work Quality Plan has not been updated according to the contract addendum, there is no KPJ but is replaced by design criteria.	Indications of non-fulfillment of supplier requirements, improper percentage amount of work progress and s-curve.
4	River and reservoir development Lack of construction works volume, late penalty.	Lack of construction works volume, late penalty, non-compliance work with specifications.
5	Stadium construction Land use agreement is late, work starts before the contract is signed, procurement policy is not in line with procurement regulations.	Lack of construction works volume, non-compliance work with specifications, late penalty, management of integrated sports areas has not been supported by

No	Inspectorate	BPK
	Supervision / Finding	Supervision / Finding
		adequate strategic studies of regional development and unclear land use schemes.

Inspectorate experiences several problems in carrying out internal supervision of construction, especially construction with design and build contracts, that is the limited number of technical auditors, uneven supervisory competence and experience, and the large number of construction project that must be supervised and the many other assignments that must be done simultaneously. Moreover, DB contracts are different from conventional contracts, so there are still few auditors who have knowledge and experience about construction supervision with DB contracts. These problems make the results of construction supervision with design and build contracts less than optimal. Based on the above phenomenon, it can be concluded that internal supervision of construction work with design and build contracts is not running efficiently and effectively. Efficient is appropriate or suitable for doing and producing something (not wasting time, energy, and costs), while effective is having an effect or can bring results/be useful in other words right on target. The impact of these problems not only has an impact on the lack of effective and efficient internal supervision, but also has an impact on the implementation of design and build construction which has the potential for non-compliance with the construction process with statutory regulations. An effective internal audit function aims to achieve its main objectives, which consist of creating added value and improving organizational performance [2].

In conclusion, the impact of internal construction supervision problems with design-build contracts is very influential in realizing the objectives of implementing construction projects, namely accuracy in quality, cost, and time. One of the causes of these problems is that stakeholders do not fully understand their roles and responsibilities and do not understand the risks that may occur in design and build construction projects. The role of internal supervision is important in preventing non-compliance with laws and regulations. APIP conducting supervision must follow the regulations on DB contracts and develop supervisory guidelines that have been regulated in BPKP Regulation Number 3 of 2019 concerning Guidelines for Internal Supervision of Government Goods / Services Procurement. The purpose of this research is to develop standar operational procedures for internal supervision of state buildings with design-build contracts, starting with identification of stakeholders and the roles and responsibilities of each party to increase efficiency and effectiveness with expert validation. A qualitative study was carried out at Regional Apparatus Organizations in the field of internal supervision within the Regional Government, namely the Jakarta Inspectorate, where this organization has experience in supervise design and build construction carried out by regional governments, not the central government.

## II. METHODS

This research was conducted by reviewing several regulations and journals from previous studies that mention stakeholders and organizations involved in the implementation of internal supervision in construction projects. Furthermore, these stakeholders are categorized as internal and external stakeholders and their roles and responsibilities. Data collection in the form of a questionnaire, then validated by discussion to 5 experts or APIP who are experienced in internal control for at least 10 years on construction projects, as can be seen in the flow chart in Figure 1.

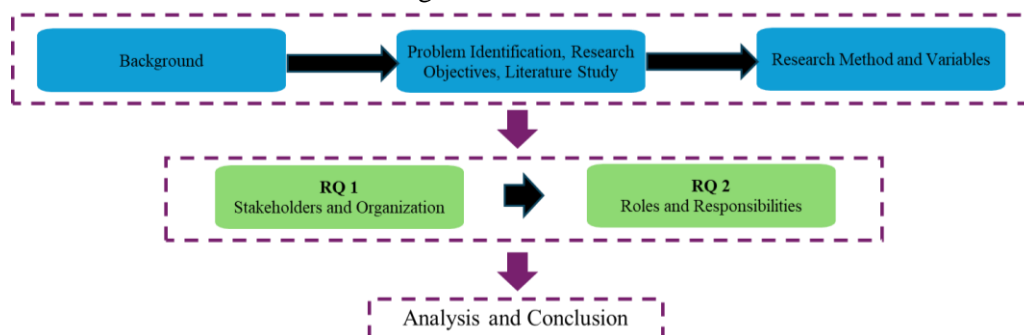
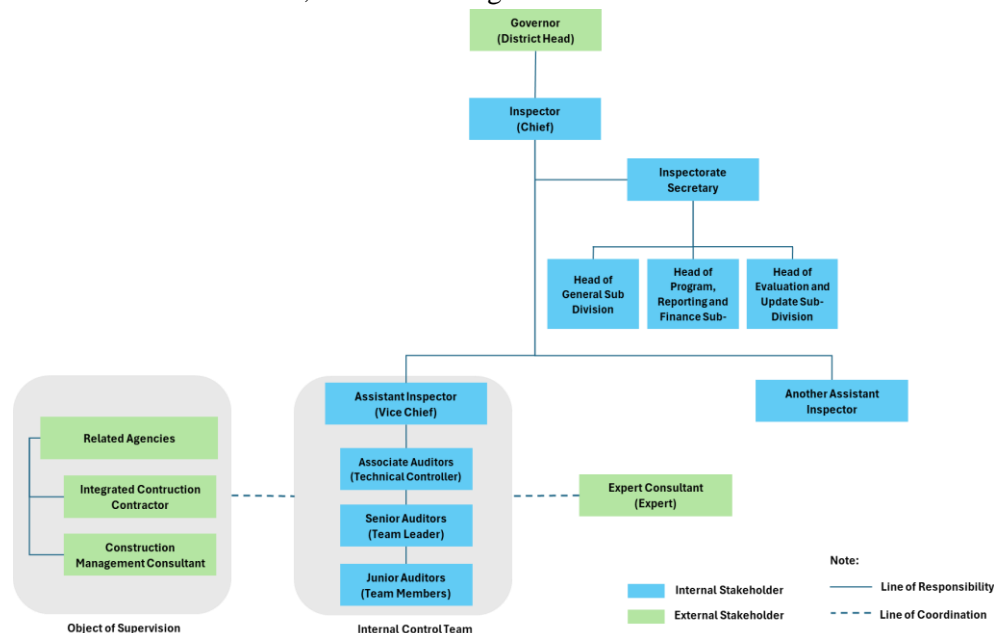


Fig 1. Research Flow Diagram

### III. RESULT AND DISCUSSION

Literature studies related to stakeholders and organizations in internal supervision of building construction with design and build contracts was conducted and data collection has been carried out using a questionnaire as an instrument used to obtain expert validation and discussion afterwards, the analysis is carried out so that stakeholders and organizational structures are obtained in the internal control of DB contracts. The result is that the expert validates and agrees that the following 15 stakeholders are involved in the internal control of DB contracts, as shown in Figure 2.



**Fig 2.** Organizational Structure and Stakeholders of Internal Supervision of Building Construction with Design and Build Contracts

Stakeholders consist of internal stakeholders and external stakeholders. Internal stakeholders consist of Inspector, Internal Control Team, Secretariat, and Another Assistant Inspector. External stakeholders consist of the Governor, Object of Supervision, and Expert Consultants. Internal Control Team is directly supervised by Inspector as Chief and assisted by the Assistant Inspector as the Vice Chief who directly supervises the Internal Control Team. Internal Control Team consists of Associate Auditors, Senior Auditors, and Junior Auditors who in the execution of internal supervision are directly related to object of supervision, that is the Relevant Agencies assisted by Construction Service Provider and Construction Management Consultant. In its execution, the Internal Control Team can be assisted by Expert Consultants in accordance with the expected expertise needs of the team, such as structural, architectural, geotechnical, mechanical and electrical experts. In the next step, data collection and expert validation were conducted for the roles and responsibilities or job descriptions of each stakeholder, whether these were in accordance with the needs related to internal control of DB contracts.

**Table 3.** Stakeholder Roles and Responsibilities of Internal Supervision of Building Construction with Design and Build Contracts

Code	Occupation	Role	Responsibility
<b>Internal Stakeholder</b>			
X1	Inspector	Chief	Form an Audit Team
			Issue a letter of assignment for the audit team to carry out their duties
			Sign the internal control reports
			Submit internal control reports to the Governor and interested parties
			Develop a supervision policy
			Directing the implementation of supervision
			Review procedures for implementing supervision
X2	Assistant Inspector	Vice Chief	Receive assignments from Chief/Inspector

Code	Occupation	Role	Responsibility
			Discuss assignments received with the Internal Control Team
			Create budgets, supervision time, and supervision activity assignment cards
			Consult or discuss with Chief and the Internal Control Team on matters relating to supervision
			Carrying out reviews and making approvals of the supervisory work program
			Carry out a review of the internal control results reports
			Report the results of the Internal Control Team's report to Chief
X3	Associate Auditors	Technical Controller	Assist Vice Chief in preparing budgets, supervision time, supervision activity assignment cards and accountability recapitulation reports for the use of supervision activity assignment hours
			Carry out a review of the supervisory work program
			Supervise and direct the implementation of supervision activities
			Carry out a review of the supervisory report from the Team Leader
X4	Senior Auditors	Team Leader	Carry out supervision in accordance with the assignment
			Collect and analyze data to prepare work programs
			Create a concept for a supervisory work program
			Assign tasks to Team Members
			Supervise Team Members
			Carry out supervision in accordance with the work program and prepare work papers
			Review working papers created by Team Members
			Prepare conclusions from monitoring results
			Prepare a concept for a supervisory report
X5	Junior Auditors	Team Members	Discuss and receive assignments from the Team Leader
			Study the supervisory work program
			Carry out assignments in accordance with the work program
			Create monitoring work papers
			Make conclusions from the results of supervision is his duty
X6	Inspectorate Secretary	Planning, Implementation and Reporting Coordinator	Provision, administration, maintenance and upkeep of the Inspectorate's infrastructure and work facilities
			Carry out administration and coordination of the Inspectorate's supervision
			Implementation of cooperation with agency and/or government/private agencies/other organizations in supporting the implementation of supervision
			Carry out coordination of PKPT preparation
			Carry out coordination in the preparation of policies and technical regulations for the implementation of supervision
			Collection, management, evaluation, reporting
			Carrying out inspection/supervision results
			Preparation of educational plans and technical supervision training
X7	Head of Program, Reporting and Finance Sub-Division	Planning Coordinator	Providing technical guidance and consultation regarding monitoring planning
			Coordinate the implementation of reporting and supervisory accountability
X8	Head of Evaluation and Update Sub-Division	Reporting Coordinator	Carrying out administrative corrections to the concept of supervision reports
			Inventory of supervision results



Code	Occupation	Role	Responsibility
			Coordination of evaluation of monitoring results reports
			Coordinating with the peer review team and internal supervisory team in implementing the concept of the supervision report
X9	Head of General Sub-Division	Archives Coordinator	Carrying out household management, administration, administration, archives, and public relations supervision of the Inspectorate
X10	Another Assistant Inspector	Peer reviewer	Implementation of quality control (peer review) implementation of internal control activities
<b>External Stakeholders</b>			
X11	Governor	District head	Provide special orders/directions regarding internal supervision and receive reports on the results of supervision that has been carried out by the Inspectorate
X12	Related Agencies	Object of Supervision	Management of housekeeping, administration, administration, archives, and public relations of the Department
			Provide supporting documents requested by the Internal Monitoring Team
			Provide information requested by the Internal Monitoring Team
			Accompany the audit team during field inspections
			Provide responses to the findings of the Internal Monitoring Team
			Following up on the findings of the Internal Monitoring Team
X13	Integrated Construction Contractor	Object of Supervision	Assist the Contract Signing Officer (PPK) at the relevant Department when supervising/inspecting the results of construction work during the work in progress or after the final handover of the work in accordance with their duties as fully outlined in the Construction Service Provider work contract
X14	Construction Management Consultant	Object of Supervision	Assist the Contract Signing Officer (PPK) at the relevant Department when supervising/inspecting the results of construction work during the work or after the final handover of the work in accordance with their duties as fully stated in the Construction Management Consultant work contract
X15	Expert Consultant	Experts	Assist the Internal Supervisory Team to carry out their assigned expertise in accordance with the scope of the contract, such as structural experts, construction management, geotechnical, architectural, mechanical, electrical, and plumbing, water resources, or the environment.

#### IV. CONCLUSION

Research method with data collection and validation was conducted by distributing questionnaires as a research instrument and discussion involving experts or internal auditors (APIP) who have experience in supervising construction carried out by the Jakarta government for more than 10 years. The research results showed that a total of 15 stakeholders were identified, consisting of 10 internal stakeholders and 5 external stakeholders. Internal stakeholders consist of Inspector, Assistant Inspector, Associate Auditors, Senior Auditors, Junior Auditors, Inspectorate Secretary, Head of Program, Reporting and Finance Sub-Division, Head of Evaluation and Update Sub-Division, Head of General Sub-Division, and Another Assistant Inspector. External stakeholders consist of the Governor, Related Agencies, Integrated Construction Contractor, Construction Management Consultant, and Expert Consultant. In Figure 2 is the form of organizational structure, where the relationship of coordination lines and responsibility lines between stakeholders and in Table 3 is the details of roles and responsibilities of each stakeholder involved.

Implementation of internal control focuses on the relationship between the internal control team consisting of Assistant Inspectors, Associate Auditors, Senior Auditors, Junior Auditors, and the objects of supervision consisting of Related Agencies, Integrated Construction Contractors, Construction Management Consultants. In its assignment, the internal control team can be assisted by expert consultants according to their field of expertise. The planning and results of internal supervision carried out by the internal control team are submitted to the Inspector through supervision by the Inspectorate Secretary who is assisted by the sub-division heads. The results of the internal supervision are conveyed to the Governor as regional head. The results of internal control are signed by the Inspector as the person in charge and conveyed to the Governor as the head of the region and the Related Agency as project owner. The results of this research are identification of stakeholders, organizational structure with coordination and responsibility lines, and roles and responsibilities of each stakeholder in internal control of building construction with design and build contracts, that can be knowledge and provide input for the Inspectorate or APIP to fully understand their obligation so that the internal control function can be achieved according to organizational goals.

## REFERENCES

- [1] Ferdinand, J., Putro, A., & Latief, Y. (2023). Development Of Risk-Based Audit Method Standard For Stadium Project Using Design And Build Contract To Minimize Dispute Based On Inspectorate Perspective. *International Journal of Science*.
- [2] Huong, T. T. 2018. Factors Affecting the Effectiveness of Internal Audit in the Company: Case Study in Vietnam. The International Conference on Business Management, 1-12.
- [3] Husni, M., Idayu, R., & Supriyatna, N. (2022). Faktor Penyebab Temuan Berulang pada Pemeriksaan Inspektorat. Owner: *Riset & Jurnal Akuntansi*, 6(4), 4062–4070.
- [4] Khairunnisa, Latief, Y., & Riantini, L. S. (2020). Standard Operational Procedure (SOP) Auditing Process in Integrated Management System to Improve the Efficiency of Organizational Performance. IOP Conference Series: Earth and Environmental Science, 426(1).
- [5] Nurhidayati, Z. A. (2020, October 9). Mengulik Kontrak Konstruksi Rancang Bangun. Kementerian PUPR.
- [6] Okereke, R. A., Muhammed, U., & Eze, E. C. (2022). Construction Audit-An Essential Project Control Function. *Journal of Engineering and Technology for Industrial Applications*, 8(33), 26–32.
- [7] Panuntun, P. B., & Maulana, A. O. (2022). Analisis Peran Inspektorat Dalam Mencegah Temuan Berulang Badan Pemeriksa Keuangan. Studi Kasus: Temuan Kekurangan Volume Pekerjaan Konstruksi Di Pemerintah Kabupaten Sleman. Universitas Gajah Mada.
- [8] Plusquellec, T., Lehoux, N., & Cimon, Y. (2016). Design-Build in Construction: Performance and Impact on Stakeholders.
- [9] Project Management Institute. (2017). A Guide to The Project Management Body of Knowledge (PMBOK Guide 6th ed.). Project Management Institute, Inc.
- [10] Sarwoko, I., & Agoes, S. (2014). An Empirical Analysis of Auditor's Industry Specialization, Auditor's Independence and Audit Procedures on Audit Quality: Evidence from Indonesia. *Procedia - Social and Behavioral Sciences*, 164, 271–281.
- [11] Sinambela, T. (2019). Pengaruh Kompetensi, Independensi, Dan Motivasi Terhadap Kualitas Audit. *Jurnal Bisnis and Akuntansi Unsurja*.
- [12] Siwy, M. I., Saerang, D. P. E., & Karamoy, H. (2016). Pelaksanaan Fungsi Aparat Pengawas Intern Pemerintah (Apip) Untuk Menunjang Tingkat Kewajaran Laporan Keuangan Pemerintah Kota Manado. *Jurnal Riset Akuntansi dan Auditing*.
- [13] Sugiharto. (2022, December 23). Perbedaan dan Persamaan Audit Eksternal dan Audit Internal. Kementerian Keuangan.
- [14] Toti, S., & Latief, Y. (2022). Development of Risk-Based Standard Operating Procedure for the Design and Engineering Phase of ATC Tower and Supporting Facilities Construction Project to Enhance Effectivity and Efficiency. IEOM Society International.