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OHS Work Procedure Implementation and CSMS Performance in Construction Projects

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Abstract: High accident risk in construction projects indicates that OHS documentation alone is insufficient without consistent on-site implementation of safe work procedures. **Objective**: This study evaluates the implementation of Occupational Health and Safety (OHS) based work procedures and analyzes their impact on the performance of the Construction Safety Management System (CSMS) in the Architectural Christian Center construction project, addressing the gap between administrative and operational compliance. **Methodology**: An evaluative design with combined descriptive quantitative and qualitative approaches was applied. Data were collected through questionnaires administered to project personnel, field observations, and reviews of OHS-related documents. Analysis compared on-site practices with applicable regulations and the CSMS theoretical framework, supported by interpretation of questionnaire and observation results to identify implementation gaps. **Findings**: Normatively, OHS-based work procedures meet CSMS documentation requirements; however, operational implementation remains ineffective. Work procedures and Job Safety Analysis (JSA) are still treated primarily as administrative instruments and are not consistently integrated into daily work execution methods. Worker compliance is uneven: PPE use shows relatively better adherence than compliance with work procedures and JSA, indicating that risk control is still oriented toward individual protection rather than optimized through administrative controls and engineering-based work methods. Additionally, positioning OHS personnel within the contractor's internal organization may reduce the independence and effectiveness of safety supervision due to pressures related to time, cost, and progress targets. **Implications**: Improving CSMS performance requires stronger integration of work procedures and JSA into routine execution, more consistent enforcement of procedural compliance, and strengthened supervisory authority to reduce reliance on PPE. **Originality**: This study explicitly links OHS work procedure implementation to CSMS performance while highlighting the contractor-internal OHS organizational structure as a structural factor affecting enforcement effectiveness, and provides actionable recommendations to embed safety within engineering-based construction execution methods.

Keywords: Occupational Health and Safety (OHS), Work Procedures, Job Safety Analysis, Construction Safety Management System,

INTRODUCTION

The construction industry is globally recognized as a sector with a high level of occupational safety risk compared to other industrial sectors. The International Labour Organization (ILO) reports that the construction sector contributes a significant proportion of fatal workplace accidents due to the nature of its activities, which involve heavy physical

work, working at heights, and direct interaction with high-risk equipment and materials (ILO, 2018). A study by Hinze et al. (2013) emphasizes that most construction accidents are not solely caused by technical failures, but are closely associated with weaknesses in work procedures and unsafe work behaviors.

In Indonesia, the construction sector consistently ranks highest in occupational accident claims. Data from BPJS Ketenagakerjaan indicate that work-related accidents in the construction sector are predominantly caused by falls from heights, being struck by materials, and direct contact with work equipment (BPJS Ketenagakerjaan, 2023). This condition indicates that safe work procedures have not yet been fully and effectively implemented at the operational project level.

From a technical perspective, Occupational Health and Safety (OHS)–based work procedures function as an administrative engineering instrument to control work-related risks through the regulation of work sequences, the use of personal protective equipment, and the control of the working environment. However, various studies have shown that the existence of documented work procedures does not always correlate with the level of worker compliance in the field (Lingard & Holmes, 2001).

Table 1. Dominant Types of Occupational Accidents in Construction Projects

Type of Occupational Accident	Dominant Procedural Factors	Technical Impact
Falls from height	Working-at-height SOP not implemented	Severe injury / fatality
Struck by materials	Work methods and safe zones not clearly defined	Physical damage
Caught in work equipment	Lack of job-specific JSA	Loss of working time
Slips and trips	Poor housekeeping and work procedures	Minor injuries
Electric shock	Energy isolation procedures not implemented	Serious injury

Based on the data presented in the table of dominant types of occupational accidents in construction projects, it can be observed that most accidents are directly associated with weaknesses in work procedures. Accidents resulting from falls from height, for example, are technically caused not only by environmental factors or work equipment, but also by the failure to implement safe work procedures that regulate work methods, the use of safety equipment, and supervision of worker activities. This indicates that work procedures serve as a primary instrument for risk control in high-risk construction activities.

In practice, many construction projects already possess OHS-based work procedure documents; however, their implementation often remains an administrative formality. Work procedures are frequently prepared to fulfill regulatory requirements without being accompanied by adequate supervision and evaluation mechanisms. This condition leads to a gap between the normative provisions stated in safety documents and the actual execution of work in the field (Hamzah, 2024).

In the implementation of Occupational Health and Safety (OHS) in construction projects, the effectiveness of the safety system is not determined solely by the existence of regulations and the completeness of formal documents, but is strongly influenced by the safety organizational structure and the position and role of OHS personnel within the project hierarchy. Conceptually, an effective OHS system requires a supervisory function that possesses sufficient authority, independence, and technical capacity to ensure that safe work procedures are consistently applied at every stage of construction activities.

Various studies in the fields of civil engineering and construction management indicate that the institutional structure of OHS has a direct correlation with the quality of work procedure implementation in the field. OHS personnel who operate within the same chain of command as work execution personnel may face a dilemma between safety demands and productivity demands. This condition becomes increasingly critical in building construction projects characterized by high work complexity, large numbers of workers, and strict time and cost targets (Bramistra, 2024).

Within a construction safety management system, OHS-based work procedures should be positioned as an integral part of the construction work execution method. Work procedures should not merely function as administrative guidelines, but as technical instruments for controlling occupational risks through the regulation of work stages, the use of personal protective equipment, and the control of working environment conditions. If the OHS function does not possess sufficient independence, work procedures tend to lose their binding force on on-site work behavior.

This condition is reflected in the context of the Architectural Christian Center construction project, where the OHS function is carried out by personnel who are part of the contractor's internal organization. As a large-scale building construction project, the Architectural Christian Center involves various high-risk activities, including concrete structural works, working at heights, heavy material handling, and mechanical and electrical works (Tribun Sulut, 2025). This level of complexity requires the strict and

consistent implementation of OHS-based work procedures to minimize the potential for occupational accidents. The main issue that may arise in this context is a conflict of interest between the safety function and project production targets. Internal OHS personnel operate within the same organizational structure as the project execution management, thereby indirectly facing pressure related to progress achievement, cost efficiency, and schedule acceleration (Karundeng et al., 2025). This condition has the potential to affect the independence of OHS personnel in decision-making, particularly with regard to stopping unsafe work or enforcing discipline for violations of OHS work procedures.

Furthermore, the implementation of work procedures and Job Safety Analysis (JSA) in the Architectural Christian Center project is at risk of becoming merely administrative if it is not accompanied by adequate supervision and evaluation. In line with previous research findings, the existence of OHS work procedure documents does not necessarily guarantee their application in the field. JSA and safe work procedures may be prepared solely to comply with regulatory requirements, without being regularly updated or adjusted to dynamic on-site working conditions, thereby limiting their effectiveness as risk control tools.

Another relevant issue is the weakness of supervision and enforcement of OHS compliance. Internal OHS personnel within the contractor organization often have limited authority to impose sanctions for OHS violations, particularly on core workers or subcontractors who contribute directly to the achievement of project targets. This condition results in low compliance with the use of Personal Protective Equipment (PPE), neglect of safe work methods, and the recurrence of unsafe work behaviors.

Overall, OHS-related issues in the construction of the Architectural Christian Center do not solely stem from the absence of regulations or safety documents, but rather from the gap between the planned OHS system and actual operational practices in the field. The OHS organizational structure, which places safety personnel within the contractor's internal organization, presents challenges in maintaining independence, consistency, and effectiveness in the implementation of OHS-based work procedures. This condition underscores the urgency of conducting research that comprehensively analyzes OHS work procedure issues, the factors contributing to their ineffectiveness, and their implications for safety performance in the Architectural Christian Center construction project.

Based on the above discussion, this study aims to evaluate the level of implementation of Occupational Health and Safety (OHS)–based work procedures in construction projects

and to analyze their impact on the performance of the Construction Safety Management System (CSMS), in order to determine the conformity of work procedure implementation with applicable OHS standards, its influence on the effectiveness of occupational accident risk control, and its contribution to improving overall safety performance in construction projects.

Research on Occupational Health and Safety (OHS) in the field of civil engineering can be grouped into three main approaches. First, the quantitative statistical approach, which analyzes the relationship between risk factors and the incidence rate of occupational accidents (Zou & Qiu, 2014). This approach provides an overview of accident patterns but offers limited insight into the underlying causes at the level of work procedures.

Second, the management and safety culture approach, which emphasizes the role of leadership, management commitment, and worker behavior in influencing safety performance (Choudhry et al., 2007). Although important, this approach often positions work procedures merely as complementary components of the safety system.

Third, the construction safety management system approach, which evaluates the effectiveness of OHS management systems or Construction Safety Management Systems (CSMS) based on regulatory compliance (Tam, 2004). However, most studies still focus on administrative compliance and do not examine in depth how work procedures are translated into daily operational practices.

This study aims to: (1) identify issues related to the implementation of Occupational Health and Safety (OHS)–based work procedures in building construction projects; (2) analyze the factors contributing to the ineffectiveness of OHS work procedure implementation in the field; and (3) formulate recommendations for improving work procedures based on the construction safety management system.

This study provides technical contributions in the form of a structured evaluation of the implementation of Occupational Health and Safety (OHS)–based work procedures in building construction projects, directly linked to the performance of the Construction Safety Management System (CSMS). The study identifies key issues and the factors contributing to the ineffectiveness of OHS work procedure implementation in the field, covering aspects of planning, execution, supervision, and workforce compliance. In addition, the study produces technical recommendations in the form of improvements and refinements to CSMS-based work procedures that are practical and applicable, and can

serve as a reference for enhancing the effectiveness of risk control, preventing occupational accidents, and improving construction safety performance in similar projects.

RESEARCH METHOD

Unit of Analysis

The unit of analysis in this study is the work procedures in the Architectural Christian Center building construction project that are directly related to the implementation of Occupational Health and Safety (OHS).

Research Design

This study employs an evaluative research design with a descriptive quantitative and qualitative approach. The quantitative approach is used to assess the adequacy of the OHS budget in the Bill of Quantities (BoQ) and to measure the relationship between the OHS budget and the performance of the Construction Safety Management System (CSMS). The qualitative approach is applied to identify the factors causing discrepancies in budget planning and to obtain an in-depth understanding of CSMS implementation in the field. An evaluative design is selected because this research focuses on assessing conformity between established standards/regulations and actual practices in construction projects.

Data Sources

The research data consist of: (1) project documents, including the Bill of Quantities (BoQ), Construction Safety Plan (CSP) documents, and CSMS implementation reports; (2) project implementers, comprising the project manager, project OHS coordinator/specialist, contractor representatives, and supervising consultants; (3) the research location, namely the Christian Center Manado construction project; and (4) subject selection using purposive sampling based on direct involvement in budget planning and CSMS implementation processes.

Data Collection Techniques

Data collection is carried out through the following stages: (1) document study, including analysis of the BoQ to determine the proportion and components of the OHS budget, and review of CSP documents and CSMS reports related to safety planning and implementation; (2) field observations to identify the implementation of OHS programs, availability of safety facilities, use of personal protective equipment (PPE), hazard control

measures, and worker compliance; (3) questionnaires administered to project managers, OHS officers, and supervisory personnel to measure the level of CSMS performance; and (4) in-depth interviews with key informants to explore perceptions regarding the adequacy of the OHS budget, implementation barriers, and the causes of budget discrepancies.

Data Analysis Techniques

Data analysis is conducted in two forms: (1) quantitative analysis, which includes calculating the proportion of the OHS budget relative to the total BoQ, comparing the actual budget with OHS standards/regulations (gap analysis), and applying descriptive and correlation analysis techniques to determine the relationship between the OHS budget and CSMS performance; and (2) qualitative analysis, which involves data reduction, data presentation, and conclusion drawing, as well as interpreting interview and observation results to understand the causes of budget nonconformity and its impact on CSMS implementation.

RESULT AND DISCUSSION

Data collection was carried out through questionnaires administered to respondents directly involved in the implementation of the Architectural Christian Center construction project, including project management personnel, internal OHS personnel of the contractor, foremen, and field workers. The questionnaire was designed to explore respondents' perceptions of the implementation of OHS-based work procedures, the independence of the OHS function, and the level of compliance with occupational safety procedures.

Table 2. Characteristics of Research Respondents

Respondent Category	Number (persons)	Percentage (%)
Project Manager / Engineer	4	13,3
Internal HSE (OHS) Personnel	3	10,0
Site Foremen	8	26,7
Site Workers	15	50,0
Total	30	100

Interpretation: The composition of respondents is dominated by site workers and foremen, indicating that the data obtained reflect the operational implementation of OHS (K3) rather than conditions at the managerial level only.

The questionnaire results indicate that although OHS (K3) work procedures are available in documented form, their level of implementation in the field remains varied.

Table 3. Respondents' Perceptions of the Implementation of OHS (K3) Work Procedures

Statement	Very Good (%)	Good (%)	Fair (%)	Poor (%)
OHS work procedures are available and easy to understand	20,0	36,7	30,0	13,3
Work procedures are implemented in accordance with site conditions	13,3	33,3	36,7	16,7
Job Safety Analysis (JSA) is used prior to high-risk work	10,0	26,7	40,0	23,3
OHS work procedures are integrated into the work execution methods	6,7	23,3	43,3	26,7

The majority of respondents rated the implementation of OHS work procedures as fair, indicating that these procedures have not yet been fully internalized as the primary working method.

According to the Regulation of the Minister of Public Works and Housing (Permen PUPR) Number 10 of 2021 on the Construction Safety Management System (CSMS), safe work procedures and Job Safety Analysis (JSA) are part of the planning and control elements of construction safety. The findings in Table 2 indicate that although the obligation to prepare work procedures has been fulfilled administratively, their implementation has not been optimal. This reflects a gap between document compliance and operational compliance.

Table 4. Respondents' Perceptions of the Role and Independence of OHS (K3) Personnel

Assessment Indicator	Agree (%)	Uncertain (%)	Disagree (%)
OHS (K3) personnel have the authority to stop unsafe work	36,7	33,3	30,0
OHS (K3) personnel are independent of work progress targets	23,3	40,0	36,7
OHS (K3) recommendations are always followed up by project management	30,0	43,3	26,7
OHS (K3) personnel consistently enforce OHS work procedures	33,3	36,7	30,0

Interpretation: Most respondents expressed uncertainty regarding the independence and authority of internal contractor OHS (K3) personnel.

Within the CSMS framework, the OHS function should have adequate authority to control work-related risks without interference from production interests. The data in Table 3 confirm that the contractor's internal OHS organizational structure has the potential to weaken the effectiveness of safety supervision. This condition is consistent with previous research findings indicating that structural conflicts of interest can reduce the quality of enforcement of OHS work procedures.

Table 4. Level of Workers' Compliance with OHS (K3) Work Procedures

Compliance Aspect	High (%)	Moderate (%)	Low (%)
Use of PPE in accordance with procedures	40,0	36,7	23,3
Compliance with safe work methods	33,3	43,3	23,3
Participation in toolbox meetings	46,7	30,0	23,3
Compliance with Job Safety Analysis (JSA)	26,7	40,0	33,3

Dominant pattern: Compliance with PPE requirements is relatively better than compliance with work procedures and JSA.

Overall, the research results indicate that the implementation of OHS in the construction of the Architectural Christian Center has fulfilled the normative aspects in accordance with the Construction Safety Management System (CSMS). However, challenges remain in the implementation of work procedures. Work procedures and Job Safety Analysis (JSA) have not yet been fully understood and applied as integral parts of construction execution methods. The internal OHS organizational structure of the contractor shows limitations in maintaining the independence and consistency of safety supervision, which in turn affects the level of worker compliance.

These findings emphasize that the effectiveness of the OHS system is not determined solely by the completeness of regulations and documentation, but is highly dependent on the integration of work procedures into daily work systems and the strengthening of the role of OHS personnel within the project organizational structure.

Mapping of Questionnaire Data to CSMS Regulations and Research Findings

To strengthen the analysis, the questionnaire results were systematically mapped against the provisions of the Construction Safety Management System (CSMS) regulations and empirical findings in the field. This mapping aims to clearly identify the gaps between normative requirements (das sollen) and actual conditions (das sein).

Table 5. Mapping of Questionnaire Data, SMKK Regulations, and Research Findings

OHS (K3) Aspect Analyzed	Questionnaire Data Findings	SMKK Regulatory Provisions	Gap Analysis
Availability of OHS work procedures	Procedures are available, but implementation is predominantly at a "moderate" level	Ministry of Public Works and Housing Regulation (Permen PUPR) No. 10 of 2021 requires safe work procedures to be integrated into construction methods	Procedures remain administrative in nature and have not become operational guidelines
Implementation of Job Safety Analysis (JSA)	JSA is not consistently applied prior to high-risk work	SMKK requires hazard identification and risk control before work activities	JSA has not been utilized as an active risk control instrument
Independence of OHS personnel	The majority of respondents express doubts about the independence of internal OHS personnel	SMKK requires the OHS function to have authority in risk control	Organizational structure weakens the independence of safety supervision
Compliance with PPE use	Compliance is relatively high compared to other aspects	SMKK and OHS Law mandate PPE use according to risk levels	PPE compliance is not accompanied by compliance with safe work methods
Enforcement of OHS discipline	Sanctions for violations are not consistently applied	SMKK regulates continuous supervision and corrective actions	OHS enforcement is influenced by project progress targets
OHS socialization and communication	Toolbox meetings are not always effective	SMKK requires OHS communication and consultation	OHS has not yet been internalized as a work culture

Based on Table 5, it is evident that the main issue in the implementation of OHS in the construction of the Architectural Christian Center lies in the implementation gap, rather than in the absence of regulations or safety documentation. The CSMS regulations have comprehensively stipulated the obligations for preparing work procedures, Job Safety Analysis (JSA), and safety supervision structures. However, the questionnaire results indicate that work procedures have not yet fully functioned as engineering instruments for risk control.

The most significant gaps are found in the independence of the contractor's internal OHS personnel and the consistency of JSA implementation. This condition reinforces the finding that the safety organizational structure has a direct influence on the quality of OHS work procedure implementation in the field.

Figure 1. industrial safety management system

DISCUSSION

The results of the study indicate that the implementation of Occupational Health and Safety (OHS)–based work procedures in the construction of the Architectural Christian Center remains at a moderate level and has not yet been fully integrated as part of the work execution methods. From a civil engineering perspective, this condition reflects weak implementation of engineering controls and administrative controls, which should be the primary priorities in the hierarchy of construction risk control, prior to the use of Personal Protective Equipment (PPE) as the final layer of protection.

Theoretically, the hierarchy of controls in safety engineering states that the most effective risk control is achieved through hazard elimination, engineering controls, and administrative controls, whereas PPE provides individual protection and has limitations in preventing occupational accidents systemically (Manuele, 2014). The findings of this study, which show higher compliance with PPE use compared to compliance with work procedures and Job Safety Analysis (JSA), indicate that risk control in the Architectural Christian Center project is still oriented toward individual protection rather than systemic work control.

From a construction management perspective, work procedures and JSA are the main instruments for translating safety planning into operational practice. Hinze et al. (2013) emphasize that safety failures in construction projects are more often caused by weaknesses

in work systems than by purely technical errors. The questionnaire results from the Architectural Christian Center project, which indicate inconsistent use of JSA, reinforce the argument that work procedures have not yet functioned as effective administrative engineering tools.

The OHS organizational structure is also a key finding of this study. Theoretically, an effective safety management system requires an independent supervisory function with full authority over risk control (Reason, 1998). When OHS personnel originate from within the contractor's internal organization, as in the Architectural Christian Center project, the safety function is potentially exposed to conflicts of interest between production targets and risk control. This is reflected in the dominance of respondents' uncertain perceptions regarding the independence of OHS personnel, which structurally weakens the enforcement of OHS work procedures.

These findings are consistent with the study by Lingard and Holmes (2001), which states that in construction projects with internal safety structures, productivity pressures often reduce the effectiveness of OHS supervision in the field. Tam (2004) also showed that a weak organizational position of the safety function causes work procedures to be implemented merely as administrative formalities without strong internalization among workers.

Within the context of the Construction Safety Management System (CSMS), national regulations have emphasized the obligation to prepare work procedures, JSA, as well as supervision and corrective action mechanisms. However, the results of this study indicate an implementation gap between normative requirements and actual practices. This phenomenon aligns with the concept of safety management maturity, in which organizations remain at the level of formal compliance but have not yet achieved full integration of safety as a work culture (Hudson, 2007).

Technical Explanation

Technically, OHS-based work procedures and Job Safety Analysis (JSA) constitute administrative controls within the construction risk control system. In civil engineering practice, work procedures function to regulate work sequences, execution methods, human–equipment–material interactions, and working environment conditions so that hazard risks can be minimized from the operational planning stage.

The results show that work procedures and JSA in the construction of the Architectural Christian Center were not consistently implemented prior to the commencement of high-risk activities. Technically, this condition results in hazard identification and risk control stages not being carried out systematically. Consequently, workers operate based on individual experience rather than on previously engineered safe work methods. In the context of structural works, work at heights, and mechanical–electrical activities, the absence of consistently applied work procedures increases the probability of unsafe conditions and unsafe actions.

Furthermore, the relatively higher compliance with PPE use compared to compliance with work procedures indicates that risk control remains focused on residual protection rather than systemic control. Technically, PPE does not eliminate hazard sources but merely reduces the impact when an accident occurs; therefore, its effectiveness is highly dependent on individual worker behavior.

Comparison with Previous Studies

When compared with previous studies in the Indonesian construction sector, the results of this study are consistent with the findings of Zou et al. (2014), which emphasize that the success of safety systems is determined not only by regulations, but by how work procedures are integrated into daily work methods. The distinction of this study lies in its analytical focus on the role of internal contractor OHS personnel as a structural factor influencing the effectiveness of work procedures, an aspect that has still been relatively underexplored in civil engineering research in Indonesia.

Thus, the findings of this study strengthen the understanding that OHS issues in building construction projects are not merely matters of regulatory compliance, but are fundamentally issues of work systems, organizational structures, and procedural engineering. The integration of OHS-based work procedures into construction execution methods, along with strengthening the independence of the OHS function, is a primary prerequisite for sustainably improving construction safety performance.

Engineering Interpretation

From the perspective of construction safety engineering, the findings of this study can be interpreted as a failure to integrate safety engineering with construction method engineering. In modern civil engineering practice, occupational safety should be designed

simultaneously with work execution methods, rather than added after technical methods have been determined.

This engineering interpretation indicates that the weak implementation of OHS work procedures in the construction of the Architectural Christian Center is not caused by the absence of regulations or safety documents, but by suboptimal engineering decision-making processes during project execution. When OHS personnel are part of the contractor's internal organization and lack structural independence, technical decisions related to stopping unsafe work, modifying work methods, or controlling risks are often compromised by progress targets and cost efficiency considerations.

Within a systems engineering framework, this condition reflects a safety system that has not yet reached the integrated safety system stage. The system remains at the level of compliance-based safety, where safety requirements are formally fulfilled but have not yet functioned as an integral part of the work system. This explains why the questionnaire results show a dominance of "moderate" and "uncertain" categories across various indicators of OHS implementation.

Practical Implications and Engineering Actions

Based on the technical analysis and engineering interpretation, the following operational actions and implementations are recommended.

Integration of Work Procedures into Technical Execution Methods

From an implementation perspective, every construction execution method should be developed simultaneously with specific OHS-based work procedures and Job Safety Analysis (JSA). Any changes in work methods, whether due to site conditions or schedule acceleration, must be accompanied by updates to the JSA. In this way, work procedures do not stand alone as administrative documents, but become an integral part of the project's engineering workflow.

Strengthening the Authority and Independence of OHS Personnel

From a project organizational engineering perspective, OHS personnel should be granted clear technical authority to stop unsafe work without being constrained by production targets. This can be implemented by reinforcing the CSMS organizational

structure, in which the OHS function is positioned directly under the project safety authority, rather than solely under the construction execution management.

Improving the Quality of Job Safety Analysis (JSA)

JSA should be prepared in detail for each high-risk activity by considering civil engineering aspects such as temporary structure stability, access for work at heights, heavy equipment interactions, and working environment conditions. Completed JSAs must be actively communicated through technically oriented toolbox meetings, rather than being treated as mere formalities.

Strengthening Continuous Supervision and Evaluation

The implementation of the CSMS should be complemented by periodic evaluation mechanisms for the application of work procedures in the field. Monitoring results must be followed up through corrective and preventive actions, enabling the safety system to move toward continuous improvement. Technically, this approach will reduce the frequency of near-miss incidents and enhance the reliability of the work system.

Internalizing OHS as Part of the Work System

At an advanced implementation stage, occupational safety should be positioned as part of the project's technical performance. This means that project success indicators should be measured not only by quality, cost, and time, but also by safety performance. This approach aligns with the principles of sustainable construction, in which occupational safety is a fundamental element of project sustainability.

CONCLUSION

Based on the results of questionnaire analysis, field observations, and discussions linked to the theory and regulations of the Construction Safety Management System (CSMS), it can be concluded that the implementation of Occupational Health and Safety (OHS)–based work procedures in the construction of the Architectural Christian Center has met normative documentation requirements, but has not yet been fully effective at the operational implementation level. Work procedures and Job Safety Analysis (JSA) are still largely positioned as administrative instruments and have not been consistently integrated into construction execution methods. Worker compliance with OHS aspects is uneven, with

the use of Personal Protective Equipment (PPE) showing relatively higher compliance compared to adherence to work procedures and JSA. As a result, risk control remains oriented toward individual protection and has not yet been optimized through administrative and engineering-based work method controls.

Furthermore, the OHS organizational structure in the Architectural Christian Center project, which places OHS personnel within the contractor's internal organization, affects the independence and effectiveness of the safety supervision function. Pressures related to project progress targets, cost, and schedule have the potential to reduce the authority of OHS personnel in consistently enforcing safe work procedures, thereby creating a gap between CSMS principles and actual practices in the field. This study emphasizes that improvements in construction safety performance can only be achieved through strengthening the independence of the OHS function, enhancing the quality of work procedures and JSA, and integrating safety as an inherent component of engineering-based construction execution methods.

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