Inclusion of Construction Occupational Health and Safety Management System (OHSMS) Components in Building Construction Project

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Abstract

Building construction projects are required to have the Occupational Health and Safety Management System (*Sistem Manajemen Kesehatan dan Keselamatan Kerja*, OHSMS) due to its high-risk nature. For this purpose, the Ministry of Public Works and People's Housing of the Republic of Indonesia has issued the Circular Letter Number 66/SE/M/2015 on Costs for Implementing Construction Occupational Health and Safety Management System (OHSMS) in the Field of Public Works. The purpose of this study is to present a detailed description of OHSMS implementation in several building construction projects by using the Ministry's Circular as the reference. This study is a descriptive study on 30 building construction projects implemented in Indonesia from 2017 to 2019 as the unit of analysis. Data were collected using a questionnaire which was developed based on the content of the Circular of the Minister of Public Works and People's Housing Number 66/SE/M/2015. This questionnaire was then distributed to respondents using the purposive sampling technic.

The OHSMS implementation subcomponents that are most frequently included in the work agreement of building construction projects are work procedure manual development, OHS induction, safety net, protective helmet, worker insurance (BPJS *ketenagakerjaan dan kesehatan kerja*), OHS expert and/or OHS officer, first aids kit, prohibition sign, and portable fire extinguishers. The least frequently included subcomponents are the provision of worker identity cards (KIP), poster, fall restraint, life jacket, Certificate of OHS Steering Committee (*Panitia Pembina Keselamatan dan Kesehatan Kerja*, P2K3), medical officer, fogging solution, traffic strip light, OHS flag, and internal audit and inspection programs. A total of 30 building construction projects have implemented OHSMS by including the details of the construction OHSMS implementation, as stated in the Minister of Public Works and People's Housing Circular Number 66/SE/M/2015 in their work contract.

Keywords: Building Construction, Circular of the Minister of Public Works and People's Housing Number 66 the Year 2015, OHSMS

Introduction

Indonesia is currently undergoing massive infrastructure development to support the economic growth and equitable distribution of social welfare. One of the industries that play a role in this infrastructure development is the construction industry. Construction work has unique characteristics due to the different work locations for each project; limited time to finish the construction work that includes civil,

architectural, mechanical, electrical, and various other finishing works; weather influence; and the involvement of a large number of workers with different educational backgrounds. The construction industry is one of the industrial sectors that contribute significantly to the number of occupational accidents. According to the International Labor Organization (2015), there are at least 60,000 fatal accidents in the construction sector worldwide. Fatal accidents occur every ten minutes, in which one out of six of these accidents takes place at a construction site.

Based on *BPJS Ketenagakerjaan* data, there were 110,285 cases of occupational accidents in 2015, 101,367 in 2016, 123,041 in 2017, 173,105 in 2018, and 77,295 in 2019 in Indonesia. Furthermore, data from the Ministry of Public Works and People's Housing in 2017 suggested that the biggest contributor to occupational accidents in Indonesia is the construction sector, with an average contribution of around 32% annually (Parampara, 2018). Therefore, construction companies are required to give protection to their workers by implementing Occupational Safety and Health (OHS) measures to fulfill the right of the workers based on the Law of the Republic of Indonesia Number 1 of 1970 on Work Safety.

The cause of work-related accidents in the construction sector may stem from various factors, starting from the design planning to management and the construction workers themselves. Other factors affecting occupational accidents are occupational safety and health training; top management commitment; work environment; worker awareness; OHS regulations and procedures; availability of safety and health signs at work; work communication; and level of work experience (Waruwu and Yuamita, 2016). A study conducted by Piri et al. (2012) for construction workers showed that 67% of respondents stated that there no cost is incurred to attend OHS-related training. This study also proves that when more workers participate in OHS-related training, occupational accidents among construction workers can be reduced. According to Vasconcelos and Junior (2015), occupational accidents in construction projects for shopping center construction are caused by organizational factors at work that reflects the lack and failure in the management of construction sites, operational procedures, and design.

To prevent work accidents, companies have to implement an Occupational Safety and Health Management System. Since 2014, the Government of Indonesia, through the Regulation of the Minister of Public Works and People's Housing of the Republic of Indonesia Number 05/PRT/M/2014 on Guideline for Construction Occupational Safety and Health Management System (*Sistem Manajemen Kesehatan dan Keselamatan Kerja*, OHSMS) in the Field of Public Works, has required construction companies to implement the OHSMS in their Public Works Construction projects. Details of the implementation of the construction OHSMS program are outlined in the Circular of the Minister of Public Works and People's Housing Number 66/SE/M/2015 on Costs for Construction Occupational Safety and Health Management System (OHSMS) Implementation in the Field of Public Works. The government expects that this regulation can be used as a guideline for companies to include OHS-related components in the work contract for construction works.

This study sought to identify the OHSMS management activity components/ subcomponents of the

Circular of the Minister of Public Works and People's Housing Number 66/SE/M/2015 that are included in the work contract for a building construction project. The purpose of this study is to assess the inclusion of the OHSMS activity details in these work contracts.

Method

This study is a descriptive study with 30 construction projects implemented in Indonesia from 2017 through 2019 as the unit of analysis. Data used were primary data collected using a questionnaire that was developed based on the Circular of the Minister of Public Works and People's Housing Number 66/SE/M/2015. Questionnaires were distributed to respondents using the purposive sampling technic. This sampling technic is based on particular considerations made by the researchers. Respondents consisted of all employees of the construction companies (contractors), including the Operational Director, OHS General Manager, Head of Project, Site Manager, OHS Manager/Officer, Contract Manager, Cost Estimator, Quantity Surveyor, and Supervisory Consultants or similar position. Before being distributed, the questionnaire was first validated by 5 experts in the field of construction OHS.

Results

The positions of the respondents who participated in completing the questionnaire are listed in table 1.

Table 1. Position of Respondent

No.	Position	total
1	Head of Project	1
2	Site Manager	3
3	Contract Manager	1
4	OHS Manager	4
5	OHS SPV	8
6	OHS/Safety Officer	12
7	Quantity Surveyor	1

Respondents with the positions stated in table 1 were people who understand the OHS-related content of the building construction work contract. In this study, the questionnaire was completed by 30 respondents from 30 different building construction projects. The OHSMS activity implementation components and subcomponents analyzed in the construction work contract are presented in Table 2 below.

Table 2. Details of Construction OHSMS Activity Implementation

No.	Component and Subcomponent	Number (Project)
1.	Contract OHS Plan (*Rencana K3 Kontrak*, RK3K) Preparation	
	a. Development of Manuals, Procedures, Work Instructions, Work Permits, and Forms	29
	b. Provision of Worker Identity Card (*Kartu Identitas Pekerja*, KIP)	20
2.	OHS Dissemination and Promotion	
	a. OHS Induction (Safety Induction)	29

	b. OHS Briefing (Safety Briefing); Safety Talk and/or Tool Box Meeting)	28
	c. OHS training	23
	d. OHS simulation	25
	e. Banner	28
	f. Poster	20
	g. OHS Information Sign	24
3.	Work Protective Equipment	
	a. Safety Net	29
	b. Life Line	27
	c. Safety Deck	22
	d. Guard Railing	23
	e. Restricted Area	25
4.	Personal Protective Equipment	
	a. Safety Helmet	30
	b. Goggles, Spectacles	26
	c. Face Shield	23
	d. Breathing Apparatus	8
	e. Ear Protection (Ear Plug, Ear Muff)	21
	f. Breathing and Mouth Protection (Masks)	21
	g. Safety Gloves	28
	h. Safety Shoes	29
	i. Full Body Harness	28
	j. Life Vest	4
	k. Safety Vest	24
	l. Apron/Coveralls	13
	m. Fall Arrester	19
5.	Insurance and Permit	
	a. BPJS *Ketenagakerjaan dan Kesehatan Kerja* (Work Insurance)	30
	b. Certificate of Equipment Use Worthiness	25
	c. Operator License	26
	d. Certificate of OHS Steering Committee (*Panitia Pembina Keselamatan dan Kesehatan Kerja*, P2K3)	21
6.	OHS Personnel	
	a. OHS Expert and/or OHS Officer	29
	b. Response Officer	22
	c. First Aid Officer	26
	d. Flagman	16
	e. Medical Officer	15
7.	Health Care Facility	
	a. First Aid Equipment (First Aid Kit, Stretcher, Oxygen Cylinder, Wound Kit, Bandage, etc.)	29
	b. First Aid Room (Patient Bed, Stethoscope, scale, Sphygmomanometer, etc.)	21
	c. Fogging Equipment	16
	d. Fogging Solution	14

8.	Signs	
	a. Direction Sign	26
	b. Prohibition Sign	27
	c. Warning Sign	26
	d. Obligation Sign	22
	e. Information Sign	25
	f. Temporary Work Sign	20
	g. Warning Light Stick	21
	h. Traffic Cone	23
	i. Rotary Lamp	19
	j. Traffic Strip Lamp	13
9.	Other Equipment Related to OHS Risk Control	
	a. Fire Extinguisher	28
	b. Siren	20
	c. OHS Flag	19
	d. Evacuation Route	25
	e. Emergency Lamp	20
	f. Inspection and Internal Audit Program	19
	g. Incident Reporting and Investigation	21

Most construction projects have included all subcomponents of the construction OHSMS activities listed in the minister circular details in their work contract.

Discussion

Based on the Circular of the Minister of Public Works and People's Housing Number 66/SE/M/2015, the extend of the construction OHSMS activity components and subcomponents included in the work contract should be adjusted to the result of the OHS risk level calculation in each building construction project. This aims to reduce the level of hazard risk and the number of occupational accidents that might happen in a construction project. A total of 29 building construction projects include manual, procedure, work instruction, work permit, and form development in the work contract. Manuals and procedures provide guidelines to workers on how they should perform their job, ensuring that all works are performed according to the applicable regulations, which will then produce the expected results as stated in the project goal. Work instruction, permits, and forms are a form of documentation of the work process. The subcomponent of providing Worker Identity Card (KIP) is included in 20 building construction work contracts. The OHS dissemination subcomponent in the OHS dissemination and promotion component that is the most widely included in the work contract for a construction project is the OHS induction subcomponent. Based on a study conducted by Latief et al. (2017), the OHSMS cost components that are associated with occupational accidents is the provision of worker identity card and OHS induction.

All building construction projects include the safety helmet subcomponent in the work contract, showing that the safety helmet is personal protective equipment that must be used by all workers while they are in and working in the building construction project area. The safety helmet serves to protect

the head from impacts and falling objects, as well as to minimize injuries. Only four-building construction projects include life vest subcomponent in the work contract. The company provides life vests as personal protective equipment in case of flooding in building construction projects located in a flood-prone area.

National Insurance for Workers and Occupational Health (BPJS *Ketenagakerjaan dan Kesehatan Kerja*) is the insurance that is required by the law to be provided by the company to its workers. Thus, all construction projects include this subcomponent in their work contract. In the implementation of construction projects, the type of insurance from the BPJS used is the BPJS for Construction in which the premium is based on the contract value.

A total of 29 building construction projects include the OHS expert/OHS officer subcomponent in their work contract. Based on the Regulation of the Minister of Public Works Number 05/PRT/M/2014, the construction project with high hazard potentials must employ a construction OHS expert during the construction work. In contrast, those projects with low hazard potential must have a construction OHS officer. Only 15 building construction projects include the medical officer subcomponent in their work contract. The medical officer referred to here includes doctors and nurses. Twenty-nine building construction projects include first aid equipment subcomponent (First aid kit, stretcher, oxygen tank, wound kit, bandages, etc.) in their work contract. First aid equipment is the essential equipment needed for the first response in the event of an occupational accident.

Prohibition sign is the most frequently included subcomponent in the sign component of the construction work contracts. A prohibition sign is a sign/symbol/writing that provides information related to actions that are not allowed to be done by people in the area. The traffic strip light is the least frequent subcomponent to be included in the building construction work contract, with only 13 projects including this subcomponent. In building construction projects, traffic strip lights are used as a marker and barrier for construction areas at night or in areas with poor lighting.

Twenty-eight building construction projects include the Fire Extinguisher subcomponent in their work contract. A fire extinguisher is one of the essential equipment for putting out fires. There are various works in building construction projects that have the potential to cause fires, such as welding, cutting, electrical installation work, and waterproof membrane installation. The OHS flag and the internal inspection and audit program are subcomponents of the other OHS-related risk control component that is the least included in the work contract, with only 19 building construction projects including these two subcomponents. The OHS flag is used to indicate that a project has implemented OHSMS. According to Tarwaka (2014), inspection is carried out to identify sources of health hazards associated with tasks, production processes, particular areas, and hazardous materials, and should be performed by involving personnel with special technical expertise. In other words, inspection is one way to prevent occupational accidents and/or diseases. Internal audit is an activity that involves independent assessment by an internal organization unit with the aim of testing and evaluating various operations performed by the organization.

Conclusion

Based on the results of this study, it can be concluded that all building construction projects that are used as the unit of analysis in this study have implemented the provisions in the Circular of the Minister of Public Works and People's Housing Number 66/SE/M/2015. The majority of the building construction projects include all the subcomponents of construction OHSMS implementation activities as detailed in the circular in their work contract. The limitations of this survey-based study come from the fact that this study only includes 30 building construction projects implemented in Indonesia during 2017-2019 and that no building classification is used as a consideration in the analysis. All building construction projects included as the unit of analysis in this study are projects related to the Ministry of Public Works and People's Housing. The regulation used as the reference in the inclusion of construction OHSMS components in building construction projects only applies within the scope of work of the Ministry of Public Works and People's Housing and has no legal force to be applied to the entire construction industry. However, this study provides an overview of which subcomponents of the construction OHSMS activity implementation that are included in the building construction work contract. This result may be different from the results of other studies due to differences in the location of the study, the type of building construction project, and the regulation used.

The government is expected to be able to make a regulation on the construction of OHSMS activity components that are comprehensive and applicable for the construction industry as a whole to prevent overlapping regulations. With the availability of such regulation, construction companies can focus on complying with one regulation.

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