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Strategies Improving the Implementation of Occupational Safety and Health in the Housing Development Project of Banjarbaru City, South Kalimantan

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Abstract:- Until now, the rate of work accidents in industrial construction is higher than in other industries. The occurrence of work accidents on construction projects will affect the performance of construction project implementation. Workers who experience frequent work accidents do not follow work procedures or want to find shortcuts. Therefore, this research aims to discuss the application of occupational safety and health to the performance of construction project workers in Banjarbaru City. This research is likely to increase the awareness of workers and developers to use Personal Protective Equipment (PPE). The study was conducted with several questions to respondents regarding this research, contractors, and developers regarding the effect of occupational safety and health on strategies to improve the implementation of occupational safety and health on development projects in Banjarbaru City. Then, the questionnaire data tabulation was carried out, then using the Relative Importance Index (RII) method to find out what dominant factors influence the implementation of the Construction Safety Management System in the implementation of housing development projects. A strategy will be made to improve the application of occupational safety and health in housing development projects in Banjarbaru, South Kalimantan.

Keywords: *K3, OHS Implementation Improvement Strategy, and RII.*

I. INTRODUCTION

Recognizing the importance of occupational safety and health to provide a sense of security and prevent work accidents from increasing the morale or performance of other workers. The study discusses the influence of applying occupational sites on the performance of housing development project workers in Banjarbaru City. The difference with previous studies is in the method used in the research and the project that is the object of research. The project is a housing development still under construction in Banjarbaru City, South Kalimantan.

The development of the housing business in Banjarbaru City generally experiences a very significant increase every year, especially for housing still under construction, which prices varying wildly between subsidized housing and commercial housing in Banjarbaru City, South Kalimantan. The increase in public demand for housing needs is also influenced by the high flow of population growth triggered by the development of Banjarbaru City as the new provincial capital and a center for trade, business, and education. The high demand for residential housing has triggered property business players to compete to meet market demand. This situation intensifies competition between companies because of the increasing number of competitors, the increasing volume of products, and the increasing population growth from other regions.

Implementing occupational health and safety is one form of effort to create a safe, healthy, accident-free workplace, due to work. Occupational accidents cause fatalities or material losses for workers and employers and can disrupt the entire production process. Therefore, workers whom the developer or contractors directly shelter should have job guarantees and SOPs that must be implemented consistently by workers to support their safety and health of workers. Based on the above background, considering that there are still workers who do not use complete Personal Protection Equipment (PPE) and there are still work accidents and housing developments that have many enthusiasts, it is necessary to conduct research related to work safety in subsidized and non-subsidized housing projects in Banjarbaru City, Kalimantan South. This research will likely increase the awareness of workers, contractors, and also developers to use Personal Protection Equipment (PPE) and implement a Construction Safety Management System. The research entitled "Strategies for Increasing the Application of Occupational Safety and Health in Housing Development Projects in the City of Banjarbaru, South Kalimantan" was compiled to further examine the application of SMKK and efforts to increase the application of SMKK in housing projects.

II. RESEARCH METHOD

➢ *Preliminary Studies*

The research was carried out on 10 (ten) housing development projects in the City of Banjarbaru, South Kalimantan. The time for implementation during working hours is adjusted to the agreement between the researcher and the development project. The selected development projects are Subsidized and Non-Subsidized (Commercial) housing developments which are still under construction in the City of Banjarbaru, South Kalimantan.

➢ *Primary Data Collection*

- *Questionnaire*

Data collection using this method was questionnaires to respondents in this study, developers and workers. Questionnaires were distributed regarding the influence of the site on strategies for increasing the implementation of occupational safety and health in housing development projects in Banjarbaru City. From the questionnaire, which dominant factors need to be considered in increasing the implementation of the Construction Safety Management System?

- *Primary Observational Data*

Observation or direct observation of the research object to get an overview of the implementation of the Construction Safety Management System in housing development projects in Banjarbaru City is needed to determine how the executor has implemented the Construction Safety Management System.

- *Secondary Data*

Pre-existing data such as daily or weekly reports, book references and lecture materials related to the object of this study. Secondary research uses material other than the first source to obtain data or information to answer the problem under study. The data and information used to support this research were obtained from literature reviews through books, journals, articles, previous research, internet media, and the profiles of the 10 housing that will be examined.

Table 1 Likert Scale

1	2	3	4	5
STB	TB	CB	B	SB

- *Respondent*

Respondents needed in this study are developers, workers and housing contractors in Banjarbaru with a minimum of 30 people.

III. RESULT AND DISCUSSION

➢ *Respondent's Profile*

- Respondent's Characteristics

Interviews were conducted with experts to validate the strategy, which was compiled based on the results of the dominant factor analysis in the questionnaire distributed by the informants, namely the Head of the South Kalimantan Regional Settlement Infrastructure Center (BPPW), Teuku Davis F. Hamid, STMT, Head of the PUPR Competency Development Center, Diki Zulkarnaen, S.T., M.Sc., owner of the Shafwah Royal Housing on the Ulin Platform, Banjarbaru, H. Mansyur Alydrus. S.T., M.S.i.

Table 2 The Result of the Respondent's Questionnaire

No	Agency/Housing	Total (Person)	Respondent Name	Position
1	PT. Lambung Mangkurat Cipta Persada	1	Hadi Sarbini, M.T.	Owner of Lambung Mangkurat Housing
		1	Gilang Nugroho,S.T	Head of the Lambung Mangkurat Housing Project
		1	Hendra Cahyo	Craftsman
2	PT. Mitra Mandiri	1	Gondo Suryani,S.T.,M.Si	Owner Of Trikora Regency
		1	Bimo Fauza,S.T	Field supervisor Trikora Regency Housing
		1	Masyid	Craftsman
3	PT.Griya Permata Trikora	1	H.Indarahman	Owner of Griya Permata Trikora Housing
		1	Sidik,S.T.,MSc	Contractor
		1	Majid	Craftsman
4	PT. Halina Mandiri Permai	1	H.Darham,S.T	Owner of Halina Mandiri Permai Housing
		1	Dilah	Craftsman
		1	Mansyur	Craftsman
5	PT.Shafwah Royal Regency	1	Mansyur alydrus,S.T.,M.Si	Owner of Shafwah Housing

		1	Joko,S.T	Field supervisor
		1	Didik	Craftsman
6.	PT. Syihab Persada	1	Zeid Syihab,S.T	Owner of Syihab Housing
		1	Syarif Seff,M.T	Field supervisor
		1	Supri	Craftsman
7.	PT. Ajwa Mandiri Persada	1	Fadillah Ajwah,S.T	Project Head
		1	Indra Perkoso,S.Ars	Field supervisor
		1	Arpani	Craftsman
8.	PT. Griya Utama Karya	1	H.Zaini Akbar	Owner of Griya Utama Karya Housing
		1	Ajan	Project Head
		1	Samsyir	Craftsman
9.	PT. Rolanda Palam Lestari	1	Rolandana Pratama,S.T.M.,T.	Owner of Rolanda Palam Housing
		1	Majid Andalan,S.Ars	Field supervisor
		1	Tono	Craftsman
10.	PT. Rivaldi Mandiri Permai	1	M.Rivaldi Pradana	Owner of Rivaldi Mandiri Permai Housing
		1	Antung S. Danang,S.T	Project Head
		1	Dani Guntung	Housing Marketing

➢ *Research Instrument Test*

- *Validity Test*

Data validity can be done by comparing the r count and r table values. To find the size of the r table is determined by the formula N-2 = 30 - 2 = 28, r table = 0.3061.

Table 3 Validity Test Results with Spearman's Correlation Coefficient

Factor	Question Code	r-Count	r-Table	Information
Social protection of the workforce	X1.1	.387**		Valid
	X1.2	.390**		Valid
	X1.3	.429**	.3061	Valid
	X2.1	.439**		Valid
Guarantee and protection of the safety and health of workers	X2.2	.308**	.3061	Valid
	X2.3	.333**		Valid
	X2.4	.460**		Valid
	X2.5	.456**		Valid
Prevention of the spread of the plague	X4.1	.614		Valid
	X4.2	.396	.3061	Valid
	X4.3	.456		Valid
Work environment experience	X5.1	.563		Valid
	X5.2	.359		Valid
	X5.3	.550		Valid
	X5.4	.650	.3061	Valid
	X5.5	.441		Valid
	X5.6	.360		Valid
	X5.7	.639		Valid
Public Safety Standards	X6.1	.655		Valid
	X6.2	.440	.3061	Valid
	X6.3	.655		Valid
	X6.4	.933		Valid

➢ *Reliability Data*

A reliability test is carried out on valid question items. It can be categorized as reliable if the answers to questions are always consistent. The consistency of the instrument's reliability is intended to see the answers to the questions given by the respondents. The analysis tool uses SPSS as follows.

Table 4 Reliability Data Results

Cronbach's Alpha	*N of Items*
.852	28

➢ *Observation Results*

The results of observations of 28 points on the implementation of occupational health and safety in housing development projects in Banjarbaru City, South Kalimantan, refer to Table IV.5 and Table IV.6 concerning Work Safety Plans following PUPR Regulation NO. 10 of 2021, where the results of observing the application of OSH can be seen in Table IV.5.

Table 5 Observation Results of SMKK Implementation

No	Observation Items	Observation Results	Done	Not Yet
1	Availability of Occupational Accident Programs, Old Age Security, and Health Care Benefits by Housing Parties	70% of housing development projects have not yet implemented Provision of work accident programs, health care insurance and old age insurance	√	
2	Socialization/briefing of workers related to efforts to prevent work accidents and work-related diseases by housing parties	Socialization/briefing for workers has been carried out, but it is not optimal, and there is still a need for follow-up so that workers apply OSH in fieldwork.	√	
3	Availability of organic and non-organic waste bins	There is no availability of organic and non-organic waste bins		√
4	There is a program to prevent work accidents and occupational diseases in the project regulated by the housing agency.	There is already a program for preventing work accidents and occupational diseases in projects regulated by the housing sector, but workers often ignore it.	√	
5	Availability of signs	Signs are already available, but they still need to be 100%.	√	
6	Evaluation of accident prevention that can involve the surrounding community	There has been an evaluation by the housing agency, but it has yet to be optimized.	√	
7	Use of signs/signs/information regarding housing construction projects around the project site	There are signs/signs/information available regarding the development project, but they still need to be established.	√	
8	Availability of worker gathering space	Adequate gathering space is unavailable.		√
9	adequate escape route as an alternative route in an emergency around the house construction project	There is no sufficient rescue route as an alternative route in an emergency around the housing construction project		√
10	There are escape routes as alternative routes in an emergency around the housing construction project	More escape routes are needed for workers around the housing development area.		√
11	Availability of adequate lighting and ventilation in the work space	There is no adequate lighting and ventilation because the workers usually rest at the house where they are building a house		√
12	Availability of fire extinguishers (APAR)	There is no fire extinguisher provided in all housing development projects.		√
13	Labour social protection on projects by housing parties	Socialization of the social protection plan has already been carried out	√	
14	Availability of SOPs or programs made by housing parties so that people around the project avoid injury	The majority of housing estates have implemented SOPs. However, a few still need to properly implement SOPs by the PUPR ministerial regulation.	√	
15	Dissemination of accident prevention that can involve the community	There has been an implementation of outreach to the community calling for the prevention of work accidents which can involve the community but only at the start of housing development and not socialized again after the housing has many customers	√	
16	Installation of K3 Sign Boards containing among others slogans reminding of the need to work safely	Sign boards have been installed on several housing estates in this thesis research but not 100%.	√	

17	The program for preventing social injustice that occurs among project workers by the housing agency	A dissemination still has to be conducted by the housing sector to give lectures regarding injustice prevention programs.		√
18	Implementation efforts to prevent work accidents and occupational by housing parties.	The implementation of efforts to prevent work accidents by the housing has been implemented.	√	
19	Availability of medical room and first aid equipment	There is a medical room and first aid equipment available on the project, but in some housing areas, the medical room is inadequate and does not comply with health SOPs.	√	
20	Implementation efforts to prevent the spread of disease outbreaks in the work environment	Dissemination regarding the implementation efforts to prevent disease outbreaks has yet to be conducted.		√
21	There is a program to prevent the use of psychotropics by workers performed by the housing agency.	There is no program to prevent the use of psychotropics by housing authorities for workers.		√
22	Availability of work equipment and project materials	There is already a place for work equipment and project materials available in the 10 housing projects studied.	√	
23	Dissemination of psychotropic use prevention of workers carried out by the housing authorities.	There is no socialization of psychotropic prevention		√
24	Availability of personal protective equipment (PPE) for all workers by the housing agency.	Personal protective equipment (PPE) is available, but many workers still do not use PPE according to the applicable SOP.	√	
25	There is a disease outbreak prevention program in the work environment and around housing projects.	There is no disease outbreak prevention program in development projects.		√
26	there is an identification of risks that can be suffered by the community around the project made by the housing party	There is no identification of risks by the housing		√
27	Outreach to workers regarding efforts to prevent the spread of disease outbreaks in the work environment and around the project by the housing.	There needs to be a detailed outreach to workers regarding the prevention of disease outbreaks in development projects.		√
28	Implementation efforts to prevent the use of psychotropics by workers	There has been no effort from the housing agency regarding the implementation		√

➢ *Questionnaire Frequency*

Table 6 Questionnaire Frequency

No	Statement	Very influential	Influen-tial	Influential Enough	No effect	Very Influential
1	Social protection for workers on projects by the housing party	5	10	12	2	0
2	Availability of Occupational Accident Programs, Old Age Security, and Health Care Benefits by Housing Parties	13	11	5	1	0
3	Social Injustice Prevention Program that occurs in project workers by housing parties	5	7	15	3	0
4	There is a program to prevent work accidents and occupational diseases in the project carried out by housing agency	9	6	14	1	0
5	Socialization/briefing of workers related to efforts to prevent work accidents and work-related diseases by housing parties	15	4	10	1	0
6	Application of efforts to prevent work accidents and occupational diseases by the	4	9	14	3	0

	housing sector					
7	Availability of medical room and first aid equipment	3	9	17	1	0
8	Availability of Personal Protective Equipment (PPE) for all workers by the housing agency	4	5	17	4	0
9	There is a disease outbreak prevention program in the work environment and around the project by the housing	1	7	22	0	0
10	Outreach to workers regarding efforts to prevent the spread of disease outbreaks in the work environment and around the project by the housing party	2	3	19	4	2
11	Implementation of efforts to prevent the spread of disease outbreaks in the work environment and around the project by the housing party	4	7	17	2	0
12	Dissemination of prevention of the use of psychotropics by workers carried out by the housing authorities	2	9	20	1	0
13	There is a program to prevent the use of psychotropics by workers carried out by the housing agency	1	13	14	2	0
14	Implementation of efforts to prevent the use of psychotropics by workers carried out by housing authorities	1	4	18	7	0
15	Availability of worker gathering space	6	8	16	1	0
16	Availability of organic and non-organic waste bins	7	11	12	0	0
17	Availability of fire extinguishers (APAR)	3	10	17	0	0
18	Availability of signs	7	10	11	2	0
19	Availability of work equipment and project materials	3	6	21	0	0
20	Availability of adequate lighting and ventilation in the work space	5	7	18	0	0
21	Availability of lighting for work at night	6	8	16	0	0
22	Availability of SOPs or programs made by housing parties so that people around the project avoid injury	4	9	15	2	0
23	There is an identification of risks that can be suffered by the community around the project made by the housing party	3	2	21	3	1
24	Dissemination of accident prevention that can involve the community around the project by the housing party	4	9	15	2	0
25	Evaluation of accident prevention that can involve the community around the project by the housing party	7	8	14	1	0
26	Use of signs/information regarding hosing constructions projects around the project site	7	8	14	1	0
27	Installation of K3 Sign Boards containing among others slogans reminding of the need to work safely	4	9	15	2	0
28	There are adequate escape routes as alternative routes in an emergency around the housing construction project	5	10	14	1	0

➢ *Relative Importance Index (RII)*

Table 7 Relative Importance Index (RII)

No	Factor	Total	Total Number	A*N	RII	Rank
X1.2	Availability of Occupational Accident Programs, Old Age Security, and Health Care Benefits by Housing Parties	126	30	150	0,840	1
X2.2	Socialization/briefing of workers related to efforts to prevent work accidents and work-related diseases by housing parties	123	30	150	0,820	2
X5.2	Availability of organic and non-organic waste bins	115	30	150	0,767	3
X2.1	There is a program to prevent work accidents and occupational diseases in the project by the housing agency	113	30	150	0,753	4
X5.4	Availability of signs	112	30	150	0,747	5
X6.4	Evaluation of accident prevention that can involve the community around the project by the housing party	111	30	150	0,740	6
X7.1	Use of signs/signs/information regarding housing construction projects around the project site	111	30	150	0,740	7
X5.1	Availability of worker gathering space	110	30	150	0,733	8
X5.7	Availability of lighting for work at night	110	30	150	0,733	9
X7.3	There are adequate escape routes as alternative routes in an emergency around the housing construction project	109	30	150	0,727	10
X5.6	Availability of adequate lighting and ventilation in the work space	107	30	150	0,713	11
X5.3	Availability of fire extinguishers (APAR)	106	30	150	0,707	12
X1.1	Social protection for workers on projects by the housing party	105	30	150	0,700	13
X6.1	Availability of SOPs or programs made by housing parties so that people around the project avoid injury	105	30	150	0,700	14
X6.3	Dissemination of accident prevention that can involve the community	105	30	150	0,700	15
X7.2	Installation of K3 Sign Boards containing among others slogans reminding of the need to work safely	105	30	150	0,700	16
X1.3	Social Injustice Prevention Program that occurs in project workers by housing parties	104	30	150	0,693	17
X2.3	Implementation of efforts to prevent work accidents and diseases	104	30	150	0,693	18
X2.4	Availability of medical room and first aid equipment	104	30	150	0,693	19
X3.3	Implementation of efforts to prevent the spread of disease outbreaks in the work environment	103	30	150	0,687	20
X4.2	There is a program to prevent the use of psychotropics by workers carried out by the housing agency	103	30	150	0,687	21
X5.5	Availability of work equipment and project materials	102	30	150	0,680	22
X4.1	Dissemination of prevention of the use of psychotropics by workers carried out by the housing authorities	98	30	150	0,653	23
X2.5	Availability of Personal Protective Equipment (PPE) for all workers by the housing agency	99	30	150	0,660	24
X3.1	There is a disease outbreak prevention program in the work environment and around the project carried out by the housing party.	99	30	150	0,660	25
X6.2	There is an identification of risks that can be suffered by the community around the project made by the housing party	93	30	150	0,620	26
X3.2	Outreach to workers regarding efforts to prevent the spread of disease outbreaks in the work environment and around the project by the housing party	89	30	150	0,593	27

X4.3	Implementation of efforts to prevent the use of psychotropics by workers	89	30	150	0,593	28

➢ *SMKK Implementation Strategies*

Based on the research results described above, a strategy for improving and implementing occupational safety and health is needed. It means that Occupational Safety and Health in construction activities includes labour rights in the form of the availability of work accident programs, old age security and health care insurance by the housing party. In addition, the program for preventing social injustice that occurs among project workers by the housing agency.

IV. CONCLUSION

➢ *Based on the Results of the Research in the Previous Chapter, Several Conclusions can be Drawn as follows:*

- The implementation of Occupational Safety and Health in development projects in the City of Banjarbaru, South Kalimantan, still needs fixing.
- The dominant factors in the Construction Safety Management System are the availability of Work Accident, Old Age Benefits, and Health Insurance programs by the housing party, education regarding the prevention efforts of work accidents and work-related diseases for workers performed by the housing party, the availability organic and non-organic waste bins, also, there is a program for preventing work accidents and occupational diseases in the project shall be performed by the housing agency and the availability of signs.
- Recommendations on strategies for improving the Construction Safety Management System for housing projects in Banjarbaru City include providing Work Accident, Old Age Security, and Health Care Benefits to every worker, optimizing the importance of work accident prevention efforts, providing organic and non-organic waste bins around development projects, work accident prevention programs such as training involving experts, and complete signs around the project.

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