

Analysis of Health and Safety Risk Management (OHS) (Case Study of KPP Sidoarjo State House Rehabilitation Project)

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Abstract

This study intends to identify OHS risks in the workforce, control risks, and assess risks that occur in construction projects. This implementation was carried out in the KPP Sidoarjo State House Rehabilitation project. This data collection uses the interview method and filling out questionnaires directly to the workforce as many as 15 respondents who then arrange the risk potential variables based on each job so that 37 potential risk variables are produced. In the conclusion, there are results of the risk level assessment based on the AS/NZS 4360 standard, there are 20 variables that are categorized as medium level and 17 variables that are categorized as low level. exposed to noise when using a grinding machine when cutting ceramics (ceramic installation process), while for the lowest value of 1.47 which is included in the low level, the workers' eyes are exposed to paint splashes (painting process).

Keyword:

Control, Occupational Health and Safety (K3), Risk Identification, Risk Management, Risk Assessment

1. Introduction

1.1. Background of the Study

Occupational Health and Safety (OHS) is important for a company to avoid negative impacts from work accidents. So it is necessary to apply a risk management system and control of OHS, but the implementation of OHS in the field is still not optimal and often ignores the requirements and regulations on OHS with the implementation of the Construction Safety Management System by the government where work accidents still occur which can cause losses. thus causing the failure of construction projects because workers do not care about the magnitude of the risks that occur (Hidayat 2018). In the KPP Sidoarjo State House Rehabilitation project, there is often negligence in the use of PPE and the application of OHS by workers which will endanger themselves and also harm the company in carrying out construction project activities. Based on previous research and the problems that exist in the field, this study aims to identify the risk factors for the occurrence of OHS hazards and measure the risk factors of some of these jobs.

2. Research Method

2.1. Methodology

In this study, the method used is to use the calculation of the risk assessment that is formulated to allow the occurrence (probability) and (consequences). There is a risk index that is equal to the multiplication of the possible impacts.

Table 1. Risk Analysis Matrix

Risk Value	Risk Category	Description
1-3	L	Low
4-9	M	Moderate
10-16	H	High
17-25	VH	Very High

Description :

Very High: precarious and emergency assistance

High: dangerous, need management supervision.

Medium: medium risk, management accountability.

Low: small risk, handled by periodical decree.

3. Analysis And Discussion

3.1. Data Analysis

In this data analysis, calculations are carried out by multiplying the average value of opportunities and consequences, after that an assessment of the risk level is carried out based on the AS/NZ 4360 risk matrix standard.

Table 2 Risk rating result based on AS/NZS 4360 risk matrix Source (Owned)

No	Activity	Potential risk	Grade	Risk category
1	Ceramic installation process	Exposure to noise when using a grinding machine to cut ceramics	7.86	M
2	Iron cutting process	Employee's hand scratched	7.6	M
3	Painting process	Workers fall from a height	7.2	M
4	Ceramic installation process	Respiratory problems due to dust when cutting ceramics	6.8	M
5	Iron transfer process	Iron pierced worker's hand	6.54	M
6	Ironing Process	Iron pierced worker's hand	6.54	M
7	Ironing Process	Workers hit by Concrete Wire	6.246	M
8	Iron transfer process	The worker's hand caught in the iron	5.88	M
9	Ceramic installation process	Workers were injured as a result of being hit by a ceramic cutting machine	5.6	M
10	Iron cutting process	Workers' hands were hit by a bar cutter/bar bender	5.08	M
11	Demolition of formwork for beams, columns, and floor slabs	Workers fall from a height while dismantling formwork	5.08	M
12	Ceramic installation process	Workers exposed to material from ceramic chips	5.06	M
13	Wall and plaster installation process	Workers fall from a height	4.8	M
14	Casting Process	Worker slips while holding or moving concrete bucket	4.54	M
15	Iron cutting process	Worker's eyes caught by sparks	4.483	M
16	Iron cutting process	Worker's hand caught by sparks	4	M
17	Iron transfer process	The iron's foot hit the worker	4	M
18	Ironing process	Workers fall from a height	4	M
19	Demolition of formwork for beams, columns, and floor slabs	Worker falls from a height while installing formwork	4	M
20	Demolition of formwork for beams, columns, and floor slabs	The worker's hand is punctured and exposed to material (nails/wood)	4	M
21	Painting Process	Workers inhaled paint fumes	3.8	L
22	Wall and plaster installation process	Respiratory problems due to dust from sand/cement	3.74	L
23	Casting Process	Workers fall from a height	3.6	L
24	Iron cutting process	Iron pierced worker's hand	3.6	L
25	Iron transfer process	Iron pierced worker's hand	3.46	L
26	Ironing process	Iron pierced worker's hand	3.46	L

27	Demolition of formwork for beams, columns, and floor slabs	Worker crushed by formwork	3	L
28	Casting Process	The collapse of the concrete mold	3	L
29	Demolition of formwork for beams, columns, and floor slabs	Worker crushed by formwork	3	L
30	Iron cutting process	Workers are exposed to noise when cutting metal using a bar cutter	2.982	L
31	Installation of formwork beams, columns, and floor slabs	The worker's hand is punctured and exposed to material (nails/wood)	2.73	L
32	Casting process	Worker hit by a concrete bucket	2.54	L
33	Wall and plaster installation process	The worker's eyes are exposed to the material	2.4	L
34	Casting process	Workers' eyes are exposed to concrete mortar when pouring ready mix concrete into the mold	1.6	L
35	Installation of formwork beams, columns, and floor slabs	Worker's hand hit by a hammer	1.6	L
36	Installation of formwork beams, columns, and floor slabs	The worker's leg fell and was hit by a tool	1.53	L
37	Painting process	The worker's eyes are splashed with paint	1.47	L

3.2. Discussion

From the data that has been presented, there are 37 risk variables identified in several existing jobs. From the results of the data, the risk matrix was processed and classified based on the AS/NZS 4360 standard which obtained 20 variables with a moderate risk level (Medium), such as: exposure to noise when using a grinding machine when cutting ceramics (ceramic installation process), workers' hands being scratched by iron. (iron cutting process), workers fall from a height (painting process), respiratory problems due to dust when cutting ceramics (ceramic installation process), workers' hands are pierced by iron (iron removal process), workers' hands are pierced by iron (iron process), workers are exposed to bendrat wire (iron process), workers' hands are pinched by iron (iron removal process), workers are injured due to being hit by a ceramic cutting machine (ceramic installation process), workers' hands are hit by a bar cutter/bar bender (iron cutting process), workers fall from a height while doing demolition of formwork (removal of formwork for beams, columns and floor plates), workers are exposed to from ceramic chips (ceramic installation process), workers fall from a height (wall and plaster installation process), workers slip when holding or moving concrete buckets (casting process), workers' eyes are exposed to sparks (iron cutting process), workers' hands are exposed to sparks (the process of cutting iron), the worker's feet are hit by iron (the process of moving iron), the worker falls from a height (the process of ironing), the worker falls from a height when installing the formwork (installation of formwork for beams, columns and floor plates), the worker's hand is punctured and exposed to material (nails/wood) (removal of formwork beams, columns and floor slabs). And 17 variables with a low risk level (Low) such as: workers are inhaled by paint vapor (painting process), respiratory problems due to dust from sand/cement (wall and plaster installation process), workers fall from a height (casting process), workers' hands are pierced by iron. (iron cutting process), workers' hands are scratched by iron (iron removal process), workers' hands are scratched by iron (iron process), workers are crushed by formwork (removal of formwork for beams, columns and floor plates), concrete mold collapses (casting process), workers are crushed by formwork (installation of formwork for beams, columns and floor plates), workers are hit by a concrete bucket (casting process), workers are exposed to noise when cutting iron using a bar cutter machine (iron cutting process), workers' hands are punctured and exposed to material (nails/wood) (installation formwork of beams, columns and floor slabs),

workers' eyes are exposed to material (wall and plaster installation process), workers' eyes are exposed to concrete mixture when pouring the ready mix concrete mixes into the mold (casting process), the hands of workers are hit by hammers (installation of formwork beams, columns and floor plates), the worker's feet fall and are hit by tools (removal of formwork beams, columns and floor plates), the eyes of workers are exposed to paint splashes (painting process) on several activities. The highest value is 7.86 which is included in the medium level of the existing risk variables: noise exposure when using a grinding machine when cutting ceramics (ceramic installation process), while the lowest value is 1.47 which is included in the low level: workers' eyes are exposed to paint splashes (painting process).

4. Conclusion

4.1. Conclusion

1. By conducting a preliminary survey of literature study experts, and direct observations in the field on the Sidoarjo KPP State House Rehabilitation project. Then arrange the potential risk variables based on each job so that 37 potential risk variables are generated.
2. From the results of the risk level assessment based on the AS/NZS 4360 standard, 20 variables are categorized as a medium level which means they have a moderate risk value, and 17 variables are categorized as a low level which means they have a low-risk value. The highest value is 7.86 which is included in the medium level on the existing risk variables: noise exposure when using a grinding machine when cutting ceramics (ceramic installation process), while the lowest value is 1.47 which is included in the low level: workers' eyes are exposed to paint splashes (painting process).

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