

## **EVALUATION OF THE IMPLEMENTATION OF THE USE OF PERSONAL PROTECTIVE EQUIPMENT AND CONSTRUCTION K3 SIGNS**

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### **ABSTRAK**

Rendahnya urgensi keselamatan dan kesehatan kerja pada proyek konstruksi di Indonesia, meskipun pemerintah telah mengatur pelaksanaannya dalam Undang-undang. Penelitian ini bertujuan untuk mengetahui penerapan Alat Pelindung Diri pada Proyek Pembangunan Gedung Pusat Informasi dan Perpustakaan Universitas Negeri Padang yang dilaksanakan oleh perusahaan. Desain penelitian ini adalah penelitian kualitatif. Berdasarkan hasil penelitian diketahui jika mengacu pada Peraturan Menteri Pekerjaan Umum dan Perumahan Rakyat Nomor 10 Tahun 2021 tentang Sistem Manajemen Keselamatan Konstruksi disimpulkan bahwa tersedianya helm pengaman, pelindung mata, pelindung wajah, masker selam, sarung tangan, sepatu safety, full body harness, sarung tangan elektrik, dan pelindung pernafasan sesuai SNI. Namun alat pelindung telinga dan rompi keselamatan serta masker pelindung pernapasan belum ada yang tidak sesuai SNI. Selain itu, dokumen yang disediakan perusahaan adalah Rencana Keselamatan Konstruksi (RKK), Rencana Mutu Pekerjaan Konstruksi (RMPK), Program Mutu, Rencana Kerja Pengelolaan dan Pemantauan Lingkungan Hidup (RKPPL), dan Rencana Pengelolaan Lalu Lintas Kerja (RMLLP). Namun dokumen desain konseptual SMKK tidak tersedia.

Kata Kunci : Alat Pelindung Diri, Konstruksi Bangunan, Rambu

### **ABSTRACT**

The low urgency of occupational safety and health in construction projects in Indonesia, even though the government has regulated its implementation in the Law. This study aims to determine the application of Personal Protective Equipment in the Padang State University Information Center and Library Building Construction Project carried out by the company. The design of this study is a qualitative research. Based on the results of the research, it is known that if referring to the Regulation of the Minister of Public Works and Public Housing Number 10 of 2021 concerning the Construction Safety Management System, it is concluded that the availability of safety helmets, eye protection, face shields, diving masks, gloves, *safety shoes*, *full body harnesses*, electric gloves, and respiratory protection in accordance with SNI. However, there are no ear protectors and safety vests and respiratory protection masks are not in accordance with SNI. In addition, the documents provided by the company are the Construction Safety Plan (RKK), Construction Work Quality Plan (RMPK), Quality Program, Environmental Management and Monitoring Work Plan (RKPPL), and Work Traffic Management Plan (RMLLP). However, the SMKK conceptual design document is not available.

**Keywords:** Personal Protective Equipment, Building Construction, Signs

## BACKGROUND

Jobs in the construction sector, which have a high level of risk and accidents, often do not pay attention to the need to implement an Occupational Safety and Health Management System (SMK3) effectively. Many consider the implementation of OSH as only a cost burden, but not as an investment to prevent work accidents, even though this can result in losses in the construction project itself. Having a high urgency of K3 in the Indonesian construction sector, the government has made regulations related to the implementation of K3 through laws and requires its implementation in all sectors of the construction industry. The goal is that the implementation of K3 is said to be an obligation to protect workers and reduce the risk of work accidents, which will ultimately increase productivity and provide assurance of quality and safety of work until the zero accident target is achieved (Parampara, 2018).

Each construction project has the goal of completing the work according to the schedule, quality standards, and budget that has been set. However, various activities in construction projects face various obstacles that can cause losses and delays. One of the factors that can disrupt progress is work accidents, which often occur in construction projects and can result in delays in the completion of work (Sepang, 2013). Occupational Safety and Health (OHS) is the most vital aspect of a construction project. This is the main focus because it includes many things, including humanitarian aspects, economic benefits, costs, and legal accountability that should be maintained to maintain the reputation of the organization and company (Sanjaya, et al, 2012).

Proper Personal Protective Equipment (PPE) is an effective way to prevent diseases and accidents related to construction work. In general, the implementation of the Occupational Safety and Health Management System (SMK3) is often ignored and receives little adequate attention, which is reflected in the fact that work accidents still occur in the construction sector. Each construction project has unique characteristics, influenced by factors such as weather conditions, working time restrictions, workers' skill levels, and the use of work equipment that poses a risk to safety and health. This shows that construction projects have a serious risk of work accidents (Pangekey & Walangitan, 2012). Implementing the Occupational Safety and Health Management System (SMK3) can provide guidelines that regulate many activities within and manage aspects of OSH in a structured and overall manner in a comprehensive management system. It aims to minimize the risk of work accidents from a very high level to the lowest level by minimizing its impact (Sihombing, Walangitan, & Pingkan, 2014). Implementing proper OSH procedures will build confidence and trust in security and safety guarantees for many users of construction services.

The implementation of the construction project of the Padang State University Information and Library Center Building, which was carried out by PT. Nusa Konstruksi Engineering, Tbk, is one of the construction projects that has significant risks and potential for work accidents. This is due to the large number of workers involved in the project, the use of sophisticated equipment and machinery that requires specific methods and expertise for its operation, and the need for strict supervision of the use of such equipment. The missed implementation of K3 in construction projects can result in the risk of work accidents that have the potential to have unwanted impacts (Soehatman, 2010). Construction activities must be regulated in compliance with applicable occupational safety and health regulations.

The optimal application of Personal Protective Equipment (PPE) is expected to ensure the safety of workers and provide positive impacts and benefits for construction business actors and the surrounding environment. This is done by complying with existing legal regulations, so that work accidents and risks can be prevented, avoided, or minimized as much as possible. This study aims to find out how the application of Personal Protective Equipment (PPE) and construction signs in the Padang State University Information Center and Library Building Construction Project implemented by the company.

## METHOD

This research is a case study on the construction project of the Padang State University Information Center and Library Building located on Jl. Prof. Dr. Hamka, West Tawar, North Padang District, Padang City, West Sumatra. The research conducted is related to the evaluation of the application of the use of Personal Protective Equipment and construction K3 signs in the construction project, namely the construction of the Padang State University Information and Library Center Building. This research is a research that combines qualitative and quantitative research. The types of data in this study are primary data and secondary data. Primary data collection techniques are carried out through the distribution of questionnaires and interview techniques. The content of this research questionnaire is related to questions for the elaboration of the variable indicators used. Meanwhile, the interview method is carried out through dialogue and question and answer directly to the workers to get the information needed and used as a complement. Secondary data is obtained through data that has been collected from books, journals, reports or other documents related to the construction safety management system and documents related to SMK3 provided by the company. The analysis method used in this study is descriptive analysis. This analysis is an explanation that outlines the application of the use of Personal Protective

Equipment and construction K3 signs in construction projects and compares the implementation in the field with the Indonesian National Standard (SNI).

**1. Use of Personal Protective Equipment (PPE)**

Personal Protective Equipment (PPE) is a group of safety devices worn by workers to secure their bodies from possible exposure to risks that may occur in the work environment, which can lead to work-related accidents or illnesses (Tarwaka, 2008). Referring to the explanation contained in the Regulation of the Minister of Public Works and Public Housing Number 10 of 2021 concerning the Construction Safety Management System (SMKK), it is explained that PPE consists of safety helmets, eye protection, face shields, diving masks, ear protection, gloves, *safety shoes*, *full body harness*, *safety vests*, electric gloves, respiratory protection, and respiratory protective masks. The following is the result of a comparison between the willingness of personal protective equipment in the Padang State University construction project and personal protective equipment in accordance with the Indonesian National Standard.

Referring to the explanation contained in the Regulation of the Minister of Public Works and Public Housing Number 10 of 2021 concerning the Construction Safety Management System (SMKK), it is explained that PPE consists of safety helmets, eye protection, face shields, diving masks, ear protection, gloves, *safety shoes*, *full body harness*, *safety vests*, electric gloves, respiratory protection, and respiratory protective masks. The following is the result of a comparison between the willingness of personal protective equipment in the Padang State University construction project and personal protective equipment in accordance with the Indonesian National Standard.

**Table 1. Use of Personal Protective Equipment**

No	Name	Availability		Conformity	
		Yes	Not	Yes	Not
1	Safety Helmet – SNI ISO 3873 which protects the head from impacts, falling objects from above.	√		√	
2	Eye Protection/ <i>Safety Glasses</i> – SNI ISO 4851/ISO 4852/ANSI Z87.1 & CE to protect the eyes from exposure to ultraviolet rays.	√		√	
3	Face <i>Shield</i> – SNI 4849/SNI 4850/ANSI Z87.1/ANSI Z.87.1 to protect the eyes from particles or very fine objects.	√		√	
4	Diving Mask – SNI ISO 6161/ANSI Z87.1 Standard, SNI ISO 4850/EN166/EN169/EN175/ANSIZ87 to protect the eyes from radiation of chemical materials or substances, <i>welding gases</i> and <i>cutting goggles</i> .	√		√	
5	Ear Protectors/ <i>Ear Plugs</i> – EM54/ANSI S3.19/ANSI S3.19-1 to protect the ears from noise sounds that exceed thresholds/db.		√		

No	Name	Availability		Conformity	
		Yes	Not	Yes	Not
6	Gloves – SNI ISO 4850/WCH 01/WCH 162L/WH 162L to protect hands from chemical contact, injuries caused by pointed and sharp objects.	√		√	
7	<i>Safety Shoes</i> – SNI 7079:2009, for a type of leather safety shoe product with polyurethane sole and thermoplastic polyurethane injection molding system. In addition to SNI 7079:2009, there are also 2 other standards, namely SNI 7037:2009 and SNI 0111:2009.	√		√	
8	<i>Full Body Harness</i> – SNI ISO 16024 to protect against fall hazards.	√		√	
9	Safety vest.	√			√
10	Electric Glove – SNI-06-0652/SNI 06-1301/SNI 08-6113 to protect hands from the danger of electric shock with low to high voltage.	√		√	
11	Respiratory protection –SNI ISO 16972/N9504C/N9504CS/RMP2E/8210 3M to protect against dust, rusty material dirt or iron.	√		√	
12	Respiratory Protective Mask – SNI ISO 16972 to protect breathing from dust, smoke, mild chemical odors.	√			√

## 2. Use of Personal Protective Equipment (PPE)

Referring to the Regulation of the Minister of Public Works and Public Housing Number 10 of 2021 concerning the Construction Safety Management System (SMKK), the SMKK document consists of the Conceptual Design of SMKK, RKK, RMPK, Quality Program, RKPPL and RMLLP and is equipped with inspection and testing standards.

**Table 2. SMKK Documents**

No	Document Name	Availability	
		Yes	Not
1	SMKK Conceptual Design		√
2	Construction Safety Plan (RKK)	√	
3	Construction Work Quality Plan (RMPK)	√	
4	Quality Program	√	
5	Environmental Management and Monitoring Work Plan (RKPPL)	√	
6	Work Traffic Management Plan (RMLLP)	√	

### 3. Signs

1. Warning Signs
2. Safety Instruction Signs (*Mandatory Sign*)
3. Prohibition Signs
4. Fire Signs
5. Emergency & Direction Sign

### 4. Questionnaire Results

#### 1. Personal Protective Equipment (PPE)

##### a. Enough PPE with the Number of Workers

**Table 3. Enough PPE with the Number of Workers**

Answer Scale	Category	Frequency	Percentage
1.	Very bad	17	27%
2.	Bad	5	8%
3.	Good	31	48%
4.	Excellent	11	17%
<b>Sum</b>		<b>64</b>	<b>100%</b>

Based on Table 4, it can be seen that of the 64 respondents, most of them responded to the level of adequacy of PPE for workers, namely 31 respondents (48%) stated that it was good. Meanwhile, 17 respondents (27%) of workers said that if the level of PPE adequacy the number of workers is in very bad condition, 5 workers (8%) said that the level of PPE adequacy with the number of workers is not in good condition, and 11 respondents (17%) explained that the level of PPE adequacy of the number of workers is in very good condition.

##### b. PPE Completeness

**Table 4. Company PPE Completeness**

Answer Scale	Category	Frequency	Percentage
1.	Very bad	16	25%
2.	Bad	12	19%
3.	Good	24	37%
4.	Excellent	12	19%
<b>Sum</b>		<b>64</b>	<b>100%</b>

Based on Table 5 above, it can be seen that of the 64 respondents, the majority gave a response to the level of completeness of PPE provided by the company, namely 24 respondents (37%) stated that it was good. Meanwhile, consecutively, 16 respondents (25%) of workers stated that the level

of completeness of PPE provided by the company was in very poor condition, 12 workers (19%) said that the level of completeness of PPE provided by the company was not in good condition, and 12 respondents (19%) stated that the level of completeness of the company's PPE was in very good condition.

**c. PPE Function**

**Table 5. The Role of PPE in the Project**

<b>Answer Scale</b>	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
1.	Very bad	17	27%
2.	Bad	14	22%
3.	Good	24	37%
4.	Excellent	9	14%
<b>Sum</b>		<b>64</b>	<b>100%</b>

Based on Table 6 above, it can be seen that of the 64 respondents, the majority responded to the functioning of the project PPE, namely 24 respondents (37%) stated that it was good. Meanwhile, consecutively, 17 respondents (27%) of workers stated that the functioning of project PPE was in very bad condition, 14 respondents (22%) said that the function of project PPE was in a very bad condition and 9 workers (14%) explained that the functioning of project PPE was in very good condition.

**d. PPE Wearing Regulations**

**Table 6. PPE Wearing Regulations**

<b>Answer Scale</b>	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
1.	Very bad	14	22%
2.	Bad	16	25%
3.	Good	25	39%
4.	Excellent	9	14%
<b>Sum</b>		<b>64</b>	<b>100%</b>

Based on Table 7 above, it can be seen that out of 64 respondents, the majority of respondents responded to the PPE wearing regulations, namely 25 respondents (38%) stated that it was good. Meanwhile, consecutively, 14 respondents (22%) of workers stated that the regulations on the use of PPE were very bad, 16 respondents (25%) stated that the regulations on the use of PPE were not good and 9 workers (14%) stated that the regulations on the use of PPE were very good.

**2. Machinery and Equipment**

**a. Protectors and Safeguards**

**Table 7. Protectors and Safeguards**

<b>Answer Scale</b>	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
1.	Very bad	10	16%
2.	Bad	10	16%
3.	Good	24	37%
4.	Excellent	20	31%

<b>Sum</b>	<b>64</b>	<b>100%</b>
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Based on Table 8 above, it can be seen that of the 64 respondents, the majority shared responses to the protection and safety on the machinery in the construction project in good condition with the number of workers, namely 24 respondents (37%) saying good. While consecutively 10 respondents (16%) of workers stated that the safety and protection of the machine were in very poor condition, 10 workers (16%) stated that the safety and protection of the machine were in poor condition and 20 respondents (31%) said that the safety and protection of the machine used in the construction project were in very good condition.

**b. Protective and Safety Fittings**

**Table 8. Protective and Safety Fittings**

<b>Answer Scale</b>	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
1.	Very bad	10	16%
2.	Bad	11	17%
3.	Good	25	39%
4.	Excellent	18	28%
<b>Sum</b>		<b>64</b>	<b>100%</b>

Based on Table 9 above, it can be seen that of the 64 respondents, the majority shared their responses to the level of protection and safety of the company's machinery and equipment, namely 25 respondents (39%) said good. Meanwhile, 10 respondents (16%) of workers said that the level of completeness of the protection and safety of machinery and equipment in the project was in very bad condition, 11 workers (17%) said that the level of completeness of the protection and safety of machinery and equipment in the project was not in good condition, and 18 respondents (28%) said that the level of completeness of the protection and safety of machinery and equipment in the construction project was in very good condition. good.

**c. Engine Protection and Safety Functions**

**Table 9. Engine Protection and Safety Functions**

<b>Answer Scale</b>	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
1.	Very bad	13	20%
2.	Bad	9	14%
3.	Good	23	36%
4.	Excellent	19	30%
<b>Sum</b>		<b>64</b>	<b>100%</b>

Based on Table 10 above, it can be seen that of the 64 respondents, the majority responded to the functioning of the machine protector/safety in the project, namely 23 respondents (36%) stated that it was good. Meanwhile, consecutively, 13 respondents (20%) of workers stated that the functioning of the machine protector/safety in the project was in very bad condition, 9 respondents (14%) stated that the function of the machine safety/protector in the project was not in good



condition and 19 workers (30%) stated that the machine protector/safety in the project was in very good condition.

**d. Regulations on the Availability of Protectors/Safes**

**Table 10. Regulations on the Availability of Protectors/Safes**

<b>Answer Scale</b>	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
1.	Very bad	11	17%
2.	Bad	13	20%
3.	Good	19	30%
4.	Excellent	21	33%
<b>Sum</b>		<b>64</b>	<b>100%</b>

Based on Table 11 above, it can be seen that of the 64 respondents, the majority responded to the regulations on the protection/safety of machinery and equipment in the development project, namely 21 respondents (33%) explained very well. Meanwhile, consecutively, 11 respondents (17%) workers said that the regulations for the protection/safety of machinery and equipment were in very bad condition, 13 respondents (20%) explained that there were regulations related to the protection/safety of machinery and equipment in the project were not in good condition, and 19 workers (30%) stated that the regulations for the protection/safety of machinery and equipment were in good condition.

**3. Signs**

**a. Installation of Signs**

**Table 11. Installation of Signs**

<b>Answer Scale</b>	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
1.	Very bad	19	30%
2.	Bad	29	45%
3.	Good	12	19%
4.	Excellent	4	6%
<b>Sum</b>		<b>64</b>	<b>100%</b>

Based on Table 12 above, it can be seen that of the 64 respondents, the majority responded to the installation of internal signs in the construction project, the number of workers, namely 29 respondents (45%) said it was not good. Meanwhile, consecutively, 19 respondents (30%) workers explained that the installation of signs was in very bad condition, 12 workers (19%) stated that the installation of signs was in good condition and 4 workers (6%) explained the installation of signs in very good condition.

**b. Ease of Finding Signs**

**Table 12. Ease of Finding Signs**

<b>Answer Scale</b>	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
1.	Very bad	16	25%
2.	Bad	26	41%
3.	Good	17	28%
4.	Excellent	3	6%
<b>Sum</b>		<b>124</b>	<b>100%</b>

Based on Table 13 above, it can be seen that of the 64 respondents, the majority responded to the ease of finding signs in bad condition with the number of workers, namely 26 respondents (41%) saying that it was not good. Meanwhile, consecutively, 16 respondents (25%) of workers explained that the installation of signs was in very bad condition, 17 workers (28%) stated that the installation of signs was in good condition and 3 workers (6%) stated that the installation of signs was in very good condition.

**c. Clear Signs**

**Table 13. Clear Signs**

<b>Answer Scale</b>	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
1.	Very bad	17	27%
2.	Bad	27	42%
3.	Good	8	12%
4.	Excellent	12	19%
<b>Sum</b>		<b>64</b>	<b>100%</b>

Based on Table 14 above, it can be seen that of the 64 respondents, the majority responded to the clarity of the signs in poor condition, namely 27 respondents (42%) stated that it was not good. Meanwhile, consecutively, 17 respondents (27%) of workers stated that the clarity of signs was in very poor condition, 8 workers (12%) explained that the clarity of signs was in good condition and 12 workers (19%) explained that the installation of signs was in very good condition.

**d. Understanding the Content of Signs**

**Table 14. Understanding the Content of Signs**

<b>Answer Scale</b>	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
1.	Very bad	18	28%
2.	Bad	25	39%
3.	Good	13	20%
4.	Excellent	8	12%
<b>Sum</b>		<b>64</b>	<b>100%</b>

Based on Table 15 above, it can be seen that of the 64 respondents, the majority responded to the understanding of the content of the signs in poor condition with the number of workers, namely 25 respondents (39%) stating that it was not good. Meanwhile, consecutively, 18 respondents (28%) of workers said that if the clarity of the signs was in very bad condition, 13 workers (20%) stated that the clarity of the signs was in good condition and 8 workers (12%) stated that the installation of signs was in very good condition.

**4. Worker Behavior**  
**a. Understanding Health**

**Table 15. Understanding Health**

<b>Answer Scale</b>	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
1.	Very bad	6	9%
2.	Bad	9	14%
3.	Good	32	50%
4.	Excellent	17	27%
<b>Sum</b>		<b>64</b>	<b>100%</b>

Based on Table 16 above, it can be seen that of the 64 respondents, the majority responded to the understanding of occupational health in good condition with the number of workers, namely 32 respondents (50%) stating that it was good. Meanwhile, consecutively, 6 respondents (9%) of workers stated that their understanding of occupational health was in very poor condition, 9 workers (14%) stated that their understanding of occupational health was not in good condition and 17 workers (27%) stated that their understanding of occupational health was in very good condition.

**b. Willingness to Comply with Regulations**

**Table 16. Willingness to Comply with Regulations**

<b>Answer Scale</b>	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
1.	Very bad	9	14%
2.	Bad	6	9%
3.	Good	28	44%
4.	Excellent	21	33%
<b>Sum</b>		<b>64</b>	<b>100%</b>

Based on Table 17 above, it can be seen that of the 64 respondents, the majority shared responses on the willingness to comply with the rules in good condition with the number of workers, namely 28 respondents (44%) stating that it was good. Meanwhile, consecutively, 9 respondents (14%) of workers stated that the willingness to obey the rules in very bad conditions, 6 workers (17%) said that the willingness to obey the rules in bad conditions and 21 workers (33%) expressed their willingness to obey the rules in very good conditions.

**c. Carefully Carry Out the Work**

**Table 17. Carefully Carry out the work**

<b>Answer Scale</b>	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
1.	Very bad	13	20%
2.	Bad	17	27%
3.	Good	23	36%
4.	Excellent	11	17%
<b>Sum</b>		<b>64</b>	<b>100%</b>

Based on Table 18 above, it can be seen that of the 64 respondents, the majority responded to caution when working in good conditions, namely 23 respondents (36%) stated that it was good. Meanwhile, 13 respondents (20%) of workers stated that the prudence of workers in working in very bad conditions, 17 workers (27%) stated the principle of prudence when working in poor conditions and 11 workers (17%) explained the principle of prudence in working in very good conditions.

**d. Caring for Maintaining Occupational Safety**

**Table 18. Caring for Maintaining Occupational Safety**

<b>Answer Scale</b>	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
1.	Very bad	17	27%
2.	Bad	9	14%
3.	Good	26	40%
4.	Excellent	12	19%
<b>Sum</b>		<b>124</b>	<b>100%</b>

Based on Table 19 above, it can be seen that of the 64 respondents, most of them shared responses to concern for occupational health with good conditions, namely 26 respondents (40%) stated that it was good. Meanwhile, consecutively, 17 respondents (27%) of workers stated that their concern for occupational health was in very bad condition, 9 workers (14%) stated that their concern for occupational health was not in good condition, and 12 workers (19%) explained that workers' concern for occupational health was in very good condition.

Based on data obtained from PT. Riau Multi Cipta Dimensi as the construction management (MK) consultant in the construction project of the Padang State University information center and library building, if reviewed in accordance with the Minister of PUPR Regulation No. 10 of 2021, it can be seen that the party has made plans regarding K3 policies, goals and objectives as well as environmental management planning, traffic management planning on the construction project. This can be seen from

several plans that have been made such as waste management plans, emission and spill prevention, and maintaining cleanliness.

The use of Personal Protective Equipment (PPE) in building construction projects is a crucial aspect in maintaining the safety and health of workers. In the project, there are various types of PPE that meet national safety standards, such as safety helmets, eye protection, face shields, diving masks, gloves, *safety shoes*, *full body harnesses*, electric gloves, and respiratory protection in accordance with the Indonesian National Standard (SNI). However, there are shortcomings that need to be considered. One of them is the absence of ear protection provided at the project site. This is a weakness that needs to be corrected immediately because the construction environment is often at high risk of noise from the machines and heavy equipment used. The noise can cause hearing loss or even permanent damage to the ears of workers. In addition, it is also known that the available safety vests and respiratory protection masks do not meet the applicable SNI standards. This discrepancy can reduce the effectiveness of protection against the risk of injury or illness that workers may face. Therefore, it is necessary to evaluate and improve the provision of PPE in the construction project to ensure that all aspects of safety and health are comprehensively covered in accordance with applicable standards.

In the context of construction safety regulations, the Regulation of the Minister of Public Works and Public Housing Number 10 of 2021 concerning the Construction Safety Management System (SMKK) plays an important role. The SMKK document consists of several parts that include the Conceptual Design of SMKK, Construction Safety Plan (RKK), Construction Work Quality Plan (RMPK), Quality Program, Environmental Management and Monitoring Work Plan (RKPPL), and Work Traffic Management Plan (RMLLP). Each part of this SMKK document is designed to cover key aspects in managing safety and health in the construction environment, including environmental monitoring, traffic management, work quality, and so on. The SMKK document is also equipped with inspection and testing standards that must be complied with to ensure compliance with safety regulations.

However, in the construction project of the Padang State University Information Center Building, there are several irregularities related to the completeness of SMKK documents. Although RKK, RMPK, Quality Program, RKPPL, and RMLLP are available, the SMKK Conceptual Design is not available. The presence of the SMKK Conceptual Design is very important because it is the basis for the development of the entire construction safety management system. This design includes the vision, objectives, and construction safety strategies that must be followed throughout all stages of the project. The absence of a Conceptual Design of SMKK can result in a gap in the understanding and application of construction safety principles that should be the foundation for all construction activities. Therefore, it is necessary to immediately review and prepare the SMKK Conceptual Design to ensure that the construction project is within a safety framework in accordance with applicable regulations.

Based on the results of the research carried out by the author, it can be known that several factors are factors that cause work accidents, namely Personal Protective Equipment (PPE), signs. There are many

factors that can cause Occupational Safety and Health (K3) problems that are not in accordance with the standards that have been set. For example, in the construction project of the information center and library building of Padang State University, various K3 problems may arise due to various factors, both technical such as machines and methods, as well as non-technical such as the work environment. Therefore, a thorough analysis is needed to identify the root causes that may arise during the implementation process in the field. By analyzing cause and effect, we can uncover the causes that make the implementation of OSH less than expected.

Broadly speaking, the company has provided Personal Protective Equipment (PPE) based on the number of workers in the construction project, but the PPE available is still incomplete and some of them are not in accordance with SNI. In addition, compliance with regulations on the use of PPE is also not optimal. Problems related to PPE are one of the main causes of work accidents in the construction project of the information center and library building of Padang State University. PPE is required to protect workers from potential hazards at the project site, such as chemical, biological, radiation, electrical, and mechanical hazards. However, in reality, the use of PPE is not always carried out completely by workers, either due to the absence of availability from the company or the negligence of the workers themselves. Although many companies have implemented OSH management systems, including regulations on the use of PPE, there are still non-compliance from workers. This can be seen from the behavior of workers who often use PPE incompletely, such as wearing ordinary shoes without *safety* shoes in the field. In addition, there are also many PPE that are no longer suitable for use, such as damaged helmets. In the construction project of the information center and library building of Padang State University, there are still shortcomings in the installation of signs in potentially dangerous places. Signs are only installed in a few locations that are considered dangerous, but overall the installation is still not good. Signs that should be danger markers have not been properly installed by the company. These signs are difficult to find, unclear, and difficult to understand. For example, some areas of the construction project do not have signs indicating the presence of piles of iron that could endanger workers.

#### **AUTHOR CONTRIBUTIONS**

Maizul Isror as the first author and corresponding author plays a role in literature search, literature assessment and literature review writing. Fajar Nugroho plays a role in helping to find sources of literature to be reviewed. Hamdeni Medriosa plays a role in assisting in the process of assessing and screening articles which will then be reviewed in this study.

#### **CONFLICT OF INTERESTS**

There is no conflict of interest in this study.

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