Description of Hazards on the Development of the X Makassar Clinical Laboratory

Siti Nurkhaliza[1,*], Deah Yulistianingsih[1], Sabikah Salsabila Arfan J [1], Fatmawaty Mallapiang[1], Lilis Widiastuty [1]

1. Publich Health Departement, Universitas Islam Negeri Alauddin Makassar, Indonesia
* Correspondence: khalizanur07@gmail.com

Abstract: Construction project development is generally an activity that contains many elements of danger. The situation in the project location reflects a tough character and the activities look very complex and difficult to carry out so that excellent stamina is needed from implementation. As a result of work accidents, namely causing losses or direct costs and losses or indirect costs. Direct losses or costs are losses that can be calculated directly from the start of the incident to the stage of rehabilitation, for example the cost of treatment and care due to an accident. The method used is a qualitative research by analyzing descriptively to describe the Hazard Risk to Workers in the Development of the Clinical Laboratory X Makassar. The results of the study showed that there were 3 respondents 3-4 times a week which resulted in mild sprains of their feet, then 1 respondent experienced a pinching once a week, which resulted in pain but was still able to continue working. Furthermore, as many as 3 respondents were bitten by insects 4-5 times a week which resulted in itching after being bitten but could still continue their work. Furthermore, as many as 1 worker was pierced by a nail once a week which caused pain in the legs and did not develop tetanus.

Keywords: risk, danger, building

1. Introduction

The main part of the Indonesian economy is to absorb a large number of workers in the construction sector. In the construction sector, an important element in the development of a country, where construction projects such as the construction of buildings, roads, bridges and other infrastructure is a measure of the country's economic development. So to see the success of a construction project, look at the health and safety aspects of the project, the achievement of time, cost and quality [1].

Construction work safety and health is called construction K3 which is an activity to guarantee and protect the safety and health of workers through efforts to prevent work accidents and occupational diseases in construction work.

Construction workers are guaranteed safety by the state as Article 27 paragraph 2 of the 1945 Constitution of the Republic of Indonesia states that every citizen has the right to work and a decent living for humanity. So, based on the law that every citizen has the right to decent work and is protected from the aspect of safety at work and is also protected from occupational diseases. It is also written in Law No. 1 of 1970 concerning work safety explains that workers must know what dangers and risks are in their workplace, and obtain information related to good and safe work implementation [2].

Construction project development is generally an activity that contains many elements of danger. The situation in the project location reflects a tough character and the activities seem very complex and difficult to carry out so that excellent stamina is needed from its

implementation. Based on these unique characteristics, the construction services sector has a risk of fatal accidents. Construction is the largest contributor to work accidents in Indonesia [3].

HW Heinrich revealed that 80% of work accidents are caused by unsafe action factors as we often encounter in the field in the construction sector where workers do not use personal protective equipment (PPE) and 20% of work accidents are caused by unsafe conditions (unsafe condition) [4].

According to the International Labor Organization (ILO) in 2015, globally there are 60,000 fatal work accidents per year. About 1 in 6 reported fatal accidents occur in the construction sector [5]. Based on data from the Occupational Safety and Health Administration (OSHA) in America, it shows that the total number of deaths in the construction sector in 2014 was 874 people. Of the total deaths, 349 people (39.9%) were caused by falling from a height, 74 people (8.5%) due to electricity, 73 people (8.4%) from falling objects and 12 people (1.4%) from falling other accidents [6].

Nationally, the number of work accidents in the construction sector according to the BPJS Employment version from 2016 to November recorded 101,367 accident cases, the death toll reached 2,382 people, in 2015 there were 110,285 with 2,375 deaths while in 2017 the number of work accidents reported was 123,041 cases, meanwhile throughout 2018 it reached 173,105(BPJS Employment, 2019). Meanwhile, according to BPJS Employment, the South Sulawesi region shows that work accidents in the last 3 years have increased. In 2015 there were 780 cases, 2016 decreased by 747 cases, but increased in 2017 to 943 cases [7].

As a result of work accidents, namely causing losses or direct costs and losses or indirect costs. Direct losses or costs are losses that can be calculated directly from the start of the incident to the stage of rehabilitation, for example the cost of treatment and care due to an accident. Meanwhile, indirect costs or losses are losses in the form of costs incurred including something that is not visible at the time or some time after the accident, for example the loss of working hours of workers who have work accidents [6].

In construction sector work, it is very necessary to equip workers with personal protective equipment (PPE) in accordance with the potential hazards, because construction work is at risk of causing accidents or dangers that may occur during the work of the project [8].

Based on the results of interviews with workers in the Makassar X Clinical Laboratory construction project on 26 and 28 May 2022,as many as 3 respondents from 31 workers. In the clinical laboratory construction project X, 3 respondents (100%) slipped 3-4 times a week which resulted in minor sprains of their legs but they were still able to continue their work. Furthermore, as many as 1 (50%) respondents experienced a pinch once a week, which resulted in illness but could still continue their work. Furthermore, as many as 3 (100%) respondents were bitten by insects 4-5 times a week which resulted in itching after being bitten but could still continue their work. Furthermore, as many as 1 (50%) workers are pierced by nails once a week which causes pain in the legs and does not result in tetanus being immediately treated at the location using P3K by removing the blood after which the workers rest for a while and continue their work.

Based on the description above, the authors are interested in knowing the Hazard Risk Description for Workers in the Development of the X Makassar Clinical Laboratory.

2. Methods

This research method is a qualitative research by analyzing descriptively to describe the Hazard Risk on Workers in the Construction of the X Makassar Clinical Laboratory on Jalan Jend. Sudirman. This research was conducted on May 25-27 2022.

There is a population in this study as many as 41 workers and the sampling technique in this study uses the total sampling method where the population is the same as the sample, so the sample is 41 workers. In this study, the instruments used in the study were observation and in-depth interviewsand presentation of data using tables and narratives to discuss the research results.

3. Result

3.1 Characteristics of Respondents

Table 1. Distribution of Characteristics of Respondents in the Construction Work of the X Makassar Clinical Laboratory 2022

Characteristics of Respondents	Amount	
	Frequency	%
Age (Years)		
- <30	11	35.5
- 30	20	64.5
Level Of Education		
- S1	4	12.9
- D3	0	0
- Senior High School	10	32.3
- Junior High School	12	38.7
- Elementary School	5	16.1
Working Time (Hours)		
- > 8	31	100
Working Period (Years)		
- <2	31	100
Total	31	100

Source: Primary data 2022

Based on table 1, it can be seen that the distribution of respondents based on age is mostly respondents with the age of 30 years as many as 20 respondents (64.5%), and the age group that has the least number of respondents is <30 years as many as 11 respondents (35.5%). Based on the table above, it can be seen that the distribution of respondents based on education level is mostly respondents with junior high school level as many as 12 respondents (38.7%), and the lowest education level group is D3 as many as 0 respondents (0%). Based on the table above, it can be seen that the distribution of respondents based on length of work is mostly respondents with working hours > 8 hours as many as 31 workers (100%). Based on the table above, it can be seen that the distribution of respondents based on years of service is mostly respondents with a service period of <2 years as many as 31 workers (100%).

3.2 Tools and Materials for the construction of the Clinical Laboratory

a) Tool

- Bar Bender & Bar Cutter

Forbar benderoften used to bend iron or steel with a certain angle setting quickly and neatly. The maximum bent reinforcing iron can reach a diameter of 32 mm. While the bar cutter is used to cut reinforcing steel. This tool can work manually or using electricity.

- Excavators

In every large-scale construction project it is almost always seen that there isexcavator. It looks like a big car and is yellow. This construction tool consists of several parts such as basket, cab, tracker, arm and shoulder. Excavators are used to dredge rivers, destroy buildings, level the ground, to install foundation bars.

- Mixer Truck (Molen Truck)

Truck Mixer is a special fleet for lifting liquid concrete produced from a batching plant, the weight of this truck is approximately 25 tons. Various terms are pinned on this truck including mixer truck, mixer truck or concrete truck.

- Borepile

The bore pile foundation is one of the alternative foundation tools that are used when in the construction of building foundations it is not possible to use pile foundations due to the narrow location and other possible conditions.affect construction projects.

- Tower Crane

It is large and tall shape makes it easy to lift and transport materials. The movement is quite complete. Apart from lifting materials,tower cranecan also shift or hold the load. For the type of construction work that has high mobility, usually there is also a crawler crane because it is easy to move around.

b) Ingredient

- Sand

Sand is a granular material consisting of finely divided rock and mineral particles. Sand is finer than gravel and coarser than silt. Sand can also refer to a texture class of soil or soil type; that is, soils containing more than 85 percent sand- sized particles by mass. Sand is a building material that is widely used from the lowest structure to the top in the building. Good as backfill, mix until the concrete mix. Some of the uses of sand in buildings can be found such as:

1) Use as backfill, for example, fill sand under the foundation, fill sand under the floor, fill sand under the installation of paving blocks and others.
2) Use as a mortar or mortar, usually used as a mortar forfloor work, installation of river stone foundations, brick wall installation, species for installing floor tiles and wall tiles, species for installingnatural stone, wall plastering and others.
3) The use as a concrete mixture for both reinforced and non- reinforced concrete, we can find in reinforced concrete foundation structures, sloof, floors, columns, floor plates, cast dak, ring beams and others.

Besides that, there is still a lot of use of sand in building materials which is used as a mixed material for the manufacture of printed materials such as making paving blocks, kansteen, brick and others.

- Gravel

Gravel as a result of natural disintegration of rock or in the form of crushed stone obtained from the stone crushing industry and has a grain size between 5-40 mm. Gravel as

a result of rock disintegration because it is taken directly from nature (rivers), has an irregularly rounded, flat and slippery surface shape due to movements or wear and tear by water so as to reduce adhesion to the aggregate grains themselves. Meanwhile, crushed stone obtained from a stone crusher has an uneven, irregular, sharp angle and rougher surface shape so that it can increase the adhesion between the mortar and the aggregate grains. Thus, it can reduce segregation and the resulting concrete is stronger.

- Cement

Cement is a mixture of limestone (rich in calcium carbonate) and clay soil that contains a lot of silica (a type of mineral in the form of sand), aluminum oxide (alumina) and iron oxide. The materials are then crushed and heated to a temperature ofuntil a new mixture is formed. Cement is a substance used to glue stones, bricks, and other things together.

- Ceramic

Ceramic is a floor coating that can give a finishing touch to the building, which makes the building feel more comfortable to look at. The presence of ceramics certainly makes our room feel more complete when we discuss building construction. For that in the installation of ceramics also need to be considered carefully. If there is an error in the installation, it will make the final result less neat and may make the floor hollow and make the ceramic crack quickly.

- Nail

Nails are not the main building material. However, nails have a function to combine various building materials.

c) Clinical Laboratory Development Workflow

- Planning (Planning)

At this stage, it is very necessary to have initial planning in starting a construction, namely checking the location and cleaning the location. Then after that all building permits, preparation of schedules, equipment, labor to administrative completeness before starting work. OnThis design program will later be checked directly by service users, and will be approved later. The contractor is obliged to measure the target of conformity and estimate the time and cost of project implementation.

- Foundation excavation work

At this stage, covering the excavation of foundations, there are 2 classifications in the foundation, namely shallow foundations and deep foundations. The foundation is a foundation that can bear the load of the building to hard soil or rock that is located relatively far from the surface, such as a well foundation or pile foundation.

- Installation work

At this stage, the installation of piles is carried out. At this stage also carried out the installation of concrete. Quality of concrete is very dependent on what materials are used so that it is quite influential on the construction of the building. This stage includes the casting stage. The mixture consisting of cement, sand and gravel is stirred through a drum type mixer (molen) machine.

- Floor job

In the installation of this floor through instructions from construction management and project design. Floors equipped with ceramics must follow the rules of ceramic floors must be clean, not cracked or corrugated.

- Electrical Installation Works

In electrical installation is very necessary in construction. Electrical installation must comply with applicable regulations. This installation includes switches, contact scopes, electrical panels, lamps.

- Closing

This stage includes cleaning and maintenance work. Where it must be cleaned and inspected all parts of the project which include floors, walls, electricity, doors, windows, ceilings, etc. so that the building is habitable. Then during the maintenance period, the construction workers are required to inspect and replace materials that are not functioning or damaged.

d) Work risks in clinical laboratory construction

The work risks during the construction of the clinical laboratory are:

Table 1. Work risks during the construction

No	Workflow	Danger Risk
1	Planning (site checking and site cleaning)	Physique : - Excavator noisefor site cleaning - Sunshine - Material hit Chemical - Exposure todust duringcleaning Biology: - Bitten by insectswhile cleaning the site Physiological: - Insufficient use of PPE Psychology: - Experiencing fatigue during site cleaning
2	Foundation excavation work	Physique - Excavator noise when digging - Sunshine - Smooth surfaceso you can slip Biological - Bitten by insectswhile digging Chemical - Inhaling silica dust when digging foundations
3	Installation work (concrete and pile)	Physiological - Improper use of PPE - Working position when digging bent for hours Psychology - Work fatigue Physique - Sunshine - Noise from pile drilling tools on piles - Experiencing vibrations in the piling process - Risk of pinching the tool - Noise on the mixer on concrete - There is a risk of slipping due to slippery surfaces when working on concrete - Risk of falling on work tools - Pierced by iron, nails Chemical - Exposed to fine silica dust from cement can be inhaled by concrete workers - Exposed to dust from coarse aggregate which can be inhaled by concrete workers

No	Workflow	Danger Risk
		- Physiological - Insufficient use of PPE Psychological - Work stress due to monotonous work - Work fatigue
4	Floor job	Physique - At risk of being scratched by ceramics - Risk of slipping - Risk of falling onwork tools Biology - Exposure togerms onunhygienic tools Physiological - Insufficient use of PPE - Bend working position for a - long time
5	Electrical installation work	Physique - Risk of falling from stairs - Risk of electricshock Biology - There aregerms on the tool Physiological - Inappropriateuse of PPE Psychological - Work fatigue
6	Cover (cleaning, maintenance)	Physique - Sunshine Chemical - Inhaling silica dust duringcleaning Physiological - Working position standing for along time Psychological - Work fatigue

From the identification of risks where in the construction of clinical laboratory X there are many potential hazards or hazards that can endanger workers, from the planning workflow, there is a risk of danger, namely Physical (Noise on the excavator for site cleaning, exposure to sunlight, material being crushed). On Chemical (Exposure to dust during cleaning). On Biology (Bit by insects during site cleaning). Physiological (the use of PPE is still lacking). On Psychology (Experiencing fatigue during site cleaning).

In the second workflow of foundation excavation, there are risks such as physical hazards (noise from the excavator during excavation, exposure to sunlight, slippery surfaces so they can slip). On Biologics (Bit by insects while digging). On Chemistry (Inhaling silica dust when digging foundations). In Physiological (Use of inappropriate PPE, Working position when excavation is bent for hours). On Psychology (Work exhaustion).

In the third groove of the concrete and pile installation work there is a risk of danger, namely Physical (Exposure to sunlight, Noise from the pile drill tool on the pile, Experiencing vibrations in the pile process, Risk of being pinched in the tool, Noise from the mixer on the concrete, Risk of slipping due to slippery surface when concrete workers, Risk of falling on work tools, Punctured by iron, nails. On Chemical (Exposed to fine silica dust from cement can be inhaled by concrete workers, Exposed to dust from coarse aggregate

which can be inhaled by concrete workers). On Physiological (Use of appropriate PPE) still lacking) On Psychological (work stress due to monotonous work, work fatigue).

In the fourth workflow, floor work has a risk of danger such as Physical (Risk of being scratched by ceramics, Riskyslip, risk of falling on work tools). In Biology (Exposure to germs on unhygienic equipment). Physiological (the use of PPE is still lacking, the working position is bent for a long time).

In the fifth workflow of electrical installation work there are risks of danger such as Physical (Risk of falling from stairs, Risk of electric shock). In Biology (There are germs on the tool). Physiological (use of inappropriate PPE). On Psychological (Work exhaustion). And on the workflowlastly, cover work there are potential hazards or hazards such as physical (exposure to sunlight). Chemical (Breathing silica dust during cleaning). On Physiological (Standing job position for a long time). and Psychological (work fatigue).

e) Hierarchy Control

At this time, Carry out hazard control in order to minimize the risks posed in the development. As for controlling the Hierarchy on the risk of danger in development X , that is:

Table 2. Hierarchy on the risk of danger in development X

Workflow	Potential hazard	Control
Planning (location checking and site cleaning	Excavator noise for site cleaning	- Engineering: reduce noise levels by providing noise- - Canceling devices to noise producing tools so that workers are not exposed to excessive noise - Administrative: implementing work shifts, health checks - PPE: using PPE in the formof ear muffs
	Material hit	- Administrative: implementing work shifts, installing hazard signs - PPE: wear personal protective equipment such as safety helmets, safety shoes,gloves, work uniforms
	Sunshine	- Administrative: apply shift work - PPE: Using PPE in the form of safety helmets, gloves, safety shoes,protective goggles
	Workers may slip due to slippery surfaces	- Engineering: work area should always be cleaned - Administrativ e: implementing work shifts, Installing hazard signs - PPE: Usework uniforms, safety shoes
	Exposure to dust during cleaning	- Substitution: reduce exposure to dust should flush the work place before working - Engineering: installing local exhaust to reduce dust in the workplace - Administrative: apply shift work - PPE: wearpersonal protective equipment such as using a respirator mask andprotective goggles
	Bitten by insects while cleaning the site	- PPE: wear personal protective equipment such as work uniforms, safety shoes, gloves
	Experiencing fatigue during site cleaning	- Administrativ e: apply shift work, rest

Workflow	Potential hazard	Control
Foundation excavation work	Excavator noise when digging	- Engineering: reduce noise levels by providing noise-canceling devices to noise- producing tools so that workers are not exposed to excessive noise - Administrative: apply shift work - PPE: using PPE in the formof ear muffs
	Sunshine	- Administrativ e: apply shift work - PPE: Using PPE in the form of safety helmets, gloves, safety shoes, protective glasses
	Smooth surface so you can slip	- Engineering: the work areashould always be cleaned - Administrativ e: implementing work shifts, warning signs - PPE: wear personal protective equipment such as safety shoes, work uniforms
	Bitten by insects while digging	- PPE: wear personal protective equipment such as safety shoes, gloves
	Inhaling silica dust when digging foundations	- Substitution: reduce exposure to dust should flush the workplace before working - Engineering: installing local exhaust to reduce dust in the workplace - Administrativ e: apply shift work - PPE: wear personal protective equipment such as usin a respirator mask and protective goggles
	Working position when digging bent for hours	- Administrativ e: apply shiftwork
	Work fatigue	- Administrative : shift work
	Sunshine	- Administrativ e: apply shift work - PPE: Using PPE in the form of safety helmets, gloves, safety shoes, protective glasses
	Noise from pile drilling tools on piles	- Engineering: reduce noise levels by providing noise-canceling devices to noise- producing tools so that workers are not exposed to excessive noise - Administrative: implementing work shifts, - Health checks - PPE: using PPE in the form of earmuffs
Installation work (concrete and pile)	Experiencin g vibrations in the piling process	- Engineering: installation of vibration damper to dampen vibrations - Administrative: implementing work shifts, health checks - PPE: Gloves that absorb vibrations
	Risk of pinching the tool	- Administrativ e: implementing work shifts, installing hazard signs - PPE: wear personal protective equipment such as safety shoes, gloves, work uniforms
	Noise on the mixer on concrete	- Engineering: reduce noise levels by providing noise-canceling devices on molen tools that cause noise so that workers are not exposed to excessive noise

Workflow	Potential hazard	Control
		- Administrative: implementing work shifts, health check
	Risk of slipping due to slippery surface	- Engineering: the work area should always be cleaned - Administrativ e: implementing work shifts, warning signs - PPE: wear personal protective equipment such as safety shoes, work uniforms
	Risk of falling onwork tools	- Administrative: implementing work shifts, installing hazard signs - PPE: wear personal protective equipment such as safety helmets, safety shoes, gloves, work uniforms
	Pierced by iron, nails	- Administrative: implementing work shifts, warning signs - PPE: wear personal protective equipment such as safety shoes, work uniforms
	Exposed tofine silica dust from cement can be inhaled by concrete workers	- Substitution: reduce exposure to dust should flush the workplace before working - Engineering: installing local exhaust to reduce dust in the workplace - Administrativ e: apply shift work - PPE: wear personal protective equipment such as using a respirator mask and protective goggles
	Exposed to dust from coarse aggregate which can be inhaledby concrete workers	- Substitution: reduce exposure to dust should flush the workplace before working - Engineering: installing local exhaust to reduce dust in the workplace - Administrative: apply shift work - PPE: wear personal protective equipment such as using a respirator mask and protective goggles
Floor job	At risk of being scratched by ceramics	- Administrative: implementing work shifts, warning signs - PPE: wear personal protective equipment such as safety shoes, gloves, work uniforms
	Riskof slipping	- Engineering: the work area should always be cleaned - Administrativ e: implementing work shifts, warning signs - PPE: wear personal protective equipment such as safety shoes, work uniforms
	Riskof falling on work tools	- Administrativ e: implementing work shifts, installing hazard signs - PPE: wear personal protective equipment such as safety shoes, gloves, work uniforms
	There are Germs on the tool	- Engineering: Performing tool cleaning - Administrativ e : shift work - PPE: Wearing PPE such as gloves, masks
	Work	- Administrative:
	fatigue	- apply shift work
	Risk of falling from stairs	- Engineering: The floor should always be cleaned - Administrativ e: Installing Hazardous Floor Signs, implementing work shifts - PPE: Wearing Safety Shoes

Workflow	Potential hazard	Control
Electrical Installatio nWorks	Risk of electric shock	- Administrativ e: Installing Electrical Hazard Signs - PPE: Wearing complete and safe such as gloves, safety shoes, etc.
	There are germs on the tool Physiologic al	- Engineering: Performing tool cleaning - Administrativ e : shift work - PPE: such as gloves,masks
	Work fatigue	- Administrativ : Shift Work
Cover (cleaning, maintenance)	Sunshine	- Administrativ e: apply shift work - PPE: Using PPE in the form of safety helmets, gloves, safety shoes, protective glasses
	Inhaling silica dust during cleaning	- Substitution: reduce exposure to dust should flush the workplace before working - Engineering: installing local exhaust to reduce dust in the workplace - Administrative: apply shift work - PPE: wear personal protective equipment such as using a respirator mask and protective goggles
	Working position standing for a long time	- Administrative: apply shift work
	Work fatigue	- Administrative: apply shift work

4. Discussion

4.1.Characteristics of respondentsPhysical Health

Age is an individual that is calculated from the time of birth to several years [9]. Based on the results of the study, the distribution of respondents based on age was mostly respondents with the age of 30 years as many as 20 respondents (64.5%).

The results of this study indicate that workers with the age group 30 years have a tendency to have a higher work accident due to the risk of danger because the older a person is, the more his body functions will begin to decline.

In addition, the old workforcewill experience a decrease in muscle function which has an impact on fatigue in performing. In accordance with research conducted by Winaresmi (2013), it was found that the older a person's age, the higher the feeling of fatigue which will have an impact on the occurrence of work accidents (52.7%).

The level of education is the last stage of formal education of a person who has been taken with a graduation. Based on the results of the study, it can be seen that the distribution of respondents based on education level is the most respondents with high school level as many as 12 respondents (38.7%), and the group with the least education level is D3 as many as 0 respondents (0%).

Low education has a high risk of experiencing work accidents because one's education will affect one's mindset in dealing with work. People who have higher education tend to think longer or look at a job from various aspects. While people with lower education tend to think shorter or can be said to be careless in acting [6]. This is in accordance with the

results of Aryantiningsih's (2015) research which found that 65% of the 40 respondents who experienced work accidents had low levels of education.

The results showed that it can be seen that the distribution of respondents based on length of work is the most respondents with working hours > 8 hours as many as 31 workers (100%). The results of observations in the field are known that all respondents haveworking hours > 8 hours/day. Working hours on the project are from 08.00-22.00 WIB This will trigger work fatigue which will have an impact on work accidents.

Long working hours that exceed normal working hours (8 hours/day) will affect the emergence of work fatigue so that it will have an impact on increasing work accidents and reducing work productivity. Extending working hours will result in decreased work speed and reduced performanceevery hour. The length of time working is related to the physical condition of the worker's body. Heavy physical work will affect the work of the muscles, cardiovascular, respiratory system and others [6].

If the work lasts for a long time, the body's ability will decrease and it can cause pain in the limbs, and will experience work fatigue, causing work accidents.(Martiwi et al., 2017). In accordance with research conducted by Widodo (2008) that the longer the working hours carried out by a person, the more fatigue will occur which will have an impact on the occurrence of work accidents.

Work period is a period of time or length of time workers work in a place (Husni in Politon & Christine, 2021). it can be seen that the distribution of respondents based on years of service is mostly respondents with a tenure of <2 years as many as all workers are 31 respondents (100%). The results of observations in the field are known that all respondents have a new working period of 4 months. The results of this study indicate that workers have<2 years of work, even though they are less than two years old, they have a higher risk of having a work accident because the location has a lot of potential hazards.

The period of work can affect the occurrence of work accidents because it is directly related to potential hazards. The longer a person's working period, the more exposed to the risk of new workersgenerally do not know in depth the ins and outs of work. On the other hand, with the increase in a person's working period, the knowledge and skills possessed by workers as well as the safety aspects of the work carried out will increase(Martiwi et al., 2017). This is in accordance with research conducted by Aryantiningsih (2015) that workers with new tenures are at risk of having work accidents (62.5%).

4.2 Tools and materials

In tools and materials, it is explained that there are several kinds of tools used in this construction such as Bar Bender & Bar Cutter, excavators, mixer trucks, baropiles, tower cranes. Then there are materials such as sand, gravel, cement, ceramics, nails, bricks that support the construction process at PT. X in supporting the construction of the Health Clinic in Makassar City. In a study conducted by another study regarding Tools and Materials in Construction that occurred by Widi Hartono, et al. (2016), stated that the materials used in this project varied such as Red Brick, 40x40 Ceramic, Iron, Concrete, Gravel, Asbestos Shingle Tile, Gypsum Ceiling 6mm, and Sand. The rest of the construction material can be used as a benchmark for the success of a construction project. The less waste of construction materials the better in the construction project.

4.3 Workflow

In the workflow process, it is explained that in starting a construction, it starts with planning such as checking the location and cleaning the location and then processing the

sand and soil, then installing piles and concrete after that the workers do the floor work, installing tiles, installation installation workers electricity in accordance with applicable instructions. Installation of electrical installations in the form of switches, lights, etc. Then after that the workers carry out cover work such as maintenance and supervision which aims to re-examine the quality of building construction.

In a study conducted by another study on existing workflows in construction by Juanita Indriaty Assa et al. (2014) explains that the steps that need to be taken in scheduling activities or work in a work planis :

- Determine the level of detail and activity of a project.
- Identify the logical sequence of the various activities.
- Estimate the execution time of each activity.
- Make a schedule in the form of adraft on the basis of calendar days, weekdays, weeks and months.
- Discuss scheduling the draft with more experienced people. In this case, it is likely that there will be adjustments.
- Develop a more realistic final schedule on the basis of the previoussteps.
- Make changes and improvements on matters that require the decision and consensus of others.

The implementation of construction work on a project can run according to the target time, cost, quality and quality if the manager is good. Construction management consultants must understand/master the work area so that they can carry out project control, carry out supervisionfor construction, can control costs, develop and implement a work preparation system, review and processing change orders, develop and implement procedures for reviews, processing payments for progress and completion of work for contractors, and obtaining permits from the competent authorities.

4.4 Danger Risk

Every job always contains the potential for dangerous risks in the form of work accidents or occupational diseases. The magnitude of the potential for accidents and occupational diseases depends on the type of production, the technology used, the materials used, the layout and work environment as well as the quality of management and implementing personnel [10].

According to PERMEN PU No. 05/PRT/M/2014 Article 19 letter J concerning Duties and responsibilities of service providers: "To control construction OHS risks, including inspections which include" Workplace, Work Equipment, Work Methods, Work Protective Equipment, Personal Protective Equipment , Signs and construction work environment according to RK3K.

From the identification of risks where in the construction of clinical laboratory X there are many potential hazards or hazards that can endanger workers, from the planning workflow, there is a risk of danger, namely Physical (Noise on the excavator for site cleaning, exposure to sunlight, material being crushed). On Chemical (Exposure to dust during cleaning). On Biology (Bit by insects during site cleaning). Physiological (the use of PPE is still lacking). On Psychology (Experiencing fatigue during site cleaning). In the second workflow of foundation excavation, there are risks such as physical hazards (noise from the excavator during excavation, exposure to sunlight, slippery surfaces so they can slip). On Biologics (Bit by insects while digging). On Chemistry (Inhaling silica dust when

digging foundations). In Physiological (Use of inappropriate PPE, Working position when excavation is bent for hours). On Psychology (Work exhaustion).

In the third groove of the concrete and pile installation work there is a risk of danger, namely Physical (Exposure to sunlight, Noise from the pile drill tool on the pile, Experiencing vibrations in the pile process, Risk of being pinched in the tool, Noise from the mixer on the concrete, Risk of slipping due to slippery surface when concrete workers, Risk of falling on work tools, Punctured by iron, nails. On Chemicals (In contact with fine silica dust from cement can be inhaledby concrete workers, Exposure to dust from coarse aggregate which can be inhaled by concrete workers). Physiological (the use of PPE is still lacking). On Psychological (work stress due to monotonous work, work fatigue).

In the fourth workflow, floor work has a risk of danger such as Physical (Risk of being scratched by ceramics, Riskyslip, risk of falling on work tools). In Biology (Exposure to germs on unhygienic equipment). Physiological (the use of PPE is still lacking, the working position is bent for a long time). And the fifth workflow of electrical installation work has hazards such as Physical (Risk of falling from stairs, Risk of electric shock). In Biology (There are germs on the tool). Physiological (use of inappropriate PPE). On Psychological (Work exhaustion).

And workflowlastly, cover work there are potential hazards or hazards such as physical (exposure to sunlight). Chemical (Breathing silica dust during cleaning). On Physiological (Standing job position for a long time). And Psychological (work fatigue).

Based on Setiawan's research, (2014) the number of construction work accidents that most often occurred from 2005 to 2015 were falls, electric shocks and being struck. Sari (2016) and Abryandoko's research (2018) found that K3 risks were in the form of landslides, being hit by sharp objects, falling from high places, and being electrocuted. Another risk is workers who experience work-related illness in the form of respiratory system disorders (Purba et al., 2015). The most fatal risk is the occurrence of death (Astiti, 2015). Scaffolding work has 40 potential hazards with high risk categories that need to be handled (Persada, 2015).

In research (Gaol et al., 2018) The description of work fatigue on employees of PT. Arwana Anugrah Keramik, Tbk with moderate category (53.3%), employees aged 27 years (66.7%), employees with anemia status (78.8%), employees with years of service 2 years (64%) , employees with poor sleep quality (54.7%), the workload experienced by employees is in the moderate category (60%) and employees who are exposed to a hot work climate (90.7%). Based on bivariate analysis there is no relationship between age and tenure with work fatigue on employees of PT. Arowana Anugrah Keramik, Tbk. There is a relationship between anemia status, work shifts, sleep quality, workload, and hot work climate with work fatigue on employees of PT. Arowana Anugrah Keramik, Tbk.

4.5 Hierarchy Control

Construction work safety and health is an activity to guarantee and protect the safety and health of workers through efforts to prevent work accidents and occupational diseases in construction work. From the identification of risks, where in the construction of clinical laboratory X, there are many potential hazards that can endanger workers. So, These risks must immediately get corrective action so that the risk can be reduced or eliminated. Risk control is an effort to control the potential risks of existing hazards so that these hazards can be eliminated or reduced to an acceptable limit (Moniaga & Rompis, 2019).

In risk assessment activities, the control hierarchy is one thing that is very concerned. The selection of the control hierarchy provides the benefits of effectiveness and efficiency so

that the risk of harm decreases and becomes an acceptable risk for a development (Rawis et al., 2016).

Risk control where the determination of the form of control efforts takes into account the basic hierarchy of control, namely elimination, substitution, technical, administrative control and the provision of personal protective equipment, by adjusting the project completion time, development conditions, availability of operational costs and the environment [10]. Elimination is the removal of a dangerous condition. Substitution is the replacement of dangerous conditions and actions, with safer and healthier ones. Engineering is the use of technology and work methods that can minimize risk. Administrative is the use of coordinated work permit procedures. PPE is the use of good and appropriate personal protective equipment, to reduce exposure to hazards and risks. In addition to the hierarchy of risk control, control can also be through education and training activities, as well as motivation, evaluation through audits, and law enforcement, safety induction, safety talk, training (Sucita, 2011).

There is a potential hazard in the construction of a clinical laboratory x, so carry out substitution control aspects such as the risk of silicia dust hazard by flushing the workplace before work. Engineering engineering controls such as the potential hazards that exist in the construction of the clinical laboratory x are examples of noise with engineering engineering reducing noise levels by providing noise suppression devices, then on exposure to silica dust to reduce the level of noise.exposure by flushing the workplace. There is a potential danger in the construction of a clinical laboratory x, so carry out aspects of administrative control such as implementing work shifts, health checks and there are warning signs.

In construction sector work, it is very necessary to equip workers with personal protective equipment (PPE) in accordance with the potential hazards, because construction work is at risk of causing accidents or dangers that may occur during the work of the project [11]. There is a potential danger in the construction of a clinical laboratory x, so carry out aspects of PPE control such as workers using personal protective equipment, namely earmuffs, respirators, safety shoes, gloves, work uniforms, protective glasses.

5. Conclusion

a. Characteristics of respondents in the construction workers of the Makassar Clinical Laboratory X, it can be seen that the distribution of respondents based on age is mostly respondents with an age of 30 years as many as 20 respondents (64.5%). The distribution of respondents based on education level is mostly respondents with junior high school level as many as 12 respondents (38.7%). The distribution of respondents based on length of work is mostly respondents with working hours > 8 hours as many as 31 workers (100%). The distribution of respondents based on years of service is the most respondents with a tenure of <2 years as many as 31 workers (100%).
b. The tools and materials for the construction of the Makassar X Clinical Laboratory are bar bender & bar cutter, excavator, mixer truck, molen truck, borepile, and tower crane. The materials used in the construction of the Makassar Clinical Laboratory X are sand, gravel, cement, ceramics, nails.
c. The workflow for the development of the Makassar X Clinical Laboratory is the first Planning (Planning), namely Location Checking and Site Cleaning. Second, foundation excavation work, namely this stage includes excavation of the foundation. The third, the installation work, namely the installation of piles, at this stage the installation of concrete is also carried out. The next floor work is the installation of ceramics. Furthermore, the work of Electrical Installation, namely this installation includes switches, contact scopes,

electrical panels, lights. And closing at this stage includes cleaning and maintenance work.

d. The risk of work in the construction of the Makassar Clinical Laboratory X from risk identification where in the construction of the X clinical laboratory there are many potential hazards or hazards that can endanger workers such as physical factors (noise on the excavator for site cleaning, exposure to sunlight, falling material, etc.) Slippery surface so that it can slip, Noise on the pile drill tool on the pile, Experiencing vibrations in the pile process, Risk of being pinched on the tool, Noise on the molen tool on concrete). On Chemicals (Exposure to dust during cleaning, inhalation of silica dust, Risk of falling from stairs, Risk of electric shock). On Biology (Bit by insects during site cleaning). Physiological (the use of PPE is still lacking). On Psychology (Experiencing fatigue during site cleaning).
e. Hierarchical control of OHS in the construction of the Makassar Clinical Laboratory X begins with planning workflows (location checks and site cleaning), foundation excavation work, installation work (concrete and piles), floor work, electrical installation work, and cover (cleaning, maintenance). can minimize the risk of each potential hazard, risk control can be carried out in the form of substitution control, engineering administrative and procurement of PPE.

Suggestion:

a. It is recommended that the implementation of the control of the Construction Management Consultant should play an active role in the implementation of a good and appropriate construction project so that when carrying out work when experiencing obstacles or work accidents can be avoided as quickly as possible.
b. It requires coordination and cooperation between the parties involved in the project so as to provide better synergy in achieving common goals. It is necessary to have experts or field supervisors who are professional in their fields so that they need to be taken into account in controlling the implementation of work and be responsive so that they are able to solve problems that occur in the field so that they can achieve according to the plan.

Conflicting Interest

All authors declare no conflict of interest.

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