Analysis of Construction Worker Group Productivity at Pt. Bima Natisa Graha Contractor for Red Brick Installation Work with Time Study Method on Housing Development Project

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ABSTRACT: This study aims to determine the productivity value of construction workers of PT Bima Natisa Graha red brick installation work on the construction project of housing units in residential area projects, to determine the factors that hinder the productivity of construction workers for red brick installation and to determine the productivity value of construction workers in red brick installation work after improving the factors that hinder the productivity of construction workers in red brick installation. The method to measure the productivity of construction workers in the installation of red bricks with the time study method. Time study is a method of measuring labor productivity in the field by determining the standard time of a job. The results of the study can be concluded as follows: (1) The productivity value of construction workers for red brick installation work on a housing construction project implemented by the contractor PT Bima Natisa Graha on a type 60 housing unit with a time study method of 0.378 M2 / OJ (2) Factors that hinder the productivity of construction workers are site managers, implementers and foremen from PT. Bima Natisa Graha who is rarely seen at the project site which should be in charge of giving directions in carrying out work in the field to workers so that workers joke more, talk a lot, smoke a lot, play a lot of cellphones and have coffee during working hours, this condition occurs because there is no reprimand and direction from the authorities. (3) The productivity value of construction workers for red brick installation work on a housing construction project carried out by the contractor PT Bima Natisa Graha on a type 60 housing unit with the time study method after productivity improvement is 0.496 M2 / OJ.

KEYWORDS: Productivity, Construction Labor, Time Study Method, Factors Affecting Construction Labor Productivity

INTRODUCTION

A project is a series of activities carried out within a limited time using certain resources in the hope of obtaining the best results in the future. Resources are a determining factor in the success of a construction project. Resources that influence the project consist of man, materials, machines, money and methods (Saputra, T. A., Anwar, S. 2020). Human resources are one of the most influential factors in a job, including in a construction job. A job no matter how small if it is not supported by good human resources in terms of quality and productivity, it will not provide maximum and satisfactory results in a project. In an effort to organize or manage the use of human resources to be realistic, the contractor must know the level of productivity of each. Before the construction project is carried out, the contractor will make a plan for the time, labor and cost of the construction project. Project data is needed in the form of drawing plans, unit price analysis, RKS, and other data, resulting in what is called the Cost Budget Plan and Time Schedule. The cost budget plan (RAB) and Time Schedule are used as guidelines and control tools for the time of work execution, implementation costs and productivity of labor and work tools in the project. Especially in terms of labor productivity control.

(Kiswati, S., & Chasanah, U. 2019) defines time management as the ability to prioritize, schedule and carry out individual responsibilities to the individual's satisfaction. Construction project labor workers must be able to use time well. Among the existing workforce, builders play an important role in carrying out good construction work and therefore the productivity of the construction project workforce must be maintained.

Due to the low productivity of the workforce, contractors are required to increase productivity. However, the many factors that affect productivity cause efforts to increase productivity to be not easy. This situation often occurs due to the amount of idle time carried out by workers, so that the work progress of a project is hampered and can result in delays. The productivity of workers on construction projects is difficult for us to force workers to maximize their working time, idle time on construction project work must always occur. The low productivity produced by workers makes the progress of a job late. With this phenomenon, worker productivity needs to be analyzed further, in order to get the expected results according to the predetermined duration. Duration is one of the parameters that can be used as a benchmark for project success. Therefore, in a project, optimal time control is needed so

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that the project can be completed on time. Data collection of field work results can be used to analyze how much volume is obtained and how much idle time occurs (Caroline & Denny, 2018).

PT Bima Natisa Graha as one of the companies engaged in construction services is currently working on the construction of several housing units in the Serpong Natura City residential area located in Bogor Regency which is developed by PT Natura City Developments TBK. In the work of the housing unit project, PT Bima Natisa Graha is experiencing problems with delays in its work, because it has been hit several times by warning letters for delays in work time by the developer. Starting from the first warning letter to the second warning letter given by the developer to PT Bima Natisa Graha.

From the description above, the researcher is interested in conducting research on the productivity value of construction labor at PT Bima Natisa Graha, the researcher conducted research on red brick installation work because masonry work is one of the jobs that has a large volume and has a large accumulation effect on other jobs. The housing unit building that is the object of observation is the construction of 1 type 60 housing unit. Type 60 houses were chosen as the object of research because type 60 houses are housing unit buildings that are currently being built. In this study, productivity measurement is used using time study, where the productivity of labor in the field is obtained by determining the standard time of a job. Standard time or standard time is obtained from observations in the field. Observation time is measured or observe time to find out how long it takes to complete a work activity, then observe time is multiplied by Observe Rating/Standard Rating. The result of the multiplication between observe time and rate will be the basic time and then processed into standard time which is used to calculate productivity (Malamassam, 2016).

LITERATURE REVIEW

The author has conducted a study and analysis of previous studies that have been conducted by several researchers in making this research design, and previous studies can be a reference for the thesis that the researcher is currently writing. Research related to analyzing the productivity of construction worker groups on red brick installation work with the time study method on housing construction projects in the Serpong natura City housing area, but previous studies have differences with the research to be carried out by the author.

Amalia, K. R., & Suryani, S. (2021). Comparative Analysis of Local Labor Productivity with Labor Imported from Outside Jambi City. Journal of Civil Talent, 4(1), 66-73, ISSN 2615-1634. This research was conducted at the Dekranasda building construction project and the construction of the H.Abdul Manap Hospital inpatient building. The research was conducted by observing the productivity level of 8 workers and accompanied by filling out a questionnaire. Observations were made for 2 days. From the average results of the recapitulation of the results of the calculation of the level of labor productivity, it can be seen that the level of productivity of labor imported from outside Jambi City is 1.90 m2 /hour> from the productivity level of local labor which is 1.18 m2 /hour. And from the total difference in productivity levels between local labor and labor imported from outside Jambi City on day 1 is 1.60 m2 /hour, and 4.13 m2 /hour on day 2.

Cahyadi, H., Purnamasari, E., & Nordiansyah, M. (2021). Calculation of the Productivity of Lightweight Brick Wall Installation Work with the Time Study Method in the Banjarmasin State Senior High School 5 Office Room Construction Project. SNITT POLTEKBA, 5, 37-43. ISBN: 978-602-51450-3-2. The results of the calculation of the average value of productivity of light brick installation work and plastering work in the morning 0.2374 m2 / person per hour in the afternoon 0.2222 m2 / person per hour while the average productivity of plastering work has also increased in the morning 0.3442 m2 / person per hour compared to the afternoon 0.3306 m2 / person per hour.

The grand theory underlying this research is the general theory of organizational behavior proposed by Robbins and Judge (2013). This theory has three important parts of organizational behavior theory, namely input, process, and output. Input is the initial setting of the situation and location where the process will occur. This component is determined at the beginning before the working relationship occurs. The process component is the actions and decisions taken by the individuals, groups, and organizations involved as a result of the inputs and leads to certain outcomes. Output is a predicted final result that is influenced by several other variables. Sugiyono (2017) theory is a flow of logic or reasoning, which is a set of concepts, definitions, and propositions that are systematically arranged.

According to Robbins (2017) management is the process of coordinating work through other people so that the work can be completed effectively and efficiently. (Arif Yusuf Hamali, 2018, 2) states that HR management is a strategic approach to skills, motivation, development, and resource organization management. Human resources are the most strategic element in the organization. Increased productivity is only possible by humans. Conversely, human resources can also be the cause of waste and inefficiency in its various forms. Therefore, paying attention to the human element is one of the demands in the overall effort to increase work productivity. In the world of construction to be able to move productively in its implementation is strongly influenced by quality, cost and certain time, so that to get the desired results it is necessary to have a good, responsible human resource role and human resources that can create the best work system (Matondang, D. R. U. 2017).

1. Labor is everyone who is able to do work in order to produce goods or services both to meet their own and community needs. Workers are people who work for an organization both in government agencies and in private companies or social enterprises

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where they receive certain services in return.

2. A labor group is a collection of several individuals either people who have the same goal. So a work group is a collection of several individuals who share the goal of doing something that produces, be it objects or services.

3. Construction Workers. There are various groups of workers or field laborers in construction such as carpenters, ironworkers, masons, aluminum workers, ceramicists, painters and so on. In this study, the focus is on groups of workers in masonry work and mortar work.

a. Bricklaying Work. In construction work, masonry work is one of the jobs that has a large volume so it requires more workers. Masonry work also requires expertise in the process to get good results.

b. Stirring Work. Stirring work is a mixture of binders, fillers and water. The commonly used binders are cement, building lime or a mixture of both, while the fillers are sand or tras.

The definition of productivity is generally defined as a comparison between output and input. (Malamassam, 2016) states that productivity can be described as a comparison between the total output in the form of goods and services at a certain time divided by the total input in the form of manpower, material, money, method, machine during the period concerned in one unit. Productivity = Output / Input, Output is the quantity of work and Input is labor.

Labor productivity shows the ability of a person or worker to produce a certain amount of output in a certain unit of time. Labor productivity can be a measure of the efficiency of labor utilization. This is considering that in reality, a worker in doing his job does not necessarily utilize all the abilities he has (Bahtiyar Afandi, 2018). One of the highest potential ways to increase productivity is to reduce ineffective working hours. The main opportunity to improve human productivity lies in individual abilities, individual attitudes to work and work management and organization. Productivity is said to increase if we can produce more in the same period of time, or if we can produce the same amount in less time than the standard time. In general, projects take place under different conditions, so in planning the workforce should be equipped with an analysis of productivity and an indication of the variables that affect it. To get the desired level of productivity and minimize any risks that may occur and prioritize occupational safety and health, leaders must understand the capabilities and limitations caused by project site conditions.

Work measurement is the application of techniques designed to establish the time for qualified workers to carry out specific jobs at specified performance levels (Afandi Bahtiar, 2018). The main purpose of this activity is closely related to efforts to establish standard time. Historically, there have been two approaches to determining standard time, namely the bottom-up approach and the top-down approach. The bottom-up approach starts by measuring the basic time of a work element, then adjusting it to the work tempo (performance rating) and adding allowances such as time for fatigue, personal needs, and anticipation of delays. The top-down approach is widely used in many labor contracts, where standard time, which is the time it takes a worker with certain qualifications to perform a job under ordinary conditions, is used to determine the amount of incentive to be paid to the worker on top of the basic wage. Regardless of the definition used, the approach used to calculate standard time is usually a bottom-up approach.

Time Study is always called stopwatch studies, is one of the accurate ways/techniques to determine the time required for a type of activity by observing the time of an activity continuously (Ervianto, n.d.). Time study is a measurement technique by collecting data based on the time required to complete a job (Pramudiyanto, Hasyim, & Suryo, 2017). In the context of work measurement, time study is a work measurement technique using a stop-watch as a time measuring device shown in the completion of an observed activity (actual time). The time that is successfully measured and recorded is then modified by considering the operator's work tempo and adding it to the allowance (Erliana, 2015). (Nababan, 2014) time study includes:

a. Timing, to find out how long a job is done.

b. Rating, to evaluate the worker under study against the normal standard of work.

c. Standard Time, sought by considering relaxation time and contingency time.

Time study is a method of measuring the productivity of labor in the field by determining the standard time for a job (Malamassam, 2016). The time study method can be used to:

a. Learning a type of work or construction method that is still new and does not have clear output figures.

b. Correcting if there are complaints from workers regarding the suitability of work targets with the ability to work of workers.

c. Evaluating if there is a delay in work.

d. Observing the effectiveness of work group composition

e. As a basis for incentive policy.

f. As a basis for incentive policy.

Factors that can affect productivity levels can be divided into two major parts (Maulidia, 2017), namely:

a. Factors from within workers (e.g. morale and behavior, absenteeism and tardiness, skills, teamwork, and worker motivation).

b. External factors (e.g. materials, tools, information, schedule, leadership and control and supervision).

The division of these two factors is based on the ability of the worker to control these factors, with external factors indicating that they are beyond the control of the worker and more likely to be under the control of management.

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Matondang, D. R. U. (2017), factors that influence the level of labor productivity from the perspective of human resource management:

a. The level of work ability in carrying out work, both obtained from education and training and from work experience.
b. The level of work ability of leaders in providing work motivation so that workers as individuals work with maximum effort, which allows the achievement of results that are in accordance with the desires and needs of consumers.

Matondang, D. R. U. (2017), factors that affect project productivity are classified into four main categories, namely:

a. Methods and technologies, consisting of factors: engineering design construction methods, work sequences, work measurements.
b. Field management, consisting of factors: planning and scheduling, field layout, field communication, material management, equipment management, labor management.
c. Work environment, consisting of factors: work safety, physical environment, quality of supervision, work security, work training, participation.
d. Human factors, worker wage levels, job satisfaction, profit sharing and work relationships.

Matondang, D. R. U. (2017) variables that affect field labor productivity can be grouped into:

a. Physical conditions of the field and supporting facilities, such as climate, season, or weather conditions
b. Supervision, planning and coordination
c. Composition of the work group. In construction activities, a field supervisor leads a work group consisting of various field workers (labor craft), such as masons, blacksmiths, plumbers, carpenters, helpers and others.
d. Overtime work. Often overtime work or long working hours of more than 40 hours per week cannot be avoided, for example to meet schedule targets, although this will reduce work efficiency.
e. Project size. Research shows that the size of the project (expressed in man-hours) also affects the productivity of field workers, in the sense that the larger the project size, the lower the productivity.
f. Direct workers versus contractors. There are two ways for the main contractor to carry out work in the field, namely by directly recruiting workers and providing direct hire (supervision) or handing over certain work packages to subcontractors. In terms of productivity, subcontractors are generally 5-10% higher than direct workers. This is because subcontractors are accustomed to work that is relatively limited in scope and type, plus the cooperation procedures have been mastered and have been established for a long time between workers and supervisors. Although productivity is higher and the potential work completion schedule can be shorter, in terms of cost it is not necessarily lower than using direct workers, because of the overhead costs (more) from the subcontractor company.
g. Experience curve. The experience curve or what is often known as the learning curve is based on the assumption that a person or group of people who do relatively the same work repeatedly will gain experience and improve their skills.
h. Labor density. Within the fence of the location where the project installation will be built, which is also called the battery limit, there is a correlation between the number of construction workers, the area of the workplace, and productivity. This correlation is expressed as labor density, which is the amount of work area for each worker. If this density exceeds the saturation level, labor productivity shows signs of decreasing. This is because in the project location where the workers work, there is always human activity, equipment movement and accompanying noise. The higher the number of workers per area or the lower the area per worker, the busier the activities per area will be, eventually reaching a point where the smooth running of work will be disrupted and result in a decrease in productivity.

RESEARCH METHOD

The research took place at PT. Bima Natisa Graha on the Serpong Natura City housing project. The project is located in Gunung Sindur, Bogor Regency, West Java. The observation period was 20 (working days). Observations were conducted 10 days before the improvement of worker productivity levels and 10 days after the improvement of worker productivity levels. Observations were conducted every working day in the morning, afternoon and evening with rest time adjusting to field conditions. The researcher used a qualitative research approach because it was in depth to know the level of worker productivity in installing red bricks, to know for sure the factors that inhibit worker productivity in the field, steps to improve worker productivity and to know the level of worker productivity in installing red bricks after productivity improvements were made. So that it can describe clearly and in detail the conditions of the problems that occur, by formulating the problems that occur equipped with existing data. Choosing research with a qualitative method, using several forms of data collection such as observation descriptions, document analysis and other artifacts. The data is analyzed while maintaining the authenticity of the text that gives it meaning. This is done because the purpose of qualitative research is to understand the phenomenon from the perspective of participants, social contexts, and institutions. So that the qualitative approach is generally inductive. The proposition study in this research is:

a. To find out the productivity value of construction workers for the installation of red bricks per square meter on a housing construction project carried out by the contractor PT. Bima Natisa Graha on a type 60 house unit using the Time Study Method

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before improving worker productivity.

b. To find out the factors that inhibit the productivity of construction workers for the installation of red bricks per square meter on a housing construction project carried out by the contractor PT. Bima Natisa Graha on a type 60 house unit

c. To find out the steps to improve the productivity of construction workers for the installation of red bricks per square meter on a housing construction project carried out by the contractor PT. Bima Natisa Graha on a type 60 house unit using the Time Study Method.

d. To find out the productivity value of construction workers for the installation of red bricks per square meter on a housing construction project carried out by the contractor PT. Bima Natisa Graha on a type 60 house unit using the Time Study Method after improving the factors that inhibit the productivity of construction workers for the installation of red bricks.

In this case study research, interviews were conducted with several key informants. The description of the key informants who participated in this study is based on officials who are directly related to the work of installing red bricks on housing construction projects, namely the Project Manager and Director of PT. Bima Natisa Graha. The unit of analysis in this study is a construction company that builds large numbers of housing units located in a housing complex in Gunung Sindur, Bogor Regency, West Java. Data linkage for propositions. This is done in order to find conformity between one and another data. This method is taken by researchers using the 'pattern matching' technique. One approach that gives hope to case studies is the idea of 'pattern matching', which links some of the same case information with several theoretical propositions (Anggraini, A. 2018). In relation to this research, the researcher uses a validity test, namely construct validity and external validity with interviews and observations of cases, in addition to using reliability by using observation guidelines for data collection.

The criteria for interpreting data findings in this study are formulated as follows:

a. Data is obtained from various relevant sources and is not an assumption from the researcher

b. Existing data is interpreted comprehensively and objectively

c. The method of interpreting information must be correct

d. Data is interpreted according to the formulation of the problem

e. Data is obtained directly from the first hand

In this study, the data validity test, data validity or data credibility will be presented. With observation, increased perseverance, discussion and study and analysis carried out at the company PT. Bima Natisa Graha for red brick installation work. The types of data used in this study include primary data and secondary data. Primary data is data obtained or collected by researchers directly from the data source. Primary data is also called original data or new data that has an up to date nature. To obtain primary data, researchers conduct observations using the time study method in the field. Techniques that researchers can use to collect primary data include field conditions (projects), material needs and tools used. Secondary data is data obtained or collected by researchers from various existing sources (researchers as second hand). The sources are usually literature, construction drawings and labor wages. The research instrument is a tool used to collect data. The data in this study is primary data sourced from workers as a result of direct research in the field. The instrument or tool used in this study is a time study observation form (Time Study Form). In the first part, workers will be observed directly for 22 days of observation using an observation form. The observation form can be seen in the following table.

Table 3.1 Time Study Form

Project		Study No.		
Operation		Time Started		
		Time Finished		
		Elapse Time		
Operatives		Total OT		
Machines		Total IT		
Remarks				
Element Desription	R	WR	OT	BT
R : Rating WR : Watch Reading OT : Observed Time				
IT : Idle Time BT : Basic Time				

Source : Cahyadi, H., Purnamasari, E., & Nordiansyah, M. (2021)

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Table 3.2 Time Study Abstract Sheet

Time Study Abstract Sheet						Date				Total	No.	Av. BT
Elements	Basic Times											
	1	2	3	4	5	6	7	8	9			

Source: Cahyadi, H., Purnamasari, E., & Nordiansyah, M. (2021)

Table 3.2 above will be used after the basic time of each job is converted based on Table 3.3.

Table 3.3 Standart Time Summary Sheet

Standart Time Summary Sheet									Date		
Operation											
Description											
Element	Basic Time	% Relaxation						% Cont	Total %	ST	Unit ST
		S	P	A	C	E	M				
Total Basic Time									Total Standard		
S : Standard		P : Position		A : Attention		C : Condition		ST:Standard			
E : Effort		M : Monotomy		Con : Contingency		Q : Quantity		time			

Sumber : *Cahyadi, H., Purnamasari, E., & Nordiansyah, M. (2021)*

Table 3.3 Description

% Relaxation based on relaxation table

% Con is determined by contingency number of 5% (Pawiro, S., Tjakra, J., & Arsjad, T. T. 2015)

Standard Time = (1 + % Relaxation Allowance + % Contingency Allowances) x Basic Time

(Pawiro, S., Tjakra, J., & Arsjad, T. T. 2015)

In using the time study method, there are several stages that are carried out in order to obtain the final result in the form of worker productivity. The stages carried out are:

a. Determining the type of work. The type of work observed in this study is bricklaying work.

b. Conducting observations of the work that has been determined. Observations are carried out for one cycle from start to finish.

c. Determining the break points between work elements. Break Points are the boundaries between work elements. These Break Points are firm, clear, and easy to observe so that time can be obtained accurately.

d. Conducting observations and filling them in on the time study sheet.

e. Paying attention to the influence of relaxation time

f. Obtaining the standard time value of each work item.

g. From the standard time, the worker productivity value for each job can be obtained by paying attention to the worker's daily productivity.

In conducting a time study, several equipment are needed to obtain data. The equipment needed in this study are:

1. Stopwatch
2. Stationery
3. Meter or measuring instrument
4. Study board
5. Time Study Form
6. Data Collection Method

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The method of collecting and processing data is done by observation with Time Study. The time study method is used to calculate the standard time value of a job. The use of this method is done by direct observation in the field, how a job is done from the initial stage to the final stage.

After conducting field observations using the time study method, data was obtained which will then be processed to draw conclusions. The data obtained from field observations include:

1. Standard Time Data. Standard Time is the sum of basic time, relaxation allowances and contingency allowances. The basic time and relaxation allowances values are obtained from the field observation form. Then the total basic time is calculated on the summary form, and the total basic time value is added to the relaxation allowances and contingency allowances values on the conclusion form to obtain the standard time value.

2. Work quantity data. Is primary data obtained during observation, derived from construction drawings obtained from the contractor.

3. Data on the number of workers working on bricklaying work from field observations.

4. Productivity Data. Calculation steps using the time study method to obtain the level of productivity.

a. Record the time each time the work elements are observed in the field and then entered into the time study sheet to obtain the basic time value for each observation of each work element. The basic time value is the man hour value for 1 volume of work.

b. The basic time value for each observation of the work elements is then added and averaged to obtain the average basic time.

c. The average basic time value is then calculated by considering the contingency and relaxation time to obtain the standard time value for each work element.

d. After that, the total standard time for each work element is calculated by multiplying the standard time value of the work element by the volume of acquisition for the work element (volume) acquisition and the total standard time must come from 1 observation within a certain time.

e. Compare the total volume of work acquisition with the total standard time to obtain the productivity value of a job.

5. Factors Affecting Worker Productivity. This data is obtained after calculating the worker productivity value of each job. These factors include field conditions, weather during the work, availability of materials, number of workers and relaxation.

Analysis using time study obtained productivity values from groups of workers, then from the observation data, factors were also obtained that could inhibit the productivity of these groups of workers.

RESULTS

1. The productivity value of construction workers for red brick installation work per square meter on a housing construction project carried out by the contractor PT. Bima Natisa Graha on a type 60 house unit with the Time Study Method before the improvement of worker productivity was carried out was 0.378 M2/OJ.

Table 1. Standard Time Summary Sheet for Red Brick Wall Work 29 September 2022 to 12 October 2022 Using Time Study Method

Standart Time Summary Sheet										Date	
Operation											
Description											
Element Red brick laying work	Basic Time	% Relaxation						% Cont	Total %	ST	Unit ST
		S	P	A	C	E	M				
Mortar mixing work	0.121	8	2	2	30	5	4	5	56	0.189	0.189
Red brick work	1.555	8	3	3	30	5	4	5	58	2.457	2.457
Total Basic Time	1.676									Total Standard	2.646
S : Standard E : Effort		P : Position M : Monotomy			A : Attention Con : Contingency			C : Condition Q : Quantity		ST:Standard time	

Source: Research Data, 2022

From Table 4.32, the Standard Time productivity of workers for red brick wall installation work from observations from September

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29, 2022 to October 12, 2022 will be obtained as follows:

Standard time for mixing mortar 1 M2	= 0.189 OJ
Standard time for installing red bricks 1 M2	= 2.457 OJ
Total standard time for red brick wall installation work in 1 M2	= 0.189 + 2.457

= 2,646 OJ

Then the Productivity produced for the installation of red brick walls in 1 M2 is: Productivity = Output / Input

$$= 1 \text{ M2} / 2,646 \text{ OJ}$$
$$= 0,378 \text{ M2/OJ}$$

Output is the quantity of work results and Input is labor.

2. Factors that inhibit the productivity of construction workers for the installation of red bricks per square meter on a housing construction project carried out by the contractor PT. Bima Natisa Graha on a type 60 house unit are as follows:

a. Site manager from PT. Bima Natisa Graha who is rarely seen at the project site who should be tasked with providing direction in carrying out work in the field to the implementer and foreman directly so that the work does not run according to direction, during the researcher's observation.

b. Implementers from PT. Bima Natisa Graha who are rarely present at the project site so that there is almost no supervision of the foreman and the group of workers installing red brick walls, during the researcher's observation.

c. Foremen who allow their workers to be undisciplined during working hours, during the researcher's observation.

d. The workers joke around more, chat a lot, smoke a lot, play with their cellphones and drink coffee during working hours, this condition occurs because there are no warnings and directions from those in authority, during the researcher's observation.

3. Steps to improve the productivity value of construction workers for red brick installation work per square meter on housing construction projects carried out by contractor PT. Bima Natisa Graha on type 60 housing units using the Time Study Method are as follows:

a. Providing work encouragement (motivation) to employees of PT. Bima Natisa Graha. Khair, H. (2019), motivation is the provision of driving force that creates a person's passion for work so that they are willing to work together, work effectively, and integrate with all their efforts to achieve the desired satisfaction.

b. Supervision of work on work partners (foremen and their entourage) is increased. In order for the work to run properly, the site manager, especially the implementer, is always in the field to supervise workers in working according to the directions given and to reduce errors in work

c. Holding scheduled field coordination meetings. There are scheduled field coordination meetings attended by the project manager, site manager, implementer and foreman to coordinate and evaluate work in the field so that it runs well.

4. The level of productivity of construction group workers for red brick installation work per square meter on a housing construction project carried out by the contractor PT. Bima Natisa Graha on type 60 housing units using the Time Study Method after fixing the factors that inhibit construction worker productivity is 0.496 M2/OJ.

CONCLUSION

This study shows that the productivity of construction workers on the red brick installation project in type 60 housing units carried out by PT. Bima Natisa Graha before the productivity improvement was 0.378 m² per person/hour (OJ). Several factors that inhibit worker productivity include the lack of presence and supervision from site managers and implementers, and low worker discipline in the field. After improvements were made, which included increasing work motivation, stricter supervision, and regular coordination meetings, worker productivity increased to 0.496 m² per OJ. PT. Bima Natisa Graha needs to increase the presence and active role of site managers and implementers in the field so that supervision of work runs more effectively, so as to minimize errors and ensure that work is carried out according to instructions. Providing motivational encouragement to workers is very important to increase their work enthusiasm. This encouragement can be in the form of incentives, awards, or skills training to spur higher productivity. Stricter enforcement of discipline is needed for workers, especially in terms of efficient use of working time. Actions such as limiting excessive rest periods and preventing unproductive activities during working hours must be carried out firmly. Regular field coordination meetings between the project manager, site manager, implementer and foreman will be very helpful in evaluating the work that has been done and ensuring that the project is running according to schedule and the expected quality standards.

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