JOURNAL OF GREEN SCIENCE AND TECHNOLOGY

ANALYSIS OF THE CONSTRUCTION MANAGEMENT OF THE DEVELOPMENT PROJECT BOARDING HOUSE IN TEGAL PARANG, SOUTH JAKARTA

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ABSTRACT

Project management is all planning, implementation, controlling and coordination a project from early the (idea) the end project to en sure of the project appropriately time, money and quality. Selection method scheduling project is also one the very policy note in order to obtain result in according with the original plans.

This thesis specifically discuss how project management planning the construction of a Boarding house Tegal parang, South Jakarta. The research was conducted by means of a survey into the field and study of literature.

This thesis analysis includes volume calculation, Needs of labor, materials and equipment, Bar chart, Cash flow, S Curve, method of CPM (*Critical Path Method*) is a method of identifying critical work paths or items. Forwards calculation, backwards calculation, free float and total float.

Keyword: Project Management, Bar Chart, S Curve, Critical Path Method.

I. PRELIMINARY

A. BACKGROUND

There are 3 kinds of basic functions of project management including planning, implementation, and control. Of three of these activities to control the resources on a project that includes worker, equipment, materials, money, and methods.

Several methods have been developed to overcome this, including the networking planning methods such as Critical Path Method (CPM), Bar chart and S-Curve. Network planning methods it is one that can be used to help decide a variety of issues, especially the planning, scheduling and controlling of the project.

To achieve this goal it is necessary "ANALYSIS OF THE CONSTRUCTION MANAGEMENT OF THE DEVELOPMENT PROJECT BOARDING HOUSE IN TEGAL PARANG SOUTH JAKARTA". This analysis is expected to provide a picture of the project making it easier for contractors to make decisions to optimize the performance of the project.

B. FOCUS PROBLEM

Construction management plan development project in method of work, estimated costs and method of networking of the development projects Boarding House in Tegal Parang South Jakarta.

C. SCOPE OF PROBLEM

So this is not too extensive research review of and not deviate from the specified formulation of the problem, it is necessary to need for restriction on the issue under review. Limits the problem taken in this study are as follows:

1) Review and retrieval of data in the form of shop drawings.
2) Determine the volume of the building.
3) Calculate budget plan work.
4) Methods of the analysis networking used in the research project is Critical Path Method (CPM), the use of Bar Chart and S-Curve

D. FORMULATION OF THE PROBLEM

a) How the performance time and cost of development projects Boarding House in Tegal Parang South Jakarta?
b) Scheduling on development project Boarding House in Tegal Parang South Jakarta?
c) Analysis of the calculation of the volume of work on development projects Boarding House in Tegal Parang South Jakarta?

E. PURPOSE OF RESEARCH

The purpose of research in development projects Boarding House in Tegal Parang Jakarta Selatan is as follows:

1) For analyze how the methods work on the construction of Boarding House in Tegal Parang South Jakarta.
2) To determine the cost of building construction works of Boarding House in Tegal Parang South Jakarta.
3) To know the methods of analysis Bar chart, CPM, S-Curve and the need for tools, materials and man power.
4) To determine the duration of the construction work of Boarding House in Tegal Parang South Jakarta.

F. USEFULNESS OF RESEARCH

1. The theoretical usefulness

2. The practical usefulness

II. REVIEW OF THE LITERATURE AND THE THEORETICAL BASIS

A. RESEARCH THAT HAS BEEN DONE BEFORE

1. Research conducted by Tanto Sutanto D by title **Analisis Manajemen Kontruksi Pembangunan Ruko Grand Orchard Cirebon**. Its purpose of re-calculation of volume planning, time schedule, cost and implementation methods.
2. Research conducted by Lyta Pratama Arif by title **Pengembangan Model Analisis Manajemen Konstruksi Proyek Pembangunan Waduk.** Its purpose is to analyze the barriers to work, analyzing the implementation of the work, project delays in project implementation of the Dam Jati Gede.
3. Research conducted by Dede Muhidin by title **Analisis Manajemen Proyek Gedung Rumah Sakit Tiar Medika Kabupaten Cirebon.** Its purpose is to set the wprk schedule and plan the progress of work.

B. THEORRETICAL BASIS

1. DEFINITION OF ANALYSIS

Analysis is the description or the business know the meaning of a situation, data or material information about a decomposed state and investigated in relation to each other. (Suwardjoko Warpani, 1980: 1).

2. DEFINITION OF PROJECT MANAGEMENT

There are several definitions of project management according to experts, among other:

a. **Soeharto** (1997) Project Management is planning, directing, controlling the resources of the company to achieve short-term goals have been determined. Further, using a project management approach and the current system of vertical and horizontal activities.

b. **Budi Santoso** (2003) Project Management is activity plan, organize, direct and control the company's organizational resources to achieve specific goals within a specific time with specific resources. Project management use of company personnel to be placed on a specific task in the project.

c. **Wulfram I. Ervianto** (2003) Project Management is all the planning, execution, control, and coordination of a project from the initial idea to the completion of the project to ensure the cost of the project is implemented on time, right cost and right quality.

3. THE GENERAL PRINCIPLES OF PROJECT MANAGEMENT

Management is a method or process to achieve a certain goal effectively and efficiently utilizing available resources, as outlined in the management function according to George R. Terry.

a. Planning

Planning is an act of taking decision of the data, information, assumptions, or facts selected activities and will do in the future. The action forms, among others:

1) Planning of scope of the project
2) Planning of quality
3) Planning of time
4) Planning of cost
5) Planning of resource

b. Organizing

Organization formed will succeed if every member is able to cooperate with the aim of achieving a common goal. The process of forming an organization or organizational life cycles generally follow the stages as follow: (Ravianto, 2002).

a) Prestage
b) Forming.
c) Storming
d) Norming.
e) Performing
f) Adjourning

c. Actuating

Actions taken in the actuating function, among others:

1) Coordinate actuating of activities.
2) Communicate effectively.
3) Distribute tasks, authority and responsibility.
4) Provide briefing, assignment and motivation.
5) Attempted to improve the briefing as directed control.

d. Controlling

The measures include, among others:

1) Measuring the quality of results.
2) Comparing the results against quality standards.
3) Evaluate deviations.
4) Provide suggestions for improvement.
5) Prepared a report on activities.

The benefits of the control function is minimize the possibility of errors occurring in terms of quality, quantity, cost and time.

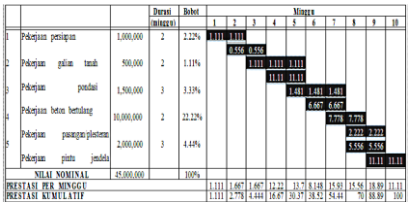
4. SCHEDULING TECHNIQUES

Scheduling focuses on the determination or calculation of the time of the operational activities in the implementation of the project taking into account the limited resources available to be able to determine the overall project completion time (Waryono, 2001).

a. Bar Chart

Bar chart found by H.L Gantt and Fredick W. Taylor in the form of bar chart, with the length of the beam as a representation of the duration of each actyivity. Format of bar chart informative, readable and effective communication and can be made with ease and simplicity. Before it was discovered this method, there is no systematic and analytical procedur in aspects of project planning and control. (Soeharto, 1999: 236).

In this chart can also be determined milestone/baseline as part of the target that must be considered in order to smooth the overall productivity of the project. For the updating process, the barchart may be (Husen, 2008: 135).



Picture 1. Bar Chart

b. S Curve

The comparison of the plan S curve with the implementation S curve makes it possible to know whether the progress of project implementation is corresponding, slow, or more than planned. (Luthan & Syafriandi, 2006).

Picture 2. S Curve

c. Critical Path Methode (CPM)

On the network method known as the critical path, the path that has a series of components of activities, with the total amount of the longest time and show the fastest project completion time. Thus, the crtical path consists of a series of critical activities, starting from the first activity to the final project activity (Soeharto, 1995).

5. CASHFLOW

Cashflow is one of the planning product among other planning products in the construction planning, such as scheduling, construction method, and implementation budget (Asiyanto, 2005).

6. TIME AND COST

The overall cost of construction usually involves calculating the analysis of the five major elements according to (Dipohusodo, 1996), that is:

a) Cost of Material
b) Cost of Manpower
c) Cost of Equipment
d) Indirect Cost

7. COST BUDGET PLAN

The cost budget plan for a building or project is a calculation of the amount of costs required for materials and rewards and other costs associated with the execution of the building or project. Basically this cost budget is the most important part in organizing the building. Making a budget cost means estimating the price of an item, a building or an object (Sumber: Ibrahim, 2001).

III. METHOD AND OBJECT OF RESEARCH

A. METHOD OF RESEARCH

1. The Research Methods Used

The research method used is a method of quantitative and qualitative methods, understanding as below:

a) Quantitative method is a method that is done by collecting data and studying the literature related to planning and analysis calculations.
b) Qualitative method is a method performed by collecting field data that will be used as the data in the project.

2. The Types and Sources of Data

The data source is something that can provide information about the data. By type, data can be divided into two, namely primary data and secondary data.

a) Primary data is data created by researchers for the special purpose resolve problems that are being addressed.
b) Secondary data is data that has been collected for purpose other than resolve the problems being faced.

3. Technique of Data Collection

In the preparation of this thesis, the collection of data obtained by the authors carried out in a manner as follows:

a) Observation or direct observation to the field to observe directly the object of the research.
b) Interviews with contractors and consultants in the project.
c) Explore and examine theories or methods in the library.

4. Metode Analisis Data

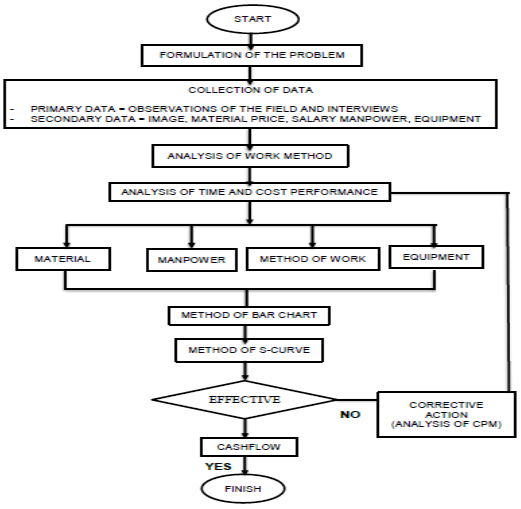
Method of data analysis is a method used to process planning results in order to obtain a conclusion. Analysis used in this research is:

a) Analysis of *Bar Chart*
b) Analysis of *S – Curve*
c) Analysis of *Critical Path Method* (CPM)
d) Analysis of needs of equipment, materials and manpower

B. LOCATION OF RESEARCH

The location to be used as a case study is construction of a boarding house which is located in Jl. Tegal Parang Utara no.17 / Jl. Masjid Rt.004 Rw.008 Kelurahan Mampang Prapatan Kecamatan Mampang Prapatan, South Jakarta.

C. FLOW OF RESEARCH



Picture 3. Flow Chart

IV. RESULT OF RESEARCH AND DISCUSSION

A. GENERAL DESCRIPTION OF THE PROJECT

Boarding house in Tegal Parang is a development project in an industrial area located on the Jl. Tegal Parang North No.17/Jl. Masjid rt. 004 rw.008 Kelurahan Mampang Prapatan Kecamatan. Mampang Prapatan, South Jakarta.

Picture 4. First Floor Development Project Boarding House, South Jakarta

1. General Project Data

Name of Project: Development Project Boarding House in Tegal Parang, South Jakarta

Location of Project : Jl. Tegal Parang North No.17/Jl. Masjid Rt.004 Rw. 008 Kelurahan Mampang Prapatan Kecamatan Mampang Prapatan, South Jakarta.

Type of Foundation : Pile Cap
Type of Structure : Reinforced Concrete
Quality of Material : Concrete
Pile Cap : K-250
Tie Beam : K-250
Beam : K-250
Column : K-250
Plate : K-250
Quality of Reinforcement : BJTD-40
BJTP-24

B. METHOD OF IMPLEMENTATION WORK

1. Preparatory work

Situations and sizes before the implementation of the construction of the initial stage of work is preparatory work.

2. Work of soil and foundation

3. Work of Structure

a) Work of Foundation
b) Work of Foundation Pile Cap
c) Work of Sloof
d) Work of Column
e) Work of Beam, Floor Plate and Stairs

4. Work of Architecture

a) Work of Wall, Plastering, and Wall Coverings
b) Work of Granite and Ceramics

c) Work of Frames, Doors, and Windows
d) Work of Plafond
e) Work of Painting
f) Work of Railing Stairs
g) Work of Roof Coverings

5. Work of Mechanical Electrical
a) Work of Installation Electrical
b) Work of Installation Water

C. NEEDS ANALYSIS OF EQUIPMMENT, MATERIAL AND LABOR

Table 1. Calculation of Labor

CALCULATION OF LABOR NEEDS
DEVELOPMENT PROJECT OF BOARDING HOUSE
JL. TEGAL PARANG UTARA NO. 17 KELURAHAN MAMPANG PRAPATAN
KECAMATAN MAMPANG PRAPATAN, SOUTH JAKARTA

NO	JOB DESCRIPTIONS	VOLUME OF JOB		LABOR NEEDS					
		TOTAL	UNIT	Labor	Total labor (person /day)	Coefficient analysis	Total of labor required	Duration (day)	Total of labor per-day
I	WORK OF PREPARATORY								
1	Administration and preparation	1.00	ls						
2	Installation of project nameplate	1.00	ls						
3	Site Cleaning	1.00	ls						
4	Measurement and installation work of bouwplank	223.10	m1	Head workman	1.00	0.01	2.23	6	1
				Foreman	1.00	0.01	1.12		1
				Workman	1.00	0.10	22.31		4
II	WORK OF STRUCTURE								
A	WORK OF LAND AND FOUNDATION								
1	Excavation work ground pile cap	23.27	m3	Foreman	1.00	0.025	0.58	6	1
				Workman	1.00	0.75	17.45		3
2	Mobilization of the equipment stake	1.00	ls						
3	Pile Size 40x40	282.00	bh	Head workman	1.00	0.05	14.10	24	1
				Foreman	1.00	0.04	11.28		1
				Workman	1.00	0.50	141.00		6
4	Cutting head of pile	282.00	bh	Head workman	1.00	0.05	14.10	24	1
				Workman	1.00	0.50	141.00		6
5	Masonry stone	4.50	m3	Head workman	1.00	0.075	0.34	2	1
				Foreman	1.00	0.075	0.34		1
				Workman	1.00	0.75	3.38		1
B	WORK OF CONCRETE								
1	Work floor								
	Concrete work floor K-125	80.75	m3	Worker	1.00	0.8032	64.86	6	11
				Workman	1.00	0.6024	48.64		8
2	Pile cap								
	Pile cap	186.16	m3	Worker	1.00	0.8032	149.53	12	12
				Workman	1.00	0.6024	112.14		9
3	Tie beam								
	TB1	57.56	m3	Worker	1.00	0.8032	46.24	12	4
				Workman	1.00	0.6024	34.68		3
	TB2	26.40	m3	Worker	1.00	0.8032	21.20	4	5
				Workman	1.00	0.6024	15.90		4
	TB3	9.08	m3	Worker	1.00	0.8032	7.29	2	4
				Workman	1.00	0.6024	5.47		3
4	Basement floor, Elevation -3.100								
	Column	84.07	m3	Worker	1.00	0.8032	67.53	12	6
				Workman	1.00	0.6024	50.64		4
	Shear wall	6.00	m3	Worker	1.00	0.8032	4.82	12	0.4
				Workman	1.00	0.6024	3.61		0.3
	Floor plate	263.52	m3	Worker	1.00	0.8032	211.66	12	18
				Workman	1.00	0.6024	158.74		13
	Stairs	15.00	m3	Worker	1.00	0.8032	12.05	6	2
				Workman	1.00	0.6024	9.04		2
	Lift	25.00	m3	Worker	1.00	0.8032	20.08	6	3
				Workman	1.00	0.6024	15.06		3
5	Ground floor, Elevation 0.00								
	Column	76.63	m3	Worker	1.00	0.8032	61.55	12	5
				Workman	1.00	0.6024	46.16		4
	Shear wall	6.00	m3	Worker	1.00	0.8032	4.82	12	0.4
				Workman	1.00	0.6024	3.61		0.3
	Beam	167.16	m3	Worker	1.00	0.8032	134.26	12	11
				Workman	1.00	0.6024	100.70		8
	Floor plate	278.64	m3	Worker	1.00	0.8032	223.80	12	19
				Workman	1.00	0.6024	167.85		14
	Stairs	15.00	m3	Worker	1.00	0.8032	12.05	6	2
				Workman	1.00	0.6024	9.04		2
	Lift	25.00	m3	Worker	1.00	0.8032	20.08	6	3
				Workman	1.00	0.6024	15.06		3
6	First floor, Elevation +3.300								
	Column	93.46	m3	Worker	1.00	0.8032	75.07	12	6
				Workman	1.00	0.6024	56.30		5
	Shear wall	6.00	m3	Worker	1.00	0.8032	4.82	12	0.4
				Workman	1.00	0.6024	3.61		0.3
	Beam	322.94	m3	Worker	1.00	0.8032	259.39	18	14
				Workman	1.00	0.6024	194.54		11
	Floor plate	235.80	m3	Worker	1.00	0.8032	189.39	12	16
				Workman	1.00	0.6024	142.05		12
	Stairs	15.00	m3	Worker	1.00	0.8032	12.05	6	2
				Workman	1.00	0.6024	9.04		2
	Lift	25.00	m3	Worker	1.00	0.8032	20.08	6	3
				Workman	1.00	0.6024	15.06		3
7	Second floor, Elevation +6.600								
	Column	99.79	m3	Worker	1.00	0.8032	80.15	12	7
				Workman	1.00	0.6024	60.11		5
	Shear wall	6.00	m3	Worker	1.00	0.8032	4.82	12	0.4
				Workman	1.00	0.6024	3.61		0.3
	Beam	75.60	m3	Worker	1.00	0.8032	60.72	12	5
				Workman	1.00	0.6024	45.54		4
	Floor plate	161.28	m3	Worker	1.00	0.8032	129.54	12	11
				Workman	1.00	0.6024	97.16		8
	Stairs	15.00	m3	Worker	1.00	0.8032	12.05	6	2
				Workman	1.00	0.6024	9.04		2
	Lift	25.00	m3	Worker	1.00	0.8032	20.08	6	3
				Workman	1.00	0.6024	15.06		3
8	Third floor, Elevation +9.900								
	Column	99.79	m3	Worker	1.00	0.8032	80.15	12	7
				Workman	1.00	0.6024	60.11		5
	Shear wall	6.00	m3	Worker	1.00	0.8032	4.82	12	0.4
				Workman	1.00	0.6024	3.61		0.3
	Beam	75.60	m3	Worker	1.00	0.8032	60.72	12	5
				Workman	1.00	0.6024	45.54		4
	Floor plate	161.28	m3	Worker	1.00	0.8032	129.54	12	11
				Workman	1.00	0.6024	97.16		8
	Stairs	15.00	m3	Worker	1.00	0.8032	12.05	6	2
				Workman	1.00	0.6024	9.04		2
	Lift	25.00	m3	Worker	1.00	0.8032	20.08	6	3
				Workman	1.00	0.6024	15.06		3
9	Fourth floor, Elevation 13.200								
	Column	99.79	m3	Worker	1.00	0.8032	80.15	12	7
				Workman	1.00	0.6024	60.11		5
	Shear wall	6.00	m3	Worker	1.00	0.8032	4.82	12	0.4
				Workman	1.00	0.6024	3.61		0.3
	Beam	75.60	m3	Worker	1.00	0.8032	60.72	12	5
				Workman	1.00	0.6024	45.54		4
	Floor plate	161.28	m3	Worker	1.00	0.8032	129.54	12	11
				Workman	1.00	0.6024	97.16		8
	Stairs	15.00	m3	Worker	1.00	0.8032	12.05	6	2
				Workman	1.00	0.6024	9.04		2
	Lift	25.00	m3	Worker	1.00	0.8032	20.08	6	3
				Workman	1.00	0.6024	15.06		3
C	WORK OF FORMWORK								
1	Work floor K-125								
	Work floor	161.50	m2	Head workman	1.00	0.033	5.33	2	3
				Foreman	1.00	0.006	0.97		0.48
				Workman	1.00	0.33	53.30		27
2	Pile cap								
	Pile cap	372.32	m2	Head workman	1.00	0.033	12.29	12	1
				Foreman	1.00	0.006	2.23		0.19
				Workman	1.00	0.33	122.87		10
3	Tie beam								
	TB 1	115.12	m2	Head workman	1.00	0.033	3.80	3	1
				Foreman	1.00	0.006	0.69		0.23
				Workman	1.00	0.33	37.99		13
	TB 2	52.80	m2	Head workman	1.00	0.033	1.74	2	1
				Foreman	1.00	0.006	0.32		0.16
				Workman	1.00	0.33	17.42		9
	TB 3	18.16	m2	Head workman	1.00	0.033	0.60	1	1
				Foreman	1.00	0.006	0.11		0.11
				Workman	1.00	0.33	5.99		6
4	Basement floor								
	Column	304.50	m2	Head workman	1.00	0.033	10.05	12	1
				Foreman	1.00	0.006	1.83		0.15
				Workman	1.00	0.33	100.49		8
	Shear wall	12.00	m2	Head workman	1.00	0.033	0.40	6	1
				Foreman	1.00	0.006	0.07		0.01
				Workman	1.00	0.33	3.96		1
	Floor plate	1,636.48	m2	Head workman	1.00	0.033	54.00	24	2
				Foreman	1.00	0.006	9.82		0.41
				Workman	1.00	0.33	540.04		23
	Stairs	66.00	m2	Head workman	1.00	0.033	2.18	6	0.4
				Foreman	1.00	0.006	0.40		0.07
				Workman	1.00	0.33	21.78		4
	Lift	100.00	m2	Head workman	1.00	0.033	3.30	6	1
				Foreman	1.00	0.006	0.60		0.10
				Workman	1.00	0.33	33.00		6
5	Ground floor								
	Column	417.60	m2	Head workman	1.00	0.033	13.78	12	1
				Foreman	1.00	0.006	2.51		0.21
				Workman	1.00	0.33	137.81		11
	Shear wall	12.00	m2	Head workman	1.00	0.033	0.40	6	0.1
				Foreman	1.00	0.006	0.07		0.01
				Workman	1.00	0.33	3.96		1
	Beam	441.39	m2	Head workman	1.00	0.033	14.57	12	1
				Foreman	1.00	0.006	2.65		0.22
				Workman	1.00	0.33	145.66		12
	Floor plate	1,789.68	m2	Head workman	1.00	0.033	59.06	30	2
				Foreman	1.00	0.006	10.74		0.36
				Workman	1.00	0.33	590.59		20
	Stairs	66.00	m2	Head workman	1.00	0.033	2.18	6	0.4
				Foreman	1.00	0.006	0.40		0.07
				Workman	1.00	0.33	21.78		4
	Lift	100.00	m2	Head workman	1.00	0.033	3.30	6	1
				Foreman	1.00	0.006	0.60		0.10
				Workman	1.00	0.33	33.00		6
6	First floor								
	Column	549.38	m2	Head workman	1.00	0.033	18.13	12	2
				Foreman	1.00	0.006	3.30		0.27
				Workman	1.00	0.33	181.30		15
	Shear wall	12.00	m2	Head workman	1.00	0.033	0.40	6	0.1
				Foreman	1.00	0.006	0.07		0.01
				Workman	1.00	0.33	3.96		1
	Beam	515.33	m2	Head workman	1.00	0.033	17.01	12	1
				Foreman	1.00	0.006	3.09		0.26
				Workman	1.00	0.33	170.06		14
	Floor plate	1,472.72	m2	Head workman	1.00	0.033	48.60	24	2
				Foreman	1.00	0.006	8.84		0.37
				Workman	1.00	0.33	486.00		20
	Stairs	66.00	m2	Head workman	1.00	0.033	2.18	6	0.4
				Foreman	1.00	0.006	0.40		0.07
				Workman	1.00	0.33	21.78		4
	Lift	100.00	m2	Head workman	1.00	0.033	3.30	6	1
				Foreman	1.00	0.006	0.60		0.10
				Workman	1.00	0.33	33.00		6
7	Second floor								
	Column	549.38	m2	Head workman	1.00	0.033	18.13	12	2
				Foreman	1.00	0.006	3.30		0.27
				Workman	1.00	0.33	181.30		15
	Shear wall	12.00	m2	Head workman	1.00	0.033	0.40	6	0.1
				Foreman	1.00	0.006	0.07		0.01
				Workman	1.00	0.33	3.96		1
	Beam	37.56	m2	Head workman	1.00	0.033	1.24	6	0.2
				Foreman	1.00	0.006	0.23		0.04
				Workman	1.00	0.33	12.39		2
	Floor plate	172.68	m2	Head workman	1.00	0.033	5.70	6	0.9
				Foreman	1.00	0.006	1.04		0.17
				Workman	1.00	0.33	56.98		9
	Stairs	66.00	m2	Head workman	1.00	0.033	2.18	6	0.4
				Foreman	1.00	0.006	0.40		0.07
				Workman	1.00	0.33	21.78		4
	Lift	100.00	m2	Head workman	1.00	0.033	3.30	6	1
				Foreman	1.00	0.006	0.60		0.10
				Workman	1.00	0.33	33.00		6
8	Third floor								
	Column	549.38	m2	Head workman	1.00	0.033	18.13	12	2
				Foreman	1.00	0.006	3.30		0.27
				Workman	1.00	0.33	181.30		15
	Shear wall	12.00	m2	Head workman	1.00	0.033	0.40	6	0.07
				Foreman	1.00	0.006	0.07		0.01
				Workman	1.00	0.33	3.96		1
	Beam	37.56	m2	Head workman	1.00	0.033	1.24	6	0.2
				Foreman	1.00	0.006	0.23		0.04
				Workman	1.00	0.33	12.39		2
	Floor plate	172.68	m2	Head workman	1.00	0.033	5.70	6	1
				Foreman	1.00	0.006	1.04		0.17
				Workman	1.00	0.33	56.98		9
	Stairs	66.00	m2	Head workman	1.00	0.033	2.18	6	0.4
				Foreman	1.00	0.006	0.40		0.07
				Workman	1.00	0.33	21.78		4
	Lift	100.00	m2	Head workman	1.00	0.033	3.30	6	1
				Foreman	1.00	0.006	0.60		0.10
				Workman	1.00	0.33	33.00		6
9	Fourth floor								
	Column	549.38	m2	Head workman	1.00	0.033	18.13	12	2
				Foreman	1.00	0.006	3.30		0.27
				Workman	1.00	0.33	181.30		15
	Shear wall	12.00	m2	Head workman	1.00	0.033	0.40	6	0.07
				Foreman	1.00	0.006	0.07		0.01
				Workman	1.00	0.33	3.96		1
	Beam	37.56	m2	Head workman	1.00	0.033	1.24	6	0.2
				Foreman	1.00	0.006	0.23		0.04
				Workman	1.00	0.33	12.39		2

	Floor plate	172.68	m2	Head workman	1.00	0.033	5.70	6	1
				Foreman	1.00	0.006	1.04		0.17
				Workman	1.00	0.33	56.98		9
	Stairs	66.00	m2	Head workman	1.00	0.033	2.18	6	0.4
				Foreman	1.00	0.006	0.40		0.07
				Workman	1.00	0.33	21.78		4
	Lift	100.00	m2	Head workman	1.00	0.033	3.30	6	1
				Foreman	1.00	0.006	0.60		0.10
				Workman	1.00	0.33	33.00		6
D	**WORK OF STEEL REINFORCEMENT**								
1	**Work floor K-125**								
	Work floor	15,809.52	kg	Head workman	1.00	0.0007	11.07	12	1
				Foreman	1.00	0.0003	4.74		0.4
				Workman	1.00	0.007	110.67		9
2	**Pile cap**								
	Pile cap	36,571.43	kg	Head workman	1.00	0.0007	25.60	18	1
				Foreman	1.00	0.0003	10.97		1
				Workman	1.00	0.007	256.00		14
3	**Tie beam**								
	TB 1	11,238.10	kg	Head workman	1.00	0.0007	7.87	6	1
				Foreman	1.00	0.0003	3.37		1
				Workman	1.00	0.007	78.67		13
	TB 2	5,142.86	kg	Head workman	1.00	0.0007	3.60	4	1
				Foreman	1.00	0.0003	1.54		0.4
				Workman	1.00	0.007	36.00		9
	TB 3	1,714.30	kg	Head workman	1.00	0.0007	1.20	2	1
				Foreman	1.00	0.0003	0.51		0.3
				Workman	1.00	0.007	12.00		6
4	**Basement floor**								
	Iron concrete. on:								
	Column	16,571.00	kg	Head workman	1.00	0.0007	11.60	12	1
				Foreman	1.00	0.0003	4.97		0
				Workman	1.00	0.007	116.00		10
	Shear Wall	1,142.86	kg	Head workman	1.00	0.0007	0.80	6	0.1
				Foreman	1.00	0.0003	0.34		0.1
				Workman	1.00	0.007	8.00		1
	Floor plate	51,619.00	kg	Head workman	1.00	0.0007	36.13	24	2
				Foreman	1.00	0.0003	15.49		1
				Workman	1.00	0.007	361.33		15
	Stairs	2,857.14	kg	Head workman	1.00	0.0007	2.00	6	0.3
				Foreman	1.00	0.0003	0.86		0.1
				Workman	1.00	0.007	20.00		3
	Lift	4,952.40	kg	Head workman	1.00	0.0007	3.47	6	1
				Foreman	1.00	0.0003	1.49		0.2
				Workman	1.00	0.007	34.67		6
5	**Ground floor**								
	Iron concrete. on:								
	Column	15,047.62	kg	Head workman	1.00	0.0007	10.53	12	1
				Foreman	1.00	0.0003	4.51		0.4
				Workman	1.00	0.007	105.33		9
	Shear Wall	1,142.86	kg	Head workman	1.00	0.0007	0.80	6	0.1
				Foreman	1.00	0.0003	0.34		0.1
				Workman	1.00	0.007	8.00		1
	Beam	32,761.90	kg	Head workman	1.00	0.0007	22.93	12	2
				Foreman	1.00	0.0003	9.83		1
				Workman	1.00	0.007	229.33		19
	Floor plate	54,666.70	kg	Head workman	1.00	0.0007	38.27	24	2
				Foreman	1.00	0.0003	16.40		1
				Workman	1.00	0.007	382.67		16
	Stairs	2,857.14	kg	Head workman	1.00	0.0007	2.00	6	0.3
				Foreman	1.00	0.0003	0.86		0.1
				Workman	1.00	0.007	20.00		3
	Lift	4,952.40	kg	Head workman	1.00	0.0007	3.47	6	1
				Foreman	1.00	0.0003	1.49		0.2
				Workman	1.00	0.007	34.67		6
6	**First floor**								
	Iron concrete. on:								
	Column	18,285.70	kg	Head workman	1.00	0.0007	12.80	12	1
				Foreman	1.00	0.0003	5.49		0.5
				Workman	1.00	0.007	128.00		11
	Shear Wall	1,142.86	kg	Head workman	1.00	0.0007	0.80	6	0.1
				Foreman	1.00	0.0003	0.34		0.1
				Workman	1.00	0.007	8.00		1
	Beam	63,619.05	kg	Head workman	1.00	0.0007	44.53	18	2
				Foreman	1.00	0.0003	19.09		1
				Workman	1.00	0.007	445.33		25
	Floor plate	46,285.70	kg	Head workman	1.00	0.0007	32.40	18	2
				Foreman	1.00	0.0003	13.89		1
				Workman	1.00	0.007	324.00		18
	Stairs	2,857.14	kg	Head workman	1.00	0.0007	2.00	6	0.3
				Foreman	1.00	0.0003	0.86		0.1
				Workman	1.00	0.007	20.00		3
	Lift	4,952.40	kg	Head workman	1.00	0.0007	3.47	6	1
				Foreman	1.00	0.0003	1.49		0.2
				Workman	1.00	0.007	34.67		6
7	**Second floor**								
	Iron concrete. on:								
	Column	19,619.05	kg	Head workman	1.00	0.0007	13.73	12	1
				Foreman	1.00	0.0003	5.89		0.5
				Workman	1.00	0.007	137.33		11
	Shear Wall	1,142.86	kg	Head workman	1.00	0.0007	0.80	6	0.1
				Foreman	1.00	0.0003	0.34		0.1
				Workman	1.00	0.007	8.00		1
	Beam	15,047.62	kg	Head workman	1.00	0.0007	10.53	6	2
				Foreman	1.00	0.0003	4.51		0.8
				Workman	1.00	0.007	105.33		18
	Floor plate	31,619.05	kg	Head workman	1.00	0.0007	22.13	12	2
				Foreman	1.00	0.0003	9.49		1
				Workman	1.00	0.007	221.33		18
	Stairs	2,857.14	kg	Head workman	1.00	0.0007	2.00	6	0.3
				Foreman	1.00	0.0003	0.86		0.1
				Workman	1.00	0.007	20.00		3
	Lift	4,952.40	kg	Head workman	1.00	0.0007	3.47	6	1
				Foreman	1.00	0.0003	1.49		0.2
				Workman	1.00	0.007	34.67		6
8	**Third floor**								
	Iron concrete. on:								
	Column	19,619.05	kg	Head workman	1.00	0.0007	13.73	12	1
				Foreman	1.00	0.0003	5.89		0.5
				Workman	1.00	0.007	137.33		11
	Shear Wall	1,142.86	kg	Head workman	1.00	0.0007	0.80	6	0.1
				Foreman	1.00	0.0003	0.34		0.1
				Workman	1.00	0.007	8.00		1
	Beam	15,047.62	kg	Head workman	1.00	0.0007	10.53	6	2
				Foreman	1.00	0.0003	4.51		0.8
				Workman	1.00	0.007	105.33		18
	Floor plate	31,619.05	kg	Head workman	1.00	0.0007	22.13	12	2
				Foreman	1.00	0.0003	9.49		1
				Workman	1.00	0.007	221.33		18
	Stairs	2,857.14	kg	Head workman	1.00	0.0007	2.00	6	0.3
				Foreman	1.00	0.0003	0.86		0.1
				Workman	1.00	0.007	20.00		3
	Lift	4,952.40	kg	Head workman	1.00	0.0007	3.47	6	1
				Foreman	1.00	0.0003	1.49		0.2
				Workman	1.00	0.007	34.67		6
9	**Fourth floor**								
	Iron concrete. on:								
	Column	19,619.05	kg	Head workman	1.00	0.0007	13.73	12	1
				Foreman	1.00	0.0003	5.89		0.5
				Workman	1.00	0.007	137.33		11
	Shear Wall	1,142.86	kg	Head workman	1.00	0.0007	0.80	6	0.1
				Foreman	1.00	0.0003	0.34		0.1
				Workman	1.00	0.007	8.00		1
	Beam	15,047.62	kg	Head workman	1.00	0.0007	10.53	6	2
				Foreman	1.00	0.0003	4.51		0.8
				Workman	1.00	0.007	105.33		18
	Floor plate	31,619.05	kg	Head workman	1.00	0.0007	22.13	12	2
				Foreman	1.00	0.0003	9.49		1
				Workman	1.00	0.007	221.33		18
	Stairs	2,857.14	kg	Head workman	1.00	0.0007	2.00	6	0.3
				Foreman	1.00	0.0003	0.86		0.1
				Workman	1.00	0.007	20.00		3
	Lift	4,952.40	kg	Head workman	1.00	0.0007	3.47	6	1
				Foreman	1.00	0.0003	1.49		0.2
				Workman	1.00	0.007	34.67		6
III	**WORK OF ARCHITECTURE**								
A	**WORK OF WALL**								
1	**Basement Floor**								
	Installation of wall hebel for ordinary wall	755.94	m2	Head workman	1.00	0.01	7.56	12	1
				Foreman	1.00	0.01	7.56		1
				Workman	1.00	0.100	75.59		6
	Plestering	755.94	m2	Head workman	1.00	0.01	7.56	12	1
				Foreman	1.00	0.01	7.56		1
				Workman	1.00	0.100	75.59		6
2	**Ground Floor**								
	Installation of wall hebel for ordinary wall	944.30	m2	Head workman	1.00	0.01	9.44	12	1
				Foreman	1.00	0.01	9.44		1
				Workman	1.00	0.100	94.43		8
	Plestering	944.30	m2	Head workman	1.00	0.01	9.44	12	1
				Foreman	1.00	0.01	9.44		1
				Workman	1.00	0.100	94.43		8
3	**First Floor**								
	Installation of wall hebel for ordinary wall	1,662.87	m2	Head workman	1.00	0.01	16.63	18	1
				Foreman	1.00	0.01	16.63		1
				Workman	1.00	0.100	166.29		9
	Plestering	1,662.87	m2	Head workman	1.00	0.01	16.63	18	1
				Foreman	1.00	0.01	16.63		1
				Workman	1.00	0.100	166.29		9
4	**Second Floor**								
	Installation of wall hebel for ordinary wall	1,662.87	m2	Head workman	1.00	0.01	16.63	18	1
				Foreman	1.00	0.01	16.63		1
				Workman	1.00	0.100	166.29		9
	Plestering	1,662.87	m2	Head workman	1.00	0.01	16.63	18	1
				Foreman	1.00	0.01	16.63		1
				Workman	1.00	0.100	166.29		9
5	**Third Floor**								
	Installation of wall hebel for ordinary wall	1,662.87	m2	Head workman	1.00	0.01	16.63	18	1
				Foreman	1.00	0.01	16.63		1
				Workman	1.00	0.100	166.29		9
	Plestering	1,662.87	m2	Head workman	1.00	0.01	16.63	18	1
				Foreman	1.00	0.01	16.63		1
				Workman	1.00	0.100	166.29		9
6	**Fourth Floor**								
	Installation of wall hebel for ordinary wall	1,672.95	m2	Head workman	1.00	0.01	16.63	18	1
				Foreman	1.00	0.01	16.63		1
				Workman	1.00	0.100	166.29		9
	Plestering	1,672.95	m2	Head workman	1.00	0.01	16.63	18	1
				Foreman	1.00	0.01	16.63		1
				Workman	1.00	0.100	166.29		9
B	**WORK OF FLOOR AND WALL COATINGS**								
1	**Basement Floor**								
	Installation of ceramic floor storage size. 30 x 30cm	31.94	m2	Head workman	1.00	0.035	1.12	2	0.6
				Foreman	1.00	0.035	1.12		0.6
				Workman	1.00	0.35	11.18		6
	Installation of ceramic floor toilet size. 20 x 20cm	12.00	m2	Head workman	1.00	0.035	0.42	1	0.4
				Foreman	1.00	0.035	0.42		0.4
				Workman	1.00	0.35	4.20		4
	Installation of ceramic wall toilet size. 20 x 20cm	25.20	m2	Head workman	1.00	0.035	0.88	2	0.4
				Foreman	1.00	0.035	0.88		0.4
				Workman	1.00	0.35	8.82		4
	Installation of ceramic floor stairs size. 30 x 30cm	6.44	m2	Head workman	1.00	0.035	0.23	1	0.2
				Foreman	1.00	0.035	0.23		0.2
				Workman	1.00	0.35	2.25		2
2	**Ground Floor**								
	Installation of ceramic floor toilet size. 20 x 20cm	12.00	m2	Head workman	1.00	0.035	0.42	2	0.2
				Foreman	1.00	0.035	0.42		0.2
				Workman	1.00	0.35	4.20		2
	Installation of ceramic wall toilet size. 20 x 20cm	25.20	m2	Head workman	1.00	0.035	0.88	2	0.4
				Foreman	1.00	0.035	0.88		0.4
				Workman	1.00	0.35	8.82		4
	Installation of polished floor office size. 60 x 60cm	24.60	m2	Head workman	1.00	0.013	0.32	2	0.2
				Foreman	1.00	0.013	0.32		0.2
				Workman	1.00	0.125	3.08		2
	Installation of polished floor lobby size. 60 x 60cm	76.76	m2	Head workman	1.00	0.013	1.00	2	0.5
				Foreman	1.00	0.013	1.00		0.5
				Workman	1.00	0.125	9.59		5
	Installation of ceramic floor security size. 30 x 30cm	5.00	m2	Head workman	1.00	0.035	0.18	2	0.1
				Foreman	1.00	0.035	0.18		0.1
				Workman	1.00	0.35	1.75		1
	Installation of ceramic floor stairs size. 30 x 30cm	9.00	m2	Head workman	1.00	0.035	0.32	2	0.2
				Foreman	1.00	0.035	0.32		0.2
				Workman	1.00	0.35	3.15		2
3	**First Floor**								
	Installation of ceramic floor R.service size. 30 x 30cm	40.60	m2	Head workman	1.00	0.035	1.42	24	0.1
				Foreman	1.00	0.035	1.42		0.1
				Workman	1.00	0.35	14.21		1
	Installation of ceramic floor bedroom size. 30 x 30cm	994.70	m2	Head workman	1.00	0.035	34.81	24	1
				Foreman	1.00	0.035	34.81		1
				Workman	1.00	0.35	348.15		15
	Installation of ceramic floor restaurant size. 30 x30cm	162.40	m2	Head workman	1.00	0.035	5.68	24	0.2
				Foreman	1.00	0.035	5.68		0.2
				Workman	1.00	0.35	56.84		2
	Installation of ceramic floor stairs size. 30 x 30cm	9.00	m2	Head workman	1.00	0.035	0.32	24	0.01
				Foreman	1.00	0.035	0.32		0.01
				Workman	1.00	0.35	3.15		0.13
4	**Second Floor**								
	Installation of ceramic floor R.service size. 30 x 30cm	40.60	m2	Head workman	1.00	0.035	1.42	24	0.06
				Foreman	1.00	0.035	1.42		0.06
				Workman	1.00	0.35	14.21		1
	Installation of ceramic floor bedroom size. 30 x 30cm	1,136.80	m2	Head workman	1.00	0.035	39.79	24	2
				Foreman	1.00	0.035	39.79		2
				Workman	1.00	0.35	397.88		17
	Installation of ceramic floor stairs size. 30 x 30cm	9.00	m2	Head workman	1.00	0.035	0.32	24	0.01
				Foreman	1.00	0.035	0.32		0.01
				Workman	1.00	0.35	3.15		0.13
5	**Third Floor**								
	Installation of ceramic floor R.service size. 30 x 30cm	40.60	m2	Head workman	1.00	0.035	1.42	24	0.06
				Foreman	1.00	0.035	1.42		0.06
				Workman	1.00	0.35	14.21		1
	Installation of ceramic floor bedroom size. 30 x 30cm	1,136.80	m2	Head workman	1.00	0.035	39.79	24	2
				Foreman	1.00	0.035	39.79		2
				Workman	1.00	0.35	397.88		17
	Installation of ceramic floor stairs size. 30 x 30cm	9.00	m2	Head workman	1.00	0.035	0.32	24	0.01
				Foreman	1.00	0.035	0.32		0.01
				Workman	1.00	0.35	3.15		0.13
6	**Fourth Floor**								
	Installation of ceramic floor R.service size. 30 x 30cm	40.60	m2	Head workman	1.00	0.035	1.42	24	0.06
				Foreman	1.00	0.035	1.42		0.06
				Workman	1.00	0.35	14.21		1
	Installation of ceramic floor bedroom size. 30 x 30cm	1,055.60	m2	Head workman	1.00	0.035	36.95	24	2
				Foreman	1.00	0.035	36.95		2
				Workman	1.00	0.35	369.46		15
	Installation of ceramic floor stairs size. 30 x 30cm	9.00	m2	Head workman	1.00	0.035	0.32	24	0.01
				Foreman	1.00	0.035	0.32		0.01
				Workman	1.00	0.35	3.15		0.13
C	**WORK OF FRAMES, DOORS AND WINDOWS**								
1	**Basement floor**								
	Door PB 01	2.00	unit	Head workman	1.00	2.00	4.00	6	1
				Foreman	1.00	0.30	0.60		0.1
				Workman	1.00	3.00	6.00		1
	Door PJ 03	2.00	unit	Head workman	1.00	2.00	4.00	6	1
				Foreman	1.00	0.30	0.60		0.1
				Workman	1.00	3.00	6.00		1
	Door P 03	1.00	unit	Head workman	1.00	2.00	2.00	6	0
				Foreman	1.00	0.30	0.30		0.1
				Workman	1.00	3.00	3.00		1
	Door P 04	2.00	unit	Head workman	1.00	2.00	4.00	6	1
				Foreman	1.00	0.30	0.60		0.1
				Workman	1.00	3.00	6.00		1
2	**Ground floor**								
	Door PB 01	1.00	unit	Head workman	1.00	2.00	2.00	6	0.3
				Foreman	1.00	0.30	0.30		0.1
				Workman	1.00	3.00	3.00		1
	Door PJ 01	2.00	unit	Head workman	1.00	2.00	4.00	6	1
				Foreman	1.00	0.30	0.60		0.1
				Workman	1.00	3.00	6.00		1
	Door PJ 03	1.00	unit	Head workman	1.00	2.00	2.00	6	0.3
				Foreman	1.00	0.30	0.30		0.1
				Workman	1.00	3.00	3.00		1
	Door PJ 04	1.00	unit	Head workman	1.00	2.00	2.00	6	0
				Foreman	1.00	0.30	0.30		0.1
				Workman	1.00	3.00	3.00		1
	Door PK 01	2.00	unit	Head workman	1.00	2.00	4.00	6	1
				Foreman	1.00	0.30	0.60		0.1
				Workman	1.00	3.00	6.00		1
	Door P 03	3.00	unit	Head workman	1.00	2.00	6.00	6	1
				Foreman	1.00	0.30	0.90		0.2
				Workman	1.00	3.00	9.00		2
	Door P 04	3.00	unit	Head workman	1.00	2.00	6.00	6	1
				Foreman	1.00	0.30	0.90		0.2
				Workman	1.00	3.00	9.00		2
3	**First floor**								
	Door PJ 02	29.00	unit	Head workman	1.00	2.00	58.00	24	2
				Foreman	1.00	0.30	8.70		0.4
				Workman	1.00	3.00	87.00		4
	Door PK 01	2.00	unit	Head workman	1.00	2.00	4.00	6	0.2
				Foreman	1.00	0.30	0.60		0.03
				Workman	1.00	3.00	6.00		0.3
	Door P 01	47.00	unit	Head workman	1.00	2.00	94.00	24	4
				Foreman	1.00	0.30	14.10		1
				Workman	1.00	3.00	141.00		6
	Door P 02	47.00	unit	Head workman	1.00	2.00	94.00	24	4
				Foreman	1.00	0.30	14.10		1
				Workman	1.00	3.00	141.00		6
	Windows J 01	4.00	unit	Head workman	1.00	2.00	8.00	6	0.3
				Foreman	1.00	0.30	1.20		0.1
				Workman	1.00	3.00	12.00		1
	Windows J 04	2.00	unit	Head workman	1.00	2.00	4.00	6	0.2
				Foreman	1.00	0.30	0.60		0.03
				Workman	1.00	3.00	6.00		0.3

4	**Second floor**									
	Door PJ 02	31.00	unit	Head workman	1.00	2.00	62.00	24		3
				Foreman	1.00	0.30	9.30			0.4
				Workman	1.00	3.00	93.00			4
	Door PK 01	2.00	unit	Head workman	1.00	2.00	4.00			0.2
				Foreman	1.00	0.30	0.60			0.03
				Workman	1.00	3.00	6.00			0.3
	Door P 01	49.00	unit	Head workman	1.00	2.00	98.00			4
				Foreman	1.00	0.30	14.70			1
				Workman	1.00	3.00	147.00			6
	Door P 02	49.00	unit	Head workman	1.00	2.00	98.00			4
				Foreman	1.00	0.30	14.70			1
				Workman	1.00	3.00	147.00			6
	Windows J 01	4.00	unit	Head workman	1.00	2.00	8.00			0.3
				Foreman	1.00	0.30	1.20			0.1
				Workman	1.00	3.00	12.00			1
	Windows J 03	1.00	unit	Head workman	1.00	2.00	2.00			0.1
				Foreman	1.00	0.30	0.30			0.01
				Workman	1.00	3.00	3.00			0.1
5	**Third floor**									
	Door PJ 02	31.00	unit	Head workman	1.00	2.00	62.00			3
				Foreman	1.00	0.30	9.30			0.4
				Workman	1.00	3.00	93.00			4
	Door PK 01	2.00	unit	Head workman	1.00	2.00	4.00			0.2
				Foreman	1.00	0.30	0.60			0.03
				Workman	1.00	3.00	6.00			0.3
	Door P 01	51.00	unit	Head workman	1.00	2.00	102.00			4
				Foreman	1.00	0.30	15.30			1
				Workman	1.00	3.00	153.00	24		6
	Door P 02	51.00	unit	Head workman	1.00	2.00	102.00			4
				Foreman	1.00	0.30	15.30			1
				Workman	1.00	3.00	153.00			6
	Windows J 01	4.00	unit	Head workman	1.00	2.00	8.00			0.3
				Foreman	1.00	0.30	1.20			0.1
				Workman	1.00	3.00	12.00			1
	Windows J 02	2.00	unit	Head workman	1.00	2.00	4.00			0.2
				Foreman	1.00	0.30	0.60			0.03
				Workman	1.00	3.00	6.00			0.3
6	**Fourth floor**									
	Door PK 01	2.00	unit	Head workman	1.00	2.00	4.00			0.17
				Foreman	1.00	0.30	0.60			0.03
				Workman	1.00	3.00	6.00			0.25
	Door P 01	46.00	unit	Head workman	1.00	2.00	92.00			4
				Foreman	1.00	0.30	13.80			0.6
				Workman	1.00	3.00	138.00			6
	Door P 02	46.00	unit	Head workman	1.00	2.00	92.00			4
				Foreman	1.00	0.30	13.80	24		0.6
				Workman	1.00	3.00	138.00			6
	Windows J 01	4.00	unit	Head workman	1.00	2.00	8.00			0.3
				Foreman	1.00	0.30	1.20			0.1
				Workman	1.00	3.00	12.00			1
	Windows J 05	3.00	unit	Head workman	1.00	2.00	6.00			0.25
				Foreman	1.00	0.30	0.90			0.04
				Workman	1.00	3.00	9.00			0.38
D	**WORK OF PLAFOND**									
1	**Basement floor**									
	Plafond Gypsum size. 120 x 240 thick 9mm	1,590.80	m2	Head workman	1.00	0.005	7.95			1
				Foreman	1.00	0.005	7.95			1
				Workman	1.00	0.05	79.54	6		13
	List profil gypsum	1,127.10	m1	Head workman	1.00	0.005	5.64			1
				Foreman	1.00	0.003	3.38			1
				Workman	1.00	0.05	56.36			9
2	**Ground floor**									
	Plafond Gypsum size. 120 x 240 thick 9mm	1,590.80	m2	Head workman	1.00	0.005	7.95			1
				Foreman	1.00	0.005	7.95			1
				Workman	1.00	0.05	79.54	6		13
	List profil gypsum	1,127.10	m1	Head workman	1.00	0.005	5.64			1
				Foreman	1.00	0.003	3.38			1
				Workman	1.00	0.05	56.36			9
3	**First Floor**									
	Plafond Gypsum size. 120 x 240 thick 9mm	1,590.80	m2	Head workman	1.00	0.005	7.95			1
				Foreman	1.00	0.005	7.95			1
				Workman	1.00	0.05	79.54	6		13
	List profil gypsum	1,127.10	m1	Head workman	1.00	0.005	5.64			1
				Foreman	1.00	0.003	3.38			1
				Workman	1.00	0.05	56.35			9
4	**Second floor**									
	Plafond Gypsum size. 120 x 240 thick 9mm	1,590.80	m2	Head workman	1.00	0.005	7.95			1
				Foreman	1.00	0.005	7.95			1
				Workman	1.00	0.05	79.54	6		13
	List profil gypsum	1,127.10	m1	Head workman	1.00	0.005	5.64			1
				Foreman	1.00	0.003	3.38			1
				Workman	1.00	0.05	56.35			9
5	**Third floor**									
	Plafond Gypsum size. 120 x 240 thick 9mm	1,590.80	m2	Head workman	1.00	0.005	7.95			1
				Foreman	1.00	0.005	7.95			1
				Workman	1.00	0.05	79.54	6		13
	List profil gypsum	1,127.10	m1	Head workman	1.00	0.005	5.64			1
				Foreman	1.00	0.003	3.38			1
				Workman	1.00	0.05	56.35			9
6	**Fourth floor**									
	Plafond Gypsum size. 120 x 240 thick 9mm	1,590.80	m2	Head workman	1.00	0.005	7.95			1
				Foreman	1.00	0.005	7.95			1
				Workman	1.00	0.05	79.54	6		13
	List profil gypsum	1,127.10	m1	Head workman	1.00	0.005	5.64			1
				Foreman	1.00	0.003	3.38			1
				Workman	1.00	0.05	56.35			9
E	**WORK OF PAINTING**									
1	**Basement floor**									
	Exterior walls	755.94	m2	Head workman	1.00	0.0063	4.76			0.4
				Foreman	1.00	0.0030	2.27			0.2
				Workman	1.00	0.063	47.62			4
	Interior walls	755.94	m2	Head workman	1.00	0.0063	4.76			0.4
				Foreman	1.00	0.0025	1.89	12		0.2
				Workman	1.00	0.063	47.62			4
	Plafond	1,590.80	m2	Head workman	1.00	0.0063	10.02			1
				Foreman	1.00	0.0025	3.98			0.3
				Workman	1.00	0.063	100.22			8
2	**Ground floor**									
	Exterior walls	944.30	m2	Head workman	1.00	0.0063	5.95			0.5
				Foreman	1.00	0.0025	2.36			0.2
				Workman	1.00	0.063	59.49			5
	Interior walls	944.30	m2	Head workman	1.00	0.0063	5.95			0.5
				Foreman	1.00	0.0025	2.36	12		0.2
				Workman	1.00	0.063	59.49			5
	Plafond	1,590.80	m2	Head workman	1.00	0.0063	10.02			1
				Foreman	1.00	0.0025	3.98			0.3
				Workman	1.00	0.063	100.22			8
3	**First floor**									
	Exterior walls	1,662.87	m2	Head workman	1.00	0.0063	10.48			1
				Foreman	1.00	0.0025	4.16			0.3
				Workman	1.00	0.063	104.76			9
	Interior walls	1,662.87	m2	Head workman	1.00	0.0063	10.48			1
				Foreman	1.00	0.0025	4.16	12		0.3
				Workman	1.00	0.063	104.76			9
	Plafond	1,590.80	m2	Head workman	1.00	0.0063	10.02			1
				Foreman	1.00	0.0025	3.98			0.3
				Workman	1.00	0.063	100.22			8
4	**Second floor**									
	Exterior walls	1,662.87	m2	Head workman	1.00	0.0063	10.48			1
				Foreman	1.00	0.0025	4.16			0.3
				Workman	1.00	0.063	104.76			9
	Interior walls	1,662.87	m2	Head workman	1.00	0.0063	10.48			1
				Foreman	1.00	0.0025	4.16	12		0.3
				Workman	1.00	0.063	104.76			9
	Plafond	1,590.80	m2	Head workman	1.00	0.0063	10.02			1
				Foreman	1.00	0.0025	3.98			0.3
				Workman	1.00	0.063	100.22			8
5	**Third floor**									
	Exterior walls	1,662.87	m2	Head workman	1.00	0.0063	10.48			1
				Foreman	1.00	0.0025	4.16			0.3
				Workman	1.00	0.063	104.76			9
	Interior walls	1,662.87	m2	Head workman	1.00	0.0063	10.48			1
				Foreman	1.00	0.0025	4.16	12		0.3
				Workman	1.00	0.063	104.76			9
	Plafond	1,590.80	m2	Head workman	1.00	0.0063	10.02			1
				Foreman	1.00	0.0025	3.98			0.3
				Workman	1.00	0.063	100.22			8
6	**Fourth floor**									
	Exterior walls	1,672.95	m2	Head workman	1.00	0.0063	10.54			1
				Foreman	1.00	0.0025	4.18			0.3
				Workman	1.00	0.063	105.40			9
	Interior walls	1,672.95	m2	Head workman	1.00	0.0063	10.54			1
				Foreman	1.00	0.0025	4.18	12		0.3
				Workman	1.00	0.063	105.40			9
	Plafond	1,590.80	m2	Head workman	1.00	0.0063	10.02			1
				Foreman	1.00	0.0025	3.98			0.3
				Workman	1.00	0.063	100.22			8
F	**WORK OF ROOF**									
	Roof truss light steel	605.52	m2	Head workman	1.00	0.01	6.06			0.4
				Workman	1.00	0.1	60.55	16		4
	Roof tile echo roof	1,211.05	m2	Head workman	1.00	0.01	12.11			1
				Workman	1.00	0.1	121.10			8
	Nok metal	96.12	m1	Head workman	1.00	0.015	1.44			0.2
				Workman	1.00	0.15	14.42	8		2
	Listplank	249.63	m1	Head workman	1.00	0.02	4.99			1
				Workman	1.00	0.2	49.93			6

G	**WORK OF SANITARY**									
1	**Basement floor**									
	Wastafel toto LW 528J	3.00	bh	Head workman	1.00	0.300	0.90			0.2
				Foreman	1.00	0.110	0.33			0.1
				Workman	1.00	1.500	4.50			1
	Wastafel faucet toto type TX109LH	3.00	bh	Head workman	1.00	0.300	0.90			0.2
				Foreman	1.00	0.110	0.33			0.1
				Workman	1.00	1.500	4.50			1
	Closet squat	2.00	bh	Head workman	1.00	0.300	0.60			0.1
				Foreman	1.00	0.110	0.22			0.04
				Workman	1.00	1.500	3.00			1
	Urinal Type U57M	2.00	bh	Head workman	1.00	0.300	0.60			0.1
				Foreman	1.00	0.110	0.22	6		0.04
				Workman	1.00	1.500	3.00			1
	Jet Washer toto THX30CRB	2.00	bh	Head workman	1.00	0.300	0.60			0.1
				Foreman	1.00	0.110	0.22			0.04
				Workman	1.00	1.500	3.00			1
	Hangers toto type T9RA	2.00	bh	Head workman	1.00	0.300	0.60			0.1
				Foreman	1.00	0.110	0.22			0.04
				Workman	1.00	1.500	3.00			1
	Floor Drain 1/2" kuningan merk onda	2.00	bh	Head workman	1.00	0.300	0.60			0.1
				Foreman	1.00	0.110	0.22			0.04
				Workman	1.00	1.500	3.00			1
2	**Ground floor**									
	Wastafel toto LW 528J	3.00	bh	Head workman	1.00	0.300	0.90			0.2
				Foreman	1.00	0.110	0.33			0.1
				Workman	1.00	1.500	4.50			1
	Wastafel faucet toto type TX109LH	3.00	bh	Head workman	1.00	0.300	0.90			0.2
				Foreman	1.00	0.110	0.33			0.1
				Workman	1.00	1.500	4.50			1
	Closet squat	2.00	bh	Head workman	1.00	0.300	0.60			0.1
				Foreman	1.00	0.110	0.22			0.04
				Workman	1.00	1.500	3.00			1
	Urinal Type U57M	2.00	bh	Head workman	1.00	0.300	0.60			0.1
				Foreman	1.00	0.110	0.22	6		0.04
				Workman	1.00	1.500	3.00			1
	Jet Washer toto THX30CRB	2.00	bh	Head workman	1.00	0.300	0.60			0.1
				Foreman	1.00	0.110	0.22			0.04
				Workman	1.00	1.500	3.00			1
	Hangers toto type T9RA	2.00	bh	Head workman	1.00	0.300	0.60			0.1
				Foreman	1.00	0.110	0.22			0.04
				Workman	1.00	1.500	3.00			1
	Floor Drain 1/2" kuningan merk onda	2.00	bh	Head workman	1.00	0.300	0.60			0.1
				Foreman	1.00	0.110	0.22			0.04
				Workman	1.00	1.500	3.00			1
3	**First floor**									
	Closet squat	45.00	bh	Head workman	1.00	0.300	13.50			2
				Foreman	1.00	0.110	4.95			1
				Workman	1.00	1.500	67.50			11
	Fiberglass bathtub	45.00	bh	Head workman	1.00	0.300	13.50			2
				Foreman	1.00	0.110	4.95			1
				Workman	1.00	1.500	67.50			11
	Hangers toto type T9RA	45.00	bh	Head workman	1.00	0.300	13.50			2
				Foreman	1.00	0.110	4.95	6		1
				Workman	1.00	1.500	67.50			11
	Floor Drain 1/2" kuningan merk onda	45.00	bh	Head workman	1.00	0.300	13.50			2
				Foreman	1.00	0.110	4.95			1
				Workman	1.00	1.500	67.50			11
	Water faucet	45.00	bh	Head workman	1.00	0.300	13.50			2
				Foreman	1.00	0.110	4.95			1
				Workman	1.00	1.500	67.50			11
4	**Second floor**									
	Closet squat	49.00	bh	Head workman	1.00	0.300	14.70			2
				Foreman	1.00	0.110	5.39			1
				Workman	1.00	1.500	73.50			12
	Fiberglass bathtub	49.00	bh	Head workman	1.00	0.300	14.70			2
				Foreman	1.00	0.110	5.39			1
				Workman	1.00	1.500	73.50			12
	Hangers toto type T9RA	49.00	bh	Head workman	1.00	0.300	14.70			2
				Foreman	1.00	0.110	5.39	6		1
				Workman	1.00	1.500	73.50			12
	Floor Drain 1/2" kuningan merk onda	49.00	bh	Head workman	1.00	0.300	14.70			2
				Foreman	1.00	0.110	5.39			1
				Workman	1.00	1.500	73.50			12
	Water faucet	49.00	bh	Head workman	1.00	0.300	14.70			2
				Foreman	1.00	0.110	5.39			1
				Workman	1.00	1.500	73.50			12
5	**Third floor**									
	Closet squat	51.00	bh	Head workman	1.00	0.300	15.30			3
				Foreman	1.00	0.110	5.61			1
				Workman	1.00	1.500	76.50			13
	Fiberglass bathtub	51.00	bh	Head workman	1.00	0.300	15.30			3
				Foreman	1.00	0.110	5.61			1
				Workman	1.00	1.500	76.50			13
	Hangers toto type T9RA	51.00	bh	Head workman	1.00	0.300	15.30			3
				Foreman	1.00	0.110	5.61	6		1
				Workman	1.00	1.500	76.50			13
	Floor Drain 1/2" kuningan merk onda	51.00	bh	Head workman	1.00	0.300	15.30			3
				Foreman	1.00	0.110	5.61			1
				Workman	1.00	1.500	76.50			13
	Water faucet	51.00	bh	Head workman	1.00	0.300	15.30			3
				Foreman	1.00	0.110	5.61			1
				Workman	1.00	1.500	76.50			13
6	**Fourth floor**									
	Closet squat	47.00	bh	Head workman	1.00	0.300	14.10			2
				Foreman	1.00	0.110	5.17			1
				Workman	1.00	1.500	70.50			12
	Fiberglass bathtub	47.00	bh	Head workman	1.00	0.300	14.10			2
				Foreman	1.00	0.110	5.17			1
				Workman	1.00	1.500	70.50			12
	Hangers toto type T9RA	47.00	bh	Head workman	1.00	0.300	14.10			2
				Foreman	1.00	0.110	5.17	6		1
				Workman	1.00	1.500	70.50			12
	Floor Drain 1/2" kuningan merk onda	47.00	bh	Head workman	1.00	0.300	14.10			2
				Foreman	1.00	0.110	5.17			1
				Workman	1.00	1.500	70.50			12
	Water faucet	47.00	bh	Head workman	1.00	0.300	14.10			2
				Foreman	1.00	0.110	5.17			1
				Workman	1.00	1.500	70.50			12
H	**WORK OF RAILING**									
	Basement floor railing work	16.10	m1	Head workman	1.00	0.012	0.19			0.03
				Foreman	1.00	0.006	0.10	6		0.02
				Workman	1.00	1.200	19.32			3
	Ground floor railing work	22.50	m1	Head workman	1.00	0.012	0.27			0.05
				Foreman	1.00	0.006	0.14	6		0.02
				Workman	1.00	1.200	27.00			5
	First floor railing work	22.50	m1	Head workman	1.00	0.012	0.27			0.05
				Foreman	1.00	0.006	0.14	6		0.02
				Workman	1.00	1.200	27.00			5
	Second floor railing work	22.50	m1	Head workman	1.00	0.012	0.27			0.05
				Foreman	1.00	0.006	0.14	6		0.02
				Workman	1.00	1.200	27.00			5
	Third floor railing work	22.50	m1	Head workman	1.00	0.012	0.27			0.05
				Foreman	1.00	0.006	0.14	6		0.02
				Workman	1.00	1.200	27.00			5
IV	**WORK OF MECHANICAL AND ELECTRICAL**									
A	**WORK OF ELECTRICAL CABLE RACK**									
	Basement floor									
	Cable Tray U dim. 600 x 100 mm	138.00	m1	Head workman	1.00	0.020	2.76	3		1
				Workman	1.00	0.020	2.76			1
	Cablel Tray U dim. 200 x 100 mm	78.15	m1	Head workman	1.00	0.020	1.56	2		1
				Workman	1.00	0.020	1.56			1
	Support, Jointing and supporting material	1.00	lot	Head workman	1.00	0.020	0.02	1		1
				Workman	1.00	0.020	0.02			1
	Ground floor									
	Cable Tray U 200 x 100 mm	157.07	m1	Head workman	1.00	0.020	3.14	5		1
				Workman	1.00	0.020	3.14			1
	Support, Jointing and supporting material	1.00	lot	Head workman	1.00	0.020	0.02	1		1
				Workman	1.00	0.020	0.02			1
	First floor									
	Cable Tray U 200 x 100 mm	203.00	m1	Head workman	1.00	0.020	4.06	5		1
				Workman	1.00	0.020	4.06			1
	Support, Jointing and supporting material	1.00	lot	Head workman	1.00	0.020	0.02	1		1
				Workman	1.00	0.020	0.02			1
	Second floor									
	Cable Tray U 200 x 100 mm	203.00	m1	Head workman	1.00	0.020	4.06	5		1
				Workman	1.00	0.020	4.06			1
	Support, Jointing and supporting material	1.00	lot	Head workman	1.00	0.020	0.02	1		1
				Workman	1.00	0.020	0.02			1
	Third floor									
	Cable Tray U 200 x 100 mm	203.00	m1	Head workman	1.00	0.020	4.06	5		1
				Workman	1.00	0.020	4.06			1
	Support, Jointing and supporting material	1.00	lot	Head workman	1.00	0.020	0.02	1		1
				Workman	1.00	0.020	0.02			1
	Fourth floor									
	Cable Tray U 200 x 100 mm	189.00	m1	Head workman	1.00	0.020	3.78	5		1
				Workman	1.00	0.020	3.78			1
	Support, Jointing and supporting material	1.00	lot	Head workman	1.00	0.020	0.02	1		1
				Workman	1.00	0.020	0.02			1
B	**WORK OF ELECTRICAL FLOOR**									
	WORK OF ELECTRICAL BASEMENT FLOOR									
-	**LIGHTING, SOCKET AND SWITCH BASEMENT FLOOR**									
	Installation lighting	30.00	titik	Head workman	1.00	0.020	0.60			0.1
				Workman	1.00	0.020	0.60			0.1
	Installation switch	8.00	titik	Head workman	1.00	0.020	0.16			0.03
				Workman	1.00	0.020	0.16			0.03
	Installation socket	24.00	titik	Head workman	1.00	0.020	0.48			0.1
				Workman	1.00	0.020	0.48			0.1
	Lamp philips LED tube T8 mstr TLED INT STD 900mm 15W	24.00	bh	Head workman	1.00	0.020	0.48	6		0.1
				Workman	1.00	0.020	0.48			0.1
	Lamp philips ambiance globe 18W E27 CDL-WW	6.00	bh	Head workman	1.00	0.020	0.12			0.02
				Workman	1.00	0.020	0.12			0.02
	Switch double inbow panasonic	8.00	bh	Head workman	1.00	0.020	0.16			0.03
				Workman	1.00	0.020	0.16			0.03
	Socket panasonic	24.00	bh	Head workman	1.00	0.020	0.48			0.1
				Workman	1.00	0.020	0.48			0.1

	WORK OF ELECTRICAL GROUND FLOOR								
-	**LIGHTING, SOCKET AND SWITCH GROUND FLOOR**								
-	**Area Lobby**								
	Installation lighting	20.00	titik	Head workman	1.00	0.020	0.40	1	0.4
				Workman	1.00	0.020	0.40		0.4
	Installation switch	3.00	titik	Head workman	1.00	0.020	0.06		0.1
				Workman	1.00	0.020	0.06		0.1
	Installation socket	5.00	titik	Head workman	1.00	0.020	0.10		0.1
				Workman	1.00	0.020	0.10		0.1
	Lamp philips ambiance globe 18W E27 CDL-WW	10.00	bh	Head workman	1.00	0.020	0.20		0.2
				Workman	1.00	0.020	0.20		0.2
	Switch double inbow panasonic	5.00	bh	Head workman	1.00	0.020	0.10		0.1
				Workman	1.00	0.020	0.10		0.1
	Socket panasonic	5.00	bh	Head workman	1.00	0.020	0.10		0.1
				Workman	1.00	0.020	0.10		0.1
-	**Office**								
	Installation lighting	2.00	titik	Head workman	1.00	0.020	0.04	2	0.02
				Workman	1.00	0.020	0.04		0.02
	Installation switch	1.00	titik	Head workman	1.00	0.020	0.02		0.01
				Workman	1.00	0.020	0.02		0.01
	Installation socket	6.00	titik	Head workman	1.00	0.020	0.12		0.1
				Workman	1.00	0.020	0.12		0.1
	Lamp philips LED tube T8 mstr TLED INT STD 900mm 15W	2.00	bh	Head workman	1.00	0.020	0.04		0.02
				Workman	1.00	0.020	0.04		0.02
	Switch double inbow panasonic	1.00	bh	Head workman	1.00	0.020	0.02		0.01
				Workman	1.00	0.020	0.02		0.01
	Socket panasonic	2.00	bh	Head workman	1.00	0.020	0.04		0.02
				Workman	1.00	0.020	0.04		0.02
-	**Security post**								
	Installation lighting	2.00	titik	Head workman	1.00	0.020	0.04	2	0.02
				Workman	1.00	0.020	0.04		0.02
	Installation switch	1.00	titik	Head workman	1.00	0.020	0.02		0.01
				Workman	1.00	0.020	0.02		0.01
	Installation socket	2.00	titik	Head workman	1.00	0.020	0.04		0.02
				Workman	1.00	0.020	0.04		0.02
	Lamp philips LED tube T8 mstr TLED INT STD 900mm 15W	2.00	bh	Head workman	1.00	0.020	0.04		0.02
				Workman	1.00	0.020	0.04		0.02
	Switch double inbow panasonic	1.00	bh	Head workman	1.00	0.020	0.02		0.01
				Workman	1.00	0.020	0.02		0.01
	Socket panasonic	2.00	bh	Head workman	1.00	0.020	0.04		0.02
				Workman	1.00	0.020	0.04		0.02
-	**Area stairs**								
	Installation lighting	1.00	titik	Head workman	1.00	0.020	0.02	1	0.02
				Workman	1.00	0.020	0.02		0.02
	Installation switch	1.00	titik	Head workman	1.00	0.020	0.02		0.02
				Workman	1.00	0.020	0.02		0.02
	Lamp philips LED tube T8 mstr TLED INT STD 900mm 15W	1.00	bh	Head workman	1.00	0.020	0.02		0.02
				Workman	1.00	0.020	0.02		0.02
	Switch double inbow panasonic	1.00	bh	Head workman	1.00	0.020	0.02		0.02
				Workman	1.00	0.020	0.02		0.02
	WORK OF ELECTRICAL FIRST FLOOR								
-	**LIGHTING, SOCKET AND SWITCH FIRST FLOOR**								
	Installation lighting	270.00	titik	Head workman	1.00	0.020	5.40	3	2
				Workman	1.00	0.020	5.40		2
	Installation switch	90.00	titik	Head workman	1.00	0.020	1.80		1
				Workman	1.00	0.020	1.80		1
	Installation socket	225.00	titik	Head workman	1.00	0.020	4.50		2
				Workman	1.00	0.020	4.50		2
	Lamp philips ambiance globe 18W E27 CDL-WW	270.00	bh	Head workman	1.00	0.020	5.40		2
				Workman	1.00	0.020	5.40		2
	Sawitch double inbow panasonic	90.00	bh	Head workman	1.00	0.020	1.80		1
				Workman	1.00	0.020	1.80		1
	Socket panasonic	225.00	bh	Head workman	1.00	0.020	4.50		2
				Workman	1.00	0.020	4.50		2
-	**Area Restaurant/Café**								
	Installation lighting	35.00	titik	Head workman	1.00	0.020	0.70	1	1
				Workman	1.00	0.020	0.70		1
	Installation switch	4.00	titik	Head workman	1.00	0.020	0.08		0.1
				Workman	1.00	0.020	0.08		0.1
	Installation socket	6.00	titik	Head workman	1.00	0.020	0.12		0.1
				Workman	1.00	0.020	0.12		0.1
	Lamp philips ambiance globe 18W E27 CDL-WW	34.00	bh	Head workman	1.00	0.020	0.68		1
				Workman	1.00	0.020	0.68		1
	Sawitch double inbow panasonic	4.00	bh	Head workman	1.00	0.020	0.08		0.1
				Workman	1.00	0.020	0.08		0.1
	Socket panasonic	2.00	bh	Head workman	1.00	0.020	0.04		0.04
				Workman	1.00	0.020	0.04		0.04
-	**Area stairs**								
	Installation lighting	1.00	titik	Head workman	1.00	0.020	0.02	1	0.02
				Workman	1.00	0.020	0.02		0.02
	Installation switch	1.00	titik	Head workman	1.00	0.020	0.02		0.02
				Workman	1.00	0.020	0.02		0.02
	Lamp philips LED tube T8 mstr TLED INT STD 900mm 15W	1.00	bh	Head workman	1.00	0.020	0.02		0.02
				Workman	1.00	0.020	0.02		0.02
	Sawitch double inbow panasonic	1.00	bh	Head workman	1.00	0.020	0.02		0.02
				Workman	1.00	0.020	0.02		0.02
-	**Service room**								
	Installation lighting	4.00	titik	Head workman	1.00	0.020	0.08	1	0.1
				Workman	1.00	0.020	0.08		0.1
	Installation switch	2.00	titik	Head workman	1.00	0.020	0.04		0.04
				Workman	1.00	0.020	0.04		0.04
	Installation socket	12.00	titik	Head workman	1.00	0.020	0.24		0.2
				Workman	1.00	0.020	0.24		0.2
	Lamp philips LED tube T8 mstr TLED INT STD 900mm 15W	4.00	bh	Head workman	1.00	0.020	0.08		0.1
				Workman	1.00	0.020	0.08		0.1
	Sawitch double inbow panasonic	2.00	bh	Head workman	1.00	0.020	0.04		0.04
				Workman	1.00	0.020	0.04		0.04
	Socket panasonic	4.00	bh	Head workman	1.00	0.020	0.08		0.1
				Workman	1.00	0.020	0.08		0.1

	WORK OF ELECTRICAL SECOND FLOOR								
-	**LIGHTING, SOCKET AND SWITCH SECOND FLOOR**								
	Installation lighting	294.00	titik	Head workman	1.00	0.020	5.88	4	1
				Workman	1.00	0.020	5.88		1
	Installation switch	98.00	titik	Head workman	1.00	0.020	1.96		0.5
				Workman	1.00	0.020	1.96		0.5
	Installation socket	245.00	titik	Head workman	1.00	0.020	4.90		1
				Workman	1.00	0.020	4.90		1
	Lamp philips ambiance globe 18W E27 CDL-WW	294.00	bh	Head workman	1.00	0.020	5.88		1
				Workman	1.00	0.020	5.88		1
	Sawitch double inbow panasonic	98.00	bh	Head workman	1.00	0.020	1.96		0.5
				Workman	1.00	0.020	1.96		0.5
	Socket panasonic	245.00	bh	Head workman	1.00	0.020	4.90		1
				Workman	1.00	0.020	4.90		1
-	**Area Stairs**								
	Installation lighting	1.00	titik	Head workman	1.00	0.020	0.02	1	0.02
				Workman	1.00	0.020	0.02		0.02
	Installation switch	1.00	titik	Head workman	1.00	0.020	0.02		0.02
				Workman	1.00	0.020	0.02		0.02
	Lamp philips LED tube T8 mstr TLED INT STD 900mm 15W	1.00	bh	Head workman	1.00	0.020	0.02		0.02
				Workman	1.00	0.020	0.02		0.02
	Switch double inbow panasonic	1.00	bh	Head workman	1.00	0.020	0.02		0.02
				Workman	1.00	0.020	0.02		0.02
-	**Service room**								
	Installation lighting	4.00	titik	Head workman	1.00	0.020	0.08	1	0.1
				Workman	1.00	0.020	0.08		0.1
	Installation switch	2.00	titik	Head workman	1.00	0.020	0.04		0.04
				Workman	1.00	0.020	0.04		0.04
	Installation socket	12.00	titik	Head workman	1.00	0.020	0.24		0.2
				Workman	1.00	0.020	0.24		0.2
	Lamp philips LED tube T8 mstr TLED INT STD 900mm 15W	4.00	bh	Head workman	1.00	0.020	0.08		0.1
				Workman	1.00	0.020	0.08		0.1
	Sawitch double inbow panasonic	2.00	bh	Head workman	1.00	0.020	0.04		0.04
				Workman	1.00	0.020	0.04		0.04
	Socket panasonic	4.00	bh	Head workman	1.00	0.020	0.08		0.1
				Workman	1.00	0.020	0.08		0.1
	WORK OF ELECTRICAL THIRD FLOOR								
-	**LIGHTING, SOCKET AND SWITCH THIRD FLOOR**								
	Installation lighting	306.00	titik	Head workman	1.00	0.020	6.12	4	2
				Workman	1.00	0.020	6.12		2
	Installation switch	102.00	titik	Head workman	1.00	0.020	2.04		1
				Workman	1.00	0.020	2.04		1
	Installation socket	255.00	titik	Head workman	1.00	0.020	5.10		1
				Workman	1.00	0.020	5.10		1
	Lamp philips ambiance globe 18W E27 CDL-WW	306.00	bh	Head workman	1.00	0.020	6.12		2
				Workman	1.00	0.020	6.12		2
	Sawitch double inbow panasonic	102.00	bh	Head workman	1.00	0.020	2.04		1
				Workman	1.00	0.020	2.04		1
	Socket panasonic	255.00	bh	Head workman	1.00	0.020	5.10		1
				Workman	1.00	0.020	5.10		1
-	**Area Stairs**								
	Installation lighting	1.00	titik	Head workman	1.00	0.020	0.02	1	0.02
				Workman	1.00	0.020	0.02		0.02
	Installation switch	1.00	titik	Head workman	1.00	0.020	0.02		0.02
				Workman	1.00	0.020	0.02		0.02
	Lamp philips LED tube T8 mstr TLED INT STD 900mm 15W	1.00	bh	Head workman	1.00	0.020	0.02		0.02
				Workman	1.00	0.020	0.02		0.02
	Switch double inbow panasonic	1.00	bh	Head workman	1.00	0.020	0.02		0.02
				Workman	1.00	0.020	0.02		0.02
-	**Service room**								
	Installation lighting	4.00	titik	Head workman	1.00	0.020	0.08	1	0.1
				Workman	1.00	0.020	0.08		0.1
	Installation switch	2.00	titik	Head workman	1.00	0.020	0.04		0.04
				Workman	1.00	0.020	0.04		0.04
	Installation socket	12.00	titik	Head workman	1.00	0.020	0.24		0.2
				Workman	1.00	0.020	0.24		0.2
	Lamp philips LED tube T8 mstr TLED INT STD 900mm 15W	4.00	bh	Head workman	1.00	0.020	0.08		0.1
				Workman	1.00	0.020	0.08		0.1
	Sawitch double inbow panasonic	2.00	bh	Head workman	1.00	0.020	0.04		0.04
				Workman	1.00	0.020	0.04		0.04
	Socket panasonic	4.00	bh	Head workman	1.00	0.020	0.08		0.1
				Workman	1.00	0.020	0.08		0.1
	WORK OF ELECTRICAL FOURTH FLOOR								
-	**LIGHTING, SOCKET AND SWITCH FOURTH FLOOR**								
	Installation lighting	282.00	titik	Head workman	1.00	0.020	5.64	4	1
				Workman	1.00	0.020	5.64		1
	Installation switch	94.00	titik	Head workman	1.00	0.020	1.88		0.5
				Workman	1.00	0.020	1.88		0.5
	Installation socket	235.00	titik	Head workman	1.00	0.020	4.70		1
				Workman	1.00	0.020	4.70		1
	Lamp philips ambiance globe 18W E27 CDL-WW	282.00	bh	Head workman	1.00	0.020	5.64		1
				Workman	1.00	0.020	5.64		1
	Sawitch double inbow panasonic	94.00	bh	Head workman	1.00	0.020	1.88		0.5
				Workman	1.00	0.020	1.88		0.5
	Socket panasonic	235.00	bh	Head workman	1.00	0.020	4.70		1
				Workman	1.00	0.020	4.70		1
	Area stairs								
-	Installation lighting	1.00	titik	Head workman	1.00	0.020	0.02	1	0.02
				Workman	1.00	0.020	0.02		0.02
	Installation switch	1.00	titik	Head workman	1.00	0.020	0.02		0.02
				Workman	1.00	0.020	0.02		0.02
	Lamp philips LED tube T8 mstr TLED INT STD 900mm 15W	1.00	bh	Head workman	1.00	0.020	0.02		0.02
				Workman	1.00	0.020	0.02		0.02
	Switch double inbow panasonic	1.00	bh	Head workman	1.00	0.020	0.02		0.02
				Workman	1.00	0.020	0.02		0.02

	Service room								
-	Installation lighting	4.00	titik	Head workman	1.00	0.020	0.08	1	0.1
				Workman	1.00	0.020	0.08		0.1
	Installation switch	2.00	titik	Head workman	1.00	0.020	0.04		0.04
				Workman	1.00	0.020	0.04		0.04
	Installation socket	12.00	titik	Head workman	1.00	0.020	0.24		0.2
				Workman	1.00	0.020	0.24		0.2
	Lamp philips LED tube T8 mstr TLED INT STD 900mm 15W	4.00	bh	Head workman	1.00	0.020	0.08		0.1
				Workman	1.00	0.020	0.08		0.1
	Sawitch double inbow panasonic	2.00	bh	Head workman	1.00	0.020	0.04		0.04
				Workman	1.00	0.020	0.04		0.04
	Socket panasonic	4.00	bh	Head workman	1.00	0.020	0.08		0.1
				Workman	1.00	0.020	0.08		0.1
V	**WORK OF INSTALLATION WATER**								
A	**WORK OF CLEAN WATER**								
	Clean water supporting equipment								
-	Transfer Pump	2.00	unit	Head workman	1.00	0.050	0.10	1	0.1
	Type : Centrifugal Pump			Workman	1.00	0.090	0.18		0.2
	Capacity : 80 m3/Hr								
	Total Head : 116 m								
	Penggerak : Elektrik Motor								
	Daya : 30 kw								
	Putaran : 2950 Rpm								
	Karakt. Listrik : 380 Volt,3 ph,50 Hz								
-	Deep Weel Pump	1.00	unit	Head workman	1.00	0.050	0.05	1	0.1
	Type : C/W Pump WLC			Workman	1.00	0.090	0.09		0.1
	Kapasitas : 600Liter/menit								
	Total Head : 60 m								
	Penggerak : Elektrik Motor								
	Daya : 9.2 kw								
	Putaran : 2950 Rpm								
	Karakt. Listrik : 380 Volt,3 ph,50 Hz								
-	Booster Pump	2.00	unit	Head workman	1.00	0.050	0.10	1	0.1
	Type : Centrifugal Pump			Workman	1.00	0.090	0.18		0.2
	Total Head :46.4m								
	Penggerak : Elektrik Motor								
	Putaran : 2950 Rpm								
	Karakt. Listrik : 220-240 Volt,1 ph,50 Hz								
-	supporting material, Fitting & Accessories								
	Clean water delivery pump								
	Gate Valve : Ø 1 1/2"	7.00	bh	Head workman	1.00	0.050	0.35	1	0.4
				Workman	1.00	0.090	0.63		1
	Gate Valve : Ø 2"	2.00	bh	Head workman	1.00	0.050	0.10	1	0.1
				Workman	1.00	0.090	0.18		0.2
	Strainer : Ø 2"	2.00	bh	Head workman	1.00	0.050	0.10	1	0.1
				Workman	1.00	0.090	0.18		0.2
	Check Valve : Ø 2"	2.00	bh	Head workman	1.00	0.050	0.10	1	0.1
				Workman	1.00	0.090	0.18		0.2
	Floating Valve : Ø 2"	4.00	bh	Head workman	1.00	0.050	0.20	1	0.2
				Workman	1.00	0.090	0.36		0.4
	Water Level Control Konduktor OMRON 61 F-G-AP	2.00	bh	Head workman	1.00	0.050	0.10	1	0.1
				Workman	1.00	0.090	0.18		0.2
	Wika Pressure Gauge 16bar	2.00	bh	Head workman	1.00	0.050	0.10	1	0.1
				Workman	1.00	0.090	0.18		0.2
	Panel Pompa Delivery complete control panel	2.00	unit	Head workman	1.00	0.050	0.10	1	0.1
				Workman	1.00	0.090	0.18		0.2
	Cable Feeder NYY 4x16mm2 pompa ke panel PD	30.00	m'	Head workman	1.00	0.050	1.50	2	1
				Workman	1.00	0.090	2.70		1
	Cable Trunking 45x45x3000 mm	40.00	m'	Head workman	1.00	0.050	2.00	2	1
				Workman	1.00	0.090	3.60		2
	Pipe use Polypropelene WAVIN PN 16 Ø 2"	20.00	m'	Head workman	1.00	0.050	1.00	2	1
				Workman	1.00	0.090	1.80		1
	Pipe use Polypropelene WAVIN PN 16 Ø 3"	50.00	m'	Head workman	1.00	0.050	2.50	2	1
				Workman	1.00	0.090	4.50		2
	Elbow Diameter Ø 3"	4.00	bh	Head workman	1.00	0.050	0.20	1	0.2
				Workman	1.00	0.090	0.36		0.4
	Supply PDAM Polypropelene WAVIN PN 16 Ø 2"	100.00	m'	Head workman	1.00	0.050	5.00	3	2
				Workman	1.00	0.090	9.00		3
	Pipe supply to tanki top WAVIN PN 16 Ø 2"	65.00	m'	Head workman	1.00	0.050	3.25	3	1
				Workman	1.00	0.090	5.85		2
B	**WORK OF MAIN PIPE AND CLEAN WATER RISER**								
-	**MAIN PIPE AND RISER**								
	Pipe PPR PN 10 dia. 75mm Pipe transfer	80.00	m1	Head workman	1.00	0.050	4.00	1	4
				Workman	1.00	0.090	7.20		7
	Pipe PPR PN 10 dia. 63mm Pipe riser	95.00	m1	Head workman	1.00	0.050	4.75	2	2
				Workman	1.00	0.090	8.55		4
	Pipe PPR PN 10 dia. 63mm Pipe Gravitasi , riser kamar	475.00	m1	Head workman	1.00	0.050	23.75	6	4
				Workman	1.00	0.090	42.75		7
	Gate valve 1 1/2" PVC Exp taiwan	1.00	bh	Head workman	1.00	0.050	0.05	1	0.1
				Workman	1.00	0.090	0.09		0.1
	Fitting and Accessories	1.00	lot	Head workman	1.00	0.050	0.05	1	0.1
				Workman	1.00	0.090	0.09		0.1
	Support and hanger	1.00	lot	Head workman	1.00	0.050	0.05	1	0.1
				Workman	1.00	0.090	0.09		0.1

C	**INSTALLATION OF PIPES IN THE PUMP TRANSFER AREA, AND PUMP FILTER:**								
	Pipe GIP Ø 4" (header)	16.00	m1	Head workman	1.00	0.050	0.80	1	1
				Workman	1.00	0.090	1.44		1
	Pipe GIP Ø 3"	32.00	m1	Head workman	1.00	0.050	1.60	1	2
				Workman	1.00	0.090	2.88		3
	Pipe GIP Ø 1 1/2"	40.00	m1	Head workman	1.00	0.050	2.00	1	2
				Workman	1.00	0.090	3.60		4
	Gate valve 2" PVC socket Exp taiwan	3.00	bh	Head workman	1.00	0.050	0.15	1	0.2
				Workman	1.00	0.090	0.27		0.3
	Gate valve 1 1/2" PVC socket Exp taiwan	8.00	bh	Head workman	1.00	0.050	0.40	1	0.4
				Workman	1.00	0.090	0.72		1
	Flexible joint 2' 10 K	8.00	bh	Head workman	1.00	0.050	0.40	1	0.4
				Workman	1.00	0.090	0.72		1
	Check valve 2' 10 K	4.00	bh	Head workman	1.00	0.050	0.20	1	0.2
				Workman	1.00	0.090	0.36		0.4
	Strainer 2' 10 K	4.00	bh	Head workman	1.00	0.050	0.20	1	0.2
				Workman	1.00	0.090	0.36		0.4
	Wika Pressure Gauge 16bar	6.00	bh	Head workman	1.00	0.050	0.30	1	0.3
				Workman	1.00	0.090	0.54		1
	Installasi kabel NYA supreme 1 x 25 mm	55.00	m1	Head workman	1.00	0.050	2.75	1	3
				Workman	1.00	0.090	4.95		5
	Fitting and Accessories	1.00	lot	Head workman	1.00	0.050	0.05	1	0.1
				Workman	1.00	0.090	0.09		0.1
	Support and hanger	1.00	lot	Head workman	1.00	0.050	0.05	1	0.1
				Workman	1.00	0.090	0.09		0.1
D	**INSTALLATION OF CLEAN WATER FLOOR**								
-	**INSTALLATION OF CLEAN WATER BASEMENT FLOOR**								
	Pipe PPR PN 10 dia. 40mm	5.00	m1	Head workman	1.00	0.050	0.25	5	0.1
				Workman	1.00	0.090	0.45		0.1
	Pipe PPR PN 10 dia. 32mm	20.00	m1	Head workman	1.00	0.050	1.00		0.2
				Workman	1.00	0.090	1.80		0.4
	Pipe PPR PN 10 dia. 25mm	20.00	m1	Head workman	1.00	0.050	1.00		0.2
				Workman	1.00	0.090	1.80		0.4
	Pipe PPR PN 10 dia. 20mm	120.00	m1	Head workman	1.00	0.050	6.00		1
				Workman	1.00	0.090	10.80		2
	Gate valve 2" PVC socket Exp taiwan	2.00	bh	Head workman	1.00	0.050	0.10	1	0.1
				Workman	1.00	0.090	0.18		0.2
	Gate valve 1 1/2" PVC socket Exp taiwan	1.00	bh	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09		0.1
	Fitting and accessories	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09		0.1
	Support and hanger	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09		0.1
-	**GROUND FLOOR**								
	Pipe PPR PN 10 dia. 25mm	120.00	m1	Head workman	1.00	0.050	6.00	5	1
				Workman	1.00	0.090	10.80		2
	Pipe PPR PN 10 dia. 20mm	60.00	m1	Head workman	1.00	0.050	3.00		1
				Workman	1.00	0.090	5.40		1
	Gate valve 2" PVC socket Exp taiwan	1.00	bh	Head workman	1.00	0.050	0.05	1	0.1
				Workman	1.00	0.090	0.09		0.1
	Fitting and accessories	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09		0.1
	Support and hanger	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09		0.1
-	**FIRST FLOOR**								
	Distribusi clean water to bedroom								
	Pipe PPR PN 10 dia. 32mm	135.00	m1	Head workman	1.00	0.050	6.75	5	1
				Workman	1.00	0.090	12.15		2
	Pipe PPR PN 10 dia. 25mm	180.00	m1	Head workman	1.00	0.050	9.00		2
				Workman	1.00	0.090	16.20		3
	Pipe PPR PN 10 dia. 20mm	540.00	m1	Head workman	1.00	0.050	27.00		5
				Workman	1.00	0.090	48.60		10
	Gate valve 2" PVC socket Exp taiwan	45.00	bh	Head workman	1.00	0.050	2.25	1	2
				Workman	1.00	0.090	4.05		4
	Gate valve 1 1/2" PVC socket Exp taiwan	9.00	bh	Head workman	1.00	0.050	0.45		0.5
				Workman	1.00	0.090	0.81		1
	Fitting and accessories	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09		0.1
	Support and hanger	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09		0.1
-	**SECOND FLOOR**								
	Distribusi clean water to bedroom								
	Pipe PPR PN 10 dia. 63mm	182.00	m1	Head workman	1.00	0.050	9.10	5	2
				Workman	1.00	0.090	16.38		3
	Pipe PPR PN 10 dia. 32mm	147.00	m1	Head workman	1.00	0.050	7.35		1
				Workman	1.00	0.090	13.23		3
	Pipe PPR PN 10 dia. 25mm	196.00	m1	Head workman	1.00	0.050	9.80		2
				Workman	1.00	0.090	17.64		4
	Pipe PPR PN 10 dia. 20mm	588.00	m1	Head workman	1.00	0.050	29.40		6
				Workman	1.00	0.090	52.92		11
	Gate valve 2" PVC socket Exp taiwan	49.00	bh	Head workman	1.00	0.050	2.45	1	2
				Workman	1.00	0.090	4.41		4
	Gate valve 1 1/2" PVC socket Exp taiwan	9.00	bh	Head workman	1.00	0.050	0.45		0.5
				Workman	1.00	0.090	0.81		1
	Fitting and accessories	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09		0.1
	Support and hanger	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09		0.1
-	**THIRD FLOOR**								
	Distribusi clean water to bedroom								
	Pipe PPR PN 10 dia. 32mm	153.00	m1	Head workman	1.00	0.050	7.65	5	2
				Workman	1.00	0.090	13.77		3
	Pipe PPR PN 10 dia. 25mm	204.00	m1	Head workman	1.00	0.050	10.20		2
				Workman	1.00	0.090	18.36		4
	Pipe PPR PN 10 dia. 20mm	612.00	m1	Head workman	1.00	0.050	30.60		6
				Workman	1.00	0.090	55.08		11

	Gate valve 2" PVC socket Exp taiwan	51.00	bh	Head workman	1.00	0.050	2.55		3
				Workman	1.00	0.090	4.59		5
	Gate valve 1 1/2" PVC socket Exp taiwan	9.00	bh	Head workman	1.00	0.050	0.45		0.5
				Workman	1.00	0.090	0.81	1	1
	Fitting and accessories	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09		0.1
	Support and hanger	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09		0.1
-	**FOURTH FLOOR**								
	Distribusi clean water to bedroom								
	Pipe PPR PN 10 dia. 32mm	141.00	m1	Head workman	1.00	0.050	7.05		1
				Workman	1.00	0.090	12.69		3
	Pipe PPR PN 10 dia. 25mm	188.00	m1	Head workman	1.00	0.050	9.40	5	2
				Workman	1.00	0.090	16.92		3
	Pipe PPR PN 10 dia. 20mm	564.00	m1	Head workman	1.00	0.050	28.20		6
				Workman	1.00	0.090	50.76		10
	Gate valve 2" PVC socket Exp taiwan	47.00	bh	Head workman	1.00	0.050	2.35		2
				Workman	1.00	0.090	4.23		4
	Gate valve 1 1/2" PVC socket Exp taiwan	9.00	bh	Head workman	1.00	0.050	0.45		0.5
				Workman	1.00	0.090	0.81	1	1
	Fitting and accessories	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09		0.1
	Support and hanger	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09		0.1
E	**WORK OF INSTALLATION DIRTY WATER AND RAIN WATER**								
	SUPPORTING EQUIPMENT DIRTY WATER								
-	Main STP	1.00	unit	Head workman	1.00	0.050	0.05	1	0.1
	- Type : Biotech (separasi/aerasi system)			Workman	1.00	0.090	0.09		0.1
-	Installation STP basement	1.00	unit	Head workman	1.00	0.050	0.05	1	0.1
	- Type : Biotech (separasi/aerasi vistem)			Workman	1.00	0.090	0.09		0.1
-	Making absorption wells	10.00	set	Head workman	1.00	0.050	0.50	1	0.5
	Type : convetional			Workman	1.00	0.090	0.90		0.9
-	Making mini sumpit and supply sumpit pump								
	a. pump room area	1.00	unit	Head workman	1.00	0.050	0.05	1	0.1
				Workman	1.00	0.090	0.09		0.1
	b. Sumpit biotech area	1.00	unit	Head workman	1.00	0.050	0.05	1	0.1
				Workman	1.00	0.090	0.09		0.1
	c. Basement toilet area	1.00	unit	Head workman	1.00	0.050	0.05	1	0.1
				Workman	1.00	0.090	0.09		0.1
	d. Installation over flow from STP to city channels								
	- PVC A.W dia. 4"	40.00	m1	Head workman	1.00	0.050	2.00	2	1
				Workman	1.00	0.090	3.60		1
	- Fitting and accessories	30.00	lot	Head workman	1.00	0.050	1.50	2	1
				Workman	1.00	0.090	2.70		1
F	**INSTALLATION OF SOLID WATER AND DIRTY LIQUID WATER**								
-	**Work pipe main riser and horizontal**								
	PVC AW dia. 4" - Main line	75.00	m1	Head workman	1.00	0.050	3.75		1
				Workman	1.00	0.090	6.75		1
	PVC AW dia. 3" - Main line	75.00	m1	Head workman	1.00	0.050	3.75		1
				Workman	1.00	0.090	6.75		1
	PVC AW dia. 3"	179.00	m1	Head workman	1.00	0.050	8.95	5	2
				Workman	1.00	0.090	16.11		3
	PVC AW dia. 2 1/2"	179.00	m1	Head workman	1.00	0.050	8.95		2
				Workman	1.00	0.090	16.11		3
	PVC AW dia. 2"	179.00	m1	Head workman	1.00	0.050	8.95		2
				Workman	1.00	0.090	16.11		3
	Fitting and accessories	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09	1	0.1
	Support and hanger	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09		0.1
-	**Basement floor**								
	PVC AW dia. 4"	75.00	m1	Head workman	1.00	0.050	3.75		1
				Workman	1.00	0.090	6.75		2
	PVC AW dia. 3"	40.00	m1	Head workman	1.00	0.050	2.00		1
				Workman	1.00	0.090	3.60		1
	PVC AW dia. 2 1/2"	60.00	m1	Head workman	1.00	0.050	3.00		1
				Workman	1.00	0.090	5.40	3	2
	PVC AW dia. 2"	45.00	m1	Head workman	1.00	0.050	2.25		1
				Workman	1.00	0.090	4.05		1
	PVC AW dia. 1 1/2"	12.00	m1	Head workman	1.00	0.050	0.60		0.2
				Workman	1.00	0.090	1.08		0.4
	P Trap dia. 2"	12.00	bh	Head workman	1.00	0.050	0.60		0.2
				Workman	1.00	0.090	1.08		0.4
	Fitting and accessories	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09	1	0.1
	Support and hanger	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09		0.1
	Installation pipe sump :								
	PVC AW dia 4"	67.00	m1	Head workman	1.00	0.050	3.35		3
				Workman	1.00	0.090	6.03	1	6
	Check valve dia. 4" kuningan	12.00	bh	Head workman	1.00	0.050	0.60		1
				Workman	1.00	0.090	1.08		1
	Fitting and accessories	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09	1	0.1
	Support and hanger	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09		0.1
-	**Ground floor**								
	PVC AW dia. 4"	125.00	m1	Head workman	1.00	0.050	6.25		1
				Workman	1.00	0.090	11.25		2
	PVC AW dia. 2"	40.00	m1	Head workman	1.00	0.050	2.00		0.4
				Workman	1.00	0.090	3.60		1
	PVC AW dia. 1 1/2"	40.00	m1	Head workman	1.00	0.050	2.00		0.4
				Workman	1.00	0.090	3.60		1
	PVC AW dia. 3"	28.00	m1	Head workman	1.00	0.050	1.40	5	0.3
				Workman	1.00	0.090	2.52		1
	P Trap dia. 2"	10.00	bh	Head workman	1.00	0.050	0.50		0.1
				Workman	1.00	0.090	0.90		0.2
	Clean out 4" kuningan merk onda	1.00	bh	Head workman	1.00	0.050	0.05		0.01
				Workman	1.00	0.090	0.09		0.02
	Clean out 3" kuningan merk onda	1.00	bh	Head workman	1.00	0.050	0.05		0.01
				Workman	1.00	0.090	0.09		0.02
	Floor drain 2"	5.00	bh	Head workman	1.00	0.050	0.25		0.1
				Workman	1.00	0.090	0.45		0.1
	Fitting and accessories	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09	1	0.1
	Support and hanger	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09		0.1
-	**First floor**								
	PVC AW dia. 4"	150.00	m1	Head workman	1.00	0.050	7.50		2
				Workman	1.00	0.090	13.50		3
	PVC AW dia. 2"	218.00	m1	Head workman	1.00	0.050	10.90		2
				Workman	1.00	0.090	19.62		4
	PVC AW dia. 1 1/2"	208.00	m1	Head workman	1.00	0.050	10.40		2
				Workman	1.00	0.090	18.72		4
	PVC AW dia. 3"	151.00	m1	Head workman	1.00	0.050	7.55	5	2
				Workman	1.00	0.090	13.59		3
	PVC AW dia. 1"	150.00	m1	Head workman	1.00	0.050	7.50		2
				Workman	1.00	0.090	13.50		3
	P Trap dia. 2"	55.00	bh	Head workman	1.00	0.050	2.75		1
				Workman	1.00	0.090	4.95		1
	Floor drain 2"	55.00	bh	Head workman	1.00	0.050	2.75		1
				Workman	1.00	0.090	4.95		1
	Fitting and accessories	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09	1	0.1
	Support and hanger	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09		0.1
-	**Third floor**								
	PVC AW dia. 4"	150.00	m1	Head workman	1.00	0.050	7.50		2
				Workman	1.00	0.090	13.50		3
	PVC AW dia. 2"	218.00	m1	Head workman	1.00	0.050	10.90		2
				Workman	1.00	0.090	19.62		4
	PVC AW dia. 1 1/2"	208.00	m1	Head workman	1.00	0.050	10.40		2
				Workman	1.00	0.090	18.72		4
	PVC AW dia. 3"	151.00	m1	Head workman	1.00	0.050	7.55	5	2
				Workman	1.00	0.090	13.59		3
	PVC AW dia. 1"	150.00	m1	Head workman	1.00	0.050	7.50		2
				Workman	1.00	0.090	13.50		3
	P Trap dia. 2"	57.00	bh	Head workman	1.00	0.050	2.85		1
				Workman	1.00	0.090	5.13		1
	Floor drain 2"	57.00	bh	Head workman	1.00	0.050	2.85		1
				Workman	1.00	0.090	5.13		1
	Fitting and accessories	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09	1	0.1
	Support and hanger	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09		0.1
-	**Fourth floor**								
	PVC AW dia. 4"	150.00	m1	Head workman	1.00	0.050	7.50		2
				Workman	1.00	0.090	13.50		3
	PVC AW dia. 2"	218.00	m1	Head workman	1.00	0.050	10.90		2
				Workman	1.00	0.090	19.62		4
	PVC AW dia. 1 1/2"	208.00	m1	Head workman	1.00	0.050	10.40		2
				Workman	1.00	0.090	18.72		4
	PVC AW dia. 3"	151.00	m1	Head workman	1.00	0.050	7.55	5	2
				Workman	1.00	0.090	13.59		3
	PVC AW dia. 1"	150.00	m1	Head workman	1.00	0.050	7.50		2
				Workman	1.00	0.090	13.50		3
	P Trap dia. 2"	57.00	bh	Head workman	1.00	0.050	2.85		1
				Workman	1.00	0.090	5.13		1
	Floor drain 2"	57.00	bh	Head workman	1.00	0.050	2.85		1
				Workman	1.00	0.090	5.13		1
	Fitting and accessories	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09	1	0.1
	Support and hanger	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09		0.1
-	**Roof floor**								
	Installation rain water								
	PVC AW dia. 2"	363.00	m1	Head workman	1.00	0.050	18.15		4
				Workman	1.00	0.090	32.67	5	7
	Roof drain 2"	8.00	bh	Head workman	1.00	0.050	0.40		0.1
				Workman	1.00	0.090	0.72		0.1
	Fitting and accessories	1.00	lot	Head workman	1.00	0.050	0.05		0.1
				Workman	1.00	0.090	0.09	1	0.1
	Support and hanger	8.00	bh	Head workman	1.00	0.050	0.40		0.4
				Workman	1.00	0.090	0.72		0.7

Table 2. Calculation of Material

CALCULATION OF MATERIAL NEEDS
DEVELOPMENT PROJECT OF BOARDING HOUSE
JL. TEGAL PARANG UTARA NO. 17 KELURAHAN MAMPANG PRAPATAN
KECAMATAN MAMPANG PRAPATAN, SOUTH JAKARTA

NO	JOB DESCRIPTIONS	VOLUME OF JOB		MATERIAL NEEDS			
		TOTAL	UNIT	Material	Unit	Coefficient analysis	Total
I	**WORK OF PREPARATORY**						
1	Administration and preparation	1.00	ls	-			
2	Installation of project nameplate	1.00	ls	-			
3	Site Cleaning	1.00	ls	-			
4	Measurement and installation work of bouwplank	223.10	m1	Wood of kaso (wood village)	m3	0.01	2
				Wooden board (wood village) 3/20	m3	0.01	2
				Nails	kg	0.02	4
II	**WORK OF STRUCTURE**						
A	**WORK OF LAND AND FOUNDATION**						
1	Excavation work ground pile cap	23.27	m3				
2	Mobilization of the equipment stake	1.00	ls				
3	Pile Size 40x40	282.00	bh	Pile 40x40	bh	1.00	282
4	Cutting head of pile	282.00	bh				
5	Masonry stone	4.50	m3	Stone	m3	1.20	5
				Cement (50 kg/zak)	zak	2.90	13
				Sand pairs	m3	0.46	2
B	**WORK OF CONCRETE, REINFORCEMENT AND FORMWORK**						
1	**Work floor**						
	Concrete of work floor	80.75	m3	K-125	m3	1.03	83
	Reinforcement of work floor	15,809.52	kg	Steel bar	kg	1.05	16,600
				Concrete wire	kg	0.015	237
	Formwork of work floor	161.50	m2	Plywood	lbr	0.35	57
				Wood formwork	m3	0.04	6
				Wood beam	m3	0.015	2
				Nails	kg	0.40	65
2	**Pile cap**						
	Concrete of pilecap	186.16	m3	K-250	m3	1.03	192
	Reinforcement of pilecap	36,571.43	kg	Steel bar	kg	1.05	38,400
				Concrete wire	kg	0.015	549
	Formwork of pilecap	372.32	m2	Plywood	lbr	0.35	130
				Wood formwork	m3	0.04	15
				Wood beam	m3	0.015	6
				Nails	kg	0.40	149
3	**Tie beam**						
	Concrete of TB1	57.56	m3	K-250	m3	1.03	59
	Reinforcement oif TB1	11,238.10	kg	Steel bar	kg	1.05	11,800
				Concrete wire	kg	0.015	169
	Formwork of TB1	115.12	m2	Plywood	lbr	0.35	40
				Wood formwork	m3	0.04	5
				Wood beam	m3	0.015	2
				Nails	kg	0.40	46
	Concrete of TB2	26.40	m3	K-250	m3	1.03	27
	Reinforcement of TB2	5,142.86	kg	Steel bar	kg	1.05	5,400
				Concrete wire	kg	0.015	77
	Formwork of TB2	52.80	m2	Plywood	lbr	0.35	18
				Wood formwork	m3	0.04	2
				Wood beam	m3	0.015	1
				Nails	kg	0.40	21
	Concrete of TB3	9.08	m3	K-250	m3	1.03	9
	Reinforcement of TB3	1,714.30	kg	Steel bar	kg	1.05	1,800
				Concrete wire	kg	0.015	26
	Formwork of TB3	18.16	m2	Plywood	lbr	0.35	6
				Wood formwork	m3	0.04	1
				Wood beam	m3	0.015	0.27
				Nails	kg	0.40	7
4	**Basement floor, Elevation -3.100**						
	Concrete of column	84.07	m3	K-250	m3	1.03	87
	Reinforcement of column	16,571	kg	Steel bar	kg	1.05	17,400
				Concrete wire	kg	0.015	249
	Formwork of column	304.50	m2	Plywood	lbr	0.35	107
				Wood formwork	m3	0.04	12
				Wood beam	m3	0.015	5
				Nails	kg	0.40	122
	Concrete of shear wall	6.00	m3	K-250	m3	1.03	6
	Reinforcement of shear wall	1,143	kg	Steel bar	kg	1.05	1,200
				Concrete wire	kg	0.015	17
	Formwork of shear wall	12.00	m2	Plywood	lbr	0.35	4
				Wood formwork	m3	0.04	0.480
				Wood beam	m3	0.015	0.180
				Nails	kg	0.40	5
	Concrete of floor plate	263.52	m3	K-250	m3	1.03	271
	Reinforcement of floor plate	51,619	kg	Steel bar	kg	1.05	54,200
				Concrete wire	kg	0.015	774
	Formwork of floor plate	1,636.48	m2	Plywood	lbr	0.35	573
				Wood formwork	m3	0.04	65.459
				Wood beam	m3	0.015	24.547
				Nails	kg	0.40	655
	Concrete of stairs	15.00	m3	K-250	m3	1.03	16
	Reinforcement of stairs	2,857	kg	Steel bar	kg	1.05	3,000
				Concrete wire	kg	0.015	43
	Formwork of stairs	66.00	m2	Plywood	lbr	0.35	23
				Wood formwork	m3	0.04	2.640
				Wood beam	m3	0.015	0.990
				Nails	kg	0.40	26
	Concrete of lift	25.00	m3	K-250	m3	1.03	26
	Reinforcement of lift	4,952	kg	Steel bar	kg	1.05	5,200
				Concrete wire	kg	0.015	74
	Formwork of lift	100.00	m2	Plywood	lbr	0.35	35
				Wood formwork	m3	0.04	4.000
				Wood beam	m3	0.015	1.500
				Nails	kg	0.40	40
5	**Ground floor, Elevation 0.00**						
	Concrete of column	76.63	m3	K-250	m3	1.03	79
	Reinforcement of column	15,047.62	kg	Steel bar	kg	1.05	15,800
				Concrete wire	kg	0.015	226
	Formwork of column	417.60	m2	Plywood	lbr	0.35	146
				Wood formwork	m3	0.04	16.704
				Wood beam	m3	0.015	6.264
				Nails	kg	0.40	167
	Concrete of shear wall	6.00	m3	K-250	m3	1.03	6
	Reinforcement of shear wall	1,142.86	kg	Steel bar	kg	1.05	1,200
				Concrete wire	kg	0.015	17
	Formwork of shear wall	12.00	m2	Plywood	lbr	0.35	4
				Wood formwork	m3	0.04	0.480
				Wood beam	m3	0.015	0.180
				Nails	kg	0.40	5
	Concrete of beam	167.16	m3	K-250	m3	1.03	172
	Reinforcement of beam	32,761.90	kg	Steel bar	kg	1.05	34,400
				Concrete wire	kg	0.015	491
	formwork of beam	441.39	m2	Plywood	lbr	0.35	154
				Wood formwork	m3	0.04	18
				Wood beam	m3	0.015	7
				Nails	kg	0.40	177
	Concrete of floor plate	278.64	m3	K-250	m3	1.03	287
	Reinforcement of floor plate	54,666.70	kg	Steel bar	kg	1.05	57,400
				Concrete wire	kg	0.015	820
	Formwork of floor plate	1,789.68	m2	Plywood	lbr	0.35	626
				Wood formwork	m3	0.04	72
				Wood beam	m3	0.015	27
				Nails	kg	0.40	716
	Concrete of stairs	15.00	m3	K-250	m3	1.03	15
	Reinforcement of stairs	2,857.14	kg	Steel bar	kg	1.05	3,000
				Concrete wire	kg	0.015	43
	Formwork of stairs	66.00	m2	Plywood	lbr	0.35	23
				Wood formwork	m3	0.04	2.640
				Wood beam	m3	0.015	0.990
				Nails	kg	0.40	26
	Concrete of lift	25.00	m3	K-250	m3	1.03	26
	Reinforcement of lift	4,952.40	kg	Steel bar	kg	1.05	5,200
				Concrete wire	kg	0.015	74
	Formwork of lift	100.00	m2	Plywood	lbr	0.35	35
				Wood formwork	m3	0.04	4.000
				Wood beam	m3	0.015	1.500
				Nails	kg	0.40	40
6	**First floor, Elevation +3.300**						
	Concrete of column	93.46	m3	K-250	m3	1.03	96
	Reinforcement of column	18,285.70	kg	Steel bar	kg	1.05	19,200
				Concrete wire	kg	0.015	274
	Formwork of column	549.38	m2	Plywood	lbr	0.35	192
				Wood formwork	m3	0.04	21.975
				Wood beam	m3	0.015	8.241
				Nails	kg	0.40	220
	Concrete of shear wall	6.00	m3	K-250	m3	1.03	6
	Reinforcement of shear wall	1,142.86	kg	Steel bar	kg	1.05	1,200
				Concrete wire	kg	0.015	17

	Formwork of shear wall	12.00	m2	Plywood	lbr	0.35	4
				Wood formwork	m3	0.04	0.5
				Wood beam	m3	0.015	0.2
				Nails	kg	0.40	5
	Concrete of beam	323.90	m3	K-250	m3	1.03	334
	Reinforcement of beam	63,619.05	kg	Steel bar	kg	1.05	66,800
				Concrete wire	kg	0.015	954
	formwork of beam	515.33	m2	Plywood	lbr	0.35	180
				Wood formwork	m3	0.04	21
				Wood beam	m3	0.015	8
				Nails	kg	0.40	206
	Concrete of floor plate	235.80	m3	K-250	m3	1.03	243
	Reinforcement of floor plate	46,285.70	kg	Steel bar	kg	1.05	48,600
				Concrete wire	kg	0.015	694
	Formwork of floor plate	1,472.72	m2	Plywood	lbr	0.35	515
				Wood formwork	m3	0.04	59
				Wood beam	m3	0.015	22
				Nails	kg	0.40	589
	Concrete of stairs	15.00	m3	K-250	m3	1.03	15
	Reinforcement of stairs	2,857.14	kg	Steel bar	kg	1.05	3,000
				Concrete wire	kg	0.015	43
	Formwork of stairs	66.00	m2	Plywood	lbr	0.35	23
				Wood formwork	m3	0.04	2,640
				Wood beam	m3	0.015	0.990
				Nails	kg	0.40	26
	Concrete of lift	25.00	m3	K-250	m3	1.03	26
	Reinforcement of lift	4,952.40	kg	Steel bar	kg	1.05	5,200
				Concrete wire	kg	0.015	74
	Formwork of lift	100.00	m2	Plywood	lbr	0.35	35
				Wood formwork	m3	0.04	4.000
				Wood beam	m3	0.015	1.500
				Nails	kg	0.40	40
7	**Second floor, Elevation +6.600**						
	Concrete of column	99.79	m3	K-250	m3	1.03	103
	Reinforcement of column	19,619.05	kg	Steel bar	kg	1.05	20,600
				Concrete wire	kg	0.015	294
	Formwork of column	549.38	m2	Plywood	lbr	0.35	192
				Wood formwork	m3	0.04	21.975
				Wood beam	m3	0.015	8.241
				Nails	kg	0.40	220
	Concrete of shear wall	6.00	m3	K-250	m3	1.03	6
	Reinforcement of shear wall	1,142.86	kg	Steel bar	kg	1.05	1,200
				Concrete wire	kg	0.015	17
	Formwork of shear wall	12.00	m2	Plywood	lbr	0.35	4
				Wood formwork	m3	0.04	0.480
				Wood beam	m3	0.015	0.180
				Nails	kg	0.40	5
	Concrete of beam	76.55	m3	K-250	m3	1.03	79
	Reinforcement of beam	15,047.62	kg	Steel bar	kg	1.05	15,800
				Concrete wire	kg	0.015	226
	formwork of beam	37.56	m2	Plywood	lbr	0.35	13
				Wood formwork	m3	0.04	1.502
				Wood beam	m3	0.015	0.563
				Nails	kg	0.40	15
	Concrete of floor plate	161.28	m3	K-250	m3	1.03	166
	Reinforcement of floor plate	31,619.05	kg	Steel bar	kg	1.05	33,200
				Concrete wire	kg	0.015	474
	Formwork of floor plate	172.68	m2	Plywood	lbr	0.35	60
				Wood formwork	m3	0.04	6.907
				Wood beam	m3	0.015	2.590
				Nails	kg	0.40	69
	Concrete of stairs	15.00	m3	K-250	m3	1.03	15
	Reinforcement of stairs	2,857.14	kg	Steel bar	kg	1.05	3,000
				Concrete wire	kg	0.015	43
	Formwork of stairs	66.00	m2	Plywood	lbr	0.35	23
				Wood formwork	m3	0.04	2.640
				Wood beam	m3	0.015	0.990
				Nails	kg	0.40	26
	Concrete of lift	25.00	m3	K-250	m3	1.03	26
	Reinforcement of lift	4,952.40	kg	Steel bar	kg	1.05	5,200
				Concrete wire	kg	0.015	74
	Formwork of lift	100.00	m2	Plywood	lbr	0.35	35
				Wood formwork	m3	0.04	4.000
				Wood beam	m3	0.015	1.500
				Nails	kg	0.40	40
8	**Third floor, Elevation +9.900**						
	Concrete of column	99.79	m3	K-250	m3	1.03	103
	Reinforcement of column	19,619.05	kg	Steel bar	kg	1.05	20,600
				Concrete wire	kg	0.015	294
	Formwork of column	549.38	m2	Plywood	lbr	0.35	192
				Wood formwork	m3	0.04	21.975
				Wood beam	m3	0.015	8.241
				Nails	kg	0.40	220
	Concrete of shear wall	6.00	m3	K-250	m3	1.03	6
	Reinforcement of shear wall	1,142.86	kg	Steel bar	kg	1.05	1,200
				Concrete wire	kg	0.015	17
	Formwork of shear wall	12.00	m2	Plywood	lbr	0.35	4
				Wood formwork	m3	0.04	0.480
				Wood beam	m3	0.015	0.180
				Nails	kg	0.40	5
	Concrete of beam	76.55	m3	K-250	m3	1.03	79
	Reinforcement of beam	15,047.62	kg	Steel bar	kg	1.05	15,800
				Concrete wire	kg	0.015	226
	formwork of beam	37.56	m2	Plywood	lbr	0.35	13
				Wood formwork	m3	0.04	1.502
				Wood beam	m3	0.015	0.563
				Nails	kg	0.40	15
	Concrete of floor plate	161.28	m3	K-250	m3	1.03	166
	Reinforcement of floor plate	31,619.05	kg	Steel bar	kg	1.05	33,200
				Concrete wire	kg	0.015	474
	Formwork of floor plate	172.68	m2	Plywood	lbr	0.35	60
				Wood formwork	m3	0.04	6.907
				Wood beam	m3	0.015	2.590
				Nails	kg	0.40	69
	Concrete of stairs	15.00	m3	K-250	m3	1.03	15
	Reinforcement of stairs	2,857.14	kg	Steel bar	kg	1.05	3,000
				Concrete wire	kg	0.015	43
	Formwork of stairs	66.00	m2	Plywood	lbr	0.35	23
				Wood formwork	m3	0.04	2.640
				Wood beam	m3	0.015	0.990
				Nails	kg	0.40	26
	Concrete of lift	25.00	m3	K-250	m3	1.03	26
	Reinforcement of lift	4,952.40	kg	Steel bar	kg	1.05	5,200
				Concrete wire	kg	0.015	74
	Formwork of lift	100.00	m2	Plywood	lbr	0.35	35
				Wood formwork	m3	0.04	4.000
				Wood beam	m3	0.015	1.500
				Nails	kg	0.40	40
9	**Fourth floor, Elevation 13.200**						
	Concrete of column	99.79	m3	K-250	m3	1.03	103
	Reinforcement of column	19,619.05	kg	Steel bar	kg	1.05	20,600
				Concrete wire	kg	0.015	294
	Formwork of column	549.38	m2	Plywood	lbr	0.35	192
				Wood formwork	m3	0.04	21.975
				Wood beam	m3	0.015	8.241
				Nails	kg	0.40	220
	Concrete of shear wall	6.00	m3	K-250	m3	1.03	6
	Reinforcement of shear wall	1,142.86	kg	Steel bar	kg	1.05	1,200
				Concrete wire	kg	0.015	17
	Formwork of shear wall	12.00	m2	Plywood	lbr	0.35	4
				Wood formwork	m3	0.04	0.480
				Wood beam	m3	0.015	0.180
				Nails	kg	0.40	5
	Concrete of beam	76.55	m3	K-250	m3	1.03	79
	Reinforcement of beam	15,047.62	kg	Steel bar	kg	1.05	15,800
				Concrete wire	kg	0.015	226
	formwork of beam	37.56	m2	Plywood	lbr	0.35	13
				Wood formwork	m3	0.04	1.502
				Wood beam	m3	0.015	0.563
				Nails	kg	0.40	15
	Concrete of floor plate	161.28	m3	K-250	m3	1.03	166
	Reinforcement of floor plate	31,619.05	kg	Steel bar	kg	1.05	33,200
				Concrete wire	kg	0.015	474
	Formwork of floor plate	172.68	m2	Plywood	lbr	0.35	60
				Wood formwork	m3	0.04	7
				Wood beam	m3	0.015	3
				Nails	kg	0.40	69
	Concrete of stairs	15.00	m3	K-250	m3	1.03	15
	Reinforcement of stairs	2,857.14	kg	Steel bar	kg	1.05	3,000
				Concrete wire	kg	0.015	43
	Formwork of stairs	66.00	m2	Plywood	lbr	0.35	23
				Wood formwork	m3	0.04	2.640
				Wood beam	m3	0.015	0.990
				Nails	kg	0.40	26
	Concrete of lift	25.00	m3	K-250	m3	1.03	26
	Reinforcement of lift	4,952.40	kg	Steel bar	kg	1.05	5,200
				Concrete wire	kg	0.015	74
	Formwork of lift	100.00	m2	Plywood	lbr	0.35	35
				Wood formwork	m3	0.04	4
				Wood beam	m3	0.015	2
				Nails	kg	0.40	40
III	**WORK OF ARCHITECTURE**						
A	**WORK OF WALL**						
1	**Basement Floor**						
	Installation of wall hebel for ordinary wall	755.94	m2	Hebel	m3	0.21	159
	Plestering + acian	755.94	m2	MU 301 (40 kg/zak)	kg	0.48	363
2	**Ground Floor**						
	Installation of wall hebel for ordinary wall	944.30	m2	Hebel	m3	0.21	198
	Plestering + acian	944.30	m2	MU 301 (40 kg/zak)	kg	0.48	453
3	**First Floor**						
	Installation of wall hebel for ordinary wall	1,662.87	m2	Hebel	m3	0.21	349
	Plestering + acian	1,662.87	m2	MU 301 (40 kg/zak)	kg	0.48	798
4	**Second Floor**						
	Installation of wall hebel for ordinary wall	1,662.87	m2	Hebel	m3	0.21	349
	Plestering + acian	1,662.87	m2	MU 301 (40 kg/zak)	kg	0.48	798
5	**Third Floor**						
	Installation of wall hebel for ordinary wall	1,662.87	m2	Hebel	m3	0.21	349
	Plestering + acian	1,662.87	m2	MU 301 (40 kg/zak)	kg	0.48	798
6	**Fourth Floor**						
	Installation of wall hebel for ordinary wall	1,672.95	m2	Hebel	m3	0.21	351
	Plestering + acian	1,672.95	m2	MU 301 (40 kg/zak)	kg	0.48	803
B	**WORK OF FLOOR AND WALL COATINGS**						
1	**Basement Floor**						
	Installation of ceramic floor storage size. 30 x 30cm	25.50	m2	Ceramic of floor 30 x 30	m2	1.05	27
				Cement (50 kg/zak)	kg	10.00	255
				Sand pairs	m3	0.045	1
	Installation of ceramic floor toilet size. 20 x 20cm	12.00	m2	Ceramic of floor 20 x 20	m2	1.05	13
				Cement (50 kg/zak)	kg	10.40	125
				Sand pairs	m3	0.045	1
	Installation of ceramic wall toilet size. 20 x 20cm	25.20	m2	Ceramic wall 20 x 20	m2	1.05	26
				Cement (50 kg/zak)	kg	10.00	252
				Sand pairs	m3	0.045	1
	Installation of ceramic floor stairs size. 30 x 30cm	6.44	m2	Ceramic of floor 30 x 30	m2	1.05	7
				Cement (50 kg/zak)	kg	10.00	64
				Sand pairs	m3	0.045	0.3
2	**Ground Floor**						
	Installation of ceramic floor toilet size. 20 x 20cm	12.00	m2	Ceramic of floor 20 x 20	m2	1.05	13
				Cement (50 kg/zak)	kg	10.00	120
				Sand pairs	m3	0.045	1
	Installation of ceramic wall toilet size. 20 x 20cm	25.20	m2	Ceramic wall 20 x 20	m2	1.05	26
				Cement (50 kg/zak)	kg	10.00	252
				Sand pairs	m3	0.045	1
	Installation of polished floor office size. 60 x 60cm	24.60	m2	Granito 58 x 58	m2	1.05	26
				Cement (50 kg/zak)	kg	10.00	246
				Sand pairs	m3	0.045	1
	Installation of polished floor lobby size. 60 x 60cm	76.76	m2	Granito 58 x 58	m2	1.05	81
				Cement (50 kg/zak)	kg	10.00	768
				Sand pairs	m3	0.045	3
	Installation of ceramic floor security size. 30 x 30cm	5.00	m2	Ceramic of floor 30 x 30	m2	1.05	5
				Cement (50 kg/zak)	kg	10.00	50
				Sand pairs	m3	0.045	0.2
	Installation of ceramic floor stairs size. 30 x 30cm	9.00	m2	Ceramic of floor 30 x 30	m2	1.05	9
				Cement (50 kg/zak)	kg	10.00	90
				Sand pairs	m3	0.045	0.4
3	**First Floor**						
	Installation of ceramic floor R.service size. 30 x 30cm	40.60	m2	Ceramic of floor 30 x 30	m2	1.05	43
				Cement (50 kg/zak)	kg	10.00	406
				Sand pairs	m3	0.045	2
	Installation of ceramic floor bedroom size. 30 x 30cm	994.70	m2	Ceramic of floor 30 x 30	m2	1.05	1,044
				Cement (50 kg/zak)	kg	10.00	9,947
				Sand pairs	m3	0.045	45
	Installation of ceramic floor restaurant size. 30 x30cm	162.40	m2	Ceramic of floor 30 x 30	m2	1.05	171
				Cement (50 kg/zak)	kg	10.00	1,624
				Sand pairs	m3	0.045	7
	Installation of ceramic floor stairs size. 30 x 30cm	9.00	m2	Ceramic of floor 30 x 30	m2	1.05	9
				Cement (50 kg/zak)	kg	10.00	90
				Sand pairs	m3	0.045	0.4
4	**Second Floor**						
	Installation of ceramic floor R.service size. 30 x 30cm	40.60	m2	Ceramic of floor 30 x 30	m2	1.05	43
				Cement (50 kg/zak)	kg	10.00	406
				Sand pairs	m3	0.045	2
	Installation of ceramic floor bedroom size. 30 x 30cm	1,136.80	m2	Ceramic of floor 30 x 30	m2	1.05	1,194
				Cement (50 kg/zak)	kg	10.00	11,368
				Sand pairs	m3	0.045	51
	Installation of ceramic floor stairs size. 30 x 30cm	9.00	m2	Ceramic of floor 30 x 30	m2	1.05	9
				Cement (50 kg/zak)	kg	10.00	90
				Sand pairs	m3	0.045	0.4
5	**Third Floor**						
	Installation of ceramic floor R.service size. 30 x 30cm	40.60	m2	Ceramic of floor 30 x 30	m2	1.05	43
				Cement (50 kg/zak)	kg	10.00	406
				Sand pairs	m3	0.045	2
	Installation of ceramic floor bedroom size. 30 x 30cm	1,136.80	m2	Ceramic of floor 30 x 30	m2	1.05	1,194
				Cement (50 kg/zak)	kg	10.00	11,368
				Sand pairs	m3	0.045	51
	Installation of ceramic floor stairs size. 30 x 30cm	9.00	m2	Ceramic of floor 30 x 30	m2	1.05	9
				Cement (50 kg/zak)	kg	10.00	90
				Sand pairs	m3	0.045	0.4
6	**Fourth Floor**						
	Installation of ceramic floor R.service size. 30 x 30cm	40.60	m2	Ceramic of floor 30 x 30	m2	1.05	43
				Cement (50 kg/zak)	kg	10.00	406
				Sand pairs	m3	0.045	2
	Installation of ceramic floor bedroom size. 30 x 30cm	1,055.60	m2	Ceramic of floor 30 x 30	m2	1.05	1,108
				Cement (50 kg/zak)	kg	10.00	10,556
				Sand pairs	m3	0.045	48
	Installation of ceramic floor stairs size. 30 x 30cm	9.00	m2	Ceramic of floor 30 x 30	m2	1.05	9
				Cement (50 kg/zak)	kg	10.00	90
				Sand pairs	m3	0.045	0.4
C	**WORK OF FRAMES, DOORS AND WINDOWS**						
1	**Basement floor**						
	Door PB 01	2.00	unit	Steel elbow	kg	15.00	30
				Steel plate	kg	32.80	66
	Door PJ 03	2.00	unit	Aluminum U	m	18.84	38
				Leaf doors clear glass	bh	2.00	4
				Door locks and patch fitting	set	2.00	4
				Dorna hinge	bh	2.00	4
				Handle doors	set	2.00	4
				Sealant	m	0.63	1
	Door P 03	1.00	unit	Aluminum 4"	m	7.40	7
				Leaf doors triplex	m2	1.89	2
				Door locks and patch fitting	set	2.00	2
				Butterfly hinge	bh	1.00	1
				Glass 12mm	bh	3.00	3
				Sealant	m	0.63	1
	Door P 04	2.00	unit	Aluminum 4"	m	7.40	15
				Leaf doors triplex	m2	1.89	4
				Door locks	m2	3.78	8
				Butterfly hinge	bh	1.00	2
				Sealant	m	0.63	1
2	**Ground floor**						
	Door PB 01	1.00	unit	Steel elbow	kg	15.00	15
				Steel plate	kg	32.80	33
	Door PJ 01	2.00	unit	Aluminum U	m	18.84	38
				Leaf doors clear glass	bh	2.00	4
				Door locks and patch fitting	set	2.00	4
				Dorna hinge	bh	2.00	4
				Handle doors	set	2.00	4
				Sealant	m	0.63	1
	Door PJ 03	1.00	unit	Aluminum U	m	18.84	19
				Leaf doors clear glass	bh	2.00	2
				Door locks and patch fitting	set	2.00	2
				Dorna hinge	bh	2.00	2
				Handle doors	set	2.00	2
				Sealant	m	0.63	1
	Door PJ 04	1.00	unit	Aluminum U	m	18.84	19
				Leaf doors clear glass	bh	2.00	2
				Door locks and patch fitting	set	2.00	2
				Dorna hinge	bh	2.00	2
				Handle doors	set	2.00	2
				Sealant	m	0.63	1
	Door PK 01	2.00	unit	Steel elbow L 30.30.3	kg	15.00	30
				Steel plate	kg	32.80	66
	Door P 03	3.00	unit	Aluminum 4"	m	7.40	22
				Leaf doors triplex	m2	1.89	6
				Door locks and patch fitting	set	2.00	6
				Butterfly hinge	bh	1.00	3
				Glass 12mm	bh	3.00	9
				Sealant	m	0.63	2
	Door P 04	3.00	unit	Aluminum 4"	m	7.40	22
				Leaf doors triplex	m2	1.89	6
				Door locks and patch fitting	set	2.00	6
				Butterfly hinge	bh	1.00	3
				Sealant	m	0.63	2
3	**First floor**						
	Door PJ 02	29.00	unit	Aluminum U	m	18.84	546
				Leaf doors clear glass	bh	2.00	58
				Door locks and patch fitting	set	2.00	58
				Dorna hinge	bh	2.00	58
				Handle doors	set	2.00	58
				Sealant	m	0.63	18
	Door PK 01	2.00	unit	Steel elbow	kg	15.00	30
				Steel plate	kg	32.80	66
	Door P 01	47.00	unit	Aluminum 4"	m	7.40	348
				Leaf doors triplex	m2	1.89	89
				Door locks and patch fitting	set	2.00	94
				Butterfly hinge	bh	1.00	47
				Sealant	m	0.63	30
	Door P 02	47.00	unit	Aluminum 4"	m	7.40	348
				Leaf doors triplex	m2	1.89	89
				Door locks and patch fitting	set	2.00	94
				Butterfly hinge	bh	1.00	47
				Sealant	m	0.63	30
	Windows J 01	4.00	unit	Canal U	m	16.25	65
				glass 12mm	bh	3.00	12
	Windows J 04	2.00	unit	Canal U	m	16.25	33
				glass 12mm	bh	3.00	6
4	**Second floor**						
	Door PJ 02	31.00	unit	Aluminum U	m	18.84	584
				Leaf doors clear glass	bh	2.00	62
				Door locks and patch fitting	set	2.00	62
				Dorna hinge	bh	2.00	62
				Handle doors	set	2.00	62
				Sealant	m	0.63	20
	Door PK 01	2.00	unit	Steel elbow	kg	15.00	30
				Steel plate	kg	32.80	66

	Door P 01	49.00	unit	Aluminum 4"	m	7.40	363
				Leaf doors triplex	m2	1.89	93
				Door locks and patch fitting	set	2.00	98
				Butterfly hinge	bh	1.00	49
				Sealant	m	0.63	31
	Door P 02	49.00	unit	Aluminum 4"	m	7.40	363
				Leaf doors triplex	m2	1.89	93
				Door locks and patch fitting	set	2.00	98
				Butterfly hinge	bh	1.00	49
				Sealant	m	0.63	31
	Windows J 01	4.00	unit	Canal U	m	16.25	65
				glass 12mm	bh	3	12
	Windows J 03	1.00	unit	Canal U	m	16.25	16
				glass 12mm	bh	3	3
5	**Third floor**						
	Door PJ 02	31.00	unit	Aluminum U	m	18.84	584
				Leaf doors clear glass	bh	2.00	62
				Door locks and patch fitting	set	2.00	62
				Dorna hinge	bh	2.00	62
				Handle doors	set	2.00	62
				Sealant	m	0.63	20
	Door PK 01	2.00	unit	Steel elbow	kg	15.00	30
				Steel plate	kg	32.80	66
	Door P 01	51.00	unit	Aluminum 4"	m	7.40	377
				Leaf doors triplex	m2	1.89	96
				Door locks and patch fitting	set	2.00	102
				Butterfly hinge	bh	1.00	51
				Sealant	m	0.63	32
	Door P 02	51.00	unit	Aluminum 4"	m	7.40	377
				Leaf doors triplex	m2	1.89	96
				Door locks and patch fitting	set	2.00	102
				Butterfly hinge	bh	1.00	51
				Sealant	m	0.63	32
	Windows J 01	4.00	unit	Canal U	m	16.25	65
				glass 12mm	bh	3	12
	Windows J 02	2.00	unit	Canal U	m	16.25	33
				glass 12mm	bh	3	6
6	**Fourth floor**						
	Door PK 01	2.00	unit	Steel elbow	kg	15.00	30
				Steel plate	kg	32.80	66
	Door P 01	46.00	unit	Aluminum 4"	m	7.40	340
				Leaf doors triplex	m2	1.89	87
				Door locks and patch fitting	set	2.00	92
				Butterfly hinge	bh	1.00	46
				Sealant	m	0.63	29
	Door P 02	46.00	unit	Aluminum 4"	m	7.40	340
				Leaf doors triplex	m2	1.89	87
				Door locks and patch fitting	set	2.00	92
				Butterfly hinge	bh	1.00	46
				Sealant	m	0.63	29
	Windows J 01	4.00	unit	Canal U	m	16.25	65
				glass 12mm	bh	3	12
	Windows J 05	3.00	unit	Canal U	m	16.25	49
				glass 12mm	bh	3	9
D	**WORK OF PLAFOND**						
1	**Basement floor**						
	Plafond Gypsum size. 120 x 240 thickl 9mm	2,597.15	m2	Gypsum boards	lb	0.364	945
				Screw nails	kg	0.110	286
	List profil gypsum	1,681.66	m1	List profil gypsum	m	1.050	1,766
				Nails	kg	0.010	17
2	**Ground floor**						
	Plafond Gypsum size. 120 x 240 thickl 9mm	3,129.47	m2	Gypsum boards	lb	0.364	1,139
				Screw nails	kg	0.110	344
	List profil gypsum	2,040.48	m1	List profil gypsum	m	1.050	2,142
				Nails	kg	0.010	20
3	**First Floor**						
	Plafond Gypsum size. 120 x 240 thickl 9mm	1,590.80	m2	Gypsum boards	lb	0.364	579
				Screw nails	kg	0.110	175
	List profil gypsum	1,127.10	m1	List profil gypsum	m	1.050	1,183
				Nails	kg	0.010	11
4	**Second floor**						
	Plafond Gypsum size. 120 x 240 thickl 9mm	1,590.80	m2	Gypsum boards	lb	0.364	579
				Screw nails	kg	0.110	175
	List profil gypsum	1,127.10	m1	List profil gypsum	m	1.050	1,183
				Nails	kg	0.010	11
5	**Third floor**						
	Plafond Gypsum size. 120 x 240 thickl 9mm	1,590.80	m2	Gypsum boards	lb	0.364	579
				Screw nails	kg	0.110	175
	List profil gypsum	1,127.10	m1	List profil gypsum	m	1.050	1,183
				Nails	kg	0.010	11
6	**Fourth floor**						
	Plafond Gypsum size. 120 x 240 thickl 9mm	1,590.80	m2	Gypsum boards	lb	0.364	579
				Screw nails	kg	0.110	175
	List profil gypsum	1,127.10	m1	List profil gypsum	m	1.050	1,183
				Nails	kg	0.010	11
7	**Roof floor**						
	Plafond Gypsum size. 120 x 240 thickl 9mm	1,663.20	m2	Gypsum boards	lb	0.364	605
				Screw nails	kg	0.110	183
	List profil gypsum	1,127.10	m1	List profil gypsum	m	1.050	1,183
				Nails	kg	0.010	11
E	**WORK OF PAINTING**						
1	**Basement floor**						
	Exterior walls	755.94	m2	Wall plaster	kg	0.10	76
				Paint cover 2 x (wall)	kg	0.26	197
				Base paint	kg	0.10	76
	Interior walls	755.94	m2	Wall plaster	kg	0.10	76
				Paint cover 2 x (wall)	kg	0.26	197
				Base paint	kg	0.10	76
	Plafond	2,597.15	m2	Wall plaster	kg	0.10	76
				Paint cover 2 x (wall)	kg	0.26	675
				Base paint	kg	0.10	260
2	**Ground floor**						
	Exterior walls	944.30	m2	Wall plaster	kg	0.10	94
				Paint cover 2 x (wall)	kg	0.26	246
				Base paint	kg	0.10	94
	Interior walls	944.30	m2	Wall plaster	kg	0.10	94
				Paint cover 2 x (wall)	kg	0.26	246
				Base paint	kg	0.10	94
	Plafond	3,129.47	m2	Wall plaster	kg	0.10	94
				Paint cover 2 x (wall)	kg	0.26	814
				Base paint	kg	0.10	313
3	**First floor**						
	Exterior walls	1,662.87	m2	Wall plaster	kg	0.10	166
				Paint cover 2 x (wall)	kg	0.26	432
				Base paint	kg	0.10	166
	Interior walls	1,662.87	m2	Wall plaster	kg	0.10	166
				Paint cover 2 x (wall)	kg	0.26	432
				Base paint	kg	0.10	166
	Plafond	1,590.80	m2	Wall plaster	kg	0.10	166
				Paint cover 2 x (wall)	kg	0.26	414
				Base paint	kg	0.10	159
4	**Second floor**						
	Exterior walls	1,662.87	m2	Wall plaster	kg	0.10	166
				Paint cover 2 x (wall)	kg	0.26	432
				Base paint	kg	0.10	166
	Interior walls	1,662.87	m2	Wall plaster	kg	0.10	166
				Paint cover 2 x (wall)	kg	0.26	432
				Base paint	kg	0.10	166
	Plafond	1,590.80	m2	Wall plaster	kg	0.10	166
				Paint cover 2 x (wall)	kg	0.26	414
				Base paint	kg	0.10	159
5	**Third floor**						
	Exterior walls	1,662.87	m2	Wall plaster	kg	0.10	166
				Paint cover 2 x (wall)	kg	0.26	432
				Base paint	kg	0.10	166
	Interior walls	1,662.87	m2	Wall plaster	kg	0.10	166
				Paint cover 2 x (wall)	kg	0.26	432
				Base paint	kg	0.10	166
	Plafond	1,590.80	m2	Wall plaster	kg	0.10	166
				Paint cover 2 x (wall)	kg	0.26	414
				Base paint	kg	0.10	159
6	**Fourth floor**						
	Exterior walls	1,672.95	m2	Wall plaster	kg	0.10	167
				Paint cover 2 x (wall)	kg	0.26	435
				Base paint	kg	0.10	167
	Interior walls	1,672.95	m2	Wall plaster	kg	0.10	167
				Paint cover 2 x (wall)	kg	0.26	435
				Base paint	kg	0.10	167
	Plafond	1,590.80	m2	Wall plaster	kg	0.10	167
				Paint cover 2 x (wall)	kg	0.26	414
				Base paint	kg	0.10	159
7	**Roof floor**						
	Exterior walls	1,511.70	m2	Wall plaster	kg	0.10	151
				Paint cover 2 x (wall)	kg	0.26	393
				Base paint	kg	0.10	151
	Interior walls	1,511.70	m2	Wall plaster	kg	0.10	151
				Paint cover 2 x (wall)	kg	0.26	393
				Base paint	kg	0.10	151
	Plafond	1,590.80	m2	Wall plaster	kg	0.10	151
				Paint cover 2 x (wall)	kg	0.26	414
				Base paint	kg	0.10	159
F	**WORK OF ROOF**						
	Roof truss light steel	605.52	m2	Light steel C75	kg	4.05	2,452
	Roof tile echo roof	1,211.05	m2	Metal tile	bh	2.00	2,422
				Nails	kg	0.20	242
	Nok metal	96.12	m1	Nok tile metal	bh	1.10	106
				Nails	kg	0.05	5
	Listplank	249.63	m1	Wooden boards	m3	0.11	27
				Nails	kg	0.10	25
G	**WORK OF SANITARY**						
1	**Basement floor**						
	Wastafel toto LW 528J	3.00	bh	Wastafel	bh	1.00	3
				Cement portland	kg	6.00	18
				Sand pairs	m3	0.01	0.03
	Wastafel faucet toto type TX109LH	3.00	bh	Wastafel faucet	bh	1.00	3
	Closet squat	2.00	bh	Closet squat	bh	1.00	2
	Urinal Type U57M	2.00	bh	Urinal	bh	1.00	2
				Cement portland	kg	6.00	12
				Sand pairs	m3	0.01	0.02
	Jet Washer toto THX30CRB	2.00	bh	Jet washer	bh	1.00	2
	Hangers toto type T9RA	2.00	bh	Hangers	bh	1.00	2
	Floor Drain 1/2" kuningan merk onda	2.00	bh	Floor drain	bh	1.00	2
2	**Ground floor**						
	Wastafel toto LW 528J	3.00	bh	Wastafel	bh	1.00	3
				Cement portland	kg	6.00	18
				Sand pairs	m3	0.01	0.03
	Wastafel faucet toto type TX109LH	3.00	bh	Wastafel faucet	bh	1.00	3
	Closet squat	2.00	bh	Closet squat	bh	1.00	2
	Urinal Type U57M	2.00	bh	Urinal	bh	1.00	2
				Cement portland	kg	6.00	12
				Sand pairs	m3	0.01	0.02
	Jet Washer toto THX30CRB	2.00	bh	Jet washer	bh	1.00	2
	Hangers toto type T9RA	2.00	bh	Hangers	bh	1.00	2
	Floor Drain 1/2" kuningan merk onda	2.00	bh	Floor drain	bh	1.00	2
3	**First floor**						
	Closet squat	45.00	bh	Closet squat	bh	1.00	45
	Hangers toto type T9RA	45.00	bh	Hangers	bh	1.00	45
	Floor Drain 1/2" kuningan merk onda	45.00	bh	Floor drain	bh	1.00	45
	Fiberglass bathtub	45.00	bh	Fiberglass bathtub	bh	1.00	45
	Water faucet	45.00	bh	Water faucet	bh	1.00	45
4	**Second floor**						
	Closet squat	49.00	bh	Closet squat	bh	1.00	49
	Hangers toto type T9RA	49.00	bh	Hangers	bh	1.00	49
	Floor Drain 1/2" kuningan merk onda	49.00	bh	Floor drain	bh	1.00	49
	Fiberglass bathtub	49.00	bh	Fiberglass bathtub	bh	1.00	49
	Water faucet	49.00	bh	Water faucet	bh	1.00	49
5	**Third floor**						
	Closet squat	51.00	bh	Closet squat	bh	1.00	51
	Hangers toto type T9RA	51.00	bh	Hangers	bh	1.00	51
	Floor Drain 1/2" kuningan merk onda	51.00	bh	Floor drain	bh	1.00	51
	Fiberglass bathtub	51.00	bh	Fiberglass bathtub	bh	1.00	51
	Water faucet	51.00	bh	Water faucet	bh	1.00	51
6	**Fourth floor**						
	Closet squat	47.00	bh	Closet squat	bh	1.00	47
	Hangers toto type T9RA	47.00	bh	Hangers	bh	1.00	47
	Floor Drain 1/2" kuningan merk onda	47.00	bh	Floor drain	bh	1.00	47
	Fiberglass bathtub	47.00	bh	Fiberglass bathtub	bh	1.00	47
	Water faucet	47.00	bh	Water faucet	bh	1.00	47
H	**WORK OF RAILING**						
	Basement floor railing work	16.10	m1	Stainless steel	m'	11.5	185
	Ground floor railing work	22.50	m1	Stainless steel	m'	11.5	259
	First floor railing work	22.50	m1	Stainless steel	m'	11.5	259
	Second floor railing work	22.50	m1	Stainless steel	m'	11.5	259
	Third floor railing work	22.50	m1	Stainless steel	m'	11.5	259
IV	**WORK OF MECHANICAL AND ELECTRICAL**						
A	**WORK OF ELECTRICAL CABLE RACK**						
	Basement floor						
	Cable Ladder U dim. 600 x 100 mm	138.00	m1	Cable Ladder U dim. 600 x 100 mm	m	1.00	256
	Cable Ladder U dim. 200 x 100 mm	78.15	m1	Cable Ladder U dim. 200 x 100 mm	m	1.00	78
	Support, Jointing and supporting material	1.00	lot	Support, Jointing and supporting material	lot	1.00	1
	Ground floor						
	Cable Tray U 200 x 100 mm	157.07	m1	Cable Tray U 200 x 100 mm	m	1.00	157
	Support, Jointing and supporting material	1.00	lot	Support, Jointing and supporting material	lot	1.00	1
	First floor						
	Cable Tray U 200 x 100 mm	203.00	m1	Cable Tray U 200 x 100 mm	m	1.00	203
	Support, Jointing and supporting material	1.00	lot	Support, Jointing and supporting material	lot	1.00	1
	Second floor						
	Cable Tray U 200 x 100 mm	203.00	m1	Cable Tray U 200 x 100 mm	m	1.00	203
	Support, Jointing and supporting material	1.00	lot	Support, Jointing and supporting material	lot	1.00	1
	Third floor						
	Cable Tray U 200 x 100 mm	203.00	m1	Cable Tray U 200 x 100 mm	m	1.00	203
	Support, Jointing and supporting material	1.00	lot	Support, Jointing and supporting material	lot	1.00	1
	Fourth floor						
	Cable Tray U 200 x 100 mm	189.00	m1	Cable Tray U 200 x 100 mm	m	1.00	189
	Support, Jointing and supporting material	1.00	lot	Support, Jointing and supporting material	lot	1.00	1
B	**WORK OF ELECTRICAL FLOOR**						
	WORK OF ELECTRICAL BASEMENT FLOOR						
-	**LIGHTING, SOCKET AND SWITCH BASEMENT FLOOR**						
	Installation lighting	30.00	titik	Cable NYY	m	12.00	360
	Installation switch	8.00	titik	Cable NYY	m	15.00	120
	Installation socket	24.00	titik	Cable NYY	m	15.00	360
	Lamp philips TL	24.00	bh	Lamp philips TL	bh	1.00	24
	Lamp philips ambiance	6.00	bh	Lamp philips ambiance	bh	1.00	6
	Switch double inbow panasonic	8.00	bh	Switch double inbow panasonic	bh	1.00	8
	Socket panasonic	24.00	bh	Socket panasonic	bh	1.00	24
	WORK OF ELECTRICAL GROUND FLOOR						
-	**LIGHTING, SOCKET AND SWITCH GROUND FLOOR**						
-	**Area Lobby**						
	Installation lighting	20.00	titik	Cable NYY	m	12.00	240
	Installation switch	3.00	titik	Cable NYY	m	15.00	45
	Installation socket	5.00	titik	Cable NYY	m	15.00	75
	Lamp philips ambiance	10.00	bh	Lamp philips ambiance	bh	1.00	10
	Switch double inbow panasonic	5.00	bh	Switch double inbow panasonic	bh	1.00	5
	Socket panasonic	5.00	bh	Socket panasonic	bh	1.00	5
-	**Office**						
	Installation lighting	2.00	titik	Cable NYY	m	12.00	24
	Installation switch	1.00	titik	Cable NYY	m	15.00	15
	Installation socket	6.00	titik	Cable NYY	m	15.00	90
	Lamp philips TL	2.00	bh	Lamp philips TL	bh	1.00	2
	Switch double inbow panasonic	1.00	bh	Switch double inbow panasonic	bh	1.00	1
	Socket panasonic	2.00	bh	Socket panasonic	bh	1.00	2
-	**Security post**						
	Installation lighting	2.00	titik	Cable NYY	m	12.00	24
	Installation switch	1.00	titik	Cable NYY	m	15.00	15
	Installation socket	2.00	titik	Cable NYY	m	15.00	30
	Lamp philips TL	2.00	bh	Lamp philips TL	bh	1.00	2
	Switch double inbow panasonic	1.00	bh	Switch double inbow panasonic	bh	1.00	1
	Socket panasonic	2.00	bh	Socket panasonic	bh	1.00	2
-	**Area stairs**						
	Installation lighting	1.00	titik	Cable NYY	m	12.00	12
	Installation switch	1.00	titik	Cable NYY	m	15.00	15
	Lamp philips TL	1.00	bh	Lamp philips TL	bh	1.00	1
	Switch double inbow panasonic	1.00	bh	Switch double inbow panasonic	bh	1.00	1
	WORK OF ELECTRICAL FIRST FLOOR						
-	**LIGHTING, SOCKET AND SWITCH FIRST FLOOR**						
	Installation lighting	270.00	titik	Cable NYY	m	12.00	3,240
	Installation switch	90.00	titik	Cable NYY	m	15.00	1,350
	Installation socket	225.00	titik	Cable NYY	m	15.00	3,375
	Lamp philips ambiance	270.00	bh	Lamp philips ambiance	bh	1.00	270
	Sawitch double inbow panasonic	90.00	bh	Switch double inbow panasonic	bh	1.00	90
	Socket panasonic	225.00	bh	Socket panasonic	bh	1.00	225
-	**Area Restaurant/Café**						
	Installation lighting	35.00	titik	Cable NYY	m	12.00	420
	Installation switch	4.00	titik	Cable NYY	m	15.00	60
	Installation socket	6.00	titik	Cable NYY	m	15.00	90
	Lamp philips ambiance	34.00	bh	Lamp philips ambiance	bh	1.00	34
	Sawitch double inbow panasonic	4.00	bh	Sawitch double inbow panasonic	bh	1.00	4
	Socket panasonic	2.00	bh	Socket panasonic	bh	1.00	2
-	**Area stairs**						
	Installation lighting	1.00	titik	Cable NYY	m	12.00	12
	Installation switch	1.00	titik	Cable NYY	m	15.00	15
	Lamp philips TL	1.00	bh	Lamp philips TL	bh	1.00	1
	Sawitch double inbow panasonic	1.00	bh	Sawitch double inbow panasonic	bh	1.00	1
-	**Service room**						
	Installation lighting	4.00	titik	Cable NYY	m	12.00	48
	Installation switch	2.00	titik	Cable NYY	m	15.00	30
	Installation socket	12.00	titik	Cable NYY	m	15.00	180
	Lamp philips TL	4.00	bh	Lamp philips TL	bh	1.00	4
	Sawitch double inbow panasonic	2.00	bh	Sawitch double inbow panasonic	bh	1.00	2
	Socket panasonic	4.00	bh	Socket panasonic	bh	1.00	4
	WORK OF ELECTRICAL SECOND FLOOR						
-	**LIGHTING, SOCKET AND SWITCH SECOND FLOOR**						
	Installation lighting	294.00	titik	Cable NYY	m	12.00	3,528
	Installation switch	98.00	titik	Cable NYY	m	15.00	1,470
	Installation socket	245.00	titik	Cable NYY	m	15.00	3,675
	Lamp philips ambiance	294.00	bh	Lamp philips ambiance	bh	1.00	294
	Sawitch double inbow panasonic	98.00	bh	Switch double inbow panasonic	bh	1.00	98
	Socket panasonic	245.00	bh	Socket panasonic	bh	1.00	245
-	**Area Stairs**						
	Installation lighting	1.00	titik	Cable NYY	m	12.00	12
	Installation switch	1.00	titik	Cable NYY	m	15.00	15
	Lamp philips TL	1.00	bh	Lamp philips TL	bh	1.00	1
	Switch double inbow panasonic	1.00	bh	Switch double inbow panasonic	bh	1.00	1
-	**Service room**						
	Installation lighting	4.00	titik	Cable NYY	m	12.00	48
	Installation switch	2.00	titik	Cable NYY	m	15.00	30
	Installation socket	12.00	titik	Cable NYY	m	15.00	180
	Lamp philips TL	4.00	bh	Lamp philips TL	bh	1.00	4
	Sawitch double inbow panasonic	2.00	bh	Sawitch double inbow panasonic	bh	1.00	2
	Socket panasonic	4.00	bh	Socket panasonic	bh	1.00	4

	WORK OF ELECTRICAL THIRD FLOOR						
-	**LIGHTING, SOCKET AND SWITCH THIRD FLOOR**						
	Installation lighting	306.00	titik	Cable NYY	m	12.00	3,672
	Installation switch	102.00	titik	Cable NYY	m	15.00	1,530
	Installation socket	255.00	titik	Cable NYY	m	15.00	3,825
	Lamp philips ambiance	306.00	bh	Lamp philips ambiance	bh	1.00	306
	Sawitch double inbow panasonic	102.00	bh	Switch double inbow panasonic	bh	1.00	102
	Socket panasonic	255.00	bh	Socket panasonic	bh	1.00	255
-	**Area Stairs**						
	Installation lighting	1.00	titik	Cable NYY	m	12.00	12
	Installation switch	1.00	titik	Cable NYY	m	15.00	15
	Lamp philips TL	1.00	bh	Lamp philips TL	bh	1.00	1
	Switch double inbow panasonic	1.00	bh	Sawitch double inbow panasonic	bh	1.00	1
-	**Service room**						
	Installation lighting	4.00	titik	Cable NYY	m	12.00	48
	Installation switch	2.00	titik	Cable NYY	m	15.00	30
	Installation socket	12.00	titik	Cable NYY	m	15.00	180
	Lamp philips TL	4.00	bh	Lamp philips TL	bh	1.00	4
	Sawitch double inbow panasonic	2.00	bh	Sawitch double inbow panasonic	bh	1.00	2
	Socket panasonic	4.00	bh	Socket panasonic	bh	1.00	4
	WORK OF ELECTRICAL FOURTH FLOOR						
-	**LIGHTING, SOCKET AND SWITCH FOURTH FLOOR**						
	Installation lighting	282.00	titik	Cable NYY	m	12.00	3,384
	Installation switch	94.00	titik	Cable NYY	m	15.00	1,410
	Installation socket	235.00	titik	Cable NYY	m	15.00	3,525
	Lamp philips ambiance	282.00	bh	Lamp philips ambiance	bh	1.00	282
	Sawitch double inbow panasonic	94.00	bh	Switch double inbow panasonic	bh	1.00	94
	Socket panasonic	235.00	bh	Socket panasonic	bh	1.00	235
-	**Area stairs**						
	Installation lighting	1.00	titik	Cable NYY	m	12.00	12
	Installation switch	1.00	titik	Cable NYY	m	15.00	15
	Lamp philips TL	1.00	bh	Lamp philips TL	bh	1.00	1
	Switch double inbow panasonic	1.00	bh	Sawitch double inbow panasonic	bh	1.00	1
-	**Service room**						
	Installation lighting	4.00	titik	Cable NYY	m	12.00	48
	Installation switch	2.00	titik	Cable NYY	m	15.00	30
	Installation socket	12.00	titik	Cable NYY	m	15.00	180
	Lamp philips TL	4.00	bh	Lamp philips TL	bh	1.00	4
	Sawitch double inbow panasonic	2.00	bh	Sawitch double inbow panasonic	bh	1.00	2
	Socket panasonic	4.00	bh	Socket panasonic	bh	1.00	4
V	**WORK OF INSTALLATION WATER**						
A	**WORK OF CLEAN WATER**						
	Clean water supporting equipment						
-	Transfer Pump	2.00	unit	Transfer pump	unit	1.00	2
	Type : Centrifugal Pump						
	Capacity : 80 m3/Hr						
	Total Head : 116 m						
	Penggerak : Elektrik Motor						
	Daya : 30 kw						
	Putaran : 2950 Rpm						
	Karakt. Listrik : 380 Volt,3 ph,50 Hz						
-	Deep Weel Pump	1.00	unit	Deep weel pump	unit	1.00	1
	Type : C/W Pump WLC						
	Kapasitas : 600Liter/menit						
	Total Head : 60 m						
	Penggerak : Elektrik Motor						
	Daya : 9.2 kw						
	Putaran : 2950 Rpm						
	Karakt. Listrik : 380 Volt,3 ph,50 Hz						
-	Booster Pump	2.00	unit	Booster pump	unit	1.00	2
	Type : Centrifugal Pump						
	Total Head -46.4m						
	Penggerak : Elektrik Motor						
	Putaran : 2950 Rpm						
	Karakt. Listrik : 220-240 Volt,1 ph,50 Hz						
-	supporting material, Fitting & Accessories						
	Clean water delivery pump						
	Gate Valve : Ø 1 1/2"	7.00	bh	Gate valve 1 1/2"	bh	1.00	7
	Gate Valve : Ø 2"	2.00	bh	Gate valve 2"	bh	1.00	2
	Strainer : Ø 2"	2.00	bh	Strainer	bh	1.00	2
	Check Valve : Ø 2"	2.00	bh	Check valve	bh	1.00	2
	Floating Valve : Ø 2"	4.00	bh	Floating valve	bh	1.00	4
	Water Level Control Konduktor OMRON 61 F-G-AP	2.00	bh	Water level control	bh	1.00	2
	Wika Pressure Gauge 16bar	2.00	bh	Pressure gauge	bh	1.00	2
	Panel Pompa Delivery (PP-Pump PD 1&2) complete control pan	2.00	unit	Panel pump delivery	unit	1.00	2
	Cable Feeder NYY 4x16mm2 pompa ke panel PD	30.00	m'	Cable NYY	m	1.00	30
	Cable Trunking 45x45x3000 mm	40.00	m'	Cable NYY	m	1.00	40
	Pipe use Polypropelene WAVIN PN 16 Ø 2"	20.00	m'	Pipe polypropelene wavin PN 16, 2"	m	1.00	20
	Pipe use Polypropelene WAVIN PN 16 Ø 3"	50.00	m'	Pipe polypropelene wavin PN 16, 3"	m	1.00	50
	Elbow Diameter Ø 3"	4.00	bh	Elbow	bh	1.00	4
	Supply PDAM Polypropelene WAVIN PN 16 Ø 2"	100.00	m'	Pipe polypropelene wavin PN 16, 2"	m	1.00	100
	Pipe supply from pump to tanki top Polypropelene WAVIN PN 16 Ø 2"	65.00	m'	Pipe polypropelene wavin PN 16, 2"	m	1.00	65
B	**WORK OF MAIN PIPE AND CLEAN WATER RISER**						
-	**MAIN PIPE AND RISER**						
	Pipe PPR PN 10 dia. 75mm Pipe transfer	80.00	m1	Pipe PPR PN 10 dia. 75mm	m	1.00	80
	Pipe PPR PN 10 dia. 63mm Pipe riser	95.00	m1	Pipe PPR PN 10 dia. 63mm	m	1.00	95
	Pipe PPR PN 10 dia. 63mm Pipe Gravitasi , riser kamar	475.00	m1	Pipe PPR PN 10 dia. 63mm	m	1.00	475
	Gate valve 1 1/2" PVC Exp taiwan	1.00	bh	Gate valve	bh	1.00	1
	Fitting and Accessories	1.00	lot	Fitting and accessories	lot	1.00	1
	Support and hanger	1.00	lot	Support and hanger	lot	1.00	1
C	**INSTALLATION OF PIPES IN THE PUMP TRANSFER AREA, AND PUMP FILTER:**						
	Pipe GIP Ø 4" (header)	16.00	m1	Pipe GIP 4"	m	1.00	16
	Pipe GIP Ø 3"	32.00	m1	Pipe GIP 3"	m	1.00	32
	Pipe GIP Ø 1 1/2"	40.00	m1	Pipe GIP 2"	m	1.00	40
	Gate valve 2" PVC socket Exp taiwan	3.00	bh	Gate valve 2"	bh	1.00	3
	Gate valve 1 1/2" PVC Socket Exp taiwan	8.00	bh	Gate valve 1 1/2"	bh	1.00	8
	Flexible joint 2' 10 K	8.00	bh	Flexible joint	bh	1.00	8
	Check valve 2' 10 K	4.00	bh	Check valve	bh	1.00	4
	Strainer 2' 10 K	4.00	bh	Strainer	bh	1.00	4
	Wika Pressure Gauge 16bar	6.00	bh	Pressure gauge	bh	1.00	6
	Installasi kabel NYA supreme 1 x 25 mm	55.00	m1	Cable NYA	m	1.00	55
	Fitting and Accessories	1.00	lot	Fitting and accessories	lot	1.00	1
	Support and hanger	1.00	lot	Support and hanger	lot	1.00	1
D	**INSTALLATION OF CLEAN WATER FLOOR**						
-	**INSTALLATION OF CLEAN WATER BASEMENT FLOOR**						
	Pipe PPR PN 10 dia. 40mm	5.00	m1	Pipe PPR PN 10 dia. 40mm	m	1.00	5
	Pipe PPR PN 10 dia. 32mm	20.00	m1	Pipe PPR PN 10 dia. 32mm	m	1.00	20
	Pipe PPR PN 10 dia. 25mm	20.00	m1	Pipe PPR PN 10 dia. 25mm	m	1.00	20
	Pipe PPR PN 10 dia. 20mm	120.00	m1	Pipe PPR PN 10 dia. 20mm	m	1.00	120
	Gate valve 2" PVC socket Exp taiwan	2.00	bh	Gate valve 2"	bh	1.00	2
	Gate valve 1 1/2" PVC socket Exp taiwan	1.00	bh	Gate valve 1 1/2"	bh	1.00	1
	Fitting and accessories	1.00	lot	Fitting and accessories	lot	1.00	1
	Support and hanger	1.00	lot	Support and hanger	lot	1.00	1
-	**GROUND FLOOR**						
	Pipe PPR PN 10 dia. 25mm	120.00	m1	Pipe PPR PN 10 dia. 25mm	m	1.00	120
	Pipe PPR PN 10 dia. 20mm	60.00	m1	Pipe PPR PN 10 dia. 20mm	m	1.00	60
	Gate valve 2" PVC socket Exp taiwan	1.00	bh	Gate valve 2"	bh	1.00	1
	Fitting and accessories	1.00	lot	Fitting and accessories	lot	1.00	1
	Support and hanger	1.00	lot	Support and hanger	lot	1.00	1
-	**FIRST FLOOR**						
	Distribusi clean water to bedroom						
	Pipe PPR PN 10 dia. 32mm	135.00	m1	Pipe PPR PN 10 dia. 32mm	m	1.00	135
	Pipe PPR PN 10 dia. 25mm	180.00	m1	Pipe PPR PN 10 dia. 25mm	m	1.00	180
	Pipe PPR PN 10 dia. 20mm	540.00	m1	Pipe PPR PN 10 dia. 20mm	m	1.00	540
	Gate valve 2" PVC socket Exp taiwan	45.00	bh	Gate valve 2"	bh	1.00	45
	Gate valve 1 1/2" PVC socket Exp taiwan	9.00	bh	Gate valve 1 1/2"	bh	1.00	9
	Fitting and accessories	1.00	lot	Fitting and accessories	lot	1.00	1
	Support and hanger	1.00	lot	Support and hanger	lot	1.00	1
-	**SECOND FLOOR**						
	Distribusi clean water to bedroom						
	Pipe PPR PN 10 dia. 63mm	182.00	m1	Pipe PPR PN 10 dia. 63mm	m	1.00	182
	Pipe PPR PN 10 dia. 32mm	147.00	m1	Pipe PPR PN 10 dia. 32mm	m	1.00	147
	Pipe PPR PN 10 dia. 25mm	196.00	m1	Pipe PPR PN 10 dia. 25mm	m	1.00	196
	Pipe PPR PN 10 dia. 20mm	588.00	m1	Pipe PPR PN 10 dia. 20mm	m	1.00	588
	Gate valve 2" PVC socket Exp taiwan	49.00	bh	Gate valve 2"	bh	1.00	49
	Gate valve 1 1/2" PVC socket Exp taiwan	9.00	bh	Gate valve 1 1/2"	bh	1.00	9
	Fitting and accessories	1.00	lot	Fitting and accessories	lot	1.00	1
	Support and hanger	1.00	lot	Support and hanger	lot	1.00	1
-	**THIRD FLOOR**						
	Distribusi clean water to bedroom						
	Pipe PPR PN 10 dia. 32mm	153.00	m1	Pipe PPR PN 10 dia. 32mm	m	1.00	153
	Pipe PPR PN 10 dia. 25mm	204.00	m1	Pipe PPR PN 10 dia. 25mm	m	1.00	204
	Pipe PPR PN 10 dia. 20mm	612.00	m1	Pipe PPR PN 10 dia. 20mm	m	1.00	612
	Gate valve 2" PVC socket Exp taiwan	51.00	bh	Gate valve 2"	bh	1.00	51
	Gate valve 1 1/2" PVC socket Exp taiwan	9.00	bh	Gate valve 1 1/2"	bh	1.00	9
	Fitting and accessories	1.00	lot	Fitting and accessories	lot	1.00	1
	Support and hanger	1.00	lot	Support and hanger	lot	1.00	1
-	**FOURTH FLOOR**						
	Distribusi clean water to bedroom						
	Pipe PPR PN 10 dia. 32mm	141.00	m1	Pipe PPR PN 10 dia. 32mm	m	1.00	141
	Pipe PPR PN 10 dia. 25mm	188.00	m1	Pipe PPR PN 10 dia. 25mm	m	1.00	188
	Pipe PPR PN 10 dia. 20mm	564.00	m1	Pipe PPR PN 10 dia. 20mm	m	1.00	564
	Gate valve 2" PVC socket Exp taiwan	47.00	bh	Gate valve 2"	bh	1.00	47
	Gate valve 1 1/2" PVC socket Exp taiwan	9.00	bh	Gate valve 1 1/2"	bh	1.00	9
	Fitting and accessories	1.00	lot	Fitting and accessories	lot	1.00	1
	Support and hanger	1.00	lot	Support and hanger	lot	1.00	1
E	**WORK OF INSTALLATION DIRTY WATER AND RAIN WATER**						
	SUPPORTING EQUIPMENT DIRTY WATER						
-	Main STP	1.00	unit	Biotech (separasi/aerasi system)	unit	1.00	1
	- - Type : Biotech (separasi/aerasi system)						
-	Installation STP basement	1.00	unit	Biotech (separasi/aerasi system)	unit	1.00	1
	- - Type : Biotech (separasi/aerasi system)						
-	Making absorption wells						
	Type : convetional	10.00	set	Conventional absorption	set	1.00	10
-	Making mini sumpit and supply sumpit pump						
	a. pump room area	1.00	unit	mini sumpit and supply sumpit pump	unit	1.00	1
	b. Sumpit biotech area	1.00	unit	mini sumpit and supply sumpit pump	unit	1.00	1
	c. Basement toilet area	1.00	unit	mini sumpit and supply sumpit pump	unit	1.00	1
	d. Installation over flow from STP to city channels						
	- PVC AW dia. 4"	40.00	m1	PVC AW dia. 4"	m	1.00	40
	- Fitting and accessories	30.00	lot	Fitting and accessories	lot	1.00	30

F	**INSTALLATION OF SOLID WATER AND DIRTY LIQUID WATER**						
-	**Work pipe main riser and horizontal**						
	PVC AW dia. 4" - Main line	75.00	m1	PVC AW dia. 4"	m	1.00	75
	PVC AW dia. 3" - Main line	75.00	m1	PVC AW dia. 3"	m	1.00	75
	PVC AW dia. 3"	179.00	m1	PVC AW dia. 3"	m	1.00	179
	PVC AW dia. 2 1/2"	179.00	m1	PVC AW dia. 2 1/2"	m	1.00	179
	PVC AW dia. 2"	179.00	m1	PVC AW dia. 2"	m	1.00	179
	Fitting and accessories	1.00	lot	Fitting and accessories	lot	1.00	1
	Support and hanger	1.00	lot	Support and hanger	lot	1.00	1
-	**Basement floor**						
	PVC AW dia. 4"	75.00	m1	PVC AW dia. 4"	m	1.00	75
	PVC AW dia. 3"	40.00	m1	PVC AW dia. 3"	m	1.00	40
	PVC AW dia. 2 1/2"	60.00	m1	PVC AW dia. 2 1/2"	m	1.00	60
	PVC AW dia. 2"	45.00	m1	PVC AW dia. 2"	m	1.00	45
	PVC AW dia. 1 1/2"	12.00	m1	PVC AW dia. 1 1/2"	m	1.00	12
	P.Trap dia. 2"	12.00	bh	P.Trap dia. 2"	unit	1.00	12
	Fitting and accessories	1.00	lot	Fitting and accessories	lot	1.00	1
	Support and hanger	1.00	lot	Support and hanger	lot	1.00	1
	Installation pipe sump :						
	PVC AW dia 4"	67.00	m1	PVC AW dia 4"	m	1.00	67
	Check valve dia. 4" kuningan	12.00	bh	Check valve dia. 4"	bh	1.00	12
	Fitting and accessories	1.00	lot	Fitting and accessories	lot	1.00	1
	Support and hanger	1.00	lot	Support and hanger	lot	1.00	1
-	**Ground floor**						
	PVC AW dia. 4"	125.00	m1	PVC AW dia. 4"	m	1.00	125
	PVC AW dia. 2"	40.00	m1	PVC AW dia. 2"	m	1.00	40
	PVC AW dia. 1 1/2"	40.00	m1	PVC AW dia. 1 1/2"	m	1.00	40
	PVC AW dia. 3"	28.00	m1	PVC AW dia. 3"	m	1.00	28
	P.Trap dia. 2"	10.00	bh	P.Trap dia. 2"	bh	1.00	10
	Clean out 4" kuningan merk onda	1.00	bh	Clean out 4"	bh	1.00	1
	Clean out 3" kuningan merk onda	1.00	bh	Clean out 3"	bh	1.00	1
	Floor drain 2"	5.00	bh	Floor drain 2"	bh	1.00	5
	Fitting and accessories	1.00	lot	Fitting and accessories	lot	1.00	1
	Support and hanger	1.00	lot	Support and hanger	lot	1.00	1
-	**First floor**						
	PVC AW dia. 4"	150.00	m1	PVC AW dia. 4"	m	1.00	150
	PVC AW dia. 2"	218.00	m1	PVC AW dia. 2"	m	1.00	218
	PVC AW dia. 1 1/2"	208.00	m1	PVC AW dia. 1 1/2"	m	1.00	208
	PVC AW dia. 3"	151.00	m1	PVC AW dia. 3"	m	1.00	151
	PVC AW dia. 1"	150.00	m1	PVC AW dia. 1"	m	1.00	150
	P.Trap dia. 2"	51.00	bh	P.Trap dia. 2"	bh	1.00	51
	Floor drain 2"	51.00	bh	Floor drain 2"	bh	1.00	51
	Fitting and accessories	1.00	lot	Fitting and accessories	lot	1.00	1
	Support and hanger	1.00	lot	Support and hanger	lot	1.00	1
-	**Second floor**						
	PVC AW dia. 4"	150.00	m1	PVC AW dia. 4"	m	1.00	150
	PVC AW dia. 2"	218.00	m1	PVC AW dia. 2"	m	1.00	218
	PVC AW dia. 1 1/2"	208.00	m1	PVC AW dia. 1 1/2"	m	1.00	208
	PVC AW dia. 3"	151.00	m1	PVC AW dia. 3"	m	1.00	151
	PVC AW dia. 1"	150.00	m1	PVC AW dia. 1"	m	1.00	150
	P.Trap dia. 2"	57.00	bh	P.Trap dia. 2"	bh	1.00	57
	Floor drain 2"	57.00	bh	Floor drain 2"	bh	1.00	57
	Fitting and accessories	1.00	lot	Fitting and accessories	lot	1.00	1
	Support and hanger	1.00	lot	Support and hanger	lot	1.00	1
-	**Third floor**						
	PVC AW dia. 4"	150.00	m1	PVC AW dia. 4"	m	1.00	150
	PVC AW dia. 2"	218.00	m1	PVC AW dia. 2"	m	1.00	218
	PVC AW dia. 1 1/2"	208.00	m1	PVC AW dia. 1 1/2"	m	1.00	208
	PVC AW dia. 3"	151.00	m1	PVC AW dia. 3"	m	1.00	151
	PVC AW dia. 1"	150.00	m1	PVC AW dia. 1"	m	1.00	150
	P.Trap dia. 2"	57.00	bh	P.Trap dia. 2"	bh	1.00	57
	Floor drain 2"	57.00	bh	Floor drain 2"	bh	1.00	57
	Fitting and accessories	1.00	lot	Fitting and accessories	lot	1.00	1
	Support and hanger	1.00	lot	Support and hanger	lot	1.00	1
-	**Fourth floor**						
	PVC AW dia. 4"	150.00	m1	PVC AW dia. 4"	m	1.00	150
	PVC AW dia. 2"	218.00	m1	PVC AW dia. 2"	m	1.00	218
	PVC AW dia. 1 1/2"	208.00	m1	PVC AW dia. 1 1/2"	m	1.00	208
	PVC AW dia. 3"	151.00	m1	PVC AW dia. 3"	m	1.00	151
	PVC AW dia. 1"	150.00	m1	PVC AW dia. 1"	m	1.00	150
	P.Trap dia. 2"	57.00	bh	P.Trap dia. 2"	bh	1.00	57
	Floor drain 2"	57.00	bh	Floor drain 2"	bh	1.00	57
	Fitting and accessories	1.00	lot	Fitting and accessories	lot	1.00	1
	Support and hanger	1.00	lot	Support and hanger	lot	1.00	1
-	**Roof floor**						
	Installation rain water						
	PVC AW dia. 2"	363.00	m1	PVC AW dia. 2"	m	1.00	363
	Roof drain 2"	8.00	bh	Roof drain 2"	bh	1.00	8
	Fitting and accessories	1.00	lot	Fitting and accessories	lot	1.00	1
	Support and hanger	8.00	bh	Support and hanger	lot	1.00	8

Table 3. Calculation of Equipment

CALCULATION OF EQUIPMENT NEEDS
DEVELOPMENT PROJECT OF BOARDING HOUSE
JL. TEGAL PARANG UTARA NO. 17 KELURAHAN MAMPANG PRAPATAN
KECAMATAN MAMPANG PRAPATAN, SOUTH JAKARTA

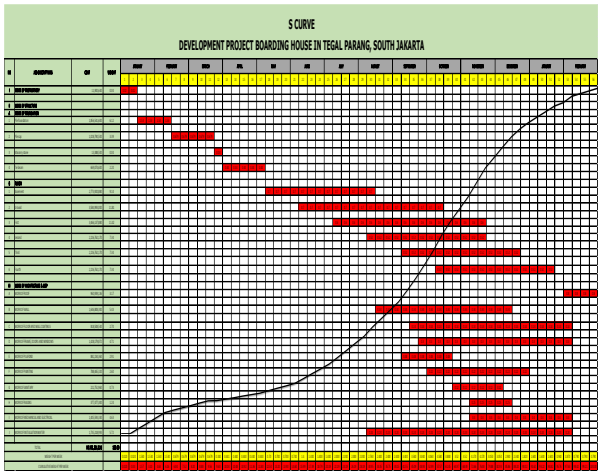
NO	JOB DESCRIPTIONS	VOLUME OF JOB		EQUIPMENT NEEDS		
		TOTAL	UNIT	Equipment	Coefficient analysis	Total
A	**WORK OF LAND AND FOUNDATION**					
1	Excavation work ground pile cap	23.27	m3	Excavator	0.0256	1
2	Pile foundation	282.00	bh	Jack in pile	0.002	1
B	**WORK OF CONCRETE**					
1	**Work floor**					
	Concrete of work floor	80.75	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
2	**Pile cap**					
	Concrete of pile cap	186.16	m3	Concrete pump	0.01	2
				Vibrator	0.01	2
3	**Tie beam**					
	Concrete of TB1	57.56	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
	Concrete of TB2	26.40	m3	Concrete pump	0.01	0.3
				Vibrator	0.01	0.3
	Concrete of TB3	9.08	m3	Concrete pump	0.01	0.1
				Vibrator	0.01	0.1
4	**Basement floor, Elevation -3.100**					
	Concrete of olumn	84.07	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
	Concrete of shear wall	6.00	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
	Concrete of floor plate	263.52	m3	Concrete pump	0.01	3
				Vibrator	0.01	3
	Concrete of stairs	15.00	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
	Concrete of lift	25.00	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
5	**Ground floor, Elevation 0.00**					
	Concrete of olumn	76.63	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
	Concrete of shear wall	6.00	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
	Concrete of beam	167.16	m3	Concrete pump	0.01	2
				Vibrator	0.01	2
	Concrete of floor plate	278.64	m3	Concrete pump	0.01	3
				Vibrator	0.01	3
	Concrete of stairs	15.00	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
	Concrete of lift	25.00	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
6	**First floor, Elevation +3.300**					
	Concrete of olumn	93.46	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
	Concrete of shear wall	6.00	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
	Concrete of beam	323.90	m3	Concrete pump	0.01	3
				Vibrator	0.01	3
	Concrete of floor plate	235.80	m3	Concrete pump	0.01	2
				Vibrator	0.01	2
	Concrete of stairs	15.00	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
	Concrete of lift	25.00	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
7	**Second floor, Elevation +6.600**					
	Concrete of olumn	99.79	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
	Concrete of shear wall	6.00	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
	Concrete of beam	76.55	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
	Concrete of floor plate	161.28	m3	Concrete pump	0.01	2
				Vibrator	0.01	2
	Concrete of stairs	15.00	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
	Concrete of lift	25.00	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
8	**Third floor, Elevation +9.900**					
	Concrete of olumn	99.79	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
	Concrete of shear wall	6.00	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
	Concrete of beam	76.55	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
	Concrete of floor plate	161.28	m3	Concrete pump	0.01	2
				Vibrator	0.01	2
	Concrete of stairs	15.00	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
	Concrete of lift	25.00	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
9	**Fourth floor, Elevation 13.200**					
	Concrete of olumn	99.79	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
	Concrete of shear wall	6.00	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
	Concrete of beam	76.55	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
	Concrete of floor plate	161.28	m3	Concrete pump	0.01	2
				Vibrator	0.01	2
	Concrete of stairs	15.00	m3	Concrete pump	0.01	1
				Vibrator	0.01	1
	Concrete of lift	25.00	m3	Concrete pump	0.01	1
				Vibrator	0.01	1

D. PLANNING TIME AND COST

In determining the activities to be carried out to complete the construction project of boarding house Tegal Parang South Jakarta need to pay attention to the factors that usually influence the project implementation.

1. **Draw up of cost budget plan**
2. **Draw up of project scheduling**
   - **a.** Analysis of bar chart And Analysis of S curve. Based on the planning and calculation results the if using the analysis with method is as follows.

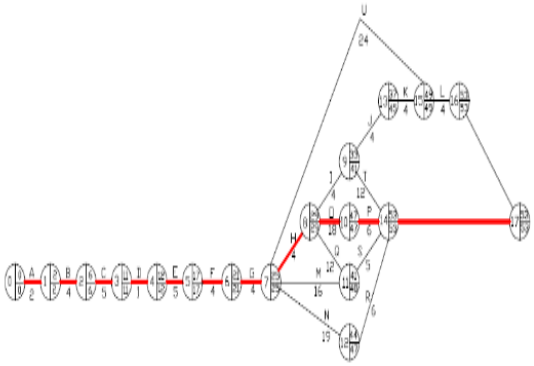
Table 4. S Curve



b. Analysis of CPM

Table 6. Data of CPM

NO.	ITEM OF WORK	DURATION (WEEK)	CODE OF ACTIVITY	PREVIOUS ACTIVITIES
I	WORK OF PREPARATORY	2	A	-
II	WORK OF STRUCTURE			
A	WORK OF FOUNDATION			
-	Pile foundation	4	B	A
-	Pile Cap	5	C	B
-	Masonry stone	1	D	C
-	Tie beam	5	E	D
B	FLOOR			
-	Basement	13	F	E
-	Ground	17	G	F
-	First	18	H	G
-	Second	14	I	H
-	Third	14	J	I
-	Fourth	14	K	J
II	WORK OF ARCHITECTURE AND MEP			
A	WORK OF ROOF	4	L	K, U
B	WORK OF WALL	16	M	G
C	WORK OF FLOOR AND WALL COATINGS	19	N	G
D	WORK OF FRAME, DOORS AND WINDOWS	18	O	H
E	WORK OF PLAFOND	6	P	O
F	WORK OF PAINTING	12	Q	H
G	WORK OF SANITARY	6	R	N
H	WORK OF RAILING	5	S	Q. M
I	WORK OF MECHANICAL & ELECTRICAL	12	T	I
J	WORK OF INSTALLATION WATER	24	U	G



Picture 5. Critical Path

Table 6. Forward Calculation

NO EVENT	ACTIVITIES	EETi	DURATION	EETj	NOTE
1	A	0	2	2	
2	B	2	4	6	
3	C	6	5	11	
4	D	11	1	12	
5	E	12	5	17	
6	F	17	4	21	
7	G	21	4	25	
8	H	25	4	29	
9	I	29	4	33	
10	O	29	18	47	
11	M	25	16	41	Selected the greatest value, that is 41
	Q	29	12	41	
12	N	25	19	44	
13	J	33	4	37	
14	P	47	6	53	Selected the greatest value, that is 53
	R	44	6	50	
	S	41	5	46	
	T	33	12	45	
15	K	37	4	41	Selected the greatest value, that is 49
	U	25	24	49	
16	L	49	4	53	
17	DUMMY	53	0	53	Selected the greatest value, that is 53
	DUMMY	53	0	53	

Table 7. Backward Calculation

NO EVENT	ACTIVITIES	LETj	DURATION	LETi	NOTE
16	DUMMY	53	0	53	
15	L	53	4	49	
14	DUMMY	53	0	53	
13	K	49	4	45	
12	R	53	6	47	
11	S	53	5	48	
10	P	53	6	47	
9	J	45	4	41	Selected the smallest value, that is 41
	T	53	12	41	
8	I	41	4	37	Selected the smallest value, that is 29
	O	47	18	29	
	Q	48	12	36	
7	H	29	4	25	Selected the smallest value, that is 25
	M	48	16	32	
	N	47	19	28	
	U	49	24	25	
6	G	25	4	21	
5	F	21	4	17	
4	E	17	5	12	
3	D	12	1	11	
2	C	11	5	6	
1	B	6	4	2	
0	A	2	2	0	

Table 8. FF and TF Calculation

ACTIVITIES	EVENTS		DURATION	EVENTS		FREE FLOAT	TOTAL FLOAT
	EETi	LETi		EETj	LETj		
A	0	0	2	2	2	0	0
B	2	2	4	6	6	0	0
C	6	6	5	11	11	0	0
D	11	11	1	12	12	0	0
E	12	12	5	17	17	0	0
F	17	17	4	21	21	0	0
G	21	21	4	25	25	0	0
H	25	25	4	29	29	0	0
I	29	37	4	33	41	0	8
J	33	41	4	37	45	0	8
K	37	45	4	41	49	0	8
L	49	49	4	53	53	0	0
M	25	32	16	41	48	0	7
N	25	28	19	44	47	0	3
O	29	29	18	47	47	0	0
P	47	47	6	53	53	0	0
Q	29	36	12	41	48	0	7
R	44	47	6	50	53	0	3
S	41	48	5	46	53	0	7
T	33	41	12	45	53	0	8
U	25	25	24	49	49	0	0

E. CASHFLOW

Table 9. Total Cash Flow Work of Structure

PROJECT : DEVELOPMENT PROJECT OF BOARDING HOUSE
LOCATION : JL. TEGAL PARANG UTARA NO. 17 KELURAHAN MAMPANG PRAPATAN, SOUTH JAKARTA
PERIOD : JANUARY 2017 - FEBRUARY 2018

WORK OF STRUCTURE

PERIOD		PRICE OF MATERIAL	RICE OF EQUIPMEN	PRICE OF LABOR	TOTAL COST PER WEEK	TOTAL COST PER MONTH	CUMULATIVE
JANUARY - AUGUST 2017							
January	1	6,276,000	7,920,000	5,624,640	19,820,640	2,466,750,260	19,820,640
	2	565,781,960	69,192,000	40,388,040	675,362,000		695,182,640
	3	626,987,840	94,968,000	81,752,580	803,708,420		1,498,891,060
	4	748,098,100	120,744,000	99,017,100	967,859,200		2,466,750,260
February	5	927,032,290	223,848,000	139,912,920	1,290,793,210	3,027,323,650	3,757,543,470
	6	487,958,290	206,208,000	132,491,520	826,657,810		4,584,201,280
	7	363,788,940	154,656,000	102,454,380	620,899,320		5,205,100,600
	8	172,429,070	77,328,000	39,216,240	288,973,310		5,494,073,910
March	9	318,270,170	154,656,000	71,284,500	544,210,670	3,023,506,730	6,038,284,580
	10	655,816,700	309,312,000	147,607,740	1,112,736,440		7,151,021,020
	11	410,939,630	180,432,000	91,908,180	683,279,810		7,834,300,830
	12	410,939,630	180,432,000	91,908,180	683,279,810		8,517,580,640
April	13	330,266,410	128,880,000	74,643,660	533,790,070	2,556,645,230	9,051,370,710
	14	345,405,810	154,656,000	77,338,800	577,400,610		9,628,771,320
	15	426,430,120	257,760,000	122,296,860	806,486,980		10,435,258,300
	16	355,065,630	180,432,000	103,469,940	638,967,570		11,074,225,870
Mei	17	355,065,630	180,432,000	103,469,940	638,967,570	2,920,022,240	11,713,193,440
	18	257,526,910	128,880,000	82,729,080	469,135,990		12,182,329,430
	19	426,475,510	180,432,000	113,586,480	720,493,990		12,902,823,420
	20	769,950,630	206,208,000	115,266,060	1,091,424,690		13,994,248,110
Juny	21	322,073,690	128,880,000	77,143,500	528,097,190	2,206,919,690	14,522,345,300
	22	322,073,690	128,880,000	77,143,500	528,097,190		15,050,442,490
	23	388,016,570	154,656,000	72,104,760	614,777,330		15,665,219,820
	24	311,335,520	154,656,000	69,956,460	535,947,980		16,201,167,800
July	25	322,073,690	128,880,000	77,143,500	528,097,190	2,226,762,170	16,729,264,990
	26	322,073,690	128,880,000	77,143,500	528,097,190		17,257,362,180
	27	388,016,570	154,656,000	91,947,240	634,619,810		17,891,981,990
	28	311,335,520	154,656,000	69,956,460	535,947,980		18,427,929,970
August	29	322,073,690	128,880,000	77,143,500	528,097,190	1,909,338,310	18,956,027,160
	30	322,073,690	128,880,000	77,143,500	528,097,190		19,484,124,350
	31	292,290,970	128,880,000	72,104,760	493,275,730		19,977,400,080
	32	208,329,800	103,104,000	48,434,400	359,868,200		20,085,034,110
TOTAL		12,457,706,910	4,872,816,000	2,754,511,200	20,085,034,110	20,085,034,110	

Table 10. Total Cash Flow Work of Architecture

PROJECT : DEVELOPMENT PROJECT OF BOARDING HOUSE
LOCATION : JL. TEGAL PARANG UTARA NO. 17 KELURAHAN MAMPANG PRAPATAN, SOUTH JAKARTA
PERIOD : JANUARY 2017 - FEBRUARY 2018

WORK OF ARCHITECTUR

PERIOD		RICE OF MATERIAL	PRICE OF LABOR	TOTAL COST PER WEEK	TOTAL COST PER MONTH	CUMULATIVE
UGUST 2017- FEBRUARY 201						
August	31	67,585,500	7,421,400	75,006,900	399,516,504	75,006,900
	32	67,585,500	7,421,400	75,006,900		150,013,800
Sepetembe	33	124,270,500	11,100,852	135,371,352		285,385,152
	34	103,030,500	11,100,852	114,131,352		399,516,504
October	35	213,356,900	28,404,432	241,761,332	1,227,515,916	641,277,836
	36	215,864,600	26,607,672	242,472,272		883,750,108
	37	317,826,800	57,090,096	374,916,896		1,258,667,004
	38	307,681,800	60,683,616	368,365,416		1,627,032,420
November	39	492,551,075	108,813,348	601,364,423	2,325,759,855	2,228,396,843
	40	516,858,350	154,888,524	671,746,874		2,900,143,717
	41	387,519,100	134,585,136	522,104,236		3,422,247,953
	42	414,293,950	116,250,372	530,544,322		3,952,792,275
Desember	43	352,986,250	134,757,000	487,743,250	2,338,686,038	4,440,535,525
	44	546,123,340	188,323,884	734,447,224		5,174,982,749
	45	376,465,490	148,021,776	524,487,266		5,699,470,015
	46	463,235,290	128,773,008	592,008,298		6,291,478,313
January	47	387,723,520	115,273,872	502,997,392	2,222,960,733	6,794,475,705
	48	453,419,775	94,658,004	548,077,779		7,342,553,484
	49	282,508,920	91,056,672	373,565,592		7,716,119,076
	50	640,712,870	157,607,100	798,319,970		8,514,439,046
February	51	456,527,800	105,008,904	561,536,704	1,673,503,764	9,075,975,750
	52	459,633,400	105,907,284	565,540,684		9,641,516,434
	53	373,184,800	107,789,976	480,974,776		10,122,491,210
	54	41,429,700	24,021,900	65,451,600		10,266,177,111
TOTAL		8,128,735,791	2,137,441,320	10,266,177,111	10,266,177,111	

V. CONCLUSIONS AND SUGGESTION

A. CONCLUSION

1. Based on the calculation of cash flow to complete the construction of Boarding House Tegal Parang South Jakarta until final stage more or less cost as much Rp. 30.351.211.221.
2. From the calculation of CPM scheduling analysis, the development of Boarding House Tegal Parang South Jakarta takes time for 53 weeks.
3. By using CPM method can be known the critical path that occurred in the project, which is work of structure and work of roof.

B. SUGGESTION

1. In planning the scheduling of the project completion time, not only analyzing based on the calculation of the weight of work alone but greatly influenced by the experience in the field.
2. The CPM method is helpful to overcome the probability of project completion time.
3. More detailed studies are needed to get the right costing and scheduling.

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