



THE PERCENTAGE OF STRUCTURAL COSTS IN HOUSES STRUCTURED TYPE 30, 36, 45 AND 70 WITH HOUSES WITH SIMPLE STRUCTURES.

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A. Abstract

Earthquakes are a natural phenomenon that often occurs in Indonesia, including in the Cianjur area. The earthquake with a magnitude (M) of 5.6 that occurred in Cianjur Regency on November 21, 2022 still leaves pain for some people, hundreds of people died, thousands of houses were damaged, and many residents of Cianjur Regency are still living in shelters because their houses collapsed in the earthquake. Based on one of the factors causing a lot of damage due to the earthquake that occurred in houses in Cianjur, namely the many houses of residents who do not use structures in the building or use them but do not meet standards, the high cost of structures is the biggest reason many residents choose not to use structures in their homes. Therefore, it is necessary to prove whether cost is really the main reason for not using a structure in a building, how much the cost of the structure influences the total cost of building a house. Structural work is essentially concrete structure work and structural work for residential buildings includes foundation work, sloofs, columns, ring beams. Before starting the work, the homeowner must first prepare a budget that must be spent to carry out the work. With this research, it is hoped that in the future it can increase public awareness, including home owners and policy makers, regarding the importance of building houses with structures that can withstand earthquakes. The method used in this research is a quantitative method, by collecting several sample cost budget plans (RAB) from several structured houses and simple houses of residents affected by the earthquake with types 30, 36, 45 & 70 and calculating the percentage of structural costs used from the RAB to prove the extent to which costs influence the decision to choose to build a house without a structure. The results of the analysis of all types of houses in accordance with technical principles, the structure costs require an average of 34.20% of the total costs. And for a simple house that does not use a standard structure, it costs an average of 10.73% of the total cost.

Keywords: Residential House, Cost, Structure

I. INTRODUCTION

Earthquakes are a natural phenomenon that often occurs in Indonesia, including in the Cianjur area. The 5.6 magnitude (M) earthquake that occurred in Cianjur Regency on November 21 2022 still left some people with pain. Hundreds of people died, thousands of houses were damaged, and many residents of Cianjur Regency are still living in shelters because their houses collapsed in the earthquake.

- Damaged houses: 53,408 units
- Heavily damaged: 12,956 units
- Moderately damaged: 15,196 units
- Light damage: 25,256 units
- Damaged schools: 540 units
- Places of worship damaged: 272 units
- Health facilities damaged: 18 units

The Cianjur earthquake affected 16 sub-districts out of a total of 32 sub-districts in the district. The affected villages reached 169 out of a total of 360 existing villages/sub-districts. Then there were 41,166 heads of families (KK) who were affected and 114,683 residents living in refugee camps, both centralized and independent refugee camps. The death toll from the Cianjur Earthquake reached 334 people. Then there were 593 people who suffered serious injuries, and 44 of them were still being treated in hospital. Quoting an article <http://www.jurnalmediaindonesia.com/>, there were four main factors that caused damage to buildings due to earthquake shocks in Cianjur Regency, namely as follows:

- Because it is controlled by the shallow epicenter depth factor of around 11 kilometers. Even the aftershocks were only five kilometers.
- The second factor causing damage to buildings in the Cianjur Earthquake was due to residential locations being on soft or loose soil. This condition causes an amplification effect, which means that if an earthquake wave propagates through the ground, it will be strengthened.
- Then, the third factor is the influence of topography because many buildings are located on the edge of slopes or valleys, which results in increased intensity of shocks and damage.
- Furthermore, the final factor is due to building structures that do not meet earthquake safe standards.

The aim of this research is :

- Look for the percentage of structural costs in residential buildings type 30, 36, 45 & 70 in simple and structured house buildings.
- Compare the structural costs of a house that is planned to be structured with a simple house.
- Carry out proof by carrying out a cost comparison analysis for building a structured house with a simple house.

II. Literature Riview

What is a building structure? Building structure can be interpreted as elements or parts that are important in the establishment of a building, such as the roof, walls, foundation, and so on. This structure will later complement other building structural elements such as the interior of the house so that it forms a beautiful and sturdy unit. However, building a building should not be done haphazardly. Especially for a high-rise building, it is very necessary to have a construction plan with a good structure and based on the standards set out in government regulations.

RAB stands for Cost Budget Plan. Quoting the BPSDM PU page, RAB is an estimated calculation of the costs required for materials, tools and wages, as well as other costs related to the implementation of a job or project. RAB is a plan, estimate or cost estimate, not an actual budget based on implementation (actual costs). This is different from the budget, which is understood as the price of a building that is calculated carefully, carefully and meets the requirements. The cost budget for the same type of building may vary depending on the price of materials and labor wages applicable in each area. For example, labor wages in the city of Yogyakarta are different from labor wages in the cities of Jakarta, Surabaya, Bandung, and so on. The function of the RAB is something that is very important for everyone to understand. Preparing a precise and detailed RAB will help in carrying out work or projects in accordance with the guidelines or plans that have been made. The function of the RAB is as a guide for work implementation and as a means of controlling work implementation. Through RAB, you can calculate and know exactly how much it will cost to carry out the work according to the owner's request.

Home Budget plan

A house budget plan is a detailed plan regarding the estimated costs required to build or renovate a house. This involves identifying all cost components associated with the project, including building materials, labor, equipment, permits, and other costs. A budget plan helps you organize and control expenses during a project, ensuring that the project can be completed on time and within the available budget

Cost Structure Budget Plan

A structural cost budget plan refers to a more specific plan regarding the estimated costs required for structural elements in a construction project, such as buildings or infrastructure. This

includes costs for materials such as concrete, steel, brick, wood, and the like, as well as the cost of labor involved in constructing those structural elements. A structural cost budget plan helps calculate and control expenses related to critical parts of a construction project.

Type of residence

- Landed house

A landed house is a type of residence that is built directly on the ground. In the past, most landed house buildings were separate from other houses. People generally called them single or detached houses. The increasingly expensive price of land has meant that this type of housing has begun to transform into trailer houses/row houses whose walls are attached to each other. As time goes by, this term is increasingly commonly used to refer to houses built directly on the land. The main characteristic of a landed house is that apart from the building, those who walk directly on the land, their ownership rights are also sole.

- Town House

This house, which is in a town house type complex, is said to be a horizontal apartment. That's because one house is similar to another both outside and inside. In this town house residential complex there are public facilities that can be used by all residents who live in it. The shapes of the houses in the town house are also almost the same as each other.

- Cluster

Housing is a housing complex which is divided into several areas or sub-complexes. In this sub-complex, there are houses of the same type and public facilities that are specifically used by the residents. However, the cluster also provides a play area that can be used by residents of all sub-complexes. Another characteristic to identify a type of residence called a cluster is the presence of a high fence around it.

- Single House (Detached)

As previously mentioned, in the past most house buildings were of a single type. Nowadays, this type of single residence still exists but is generally used as a resting place in free time. Examples of single or detached houses today include mansions, cottages, villas or bungalows. Usually these houses are located in mountainous or coastal areas, either privately owned or owned by individuals to be used as accommodation.

- Kopel House

A copel house is a type of residence in the form of one building that is split into two. The houses have the same appearance, and the sizes are equal because they are only separated by one wall. Even though it looks like one house divided into two, this type of house is actually lived in by different people. Generally, this type of kopel house in Bandung and Garut is a Dutch heritage which has a distinctive colonial design.

- Apartment

An apartment is a multi-storey building block which is divided into a number of rooms. These residences are mostly built in the city center close to various activity centers. People now call

each apartment room a unit. Common types of apartment units are studio, one bedroom, two bedroom and condominium.

- . Kondotel

A hotel condominium (condotel) is an apartment type residence but with facilities and services like a hotel. This residence was initially popular in the United States as a luxury building owned by individuals such as an apartment. When the owner does not occupy the building, the condotel is rented out like a hotel. Since the early 2000s, this type of luxury residence has begun to be built in several big cities such as Bali and Jakarta.

- . Rusun

Rusun are often interpreted as simple apartments, even though multi-storey apartments themselves are categorized as this type of residence. Flats were created to overcome the limited residential land in urban areas. That is why many flats are now being built in the Jakarta area and included in the low-cost housing program.

- . Shophouse

Shophouse is a building that has 2 functions, namely as a house and a place of business. Generally shophouses are built on more than 2 levels. The residential function is placed at the top. Meanwhile the bottom. Used as a center for the shop owner's business activities.

- . Home office

Just like a shophouse, a home office is used for residence and office activities. The dimensions of a shophouse or shophouse are generally made to extend to the back with a width of 3-5 m2. Usually a shophouse is used as a residence for office staff, not the office owner.

- . Indekos

Indekos or *kosan* is a rental residence that is used as an alternative place to live by immigrants from other cities. The boarding house can be in a house that is attached to the main house of the boarding house owner or can be built specifically in a building consisting of rooms. Usually, the boarding house owner has provided certain facilities in the boarding house room such as a mattress, cupboard, and even a bathroom inside. There are also those who equip the boarding house with a washing area, kitchen and shared TV room.

- . House Rental

Not much different from boarding houses, rented housing is also a rental residence which is used as an alternative place to live by immigrants from other cities. The boarding house can be in a house that is attached to the main house of the boarding house owner or can be built specifically in a building consisting of rooms. Rentals are more private because they are rented in the form of a single house unit. If damage occurs during the contract period, the contractor is responsible for repairing it.

Structured House

structured house refers to the construction and planning of a building that considers structural elements such as foundations, frames and strong supports to ensure the stability and safety of the building. This includes the design and use of appropriate

materials to ensure that the home withstands external loads and pressures, and is able to withstand the long term.

Building Standard

[SNI 03-1979-1990](#): Space Matra Specifications for Residential Home

This specification is a specification that regulates room size planning according to human size and ergonomics standards. This specification includes provisions for minimum space dimensions in the technical planning of residential homes which are based on body size and human activity in order to obtain efficient use of space and building materials.

Stages of Implementation of Residential Construction

- . Early Work

The stage is measurements to determine the position of the building and its boundaries. Then there is also a bow plank which is useful for determining the points of the building by erecting a fence using boards. Apart from that, it also includes excavations related to foundation work by calculating the width and depth. This work calculates how long the foundation is to be made to determine the amount of labor and the amount of material. Then fills in the foundation and floor of the building which is usually calculated per square meter.

- . Foundation work

The work item includes installing foundations with river stones for house buildings which is calculated from the entire length of the foundation multiplied by the height of the foundation in square meters. Apart from that, this also includes the work of making a work floor in the form of sand fill with a thickness of approximately 10 square meters.

- . Structural Work

This item includes work on sloofs (horizontal reinforced concrete beams made on foundations) where the calculation is total length of sloof x width x height = m3 units. Then making columns which are pillars perpendicular to the sloof and Ring Balk which are similar to sloofs but built on columns-columns whose volume calculation is determined by the number of columns multiplied by the column height.

- . Wall work

Brick requirements can be calculated from the circumference of the wall multiplied by the height of the wall. Then subtract the area of the windows and doors. The size of the brick is also taken into account in this calculation because you can use hebel or brick. Another job is plastering, the volume of which is twice the volume of the brick masonry. Lastly is plastering which has the same area as the calculation for plastering but minus the areas that do not need to be plastered, such as walls with ceramic tiles.

- . Frame, Door & Window Work

Installation of frames on certain sides of walls for access in and out and air. The wood is coated with polish or paint to make it durable. Then it also includes work on installing locks and door/window handles. Usually the frames are calculated per unit.

- Roof Truss Work

The scope of work consists of installing roof trusses (horses, curtains, roofs, rafters & battens), if necessary, adding aluminum foil (if necessary) and installing roof tiles and their accessories. The roof frame can be chosen from light steel or wood. The estimate is how many wood/steel beams are needed to make the frame.

- Plumbing, Mechanical, & Electrical Work

The work items are installation of toilets, sinks, baths, water heaters, faucets. Don't forget to also install clean water and dirty water installations. Then install electrical cable networks, fuse boxes, switches, lighting points, and the like

- Finishing Work

Here the item is the installation of floor materials for both rooms and terraces. This also includes certain walls such as the kitchen and bathroom. Then there is also the work of finishing the frames, doors and windows by coating them with polish or paint so that they last and add to the beauty of the building. This also includes installation of handles and locks. Painting walls both exterior and interior.

- Extra work

The work is based on the homeowner's request. For example, installing fences, making canopies, landscape gardens, garages.

- Cleaning Work

Before the house is occupied, it must be clean first. Then it's an absolute cleanse here. The house must be free from dust, dirt and building debris.

House rules and regulations

Borderline

Building boundary lines are technical requirements that regulate the position of a house on land that has been determined for its size and type of use. The types are Road Boundary Lines (GSJ) and Building Boundary Lines (GSB). GSJ is the front yard limit, the front limit of fences that may be erected. The GSB is the boundary of the front wall of the house on a plot. The position of a building that is too close to the road will reduce the comfort of residents and disturb the public interest. The length between GSB and GSJ is determined based on the requirements that apply to each type of building and the location of the local plot. The size of the GSB is determined based on the width of the road in front of the land. The wider the road, the greater the GSB. In the GSB area, it is prohibited to build anything structural in nature, such as adding rooms that have brick walls. However, in the GSB area it is permissible to make roof terraces that are wide enough to protect the building and its occupants.

Distance Between Buildings

Even though the land area is limited, the house is still spaced between buildings, for the safety and comfort of its residents. Without distance between buildings, this means the house will be attached to neighboring buildings. Houses that are tightly packed together have a risk of fire spreading if a fire breaks out in the neighboring building.

Building Height

Building height is a provision regarding how many floors are permitted to be built in a house building. For residential areas in a housing complex, sometimes developers set house building height regulations, with the aim of creating a skyline in the desired environment. For example, a housing complex with a small land area with an average height of two floors, it is not permissible to build up to four floors like shophouses, even for reasons of space requirements.

III. Research Methods

Time and Location of Research

The time of the research was carried out from June to August 2023. This research started by taking survey data in the form of questionnaires from 100 people whose houses were damaged by the earthquake in Cianjur.

Research Methodes

The method used by the author is a quantitative method. According to Kasiram in Sujarweni (2014:39) defines quantitative research as a process of discovering knowledge that uses data in the form of numbers as a tool to analyze information about what you want to know. Meanwhile, according to Imam Santoso and Harries Madiistriyatno in the book *Quantitative Research Methodology* (2021), why it is called a quantitative method is because the research data is in the form of numbers and uses statistics as a tool.

Research Data Analysis

The analysis stage is a follow-up after data processing has been completed. The aim of this stage is to understand and analyze the processing results in depth, especially:

- Analyzing the Overall Cost to build a structured house and a simple house on Type 30, 36, 45, 70
- Analyzing Structural Costs to build Type 30, 36, 45, 70 houses
- Analysis of the percentage of structural costs against the overall cost budget plan for Type 30, 36, 45, 70 house buildings
- Review the budget plan by calculating the costs needed to build a house
- Analysis of the causes of not using structures in a house building

Method of Collecting data

In conducting research, the research data taken includes:

- Primary data

Primary data is data obtained or collected directly in the field by researchers from the person concerned.

- Calculation of building costs contained in the cost budget plan (RAB)
- The cause questionnaire does not use structure
- Secondary Data

Secondary data is the researcher's efforts to collect data taken from primary sources for this research, namely:

- Cost The percentage of the structure of the total cost of building the house.
- The number of residents or people who said that cost was the main factor in not using structures in house buildings was obtained from a questionnaire survey of 100 people affected by house damage.

Research Flow

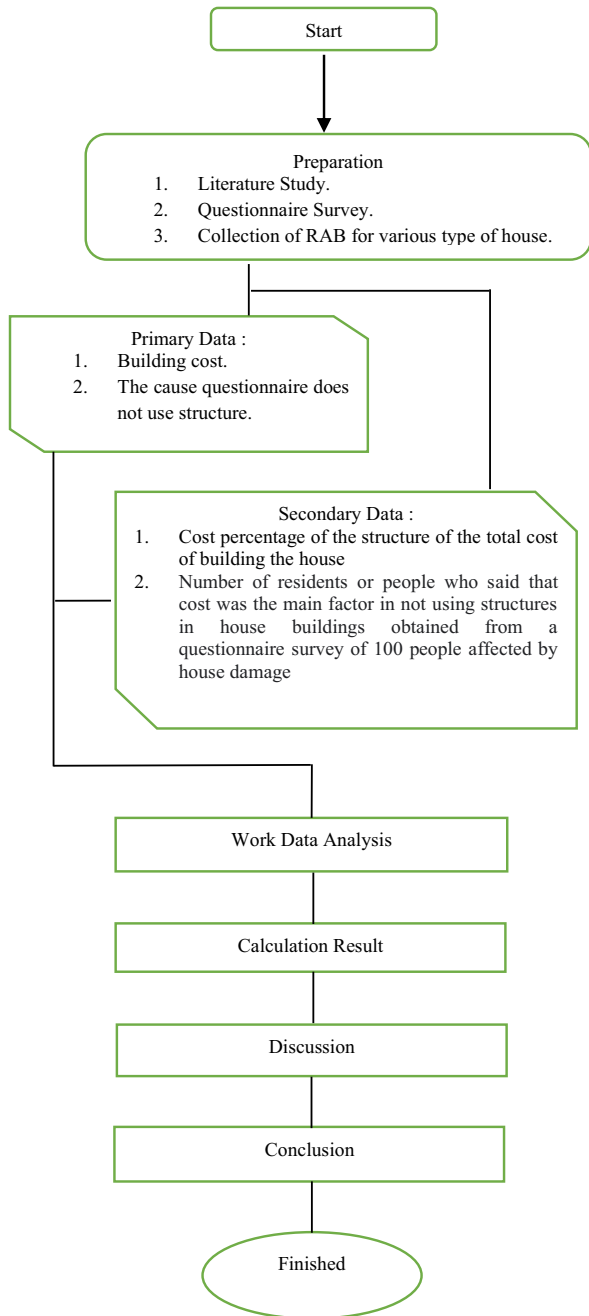


Table 1. Recapitulation of several RAB for simple house type 30

Rumah Ke	RAB Total	RAB Struktur + Rangka Atap	Persentase
1	Rp 43.159.133	Rp 5.433.503	12,59
2	Rp 37.951.900	Rp 4.633.403	12,21
3	Rp 49.567.500	Rp 6.775.351	13,67
4	Rp 53.421.000	Rp 9.854.332	18,45
5	Rp 40.084.000	Rp 5.455.632	13,61
6	Rp 41.650.000	Rp 7.633.451	18,33
7	Rp 46.911.000	Rp 4.677.200	9,97
8	Rp 45.416.600	Rp 5.882.322	12,95
9	Rp 38.662.333	Rp 4.577.451	11,84
10	Rp 40.710.800	Rp 4.988.300	12,25
11	Rp 48.509.000	Rp 7.544.230	15,55
12	Rp 54.768.000	Rp 9.200.345	16,80
13	Rp 40.783.400	Rp 7.745.234	18,99
14	Rp 46.620.000	Rp 6.500.456	13,94
15	Rp 53.000.000	Rp 7.200.345	13,59
Persentase Rata-rata Rab Struktur Rumah Tipe 30			14,32

Figure 1. RAB Structure percentage fee type 30 house structure

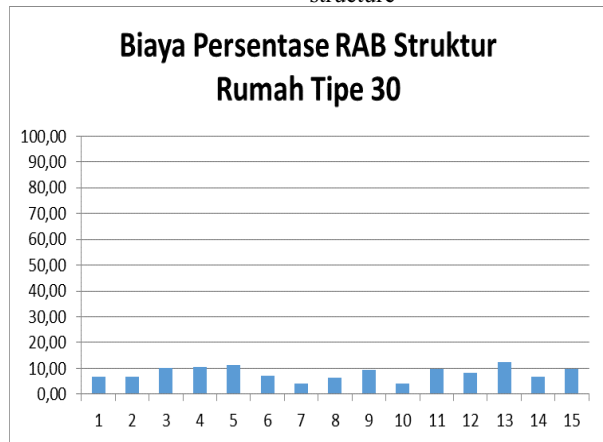


Figure 2. RAB Structure percentage fee type 36 house structure

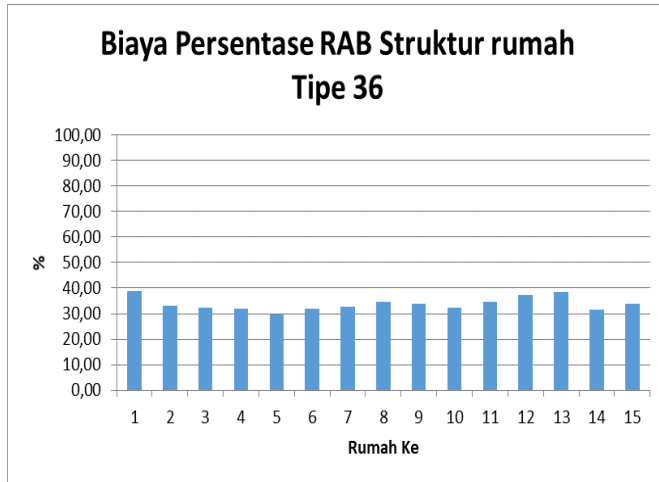


Figure 3. RAB Structure percentage fee type 36 house structure

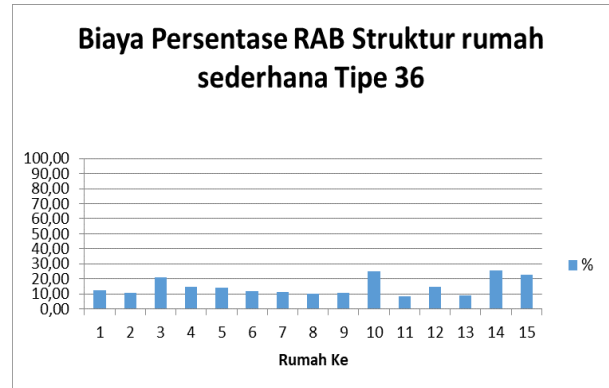


Table 2. Recapitulation of several RAB for simple house type 36

Rumah Ke	RAB Total	RAB Struktur + Rangka Atap	Persentase
1	Rp 60.545.000	Rp 7.554.000	12,48
2	Rp 50.346.400	Rp 5.435.000	10,80
3	Rp 60.557.000	Rp 12.657.500	20,90
4	Rp 56.234.500	Rp 8.335.000	14,82
5	Rp 53.235.000	Rp 7.645.000	14,36
6	Rp 65.125.000	Rp 7.723.000	11,86
7	Rp 57.878.500	Rp 6.532.000	11,29
8	Rp 52.115.000	Rp 5.234.000	10,04
9	Rp 52.435.000	Rp 5.678.500	10,83
10	Rp 70.125.000	Rp 17.650.000	25,17
11	Rp 54.550.000	Rp 4.530.400	8,31
12	Rp 64.255.000	Rp 9.546.000	14,86
13	Rp 63.150.500	Rp 5.675.000	8,99
14	Rp 71.135.000	Rp 18.234.500	25,63
15	Rp 67.355.600	Rp 15.225.000	22,60
Persentase Rata-rata Rab Struktur Rumah Sederhana Tipe 36			14,86

Table 3. Example of RAB recapitulation for type 36 structured house

REKAPITULASI

PROPINSI : Jawa Barat
 PEKERJAAN : Pembangunan Rumah Tipe 36
 LOKASI : Kota Cianjur
 TAHUN : 2023

NO	URAIAN PEKERJAAN	TOTAL JUMLAH (Rp)
I	PEKERJAANPERSIAPAN	4.088.172,00
II	PEKERJAAN TANAH DASAR DAN PASIR	4.681.269,52
III	PEKERJAAN STRUKTUR BETON BERTULANG	27.387.394,62
IV	PEKERJAAN LANTAI	8.139.428,89
V	PEKERJAAN DINDING	17.164.697,62
VI	PEKERJAAN PLAFOND	1.683.414,14
VII	PEKERJAAN KUSEN PINTU DAN JENDELA	8.916.200,00
VIII	PEKERJAAN PENGE CETAN	2.670.498,91
IX	PEKERJAANELEKTRIKAL	4.416.000,00
X	PEKERJAAN KUNCI dan PENGANTUNG	1.732.000,00
XI	PEKERJAAN SANITER DAN FIXTURE	3.320.000,00
XII	PEKERJAAN ATAP DAN RANGKA BAJA	8.552.474,80

92.751.550,49

JUMLAH 92.751.550,49

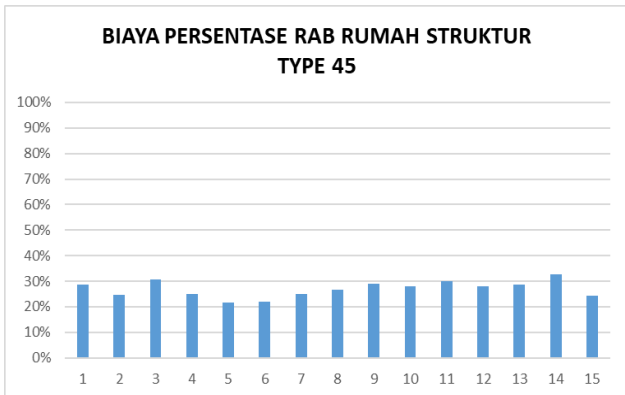
DIBULATKAN 92.751.000,00

Terbilang : sembilan puluh dua juta tujuh ratus lima puluh satu ribu rupiah

Table 4. Recapitulation of several RAB for simple house type 45

RUMAH KE	RAB TOTAL	RAB STRUKTUR	PERSENTASE
1	Rp 190,100,000.00	Rp 54,694,990.00	29%
2	Rp 166,500,000.00	Rp 40,780,059.00	24%
3	Rp 193,334,127.00	Rp 59,494,772.00	31%
4	Rp 289,945,000.00	Rp 72,300,769.00	25%
5	Rp 146,425,925.00	Rp 31,712,144.00	22%
6	Rp 220,307,600.00	Rp 48,765,000.00	22%
7	Rp 138,724,000.00	Rp 34,754,000.00	25%
8	Rp 170,820,000.00	Rp 45,300,205.00	27%
9	Rp 208,450,000.00	Rp 60,542,000.00	29%
10	Rp 180,345,000.00	Rp 50,670,000.00	28%
11	Rp 157,988,500.00	Rp 47,532,000.00	30%
12	Rp 245,400,300.00	Rp 68,954,000.00	28%
13	Rp 177,754,100.00	Rp 50,871,000.00	29%
14	Rp 215,100,000.00	Rp 70,532,000.00	33%
15	Rp 232,180,000.00	Rp 56,712,000.00	24%
PERSENTASE STRUKTUR RUMAH SEDERHANA			27%

Figure 4. RAB percentage fee structure simple house type 45



RECAPITULATION RAB

Table 5. Example RAB recapitulation for type 45 structured house
Type house 45
Location Cianjur 2023

NO.	URAIAN PEKERJAAN	JUMLAH (RP)
I.	PEKERJAAN PERSIAPAN	7,650,000.00
II.	PEKERJAAN KONTRUKSI :	
	A. PEKERJAAN TANAH & PASIR	2,019,507.00
	B. PEKERJAAN STRUKTUR BETON	54,694,990.84
	C. PEK. PASANGAN, DINDING & PLESTERAN	32,786,969.60
	D. PEKERJAAN ATAP	16,751,684.00
	E. PEKERJAAN LANTAI	10,557,681.60
	F. PEKERJAAN PLAFOND	9,722,880.00
	G. PEKERJAAN INSTALASI LISTRIK	10,601,900.00
	H. PEKERJAAN INSTALASI AIR BERSIH	2,136,000.00
	I. PEKERJAAN INSTALASI AIR KOTOR	6,231,300.00
	J. PEK. KUSEN, PINTU DAN	

JENDELA	20,929,915.00
K.PEKERJAANPENGECEKAN	3,481,276.00
L. PEKERJAAN LAIN LAIN	12,582,620.00
JUMLAH	190,146,724.04
DIBULATKAN	190,100,000.00
TERBILANG : Seratus sembilan puluh juta seratus ribu Rupiah.	

Figure 5. RAB Percentage fee simple house structure

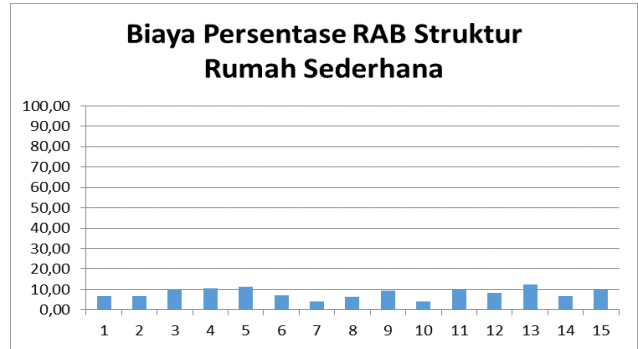


Figure 6. RAB percentage fee structure house structure type 70

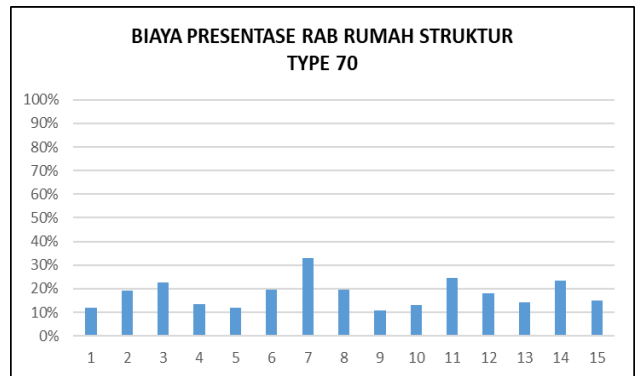


Table 6. Recapitulation of several RAB type 70 house structure

Rumah Ke	RAB Total	RAB Struktur + Rangka Atap	Presentase
1	Rp 388.665.200	Rp 54.335.030	13,98
2	Rp 407.108.020	Rp 74.633.403	22,08
3	Rp 485.090.300	Rp 66.775.351	15,54
4	Rp 547.680.020	Rp 99.854.332	18,04
5	Rp 407.834.200	Rp 65.455.632	12,12
6	Rp 416.620.000	Rp 76.633.451	17,35
7	Rp 523.000.000	Rp 54.677.200	12,23
8	Rp 433.159.133	Rp 55.882.322	12,55
9	Rp 337.951.900	Rp 74.577.451	19,19
10	Rp 429.567.500	Rp 84.988.300	20,88
11	Rp 553.421.000	Rp 127.544.230	26,29
12	Rp 540.084.000	Rp 139.200.345	25,42
13	Rp 441.650.000	Rp 117.745.234	28,87
14	Rp 446.911.000	Rp 116.500.456	27,96
15	Rp 445.416.600	Rp 87.200.345	16,67
Recapitulation of several RAB type 70 house structure			19,28

Table 7. Example of RAB Recapitulation for a type 70

RUMAH KE	RAB TOTAL	RAB STRUKTUR	PRESENTASE
1	Rp 306.500.000	Rp 36.286.489	12%
2	Rp 116.587.000	Rp 22.297.500	19%
3	Rp 208.343.250	Rp 46.839.220	22%
4	Rp 502.758.000	Rp 67.028.108	13%
5	Rp 480.174.159	Rp 57.871.397	12%
6	Rp 134.453.283	Rp 26.473.135	20%
7	Rp 301.872.000	Rp 98.931.890	33%
8	Rp 255.585.000	Rp 50.350.000	20%
9	Rp 495.286.250	Rp 53.367.581	11%
10	Rp 500.924.367	Rp 65.286.305	13%
11	Rp 328.692.754	Rp 80.278.615	24%
12	Rp 289.735.228	Rp 52.368.169	18%
13	Rp 429.637.000	Rp 60.258.943	14%
14	Rp 336.951.248	Rp 78.529.384	23%
15	Rp 482.519.350	Rp 72.685.100	15%
PRESENTASE RUMAH BERSTRUKTUR TYPE 70			18%

structured

Table 8. Example of RAB Recapitulation for a type 70 structured

NO.	URAIAN PEKERJAAN	JUMLAH (RP)
I.	PEKERJAAN PERSIAPAN PEKERJAAN KONTRUKSI :	7.525.000,00
II.	A. PEKERJAAN TANAH & PASIR	2.501.231,25
	B. PEKERJAAN STRUKTUR BETON K225	36.289.498,00
	C. PEK. PASANGAN, DINDING DAN PLESTERAN	63.334.690,00
	D. PEKERJAAN ATAP	34.520.874,00
	. PEKERJAAN LANTAI	17.197.750,00
	F. PEKERJAAN PLAFOND	19.455.000,00
	G. PEKERJAAN INSTALASI LISTRIK	11.485.900,00
	H. PEKERJAAN INSTALASI AIR BERSIH	2.364.000,00
	I. PEKERJAAN INSTALASI AIR KOTOR	11.410.900,00
	J. PEK. KUSEN, PINTU DAN JENDELA	31.926.350,00
	K. PEKERJAAN PENGE CETAN	6.909.720,00
	L. PEKERJAAN LAIN LAIN	23.298.740,00
	M. TANDON AIR ISI 2.000 LTR . SUMUR BOR & POMPA	38.379.379,60
JUMLAH		306.599.032,85
DIBULATKAN		306.500.000,00
TERBILANG : Tiga Ratus Enam Juta Lima Ratus Ribu Rupiah		

Table 9. RAB percentage fee simple house structured

Type Rumah	30	36	45	70	Rumah sederhana
Rumah Ke 1	12,59	12,48	29%	13,98	6,82
Rumah Ke 2	12,21	10,80	24%	22,08	6,91
Rumah Ke 3	13,67	20,90	31%	15,54	10
Rumah Ke 4	18,45	14,82	25%	18,04	10,61
Rumah Ke 5	13,61	14,36	22%	12,12	11,41

Rumah Ke 6	18,33	11,86	22%	17,35	7,01		
Rumah Ke 7	9,97	11,29	25%	12,23	4,15		
Rumah Ke 8	12,95	10,04	27%	12,55	6,53		
Rumah Ke 9	11,84	10,83	29%	19,19	9,37		
Rumah Ke 10	12,25	25,17	28%	20,88	3,98		
Rumah Ke 11	15,55	8,31	30%	26,29	9,87		
Rumah Ke 12	16,8	14,86	28%	25,42	8,11		
Rumah Ke 13	18,99	8,99	29%	28,87	12,47		
Rumah Ke 14	13,94	25,63	33%	27,96	6,88		
Rumah Ke 15	13,59	22,60	24%	16,67	9,68		
Rata-rata	15,29625	16,18375	3,06625	22,44813	14,24859	8,253333333	%

VI. Conclusion

Based on the research results above, it can be concluded that the average percentage of structural costs for houses with types 30, 36, 45 and 70 structures is 14.24%, while the percentage of structural costs for simple houses is 8.25%. There is a difference in average costs of 6% between simple houses and structured houses. It can be concluded that the cost factor does not have much of an influence on the decision to use structured construction. Based on the results of this research, it is hoped that it will raise public awareness in the future about building structured houses in order to anticipate earthquake disasters.

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