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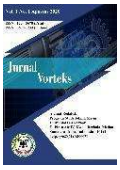

# ANALYSIS OF THE IMPLEMENTATION BUDGET PLAN (RAP) AND COMPARISON OF THE COST BUDGET PLAN (RAB) FOR THE CONSTRUCTION OF TYPE 48 HOUSES IN THE BUMI MENTAYA RESIDENCE HOUSING COMPLEX, EAST KOTAWARINGIN

**Johan Oberlyn Simanjuntak[1*], Diana Suita[2], Simon Petrus Simorangkir[3], Romauli Stevani Sinaga[4], Eben Oktavianus Zai[5]**

[1,4,5] Civil Engineering Departement, Faculty of Engineering and Science, Universitas HKBP Nommensen, Medan, Jl. Sutomo No.4A, Perintis, Kec. Medan Tim., Kota Medan, Sumatera Utara 20235

[2] Civil Engineering Departement, Faculty of Engineering and Computer, Universitas Harapan, Medan HM Joni No 70 C Medan

[3] Civil Engineering Departement, Faculty of Engineering, Universitas Asahan, Medan, Jalan Jenderal Ahmad Yani, Kisaran Naga, Kecamatan Kisaran Timur, Kabupaten Asahan, Provinsi Sumatera Utara, 21216

Email: [*]oberlyn.simanjuntak@yahoo.co.id

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**Abstract**

The construction of affordable housing, particularly in developing regions such as East Kotawaringin, Central Kalimantan, is contingent on effective budgeting. The present study sets out to compare the Cost Budget Plan (RAB) using the AHSP method with the Implementation Budget Plan (RAP) from the contractor on the Type 48 house construction project at Bumi Mentaya Residence. The objective of this study is to evaluate the cost efficiency of the project and to identify the factors that have caused discrepancies between the budget estimates and the actual results. The methodology employed is that of AHSP-based quantitative analysis, encompassing the calculation of materials, labour, equipment, and overhead. The findings indicate that the contractor's RAP of Rp159,265,000 is less than the AHSP version of Rp216,063,000, with a discrepancy of Rp56,798,000 or approximately 73% of the total cost of the AHSP version, which remains within the reasonable limits of efficiency (65-75%). The findings of this research are of particular benefit to contractors, developers and policy makers in the design of more efficient and realistic budget strategies without compromising quality. The novelty of the present study lies in the application of AHSP to Type 48 housing, as well as the integration of land optimisation analysis. Consequently, RAPs that are adaptive to local conditions have been demonstrated to be more economical, and their application in subsidised housing projects is vital for maintaining sustainable development.

***Abstrak***

*Penyusunan anggaran yang efisien sangat penting dalam pembangunan perumahan terjangkau, khususnya di wilayah*



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**Kata Kunci:** AHSP, RAB, RAP, rumah.

*berkembang seperti Kotawaringin Timur, Kalimantan Tengah. Penelitian ini membandingkan Rencana Anggaran Biaya (RAB) menggunakan metode AHSP dengan Rencana Anggaran Pelaksanaan (RAP) dari kontraktor pada proyek pembangunan rumah Tipe 48 di Bumi Mentaya Residence. Tujuannya adalah mengevaluasi efisiensi biaya dan mengidentifikasi faktor penyebab perbedaan antara estimasi dan realisasi anggaran. Metode yang digunakan adalah analisis kuantitatif berbasis AHSP, meliputi perhitungan material, tenaga kerja, peralatan, dan overhead. Hasil menunjukkan RAP kontraktor sebesar Rp159.265.000 lebih rendah dibandingkan RAB versi AHSP sebesar Rp216.063.000, dengan selisih Rp56.798.000 atau sekitar 73% dari total biaya versi AHSP, masih dalam batas wajar efisiensi (65–75%). Penelitian ini memberikan manfaat bagi kontraktor, pengembang, dan pembuat kebijakan dalam merancang strategi anggaran yang lebih hemat dan realistis tanpa mengorbankan kualitas. Kebaruan terletak pada penerapan AHSP pada perumahan Tipe 48 serta integrasi analisis optimasi lahan. Kesimpulannya, RAP yang adaptif terhadap kondisi lokal terbukti lebih ekonomis, dan penting diterapkan dalam proyek perumahan bersubsidi agar pembangunan tetap berkelanjutan.*

## INTRODUCTION

The development of affordable housing, particularly in emerging regions, remains a pivotal area for research and innovation [1]. In the context of increasing urbanisation and a growing demand for housing, it has become imperative to comprehend the economic principles underpinning housing construction [2]. The present study focuses on a comparative analysis between the Cost Estimate Plan (RAB) and the Implementation Budget Plan (RAP) for Type 48 houses in the Bumi Mentaya Residence housing complex in Kotawaringin Timur, Indonesia.

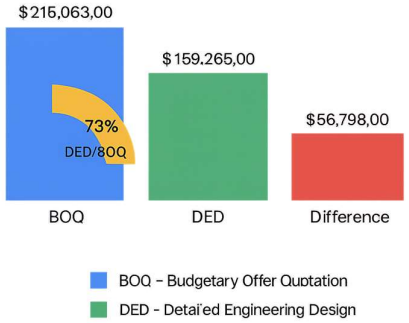


**Figure 1**. Comparison of BOQ and DED in housing project

It is an acknowledged fact that housing development projects frequently encounter difficulties related to budgetary planning and implementation. The discrepancy between initial cost estimates and actual implementation costs can have a substantial impact on the feasibility and profitability of a project [3]. In Indonesia, where demand for housing continues to increase, especially in developing urban centres such as East Kotawaringin, efficient budget management is essential for sustainable development.

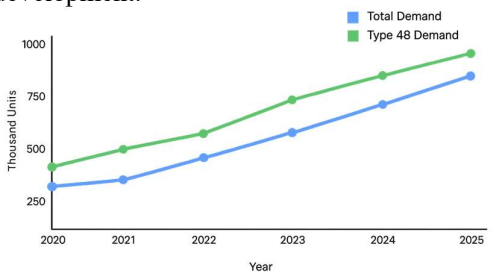


**Figure 2**. Tren of housing demand in Indonesia

A number of studies have previously been conducted on the subject of comparisons between RAB and RAP in various public construction projects, including but not limited to libraries, hospitals and multipurpose halls (see [4], [5] and [6]). However, residential housing projects have received comparatively little attention, particularly in the developing



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region of Central Kalimantan. This study addresses this gap by focusing specifically on Type 48 houses, which represent a significant segment of Indonesia's affordable housing market as defined by Law No. 1 of 2011.

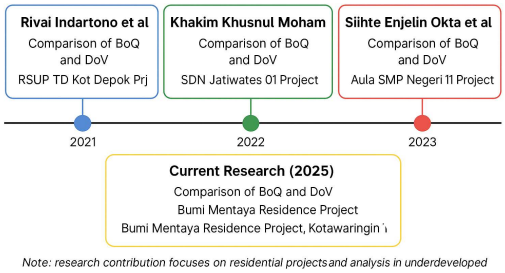


**Figure 3**. previous research on the comparison between RAB and RAP

The objective of this study is to: An analysis is required to be conducted of the discrepancies between the Cost Estimate (RAB) and the Implementation Budget (RAP) for Type 48 houses at Bumi Mentaya Residence. The factors contributing to cost variations between the planned budget and the implementation budget must be evaluated [7]. The objective of this study is to ascertain the economic efficiency of the contractor's implementation approach in comparison to the standard AHSP methodology [8]. It is imperative to undertake a thorough examination of the profitability margins that have been achieved through the optimisation of the implementation budget.

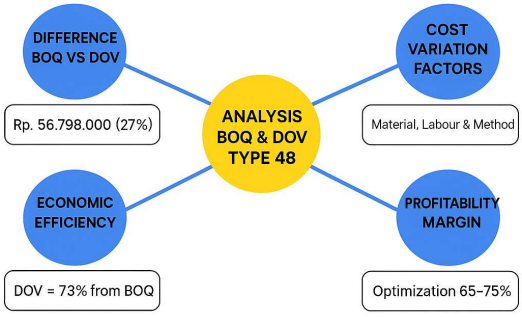


**Figure 4**. Research objectives

The findings of this study offer several benefits: The following text is intended for developers and contractors. The following discourse seeks to furnish the reader with a comprehensive understanding of the ways in which construction costs can be optimised while maintaining quality standards for affordable housing projects [9]. For policymakers: The existence of evidence-based data is pivotal in informing housing policy decisions and budget allocations for housing development projects. The following text is intended for academic consumption. The following essay sets out a methodological framework for the analysis of budget variance in construction projects, with a particular focus on the context of developing urban centres [10]. This text is intended for individuals who are considering purchasing a property. It is imperative that greater transparency is achieved in understanding the cost structure that influences the final price of housing.

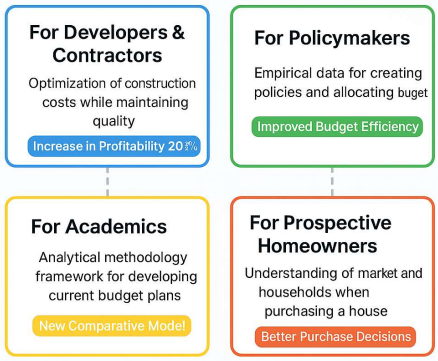


**Figure 5**. Benefits of research

This study introduces several novel aspects in the field of construction economics: The present study proposes an original application of the AHSP methodology to Type 48 housing units, with a view to addressing the unique constraints and opportunities inherent in this housing category. The integration of land optimisation analysis with budget planning is a process that is undertaken in order to determine the most economical construction approach for residential housing [11]. The development of a comprehensive comparative framework is imperative in order to account for regional variations in material and labour costs in Central Kalimantan. The following study will examine contractor profit margins in the



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context of affordable housing development in a developing market.


**Figure 6**. Research novelty

## RESEARCH METHODS

This research was conducted at Bumi Mentaya Residence Housing Complex, which is managed by PT Bagas Paradeso Abadi and is located at Jalan Ir. The address is Soekarno (Outer Ring Road), Tidar Barat, Bumi Mentaya Residence Complex, Block F3 No. 01, Sawahan Village, Mentawa Baru Ketapang District, Sampit. This residential area, which covers an area of 24.4 hectares, is composed of one-storey residential houses. The development plan for the residential complex known as the Bumipala Mentaya Residence encompasses the construction of 1,022 housing units.

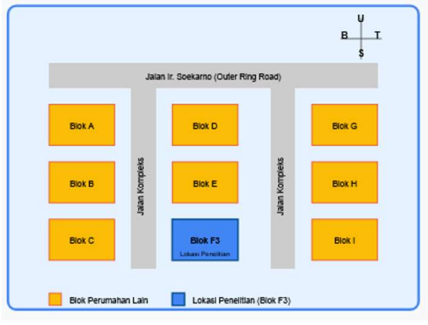


**Figure 7**. Research location

This research focuses on the structural cost analysis of Type 48 house construction with optimal land area in Bumi Mentaya Residence condominium. The cost analysis of a typical Type 48 house takes into account the optimal land area as well as various occupancy factors that are important for comfortable living. By analyzing the comparison between RAB and RAP, this research provides important insights for more efficient and economical housing development in the future.

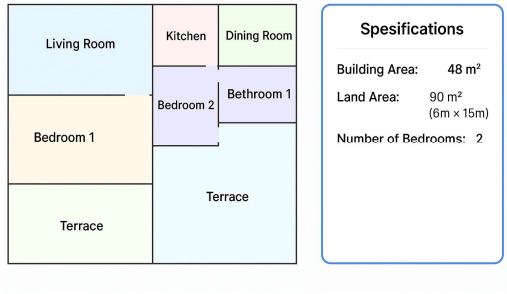


**Figure 8**. Type 48 house design

The method used for this research is the calculation analysis using AHSP (Unit Price Analysis Method). AHSP (Angka Harga Satuan Pekerjaan) is a cost calculation method for construction work used in the procurement of goods and services for construction projects in Indonesia. The AHSP calculation is based on an analysis of the work, including materials, labor, tools, and other overhead costs involved in a construction task [12]. The items included in the AHSP calculation are as follows:

1. Work Identification: The work to be calculated using AHSP is determined, such as the construction of concrete walls.
2. Work Analysis: In the work analysis, the items included in the task are determined. For example, in the construction of concrete walls, the items include materials (cement, sand, stone), labor (number of workers and working hours), equipment (cement mixers, measuring tools), and overhead (electricity costs, project supervisors).
3. Price Estimation: The price or cost estimate for each work item can be based on actual supplier prices or historical data from



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previous projects, such as the price per sack of cement, price per cubic meter of sand, and labor wage rates per hour.

4. Volume Calculation: The volume for each work item is calculated based on the work specifications and technical drawings. For instance, cement volume is based on the volume of concrete walls to be built, sand volume is based on the concrete mix ratio, and worker working hours are based on the estimated time required.
5. Cost Calculation: The price per unit is multiplied by the volume for each work item. For example, the price per sack of cement is multiplied by the cement volume, the price per cubic meter of sand is multiplied by the sand volume, and the labor wage rate per hour is multiplied by the total working hours.
6. AHSP: The total cost is divided by the amount of work measured in specific units (such as square meters, cubic meters, or items) to obtain the AHSP. For example, divide the total cost of the concrete wall by the area of the concrete wall to be built to obtain the AHSP per square meter.

The calculation of AHSP varies depending on the type of construction work carried out and the methods used by each agency. Thus, it provides an overview of how AHSP calculations are performed

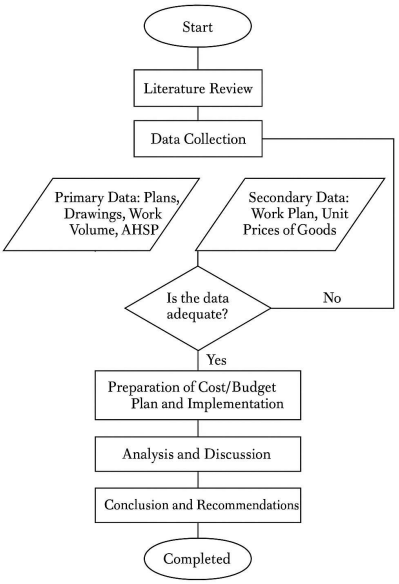


**Figure 9**. Research Process Flowchart

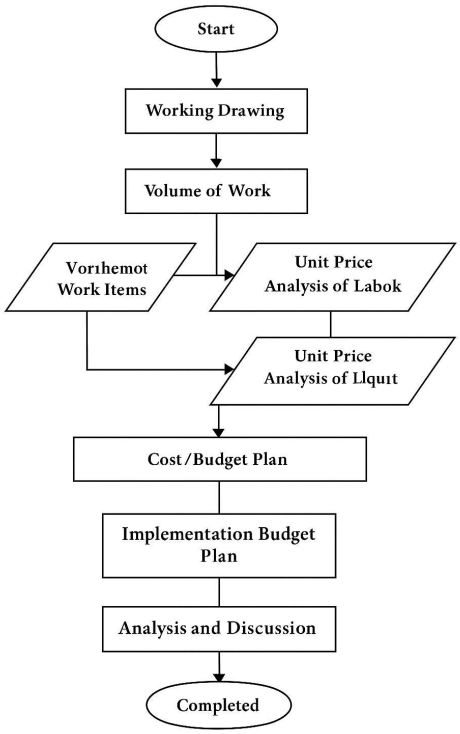


**Figure 10**. Flowchart for Preparing a Cost Budget



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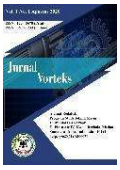

## ANALYSIS AND EVALUATION

**Table. 1** Estimated Cost Plan (RAB)

| NO. | URAIAN PEKERJAAN | KODE ANALISA | KUANTITAS | SATUAN KUANTITAS PEKERJ | SATUAN HARGA (Rp) | JUMLAH HARGA (RP) |
|---|---|---|---|---|---|---|
| **I** | **PEKERJAAN PERSIAPAN** | | | | | |
| **1.1** | Pembersihan lokasi | A.2.2.1.9 | 150,00 | M² | Rp 20.700 | Rp 3.105.000 |
| **1.2** | Pengukuran dan Pasang Bouwplank | A.2.2.1.4 | 68,00 | M | Rp 91.770 | Rp 6.240.360 |
| **1.3** | IMB | LS | 1,00 | LS | Rp 2.000.000 | Rp 2.000.000 |
| | | | | | **Jumlah :** | **Rp 11.345.360** |
| **II** | **PEKERJAAN TANAH** | | | | | |
| **2.1** | Tanah Pondasi Tapak | | | | | |
| 2.1.1 | Galian Tanah Pondasi | A.2.3.1.2 | 5,29 | M³ | Rp 115.000 | Rp 608.580 |
| 2.1.2 | Pekerjaan Urugan pasir Bawah Pondasi | A.2.3.1.11 | 0,59 | M³ | Rp 598.000 | Rp 351.624 |
| 2.1.3 | Urugan Tanah Kembali | A.2.3.1.9 | 3,41 | M³ | Rp 80.500 | Rp 274.344 |
| | | | | | **Jumlah :** | **Rp 1.234.548** |
| **III** | **PEKERJAAN PONDASI** | | | | | |
| **3.1** | **Pondasi Telapak** | | | | | |
| 3.1.1 | Pekerjaan Pembetonan | A.4.1.1.7 | 1,30 | M³ | Rp 1.276.359 | Rp 1.654.162 |
| 3.1.2 | Pekerjaan Bekisting | A.4.1.1.20 | 8,64 | M² | Rp 253.690 | Rp 2.191.882 |
| 3.1.3 | Pekerjaan Pemebesian | | | | | |
| | Ø 8 | A.4.1.1.17 | 59,63 | Kg | Rp 14.947 | Rp 1.317.786 |
| **3.2** | **Kolom Pondasi 20/20** | | | | | |
| 3.2.1 | Pekerjaan Pembetonan | A.4.1.1.7 | 0,79 | M³ | Rp 1.276.359 | Rp 306.326 |
| 3.2.2 | Pekerjaan Bekisting | A.4.1.1.22 | 11,88 | M² | Rp 356.845 | Rp 1.712.856 |
| 3.2.3 | Pekerjaan Pemebesian | A.4.1.1.17 | | | | |
| | Ø 8 | A.4.1.1.17 | 37,67 | Kg | Rp 14.947 | Rp 467.601 |
| | Ø 6 | A.4.1.1.17 | 12,26 | Kg | Rp 19.298 | Rp 123.381 |
| **3.2** | **Cerucuk Galam** | P.07.b | 360,00 | M | Rp 8.993 | Rp 3.237.480 |
| | | | | | **Jumlah :** | **Rp 11.011.474** |
| **IV** | **PEKERJAAN BETON BERTULANG** | | | | | |
| **4.1** | **Sloof 20/40** | | | | | |
| 4.1.1 | Pekerjaan Pembetonan | A.4.1.1.7 | 3,94 | M³ | Rp 1.276.359 | Rp 5.028.856 |
| 4.1.2 | Pekerjaan Bekisting | A.4.1.1.21 | 39,40 | M² | Rp 266.915 | Rp 10.516.451 |
| 4.1.3 | Pekerjaan Pembesian | A.4.1.1.17 | | | | |
| | Ø 8 | A.4.1.1.17 | 100,69 | Kg | Rp 14.947 | Rp 2.035.424 |
| | Ø 6 | A.4.1.1.17 | 73,56 | Kg | Rp 19.298 | Rp 1.765.027 |
| **4.2** | **Kolom Teras Depan & Belakang** | | | | | |
| 4.2.1.1 | Pekerjaan Pembetonan | A.4.1.1.7 | 0,21 | M³ | Rp 1.276.359 | Rp 268.035 |
| 4.2.1.2 | Pekerjaan Bekisting | A.4.1.1.22 | 3,64 | M² | Rp 356.845 | Rp 1.598.666 |
| 4.2.1.3 | Pekerjaan Pemebesian | A.4.1.1.17 | | | | |
| | Ø 8 | A.4.1.1.17 | 9,90 | Kg | Rp 14.947 | Rp 264.502 |
| | Ø 6 | A.4.1.1.17 | 3,40 | Kg | Rp 19.298 | Rp 104.188 |
| **4.3** | **Kolom Praktis 11x11** | A.4.1.1.35 | 64,60 | M | Rp 98.753 | Rp 6.379.464 |
| **4.4** | **Ring Balk Praktis 10x15** | A.4.1.1.36 | 49,25 | M | Rp 115.536 | Rp 5.690.132 |
| **4.5** | **Pekerjaan Dak** | | | | | |
| **4.5.1** | **Plat Dak (1,20 x 3,20)** | | | | | |
| 4.5.1.1 | Pekerjaan Pembetonan | A.4.1.1.7 | 0,38 | M³ | Rp 1.276.359 | Rp 490.122 |
| 4.5.1.2 | Pekerjaan Bekisting | A.4.1.1.23 | 3,84 | M² | Rp 402.845 | Rp 1.740.290 |
| 4.5.1.3 | Pekerjaan Pembesian | A.4.1.1.17 | | | | |
| | Ø 8 | A.4.1.1.17 | 17,66 | Kg | Rp 14.947 | Rp 179.483 |
| **4.5.2** | **Plat Dak (1,45 x 2,70)** | | | | | |
| 4.5.2.1 | Pekerjaan Pembetonan | A.4.1.1.7 | 0,39 | M³ | Rp 1.276.359 | Rp 499.695 |
| 4.5.2.2 | Pekerjaan Bekisting | A.4.1.1.23 | 3,90 | M² | Rp 402.845 | Rp 1.760.433 |
| 4.5.2.3 | Pekerjaan Pembesian | A.4.1.1.17 | | | | |
| | Ø 8 | A.4.1.1.17 | 18,01 | Kg | Rp 14.947 | Rp 165.314 |
| | | | | | **Jumlah :** | **Rp 38.486.082** |
| **V** | **PEKERJAAN DINDING** | | | | | |
| **5.1** | **Pemasangan Dinding Batako** | A.4.4.1.20 | 132,32 | M² | Rp 145.866 | Rp 19.301.298 |
| **5.2** | **Plesteran** | A.4.4.2.14 | 264,65 | M² | Rp 108.488 | Rp 28.710.708 |
| **5.3** | **Acian** | A.4.4.2.27 | 264,65 | M² | Rp 58.693 | Rp 15.532.842 |
| | | | | | **Jumlah :** | **Rp 63.544.848** |
| **VI** | **PEKERJAAN PINTU,JENDELA DAN KUSEN** | | | | | |
| **6.1** | **Pekerjaan Kusen** | | | | | |
| 6.1.1 | Pintu P1 (4 Buah) | A.4.6.1.2 | 0,13 | M³ | Rp 13.187.625 | Rp 1.709.116 |
| 6.1.2 | Pintu P2 (1 Buah) | A.4.6.1.2 | 0,03 | M³ | Rp 13.187.625 | Rp 371.891 |
| 6.1.3 | Jendela J1 (16 Unit) | A.4.6.1.2 | 0,09 | M³ | Rp 13.187.625 | Rp 1.186.886 |
| 6.1.4 | Jendela J2 (1 Unit) | A.4.6.1.2 | 0,10 | M³ | Rp 13.187.625 | Rp 1.266.012 |
| 6.1.5 | Ventilasi BV1 (3Buah) | A.4.6.1.2 | 0,01 | M³ | Rp 13.187.625 | Rp 189.902 |
| 6.1.6 | Ventilasi BV2 (1Buah) | A.4.6.1.2 | 0,04 | M³ | Rp 13.187.625 | Rp 474.755 |
| **6.2** | **Pekerjaan Daun Pintu dan Jendela** | | | | | |
| 6.2.1 | Pintu P1 (4 Buah) | | | | | |
| | Luas Kayu | A.4.6.1.6 | 1,76 | M² | Rp 717.600 | Rp 1.262.976 |
| 6.2.2 | Pintu P2 (1 Buah) | | | | | |
| | Luas Kayu | A.4.6.1.6 | 1,22 | M² | Rp 717.600 | Rp 872.028 |
| 6.2.5 | Jendela J1 (3 Unit) | | | | | |
| | Luas Kaca | A.4.6.2.17 | 1,56 | M² | Rp 148.960 | Rp 231.662 |
| | Luas Kayu | A.4.6.1.6 | 1,16 | M² | Rp 717.600 | Rp 835.286 |
| 6.2.6 | Jendela J2 (2 Unit) | | | | | |
| | Luas Kaca | A.4.6.2.17 | 2,07 | M² | Rp 148.960 | Rp 308.882 |
| | Luas Kayu | A.4.6.1.6 | 1,55 | M² | Rp 717.600 | Rp 1.113.715 |
| 6.2.7 | Ventilasi BV1 (1Buah) | | | | | |
| | Luas Kaca | A.4.6.2.17 | 0,36 | M² | Rp 148.960 | Rp 53.625 |
| 6.2.8 | Ventilasi BV2 (1Buah) | | | | | |
| | Luas Kaca | A.4.6.2.17 | 0,68 | M² | Rp 148.960 | Rp 100.548 |
| **6.3** | **Pekerjaan Kunci** | | | | | |
| 6.3.1 | Kunci Pintu | | | | | |
| | Handle | A.4.6.2.12 | 5,00 | Bh | Rp 249.320 | Rp 1.246.600 |
| | Engsel | A.4.6.2.5 | 10,00 | Bh | Rp 63.860 | Rp 638.595 |
| | Grandel | A.4.6.2.11 | 3,00 | Bh | Rp 69.805 | Rp 209.415 |
| | Kunci Tanam | A.4.6.2.2 | 5,00 | Bh | Rp - | Rp - |
| 6.3.2 | Kunci Jendela | | | | | |
| | Handle | A.4.6.2.12 | 7,00 | Bh | Rp 145.820 | Rp 1.020.740 |
| | Engsel | A.4.6.2.5 | 14,00 | Bh | Rp 40.653 | Rp 569.135 |
| | Grandel | A.4.6.2.11 | 7,00 | Bh | Rp 69.805 | Rp 488.635 |
| | | | | | **Jumlah :** | **Rp 14.150.404** |
| **VII** | **PEKERJAAN ATAP** | | | | | |
| **7.1** | **Pemasangan 1m2 Rangka Atap** | | | | | |
| 7.1.1 | Pek. Kuda-kuda | A4.6.1.13 | 0,71 | M² | Rp 4.701.200 | Rp 3.337.852 |
| 7.1.2 | Pek. kasau ukr. 5x7 cm. & Reng 3x4 c | A4.6.1.17 | 73,61 | M² | Rp 76.671 | Rp 5.643.716 |
| **7.2** | **Pekerjaan Listplank** | A.4.6.1.21 | 34,00 | M | Rp 93.725 | Rp 3.186.650 |
| **7.3** | **Pekerjaan Bubungan** | A.4.5.2.37 | 35,00 | M | Rp 39.675 | Rp 1.388.625 |
| **7.4** | **Pemasangan 1m2 Atap Metal** | | | | | |
| 7.4.1 | Pek. Talang jurai dalam plat seng bjls | Ls | 11,00 | M | Rp 65.000 | Rp 715.000 |
| 7.4.2 | Pek. Pas atap Multy calor | A.4.5.2.32 | 73,61 | M² | Rp 113.103 | Rp 8.325.475 |
| | | | | | **Jumlah :** | **Rp 22.597.318** |
| **VIII** | **PEKERJAAN PLAFOND** | | | | | |
| **8.1** | Rangka Plafond | A.4.6.1.19 | 56,34 | M² | Rp 95.579 | Rp 5.384.454 |
| **8.2** | Plafond (Gypsum) | A.4.5.1.7 | 56,34 | M² | Rp 55.143 | Rp 3.106.453 |
| **8.3** | Lis Plafond | LS | 53,00 | M | Rp 19.500 | Rp 1.033.500 |
| | | | | | **Jumlah :** | **Rp 9.524.407** |



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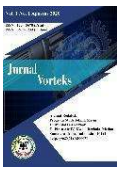
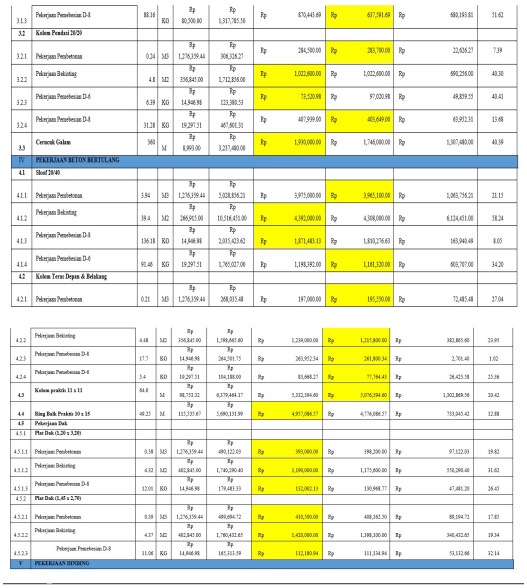
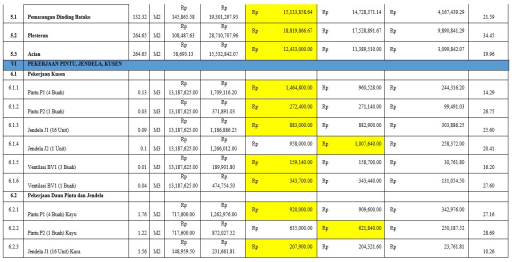


| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **IX** | **PEKERJAAN LANTAI** | | | | | | | |
| **9.1** | **Pekerjaan Lantai 1** | | | | | | | |
| 9.1.1 | Urugan Pasir Bawah Lantai | A.2.3.1.11 | 16,72 | M³ | Rp | 156.400 | Rp | 2.614.382 |
| 9.1.2 | Pek. Lantai cor beton tumbuk tbl.5 cm | A.4.4.2.14 | 2,40 | M³ | Rp | 1.186.864 | Rp | 2.848.473 |
| | | | | | | | | |
| **9.2** | **Pekerjaan Kramik** | | | | | | | |
| 9.2.1 | Pekerjaan Kramik Ukr.40/40 | A.4.4.3.6.c | 45,30 | M² | Rp | 155.994 | Rp | 7.066.513 |
| 9.2.2 | Pekerjaan Kramik Ukr.25/40 | A.4.4.3.6a | 9,44 | M² | Rp | 290.283 | Rp | 2.740.272 |
| 9.2.3 | Pekerjaan Kramik Ukr.25/25 | A.4.4.3.6 | 3,15 | M² | Rp | 183.549 | Rp | 578.178 |
| | | | | | | **Jumlah :** | **Rp** | **15.847.819** |
| | | | | | | | | |
| **X** | **PEKERJAAN SANITASI** | | | | | | | |
| **10.1** | **Closed Duduk** | A.5.1.1 2. | 1,00 | Bh | Rp | 862.845 | Rp | 862.845 |
| **10.2** | **Kran Air** | Ls | 2,00 | Bh | Rp | 19.500 | Rp | 39.000 |
| **10.3** | **Pipa Air bersih** | Ls | 16,00 | M | Rp | 52.000 | Rp | 832.000 |
| **10.4** | **Pipa Air Kotor** | Ls | 6,00 | M | Rp | 585.000 | Rp | 3.510.000 |
| **10.5** | **Pipa Air Bekas** | Ls | 4,00 | M | Rp | 325.000 | Rp | 1.300.000 |
| **10.6** | **Floor Drain** | Ls | 1,00 | Bh | Rp | 39.000 | Rp | 39.000 |
| | | | | | | **Jumlah :** | **Rp** | **6.582.845** |
| | | | | | | | | |
| **XI** | **PEKERJAAN LISTRIK** | | | | | | | |
| **11.1** | **Titik Lampu + Instalasi (Konst. Be** | Ls | 7,00 | Titik | Rp | 85.000 | Rp | 595.000 |
| **11.2** | **Stop Kontak + Instalasi (Konst. Be** | Ls | 4,00 | Titik | Rp | 85.000 | Rp | 340.000 |
| **11.3** | **Lampu LED 13 Watt** | Ls | 4,00 | Bh | Rp | 65.000 | Rp | 260.000 |
| **11.4** | **Lampu LED 10 Watt** | Ls | 3,00 | Bh | Rp | 50.000 | Rp | 150.000 |
| **11.5** | **Seklar Tunggal** | Ls | 3,00 | Bh | Rp | 26.000 | Rp | 78.000 |
| **11.6** | **Seklar Ganda** | Ls | 2,00 | Bh | Rp | 28.600 | Rp | 57.200 |
| **11.7** | **Kabel** | Ls | 150,00 | M | Rp | 5.720 | Rp | 858.000 |
| **11.8** | **KWH Meter** | Ls | 1,00 | Bh | Rp | 2.500.000 | Rp | 2.500.000 |
| **11.9** | **Stop Kontak** | Ls | 4,00 | Bh | Rp | 26.000 | Rp | 104.000 |
| **11.10** | **MCB** | Ls | 1,00 | Bh | Rp | 80.000 | Rp | 80.000 |
| | | | | | | **Jumlah :** | **Rp** | **5.022.200** |
| | | | | | | | | |
| **XII** | **PEKERJAAN PENGECATAN** | | | | | | | |
| **12.1** | **Pengecatan Tembok** | A.4.7.1.10 | 264,65 | M² | Rp | 27.865 | Rp | 7.374.200,60 |
| **12.2** | **Cat Bidang Kayu** | A.4.7.1.4 | 19,29 | M² | Rp | 73.485 | Rp | 1.417.613,83 |
| **12.3** | **Cat Plafon** | A.4.7.1.10 | 56,34 | M² | Rp | 27.865 | Rp | 1.569.746,61 |
| | | | | | | **Jumlah :** | **Rp** | **10.361.561** |
| | | | | | | | | |
| **XIII** | **PEKERJAAN SEPTICTANK DAN RESAPAN** | | | | | | | |
| **13.1** | **Pekerjaan Septictank** | Ls | 1,00 | Unit | Rp | 1.800.000 | Rp | 1.800.000 |
| | | | | | | **Jumlah :** | **Rp** | **1.800.000** |
| | | | | | | | | |
| **XIV** | **PEKERJAAN LAIN-LAIN** | | | | | | | |
| **14.1** | **Pekerjaan Kanopi** | | | | | | | |
| 14.1.2 | Pekerjaan Pembetonan | A.4.1.1.7 | 0,20 | M³ | Rp | 1.276.359 | Rp | 255.272 |
| 14.1.3 | Pekerjaan Bekisting | A.4.1.1.22 | 2,65 | M² | Rp | 402.845 | Rp | 1.067.539 |
| 14.1.4 | Pekerjaan Pemebesian | A.4.1.1.17 | | | | | | |
| | Ø 8 | A.4.1.1.17 | 3,95 | Kg | Rp | 14.947 | Rp | 59.041 |
| | | | | | | | | |
| **14.2** | **Pekerjaan Sumur Bor** | LS | 16,00 | M | Rp | 130.000 | Rp | 2.080.000 |
| **14.3** | **Pemasangan Roster** | LS | 70,00 | Bh | Rp | 15.600 | Rp | 1.092.000 |
| | | | | | | **Jumlah :** | **Rp** | **4.553.852** |
| | | | | | | **Total dengan Overhead & Profit 15%** | **Rp** | **216.062.717** |
| | | | | | | **Total Tanpa Overhead & Profit** | **Rp** | **183.653.310** |

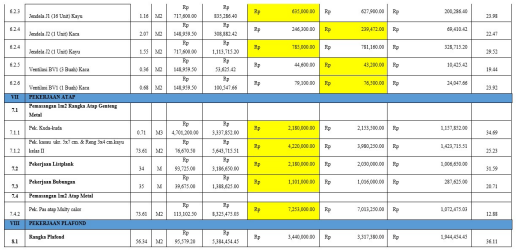
**Table. 2** Summary of Implementation Budget Plan (RAP)

| No | Uraian Pekerjaan | Vol. | Sat | Rencana Anggaran Biaya (RAB) | | RAP - (Upah Tenaga + Material Borongan) | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Harga Satuan | Jumlah Harga | Harga Upah Harian | Total Harga Tenaga Borongan | Profit dan Overhead | % Profit dan Overhead |
| | | | | Rp | Rp | Rp | Rp | Rp | % |
| I | PEKERJAAN PERSIAPAN | | | | | | | | |
| 1.1 | Pembersihan Lokasi | 150.00 | M2 | Rp 20,700.00 | Rp 3,105,000.00 | Rp 2,200,000.00 | Rp 1,650,000.00 | Rp 1,455,000.00 | 46.86 |
| 1.2 | Pengukuran dan pemasangan Bowerplank | 68 | M | Rp 91,770.00 | Rp 6,240,360.00 | Rp 4,492,400.00 | Rp 4,372,400.00 | Rp 1,747,960.00 | 28.01 |
| II | PEKERJAAN TANAH | | | | | | | | |
| 2.1 | Gali.tan Tanah Pondasi | 5 | M | Rp 115,000.00 | Rp 608,580.00 | Rp 370,000.00 | Rp 359,856.00 | Rp 248,724.00 | 40.87 |
| 2.2 | Pekerjaan Urugan pasir Bawah Pondasi | 0.59 | M3 | Rp 598,000.00 | Rp 353,424.00 | Rp 310,000.00 | Rp 310,780.00 | Rp 42,844.00 | 12.18 |
| 2.3 | Urugan Tanah Kembali | 3.41 | M3 | Rp 80,500.00 | Rp 274,344.00 | Rp 220,000.00 | Rp 211,296.00 | Rp 63,048.00 | 22.98 |
| III | PEKERJAAN PONDASI | | | | | | | | |
| 3.1 | Pondasi Telapak | | | | | | | | |
| 3.1.1 | Pekerjaan Pembetonan | 1.296 | M3 | Rp 1,276,359.44 | Rp 1,654,161.84 | Rp 1,303,000.00 | Rp 1,164,608.00 | Rp 289,553.84 | 17.50 |
| 3.1.2 | Pekerjaan Bekisting | 8.64 | M2 | Rp 598,000.00 | Rp 2,595,881.60 | Rp 1,612,000.00 | Rp 1,282,800.00 | Rp 608,081.60 | 27.79 |













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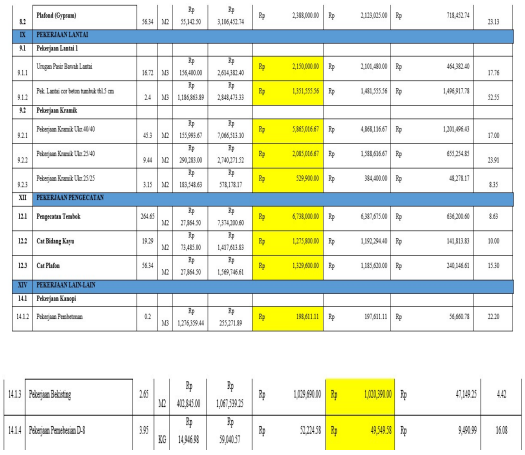

*(Source: Analytical Findings)*

**Table. 2** Labor Wages in the Implementation Budget Plan (RAP)

| Kode | Uraian | Satuan | Harga Satuan (Rp.) | |
|---|---|---|---|---|
| | | | Harga RAB | Harga RAP |
| L.01 | Pekerja/Kenek | OH | Rp 130.000,00 | Rp 110.000,00 |
| L.02 | Tukang Kayu | OH | Rp 170.000,00 | Rp 150.000,00 |
| L.02 | Tukang Batu | OH | Rp 170.000,00 | Rp 150.000,00 |
| L.02 | Tukang Besi | OH | Rp 170.000,00 | Rp 150.000,00 |
| L.02 | Tukang Cat | OH | Rp 170.000,00 | Rp 150.000,00 |
| L.02 | Tukang Keramik | OH | Rp 170.000,00 | Rp 150.000,00 |
| L.02 | Tukang Listrik | OH | Rp 170.000,00 | Rp 150.000,00 |
| L.03 | Kepala Tukang | OH | Rp 200.000,00 | Rp 170.000,00 |
| L.04 | Mandor | OH | Rp 100.000,00 | Rp 100.000,00 |
| | | | | |
| L.01 | Pekerja/Kenek | OJ | Rp 18.571,43 | Rp 15.714,29 |
| L.02 | Tukang Kayu | OJ | Rp 24.285,71 | Rp 21.428,57 |
| L.02 | Tukang Batu | OJ | Rp 24.285,71 | Rp 21.428,57 |
| L.02 | Tukang Besi | OJ | Rp 24.285,71 | Rp 21.428,57 |
| L.02 | Tukang Cat | OJ | Rp 24.285,71 | Rp 21.428,57 |
| L.02 | Tukang Listrik | OJ | Rp 24.285,71 | Rp 21.428,57 |
| L.03 | Kepala Tukang | OJ | Rp 28.571,43 | Rp 24.285,71 |
| L.04 | Mandor | OJ | Rp 14.285,71 | Rp 14.285,71 |

| NO | URAIAN PEKERJAAN | Rekap RAB | Rekap RAP | Profit &Overahead | % Profit & Overahead |
|---|---|---|---|---|---|
| I | PEKERJAAN PERSIAPAN | Rp 11.345.360 | Rp 8.142.400 | Rp 3.202.960 | 28.2314532 |
| II | PEKERJAAN TANAH | Rp 1.234.548 | Rp 879.932 | Rp 354.616 | 28.724359 |
| III | PEKERJAAN PONDASI | Rp 11.011.473 | Rp 5.628.184 | Rp 5.383.289 | 48.8880039 |
| IV | PEKERJAAN BETON BERTULANG | Rp 38.486.082 | Rp 25.374.959 | Rp 13.111.122 | 34.0671787 |
| V | PEKERJAAN DINDING | Rp 63.544.848 | Rp 46.386.725 | Rp 17.158.123 | 27,0015953 |
| VI | PEKERJAAN PINTU,JENDELA DAN KUSEN | Rp 14.150.404 | Rp 11.272.580 | Rp 2.877.824 | 20,3373993 |
| VII | PEKERJAAN ATAP | Rp 22.597.318 | Rp 19.454.080 | Rp 3.143.238 | 13.9097817 |
| VIII | PEKERJAAN PLAFOND | Rp 9.524.407 | Rp 6.473.905 | Rp 3.050.502 | 32.0282631 |
| IX | PEKERJAAN LANTAI | Rp 15.847.819 | Rp 10.260.039 | Rp 5.587.780 | 35.258983 |
| X | PEKERJAAN SANITASI | Rp 6.582.845 | Rp 6.008.300 | Rp 574.545 | 8.72791524 |
| XI | PEKERJAAN LISTRIK | Rp 5.022.200 | Rp 5.022.200 | Rp - | 0 |
| XII | PEKERJAAN PENGECATAN | Rp 10.361.561 | Rp 8.144.944 | Rp 2.216.617 | 21.3926901 |
| XIII | PEKERJAAN SEPTICTANK DAN RESAPAN | Rp 1.800.000 | Rp 1.800.000 | Rp - | 0 |
| XIV | PEKERJAAN LAIN-LAIN | Rp 4.553.852 | Rp 4.416.500 | Rp 137.352 | 3,01616558 |
| | Total Anggaran | Rp 216.062.716 | Rp 159.264.749 | Rp 56.797.967 | 26.2877225 |
| | **Pembulatan** | **Rp 216.063.000** | **Rp 159.265.000** | **Rp 56.798.000** | **73,7122969** |

## CONCLUSION

Based on the calculations and analysis of the research on the Comparison between Budget Plan using the AHSP Method and the Contractor's Budget Plan in the Construction of Bumi Mentaya Residence Housing, the following conclusions can be drawn, From both analyses above, it can be concluded that the Contractor's Budget Plan is more economical compared to the Budget Plan using the AHSP method. The Budget Plan for the Bumi Mentaya Residence Housing Project using the AHSP method amounts to IDR 216,063,000, while the Contractor's Budget Plan is IDR 159,265,000. Therefore, the difference between the two budget plans is IDR 56,798,000, with a percentage level of 73%, which falls within the acceptable range of 65–75% for the total cost of the Contractor's Budget Plan.

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