IMPLEMENTATION OF BUILDING INFORMATIONMODELING (BIM) FOR ESTIMATING THE COST OF DEVELOPMENT OF SECURITY POST PROJECTS IN INTEGRATED ELEMENTARY AND JUNIOR HIGH SCHOOL SOUTH BALIKPAPAN

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ABSTRACT

With the development of the AEC (Architecture, Engineering and Construction) industry, currently a lot of software has been developed to meet the needs of the construction industry with the aim of minimizing human error due to conventional data processing. This study aims to analyze the results of volume and cost comparisons using the 5D Building Information Modeling (BIM) concept with conventional methods in the New School Unit construction project for integrated Elementary school and Junior High School development in the South Balikpapan sub-district. By using Revit the 2D images obtained from the consultant are remodeled into 3D form so that the material volume requirements become more detailed, it can be seen from the total cost of the consultant's RAB calculation of Rp34,160,674 while the total cost results from calculations using Autodesk Revit software are Rp22,628,355. Which of the two calculation methods has a difference of Rp11,532,319 or 34%. This illustrates that using the 3D Building Information Modeling (BIM) concept supported by Revit software is able to provide detailed material take-off results so as to reduce wasted material and support the 5D BIM concept in supporting cost estimation calculations.

INTRODUCTION & OBJECTS

With the development of the AEC (Architecture, Engineering and Construction) industry, currently a lot of software has been developed to meet the needs of the construction industry with the aim of minimizing human error due to conventional data processing. BIM components range from 2D, 3D, 4D, 5D, 6D, 7D and 8D. where the BIM 2D component is the earliest form of the construction process, BIM 3D is a 3-dimensional modeling, BIM 4D is information in the scheduling process, BIM 5D is a cost estimate, BIM 6D is energy analysis, BIM 7D is operation and maintenance, and BIM 8D is security and emergency plans.

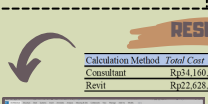
METHODS

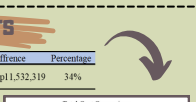
The research method used in this research is a comparison method between conventional calculation methods and BIM 5D calculation methods using Autodesk Revit software, in the following order:

1. collect RAB, AHSP, DED data from consultants
2. Data processing by calculating RAB with BIM 5D to get RAB results from Autodesk Revit
3. And proceed with a comparison of conventional calculation methods with the 5D BIM calculation method
4. So that the comparison results are obtained and it is known how much the difference is between the two methods

RESULTS

Calculation Method	*Total Cost*	Diffience	Percentage
Consultant	Rp34,160,674	Rp11,532,319	34%
Revit	Rp22,628,355		





RESUME & CONCLUSION

1. The use of the 5D BIM concept using Autodeks Revit software resulted in a smaller total volume of work compared to the consultant, where the difference in volume on the mountain rock work item was 2.87 m3, sloof 0.11 m3, column 0.72 m3, ringbalk 0.47 m3, floor plate 0.65 m3, roof deck 0.82m3

2. The use of the 3D BIM concept using Autodeks Revit software produces a bill of quantity of Rp22,628,355, RAB from the consultant has a bill of quantity of Rp34,160,674 which has a cost diffeence of Rp11,532,319 or 34%, which means the calculation uses the Building Information Modeling concept (BIM) 5D assisted with cheaper Autodeks Revit software.