

ABSTRACT (INGGRIS)

QUANTITY TAKE-OFF CALCULATION USING BUILDING INFORMATION MODELING (BIM) (REVIT) FOR THE CONSTRUCTION OF THE SMPN 2 BENGKALIS LABORATORY BUILDING (CASE STUDY: BENGKALIS ISLAND)

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Abstract

This study examines the calculation of Quantity Take-Off (QTO) using Building Information Modeling (BIM) based on Autodesk Revit for the construction of the SMPN 2 Bengkalis Laboratory Building. The study aims to identify the stages involved in QTO analysis and calculation using Autodesk Revit, determine how quantity take-off data are obtained, and compare work volume calculations with those obtained using the conventional method. The research was conducted through three-dimensional modeling based on working drawings, followed by the input of dimensions and material parameters for each structural element. Quantity take-off data were obtained using the Schedule feature in Autodesk Revit. The results showed that the concrete volumes calculated using the conventional method and Revit had relatively small differences. For S1 sloof, the calculated volumes were 2.55 m³ and 2.53 m³, respectively, while for S2 sloof, the volumes were 0.54 m³ and 0.53 m³, respectively. For other elements, including columns, corridor beams, lintel beams, and ring beams, the calculation results were relatively similar. The reinforcement calculations also showed only minor differences between the two methods. Therefore, Autodesk Revit can support a faster, more systematic QTO calculation process while reducing the potential for calculation errors.

Keywords: Autodesk Revit, BIM, conventional method, concrete volume, QTO.