RE-DESAIN BANGUNAN TEKNIK SIPIL DENGAN METODE *BUILDING INFORMATION MODELING* (BIM)

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ABSTRAK

Building Information Modeling (BIM) adalah suatu konsep dan metode dalam memberikan gambaran sekaligus informasi bangunan yang tidak terbatas pada perencanaan, tapi juga selama proses konstruksi proyek. Permasalahannya dalam penelitian redesain gedung. kurangnya penerapan konsep Building Information Modeling (BIM) dan Kurangnya referensi penggunaan *Authoring Software Building Information Modeling* (BIM). Tujuan penelitian ini untuk pengetahuan dalam penerapan konsep *Building Information Modeling* (BIM) pada penelitian redesain gedung. Penelitian ini menggunakan metode analisis data relevan dengan tinjauan Gedung Fakultas Teknik Universitas Tidar dengan metode konsep *Building Information Modeling* (BIM) dengan melakukan pemodelan menggunakan bantuan software *Autodesk Revit*, kemudian dianalisis dengan *Autodesk Robot Strucktural Analysis Professional*, lalu metode kebutuhan tulangan baja beton menggunakan metode analisis manual sesuai aturan terbaru dan *software Robot Strucktur Analysis Professional*. Penerapan *Building Information Modeling* (BIM), sangatlah efektif, mempermudah, dan dalam menganalisis sangatlah akurat. *Autodesk Revit*, memberikan kesan dalam 3D yang begitu realistis, dan *Autodesk Robot Strucktural Analysis Professional* memberikan kesan berbeda karena bekerja memverifikasi kepatuhan kode dan menggunakan alur kerja. Pada penelitian redesain gedung ini dengan menggunakan aturan terbaru sangatlah aman dan hasil kebutuhan penulangan tidak berbeda antara perhitungan manual dan *Autodesk Robot Strucktural Analysis Professional*. Penelitian selanjutnya dapat dilakukan analisis lebih lanjut pada gedung yang ditinjau seperti pada pengujian kekuatan seperti Push Over dan metode *Building Information Modeling* (BIM) dari klasifikasi 3D dikembangkan menjadi klasifikasi 4D,5D, dan 6D. Sebelum melakukan penelitian diharapkan mencari referensi dan literatur yang berkaitan dengan penelitian sehingga mampu mempercepat pengumpulan dan pengolahan.

Kata kunci: *Building Information Modeling* (BIM), *Autodesk Revit, Autodesk Robot Strucktural Analysis*, Redesain, Gedung.

RE-DESIGN OF CIVIL ENGINEERING BUILDING WITH BUILDING INFORMATION MODELING (BIM) METHOD

Case Study of Tekik Faculty of Engineering, Tidar University, Magelang

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ABSTRACT

Building Information Modeling (BIM) is a concept and method in providing an overview as well as building information which is not limited to planning, but also during the project construction process. Problems in building redesign research are the lack of application of the concept of Building Information Modeling (BIM) and the lack of references to the use of Authoring Software Building Information Modeling (BIM). The purpose of this study is to gain knowledge in the application of the concept of Building Information Modeling (BIM) in building redesign research. This study uses data analysis methods relevant to the review of the Faculty of Engineering, Tidar University using the Building Information Modeling (BIM) concept method by modeling using Autodesk Revit software, then analyzed with Autodesk Robot Structural Analysis Professional, then the need for steel concrete reinforcement is analyzed using manual analysis. according to the latest regulations and Robot Structural Analysis Professional software. The application of Building Information Modeling (BIM) is very effective, simplistic, and accurate in analyzing. Autodesk Revit, gives an incredibly realistic 3D feel, and Autodesk Robot Structural Analysis Professional makes a difference as they work on verifying code compliance and using workflows. In this building redesign research using the latest rules, it is very safe and the results of reinforcement requirements do not differ between manual calculations and Autodesk Robot Structural Analysis Professional. Further research can be carried out further analysis of the building being reviewed, such as strength testing such as Push Over and the Building Information Modeling (BIM) method from the 3D classification being developed into 4D, 5D, and 6D classifications. Before conducting research, it is expected to find references and literature related to research so as to speed up collection and processing.

Keywords*: Building Information Modeling (BIM), Autodesk Revit, Autodesk Robot Structural Analysis, Redesign, Building.*