

**ANALISIS *WASTE MATERIAL* PADA PEKERJAAN STRUKTUR
MENGUNAKAN *BUILDING INFORMATION MODELING* (BIM) PADA
GEDUNG PELAYANAN INSTITUT NEUROSAINS NASIONAL
JAKARTA**

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ABSTRAK

Waste material konstruksi merujuk pada material yang terbuang atau tidak terpakai selama proses pembangunan atau penghancuran suatu struktur. Penelitian ini bertujuan meminimalisir *waste material* menggunakan program pemodelan 3D *Building Information Modeling* (BIM) dimana setiap member atau bagian elemen struktur terdata secara detail, sehingga dapat diketahui estimasi volume total material khususnya pada material beton, baja tulangan, dan bekisting. Menggunakan metode *Building Information Modeling* (BIM) untuk menghitung volume *waste material* dengan perangkat lunak Autodesk Revit dan Cutting Optimization Pro. Kelebihan *Building Information Modeling* (BIM) terletak pada detail pemodelan yang memudahkan optimasi pola pemotongan material dengan menggunakan *software* Cutting Optimization Pro. Hasil tersebut membuktikan bahwa metode *Building Information Modeling* (BIM) dapat mengurangi *waste material* dan menghasilkan hasil yang lebih optimal dibandingkan dengan metode konvensional. Hasil penelitian menunjukkan bahwa analisis menggunakan *Building Information Modeling* (BIM) dalam perhitungan volume dan harga *waste material* menggunakan *Building Information Modeling* (BIM) lebih optimal dari metode konvensional dengan selisih pada volume *waste material* tulangan sebesar 1.413,72 Kg dengan selisih persentase 16,15% dan selisih harga sebesar Rp14.575.884, untuk volume dan harga *waste material* triplek bekisting sebesar 7,36 m² dengan selisih persentase 2,76% dan selisih harga sebesar Rp1.615.617.

Kata Kunci: Volume, *Waste Material*, Harga, Selisih

**WASTE MATERIAL ANALYSIS IN STRUCTURAL WORK USING
BUILDING INFORMATION MODELING (BIM) IN THE JAKARTA
NATIONAL NEUROSCIENCE INSTITUTE SERVICE BUILDING**

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ABSTRACT

Construction waste material refers to materials that are discarded or unused during the construction or demolition process of a structure. This study aims to minimize waste material using a 3D Building Information Modeling (BIM) modeling program where each member or part of the structural element is recorded in detail, so that the estimated total volume of material can be known, especially for concrete, reinforcing steel, and formwork. Using the Building Information Modeling (BIM) method to calculate the volume of waste material with Autodesk Revit and Cutting Optimization Pro software. The advantage of Building Information Modeling (BIM) lies in the modeling details that facilitate the optimization of material cutting patterns using Cutting Optimization Pro software. These results prove that the Building Information Modeling (BIM) method can reduce waste material and produce more optimal results compared to conventional methods. The results of the study showed that the analysis using Building Information Modeling (BIM) in calculating the volume and price of waste materials using Building Information Modeling (BIM) was more optimal than the conventional method with a difference in the volume of waste reinforcement material of 1,413.72 kg with a percentage difference of 16.15% and a price difference of Rp14,575,884, for the volume and price of waste plywood formwork material of 7.36 m² with a percentage difference of 2.76% and a price difference of Rp1,615,617.

Keywords: *Volume, Waste Material, Price, Difference*
