

**IMPLEMENTASI *BUILDING INFORMATION MODELING (BIM)*
TERHADAP ANALISIS *WASTE MATERIALS* PADA PEMBANGUNAN
GEDUNG *INDONESIA MANUFACTURING CENTER***

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ABSTRAK

Material konstruksi memegang peran penting dalam biaya proyek, namun sering kali menghasilkan sisa material yang tidak bernilai. Penggunaan metode konvensional dalam perhitungan material kerap menghasilkan limbah konstruksi yang signifikan. Penelitian ini menganalisis sisa material dengan penerapan metode *Building Information Modeling (BIM)* dan metode konvensional untuk proyek Gedung Indonesia *Manufacturing Center (IMC)*. *Building Information Modeling (BIM)*, pemodelan struktur dengan menggunakan Autodesk Revit memungkinkan estimasi volume dan kebutuhan material lebih akurat. Perhitungan volume beton menunjukkan *Building Information Modeling (BIM)* lebih efisien dengan selisih total 97,898 m³ atau 11% lebih sedikit dibanding metode konvensional. Demikian pula untuk tulangan baja, metode *Building Information Modeling (BIM)* menghasilkan total berat limbah lebih ringan: kolom (-3%), balok (-4%), dan Pelat lantai (-9%). Keunggulan *Building Information Modeling (BIM)* terletak pada detail pemodelan yang mempermudah optimasi pola pemotongan material menggunakan *software* seperti Cutting Optimization Pro. Hasil ini membuktikan bahwa *Building Information Modeling (BIM)* mampu mengurangi limbah material secara signifikan dibanding metode konvensional, sehingga berpotensi menekan biaya dan meningkatkan efisiensi proyek. Penelitian ini merekomendasikan penggunaan *Building Information Modeling (BIM)* secara lebih luas untuk pengelolaan proyek yang lebih ramah biaya dan minim limbah.

Kata Kunci: Building Information Modeling (BIM), Pemodelan Struktur, Limbah Konstruksi

**IMPLEMENTATION OF BUILDING INFORMATION MODELING (BM)
FOR WASTE MATERIALS ANALYSIS IN THE CONSTRUCTION OF
THE INDONESIA MANUFACTURING CENTER BUILDING**

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ABSTRACT

Construction materials play an important role in project costs, yet they often result in leftover materials that have no value. The use of conventional methods in material calculation often leads to significant construction waste. This study analyzes the application of Building Information Modeling (BIM) compared to conventional methods for the Indonesia Manufacturing Center (IMC) building project. With Building Information Modeling (BIM), structural modeling using Autodesk Revit allows for more accurate volume estimates and material requirements. Concrete volume calculations show that Building Information Modeling (BIM) is more efficient, with a total difference of 97,898 m³, or 11% less, compared to conventional methods. Similarly, for steel reinforcement, the Building Information Modeling (BIM) method results in a lighter total waste weight: columns (-3%), beams (-4%), and floor slabs (-9%). The advantage of Building Information Modeling (BIM) lies in the detailed modeling, which facilitates optimization of material cutting patterns using software like Cutting Optimization Pro. These results prove that Building Information Modeling (BIM) can significantly reduce material waste compared to conventional methods, thus potentially reducing costs and improving project efficiency. This study recommends the broader use of Building Information Modeling (BIM) for more cost-effective and waste-minimized project management.

Keyword: Building Information Modeling (BIM), Structural Modeling, Waste Construction
