

INTISARI

Era digitalisasi konstruksi mengharuskan penggunaan teknologi digital pada suatu proyek konstruksi untuk mempermudah kolaborasi dari semua pihak yang terlibat. Manajemen dan komunikasi yang buruk dapat mengakibatkan kerugian yang besar bahkan menggagalkan suatu proyek. Permasalahan yang muncul pada Proyek Bintaro Xchange Mall antara lain kesalahan pelaksanaan akibat kurangnya koordinasi, *rework* yang memakan waktu dan biaya, serta kesalahan perhitungan volume. Tujuan penelitian ini untuk menganalisis volume pekerjaan, *bar bending schedule* (BBS), penjadwalan, dan visualisasi BIM 4D struktur *skybridge* menggunakan BIM *authoring software* Tekla Structures.

Pemodelan dan analisis volume pekerjaan, BBS, penjadwalan serta visualisasi dilakukan dengan Tekla Structures berdasarkan data *shop drawing*, standar detail, volume dan penjadwalan dari kontraktor. Selanjutnya dilakukan komparasi hasil analisis konsep BIM dengan data konvensional dari kontraktor.

Hasil yang diperoleh berupa model 3D struktur *skybridge* yang sarat akan informasi untuk analisis volume pekerjaan, BBS, penjadwalan, dan visualisasi BIM 4D. Volume beton, tulangan, dan durasi penjadwalan struktur *skybridge* menggunakan konsep BIM berturut-turut adalah 1049,835 m³, 278501,2 kg, dan 72 hari. Volume beton, tulangan, serta durasi penjadwalan berdasarkan data dari perusahaan berturut-turut adalah 1169,524 m³, 273310,57 kg, dan 67 hari. Selisih hasil volume beton, tulangan, serta durasi penjadwalan antara konsep BIM dengan data dari kontraktor berturut-turut 5190,63 kg (10,234 %), 119,689 m³ (1,899 %), dan 5 hari.

Kata kunci: BIM, Volume, Penjadwalan, Visualisasi, Digitalisasi

ABSTRACT

The era of construction digitalization requires the use of digital technology in a construction project to facilitate collaboration from all parties involved. Poor management and communication can result in large losses and even derail a project. Problems that occur in the Bintaro Xchange Mall Project include implementation errors due to lack of coordination, rework that takes time and costs, and volume calculation errors. The purpose of this study was to analyze volume, bar bending schedule (BBS), scheduling, and 4D BIM visualization of skybridge structures using Tekla Structures' BIM authoring software.

Modeling and analysis of volume, BBS, scheduling, and visualization is created with Tekla Structures based on shop drawing data, standard details, volume, and scheduling from contractors. Furthermore, a comparison of the results of the BIM concept analysis with conventional data from contractors was carried out.

The results obtained are a 3D model of the skybridge structure that is full of information for volume analysis, BBS, scheduling, and visualization of BIM 4D. The volume of concrete, reinforcement, and scheduling duration of skybridge structures using the BIM concept were 1049.835 m³, 278501.2 kg, and 72 days, respectively. The volume of concrete, reinforcement, as well as scheduling duration based on data from the company were 1169.524 m³, 273310.57 kg, and 67 days, respectively. The difference in concrete volume, reinforcement, and scheduling duration between the BIM concept and data from contractors was 5190.63 kg (10.234%), 119.689 m³ (1.899%), and 5 days, respectively.

Keywords: BIM, Volume, Scheduling, Visualization, Digitization