

INTISARI

Gedung Tjahjana Adi merupakan salah satu bangunan cagar budaya di Kompleks Pantja Dharma Universitas Gadjah Mada yang tercatat dalam Keputusan Bupati Sleman Nomor 79.17/Kep.KDH/A/2021 dan digunakan sebagai gedung pembelajaran di Sekolah Vokasi UGM sehingga untuk menjaga keandalan, kenyamanan, serta fungsi bangunan diperlukan manajemen pemeliharaan dan perawatan yang tepat. Permasalahan yang dihadapi dalam perawatan gedung cagar budaya antara lain adalah keterbatasan data, keharusan menjaga keaslian bentuk, serta larangan melakukan perubahan yang mengganggu nilai historis bangunan.

Penelitian ini dilakukan dengan menerapkan teknologi *Building Information Modeling* (BIM) dalam proses pemeliharaan dan perawatan Gedung Tjahjana Adi. Proses dilakukan melalui pemodelan 3D menggunakan *Software Autodesk Revit 2024* dan *Website Autodesk Tandem Trial* yang mampu memvisualisasikan kondisi eksisting bangunan secara digital dan membuat dokumentasi data eksisting setiap komponen bangunan gedung. BIM 7D dengan *Website Autodesk Tandem Trial* memungkinkan integrasi informasi komponen atau aset, panduan pemeliharaan dan perawatan sesuai Peraturan Menteri Pekerjaan Umum Nomor: 24/PRT/M/2008 yang dapat diakses secara daring dalam sistem *digital twin*.

Hasil penelitian menunjukkan bahwa komponen arsitektur, mekanikal (peralatan sanitair), dan elektrik berhasil didata melalui survei langsung kondisi gedung dan dimodelkan 3D. Ditemukan beberapa kerusakan ringan seperti rembesan air pada plafon, lantai retak, dan lampu yang mati. Dengan adanya penerapan BIM, proses dokumentasi informasi data seperti nama komponen, kondisi eksisting, foto, panduan pemeliharaan dan perawatan, tanggal inspeksi, spesifikasi teknis, dan letak komponen dapat menjadikan lebih efektif dan efisien. Dengan demikian, pengelola Gedung Tjahjana Adi dapat menerapkan BIM untuk pemeliharaan dan perawatan bangunan gedung.

Kata kunci: Gedung Tjahjana Adi, Cagar Budaya, BIM, *Autodesk Revit*, *Autodesk Tandem*, Pemeliharaan, Perawatan

ABSTRACT

Tjahjana Adi Building is one of the cultural heritage buildings in the Pantja Dharma Complex of Gadjah Mada University, listed in Sleman Regent Decree No. 79.17/Kep.KDH/A/2021 and used as a learning building at the UGM Vocational School. Therefore, to maintain the reliability, comfort, and function of the building, proper maintenance and care management is required. Challenges faced in maintaining cultural heritage buildings include limited data, the necessity to preserve the original form, and restrictions on changes that could compromise the building's historical value.

This study was conducted by applying Building Information Modeling (BIM) technology in the maintenance and care process of the Tjahjana Adi Building. The process was carried out through 3D modeling using Autodesk Revit 2024 software and the Autodesk Tandem Trial website, which can digitally visualize the existing condition of the building and create documentation of existing data for each building component. BIM 7D with the Autodesk Tandem Trial website enables the integration of component or asset information, maintenance and repair guidelines in accordance with Ministry of Public Works Regulation No. 24/PRT/M/2008, which can be accessed online within the digital twin system.

The research results show that architectural, mechanical (sanitary equipment), and electrical components were successfully documented through direct surveys of the building's condition and modeled in 3D. Some minor damages were found, such as water leaks on the ceiling, cracked floors, and non-functioning lights. With the implementation of BIM, the documentation process for information such as component names, existing conditions, photos, maintenance and repair guidelines, inspection dates, technical specifications, and component locations can be made more effective and efficient. As a result, the managers of the Tjahjana Adi Building can apply BIM for building maintenance and repair.

Keywords: *Tjahjana Adi Building, Cultural Heritage, BIM, Autodesk Revit, Autodesk Tandem, Maintenance, Preservation.*