

ABSTRAK

Pengelolaan sampah yang berkelanjutan menjadi prioritas dalam mendukung pembangunan infrastruktur lingkungan di wilayah perkotaan. Salah satu pendekatan strategis yang dikembangkan adalah pembangunan fasilitas Tempat Pengolahan Sampah Terpadu (TPST) berbasis *Refuse Derived Fuel* (RDF), yang berfungsi mengubah limbah padat menjadi bahan bakar alternatif. Penelitian ini bertujuan untuk menganalisis sistem struktur utama dan sambungan pada bangunan TPST yang berlokasi di Citaliktik, Kecamatan Soreang, Kabupaten Bandung, guna menilai kesesuaian teknis terhadap standar perencanaan dan kebutuhan operasional bangunan. Metode penelitian yang digunakan adalah pendekatan Kuantitatif-Deskriptif dengan dukungan data primer berupa gambar kerja struktur dua dimensi dan hasil perhitungan sambungan, serta data sekunder dari standar nasional (SNI) dan referensi teknis internasional (AISC). Hasil analisis menunjukkan bahwa bangunan menggunakan sistem struktur kombinasi beton bertulang dan baja profil, dengan elemen-elemen utama meliputi pondasi tiang pancang (*square pile*), *pile cap*, kolom dan balok baja, serta struktur atap berupa *rafter* dan *purlin*. Evaluasi teknis terhadap sambungan struktural termasuk *baseplate*, *anchor bolts*, pedestal, serta sambungan atap menunjukkan bahwa keseluruhan sistem telah memenuhi persyaratan kekuatan, kestabilan, dan keandalan struktur sesuai dengan beban rencana. Penelitian ini diharapkan dapat memberikan kontribusi sebagai referensi teknis dalam perancangan dan evaluasi struktur bangunan pengolahan sampah berbasis RDF yang aman, efisien, dan berorientasi pada keberlanjutan.

Kata Kunci: TPST-RDF, analisis struktur, sambungan baja, beton, Citaliktik

ABSTRACT

Sustainable waste management has become a priority in supporting the development of environmental infrastructure in urban areas. One strategic approach being developed is the establishment of Refuse Derived Fuel (RDF)-based Integrated Waste Processing Facilities (TPST), which function to convert solid waste into alternative fuel. This study aims to analyze the main structural system and connections of the TPST building located in Citaliktik, Soreang District, Bandung Regency, in order to assess its technical compliance with planning standards and the operational requirements of the facility. The research method employed is a Quantitative-Descriptive approach, supported by primary data in the form of two-dimensional structural drawings and connection calculation results, as well as secondary data from national standards (SNI) and international technical references (AISC).

The analysis results indicate that the building utilizes a combination structural system of reinforced concrete and steel profiles, with key elements including square pile foundations, pile caps, steel columns and beams, and roof structures consisting of rafters and purlins. Technical evaluation of structural connections such as baseplates, anchor bolts, pedestals, and roof joints shows that the overall system meets the requirements of strength, stability, and structural reliability according to the design loads. This study is expected to contribute as a technical reference in the design and evaluation of RDF-based waste processing building structures that are safe, efficient, and sustainability-oriented.

Keywords: TPST-RDF, structural analysis, steel connections, concrete, Citaliktik