

EVALUASI SISTEM PROTEKSI KEBAKARAN PADA GEDUNG KANTOR LPG TERMINAL PANGKALAN SUSU

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ABSTRAK

Gedung Kantor LPG Terminal Pangkalan Susu merupakan bangunan penunjang operasional pada kawasan distribusi gas LPG yang memiliki potensi risiko kebakaran cukup tinggi akibat keberadaan material mudah terbakar di lingkungan fasilitas. Kondisi tersebut menuntut tersedianya sistem proteksi kebakaran yang memadai guna menjamin keselamatan penghuni bangunan, menjaga aset operasional, serta meminimalkan risiko kerugian apabila terjadi keadaan darurat kebakaran. Penelitian ini bertujuan mengevaluasi tingkat keandalan sistem proteksi kebakaran pada Gedung Kantor LPG Terminal Pangkalan Susu berdasarkan kondisi aktual bangunan serta kesesuaiannya terhadap standar keselamatan kebakaran bangunan gedung yang berlaku. Penelitian menggunakan metode deskriptif evaluatif dengan teknik pengumpulan data berupa observasi lapangan, wawancara, dokumentasi, serta pemeriksaan langsung terhadap elemen proteksi kebakaran bangunan. Analisis dilakukan menggunakan pedoman pemeriksaan keselamatan kebakaran bangunan gedung Badan Litbang Departemen Pekerjaan Umum Pd-T-11-2005-C yang dikombinasikan dengan metode *Analytical Hierarchy Process* (AHP) sebagai dasar pembobotan komponen penilaian. Parameter evaluasi meliputi kelengkapan tapak, sarana penyelamatan, sistem proteksi aktif, serta sistem proteksi pasif bangunan. Hasil penelitian menunjukkan bahwa komponen kelengkapan tapak memperoleh nilai 6,62%, sarana penyelamatan sebesar 11,32%, sistem proteksi aktif sebesar 20,57%, dan sistem proteksi pasif sebesar 27,84%. Berdasarkan akumulasi keseluruhan komponen, diperoleh nilai akhir keandalan sistem keselamatan bangunan sebesar 66,35%. Nilai tersebut menempatkan kondisi sistem proteksi kebakaran Gedung Kantor LPG Terminal Pangkalan Susu dalam kategori Cukup (C). Temuan penelitian menunjukkan bahwa beberapa elemen proteksi kebakaran telah tersedia dan berfungsi, namun masih terdapat sejumlah komponen yang belum memenuhi standar, terutama pada sistem proteksi aktif seperti sprinkler otomatis, hidran gedung, *siamese connection*, sistem pengendali asap, sistem pembuangan asap, serta fasilitas pendukung keadaan darurat lainnya. Oleh karena itu, diperlukan peningkatan penyediaan fasilitas proteksi kebakaran serta pemeliharaan sistem secara berkala guna meningkatkan tingkat keandalan keselamatan bangunan secara menyeluruh.

Kata Kunci: Sistem Proteksi Kebakaran, Evaluasi Bangunan, AHP, LPG Terminal.

EVALUATION OF FIRE PROTECTION SYSTEMS AT THE LPG TERMINAL PANGKALAN SUSU OFFICE BUILDING

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ABSTRACT

The Office Building of LPG Terminal Pangkalan Susu functions as a supporting facility within an LPG distribution area that possesses a relatively high fire hazard potential due to the presence of flammable materials in its operational environment. This condition requires the implementation of reliable fire protection systems to ensure occupant safety, protect operational assets, and minimize potential losses in the event of fire emergencies. This study aims to evaluate the reliability level of the fire protection system in the LPG Terminal Pangkalan Susu Office Building based on the actual building condition and its conformity with applicable building fire safety standards. The research employed a descriptive evaluative approach using field observations, interviews, documentation studies, and direct inspections of building fire protection facilities as data collection techniques. Data analysis was conducted using the Building Fire Safety Inspection Guidelines issued by the Research and Development Agency of the Indonesian Ministry of Public Works (Pd-T-11-2005-C), combined with the Analytical Hierarchy Process (AHP) method to determine assessment weighting. Evaluation parameters included site completeness, means of egress, active fire protection systems, and passive fire protection systems. The results indicate that site completeness obtained a score of 6.62%, means of egress achieved 11.32%, active fire protection systems reached 20.57%, and passive fire protection systems scored 27.84%. The overall assessment produced a final building fire safety reliability score of 66.35%. Based on this result, the fire protection system reliability of the LPG Terminal Pangkalan Susu Office Building is classified within the ENOUGH (C) category. The findings reveal that several fire protection components are available and functioning properly, however, a number of important systems have not yet met required standards, particularly automatic sprinklers, internal hydrants, siamese connections, smoke control systems, smoke exhaust systems, and several other emergency support facilities. Therefore, improvements in fire protection infrastructure and regular maintenance programs are required to enhance the overall safety reliability of the building.

Keywords: Fire Protection System, Building Evaluation, AHP, LPG Terminal.