

ABSTRAK

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Kebakaran gedung yang dipicu oleh instalasi listrik tidak standar menjadi permasalahan serius yang mengancam keselamatan pengguna. Penelitian ini bertujuan untuk menganalisis kesesuaian penghantar dan sistem proteksi instalasi listrik Gedung Universitas Mayasari Bakti berdasarkan (PUIL) 2020. Metode yang digunakan adalah analitis deskriptif dengan pengumpulan data primer melalui observasi dan wawancara, serta data sekunder melalui inventarisasi beban terpasang. Analisis dilakukan terhadap Panel SDP Lantai 1 hingga Lantai 4, Panel Lift, serta seluruh sirkit cabang menggunakan prinsip koordinasi proteksi $I_b < I_n < I_z$ dan perhitungan kemampuan hantar arus (KHA) dengan faktor keamanan 1,25. Hasil penelitian menunjukkan bahwa seluruh sirkit cabang penerangan, kotak kontak, *Air Conditioner* (AC), dan lift memenuhi ketentuan PUIL 2020. Namun, penghantar utama NYY 4×35 mm² dengan KHA 131 A dan MCCB 3P 80 A pada Panel SDP Lantai 1 hingga Lantai 4 dinyatakan tidak sesuai, karena kebutuhan KHA hasil perhitungan berada pada rentang 146,40 A hingga 188,46 A dan arus beban melebihi rating proteksi yang terpasang. Penelitian ini berkontribusi dalam memberikan gambaran nyata kondisi instalasi listrik gedung pendidikan dan mendorong perbaikan sesuai standar PUIL 2020 demi terjaminnya keselamatan dan keandalan sistem kelistrikan.

Kata Kunci: *Air Conditioner*, instalasi Listrik, kemampuan hantar arus, PUIL 2020, sistem proteksi

ABSTRACT

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Title : Analysis of the Electrical Installation System at Mayasari
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Building fires triggered by substandard electrical installations pose a serious threat to occupant safety. This study aims to analyze the compliance of conductors and protection systems in the electrical installation of the Mayasari Bakti University Building based on the General Requirements for Electrical Installations (PUIL) 2020. A descriptive analytical method was employed, with primary data collected through direct observation and interviews, and secondary data through installed load inventory. Analysis was conducted on SDP Panels from Floor 1 to Floor 4, the Elevator Panels, and all branch circuits using the protection coordination principle $I_b < I_n < I_z$ and current-carrying capacity (KHA) calculations with a safety factor of 1,25. The results indicate that all branch circuits for lighting, power outlets, Air Conditioner (AC), and elevator comply with PUIL 2020 requirements. However, the main conductor NYY 4×35 mm² with a KHA of 131 A and MCCB 3P 80 A on SDP Panels Floor 1 through Floor 4 were found non-compliant, as the calculated KHA requirement ranged from 146,40 A to 188,46 A and the load current exceeded the installed protection rating. This research contributes to providing a realistic assessment of electrical installation conditions in educational buildings and promotes corrective action in accordance with PUIL 2020 standards to ensure electrical system safety and reliability.

Keywords: *Air Conditioner, current-carrying capacity, electrical installation, protection system, PUIL 2020*