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Electrical Installation Revitalization at Holland Spot Café in Tahura Bandung

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ABSTRACT

Café Holland Spot Tahura, located in Ciburial, Bandung, is a popular culinary destination. However, the café faced major electrical safety hazards due to an outdated electrical installation system that did not comply with electrical safety standards.. Problems identified included damaged cable insulation, improper wiring, and insufficient lighting, which posed potential fire hazards and reduced visitor comfort. This community service activity aimed to revitalize the electrical installation to comply with the General Regulations for Electrical Installations (PUIL) and improve operational safety. The project involved site inspections, safety-based planning, cable replacement, wiring reorganization, and lighting improvements. The revitalization improved installation safety by replacing damaged conductors, organizing cable routing, improving lighting quality, and ensuring compliance with PUIL standards. The improved lighting and standardized installation enhanced the café's aesthetics and minimized the risk of short circuits. In conclusion, this revitalization successfully created a safer and more comfortable environment for both visitors and staff, thereby improving operational reliability and user safety.

Keywords: *electrical installation, community service, electrical safety, PUIL, lighting system.*

1. INTRODUCTION

Electrical energy plays a vital role in supporting modern infrastructure, particularly in the commercial and culinary sectors where safety and reliability are paramount **(Hasbullah & Sumarto, 2019)**, A well-maintained electrical installation not only ensures the safety of visitors and staff but also supports improves the visual quality and operational efficiency of the business **(Syufrijal & Sulistyo, 2018)**. However, many establishments face challenges related to deteriorated electrical installations that no longer meet safety standards, posing significant risks such as short circuits and fire hazards **(Kementerian ESDM, 2016; Prajitno et al., 2021)**. Small commercial buildings often receive limited attention regarding

periodic inspection and maintenance, resulting in electrical installations that gradually fail to comply with current safety standards.

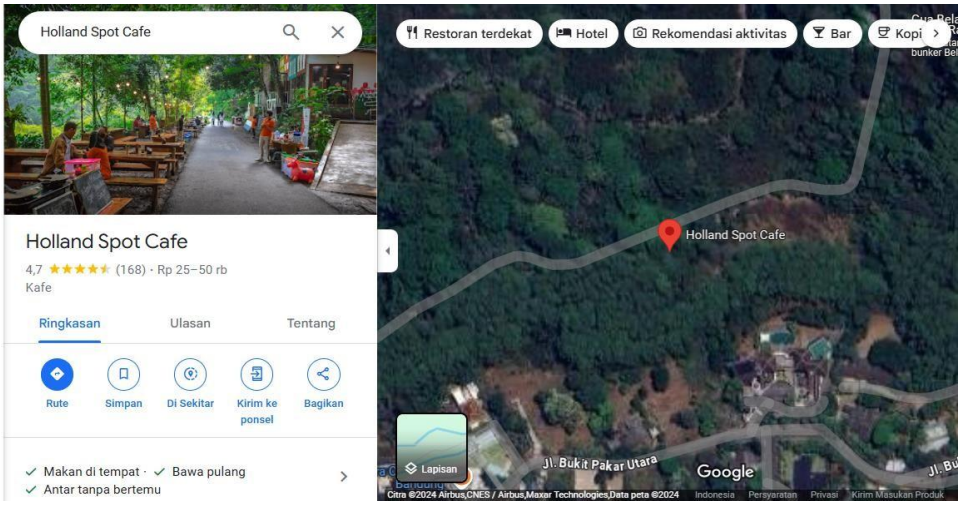

Figure 1. Holland Spot Café Location

Café Holland Spot Tahura, located in Ciburial, Bandung (figure 1), experienced significant electrical safety problems caused by an aging electrical installation. Despite its popularity, the café has encountered serious issues regarding its electrical infrastructure. Preliminary site inspections revealed that the existing electrical installation had deteriorated and failed to comply with PUIL 2011 requirements. Specific problems identified included damaged cable insulation, poorly organized cable routing, and improper cable connections, which created potential safety hazards. Furthermore, the lighting system was found to be dim and aesthetically lacking, which negatively impacted the visitor experience and did not meet room lighting conservation standards **(Standar Nasional Indonesia [SNI], 2000)**.

To address these issues, this community service activity aimed to revitalize the electrical installation at Café Holland Spot Tahura. The primary objective was to upgrade the electrical system to comply with the General Requirements for Electrical Installations **(PUIL, 2011)** and other relevant safety standards. The revitalization was intended to minimize the risk of electrical failures, improve lighting quality, enhance the café's visual appearance, and provide a safer environment for visitors and staff **(Setiawan et al., 2022)**.

2. METHOD

This community service program adopted a technology transfer approach to improve the electrical installation system at Café Holland Spot Tahura, Ciburial, Bandung. The approach focused on identifying electrical safety problems, planning appropriate corrective actions based on the General Requirements for Electrical Installations (Persyaratan Umum Instalasi Listrik/PUIL 2011), implementing the required improvements, and evaluating the outcomes to ensure compliance with electrical safety standards.

The implementation of this community service program consisted of four main stages, as described below.

2.1 Site Survey and Problem Identification

The first stage involved a comprehensive site survey through visual inspections and a technical audit of the existing electrical installation at Café Holland Spot Tahura. The objective of this survey was to identify electrical safety hazards and determine the scope of the required revitalization. The inspection revealed several technical problems, including:

a. Deteriorated cable insulation, which increased the risk of current leakage and electrical faults.
b. Exposed and improperly supported wiring, resulting from inadequate cable management and the absence of appropriate cable support systems.
c. Non-standard cable terminations, where open cable joints were found without proper junction boxes or insulated connectors, increasing the risk of short circuits and arc flashes.
d. Insufficient lighting quality, which reduced visitor comfort and did not adequately support the café's operational activities.

The initial site survey identified several electrical installation deficiencies that posed potential safety hazards. As shown in Figure 2, the existing lighting installation exhibited deteriorated electrical components, exposed wiring, and improperly mounted fluorescent light fixtures. These conditions indicated that the installation did not comply with the requirements of PUIL 2011 and required immediate corrective action to improve both electrical safety and operational reliability.

Figure 2. Existing Electrical Installation Conditions Before Revitalization

2.2 Coordination and Revitalization Planning

Based on the findings of the site survey, a revitalization plan was prepared in consultation with the project supervisors and café management. This stage included determining the scope of work, selecting appropriate electrical materials, preparing the required budget, establishing the implementation schedule, and ensuring that all planned activities complied with the requirements of PUIL 2011 and other applicable electrical safety standards.

2.3 Implementation of Electrical Installation Revitalization

The revitalization activities were carried out after obtaining approval from the café management. The implementation included replacing damaged electrical cables, repairing non-standard cable connections, reorganizing cable routing, securing exposed wiring using appropriate electrical accessories, and improving the lighting system **(Budiharto, 2018; Suryatmo, 2014)**. Light fittings that had previously been installed using unsuitable supporting materials were properly mounted according to electrical safety requirements. These activities were intended to improve both the operational safety and the visual appearance of the café.

To improve the reliability of the electrical installation, deteriorated cables were replaced with **NYM cables**, which provide double-layer insulation and better protection against mechanical damage and leakage currents. A **2.5 mm²** conductor was used for power outlet circuits, while **1.5 mm²** conductors were installed for lighting circuits in accordance with the expected electrical loads and the allowable current-carrying capacity specified in **PUIL 2011**. All cable joints were enclosed within appropriate junction boxes or insulated connectors to minimize the risk of electrical faults and short circuits **(Halim, 2021)**.

2.4 Evaluation and Reporting

After the revitalization activities had been completed, an evaluation was conducted to assess the effectiveness of the program. User satisfaction was measured through questionnaires distributed to café staff and visitors **(Wijaya & Yasa, 2022).** The collected responses were analyzed descriptively to evaluate the perceived improvements in electrical safety, lighting quality, and overall user comfort. Finally, all implementation activities, evaluation results, and technical documentation were compiled into a comprehensive final report as a record of the community service program.

3. RESULT AND DISCUSSION

3.1 Implementation of Technical Realization

The revitalization of the electrical installation at Café Holland Spot Tahura was executed from October 10 to December 20, 2024. The primary goal was to resolve severe technical deficiencies identified during initial inspections and align the infrastructure with PUIL 2011 safety standards. The active execution phase of the technical repairs is shown in Figure 3.

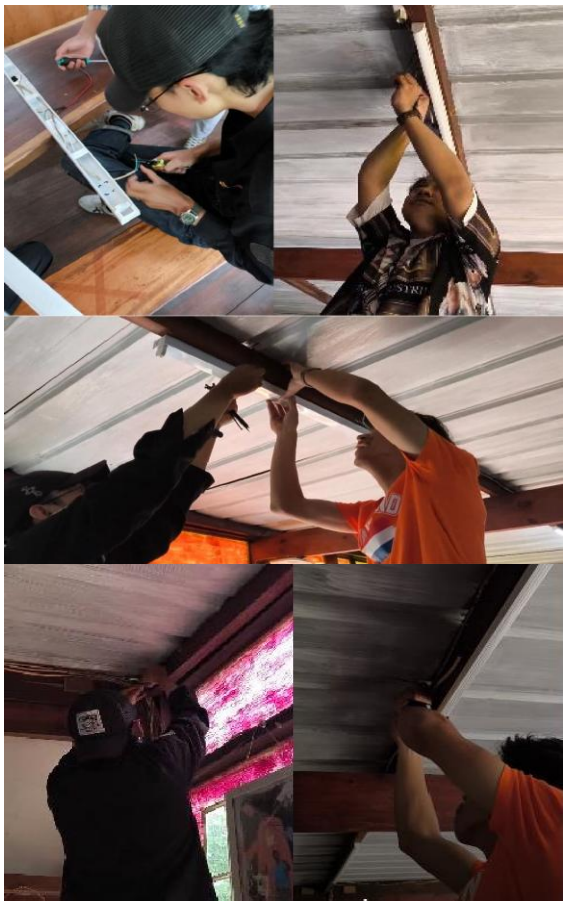

Figure 3. Repairing The Installation

As illustrated in Figure 3, the technical team addressed three core physical defects:

- Cable Replacement and Sizing: Outdated, single-insulated cables were replaced with high-quality NYM cables featuring double-layer insulation to protect against mechanical wear and current leakage. To support safe Current Carrying Capacity (KHA), circuits were segmented using 2.5 mm^2 conductors for commercial power outlets and 1.5 mm^2 conductors for lighting paths.
- Connection Safety: Exposed, non-standard cable joints were eliminated. All new connections were enclosed inside rated junction boxes with standardized protective insulators to mitigate short circuits and arc-flash hazards.
- Fixture Stabilization: Light fittings previously suspended by temporary materials such as cloth were permanently mounted to ceiling beams.

The completed state of the electrical system is shown in Figure 4.

Figure 4. Result of the Revitalisation

Figure 4 demonstrates the post-intervention state, featuring neatly organized cable routing and securely mounted lighting units. Technologically, transitioning to double-insulated NYM wiring and enclosed junction boxes removes direct touch hazards and reduces thermal buildup risks caused by loose terminations. Reorganizing unorganized wiring paths into concealed, properly supported conduits not only ensures strict PUIL 2011 compliance but also elevates the interior visual aesthetic of the café.

3.2 Analysis of Pre-Revitalization Electrical Conditions

To establish a baseline and measure the impact of the revitalization, evaluation questionnaires were distributed to a sample consisting of 66.7% café visitors and 33.3% staff members. The frequency of electrical disturbances reported by respondents prior to intervention is presented in Figure 5.

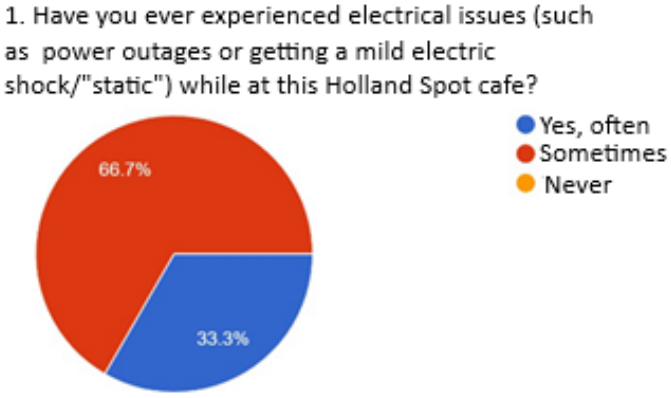

Figure 5. Frequency of Electrical Disturbance

As depicted in Figure 5, 100% of surveyed respondents experienced electrical issues, with 33.3% encountering frequent disturbances (such as blackouts or mild electric shocks/"kontak listrik") and 66.7% experiencing them occasionally. Significantly, 0% of respondents selected "Never". This empirical finding confirms that electrical instability was a persistent, systemic problem rather than an isolated event. Mechanically, these recurring disturbances directly align with the initial survey findings of deteriorated insulation, exposed wiring, and uninsulated splices. The user perception of power supply quality before the intervention is summarized in Figure 6.

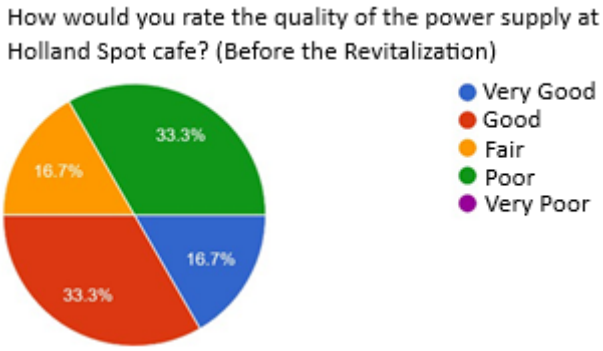

Figure 6. Pre-Revitalization Quality Assessment

Figure 6 shows that 33.3% of respondents rated the pre-revitalization power supply as "Poor," while 16.7% rated it as "Fair". Interestingly, a combined 50% rated the supply as "Good" (33.3%) or "Very Good" (16.7%). This division indicates a clear gap in user perception: while half of the users noticed visible defects and flicker, others had become desensitized to suboptimal conditions or lacked awareness of hidden hazards, such as fire risks from degraded cable insulation. This finding emphasizes the necessity of technical audits over user perception alone when evaluating electrical safety.

3.3 Post-Revitalization Evaluation and User Impact

Following the implementation, 100% of respondents strongly agreed that the revitalization project was necessary to establish a comfortable and eco-friendly space. The post-revitalization satisfaction ratings are shown in Figure 7.

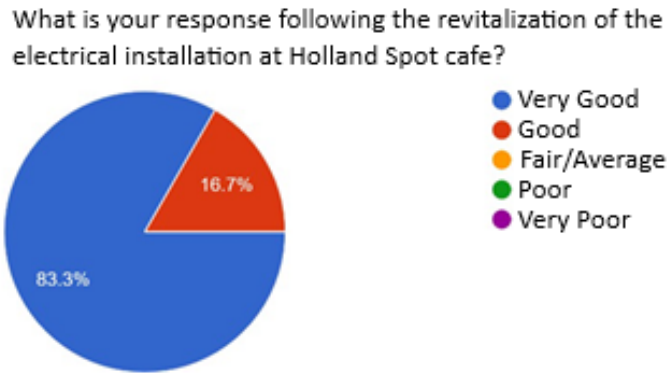

Figure 7. Questionnaire post-revitalization

As detailed in Figure 7, user feedback after the project was overwhelmingly positive, with 83.3% rating the revitalized installation as "Very Good" and 16.7% rating it as "Good". No negative ratings were recorded. These results demonstrate that resolving physical safety risks, eliminating power supply disruptions, and improving lighting quality directly translated into higher user comfort, operational reliability, and enhanced customer satisfaction.

3.4 Limitations and Recommendations for Sustainability

Despite the success of the intervention, physical and operational constraints were noted during execution:

- Technical Limitations: Time constraints and physical layout restrictions limited interventions primarily to interior distribution paths and visible wiring, leaving the main deep-earth grounding system unverified. Furthermore, wiring concealed behind fixed wooden structural panels could not be accessed without structural damage.
- Recommendations for Sustainability: To maintain long-term reliability, café management should establish periodic inspection schedules. Future community outreach initiatives should incorporate comprehensive earth-resistance testing using dedicated instruments and conduct structured electrical safety workshops for café staff.

4. CONCLUSION

This community service activity successfully revitalized the electrical installation at Café Holland Spot Tahura, transforming a non-compliant and hazardous system into a safe, reliable, and aesthetically pleasing infrastructure aligned with PUIL 2011 standards.

The main findings of this project are summarized as follows:

- Technical Safety and Standard Compliance: Systemic electrical hazards—including exposed wiring, uninsulated cable splices, and unstable light fixtures—were resolved through cable replacement using NYM double-insulated wiring (2.5 mm^2 for outlets and 1.5 mm^2 for lighting), installation of protective junction boxes, and secure mounting of light fittings.
- User Experience and Operational Quality: The technical interventions eliminated frequent electrical disruptions and significantly improved ambient lighting quality, resulting in an 83.3% "Very Good" overall satisfaction rating among staff and visitors.
- Future Operational Safety: Routine maintenance and future earth-resistance verification remain essential to ensure long-term sustainability and operational safety.

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