

Materials Performance Maintenance

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Relationship between Predetermined Maintenance Interval and Maintenance Performance

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Abstract. Currently, lack of preventive measure is the problem that implicates poor maintenance outcome. Scheduled maintenance is claimed as a maintenance strategy to tackle the problem. However, the effectiveness of scheduled maintenance can be greatly influenced by the length of predetermined maintenance interval. Thus, this paper aims to study the relationship between length of predetermined maintenance interval and maintenance performance. The literature review identifies the length of predetermined maintenance interval as an importance characteristic of scheduled maintenance strategy. A quantitative approach is adopted and carried out through questionnaire survey. Subsequently, descriptive analysis and correlation analysis are used to analyse the collected data. Then, research result demonstrates that the length of predetermined maintenance interval is significantly correlated to the maintenance performance. The length of predetermined maintenance interval must be considered in maintenance planning and execution. The research recommends continuous monitoring or regular inspection of building systems and components to identify their condition and update the length of predetermined maintenance interval regularly. Consequently, the effective maintenance execution helps to avoid systems failure occurs and optimises maintenance performance.

Introduction

In Malaysia, ineffective planning of maintenance strategies and low service quality are the issues of poor maintenance management [1,2]. Public always neglects the importance of building maintenance as a result of the masses' requests for maintenance operations [3]. Many of the buildings implement reactive maintenance strategy, which perform repair works only after failure occurs. Indeed, lack of knowledge about the maintenance strategies, inadequate performance standard, lack of building performance monitoring data, as well as failure to provide appropriate advice on design and planning based on overall performance are the factors that lead to the issues.

Explicitly, lack of preventive measure is currently the problem that implicates poor maintenance outcome. Whereby, numerous researches introduced and recommended the scheduled maintenance as a strategy to tackle the issues [4-6]. However, the effectiveness of the maintenance strategy can be jeopardised by the inappropriate or inaccurate routine of inspection and maintenance [7-10]. Long interval between the maintenance tasks leads to the growing of deterioration rate and hence affects the efficiency of building and its systems [11]. Oppositely, often interruption of the building system or temporary disabling the system for part replacement and system testing may affect the normal operation of the system. [12,13]. Therefore, this paper seeks to study the relationship between length of predetermined maintenance interval and maintenance performance.

Predetermined Interval for Maintenance

In order to achieve the optimal operation of building systems, scheduled maintenance works are performed at fixed intervals regardless of other information [13,14]. Nevertheless, Mann, et al. [15] claimed that the scheduled maintenance is based on the use of statistical and reliability analysis of system and component failure. Specified interval where the component will out of function is

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