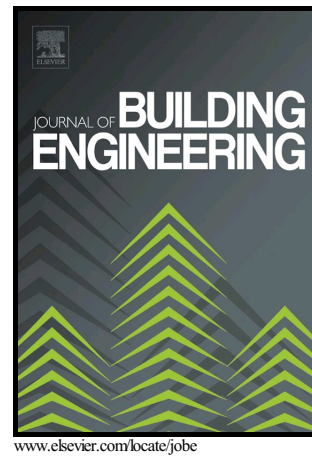


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An investigation of superhydrophobic self-cleaning applications on external building façade systems in the tropics

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Abstract

On-site surface applications of superhydrophobic paint and coating products were investigated for their self-cleaning effectiveness in this study. This paper presents findings from the ensuing visual assessments using a novel method based on digital image processing. Findings confirm the self-cleaning ability of the superhydrophobic surface applications, which has sustained effects over a period of one year. This paper discusses how these findings contribute to the domain of facilities management (FM) to increase the ease of façade maintenance and the maintainability of the superhydrophobic façade coating systems.

Keywords

Facilities management; Maintainability; Self-cleaning façade; Staining; Digital image processing.

1 Introduction

The building façade faces a myriad of external stresses in tropical cities such as Singapore, which increases its vulnerability to develop common surface defects such as façade staining [1-3]. It is well established that façade cleaning is an expensive exercise due to its high use of resources (i.e. energy, water, and chemicals) and associated safety risks [4]. Meanwhile, rising building-user expectations

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