

Grading maintainability parameters for sanitary-plumbing system for high-rise residential buildings

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Abstract

Sanitary-plumbing system can waste energy and even become a source of fatal contamination unless designed, constructed or maintained properly. Human health and convenience are the two critical issues and it is important to identify, analyse and quantify the maintainability parameters of complex sanitary-plumbing systems to meet requirements of today's bigger and better buildings. This research was undertaken to investigate the common defects in sanitary plumbing system in high rise residential buildings and their causing factors which may be the critical maintainability parameters of sanitary-plumbing systems. From the detailed case studies of five residential buildings in Singapore, a total of 113 defects were identified for ten major components of sanitary-plumbing system. Out of them 56 were graded as significant by 33 experienced facility managers based on frequency of occurrence and their adverse effect on: economy, system performance, environment and health. Poor maintainability consideration in design stage was apparent from the comprehensive defect analysis. The defect commonly found in almost all the components was the "inaccessibility" for regular inspection and maintenance.

Keywords: Contamination, Defect analysis, Maintainability, Sanitary-plumbing, System performance.