



**MANAGEMENT MODEL FOR MAINTENANCE OF  
APARTMENTS IN SRI LANKA: AN APPLICATION OF  
ISO 9001:2000 QUALITY MANAGEMENT SYSTEM**

MASTER OF SCIENCE  
IN  
CONSTRUCTION PROJECT MANAGEMENT

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## Abstract

In the past few years a boom in the development of residential apartments or condominiums is experienced. Condominium Management Authority (CMA) being the government agency overlooks and controls the matters arising with apartments. Management Corporation (MC) of each apartment has to manage maintenance of apartment. The obvious fact in the condominiums in Sri Lanka is the prevailing management of maintenance does not meet the standards and it results poor maintenance of apartments.

This research introduces a management model for maintenance of apartments which reasonably satisfies conditions in ISO 9001:2000, Quality Management System. The objective is to present this to CMA to implement and control upon MCs of apartments.

Understanding the difficulty of introducing a new management system for maintenance of apartments, first a model to address conditions in Thai Foundation Quality System Standard (TFQSS) was developed. In the model four processes (Inspection, Rectification, Review and Corrective Action for nonconforming events) are included.

Each of these processes contains inputs, outputs and mechanisms to convert the inputs into outputs. The out put of one process is a input of the next process. Those inputs, outputs and mechanism are defined to satisfy the ISO 9000: 2000 Quality Management System.

To verify the applicability of new management system, quality manual has to be prepared. This document reveals whether, where and how ISO 9001:2000 conditions are satisfied. Furthermore to find out the practical difficulty of its implementation, discussions were carried out with expertise in four categories such as maintenance related, ISO related, apartment maintenance stakeholders and other. Based on the



studies and verification on applicability, it recommends that this management system for maintenance of apartments is viable for CMA to implement and overlook upon the MCs of apartments in Sri Lanka.

## Declaration

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## Abbreviations & Glossary

### Abbreviations

CMA	-	Condominium Management Authority
COC	-	Certificate of Conformity
FM	-	Facilities Management
ISO	-	International Standards Organization
MC	-	Management Corporation
ME	-	Maintenance Element
SME	-	Small and medium Enterprises
TFQSS	-	Thai Foundation Quality System Standard
UOM	-	University of Moratuwa

### Glossary

Maintenance element-  Element which has almost the unique characteristics & specification in construction and maintenance.

**e.g.-**

Plaster Maintenance - Plaster of walls, drains, manholes, soffit, etc...

De-silting of Drains - Manholes, Catch pits, drains, gutters, gully, etc...

(Where the accumulated silt is removed in maintenance)

Though the locations are varying the characteristics and specifications in construction and maintenance are unique for each above. Open drains have both plastering and silt removal simultaneously. But according to the above definition in maintenance the plastering is under a different maintenance element where as the removal of silt in drains is another maintenance element.

There may be number of maintenance element in the same building Elements. Therefore open drains are maintained under several maintenance elements such as plaster, silt removal and effluent quality maintenance etc.

Non confirming event- An event in the maintenance process where the identified defect is not rectified though the regular maintenance procedure is followed.

e.g. – maintenance of Air condition Plants

Maintenance specification says if the minimum possible temperature of an air condition plant is not bellow 20 C degrees while the outside temperature is 30 C degrees the air condition gas should be refilled.

Assume though the gas was replaced in the correct manner as per the standard, still the temperature levels are not satisfied. It is a non confirming event which is like a quality rejects of a regular production line.

Occupants - Peoples living in the apartments

Specification - The written engineering requirements for judging the acceptability of the output of a process.



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