Issues in Facilities Management and Maintenance
A Malaysian Perspective

Maisarah Ali
Puteri Shireen Jahn Kassim

IIUM PRESS
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA
ISSUES IN FACILITIES MANAGEMENT AND MAINTENANCE
A MALAYSIAN PERSPECTIVE

MASARAH ALI
PUTERI SHIREEN JAHNKASSIM

IIUM Press
Published by:
IIUM Press
International Islamic University Malaysia

©IIUM Press, IIUM

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without any prior written permission of the publisher.

Perpustakaan Negara Malaysia                    Cataloguing-in-Publication Data

Maisarah Ali
Issues in Facilities Management and Maintenance: A Malaysian Perspective
Maisarah Ali … [et al.].


Member of Majlis Penerbitan Ilmiah Malaysia – MAPIM
(Malaysian Scholarly Publishing Council)

Printed By:
IIUM PRINTING SDN. BHD.
No. 1, Jalan Industri Batu Caves 1/3
Taman Perindustrian Batu Caves
Batu Caves Centre Point
68100 Batu Caves
Selangor Darul Ehsan
Tel: +603-6188 1542 / 44 / 45 Fax: +603-6188 1543
EMAIL: iiumprinting@yahoo.com
# CONTENTS

<table>
<thead>
<tr>
<th>Contents</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contents</td>
<td>iii</td>
</tr>
<tr>
<td>List of Tables</td>
<td>v</td>
</tr>
<tr>
<td>List of Figures</td>
<td>vi</td>
</tr>
<tr>
<td>Foreword</td>
<td>ix</td>
</tr>
<tr>
<td>Preface</td>
<td>x</td>
</tr>
<tr>
<td>Editors Note</td>
<td>xi</td>
</tr>
<tr>
<td>Contributors</td>
<td>xiv</td>
</tr>
</tbody>
</table>

**CHAPTER 1:** MOULD GROWTH PREVENTION IN PUBLIC HOSPITALS

**FUNDAMENTALS, CHALLENGES AND ISSUES**

Maisarah Ali, Shireen Jahnkassim, Mohd Shariffuddin Ibrahim, Ibrahim Bamghopa

**CHAPTER 2:** MAINTENANCE MANAGEMENT OF QARIAH MASJIDS IN THE KLANG VALLEY

**ISSUES AND PERSPECTIVES**

Md Najib Ibrahim, Anis Azura Abdul Rashid

**CHAPTER 3:** ENERGY MANAGEMENT ISSUES AND PRACTICES IN REGIONAL TRANSPORTATION HUBS

**A CASE STUDY OF AIRPORT TERMINAL**

Shireen Jahnkassim, Zu'kefli Yaacob and Abdul Mahtheen Mohammed

**CHAPTER 4:** FLAT ROOF CONSTRUCTION AND SYSTEMS PRINCIPLES AND ISSUES IN MAINTENANCE MANAGEMENT

Maisarah Ali, Salawati Zainuddin

**CHAPTER 5:** DEFECTS AND DETERIORATION OF MULTI-STORREYBUILDING FACADES

**ISSUES AND CHALLENGES**

Maisarah Ali, Roshawati Ali
Mould Growth Prevention in Public Hospitals: Fundamentals, Challenges and Issues

Maisarah Ali, Shireen Jahnkassim, Mohd Shariffuddin Ibrahim, Ibrahim Bamgbopa

International Islamic University Malaysia

1.1 Introduction

Hospitals and healthcare buildings represent facilities with a range of different end uses of indoor spaces and complex functions (Balaras, Dascalaki and Gaglia, 2007 pg.454 and McCarthy & Spengler, 2000 pg 65.3). The need for good indoor air quality and superior environmental control in hospitals is crucial as they support diverse medical functions, practices and systems critical to the health and safety of patients and occupants such as infection control, environmental control hazard control and life safety (ASHRAE, 2003 and AIA. 1993).

The drive to ensure and enhance the indoor air quality of the hospitals indoor environments becomes more pertinent due to the need to reduce the growing numbers of the cases of outbreaks of ‘hospital acquired infection’ (Nosocomial). Hospitals generally have a high rate of nosocomial infections (WD, 2008). The trend in Malaysia reveals that approximate 5.44% of two million in-patients in 2004 and 3.39% in 2007 were reported to have acquired nosocomial in the government hospital; more than RM 2.5 million were spent in 2006 to prevent the spread of the superbug (“Keeping a lid on superbugs,” New strait Times, 11 January, 2008, 14.).

While this was attributed predominantly to airborne infectious microorganisms (mostly bacterial) (ibid), the involvement of toxigenic mould also plays a role in determining the air quality. Previous cases have also identified species of some mould such as aspergillus, fusarium as potential causative organisms of nosocomial infection (Sautour et al, 2007) and some species aspergillus have also been identified to cause invasive aspergillos in immune compromised patients in hospitals (Curtis et al, 2004; Morey, 2001;McCarthy and Spengler, 2000 pg.65.6; and Morey, 1996).