

The Hong Kong Institute of Facility Management

15th Anniversary Year Book

香港設施管理學會十五週年年刊



Setting New Heights for FM Professionals

提升專業、再創高峰





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富城集團透過推行現代化管理模式，不斷設計及推行創新服務，提高員工質素，致力提升各物業及設施的資產價值，目標成為香港最卓越的物業資產及設施管理集團。

我們的業務涵蓋350項物業及設施，總樓面面積達1.2億平方呎，為100萬客戶提供專業優質的物業資產及設施管理、維修保養、項目管理、保安護衛和環境服務。

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EDITOR'S MESSAGE



Setting New Heights for FM Professionals

This year marks the 15th Anniversary of The Hong Kong Institute of Facility Management (HKIFM). Throughout the past 15 years, the HKIFM has successfully nurtured numerous talents and promoted best practice to the public, with an objective to promote facility management as one of the leading disciplines and professions in the management of built asset and facilities in Hong Kong.

I am most honored to be the Chief Editor of this 15th year commemorative Yearbook. I would like to extend my heartfelt gratitude to the Editorial Team for their immense effort and great contribution towards production of this publication.

At the same time, my sincere thanks go to all Past Presidents for their kind sharing of interesting articles and to all expert authors for their invaluable contribution of research papers on different FM topics in this commemorative publication. Also a special thanks to all of the companies who have generously supported this Yearbook. Their contributions are indispensable and have made this publication a success.

I wish HKIFM every success in the years to come.

Alex Cheung

Chief Editor

PRESIDENT'S MESSAGE



Mr Low Hon-wah
President

The slogan for our 15th Year Anniversary is "Setting New Heights for FM Professionals".

With a negative thinking, this would be interpreted as "FM Professionals are not at the highest and that there are yet more to be achieved". This is a true scenario at this stage because while in the past 15 years, more and more clients and users become aware of the importance of FM, and that there have been new setting up of FM-related groups/ divisions in professional institutes, launching of various academic programmes/ conference/ seminars etc. related to FM, still the profession is not yet fully or commonly recognized.

With a positive thinking, which in fact we shall always have, the slogan is saying that FM professionals do have rooms and also the abilities for further developments, and we therefore anticipate that "New Heights" could be set.

In addition to continuous enhancements of capabilities and knowledge by learning and using advanced technology and improved processes in order to meet the ever increasing demand in terms of expectations from people (both management and the supporting sector) and workplace and yet shortage of professional and supporting personnel in the FM sector, we would identify the "height" where we are at present, and envisage what are the new heights that should be achieved in future.

This would be done by "identifying" to the industry as well as the community the FM profession's competence in responding to business needs, provision of strategic options to reconfigure property assets, functional space and appropriate procurement and management of services delivery in order to best serve the organizational business objectives, i.e. the profession's ability to "facility" the management to achieve the business objectives more effectively, on top of being efficient.

Let us work together to achieve the "New Heights" in the coming years!

CONGRATULATORY MESSAGE



The Hon Leung Chun-ying, GBM, GBS, JP
The Chief Executive

香港設施管理學會十五周年誌慶

廣聯俊傑
宏展專長

行政長官梁振英



CONGRATULATORY MESSAGE



Mr Gregory So Kam-leung, GBS, JP
Secretary for Commerce and Economic Development



CONGRATULATORY MESSAGE



Mr Eddie Ng Hak-kim, SBS, JP
Secretary for Education

香港設施管理學會十五周年誌慶

英才匯聚
羣猷益彰

教育局局長吳克儉



CONGRATULATORY MESSAGE



Mr Matthew Cheung Kin-chung, GBS, JP

Secretary for Labour and Welfare

香港設施管理學會十五周年誌慶

匡輔同業
齊展新章

勞工及福利局局長張建宗



CONGRATULATORY MESSAGE



Mr Wong Kam-sing, JP
Secretary for the Environment

香港設施管理學會十五周年誌慶

優質設施
減廢利眾

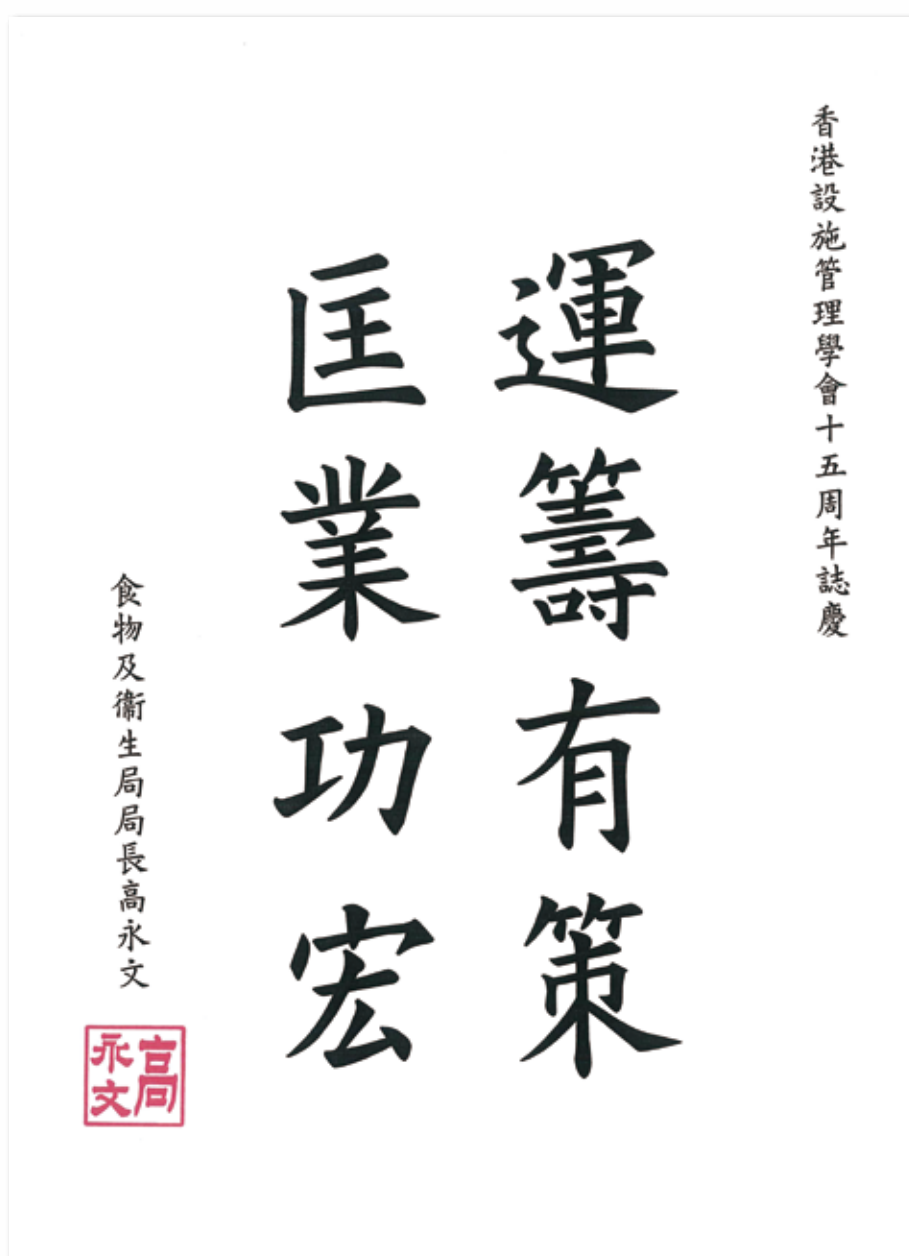
環境局局長黃錦星



CONGRATULATORY MESSAGE



Dr Ko Wing-man, BBS, JP
Secretary for Food and Health



CONGRATULATORY MESSAGE



Mr Lai Tung-kwok, SBS, IDSM, JP
Secretary for Security

香港設施管理學會十五周年誌慶

業界津梁

保安局局長黎棟國



CONGRATULATORY MESSAGE



Professor Anthony Cheung Bing-leung, GBS, JP

Secretary for Transport and Housing

香港設施管理學會十五週年年報

和衷勵志
裕業利羣

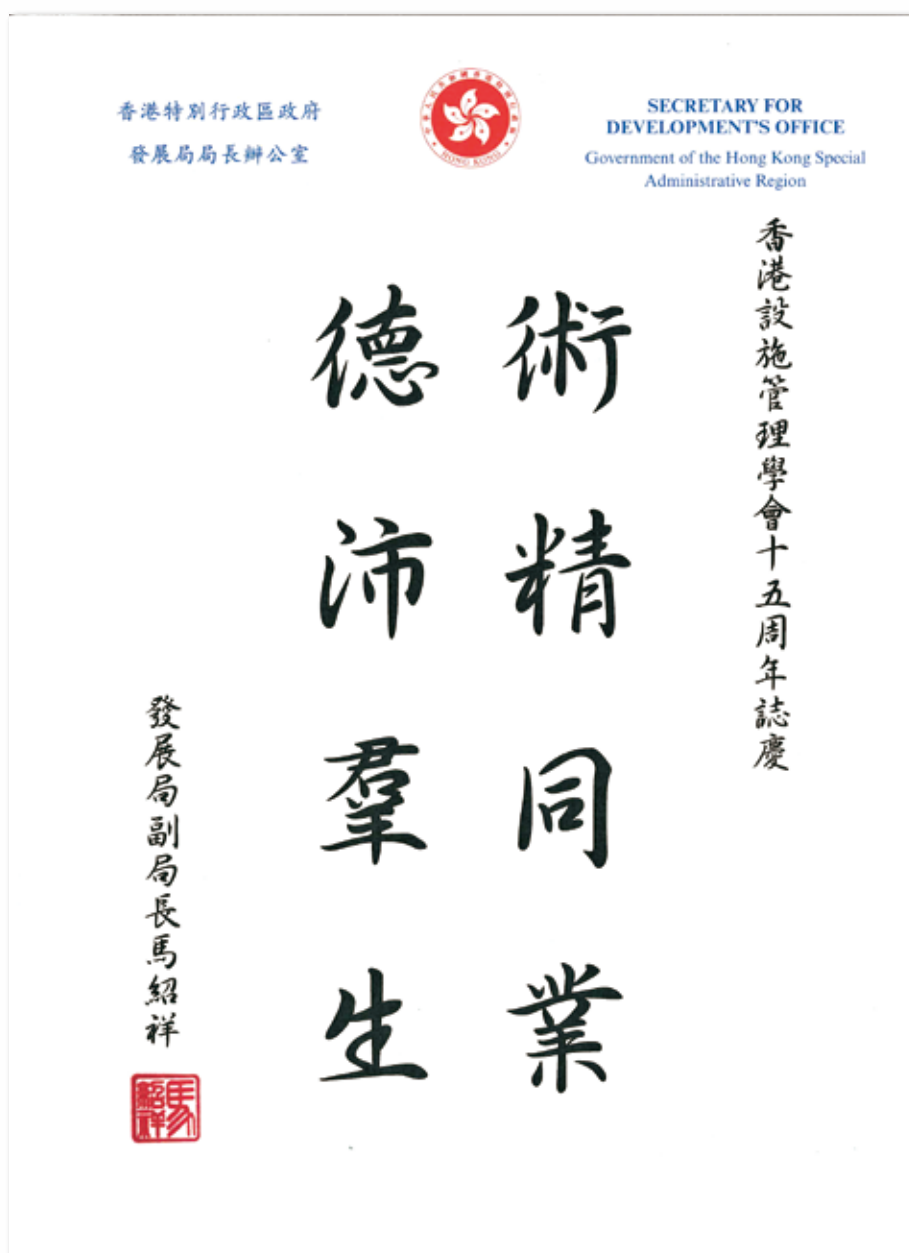
運輸及房屋局局長張炳良



CONGRATULATORY MESSAGE



Mr Eric Ma Siu-cheung, JP
Under Secretary for Development



CONGRATULATORY MESSAGE



Ms Anissa Wong Sean-yee, JP

Permanent Secretary for the Environment / Director of Environmental Protection

香港設施管理學會十五周年誌慶

卓越管理
績效斐然

環境局常任秘書長兼
環境保護署署長王倩儀



CONGRATULATORY MESSAGE



Mr Stanley Ying

Permanent Secretary for Transport and Housing (Housing) cum Director of Housing

香港特別行政區政府
運輸及房屋局常任秘書長(房屋)



Permanent Secretary for
Transport and Housing (Housing)
Government of the Hong Kong
Special Administrative Region

26 June 2014

Congratulatory Message

I am much delighted to see that the Hong Kong Institute of Facility Management is celebrating its 15th anniversary, and wish to offer my warmest congratulations.

For a compact, vibrant city like Hong Kong, facility management is instrumental to its long term competitiveness and appeal. The Institute has dedicated itself to the advancement of the discipline and the development of the profession by nurturing new blood, promoting facility management and expanding the body of knowledge. Both the public and the private sectors have benefited a great deal from its valuable contributions, which I am sure will continually be made.

May I wish the Institute ever greater achievements for many years to come.

(Stanley Ying)
Permanent Secretary for
Transport and Housing (Housing)
cum Director of Housing

香港九龍坑文咸街33號
電話：(852) 2761 5002 圖文傳真：(852) 2762 1110

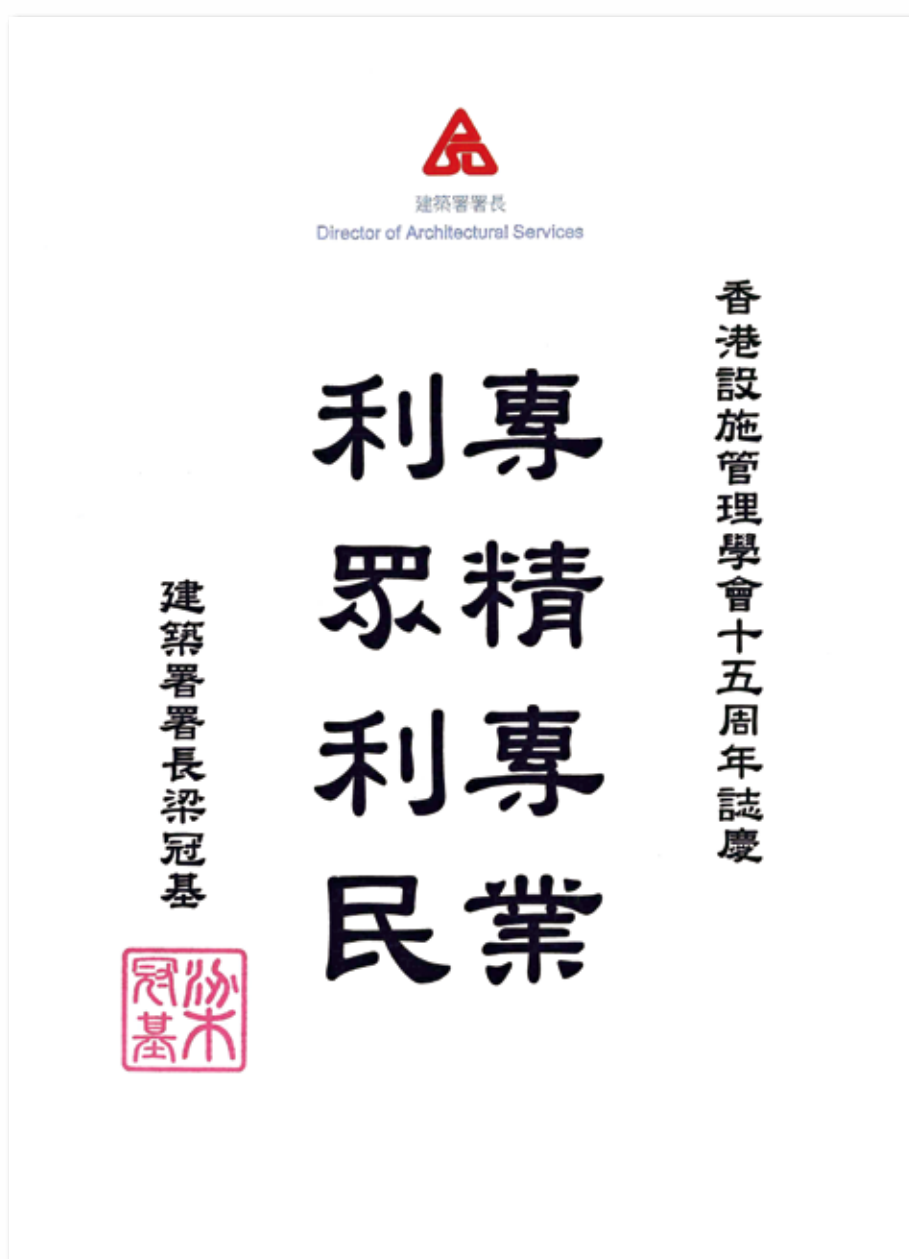


33 Fst Kwong Street, Ho Man Tin, Kowloon, Hong Kong
Tel : (852) 2761 5002 Fax : (852) 2762 1110

CONGRATULATORY MESSAGE



Mr Leung Koon-kee, JP
Director of Architectural Services



CONGRATULATORY MESSAGE



Mr Hui Siu-wai, JP
Director of Buildings

香港設施管理學會十五周年誌慶

設施日新月異
管理卓越有方

屋宇署署長許少偉



CONGRATULATORY MESSAGE



Mr C K Hon, JP

Director of Civil Engineering and Development Department



CONGRATULATORY MESSAGE



Mr Chan Fan, JP

Director of Electrical and Mechanical Services Department

香港設施管理學會十五周年誌慶

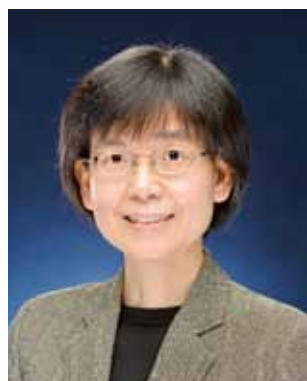
匯聚管理賢能
優化香江設施

機電工程署署長 陳帆

機電工程署
EMSD



CONGRATULATORY MESSAGE



Ms Vivian Lau Lee-kwan , JP
Director of Food and Environmental Hygiene

香港設施管理學會十五周年誌慶

俊才茂集
續譜華章

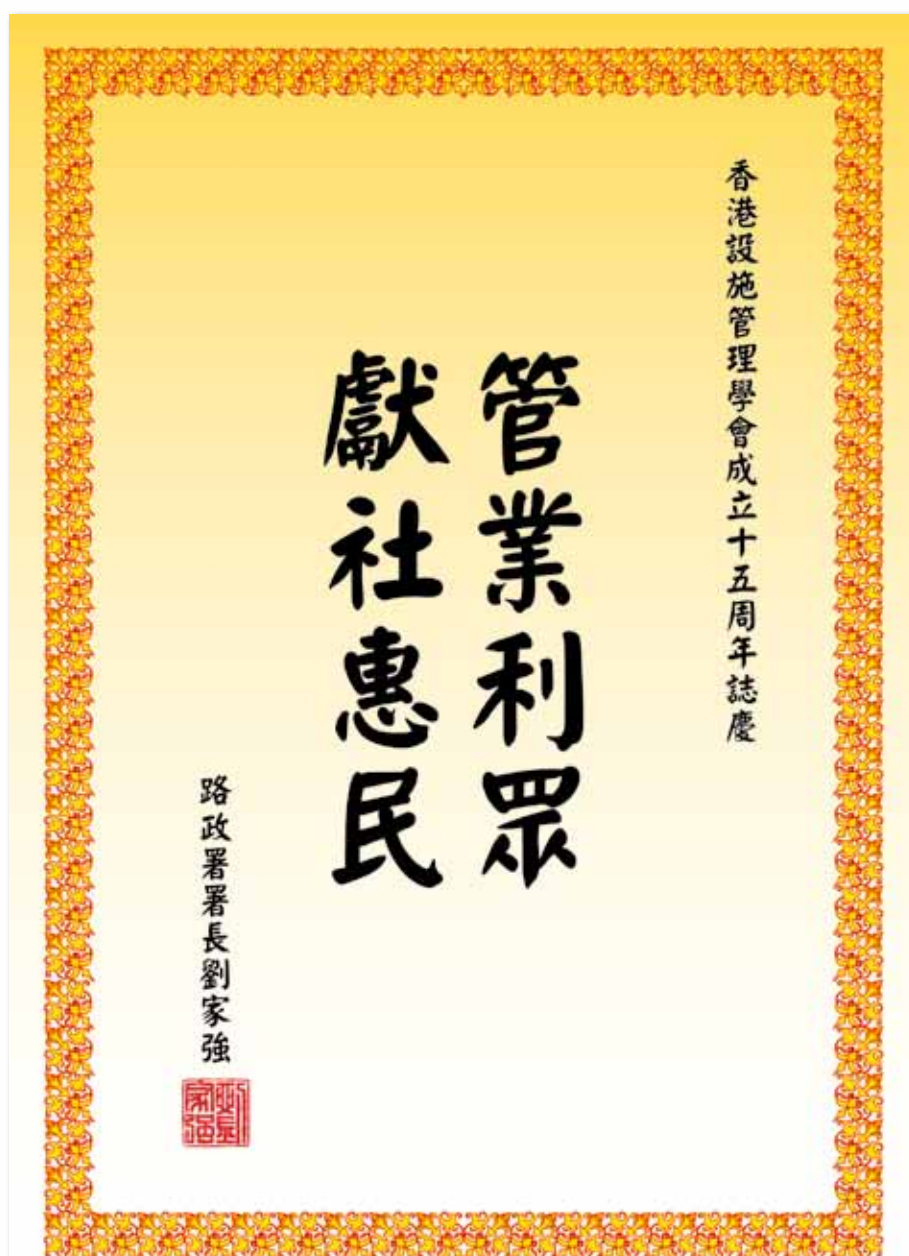
食物環境衛生署署長



CONGRATULATORY MESSAGE



Mr Lau Ka-keung , JP
Director of Highways



CONGRATULATORY MESSAGE



Ms Mary Chow

Land Registrar

香港設施管理學會十五周年誌慶

凝聚業界
共展宏圖

土地註冊處處長周淑貞

CONGRATULATORY MESSAGE



Mr K K Ling, JP
Director of Planning

香港設施管理學會成立十五周年誌慶

管理有方
竿頭更進

規劃署署長凌嘉勤



CONGRATULATORY MESSAGE



Mr Kenneth Mak Ching-yu

Director - General of Trade and Industry

香港設施管理學會十五周年誌慶

聚賢匯智
利惠工商

工業貿易署署長麥靖宇



CONGRATULATORY MESSAGE



Mr David Sun Tak-kei, BBS, JP
Director of Audit

香港設施管理學會十五周年誌慶

專才敬業
碩策益羣

審計署署長孫德基



CONGRATULATORY MESSAGE



Mr Alan Siu

Government Property Administrator



31 Fl., Revenue Tower, 5 Gloucester Road, Hong Kong.
香港灣仔告士打道五號稅務大樓三十一樓

Fax: 2583 9758 Tel: 2594 7601

本署編號 Our Ref.:

來函編號 Your Ref.:

30 July 2014

**Message to
the Hong Kong Institute of Facility Management**

I congratulate the Hong Kong Institute of Facility Management on the occasion of its 15th anniversary.

Over the years, the Institute has served the community with commitment and made significant contributions to enhancing the quality of facility management in Hong Kong. I wish the Institute continued success in the years to come.



(Alan Siu)
Government Property Administrator

CONGRATULATORY MESSAGE



Ms Bernadette Linn
Director of Lands

電話 Tel:
圖文傳真 Fax:
電郵地址 Email:
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來函編號 Your Ref:



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LANDS DEPARTMENT

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香港設施管理學會十五周年誌慶

協德同心

宏展嘉謨

地政總署署長甯漢豪

CONGRATULATORY MESSAGE



Mr P K Tang, JP

Commissioner of Rating and Valuation

香港設施管理學會十五周年誌慶

砥礪團結
管業良楷

差餉物業估價署署長鄧炳光



CONGRATULATORY MESSAGE



Mr Simon Peh

Commissioner of the ICAC

香港設施管理學會十五周年誌慶

倡導誠信管理
提升競爭優勢

香港特別行政區

廉政專員白韞六



敬題

CONGRATULATORY MESSAGE



Mr Fred Lam

Executive Director of Hong Kong Trade Development Council

香港設施管理學會十五周年誌慶

會務興隆
懋績共仰

香港貿易發展局總裁林天福

CONGRATULATORY MESSAGE



Dr Clement Chen Cheng-jen, SBS, JP

Chairman of Vocational Training Council



Congratulations on the 15th Anniversary of The Hong Kong Institute of Facility Management

On behalf of the Vocational Training Council (VTC), I would like to extend my sincere congratulations to The Hong Kong Institute of Facility Management (HKIFM) on its 15th Anniversary.

HKIFM has been supporting the development of the facility management industry and providing the opportunity for practitioners to acquire recognised professional qualifications over the years. VTC will continue to collaborate closely with the HKIFM in devising quality and relevant training programmes for the needs of this fast-growing industry.

I wish the Institute every success in the years to come.

Dr Clement CHEN Cheng-jen, SBS, JP
Chairman
Vocational Training Council

香港設施管理學會成立十五周年誌慶

欣逢 香港設施管理學會成立十五周年，本人謹代表職業訓練局（VTC）致衷心祝賀。

香港設施管理學會一直致力推動行業發展，並協助從業員取得專業資格認可，貢獻良多。VTC 將繼續與 貴學會緊密合作，為行業籌劃具質素及適時適切的培訓課程，以配合這個發展迅速的行業的需要。

祝願學會未來諸事順遂，續創佳績。

職業訓練局主席
陳鎮仁博士, SBS, JP

CONGRATULATORY MESSAGE



Mr Marco Wu, GBS

Chairman of Hong Kong Housing Society



**HONG KONG
HOUSING SOCIETY**
香港房屋協會

Congratulatory Message for the 15th Anniversary of The Hong Kong Institute of Facility Management

The Hong Kong Institute of Facility Management (HKIFM) has been playing an active role in promoting and enhancing the professional standards of facility management in Hong Kong. It has contributed significantly to the advancement of the industry through continuing development and by bringing in new knowledge and technology from other parts of the world.

I congratulate the HKIFM on its 15th Anniversary and wish it continued success in the years to come.



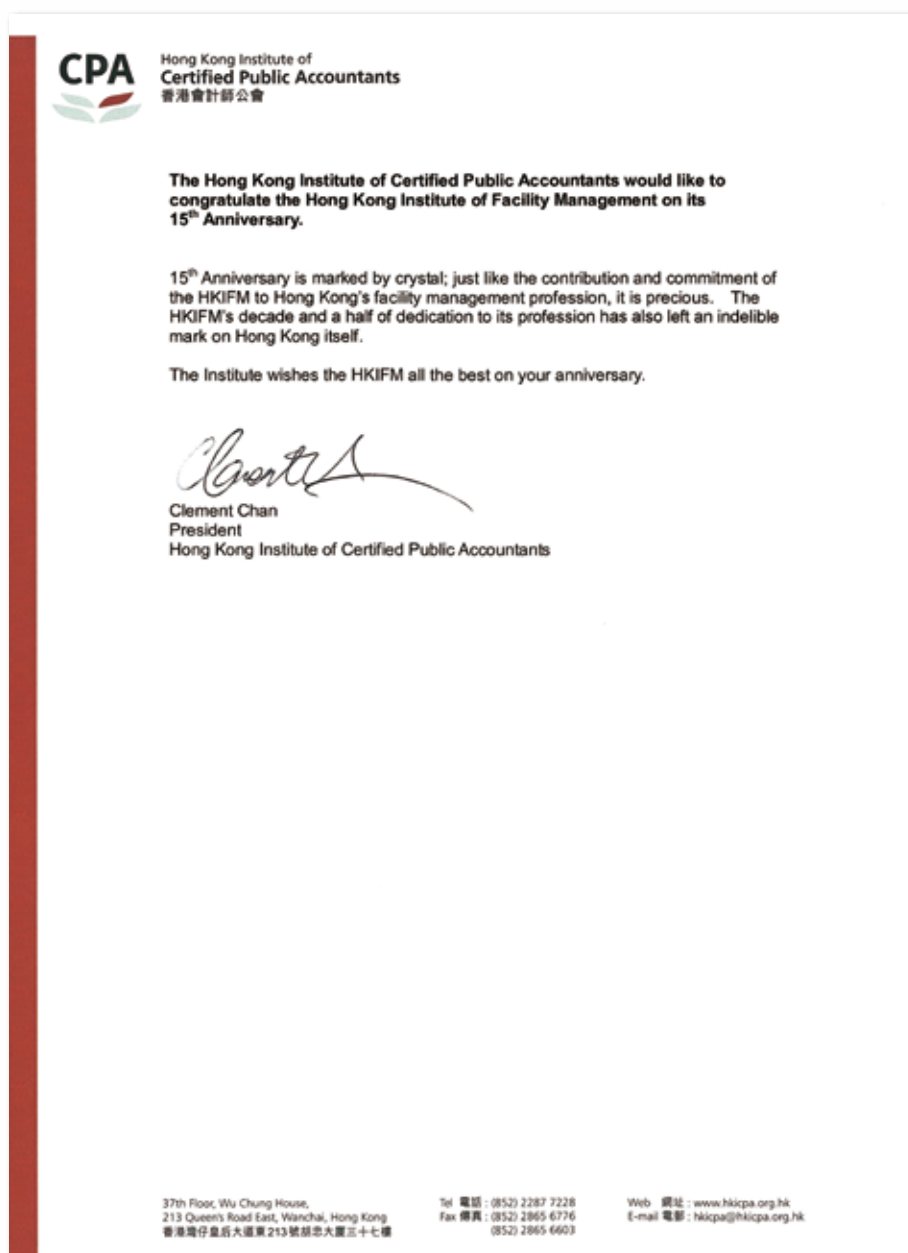
Marco Wu
Chairman

CONGRATULATORY MESSAGE



Mr Clement Chan

President of Hong Kong Institute of Certified Public Accountants



CONGRATULATORY MESSAGE



Dr Sigmund Leung

President of Hong Kong Dental Association

香港設施管理學會有限公司十五週年誌慶

協德同心
會譽日隆

香港牙醫學會會長梁世民醫生



敬賀

CONGRATULATORY MESSAGE



Ir Victor C K Cheung

President of The Hong Kong Institution of Engineers

HKIE THE HONG KONG
INSTITUTION OF ENGINEERS
香港工程師學會
香港銅鑼灣記利街1號金吉利9字樓
9/F Island Beverley, No 1 Great George St, Causeway Bay, Hong Kong
電話Tel +852 2895 4446 傳真Fax +852 2577 7791
hkie-sec@hkie.org.hk www.hkie.org.hk

會長 張志剛 工程師
President Ir Victor C K CHEUNG
BSc(Hons) MSc, FHKIE, R.P.E. (2005, FHKIE)
president@hkie.org.hk

Congratulatory Message The Hong Kong Institute of Facility Management 15th Anniversary

On behalf of the Hong Kong Institution of Engineers, I would like to extend our heartfelt congratulations to the Hong Kong Institute of Facility Management (HKIFM) on the joyous occasion of its 15th Anniversary.

Over the years, the HKIFM has striven to foster a continuous professional development culture by organising regular meetings, seminars and various events for its members and enhancing communication between its members and the industry. By promoting and advancing facility management in Hong Kong, the HKIFM has won acclaim for its remarkable efforts in providing opportunities for practitioners from different professional background to acquire recognised professional facility management qualifications. In particular, its effort in training facility managers and maintaining their professional standards is highly commendable.

Through integrating the latest technological and managerial innovation into facility management, I firmly believe that the HKIFM will continue to prosper and develop for enhancing the competitiveness of corporations in Hong Kong.

May I wish the HKIFM continuous success in the years ahead.

Ir Victor C K CHEUNG
President
The Hong Kong Institution of Engineers

Inspire the Young • 啟發新一代 工程展未來

CONGRATULATORY MESSAGE



Mr Ellis Ip Chi-ming

President of The Hong Kong Institute of Housing



香港房屋經理學會
The Hong Kong Institute of Housing

香港設施管理學會十五周年誌慶

匯千人智
造萬家福

香港房屋經理學會
會長 葉志明 敬賀

香港灣仔道廣德大廈B座2709-2711室
Unit 2709-11, Shek Che Centre, 68 Haffner Road, Wan Chai, H.K.
電話 Tel: (852) 2544 3111 傳真 Fax: (852) 2544 3112
網址 Web Site: www.housing.org.hk
電子郵件 E-mail: info@housing.org.hk

CONGRATULATORY MESSAGE



Sr Simon Kwok

President of The Hong Kong Institute of Surveyors



The Hong Kong Institute of Facility Management 15th Anniversary Annual Dinner

On behalf of the Hong Kong Institute of Surveyors, I would like to extend my warmest congratulations to the Hong Kong Institute of Facility Management (HKIFM) on the occasion of its 15th Anniversary Annual Dinner.

Over the years, HKIFM has contributed a great deal towards the promotion of quality and professionalism in the development of Hong Kong's facility management sector. I am sure that through closer collaborations between HKIFM and our Institute, we could bring more values to the betterment of Hong Kong. I wish HKIFM and its members every success in their future endeavours.

Sr Simon Kwok
President

總辦事處 Head Office

香港上環干諾道中111號永安中心12樓1205室
Room 1205, 12/F Wing On Centre,
111 Connaught Road Central, Sheung Wan, Hong Kong
Telephone: 2526 3679 Facsimile: 2868 4612
E-mail: info@hkis.org.hk Web Site: www.hkis.org.hk

北京辦事處 Beijing Office

中國北京市海澱區萬壽路59號院1號樓
中坤大廈6層616室 (郵編: 100044)
Room 616, 6/F, Zhongkun Plaza, No.59 Gaoliangqiao Jie,
No.1 yard, Haidian District, Beijing, China, 100044
Telephone: 86 (10) 8219 1069 Facsimile: 86 (10) 8219 1050
E-mail: info-bj@hkis.org.hk Web Site: www.hkis.org.hk

CONGRATULATORY MESSAGE



Mr Stephen Hung

President of The Law Society of Hong Kong



THE
LAW SOCIETY
OF HONG KONG
香港律師會

3/F WING ON HOUSE - 71 DES VOEUX ROAD
CENTRAL - HONG KONG DX-009100 Central 1
香港中環德輔道中71號
永安基閣大廈3字樓

TELEPHONE (電話): (852) 2846 0500
FACSIMILE (傳真): (852) 2845 0387
E-MAIL (電子郵件): sg@hklawsec.org.hk
WEBSITE (網頁): www.hklawsec.org.hk

From the President

Congratulatory Message

for The Hong Kong Institute of Facility Management

On behalf of the Law Society of Hong Kong, I would like to congratulate The Hong Kong Institute of Facility Management on the eve of its annual dinner for another year of fine work and service towards the community.

Over the past decade, the Institute has demonstrated a firm commitment to strengthening the profession and their contribution is widely recognized. May you continue charting the path of progress and excellence in many years to come.

The Law Society of Hong Kong honours its cordial relationship with The Hong Kong Institute of Facility Management and looks forward to strengthening our strong ties of friendship.



Stephen Hung
President

The Law Society of Hong Kong

CONGRATULATORY MESSAGE



Prof John Ng

Chairperson of BEAM Society Limited

香港設施管理學會週年誌慶

同德興業十五載
減排環保護香江

建築環保評估協會主席 伍灼宜教授

BEAM
建築環保評估協會

CONGRATULATORY MESSAGE



Ir Sr Jonathan Lee

President of Building Services Operation and Maintenance Executives Society



屋宇設備運行及維修行政人員學會

Building Services Operation and Maintenance Executives Society

Congratulatory Message

The 15th Anniversary of The Hong Kong Institute of Facility Management

On behalf of Building Services Operation and Maintenance Executives Society (BSOMES), I would like to convey my warmest congratulation to The Hong Kong Institute of Facility Management (HKIFM) on its 15th Anniversary celebration.

The achievements made by HKIFM reflect the success in professional development of facilities management from its members. I would like to take this opportunity to express my appreciation towards the commitment and contribution made by HKIFM for the promotion of the quality facilities management in the industry.

BSOMES looks forward to working closely together with HKIFM on the quality advancement of the working and living environment for the society of Hong Kong in near future.

I wish HKIFM and its members with every success in the years ahead.



Ir Sr Jonathan Lee
President (2012 – 2014)
Building Services Operation and Maintenance Executives Society

CONGRATULATORY MESSAGE



Mr Yip Ngai-ming

Chairman of Chartered Institute of Housing Asian Pacific Branch



18 June 2014

**Congratulatory Message
The Hong Kong Institute of Facility Management 15th Anniversary**

On behalf of the Chartered Institute of Housing Asian Pacific Branch, it is my great pleasure to congratulate the Hong Kong Institute of Facility Management on its 15th Anniversary.

In the past years, HKIFM have been very successful in promoting professional facility management practices and techniques for practitioners from different professional background. With your great effort in arranging training and continuous learning in the facility management industry, the professional standard in the management of built asset and facilities in Hong Kong has continued to grow.

I wish the Institute continued great success in the future.



Yip Ngai Ming
Chairman
Chartered Institute of Housing Asian Pacific Branch

www.cih.org.hk

Chartered Institute of Housing
Asian Pacific Branch

Units 2709-2711, Shui On Centre,
6-8 Harbour Road, Wanchai, Hong Kong

T (852) 2356 8680 F (852) 2356 7332

E apb@cih.org.hk



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CONGRATULATORY MESSAGE



Mr Mok Peng-lam

President of The Chartered Institute of Building (Hong Kong)

15th Anniversary of the Hong Kong Institute of Facility Management

On behalf of the Chartered Institute of Building (Hong Kong), I wish to extend my warmest wishes to the Hong Kong Institute of Facility Management as it celebrates its remarkable 15th Anniversary.

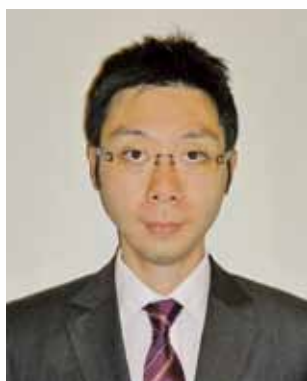
The Institute has embodied a concept of excellence combining professionalism and services to the community and environment. With its commitment and professionalism, I am sure that the Institute and its members will continue to promote facility management and services on new dimensions and strive ahead for the interest of the society.

I wish Institute continued success as it celebrates this important milestone.

Mok Peng Lam

President, The Chartered Institute of Building (Hong Kong)

CONGRATULATORY MESSAGE



Mr Gary Chiang

Chairman of Energy Institute (Hong Kong Branch)

15th Anniversary of the Hong Kong Institute of Facility Management

I wish to extend my warmest congratulations to the Hong The Hong Kong Institute of Facility Management on this fifteen anniversary. With an aim to adopt in Facility Management world-wide and promotes the synergy of effective people and building / asset management that can enhance a corporation's competitiveness, the Institute have built the professional platform to the industry and share their professional knowledge and experiences to us in the past fifteen years. Their excellent work and contribution benefited main of us in Hong Kong.

Through various seminars, workshops, technical visits, symposium and training courses, the institute have contributed their effort to promote and educate us with the most advanced information and knowledge.

I wish the Institute will continue its effort in encouraging positive changes and improvement to Facility Management industry and bring the services to a new heights.

Mr. Gary Chiang

Chairman of Energy Institutes (Hong Kong Branch)

CONGRATULATORY MESSAGE



Dr Lobo Fung

President of Greater China Institute of Property Management



大中華物業管理學會
(「中國物業管理協會」常務理事單位)

名譽顧問

陳炯創教授
陳建謀博士
何照基先生
許建華先生
郭廣寶先生
趙雲先生
周超先生

義務法律顧問

陳烈堂律師

義務核數師

黎家祥會計師

執行委員會

會長
馮國雄博士

副會長
鄭振輝博士
馮翊琳女士
羅耀榮先生

執行委員會委員
馮國健先生

Congratulatory Message

The 15th Anniversary
The Hong Kong Institute of Facility Management

I am delighted to congratulate The Hong Kong Institute of Facility Management on its 15th Anniversary.

In the past decade, the Institute has made valuable contributions to promote and enhance the professional practices and standards of the facility management industry in Hong Kong.

I wish the Institute every success in the years to come.

Lobo Fung
President
Greater China Institute of Property Management

Greater China Institute of Property Management
大中華物業管理學會
(Non-profit making organization registered in Hong Kong 香港註冊非牟利機構)
F2, 11/F, Wong King Industrial Building, 2-4 Tai Yau Street, San Po Kong, Kowloon, Hong Kong
香港九龍新蒲崗大有街2-4號旺景工業大廈十一樓F2室
Tel 電話: (852) 2556 8077 Fax 傳真: (852) 2556 9817
Website 網址: www.gcipm.org.hk

CONGRATULATORY MESSAGE



Ir Dr Raymond K L Chan

President of Hong Kong Association of Energy Engineers

15th Anniversary of the Hong Kong Institute of Facility Management

On behalf of the Hong Kong Association of Energy Engineers, I would like to extend my warmest congratulations to the Hong Kong Institute of Facilities Management on the joyful occasion of its 15th Anniversary.

Over the past years, it is evident that the HKIFM has been playing an important role in enhancing the efficiency and competitiveness of corporations in Hong Kong and neighboring region through effective facility management of their built assets and strengthening the collaboration and coordination with many professional bodies in Hong Kong and other facility management organizations world-wide. It has organized various technical visits, forums, seminars, symposiums, etc. for its members and interested parties for relevant technology and experience exchanges for the betterment of the facility management industry. With the enthusiasm of its members, I trust that the HKIFM will continue to strive to meet the new challenges with their expertise in this rapidly changing world.

May I wish the Celebration Dinner a great success and the HKIFM continuous prosperity in its future endeavours.

Ir Dr. Raymond K.L. Chan

President (2014 – 2016)

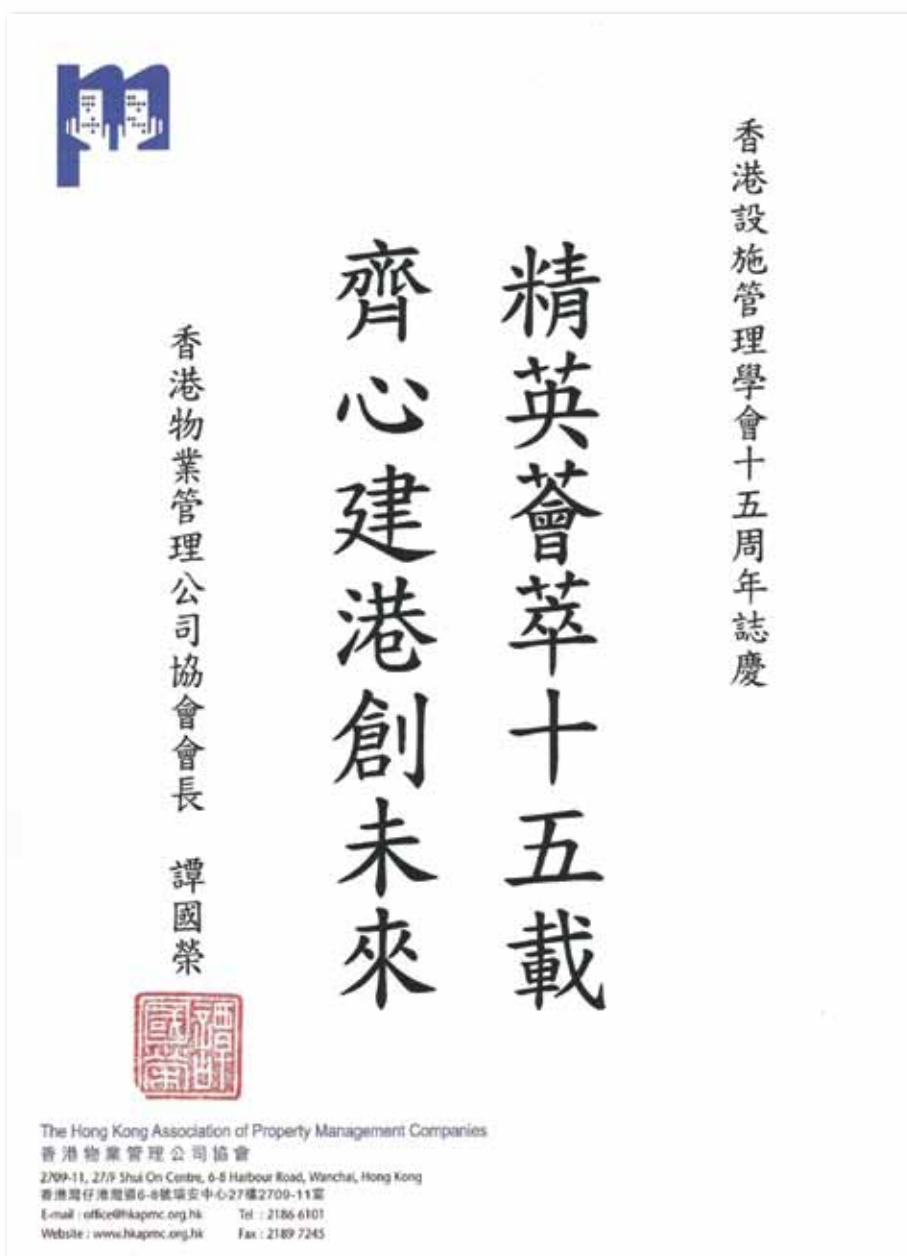
Hong Kong Association of Energy Engineers

CONGRATULATORY MESSAGE



Mr Ivan Tam

President of The Hong Kong Association of Property Management Companies



CONGRATULATORY MESSAGE



Mr Paul Shieh SC

Chairman of Hong Kong Bar Association

To: The Hong Kong Institute of Facility Management

On behalf of the Hong Kong Bar Association, I extend our warmest congratulations to the Hong Kong Institute of Facility Management on its 15th Anniversary, and wish it every success in the years to come.

**Paul Shieh SC
Chairman
Hong Kong Bar Association**

June 2014

CONGRATULATORY MESSAGE



Ir Conrad Wong Tin-cheung, BBS, JP

Chairman of Hong Kong Green Building Council



Hong Kong Green Building Council Limited
香港綠色建築議會有限公司
1/F Jockey Club Environmental Building
77 Tin Chee Avenue, Kowloon Tong, Hong Kong
香港九龍塘連道77號廣南樓首層一樓
Tel +852 2994 8888 Fax +852 2994 8899
www.hkgbc.org.hk

Congratulatory Message HKIFM 15th Anniversary Booklet

On behalf of the Hong Kong Green Building Council (HKGBC), I would like to express my warmest congratulations to the Hong Kong Institute of Facility Management (HKIFM) on the occasion of its 15th Anniversary.

HKIFM has played an important role in integrating the latest technological and managerial innovation into Facility Management practice. With its enduring commitment and vision to the development of Hong Kong, I have no doubt that HKIFM will continue to lead in the future in strengthening the recognition and professionalism of its practitioners in Hong Kong.

May I wish HKIFM every success in the year to come.

Ir Conrad WONG Tin-cheung, BBS, JP

Chairman, Hong Kong Green Building Council

CONGRATULATORY MESSAGE



Ms Maisy Ho

President of Hong Kong Institute of Real Estate Administrators



香港地產行政師學會
HONG KONG INSTITUTE OF REAL ESTATE ADMINISTRATORS

香港設施管理學會有限公司十五周年誌慶

雋才匯聚

宏猷共展

香港地產行政師學會會長何超蓮

CONGRATULATORY MESSAGE



Ir Dr Hon Lo Wai-kwok, BBS, MH, JP

President of Hong Kong Professionals And Senior Executives Association

香港設施管理學會十五周年誌慶

精益求精
專業楷模

香港專業及資深行政人員協會
會長盧偉國 敬賀

CONGRATULATORY MESSAGE



Ir Dr Hon Lo Wai-kwok, BBS, MH, JP
Chairman of Hong Kong Quality Assurance Agency

恭賀香港設施管理學會成立十五周年

俊彥同心
造福社群

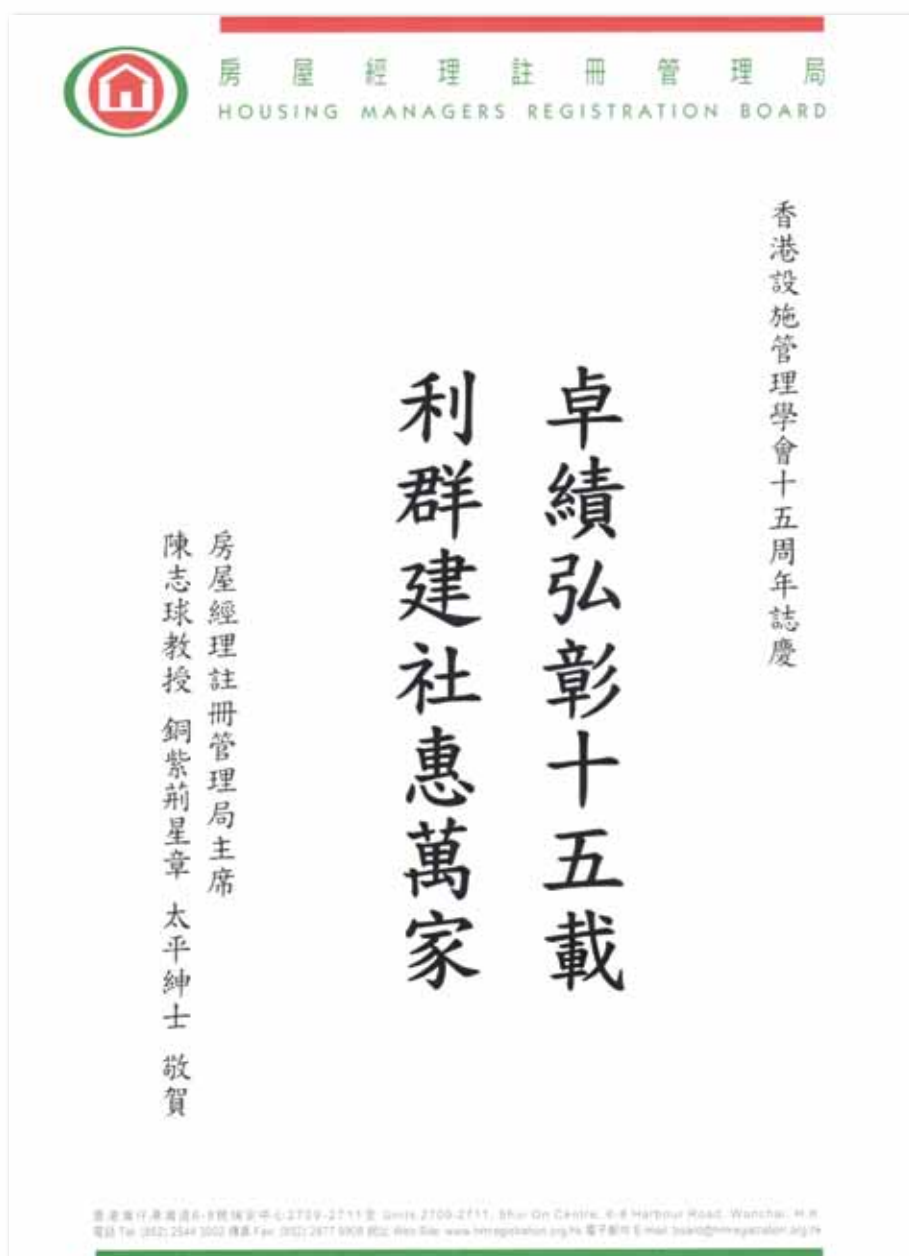
香港品質保證局主席
盧偉國議員博士工程師敬賀

CONGRATULATORY MESSAGE



Dr Chan Chi-kau, Johnnie Casire, BBS, JP

Chairman of Housing Managers Registration Board



CONGRATULATORY MESSAGE



Mr Dave Hallam

President of International Facility Management Association (Hong Kong Chapter)



IFMA™ Hong Kong Chapter
International Facility Management Association



The Hong Kong Institute of Facilities Management

Attn. Mr. Low Hon Wah, President

Dear Mr. Low,

RE: Congratulatory Message on the Occasion of the 15th Anniversary of the Hong Kong Institute of Facilities Management

It gives me great pleasure to write to you on the occasion of your learned Institute's 15th Anniversary.

The International Facility Management Association, Hong Kong Chapter is pleased to see that a great milestone in your Institute's history has been made and look forward to celebrating more such historical milestones with your good selves in the future.

You have paved the way for the professional development of the facilities management profession in Hong Kong and indeed brought the industry into the new millennium.

We look forward to further and deeper professional relations with your good selves in the years ahead for the betterment of the industry as a whole.

Yours sincerely,
For and on behalf of
International Facility Management Association, Hong Kong Chapter

Dave Hallam
President
International Facility Management Association Hong Kong Chapter

The Hong Kong Chapter of International Facility Management Association
P.O. Box. No. 65115, Tseung Kwan O Post Office
Tel: (852) 2512 0111 Fax: (852) 2512 0555

CONGRATULATORY MESSAGE



Ms Maureen SY Fung

Founding Chairman of Institute of Shopping Centre Management

 Institute of Shopping Centre Management Limited

Embracing 10th Anniversary

Congratulatory Message

On behalf of the Institute of Shopping Centre Management, I would like to extend my warmest congratulations to The Hong Kong Institute of Facility Management on its 15th Anniversary.

Over the years, the association has significant contributions to the enhancement of property management, promotion of high standards of professionalism in property management industry and exchange of professional knowledge at international level.

I sincerely wish the association and all members every success in its continued pursuit for excellence in the years ahead.

Maureen S.Y. FUNG
Founding Chairman
Institute of Shopping Centre Management

CONGRATULATORY MESSAGE



Ir Prof Choy Kin-kuen

Chairman of Professional Green Building Council



Professional Green Building Council

Congratulatory Message

The Hong Kong Institute of Facility Management 15th Anniversary

On behalf of the Professional Green Building Council, I would like to offer our warmest congratulations to the Hong Kong Institute of Facility Management (HKIFM) on the joyous occasion of its 15th Anniversary.

Founded in 2000, the HKIFM has striven to uphold the highest professional standard for the Institute and its members. Throughout the years, the HKIFM has played a significant role in promoting facility management as one of the leading disciplines and professions in the management of built asset and facilities in Hong Kong. It develops ties and mutual recognition with other facility management organisations world-wide, particularly those within China and the neighbouring region. Its vision to enhance efficiency and competitiveness of corporations through effective facility management is highly commendable.

May I take this opportunity to wish the HKIFM continuous prosperity and every success in its future endeavours.

A handwritten signature in black ink, reading 'Ullchoy'.

Ir Prof CHOY Kin Kuen

Chairman

Professional Green Building Council

CONGRATULATORY MESSAGE



Mr Keith Kerr, SBS, JP

President of The Real Estate Developers Association of Hong Kong



CONGRATULATORY MESSAGE



Mr Andrew Lee

Chairman of Royal Institution of Chartered Surveyors Asia



Congratulatory Message

On behalf of the Royal Institution of Chartered Surveyors (RICS) Hong Kong, I would like to extend my warmest congratulations to the Hong Kong Institute of Facility Management (HKIFM) on the occasion of its 15th Anniversary.

Your institute has grown over the years to become one of the leading and influential organisations for the facility management profession in Hong Kong. I would like to take this opportunity to express my appreciation towards the contributions made by your members to the industry.

On this very special occasion, I wish the Institute a bright future with ever remarkable achievements in the years to come.

Best wishes,

A stylized, handwritten signature in purple ink, appearing to read "Andrew Lee".

Andrew Lee
Chairman
RICS Hong Kong

NEW YORK • SÃO PAULO • LONDON • BRUSSELS • DUBAI • NEW DELHI • HONG KONG • BEIJING • SYDNEY

3707 Hopewell Centre, 183 Queen's Road East,
Wanchai, Hong Kong
t +852 2537 7117
f +852 2537 2756
e ricsasia@rics.org ricsasia.org

CONGRATULATORY MESSAGE - HONORARY FELLOW



Ir Dr Raymond Ho Chung-tai, SBS, SBStJ, JP

香港設施管理學會十五週年誌慶

專業服務
惠及市民

大舜政策研究中心主席
前立法會議員(工程界)
中華人民共和國第十屆及第十一屆
全國人民代表大會香港區代表
何鍾泰 博士 工程師
銀紫荊星章、太平紳士



CONGRATULATORY MESSAGE - HONORARY FELLOW



Mr Philip Lo

15th Anniversary of the Hong Kong Institute of Facility Management

The Facility Management Industry is evolving and maturing. Over the last 15 years, the Hong Kong Institute of Facility Management has always been the beacon of change for this rapidly growing industry, not only in Hong Kong, but in China as well.

Facility Management is a profession that integrates People, Place, Process and Technology, in making our built environment a better place for all. The adoption of new technologies, and the growing awareness of sustainability issues and the need for green facilities, are making this industry, and thus the work of the Institute, extremely relevant and important to our society.

I would like to take this opportunity to convey my sincere congratulations to the Hong Kong Institute of Facility Management for 15 years of outstanding achievement in promoting and supporting the professional development of this industry, and looking forward to the continuing growth of the institute, as well as that of the profession, in the years to come.

Yours sincerely,



Philip Lo *Hon Fellow HKIFM, IFMA Fellow
CEO Lexco Limited*

CONGRATULATORY MESSAGE - HONORARY FELLOW



Mr Alex Lam

AVIEMORE  STIRLING

27 October 2014

**Subject: Hong Kong Institute of Facility Management
15th Anniversary EFMA Celebration**

Every year the task of being on the jury for the EFMA is getting more and more difficult. Take this year for example, the entries are all of high standards and every company is doing such an amazing job serving their customers, looking after their employees and caring for the environment and the community. To differentiate one from another causes us to look very hard at each submission to search out their specific distinctives that separate the super-super stars from the super stars.

Everyone is doing the right thing and this year the accomplishment in managing facilities in Hong Kong far surpasses the efforts of the previous years. I must congratulate the Hong Kong Institute of Facility Management for doing such a remarkable job branding the FM profession in Hong Kong, nurturing the FM professionals via high standards of ethics and learning opportunities, and most importantly, bringing awareness of the FM profession to the public.

I am proud and honoured to be a part of this.

Yours sincerely,



Alex Lam, MRAIC, Hon.F.PFM, IFMA Fellow
Director Global Development
AVIEMORE | STIRLING
Toronto, Canada

AVIEMORE | STIRLING

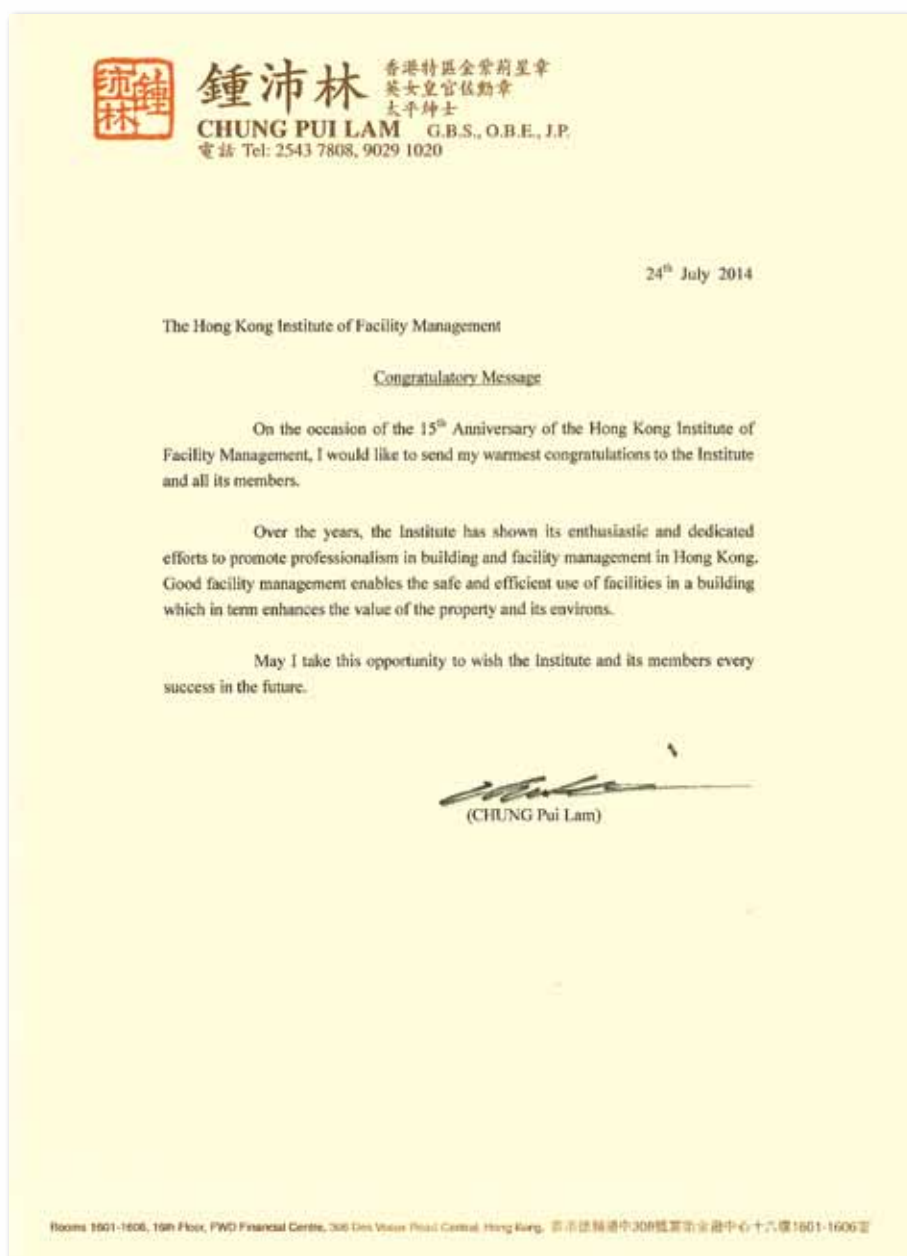
Toronto | Amsterdam | Hong Kong

Banister Road, Suite 110, 110 Queen Street East, Mississauga, Ontario L5M 1W9, Canada

CONGRATULATORY MESSAGE - HONORARY FELLOW



Mr Chung Pui-lam, GBS, OBE, JP



CONGRATULATORY MESSAGE - HONORARY FELLOW



Sr Johnny Au Choi-kai, JP

香港設施管理學會十五周年誌慶

永續建設 通貨積財利管治
專業博施 和衷共濟順理章

名譽資深會員 區載佳測量師 敬賀

ABOUT HKIFM

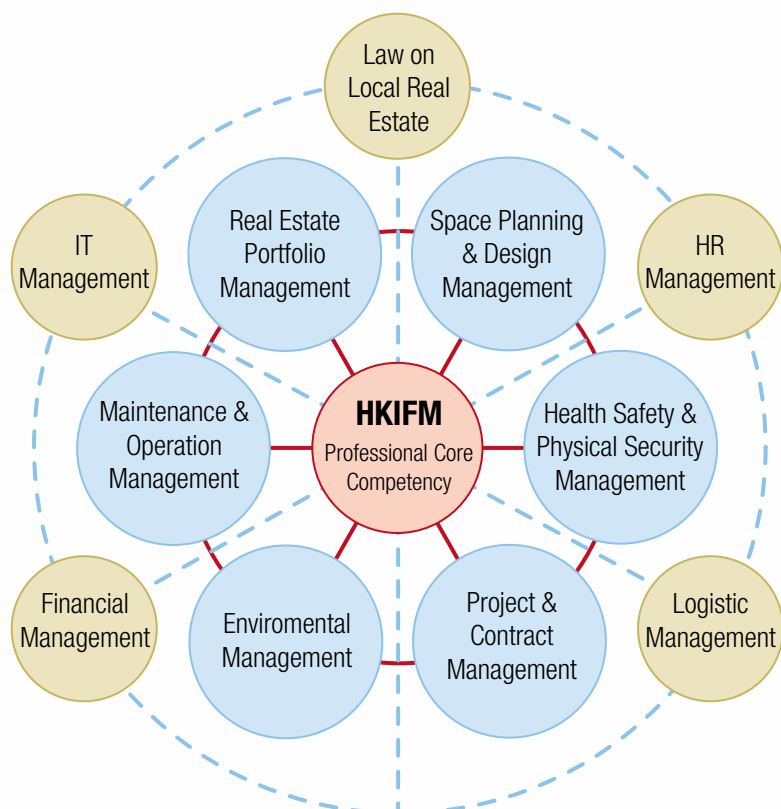
The Hong Kong Institute of Facility Management (HKIFM) is a non-profit making organisation inaugurated in 2000. It was formed by a group of professional people who are actively involved in the field of facility management. The HKIFM is run by an elected Council that has a number of committees covering aspects on membership, education, corporate affairs, research and communications.

OBJECTIVE

The main objective of the HKIFM is to promote facility management as one of the leading disciplines and professions in the management of built asset and facilities in Hong Kong. The HKIFM aims to provide the opportunity for practitioners from different professional background to acquire a recognised professional facility management qualification. The HKIFM will involve in the training of facility managers, maintenance of professional standard as well as being the focus of excellence in the development and promotion of facility management techniques and know-how in the region. The HKIFM is working to develop ties and mutual recognition with other facility management organisations world-wide and particularly those within China and the neighbouring region.

WHAT IS FM?

Facility Management is the process by which an organisation integrates its people, work process and physical assets to serve its strategic objectives. As a discipline, facility management is the science and art of managing this integrative process from operational to strategic levels for promoting the competitiveness of organizations.



The HKIFM hence recognises Facility Management as both a process and a discipline. It also affirms the integrative approach adopted in Facility Management world-wide and promotes the synergy of effective people and building/ asset management that can enhance a corporation's competitiveness. In addition, the HKIFM accords Facility Management to the highest professional level whereby facility managers are instrumental in the strategic decision making of an organisation.

The HKIFM identifies the following 11 areas of Core Competency encompassing the spectrum of basic knowledge a Facility Manager should be equipped with in providing professional and customer-oriented facility management services.

HKIFM'S VISION AND MISSION

Enhancing the efficiency and competitiveness of corporations in Hong Kong Special Administrative Region and the neighbouring region through effective facility management of their built assets.

VISION

The Institute

- Embodies a concept of excellence combining professionalism and service to the community, environment and the region.
- Affirms the importance of effective integration of users'/ organisations' needs with the physical planning and maintenance of built-facilities and support services.
- Develops a continuous professional development ethos and culture.
- Upholds the highest professional standing and recognition of the Institute and its members.
- Integrates the latest technological and managerial innovation into Facility Management practice where applicable.
- Collaborates with the leading Facility Management organisations and learned institutes world-wide for continuous improvement of the discipline and the profession.
- Commits to Facility Management education, training, research and development.
- Supports government and community initiatives in improving the effective management of built-facilities and support services for the economy.

MISSION

To achieve its vision, the Institute will

- Promote and advance the knowledge, study and practice concerned with the management of the built facilities.
- Establish the Institute as the leading facility management institute in the region.
- Maintain the highest professional standard for the Institute and its members.
- Serve the public through provisions of advisory services on all matters related to facility management.
- Advise the Government on all matters related to the management of the built facilities.
- Collaborate with other agencies and bodies locally and overseas in the promotion and development of facility management.
- Foster the highest professional standard through membership control, education and supports for research and development.

CLASSES OF MEMBERSHIP

Corporate (with a right to vote)

Fellow (F.PFM)

Member (PFM)

Non-corporate (do not have the right to vote)

Honorary Fellow (Hon.PFM)

Associate (AHKIFM)

Student

Retired Members

PROFESSIONAL FACILITY MANAGEMENT ESTABLISHMENT (PFME[®])

They are organisations that are active in advocating quality practice in the management of the built environment and facilities and the promotion of facility management as a prime profession.

HONORARY ADVISOR, HONORARY FELLOWS PAST PRESIDENTS AND COUNCIL (2013-2014)

Honorary Advisor

The Hon Leung Chun-ying, GBM, GBS, JP

Honorary Fellows

Ir Dr Raymond Ho, SBS, SBStJ, JP

Mr Daniel Lam, BBS, JP

Mr Philip Lo

Mr Alex Lam

Dr Michael Chiu, BBS, JP

Ms Wong Lai-chun, BBS

Prof Patrick Lau, SBS, JP

Dr Chan Man-wai

Mr Frankie So

The Hon Barry Cheung, GBS, JP

Sr Johnny Au, JP

Dr Fung Hong, JP

Dr Lau Wah-sum, GBS, JP

Mr Roger Lai, SBS, JP

Mr Yu Qingxin

Mr Marco Wu, GBS, JP

Mr Pau Shiu-hung, SBS, JP

Mr Thomas Ho

Dr Daniel Ho

Mr Kenneth Chan

Mr Chung Pui-lam, GBS, JP

Founding President

Dr Chan Man-wai (99-02)

Past Presidents

Dr Daniel Ho Chi-wing (02-03)

Mr Kenneth Chan Jor-kin (04-05)

Mr Lau Po-chi (06-07) (deceased)

Mr Stephen Chung Wai-kit (08-09)

Dr Eric Chan Kui-sing (10-11)

Mr Frankie So Hung-fai (03-04)

Ir Alfred Sit Wing-hang, JP (05-06)

Mr Ip Man-ching (07-08)

Mr Nelson Ho Siu-leung (09-10)

Ms Celine Tam Pui-ching (11-12)

Immediate Past President

Ir Edward Lee Kam-hung (12-13)

COUNCIL LIST (2013-2014)

President

Mr Low Hon-wah

Vice President

Dr Edmond Cheng Kam-wah

Hon. Secretary

Mr Alex Cheung Wai-keung

Hon. Treasurer

Ir Dr Percy Kong Tat-fun

Council Members

Mr Edmond Chau Fu-keung

Mr Ray Ng Kit-wah

Mr Lam Cheuk-yum

Mr Raymond Chow Chi-hang

Mr John Ho Yuen-kuen

Mr Gary Yeung Man-kai

Directors of Communications

Ir Edward Lee Kam-hung

Directors of Corporate Affairs

Dr Eric Chan Kui-sing

Directors of Education & Membership

Mr Frankie So Hung-fai

Directors of Professional Development

Mr Law Yeuk-tim

Directors of Programme

Mr Alex Cheung Wai-keung

Directors of Research

Dr Joseph Lai Hung-kit

Directors of Strategic Development

Mr Nelson Ho Siu-leung

Directors of Young Members

Mr Eric Wong Yin-wai

PRESIDENTS (1999-2014)



Front row (from left to right):

Ir Edward Lee Kam-hung; Mr Low Hon-wah; Dr Chan Man-wai; Dr Daniel Ho Chi-wing; Mr Frankie So Hung-fai

Second row (from left to right):

Ms Celine Tam Pui-ching; Dr Eric Chan Kui-sing; Mr Nelson Ho Siu-leung; Mr Stephen Chung Wai-kit;
Mr Ip Man-ching; Ir Alfred Sit Wing-hang; Mr Kenneth Chan Jor-kin

MESSAGE FROM PAST PRESIDENTS



Dr Chan Man-wai

President (99-02)

My congratulations to HKIFM on its 15th anniversary. I am indeed most happy to see HKIFM growing from strength to strength from its humble start. The success was won through the dedicated hardwork of its past presidents and Council members and sure with the enthusiasm towards promoting facilities management in the industry and the community at large. My salute to them for their dedication and selfless contributions.



Dr Daniel Ho Chi-wing

President (02-03)

As a past-president of the Hong Kong Institute of Facility Management (HKIFM), I have the great honour to extend my warmest congratulations to the institute on its 15th Anniversary.

The HKIFM has grown from a small group of founding members into an institute of significant influence in the profession which help to shape policies related to the future of the facility management profession in Hong Kong. I want to take this opportunity to express my gratitude towards successive presidents, council members, and ordinary members who are committed to and passionate about contributing positive changes to the industry. I am sure the institute will continue to lead the profession to face the challenges ahead and will achieve remarkable results in the years to come.



Mr Frankie So Hung-fai

President (03-04)

On the occasion of the fifteen anniversary of the establishment of the Institute, I am pleased to see a thriving organization dedicated to the continuing professional development of facility management.

The Institute has arranged seminars and conferences in both Chinese Mainland and Hong Kong to promote and raise the standards of the profession in the past fifteen years. The Institute has also conducted series of professional trainings to enhance the knowledge of the members and practitioners.

Looking forward to continuous success of the Institute.

MESSAGE FROM PAST PRESIDENTS



Mr Kenneth Chan Jor-kin
President (04-05)

Kudos!

15 Great Years of "Fantastic Manifestation!"

My sincere wish that the Institute will continue to grow and exercise its influence in the society by defining professional standards, through public participation, developing membership, recognising exemplary practices and enhancing the competitiveness of corporation and effectiveness of other organisations through best and quality facility management services.



Ir Alfred Sit Wing-hang, JP
President (05-06)

It is my great pleasure to congratulate the Hong Kong Institute of Facility Management on its 15th Anniversary.

Over the years, the Institute has played a pivotal role in promoting and developing the facility management profession through a number of activities such as conferences, seminars, professional development courses, talks and technical visits. I feel extremely honored to be able to serve the Institute in various positions. Since 2010, the Institute has organized the Excellence in Facility Management Award (EFMA) annually to recognize the outstanding performance and excellent contribution of organizations in delivering an exemplary record of Facility Management. Through my involvement in the adjudication works of the award, I have noted the ever rising standard of the participants over the years. It is particularly exciting to note that the participants are extending their embracement of green practices including various energy saving measures. There is no doubt that the Award has been instrumental in promoting best practices to the industry.

With the continued effort of the Institute and all stakeholders, I am sure the facility management profession will continue to take a leading role in promoting a better built environment in Hong Kong. On this joyous and memorable occasion, I wish the Institute and its members every success in the coming future.



Mr Lau Po-chi
President (06-07) [deceased]

*In Memory
of
Mr Lau Po-chi*

MESSAGE FROM PAST PRESIDENTS



Mr Ip Man-ching
President (07-08)

It is a pleasure for me to congratulate The Hong Kong Institute of Facility Management for its 15th anniversary.

The Institute has helped to promote and advance the knowledge, study and practice in managing built asset and facilities in Hong Kong. The establishment of clear and achievable roadmap encourages individual in planning their advancement along the career path within the facility management profession. The regularly organized seminars and conferences provide forums for sharing among experienced fellows and passionate young practitioners academically and practically approaching options/initiatives in response to new challenges arose from the changing business environment. The annual Excellence Facility Management Award (EFMA) recognizes the achievement, contribution and commitment of all FM practitioners in best practice development for management of built assets and facilities in Hong Kong.

With the full support of all Past President, current and future Office Bearer, Committee Director and Council Member, I am confident that the Institute will be able to continue playing its vital role in enhancing the efficiency and competitiveness of corporations in Hong Kong Special Administrative Region and the neighbouring region through effective facility management of their built assets.

I look forward to seeing the Institute embark its second decade.



Mr Stephen Chung Wai-kit
President (08-09)

Wow! An extremely happy occasion, keep it up and carry on. And look forward to another on our 30th Birthday. :)



Mr Nelson Ho Siu-leung
President (09-10)

Originated from a concept developed while waiting for BBQ goose at the City U canteen, it is fascinated to see the celebration of the 15th Anniversary of the HKIFM! I am delighted to see the healthy growth of the Institute as well as the flourish of the profession under her promotion and advocacy.

The demand of quality and competent FM professional is of great demand. I trust there are still work ahead for the Institute to develop and nurture more and more quality Professional Facility Managers with integrated knowledge and innovative minds.

Congratulations to all in HKIFM in this anniversary celebration! Keep up with the good work to bring the Institute and the profession to a new height!

MESSAGE FROM PAST PRESIDENTS



Dr Eric Chan Kui-sing
President (10-11)

For the past 15 years, HKIFM has been rigorously performing a key leading role in strengthening the professional facility management services to the public.

In this dynamic facility management development, HKIFM has a pivotal role in the regulatory framework to promote the quality and reliable services to the community by working seamlessly with the Bureau in promoting the forthcoming legislation of the registration of professionals in facility and property management through the governing authority.

Definitely, it is instrumental in bringing HKIFM a full recognition of its professional qualification in the industry. Striving towards exemplary records of professional excellence, HKIFM has conducted a series of technical visits, talks, lectures, and researches for the benefits of our members.

With greater participation in every FM development and increasing influence in the industry, I have every confidence that HKIFM can set new heights for the professional FM development, realize an unparalleled achievement and make significant contributions and to the whole society in the many, many more years to come.

I wish a great success of 15th Anniversary of the HKIFM.



Ms Celine Tam Pui-ching
President (11-12)

Throughout the past fifteen years, Hong Kong Institute of Facility Management has made great effort to promote progressive development of facility management profession in Hong Kong with wide public recognition.

Being the President for Year 2011/2012, I had the chance to serve the Institute and witness its contribution to various facility management services sectors and the community through a concerted effort of the Council.

Taking this opportunity, I would like to congratulate HKIFM on the special occasion of its 15th anniversary and wish the Institute to continue prospering in the years ahead.



Ir Edward Lee Kam-hung
President (12-13)

On this special occasion of 15th Anniversary, I would like to extend my warmest congratulation to the Hong Kong Institute of Facility Management for all its contributions and achievements in the advancement of facility management profession in Hong Kong and neighboring regions over the years.

I feel very much privileged to have the opportunity of participating in various works of the Institute. With the persistent effort of the Institute and its members, I am sure it would continue to take a leading role in the furtherance of facility management in the regions.

I wish the Institute every success in the years to come.

HKIFM ACTIVITIES

CPD/SOCIAL EVENTS

The HKIFM holds regular Continuing Profession Development (CPD) events, conference and seminars for members and the general public to promote and develop skills and markets in FM and related fields



2000

- 2000** 28 Jul Seminar on Critical Issues in Facilities Management
- 19 Aug Technical Visit to Lantau Link
- 23 Sep HKIFM Inauguration Seminar on Facilities Management in Hong Kong: Past, Present and Future and Towards a Successful Corporate FM
- 4 Oct Full-day Seminar on Clicks & Mortar Facilities Management Technologies
- 1 Nov HKIFM 1st AGM & Annual Dinner 2000
- 28 Nov CPD Talk on Development in Education & Global Trends in Facility Management - An Insight Review



2001

- 2001** 17 Mar Technical Visit to Wind Tunnel at HKUST
- 6 Apr Seminar on Business of FM and Dinner Talk on Indoor Air Quality
- 19 May Technical Visit to iAdvantage Data Centre
- 16 Jun Technical Visit to the flexible office of Sun Microsystems
- 24 Aug Executive Programme in FM
- 27 Sep Luncheon Talk on Green Buildings
- 26 Oct Luncheon Talk on The Risk of Exporting HK development Strategies to Mainland China
- 9 Nov HKIFM 2nd AGM & Annual Dinner 2001
- 30 Nov Luncheon Talk on A Facilities Management Perspective



2002

- 2002** 24 Jan Seminar on Legal Issues for FM Practitioners
- 25 Jan Seminar on Construction Price Management System in PRC
- 29 Jan Seminar on EQ for Facility Managers
- 16 Mar Seminar on Trends in Facilities Design and Management
- 26 Apr Luncheon Talk on What Every Facility Manager should know about Occupational Safety and Health
- 23 May Seminar on Lessons from Ground Zero: Design, Construction & FM Essentials after 9-11
- 20 Sep Luncheon Talk on Effectiveness of Building Management (Amendment) Ordinance 2000
- 17 Oct Luncheon Talk on the Latest Development in FM

- 4 Nov HKIFM 3rd AGM & Annual Dinner 2002
- 21 Nov Seminar on Pain-free Outsourcing
- 22 Nov Luncheon Talk on Integration of Technology & Humans
Directions for Efficiency & Productivity in FM
- 22 - 23 Nov Executive Programme in FM

2003

- 25 Jan Technical Visit to Cyberport
- 20 Feb Dinner Talk on Benchmarking - Lies & Statistics - a not too serious look at benchmarking practices in HK & overseas
- 25 Apr Forum on Facility and Drainage Improvements due to SARS and General Environmental Healthiness
- 27 Jun Luncheon Talk on Why Technology is a Strategic Tool for Real Estate Companies?
- 29 Aug Social Function on Astronomical Phenomenon
- 23 Aug CPD Talk on Emergency Preparedness in FM : An After-SARS New Initiative
- 23 Sep CPD Talk on Blackout in North America – A Lesson for Facility Manager
- 28 Nov HKIFM 4th AGM & Annual Dinner 2003 cum FAME Award 2003 Presentation Ceremony
- 27 Dec Technical Visit to Newly Refurbished SARS Ward at KWH

2004

- 5 Feb Luncheon Talk on How to Handle Emergency Situations for a "FM" Perspective
- 9 Jul Luncheon Talk on In Search of Greener Pastures
- 28 Aug Technical Visit to Two IFC (The True Skyscraper) & Casual Lunch
- 18 Nov HKIFM 5th AGM & Annual Dinner 2004 cum FAME Award 2004 Presentation Ceremony
- 12 Dec WWII Battlefield Tour & Countryside Hike
- 17 Dec Career Talk & Christmas Gathering for Young Members

2005

- 5 Jan Seminar on Rights and Obligations of the Manager and IO in respect of management of the Common Part
- 18 Feb Chinese New Year Luncheon Talk on Energy Efficiency in HK
- 7 Mar CPD Talk on TEFMA and Presentation on the objectives of the Benchmarking Survey
- 13 May Luncheon Talk on Facilities of A Golf Course : Facilities Manager's Perspective
- 24 Jun Luncheon Talk on Two Schools of Fung Shui

2003



2004



2005





2006	21 Oct	Hearty Friday Evening
	11 Nov	CPD Talk on Stress, Motivation and Performance
	25 Nov	HKIFM 6th AGM & Annual Dinner 2005
	17 Nov	Workshop on Developing & Managing FM Contracts
	2 Dec	CPD Talk on FM Benchmarking: Experience from Australia
2006	10 Feb	Spring Luncheon Talk on FM in Science Park
	8 Jul	Technical visit to EMSD Headquarters
	14 Oct	Technical visit to Bethanie of the HKAPA
	15 Dec	HKIFM 7th AGM & Annual Dinner 2006
2007	2 Mar	Chinese New Year Luncheon Talk on Facility Managers' Role in Heritage Conservation
	17 Apr	CPD Talk on Knowing you own rights when being interrogated
	3 May	CPD Talk on Engineering Solutions to Energy Saving
	15 May	CPD Talk on Management of Service Level Agreements (SLA)
	21 Jun	CPD Talk on Risk-based approach in evaluation of facility capital work projects
	12 Jul	Technical Visit to Oncology Centre & ID Block of Princess Margaret Hospital
	27 Oct	Technical Visit to the HKSTP
	2 Nov	HKIFM 8th AGM & Annual Dinner 2007
2008	12 Jan	Technical Visit to Lamma Wind & Hiking at Lamma Island
	22 Feb	Chinese New Year Luncheon Talk on New Real Estate Rule: Liquidity, Liquidity, and Liquidity
	26 Feb	CPD Talk on The Challenges of Conserving and Adapting a Heritage Building for Contemporary Use – A Case Sharing of the Bethanie Project
	10 Mar	CPD Talk on Most Real Estate Investors are Micro-Smart but Marco Dumb
	15 Apr	CPD Talk on Emergency Preparedness for Disasters in Facility Management
	6 May	CPD Talk on Development of Energy Efficient and Renewable Energy Installation in Government Buildings
	27 May	CPD Talk on Why Facilities Management is Strategic?
	25 Jun	CPD Talk on Practical means to achieve a better environment – Energy Efficiency & Renewal Energy

	23 Oct	HKIFM 9th AGM & Annual Dinner 2008
	15 Nov	Lunch Gathering & Pre-lunch Tour with German FM Expert on Reaching the World
	17 Nov	CPD Talk on How to achieve environmental sustainability by using Flexible Space System?
2009	21 Jan	CPD Talk on Lift & Escalator Safety
	16 Feb	CPD Talk on Energy Audit
	24 Apr	CPD Talk on Professional Practice in Handling Insurance Claims
	11 May	CPD Talk on Operation Building Bright 「樓宇更新大行動」
	24 Jun	CPD Talk on Carbon Audit Guidelines for Buildings in Hong Kong
	15 Oct	HKIFM 10th AGM & Annual Dinner 2009
	6 Nov	CPD Talk on Total Light & Energy Management - A Case Study on New York Times Building
2010	22 Jan	Half Day Symposium on Revitalisation of Factory and Old Buildings
	27 Feb	Spring Lunch Gathering and Seminar on IT in FM and Technical Visit to the Hong Kong Science Park
	2 Mar	CPD Talk on LED Lighting
	20 Mar	HKIFM & HKIS (PFMD) Joint CPD on Technical Visit to the Amphitheatre of HKAPA
	20 Apr	Technical Visit to HKSTP with Hwa Hsia Institute of Technology
	28 May	CPD Talk on Effective Implementation of Asset Management
	18 Jun	CPD Talk on MBM (Model, Build and Manage) by using BIM (Building Information Modeling)
	13 Sep	CPD Talk on Leveraging Technologies and Opportunities for Sustainable Real Estate (Property), Infrastructure and Facilities Management
	12 Nov	HKIFM 11th AGM & Annual Dinner 2010 cum EFMA 2010 Presentation Ceremony

2009



2010





2011

2011	15 Jan	CPD Talk on Licensing of Property Management Companies & Practitioners
	24 Mar	CPD Talk on Landscape Design & Tree Management
	14 May	Technical Visit to Venetian & Macau Tower
	4 Jun - 2 Jul	Training Course and Workshops A: Building Information Modeling in Facility Management (BIMFM)
	23 & 27 Sep	Training Course and Workshops B: BIM in Works Procurement & Financial Management "Course Outline and Discussion Threads"
	24 Sep	Technical Visit to ICC
	27 Oct	HKIFM 12th AGM & Annual Dinner 2011 cum EFMA 2011 Presentation Ceremony
	26 & 27 Nov	Training Course and Workshops C: BIM in Works Procurement & Financial Management

2012	4 Jan	Technical Talk on on Code of Practice for Fire Safety in Buildings 2011 related to Property Maintenance and Management
	8 Feb	CPD Talk on Space Attack! Transforming Hospital Planning and Design with Science and Imagination
	25 Feb	Technical visit to the HKSTP
	23 Mar	Sharing Session of EFMA (2011) Winners
	4 May	CPD Talk on Minor Works Control System (MWCS)
	8 Jun	CPD Talk on Building Energy Efficiency Ordinance, Building Energy Code and Energy Audit Code
	6 Jul	CPD Talk on Mandatory Building Inspection Scheme (MBIS)/ Mandatory Window Inspection Scheme (MWIS) and Registration of the Registered Inspector (RI)
	18 Jul	Technical Visit to HKSTP
	27 Jul	CPD Talk and Forum on The Way Forward for FM: Building Information Modelling 2012
	24 Aug	CPD Talk on CIC Zero Carbon Building (ZCB)
	20 Sep	CPD Talk on New Requirements of Lifts and Escalators Ordinance ("LEO") and Lift Modernization
	6 Oct	Technical Visit to Zero Carbon Building
	18 Oct	HKIFM 13th AGM & Annual Dinner 2012 cum EFMA 2012 Presentation Ceremony
	9 Nov	CPD Talk on Waste Recycling
	16 Nov	CPD Course 12/13 #1 on Building Ordinance - New Works

23 Nov	CPD Course 12/13 #2 on Building Ordinance - A & A Works
30 Nov	CPD Course 12/13 #3 on Building Ordinance - Maintenance & Inspections
8 Dec	Technical Visit to EcoPark
14 Dec	CPD Course 12/13 #4 on Barrier Free Provision - Design Manual - Barrier Free Access 2008

2013

4 Jan	CPD Course 12/13 #5 on Building Energy Efficiency & Energy Audit
7 Jan	CPD Course 12/13 #6 on Fire Engineering
12 Jan	Technical Visit to DSD Stanley Sewage Treatment Works
14 Jan	CPD Course 12/13 #7 on Water Supplies related ordinance
18 Jan	CPD Course 12/13 #8 on Electrical Installation
25 Jan	CPD Course 12/13 #9 on Lift & Escalators
1 Feb	CPD Course 12/13 #10 on MVAC Systems
8 Mar	Talk and Technical Visit to Energizing Kowloon East Office (EKEO)
22 Mar	FM Networking cum Outstanding FM Students Award
9 Apr	Seminar on Facilities Management and Business of Managing Assets
12 Apr	Symposium on FM Best Practices cum Excellence in Facility Management Award (EFMA) 2013 Launch Ceremony
3 May	CPD Talk on District Cooling
15 Jun	Visit to King Yin Lei
4 Jul	CPD Talk on Turning Point of Real Estate Market 「樓市轉捩點」
30 Aug	CPD Talk on Strategic Facility Planning for West Kowloon Cultural District
28 Sep	CPD Technical Visit to Kai Tak Cruise Terminal Building
31 Oct	HKIFM 14th AGM & Annual Dinner 2013 cum EFMA 2013 Presentation Ceremony
1 Nov	CPD Course 13/14 #1 on Introduction of Regulatory Requirements
8 Nov	CPD Course 13/14 #2 on Energy Efficiency in Lighting System
15 Nov	CPD Course 13/14 #3 on Energy Efficiency in AC Installations

2012



2013





2014

- 22 Nov CPD Course 13/14 #4 on Energy Efficiency in Electrical Installations
- 29 Nov CPD Course 13/14 #5 on Lift & Escalator System
- 6 Dec CPD Course 13/14 #6 on Energy Audit and Carbon Audit
- 13 Dec CPD Course 13/14 #7 on Renewable Energy and Case Studies
- 14 Dec Technical Visit to Hong Kong Science Park Phase 3

2014

- 10 Jan CPD Course 13/14 #8 on ISO 50001 Energy Management System
- 17 Jan CPD Course 13/14 #9 on BEAM Plus and LEED
- 17 Jan CPD Talk and Forum on Public Engagement on Municipal Solid Waste Charging
- 24 Jan CPD Course 13/14 #10 on Experience Sharing - No/Low Cost, Practical Energy Saving Initiatives
- 22 Feb Technical Visit to HKEx Data Centre
- 1 Mar Technical Visit to District Cooling at Kai Tak Development
- 14 Mar Technical Visit to North Lantau Hospital
- 18 Mar HKQAA SBI Training Course
- 11 Apr Symposium on FM Best Practices cum EFMA 2014 Launch Ceremony
- 11 Apr FM Networking cum Outstanding FM Students Award
- 26 Jul Technical Visit to Hong Kong Jockey Club, Sha Tin Racecourse



PSDAS PROJECTS

We are grateful for the assistance and financial support from the Professional Services Development Assistance Scheme (PSDAS) of the Commerce and Economic Development Bureau (CEDB) of the HKSAR Government. We would also like to thank all the collaborating institutions, sponsors, speakers, supporting organizations, helpers and participants for their support and efforts, which have made the following events under the above-mentioned scheme a great success.

1. 2003-2004 Quality Facilities Management Services for Modern Corporations

- 5 Jun 04 Conference on "New World Order in Facility Management" in Beijing
- 3 Jun 04 HK Conference on "New World Order in Facility Management"
- 11 & 18 Nov 03 HK Seminars on "Facility Performance Measurements"
- 5 Jul 03 HK Seminar on "Crisis in Facility Management"
- 3-5 Mar 03 HK Real Estate Services Expo in Guangzhou

2. 2004-2005 Strategic Facility Management Services in China

- 24 Sept 05 HK Seminar on "Strategic Facility Management in China"
- 25 May 05 Conference on "Strategic Facility Management" in Shanghai
- 26 Feb 05 HK Seminar on "Strategic Facility Management"
- 24 Nov 04 Joint Conference with IFMA (HK Chapter) on "Where can FM add more?"

3. 2006-2007 Total FM Solutions - Mapping Customer's Aspirations in a Changing World

- 6-8 Jun 07 Technical Visit on the Contribution of FM in Sustainable Developments in the PRD (Zhuhai, Zhongshan & Macau, China)
- 21-24 Mar 07 Technical Visit on Sustainability and Energy Conservation (Toyko and Yokohama, Japan)
- 26 Oct 06 Conference on Total FM Solutions - Mapping Customer's Aspirations in a Changing World" & Technical Visit in Chongqing

4. 2007-2009 Real Estate Development and Management : How FM Can Help Enhance Your Return and Reduce Your Risk

- 20 Mar 09 Conference on "China Real Estate 2009: A Year for the Vultures?"
- 6-7 Nov 08 Conference on "China Real Estate"

5. 2008-2010 International Conference on Sustainable Integrated Design Process for Buildings and Construction (SIDP)

- 29-30 Sept 09 SIDP 09 Conference

6. 2010-2011 The Way Forward for Facility Management I.T. – Building Information Modelling

- 26 May 11 Conference
- 28 May 11 One day Technical Visit in Hong Kong



HKIFM AWARDS

OBJECTIVE

The Awards aimed at promoting and encouraging the pursuit of excellence among Facility Management practitioners and encouraged the sharing of best practice amongst Facility Management professionals through competition. The Awards also helped promote the Facility Management profession to the community. This was conducive to achieving HKIFM's core objectives, which is to promote Facility Management as one of the leading disciplines and professions in the management of built assets and facilities in Hong Kong.

Facility Management Establishment (FAME) Award was launched in 2003 to give recognition to the outstanding Facility Management establishments while Best Managed Facility Award was launched in 2004 to give recognition to the on-site Facility Management teams. Applicants for these awards were scrutinized independently by Facilitators and Panel Judges composed of renowned professionals in the industry of Facility Management and very reputable individuals in the community.

FACILITY MANAGEMENT ESTABLISHMENT (FAME) AWARD 2003

Overall Winner	Synergis Management Services Ltd
Certificate of Excellence	Eastpoint Property Management Services Ltd
Certificate of Merit	Urban Group

BEST MANAGED FACILITY AWARD 2004

GOLD Award	<u>Residential Facility</u> City One Shatin managed by Urban Group
	<u>Other Facility</u> Hong Kong Institute of Education managed by Estates Office, the Hong Kong Institute of Education
Certificate of Merit	Casa Marina managed by Well Born Real Estate Management Ltd Regence Royale managed by Well Born Real Estate Management Ltd



HKIFM AWARDS

EXCELLENCE IN FACILITY MANAGEMENT AWARD (EFMA)

Since Year 2010, The Hong Kong Institute of Facility Management (HKIFM) has been promoting service excellence of facility management profession through the Excellence Facility Management Award (EFMA) which is well received by the general public.

Being the Chairperson of the Organizing Committee for Year 2013 and Year 2014, I have witnessed the strengths and significant contributions of various FM professionals and service providers to facility management industry with outstanding achievements, through various aspects such as technology, green initiatives, carbon reduction, universal access, occupational health & safety and teambuilding.

The Organizing Committee has also introduced a **Theme Award** to recognize the distinguished performance of FM organizations on a specific area. For Year 2014, the theme being "Waste Management", which assessment is based on the international acceptable concept of "Waste Management Hierarchy" as stated in the Hong Kong Blueprint for Sustainable Use of Resources 2013-2022, Environment Bureau" as follows:

- i. Prevention
- ii. Reuse
- iii. Recycling
- iv. Recovery
- v. Disposal

Taking this special opportunity, the Organizing Committee would like to express gratitude to all participants for their invaluable efforts made to the success of EFMA over the past few years.

List of Awardees for EFMA 2010

- Grand Award (Commercial)**
Two IFC managed by MTR - Premier Plus
- Excellence in Facility Management Award (Institution)**
Hong Kong Science Park managed by ISS EastPoint Property Management Limited
- Excellence in Facility Management Award (Commercial)**
Argyle Street No. 113 managed by Main Shine Development Limited (Nan Fung Group)
- Excellence in Facility Management Award (Residential)**
Grand Waterfront managed by Well Born Real Estate Management Limited
Summit Terrace managed by Vineberg Property Management Limited (Nan Fung Group)
Sceneway Garden managed by Goodwell Property Management Limited
The Cullinan managed by MTR Corporation Limited
- Excellence in Facility Management Award (Public Sector)**
Cluster Facility Management, Kowloon West Cluster, Hospital Authority
- Excellence in Facility Management Award (Teambuilding Projects)**
Kwong Wah Hospital & TWGHs Wong Tai Sin Hospital
- Excellence in Facility Management Award (Green Performance)**
Cyberport managed by Hong Kong Cyberport Management Co Limited
International Trade Centre managed by Hong Yip Service Co Limited
Vista Paradiso managed by Goodwell Property Management Limited
- Excellence in Facility Management Award (Safety Performance)**
Two IFC managed by MTR - Premier Plus
Prosperity Place managed by ARA Asset Management (Prosperity) Limited
Tseung Kwan O Plaza managed by Vineberg Property Management Limited (Nan Fung Group)
- Certificate of Merit (Institution)**
Yan Fook Centre managed by Hong Yip Service Company Limited
- Certificate of Merit (Commercial)**
Shun Tak Centre managed by Shun Tak Properties Limited
- Certificate of Merit (Residential)**
The Belcher's managed by Shun Tak Property Management Limited
- Certificate of Merit (Technology Applications)**
Project & Facility Management Department of Ka Shun Civil Engineering Company Limited
- Certificate of Merit (Green Performance)**
The Beverly Hills managed by Well Born Real Estate Management Limited
Hong Kong Disneyland Resort



The HKIFM
Excellence in
FM Award 2010

EXCELLENCE IN FACILITY MANAGEMENT AWARD (EFMA)

List of Awardees for EFMA 2011

Grand Award (Hotel & Resort)

Hyatt Regency Hong Kong Sha Tin

Grand Award (Office Building)

Grand Century Place managed by Kai Shing Management Services Limited

Grand Award (Retail)

Grand Century Place managed by Kai Shing Management Services Limited

Excellence in Facility Management Award (Industrial)

Asia Trade Centre managed by Main Shine Development Limited (Nan Fung Group)

Excellence in Facility Management Award (Institution & Public Sector)

Kowloon West Cluster Facility Management of Hospital Authority

Excellence in Facility Management Award (Office Building)

118 Connaught Road West managed by DTZ Debenham Tie Leung Property Management Limited

Manulife Financial Centre managed by Goodwill Management Limited

Prosperity Place managed by ARA Asset Management (Prosperity) Limited

Standard Chartered Bank Building managed by DTZ Debenham Tie Leung Property Management Limited

Win Plaza managed by Hang Yick Properties Management Limited

Excellence in Facility Management Award (Residential)

Florient Rise managed by Main Shine Development Limited (Nan Fung Group)

Laguna Verde managed by Goodwell Property Management Limited

Manhattan Hill managed by Royal Elite Service Company Limited

The Beverly Hills managed by Well Born Real Estate Management Limited

Excellence in Facility Management Award (Retail)

1881 Heritage managed by Citybase Property Management Limited

Landmark North managed by Kai Shing Management Services Limited

Metro City Plaza II managed by Goodwill Management Limited

Certificate of Merit (Office Building)

Nan Fung Tower managed by New Charm Management Limited (Nan Fung Group)

Shun Tak Centre managed by Shun Tak Properties Limited

Certificate of Merit (Residential)

CentreStage managed by Hang Yick Properties Management Limited

Galaxia managed by ISS EastPoint Property Mgt Limited

Grand Promenade managed by Well Born Real Estate Management Limited

Granville Garden managed by Well Born Real Estate Management Limited

La Cite Noble managed by Well Born Real Estate Management Limited

liberté managed by Shun Tak Property Management Limited

Metro City Phase II managed by Metro City Management Limited

The Belcher's managed by Shun Tak Property Management Limited

The Sherwood managed by Well Born Real Estate Management Limited

Vista Paradiso managed by Goodwell Property Management Limited

Certificate of Merit (Retail)

Ma On Shan Plaza managed by Fortune Reit

Miramar Shopping Centre managed by Henderson Real Estate Agency



EXCELLENCE IN FACILITY MANAGEMENT AWARD (EFMA)

List of Awardees for EFMA 2012

Grand Award (Institution & Public Sector)

Hong Kong Science Park

Grand Award (Office Building)

International Commerce Centre managed by Kai Shing Management Services Limited

Grand Award (Corporate Real Estate)

Standard Chartered Bank (Hong Kong) Limited - Corporate Real Estate Services Department

Excellence in Facility Management Award (Institution & Public Sector)

EcoPark managed by Serco Guardian JV

Excellence in Facility Management Award (Office Building)

Grand Central Plaza managed by Kai Shing Management Services Limited
Kowloon Commerce Centre managed by Kai Shing Management Services Limited
Landmark North managed by Kai Shing Management Services Limited
Octa Tower managed by New Charm Management Limited (Nan Fung Group)
Prosperity Place managed by ARA Asset Management (Prosperity) Limited
Skyline Tower managed by Sino Property Services
World Trade Centre managed by Kai Shing Management Services Limited

Excellence in Facility Management Award (Residential)

Bowen's Lookout managed by Sino Estates Management Limited
Grand Promenade managed by Well Born Real Estate Management Limited
liberté managed by Shun Tak Property Management Limited
Manhattan Hill managed by Royal Elite Service Company Limited
Noble Hill managed by Grandeur Property Management Company Limited
Park Central managed by Hong Yip Service Company Limited
Park Island managed by Kai Shing Management Services Limited
Peak One managed by Royal Elite Service Company Limited
The Grandville managed by New Charm Management Limited (Nan Fung Group)
THE LEGEND at Jardine's Lookout managed by Goodwell Property Management Limited

Excellence in Facility Management Award (Industrial)

Golden Dragon Industrial Centre managed by Main Shine Development Limited (Nan Fung Group)
International Trade Centre managed by Hong Yip Service Company Limited
New Tech Plaza managed by Hong Yip Service Company Limited
Westin Centre managed by Sino Property Services

Excellence in Facility Management Award (Retail)

apm managed by Kai Shing Management Services Limited
China Hong Kong City managed by C.H.K.C. Building Management Limited
iSQUARE managed by DTZ Debenham Tie Leung Property Management Limited
Metroplaza managed by Kai Shing Management Services Limited
Mikiki managed by Hong Yip Service Company Limited
New Town Plaza managed by Kai Shing Management Services Limited
Olympian City managed by Sino Property Services
Tsuen Wan Plaza (Shopping Arcade) managed by Hong Yip Service Company Limited
Tuen Mun Town Plaza Phase I & II (Shopping Arcade) managed by Sino Estates Management Limited

Excellence in Facility Management Award (Corporate Real Estate)

248 Queen's Road East managed by Henderson Sunlight Asset Management Limited

Excellence in Facility Management Award (Asia Pacific)

MGM MACAU managed by MGM Grand Paradise Limited
One Central Residences (Macau) managed by Shun Tak Property Management Limited

Certificate of Merit (Office Building)

Concordia Plaza managed by Citybase Property Management Limited
The Center managed by Citybase Property Management Limited
Well Tech Centre managed by Hang Yick Properties Management Limited

Certificate of Merit (Residential)

The Belcher's managed by Shun Tak Property Management Limited
The Latitude managed by Hong Yip Service Company Limited

Certificate of Merit (Retail)

Kowloonbay International Trade & Exhibition Centre managed by KITEC Management Limited
Ma On Shan Plaza managed by Fortune Reit



EXCELLENCE IN FACILITY MANAGEMENT AWARD (EFMA)

List of Awardees for EFMA 2013

Grand Award (Office Building)

Citibank Plaza managed by The Great Eagle Properties Management Company, Limited

Grand Award (Private Residential)

Peak One managed by Royal Elite Service Company Limited

Grand Award (Retail)

Olympian City managed by Sino Property Services

Excellence in Facility Management Award (Corporate Real Estate)

248 Queen's Road East managed by Henderson Sunlight Asset Management Limited

Excellence in Facility Management Award (Industrial)

Apec Plaza managed by Kai Shing Management Services Limited

Infotech Centre managed by Hong Yip Service Company Limited

Wang Yip Industrial Building managed by Main Shine Development Limited (Nan Fung Group)

Westley Square managed by Sino Estates Management Limited

Excellence in Facility Management Award (Institution & GPA)

Cluster Facility Management, Kowloon West Cluster, Hospital Authority

HKEx Data Centre managed by Hong Kong Exchanges and Clearing Limited

Victoria Shanghai Academy managed by Urban Property Management Limited

Yan Fook Centre managed by Hong Yip Service Company Limited

Excellence in Facility Management Award (Office Building)

Exchange Tower managed by Sino Estates Management Limited

Futura Plaza managed by Sino Estates Management Limited

Grand Central Plaza managed by Kai Shing Management Services Limited

Grand Millennium Plaza managed by Urban Property Management Limited

Metropol Plaza Office Towers managed by Kai Shing Management Services Limited

Millennium City 1, 2, 3 & 6 managed by Kai Shing Management Services Limited

Millennium City 5 (Office Tower) managed by Kai Shing Management Services Limited

New Town Tower managed by Kai Shing Management Services Limited

The Centrium managed by Sino Estates Management Limited

The Metropolis Tower managed by ARA Asset Management (Prosperity) Limited

Excellence in Facility Management Award (Private Residential)

Aria managed by Royal Elite Service Company Limited

Kwai Chung Plaza managed by Main Shine Development Limited (Nan Fung Group)

Liberty managed by Shun Tak Property Management Limited

Manhattan Hill managed by Royal Elite Service Company Limited

Parc Palais managed by Urban Property Management Limited

The Latitude managed by Hong Yip Service Company Limited

The Leighton Hill managed by Supreme Management Services Limited

Tseung Kwan O Plaza managed by Vineberg Property Management Limited (Nan Fung Group)

Vision City managed by Sino Estates Management Limited

Excellence in Facility Management Award (Public Rental Housing)

Kwun Lung Lau managed by Hong Kong Housing Society

Lam Tin Estate managed by Housing Department, Hong Kong Housing Authority

Ping Shek Estate managed by Housing Department, Hong Kong Housing Authority

Excellence in Facility Management Award (Subsidized Purchase Housing)

Bel Air Heights managed by Hong Kong Housing Society

Kingston Terrace managed by Hong Kong Housing Society

Excellence in Facility Management Award (Retail)

China Hong Kong City managed by C.H.K.C. Building Management Limited

Domain managed by Housing Department, Hong Kong Housing Authority

Landmark North managed by Kai Shing Management Services Limited

Metropolis Plaza managed by Kai Shing Management Services Limited

Mikki managed by Hong Yip Service Company Limited

Miramar Shopping Centre managed by Henderson Real Estate Agency Limited

New Town Plaza managed by Kai Shing Management Services Limited

Park Central Shopping Arcade managed by Hong Yip Service Company Limited

Stanley Plaza managed by The Link Management Limited

Sunshine City Plaza managed by Goodwill Management Limited (Henderson Land Group)

Tsuen Wan Plaza (Shopping Arcade) managed by Hong Yip Service Company Limited

Tuen Mun Town Plaza Phase I & II (Shopping Arcade) managed by Sino Estates Management Limited

wtc more managed by Kai Shing Management Services Limited

Certificate of Merit (Institution & GPA)

Cheung Sha Wan Government Offices managed by Guardian Property Management Limited

Certificate of Merit (Office Building)

8 Wyndham Street managed by New Charm Management Limited (Nan Fung Group)

AIA Tower managed by Goodwill Management Limited (Henderson Land Group)

Shun Tak Centre managed by Shun Tak Properties Limited

Certificate of Merit (Private Residential)

No.1 Homantin Hill managed by Supreme Management Services Limited

Pacific Palisades managed by Sino Estates Management Limited

The Belcher's managed by Shun Tak Property Management Limited

The Victoria Towers managed by Goodwill Property Management Limited

Certificate of Merit (Public Rental Housing)

Tin Ching Estate (Property of Hong Kong Housing Authority) managed by Easy Living Property Management Limited



**The HKIFM
Excellence in
FM Award 2013**

EXCELLENCE IN FACILITY MANAGEMENT AWARD (EFMA)

List of Awardees for EFMA 2014

Grand Award (Private Residential)

Manhattan Hill managed by Royal Elite Service Company Limited
Park Island managed by Kai Shing Management Services Limited

Grand Award (Subsidized Purchase Housing)

Rhythm Garden managed by Urban Property Management Limited

Excellence in Facility Management Award (Industrial)

Billion Trade Centre managed by Hong Yip Service Company Limited
Fook Yip Building managed by Hon Hing Enterprises Limited (Nan Fung Group)
Fullerton Centre managed by Sino Estates Management Limited
Kaiser Estate (Phase 1, 2 & 3) managed by Urban Property Management Limited
Remington Centre managed by Sino Estates Management Limited

Excellence in Facility Management Award (Office Building)

Exchange Tower managed by Sino Estates Management Limited
Landmark North managed by Kai Shing Management Services Limited
Metroplaza Office Towers managed by Kai Shing Management Services Limited
Skyline Tower managed by Sino Estates Management Limited
World Trade Centre managed by Kai Shing Management Services Limited

Excellence in Facility Management Award (Private Residential)

Aegean Coast managed by Kai Shing Management Services Limited
ARIA managed by Royal Elite Service Company Limited
Belcher's Hill managed by Urban Property Management Limited
Harbour Place managed by Hong Yip Service Company Limited
Lime Stardom managed by Kai Shing Management Services Limited
Metropolis Plaza managed by Kai Shing Management Services Limited
Nan Fung Sun Chuen managed by Vineberg Property Management Limited (Nan Fung Group)
Noble Hill managed by Grandeur Property Management Company Limited
Pacific Palisades managed by Sino Estates Management Limited
Park Summit managed by Sino Estates Management Limited
Sereno Verde managed by Urban-Wellborn Property Management Limited
The Latitude managed by Hong Yip Service Company Limited
The Leighton Hill managed by Supreme Management Services Limited
Vision City managed by Sino Estates Management Limited

Excellence in Facility Management Award (Retail)

China Hong Kong City managed by C.H.K.C. Building Management Limited
Choi Yuen Plaza managed by The Link Management Limited
Citywalk managed by Citywalk Management Company Limited
Domain managed by Hong Kong Housing Authority
East Point City (Commercial) managed by Kai Shing Management Services Limited
HomeSquare managed by Kai Shing Management Services Limited
Langham Place managed by The Great Eagle Properties Management Company, Limited
Lok Fu Plaza managed by The Link Management Limited
Miramar Shopping Centre managed by Henderson Real Estate Agency Limited
New Town Plaza managed by Kai Shing Management Services Limited
Stanley Plaza managed by The Link Management Limited
Tsuen Wan Plaza (Shopping Arcade) managed by Hong Yip Service Company Limited
Tuen Mun Town Plaza Phase I & II (Shopping Arcade) managed by Sino Estates Management Limited

Excellence in Facility Management Award (Public Rental Housing)

Sun Chui Estate managed by Hong Kong Housing Authority

Excellence in Facility Management Award (Subsidized Purchase Housing)

Kam Tai Court managed by Urban Property Management Limited

Certificate of Merit (Industrial)

Ming Pao Industrial Centre managed by Urban Property Management Limited
World Tech Centre managed by Harriman Property Management Limited

Certificate of Merit (Institution & GPA)

Kwong Wah Hospital & TWGHs Wong Tai Sin Hospital

Certificate of Merit (Office Building)

AIA Financial Centre managed by Goodwill Management Limited
E-Trade Plaza managed by Hang Yick Properties Management Limited
Nan Fung Commercial Centre managed by Main Shine Development Limited (Nan Fung Group)
Nan Fung Tower managed by New Charm Management Limited (Nan Fung Group)
New Town Tower managed by Kai Shing Management Services Limited
Nina Tower managed by Sources Fome Management Limited

Certificate of Merit (Private Residential)

Clovelly Court managed by Urban Property Management Limited
King's Park Villa managed by Kai Shing Management Services Limited
liberté managed by Shun Tak Property Management Limited
No.1 Homantin Hill managed by Supreme Management Services Limited
Parc Regal managed by Urban Property Management Limited
Queen's Cube managed by New Charm Management Limited (Nan Fung Group)
San Po Kong Plaza managed by Main Shine Development Limited (Nan Fung Group)
Sky One managed by Royal Elite Service Company Limited

Certificate of Merit (Public Rental Housing)

Tin Yiu (I) & (II) Estate managed by Modern Living Property Management Limited
Tsz Ching Estate managed by Tsz Ching Estate Office, Hong Kong Housing Authority

Certificate of Merit (Retail)

Kwai Fong Plaza managed by The Link Management Limited

Theme Award – "Waste Management"

Gold Award

Landmark North managed by Kai Shing Management Services Limited

Silver Award

Aegean Coast managed by Kai Shing Management Services Limited

Bronze Award

Skyline Tower managed by Sino Estates Management Limited
Park Island managed by Kai Shing Management Services Limited



RESEARCH PAPER

PERFORMANCE INDICATORS FOR HOTEL FACILITIES: A STUDY BASED ON COMPUTERISED MAINTENANCE MANAGEMENT DATA

Joseph H.K. Lai and Francis W.H. Yik

Department of Building Services Engineering, The Hong Kong Polytechnic University

ABSTRACT

Hotels, being a key pillar of the tourism industry, have to render satisfactory services to patrons. Quality maintenance of their built facilities is, therefore, a must. While more and more hotels are utilizing computerised maintenance management systems (CMMS), hardly any have published how they made use of the recorded data to assess maintenance performance, or are willing to disclose the data for benchmarking. Meetings with the responsible staff of a quality hotel in Hong Kong had been held to seek information about how they utilised their CMMS and to collect the data it recorded. Analyses of the data yielded a range of performance indicators for the facilities in that hotel. The study also unveiled some problems and identified the future works needed. This pilot study, as reported in this paper, is believed to be the first of its kind.

Keywords: Benchmarking; computerised maintenance; facilities management; hotel; performance indicators

1. INTRODUCTION

Hotels are one of the key pillars of the tourism industry. Hotel patrons typically have a high expectation on service quality and can easily be upset by unsatisfactory performance of the built facilities in a hotel. The major kinds of facilities in hotels that require proper operation and maintenance (O&M) to upkeep their performances include building fabric and finishes, and engineering installations such as electrical, air-conditioning, plumbing, drainage and fire services.

To enable prompt recording and close tracking of the status of O&M works, quality hotels are increasingly equipped with a computerised maintenance management system (CMMS). Whereas advices on the necessary considerations that should be taken in using a CMMS are widely available (e.g. Levitt, 2007), how such systems are being used for evaluation of the performances of the facilities that they manage is largely unknown. Because O&M information is often regarded as too sensitive to disclose (Lai et al., 2008), study findings on performance evaluation results are scarce.

Facility and O&M managers are keen to see performance benchmarks for facilities (Lai and Yik, 2006). Although some cost benchmarks for luxury hotels have recently been made available (Lai and Yik, 2008), research in this area remains embryonic. Lacking knowledge about the performances of facilities and benchmarks for comparison, whether O&M works are good value-for-money cannot be judged.

With a view to fill this knowledge gap, a pilot study, believed to be the first of its kind, was carried out based on a quality hotel in Hong Kong. Findings of this study are reported in the following, which include, firstly, the data collection process and the types of data obtained. Then, an account is given on the hotel's characteristics and the operation of its CMMS. This is followed by a series of analyses on the maintenance workloads, the manpower input and the performances of the facilities, which produced a range of indicators that can be used for performance evaluation or benchmarking. Finally, the problems encountered during the study and the future works needed are described.

2. DATA AND MATERIALS

Due to the exploratory nature of the study, a meeting was held with the relevant hotel staff before collection of the required data. At this meeting, the Director of Engineering and his colleagues briefed the study team about the major facilities in the hotel; how

the O&M works were organised and executed; and the process for recording maintenance data with the use of the CMMS. For appreciating the nature and scale of the facilities, a walk-through visit to the main and typical areas was paid subsequent to the meeting. During this visit, the study team was admitted to the Service Centre where the main terminal of the system was located to observe the operation of the CMMS.

The study team was further provided with the hotel's factsheets, which show the number of storeys, areas and types and quantities of various premises of the hotel. The maintenance data stored in or generated by the CMMS over a period of 12 months were collected. The first type of such data was an annual report showing the statistics of the services requests. This report was generated by the CMMS, summarising the number of maintenance requests for every single job item handled by the engineering department.

A Detail Listing of Service Request Report, also generated by the CMMS, was another data source obtained. This report lists out all the maintenance orders over the year, and its content covers date, start time, finish time, duration of work completed beyond the prescribed time limit, location of work, work description, and identities of the responsible Service Agent and Service Runner. The prescribed time limits for completing maintenance work orders are available from a file which was also collected, to allow assessment to be made of the speediness of maintenance work. The last type of data collected, which is essential for measuring manpower utilization level, are the technicians' duty schedules that show who were on duty or on leave in each of the three shifts per day.

3. THE HOTEL, THE MAINTENANCE TEAM AND THE CMMS

The 19-storey hotel selected for the study was 33 years old, and comprised 618 guestrooms and other areas. The non-guestroom areas, aggregated to 4,053 m², included function rooms, food and beverage outlets and kitchens. Bearing an international brand, this 4-star hotel was built with quality builder's work (fabric and finishes) and building services installations such as electrical, air-conditioning, plumbing, drainage, and fire services.

The engineering department was headed by a Director of Engineering. The maintenance team, led by an Assistant Director, included a Building Maintenance Engineer, four Duty Engineers and four Foremen. The Foremen were each supervising a group of in-house technicians in one of the four specialized trades, namely air-conditioning, electrical, plumbing and drainage, and builder's work. Maintenance works that must be undertaken by statutory parties (Lai and Yik, 2004), e.g. those for the fire services, were outsourced from contractors.

The hotel's CMMS was meant for non-stop operation. A maintenance work order would typically start with a call made by dialling the dedicated number of the Call Centre. Upon receiving such a call, the Service Agent would see if the request is valid and, if so, he would create a work request through the CMMS. Taking into account the trade of work and the job history of the respective trade of technicians, the CMMS would send out a short message service (SMS) to the most appropriate technician (i.e. Service Runner). The Runner, after knowing the job details, would go to the scene and carry out the required work. After work completion, he would report back to the Service Agent. If no further work is required, the work order would come to an end. Figure 1 depicts this work flow.

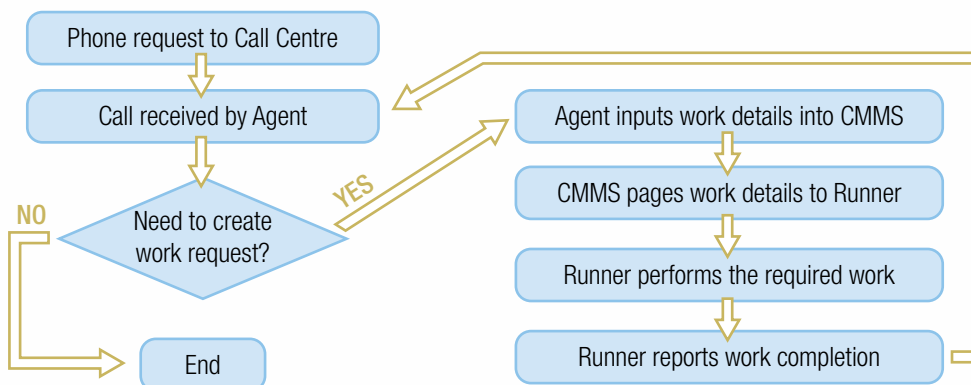


Figure 1
Work Flow of the CMMS

At the main terminal of the CMMS, real-time information such as time of incoming call and call status (waiting on-line, abandoned before answering or message left in voice mails) and other information such as guest identity and room number would be displayed. Apart from allowing prompt tracking of the status of requests, the CMMS would record key information about the requests, e.g. start time, finish time, location of work, and identities of Agents and Runners who handled the requests. In addition, statistical summaries about the total number of requests and the number of the most frequent types of work requests could be generated as and when required by the CMMS user. The CMMS, however, was not built-in with some more in-depth but useful analysis functions, as will be shown below.

4. DATA ANALYSIS AND DISCUSSION

4.1 Maintenance Workload

A total of 17,799 maintenance requests (i.e. work orders) issued over a period of 12 months were recorded in the CMMS. As summarized in Table 1, the trade pertaining to the largest number of orders was electrical (EL), followed by plumbing & drainage (PD), builder's work (BW) and air-conditioning (AC). The descriptions for 331 of those orders were unclear in meaning and thus were categorised as unclassified (UC).

Trade	Total No.	Guestroom		Non-Guestroom	
		No.	%	No.	%
AC	1223	771	63.0	452	37.0
EL	8896	7404	83.2	1492	16.8
PD	4428	4121	93.1	307	6.9
BW	2921	2276	77.9	645	22.1
UC	331	0	0.0	331	100.0

Table 1
Summary of work orders issued

Between the numbers of orders issued for the guestroom and the non-guestroom areas, those for the former dominated (81.9%), which is most noticeable for the PD trade (93.1%). For non-guestroom areas, the highest proportion (37.0%) was about AC system problems.

The hotel had a mean monthly occupancy rate of 87.3% (range: 76.8% - 93.5%). When the number of work orders in each month was counted to unveil their monthly variations, it was discovered that work order records in two periods (18-30 June and 29-30 September) were lost because of breakdowns of the CMMS. To enable comparisons to be made on an equal basis, the problem with lost data was addressed by dividing the number of work orders in the month by the actual number of days with data in the month to yield an average number per day and the work orders issued on days with missing data were assumed to be equal to the average number so calculated. Furthermore, the monthly average daily total number of orders in a month was computed based on the actual number of days in the month. Figure 2 shows the monthly amounts of orders corrected and normalised in this manner together with their raw monthly amounts. It shows that the maintenance requests per day from the guestrooms peaked in April (52.3) whereas the trough was in February (34.7). Unlike those for the guestrooms, the amounts of requests per day for the non-guestroom areas, which ranged between 6.9 (October) and 11.3 (July), were comparatively more steady.

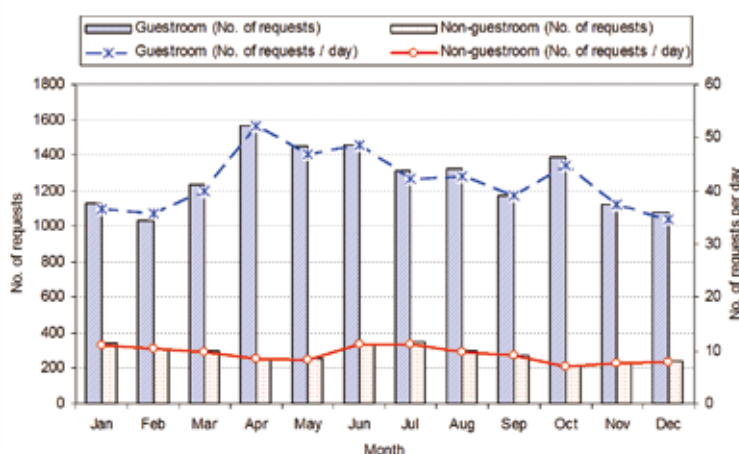


Figure 2. Monthly amounts of maintenance requests

The duration between the start time and the completion time of a work order was regarded as equipment downtime. To investigate if there was a correlation between equipment downtime and the amount of maintenance request, a scatter plot of the monthly figures of these two parameters, subdivided into the guestroom and the non-guest room groups, was prepared, as shown in Figure 3. From this figure, a strong positive correlation can be seen in both cases: the larger the amount of maintenance requests, the longer the equipment downtime. This implies that some maintenance works could have been interrupted by new and more urgent requests before they could be completed.

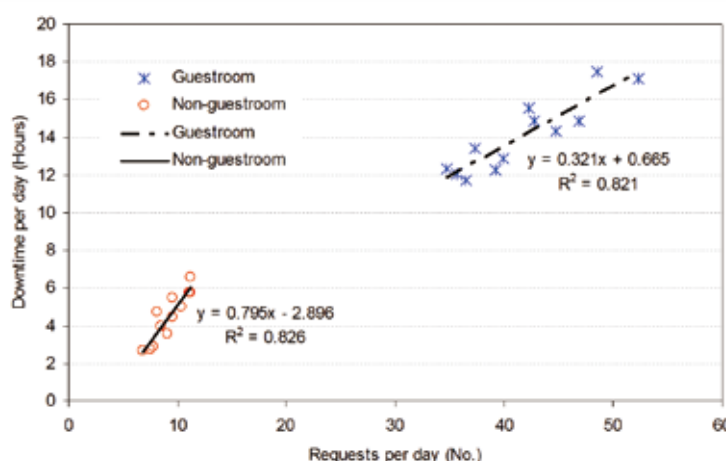


Figure 3. Relation between maintenance request and equipment downtime

The amounts of work order and equipment downtime pertaining to different trades of work were further scrutinised by compiling the relevant statistics, including the values of mean, minimum, maximum, standard deviation (*SD*) and coefficient of variation (*C_v*) (Table 2). The EL trade recorded the highest mean number of work orders per month and the lowest mean was found with AC. The same observations were noted for the mean equipment downtime values.

	AC		EL		PD		BW	
	WO	DT	WO	DT	WO	DT	WO	DT
Mean	107	2815	775	15200	389	8482	256	5991
Min.	73	1525	654	13439	297	6522	202	4071
Max.	162	4967	911	17419	515	12603	317	9179
SD	28	1034	88	1262	65	1760	38	1776
<i>C_v</i>	26.3	36.7	11.3	8.3	16.7	20.7	14.7	29.6

Table 2
Statistics of monthly work orders
and equipment downtimes

DT: downtime (in minutes); WO: work order (in No.).

As to the values of *C_v*, the highest ones belonged to the AC trade, both for the number of work order and the amount of equipment downtime. In contrast, the lowest values were found with the EL trade. These findings indicate that the workloads of AC maintenance works were the most variable whereas those of the EL trade were the least variable.

Suspecting that the number of guests staying in the hotel may affect the amounts of maintenance request and equipment downtime, a series of correlation analyses was carried out based on the monthly values of these variables, with room occupancy rate taken as indicator for number of guests in the hotel. A moderately positive correlation was found to exist between: (i) occupancy rate and amount of work order ($r = 0.648$); and (ii) the former and amount of downtime ($r = 0.598$). The correlation between the amounts of work order and downtime was even more significant ($r = 0.873$), which concurs with the findings in Figure 3.

Examinations were further made on the same set of variables but on individual work trade basis. The computed correlation coefficients are consolidated in matrix form, as shown in Table 3. From these results, highly positive correlations between the amounts of work order and downtime across all the work trades ($r = 0.757$ to 0.887) were noted. Except that a weak correlation ($r = 0.229$) was found between occupancy rate and amount of AC work orders, moderate correlations ($r = 0.356$ to 0.690) were observed from the remaining results.

AC				EL			
	OC	WO	DT		OC	WO	DT
OC	1	-	-	OC	1	-	-
WO	0.229	1	-	WO	0.539	1	-
DT	0.410	0.792	1	DT	0.506	0.851	1

PD				BW			
	OC	WO	DT		OC	WO	DT
OC	1	-	-	OC	1	-	-
WO	0.690	1	-	WO	0.370	1	-
DT	0.620	0.887	1	DT	0.356	0.757	1

Table 3
Correlation coefficient (*r*) matrices
of different work trades

DT: downtime; OC: occupancy rate; WO: work order.

4.2 Maintenance Manpower

According to the organisation chart of the maintenance team, the total headcount of technicians was 17, which comprised four AC technicians, four electricians, four plumbers and five BW technicians. Inspecting their duty schedules found that these headcounts represented the maximum numbers of technicians that would be employed. The manpower available, in fact, was variable for different reasons, such as: some had resigned while replacements were pending; the technicians were on vacation or sick leaves; and so on. For identifying the actual manpower available for 'producing' maintenance works, the numbers of technicians who were on duty and their duty durations in each of the three shifts of every day were counted. The sums of these durations, measured in man-hours per month for each of the four trades, are shown in Figure 4.

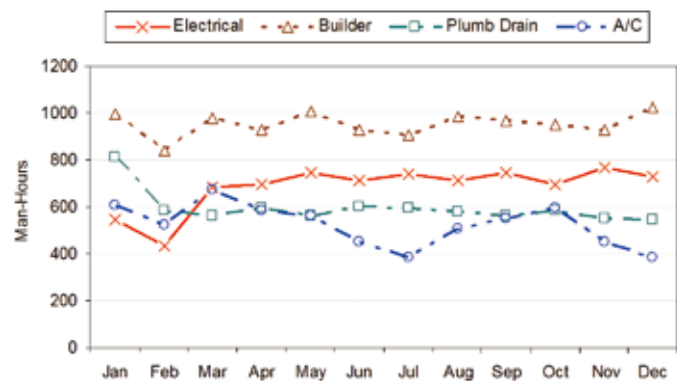


Figure 4. Monthly available man-hours

Unlike the rather steady level of manpower of the BW trade, the AC manpower varied significantly throughout the year. The particularly low levels of manpower in July and December were due to the departure of two AC technicians. The EL trade also exhibited drops in manpower level in January and February during which only 3 of the 4 electrician posts were filled. While the manpower level of the PD trade seemed to be stable throughout most of the time, a full team of plumbers appeared only in January.

For measuring the productivity of the maintenance team, the work efficiency (*E*) of the technicians was calculated by Equation (1), where N_o is number of work orders completed and H_U the amount of man-hours used.

$$E = \frac{N_o}{H_U} \quad (1)$$

Segregating the completed work orders and the used man-hours by the guestroom and non-guestroom areas, two groups of monthly work efficiency values were obtained. As the results in Figure 5 show, the efficiencies of maintenance works for guestrooms were fairly steady and were generally higher than those for the non-guestroom areas. The fact that the guestroom users have high expectations on the timeliness of maintenance works should have contributed to this finding.

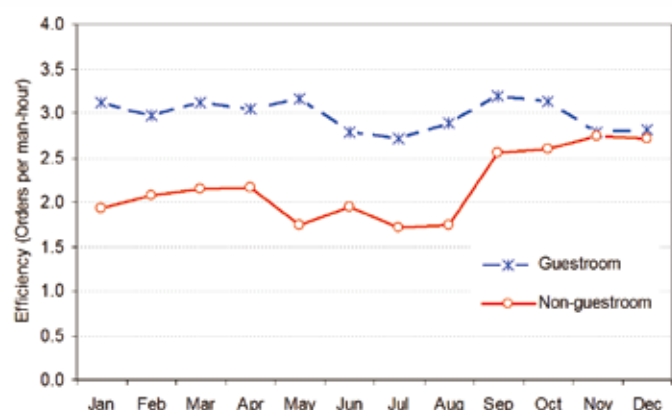


Figure 5. Monthly variations of work efficiencies

Using Equation (1), the work efficiencies of the four work trades were also computed on a monthly basis. The statistics of these results, including mean, minimum, maximum, *SD* and *C_v* values, are shown in Table 4. The mean efficiency of EL works was the highest, followed by that of PD, BW and AC. Whereas this indicates that the AC works were on average the least efficient, the lowest and the largest efficiency levels were found also with the AC trade. The largest *SD* and *C_v* values of the AC trade further corroborates that the efficiencies of the AC works were the most variable. In contrast, the variations in efficiencies of the EL trade were the smallest.

Trade	Mean	Min.	Max.	SD	<i>C_v</i>
AC	2.40	1.86	3.45	0.54	22.4
EL	3.06	2.71	3.33	0.19	6.1
PD	2.77	2.36	3.34	0.25	9.1
BW	2.67	1.87	3.20	0.45	17.0

Table 4
Statistics of work efficiencies of different trades

Since work efficiency may be affected by the extent to which the amount of manpower is used for carrying out the works, the level of utilization (*U*) of manpower in each trade was calculated using Equation (2), where *H_U* is man-hours used and *H_A* the man-hours available for work execution.

$$U = \frac{H_U}{H_A} \quad (2)$$

The monthly manpower utilization levels of the four trades were calculated using Equation (2). As the statistics of these calculated results show (Table 5), the electricians, as compared to the plumbers, AC and BW technicians, were on average utilized at the highest level. While the maximum utilization level (56.0%) was only slightly over half of the available manpower, note should be taken that the maintenance technicians, besides performing the corrective maintenance works that the CMMS recorded, had to carry out some other works like preventive inspection and maintenance works.

Trade	Mean	Min.	Max.	SD	<i>C_v</i>
AC	8.8%	4.7%	21.6%	4.3%	49.2
EL	36.4%	20.1%	56.0%	8.7%	23.8
PD	22.7%	16.1%	31.7%	4.1%	18.0
BW	10.0%	7.0%	16.4%	3.1%	30.8

Table 5
Statistics of utilization levels of different trades

On average, the AC technicians were utilized the least and the minimum level of utilization of this trade was as low as 4.7%, which is less than one-fourth of the counterpart of the EL trade. On the other hand, the highest *C_v* value of the AC trade tells that its manpower utilization levels varied the most.

4.3 Performance outcome

The foregoing findings on work efficiencies (Figure 5) suggest that equipment downtimes in the guestrooms should be shorter than those outside the guestrooms. This deduction was verified by examining the distribution of downtimes in these two areas. As depicted in Figure 6, the cumulative proportion curve of the guestrooms is clearly above that of the non-guestroom areas. Based on the *Pareto* rule, i.e. considering the 80th percentile, most of the maintenance requests in the guestrooms were resolved within 30 minutes whereas the same proportion of requests in the non-guestroom areas required 10 more minutes to settle.

Further scrutiny was made on the distribution of equipment downtimes with respect to the four different trades. This was done by plotting the number of requests against the downtimes in each trade. As shown in Figure 7, magnitudes aside, the four distribution patterns are similar, with their majority group of orders completed between 5 to 15 minutes.

As a set of time limits had been preset for completing some critical works, checking was made on the finish times of the work orders against these limits. The checking results, as summarised in Table 6, reveal that the majority of the four trades of work orders were completed on time. Comparatively, the AC trade recorded the highest proportion of orders completed beyond the time limits. The rest of the orders, of which the aggregate proportions were small, were remarked as ‘cancelled’ or ‘time out’. The former group refers to those false requests or those which could only be fixed some days later due to their specific nature or complexity. Those in the latter were recorded when the technicians failed to complete the orders even beyond the extra time authorised by the relevant Duty Engineer, or when the necessary time extensions were not keyed in to the CMMS on time.

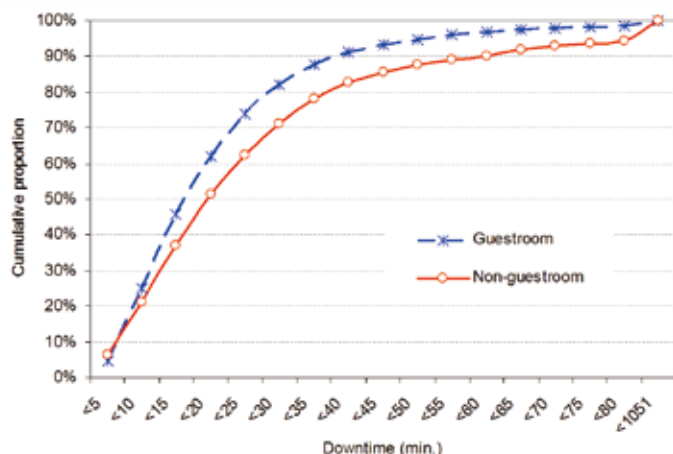


Figure 6. Cumulative proportions of equipment downtimes (by areas)

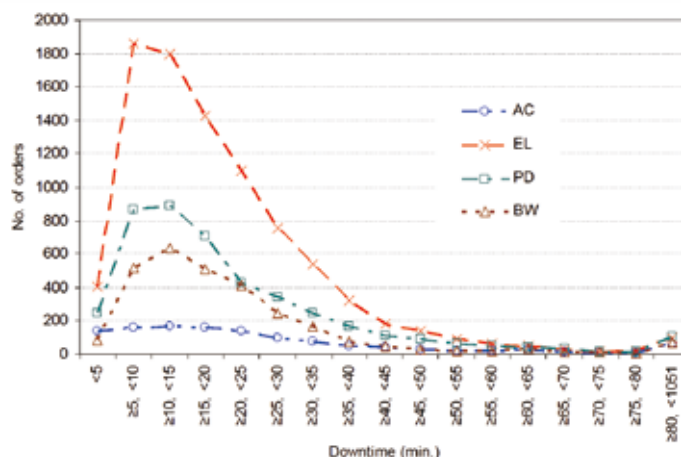


Figure 7. Distribution of equipment downtimes (by trades)

Trade	On time	Late	Cancelled	Time out
AC	75.7%	20.1%	2.5%	1.6%
EE	85.1%	13.4%	1.0%	0.4%
PD	84.4%	13.6%	1.4%	0.6%
BW	79.6%	17.8%	1.3%	1.2%

Table 6
Summary of completion status of work orders

5. CONCLUSIONS

Based on the CMMS data, the maintenance workloads in the guestroom and non-guestroom areas, and those under each of the four work trades (air-conditioning, electrical, plumbing and drainage and builder's works), were analyzed. The monthly variations in maintenance manpower in different trades, their work efficiencies and the levels of their utilization were investigated. The statistical results of these parameters can serve as benchmarks for making comparisons with future performance of the same hotel, or with those of similar hotels.

Equipment downtimes, which indicate the speediness and hence the performances of the maintenance works, were scrutinised between different areas and different work trades. The cumulative proportion curves, as illustrated, can be used for evaluating or benchmarking the celerity of maintenance works.

During the study, the major problems identified include data lost due to breakdowns of the CMMS; some work orders were recorded manually; and the follow-up works for orders remarked as ‘cancelled’ or ‘time out’ could not be traced. On top of finding ways for overcoming these problems, further works are needed to explore more into this area through conduction of more studies on maintenance data of other hotels or buildings. Only when more evaluation and benchmarking results are made available would it be feasible to judge whether or to what extent the facilities are value-for-money.

ACKNOWLEDGEMENT

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Further readings

1. Lai, J.H.K. and Yik, F.W.H., 2012, A Probe into the Facilities Maintenance Data of a Hotel, *Building Services Engineering Research and Technology*, 33(2): 141-157.
2. Lai, J.H.K., 2013, An analysis of the maintenance demand, manpower and performance of hotel engineering facilities, *Journal of Hospitality & Tourism Research*, 37(3): 426-444.

Endnotes

- i. This article is adapted from the paper “Lai, J.H.K. and Yik, F.W.H., 2010, Performance Indicators for Hotel Facilities – a Study based on CMMS Data, *Proceedings of The 1st Greater Pearl River Delta Conference on Building Operation and Maintenance: Sustainable and Value-for-Money Built Facilities*, Hong Kong, 22 October, pp. 61-70.”
- ii. An extended version of this article is: “Lai, J.H.K. and Yik, F.W.H., 2012, Hotel Engineering Facilities: A Case Study of Maintenance Performance, *International Journal of Hospitality Management*, 31(1): 229-235.”



RESEARCH PAPER

AN INTEGRATED ASSET PERFORMANCE FRAMEWORK FOR OPERATIONAL BUILDINGS - RESULTS OF FOCUS GROUP VALIDATIONS IN HONG KONG AND AUSTRALIA.

Danny Shiem-shin Then

The Hong Kong Polytechnic University

Teng-hee Tan

Director, Jetta Gardens, Queensland

Chi-kwan Chau

The Hong Kong Polytechnic University

ABSTRACT

Business performance is contingent upon effective use and management of all resources to enhance competitive advantage. However, whilst the resource value of finance, human resources and technology is widely recognized, that of the supporting physical asset (i.e. building or real estate) that houses these resources is not obvious to many corporate managers who see building-related expenses as a drain on profit. Operational buildings are at the same time, a physical asset, a functional facility, as well as a business resource. Literature on the subject suggests a wide range of views which tended to polarize towards either the measurement of the physical (technical) performance or the financial (cost) performance. Contemporary resource management supports the view that building assets are an essential resource just as human resource, technology; finance and knowledge are business resources needed to achieve corporate objectives. An integrated resource management approach views an optimum real estate or facility solution as one which is derived from consideration of all corporate resources to meet business needs. In this respect, the prime focus in measuring operational building performance must be viewed in the context of the relationship of building assets in relation to their contributions to business outcomes. This is the premise upon which an integrated asset performance framework for performance of operational buildings has been developed. The paper will explain the conceptual basis of an integrated asset performance framework and the preliminary results of two validation workshops conducted in Hong Kong and Australia.

Keywords: Asset Performance, Integrated Framework, Operational Buildings.

INTRODUCTION

One of the key business performance issues for both business and government is the ability to leverage maximum performance from resources and drive effective management of resources for long term sustainability. Building facilities or assets are business resources in the same manner as ICT, people and business capital. In many cases, investment in building assets ranks closely in value to the investment in people. Hence the performance of building assets as a business resource is increasingly becoming a focus for management in both the private and public sectors.

Competitive pressures and tight economic conditions are driving the search for competitive advantage beyond a focus on costs and budgets alone. Business and government need to develop an informed view of what customers and end-users of services value and the level of performance expectations. These business drivers have a direct influence on business performance. They also drive the need to explore with a more searching attitude, the performance of other aspects of the business, including the key resources supporting the business - people, property and technology (Then, 1994).

The need and desire to monitor the performance of operational building as a class of assets deserves management attention because of a number of unique attributes:

- the capital intensive nature of building assets (usually worth many millions of dollars which could potentially be applied more profitably elsewhere);
- their durable nature (often lasting up to 20-50 years or more);
- their relative inflexibility in responding to changes in business directions and technology;
- the significant accompanying stream of recurrent expenditure burden associated with maintaining and operating them at a desired service standard;
- the potential liabilities due to deterioration and depreciation over time;
- their impact on productivity and business performance; and
- their exposure to a wide range of legal requirements and risks.

The importance of performance measurement as a tool for effective management of such an important business resource is also a key driver in the search for an effective performance measurement regime for building assets (Amaratunga & Baldry, 2002). However, the practical implementation of a performance measurement regime that delivers the desired management outcomes efficiently and effectively is more problematic. (Tan, Then and Barton, 2000). A wide range of methods and frameworks for performance measurement of building assets have been proposed (McDougall, et al. 2002). They range from the detailed technical assessments of physical aspects of buildings to surveys of user satisfaction with the occupied space and quality of the internal environment. Despite this, there appears to be no commonly adopted framework for buildings against which performance measures of operational assets can be established to meet the particular needs of corporate management requirements and expectations.

This paper proposes an integrated framework for assessing building performance (Then & Tan, 2004) and reports on the preliminary results of two validation workshops held in Hong Kong and Australia.

AN INTEGRATED ASSET PERFORMANCE MODEL

The Theory

The starting point of performance measurement is a conceptual model that can be applied as a framework for identifying and developing the necessary performance indicators that meet the objectives of any performance measurement effort. As a broad principle, performance measures can generally be divided into effectiveness measures, efficiency measures, and appropriateness measures (Figure 1).

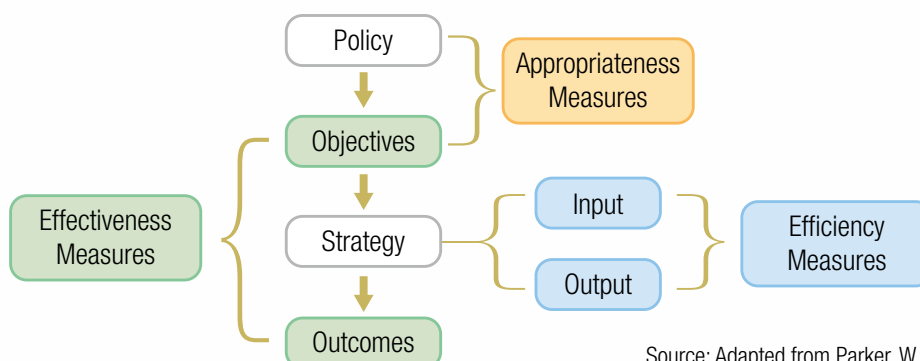


Figure 1
Principles of a Performance Measurement System

Source: Adapted from Parker, W.C. (1993) Performance Measurement in the Public Sector and ANAO. Best Practice Principles for Performance Information. pp.8

Figure 1 highlights the need to clearly understand the purpose of performance measurement. Choosing the right measures for the right purpose is fundamental to any performance monitoring system.



The Need

The development of a conceptual framework for evaluation of performance of operational building assets must recognise at least three important characteristics of buildings as a product, and as a business resource:

- Buildings have a much longer life than most other assets in business. A building represents a special class of durable assets requiring high initial capital investment and subsequent running costs and reinvestment – a regime of life cycle management is required to optimise its efficient operation;
- A building's value is represented by its effectiveness as a supporting resource in the overall value chain of an organisation's productive process. Its role as an enabling resource is increasingly seen as crucial in raising staff productivity - an integrated resource management approach incorporating the delivery of an enabling workplace environment must be acknowledged; and
- Buildings involve a number of stakeholders: owners, managers, service providers and users throughout their operational lives. Existing buildings are also being changed and renovated more often in response to new owners, organisational changes, and new occupant requirements – buildings as dynamic entities which must be managed proactively in order to respond to changing users' expectation and rapid technological development.

Evidence from the literature reviewed suggests that building performance monitoring is an amalgam of at least four aspects of facilities provision and their ongoing servicing as functional facilities:

- The appropriateness of the current asset base in meeting business objectives;
- The provision of a satisfactory working environment for occupants and customers;
- The minimisation of operating and maintenance costs by managing the condition of the existing facilities,
- The performance of the facilities as functional, operational assets supporting business processes..

In optimising the performance of building assets, an organisation must balance the interdependent and, often competing, outcomes of the above four aspects of asset performance in order to achieve their optimum service potential.

The EPFS Model

Taking the above constraints into consideration, Then and Tan (1998, 2000, 2002, 2004) proposed that asset performance indicators used by organisations from both the public and private sectors can be grouped under five broad categories or facets of performance measures:

- Economic measures
The Economic facet of asset performance is concerned with decisions at a strategic level that optimises on value for money from property resources. Economic asset management requirements are governed by the need to relate physical facilities provision to longer-term business plans. The objective of measurement here is to ensure optimum resource allocation and affordable and economic provision of property resources in line with market offerings and business plans.
- Functional measures
The Functional facet of asset performance is concerned with management decisions that relate to the creation of the desired working environment in line with the preferred organisational culture and workplace standards. The objective of measurement here is to ensure continuous alignment of supply of appropriate functional space to anticipated service demands as far as possible. Fitness of purpose for property resource in meeting business requirements may be measured in terms of locational distribution, type, form and size of buildings.
- Physical measures
The Physical facet of asset performance is concerned with efficient and effective management of operational aspects of ongoing asset management. The objectives of measurement here are driven by the need to preserve asset value, ensure asset condition does not lead to unnecessary operational risks and liabilities, and to ensure occupancy costs are reasonable.

- Service measures

The Service facet of asset performance is concerned with decisions and actions relating to quality perception by end users and quality of service delivery by service providers. The objective of measurement here is to ensure that the business context and organisational culture are appropriately reflected in aspects of service delivery and are aligned with core business requirements. Measures in this facet of asset performance are generally surrogate, often subjective indicators of performance derived from clients' and end users' perceptions of corporate facilities and support services.

- Environmental measures

The Environmental facet of asset performance is concerned with the role of building assets and their impact on facilities users, the community and the ecological environment. Measures in this facet are likely to involve monitoring against prescribed sustainability targets at project / state / national levels.

**Integrated Asset
Performance Reporting**

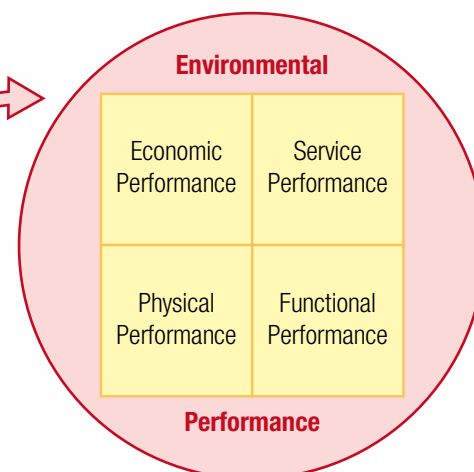


Figure 2
Integrated Asset Performance
Reporting (Then & Tan, 2002)

The premise taken is that any integrated asset performance reporting must incorporate these five facets of measurement in order to obtain a balanced view of the contribution of building assets as an operating resource, as illustrated in Figure 2. However, this paper only reports on four of the five facets of asset performance measurement. The Environment facet is the subject of another study.

The above five categories of performance measures form the cornerstones of our integrated asset performance concept that can be applied to:

- Fulfil specific stakeholder perspectives of asset performance;
- Guide selection of appropriate key performance indicators;
- Assist in defining data requirements for specified key performance indicators; and
- Provide a balanced view of asset performance.

Table 1 summarises the key management focus of the five facets of asset performance measures. Each facet of asset performance is governed by a different set of variables with its associated key performance indicators. The proposed model provides a basic structure for considering the many dimensions of built assets performance and critically reviewing the suitability of currently available measures.

Performance Facets	Management focus	Focus of performance monitoring
Economic	Value for money	Efficiency in allocation of resources
Functional	Fit for purpose	Effectiveness in utilisation of resources
Physical	Operational risk and liability	Appropriateness in type and condition
Service	Customer satisfaction	User/client's Quality perception
Environmental	Workplace & environmental sustainability	Meeting prescribed targets at project / state / national levels

Table 1
Asset performance facets and
management focus

Then, S.S. & Tan T.H. (2002)

The necessity for a conceptual framework is supported by the need to explain, communicate and justify the need for data collection and analysis. A logical and consistent framework facilitates the process of focusing data collection on the asset performance parameters that are currently deficient or lacking from asset information systems.

Having a performance concept is only the first step in the implementation of an asset performance framework that is useful and cost-effective. There are a number of further steps which have to be navigated before full realization of a credible and sustainable asset performance measurement system (Then, S.S. & Tan T.H., 2000, 2002). Figure 3 illustrates the parameters within an organisational setting in which an asset performance measurement system must take into consideration. They are the factors that will influence the practice of asset performance management. (modified from Then & Tan, 2004).

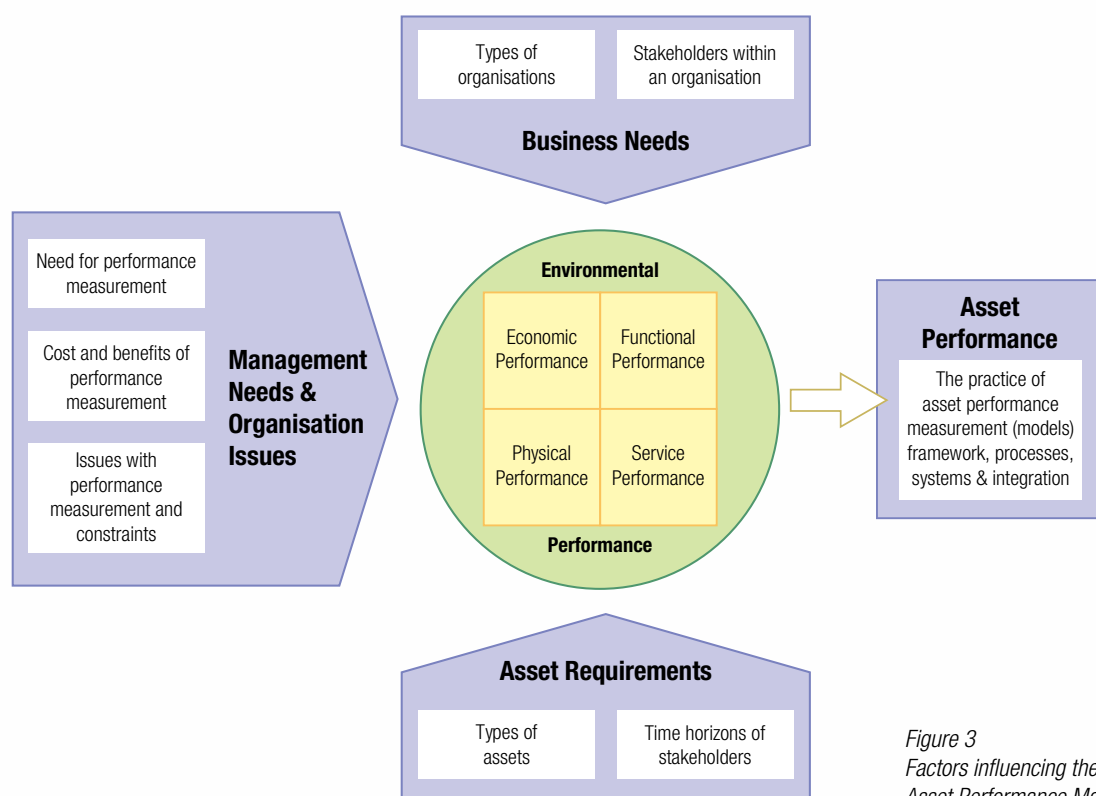


Figure 3
Factors influencing the Practice of
Asset Performance Management

The EPFS Model – Variables and KPIs

Through a series of brainstorming sessions with research collaborators, it was decided that a structured approach is required to identify the appropriate key asset performance indicators. The alternative is a linear approach which has the potential disadvantages of being almost a random selection of measures or a selection that is technically driven by professional inclination.

The structured approach adopted comprised of a two-stage analysis. Stage one involved the identification of all possible variables associated with each of the four facets (i.e. Economic, Physical, Functional and Service performance). These are illustrated in Figure 4. Stage two involved identification of possible performance indicators that are measures of each of the variables identified. A total of 95 Key Performance Indicators (KPIs) were selected for validated in two focus groups workshops held in Hong Kong (July 2004) and Brisbane (August 2004). Table 4 lists the 69 validated KPIs.

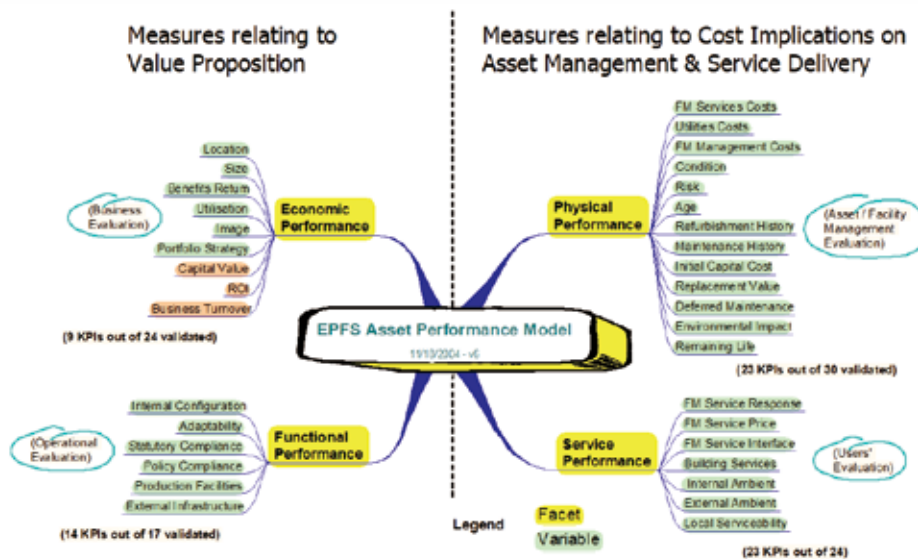


Figure 4:
EPFS Model showing Facets and
associated Variables

The sample of the Hong Kong focus group (N=21) consisted of middle/senior managers with responsibilities for property and facilities services representing commercial buildings, airports, universities and banks. The sample of the Brisbane focus group (N=20) consisted of middle/senior managers with responsibilities for property and facilities services representing public sector facilities. In both locations, initial contacts were made via telephone and email, explaining the purpose of the workshop and who from the organisation should participate.

The deliberation of each validation workshop followed a structured format that comprised the following:

Session 1 – Introduction, background and purpose of workshop - 10-15 minutes,

Session 2 – Concept Validation:

- EPFS Model Presentation by research collaborators – 30 minutes including questions,
- Validation of EPFS Model by respondents via structured questionnaire – 30 minutes,
- Validation of EPFS Variables via structured questionnaire – 30 minutes.

Session 3 – Practice Validation:

- KPIs Presentation by research collaborators – 10 minutes including questions,
- Validation of KPIs for each Variable via structured questionnaire – 60 minutes

Session 4 – Summary and Feedback.

In summary, both the workshops were well received by the participants who expressed keen interest in the outcomes of the research and analysis from the workshop questionnaires. A summary of the results of the research will be provided as feedback to participants of the validation workshops.

RESULTS FROM ANALYSIS OF RESPONSES FROM VALIDATION WORKSHOPS

1. Concept Evaluation of EPFS Model

The concept evaluation comprises a two-part analysis. Table 1 shows the results of the attributes evaluation of the combined sample of both sets of respondents from Hong Kong (N=20) and Australia (N=21). Respondents were requested to evaluate the EPFS model on five different attributes, each against a 5-point Likert scale. The model was highly rated against the attributes of Completeness, Robustness, Importance and Practical Relevance, scoring more than 4.0 on a 5-point Likert scale, with degrees of variation between 4.0 and 4.6.

Attributes	Mean	S.D.	Rank
Completeness – Degree of completeness in coverage of elements of asset performance	4.585	0.4988	1
Robustness – Degree of robustness in concept and practice of asset performance	4.439	0.5024	1
Usefulness – Degree of usefulness in making more informed decision on issues in asset performance	4.317	0.7563	1
Importance –Degree of importance in asset management practice.	4.317	0.7563	1
Practical Relevance –Degree of relevance in the practice of asset performance.	4.049	0.669	2

Table1. Concept Evaluation of EPFS Model

A pairwise analysis was also conducted to evaluate the respondents' opinions on the relative importance of the four different facets of asset performance: Economic, Functional, Performance, and Service. Six pair-wise importance questions with a nine-point linguistic scale were used (Sataay, 1977; Xu, 2000).

Example of Pairwise Evaluation of Relative Importance between Asset Performance Facets:



The individual respondents' results on each individual pairwise question are aggregated using the geometric mean method before inputting into the necessary computation matrices. The final relative importance weightings of the four different facets of asset performance are shown in Table 2.

No significant differences in the perceived importance of the four facets of the EPFS model were found for both groups of respondents in Hong Kong and Australia. A check on the consistency of responses was also performed to ensure the validity of the computed results.

A consistency ratio of 0.0067 (<0.1) was obtained from the analyzed responses, which indicated that the responses given by all the respondents were quite consistent.

Asset Performance Facet	Relative Importance Weight
Economic	0.236
Physical	0.182
Functional	0.319
Service	0.262

Table 2
Relative Importance Weightings of Four Different Asset Performance Facets

2. Validation of Asset Performance Variables

For each of the asset performance facets, their corresponding asset performance variables were identified via brain storming sessions by the research collaborators. The degree of perceived relevance of each of the asset performance variables were evaluated using a 5-point Likert scale type questions with '1' indicating not relevant and '5' indicating very relevant. An asset variable is considered to be relevant if it has a mean value greater than 3.5. Table 3 shows those variables that are identified to be relevant under each of the four asset performance facets.

ECONOMIC Performance	Perceived Relevance (1 - not relevant, 5 – very relevant)
Variables	Mean (Standard Deviation)
Location	3.93(1.17)
Capital Value	3.61(1.36)
Size	3.59(1.14)
*Return on Investment	3.18(1.45)
*Benefits Return	3.95(0.88)
Utilisation	4.27(0.87)
*Image	3.73(0.99)
Portfolio Strategy	4.12(0.81)
Business Turnover	3.17(1.34)

Mean<3.5
N=41
*N=40

PHYSICAL Performance	Perceived Relevance (1 - not relevant, 5 – very relevant)
Variables	Mean (Standard Deviation)
FM Cost	4.44(0.87)
Utilities Costs	4.27(1.05)
*FM Management Costs	3.98(0.97)
Condition	4.29(0.78)
Risk	4.56(0.87)
Age	3.54(0.95)
Refurbishment History	3.68(0.88)
Maintenance History	3.98(0.88)
*Initial Capital Cost	3.20(1.11)
Replacement Value	3.78(1.11)
Deferred Maintenance	4.02(0.94)
Environmental Impact	3.95(0.89)
Remaining Life	3.98(1.06)

FUNCTIONAL Performance	Perceived Relevance (1 - not relevant, 5 – very relevant)
Variables	Mean (Standard Deviation)
*Internal configuration & Services	4.53(0.78)
Adaptability	4.07(1.08)
Statutory Compliance	4.59(0.87)
Policy Compliance	4.24(0.86)
Production Facilities	4.22(0.99)
External Infrastructure	4.10(0.89)

SERVICE Performance	Perceived Relevance (1 - not relevant, 5 – very relevant)
Variables	Mean (Standard Deviation)
FM Service Response	4.39(0.92)
FM Service Price	4.15(0.85)
FM Service Interface	4.24(0.97)
Building Service	4.20(0.98)
Internal Ambient	4.32(0.85)
External Ambient	3.66(0.94)
Local Serviceability	3.88(0.90)

3. VALIDATION OF ASSET PERFORMANCE INDICATORS

For each of the asset performance facets, and their corresponding asset performance variables, Key Performance Indicators (KPIs) were selected via brain storming sessions by the research collaborators. A total of 95 KPIs were selected and workshop respondents were requested to rate their relevance via a series of dichotomous questions with 'Yes' and 'No' options. An indicator is considered to be relevant if the percentage of respondents choosing 'Yes' is greater than 75%.

Facet	Asset Variable	Key Performance Indicators	Mean (Standard Deviation)	Portfolio Strategy
ECONOMIC PERFORMANCE	Location	Customers / tenants / visitors / clients	95.1% (0.218)	9
		Access to essential business services	85.4% (0.358)	
	Size	Floor space	92.7% (0.264)	
		*Business	80.0% (0.405)	
	Benefit Return	Community	80.5% (0.401)	
		Space (% of space/capacity used compared with available space/capacity)	97.6% (0.156)	
	Image	Customers	95.1% (0.218)	
PHYSICAL PERFORMANCE	Portfolio Strategy	Different types of assets	85.4% (0.358)	23
		Location of assets	90.2% (0.300)	
	FM Services Cost	per unit area (sq m)	92.7% (0.264)	
		Utilities Cost	92.7% (0.264)	
	FM Management Costs	per unit area (sq m)	82.9% (0.381)	
		Condition	82.9% (0.381)	
	Risk	Asset overall	82.9% (0.381)	
		Exposure to security issues	100.0%	
		Exposure to contamination & health issues	100.0%	
		Exposure to legislative changes	78.0% (0.419)	
	Age	*Building level	80.0% (0.405)	
		*Component level	85.0% (0.362)	
	Refurbishment History	Date of last refurbishment	80.5% (0.401)	
		Nature of last refurbishment	80.5% (0.401)	
	Maintenance History	*\$ expenditure (total)	92.5% (0.267)	
		\$ per annum as % of replacement value	87.8% (0.331)	
	Initial Capital Cost	Major replacements (dates and costs)	95.1% (0.218)	
		Similar asset	90.2% (0.300)	
	Replacement Value	Industry standards	80.5% (0.401)	
		*Depreciated book value	75.0% (0.439)	
	Deferred Maintenance	*Total Value of Deferred Maintenance	77.5% (0.423)	
		Environmental Impact	97.6% (0.156)	
FUNCTIONAL PERFORMANCE	Internal Configuration and Services	Compliance with Environmental legislation	82.9% (0.381)	14
		Appropriate environmental rating system (e.g. HKBEAM)	90.2% (0.300)	
		Physical and functional conditions	80.5% (0.401)	
		Economic viability	80.5% (0.401)	
	Adaptability	Layout	95.1% (0.218)	
		Services	92.7% (0.264)	
	Statutory Compliance	Amenities	92.7% (0.264)	
		Major changes	85.4% (0.358)	
	Policy Compliance	Building codes and regulations	100.0%	
		Workplace Health and Safety	97.6% (0.156)	
		Space allocation	95.1% (0.218)	
		Quality of fit-out and furnishings	87.8% (0.331)	
	Production Facilities	Security	100.0%	
		Capacity	78.0% (0.419)	
SERVICE PERFORMANCE	External Infrastructure	Efficiency	85.4% (0.358)	23
		Quality of outputs/outcomes	85.4% (0.358)	
		Capacity	80.5% (0.401)	
		Function	90.2% (0.300)	
	FM Service Response	Response time to request	97.6% (0.156)	
		Time to resolve problems	97.6% (0.156)	
	FM Service Price	Fit with budget	95.1% (0.218)	
		Comprehensiveness of services	87.8% (0.331)	
	FM Service Interface	Communication	90.2% (0.300)	
		Resolution of issues	100.0%	
	Building Services	Range of services available	75.6% (0.435)	
		Quality (meeting prescribed parameters)	97.6% (0.156)	
		Reliability	97.6% (0.156)	
		Statutory compliance	92.7% (0.264)	
	Internal Ambient	Comfort	97.6% (0.156)	
		Ambience	87.8% (0.331)	
		Work environment (e.g. noise, safety, etc.)	100.0%	
		Appearance	82.9% (0.381)	
	External Ambient	Amenities	82.9% (0.381)	
		Clean air	87.8% (0.331)	
		Noise	87.8% (0.331)	
		Range of services available	82.9% (0.381)	
	Local Serviceability	Quality	95.1% (0.218)	
		Reliability	92.7% (0.264)	
		Responsiveness	92.7% (0.264)	
		Cost	82.9% (0.381)	

Table 4. Relevant Key Performance Indicators (cont'd) Note: * implies N=40)

Table 4 lists the selected KPIs against each asset performance variable and the corresponding asset performance facet. The sample size for the combined respondents from Hong Kong and Australia is 41 (i.e. N=41).

CONCLUSIONS

The quality of an asset performance measurement regime is subject to the proper definition, selection and organization of KPIs to provide relevant and reliable information for management decisions and actions. An unstructured and haphazard selection of KPIs is likely to lead to a waste of time and effort in data collection and incomplete or misleading performance information. This paper proposes a structured and logical framework for the development and selection of key performance measures. The EPFS Model provides a rationale and robust methodology for the organization of the KPIs selected and justification for the data requirement. Through a thorough literature review and follow-up brain storming sessions, the research collaborators identified possible variables corresponding to each of the four facets. For each of the variables identified, potential relevant performance measures or indicators were listed. Two workshops [in Hong Kong (N=20) and Australia (N=21)], comprising of professional practitioners in the field of property/asset/facility management, were conducted to test the validity of the EPFS model. The workshops comprised a combination of explanatory presentations followed by respondents completing three separate sets of questionnaires.

In the main, the EPFS model was statistically validated in term of the following attributes: completeness, robustness, usefulness, importance and practical relevance. In terms of the ranking of the four facets; the Functional facet was ranked as most important, followed closely by both Service and Economic facets, with Physical facet rated the lowest. The statistical analysis of the chosen performance indicators for the four facets confirmed 69 of 95 possible indicators as important measures.

Overall, the proposed EPFS model can be considered to be statistically validated relative to the sample of respondents in Hong Kong and Australia. The exercise has opened the doors for further development for practical use of the concepts underlying the evaluation of asset performance and the implementation of asset performance measurement towards best practice. It is anticipated that the EPFS Model will be further developed and refined through detailed case studies.

The valuable assistance of the participants in the validation workshops in Hong Kong and Brisbane is gratefully acknowledged by the research collaborators.

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RESEARCH PAPER

SUSTAINABLE WASTE MANAGEMENT – FACILITY MANAGEMENT’S PROSPECTIVE

Kenny S.W. Wong*, Keith K.H. Choy, David C.T. Chan, Angelina L.Y. Ng

Hong Kong Productivity Council, Hong Kong, China

INTRODUCTION

Hong Kong faces an imminent waste management problem. In the past 30 years, our municipal solid waste (MSW) increased by nearly 80% while our population only increased by 36%. Hong Kong has been enjoying a steady growth in economy, population and standard in life, yet the increase in per capita waste generation of 30% over these 30 years made it clear that our way of waste generation and management is unsustainable. To achieve long term sustainability on waste management, good government initiatives together with the participation of the whole community are supplementary to each other. As about 90% of our population is living or working in premises with facilities management, this sector is an important partner to help achieve sustainable waste management for Hong Kong.

WASTE GENERATION IN HONG KONG

To provide a glance on the current situation of solid waste quantities and components in Hong Kong, data is extracted from the Environmental Protection Department (EPD) of the Hong Kong SAR Government on the disposal of solid waste from Year 2008 to 2012. Its trend is presented in Figure 1. Among the 13,844 tonnes of solid waste being disposed daily at landfills in 2012, MSW was the major contributor (67%), followed by construction waste (25%) and special waste (8%). Putrescible (including food waste and yard waste) is the key component (42%) in this 9,278 tonnes of disposed MSW at landfills, and the remaining is contributed by other types of waste including paper, plastics, metals, glass, etc. as shown in Figure 2. With such a large quantity of waste being disposed of at the three strategic landfills which have been operating since 1990’s, they are anticipated to reach their full capacities in the 2015, 2017 and 2019 respectively. In view of the current composition of solid waste generation and disposal, the HKSAR Government implemented and planned a series of initiatives and policies with an aim to manage the waste using both technological and social-economic tools.

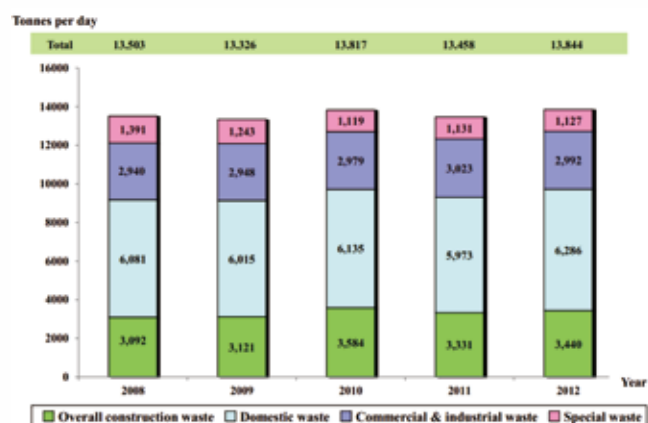


Figure 1. Disposal of solid waste at landfills in 2008 – 2012

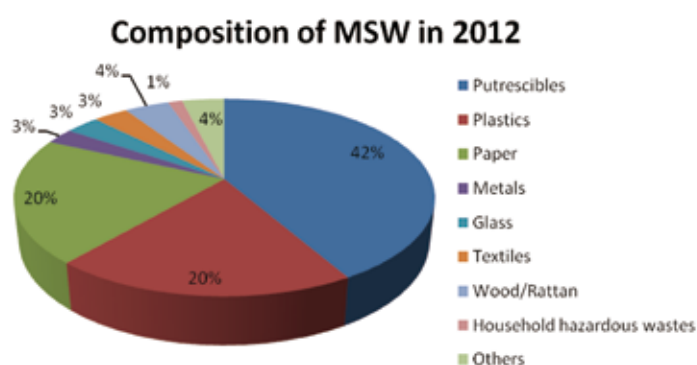


Figure 2. Composition of MSW in 2012

GOVERNMENT'S INITIATIVES AND POLICIES

The waste management strategy of the Government has been evolving from maintaining environmental hygiene and providing efficient service on waste collection, transfer and disposal, to striving for environmental sustainability in a holistic view in the past decades. The internationally-accepted multi-tiered waste management hierarchy has been adopted to guide the policies formulation (Figure 3). The Government was no longer solely focusing on the end disposal problem of solid waste, but also formulating strategies to reduce waste generation from source, increase waste reuse, recycle and recovery, hence trying to maximize the value of resources recovery before its disposal.



Figure 3. Waste management hierarchy

For the purpose of achieving a more sustainable society by setting a clear and specific goal, the Government sets an aggressive per capita MSW disposal rate reduction targets from 1.27kg in 2011 to 0.8kg in 2022. It could only be achieved by reduction in waste generation and disposal, and increase in waste recycling and recovery. A series of waste management initiatives and policies are adopted and planned to serve the purpose.

Social-economic tools including quantity-based waste charging and producer responsibility schemes (PRS) are developed for providing financial dis-incentives for citizens and trade to reduce the quantity of waste being disposed at landfills. The construction waste charging scheme that was put in place in 2006 has proven to be effective in reducing the amount of construction waste to be dumped at landfills by 48%. Currently the community wide consultation for the quantity-based MSW charging scheme has completed and the detailed implementation framework on the charging mechanism, coverage of the scheme, charging level and recycling are being formulated. Hopefully the MSW charging scheme would help change people's mindset, achieve further reduction of wastes at source and boost up recycling. Other types of waste including plastic shopping bags, waste electrical and electronic equipment, and glass beverage bottles are planned to be regulated by PRS.

The major component of disposed MSW at landfills, putrescible, on the other hand is hopefully reduced by social mobilization and education of general public. The Government has launched a Food Wise Hong Kong Campaign with one of the aims is to instill behavioral changes in the community to reduce food waste, which includes encouraging Food & Beverage and related sectors to minimize food waste by implementing good practices reducing waste at source, supporting food donation activities, separating and recycling of food waste, etc. Food Waste Recycling Projects in Housing Estates with \$50 million earmarked financially supported by the Environment and Conservation Fund (ECF) have supported on-site food waste recycling and food waste reduction educational programme. The facilitation of collection, separation and recycling of different types of waste could not be more effective without the active participation of the facilities management sector. Hence it is necessary that the premises users will join hand with the facilities operators to formulate and implement effective waste management measures so as to separate the wastes at source for downstream collection and recycling.

While our 3 landfills will be exhausted soon, waste management facilities like extension of the landfills, Sludge Treatment Facility, Integrated Waste Management Facilities, Organic Waste Treatment Facilities, etc. are also under planning or development in order to increase the local waste treatment capacity.

Among the waste types, food waste is quite different from others because of its perishable nature which creates lots of problems including leachates and odour generation.

OPTIONS TO MANAGE FOOD WASTE

One of the best ways to manage food waste is to minimize its generation and to support donation of residual food. As discussed in the previous section, it could be achieved by social mobilization programmes like Food Wise Hong Kong Campaign. There are several other treatment options to manage food waste include incineration, landfilling and digestion / composting. However, all these options have their drawbacks.

Incineration

The biodegradable organic matters in food waste are high in moisture content which induces a quite low calorific value and it also creates emission problem. Offensive odour is also an issue. Therefore, food waste is considered not suitable for incineration and energy recovery.

Landfilling

The leachates and odour generation would result in high capital and operational cost in leachates removal at landfills, and nuisance to the surrounding area. The perishable nature of food waste would also lead to subsidence of land, increasing the instability of the landfilled area.

Digestion / Composting

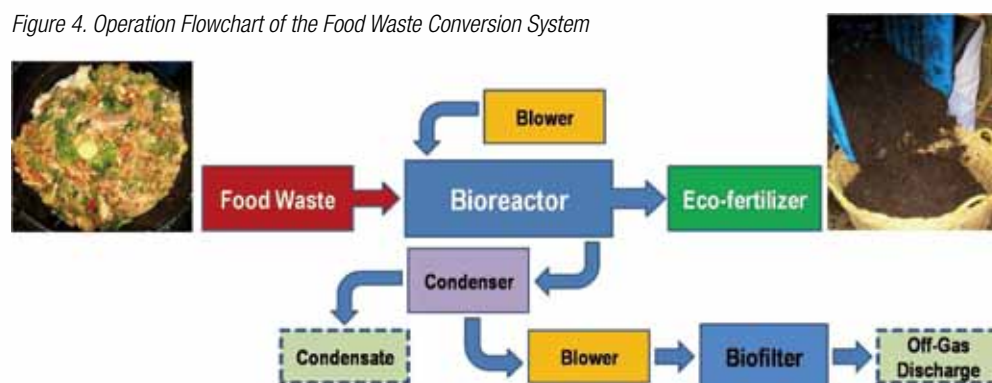
Anaerobic digestion together with aerobic treatment (sometimes termed as composting) of food waste is considered to be a more sustainable way to manage food waste. However, proper source separation is essential for effective treatment. While the Government is planning to install several Organic Waste Treatment Facilities, the difficulty in getting the land as well as endorsement from the Legislative Council / District Council cannot be under-estimated. A poor quality of organic waste that mixes with unwanted objects like sand, batteries, chemicals, glass, etc., will not just affect the treatment process, but also the quality of recycled products. Also high transportation cost as well as the possible odour and leachate contamination issues will be resulted during transportation of food waste to the central facilities. In fact composting of food waste can be achieved either off-site or on-site. In addition to the current financial burden of transportation cost from the site to landfill, waste generators will need to face the possible introduction of MSW charge by the Government in around 2017. There is an increasing need to control the disposal of organic wastes (e.g. food waste) to landfills, and so it creates a demand for the adoption of effective food waste conversion process aiming at in-situ treatment and volume reduction at source. The adoption of on-site treatment technology will immediately help the waste generator not just to reduce their cost for haulage of waste, but also help them to save cost from MSW charging and generate revenue by selling the organic fertilizer / soil conditioner converted from food waste.

ON-SITE MANAGEMENT OF FOOD WASTE

The development of the High Performance Food Waste Conversion System (FWCS) by the Hong Kong Productivity Council (HKPC) together with the South China Agricultural University in Mainland China is to target for the decentralized on-site treatment of food waste from the commercial and industrial sectors. The targeted clientele of FWCS shall include those premises where pure food waste can be readily collected in considerable quantity, such as food factories, hotels, restaurants, wet markets, theme parks, universities, shopping malls with restaurants, hospital canteens, freight caterers, etc.

The system is equipped with smart control unit and hence it consumes only 30% of electricity comparing to a traditional composting machine. The merit of the technology is that it can substantially and rapidly reduce food waste by over 70% in around 25 days instead of 60-90 days by conventional composting method. The process can be operated continuously to reduce waste volume and to transform waste into organic fertilizer as a valuable product with total nutrient content of over 4%. Since most of the food waste can be completely converted into Eco-fertilizer, HKPC anticipates this effective technology can help major food waste generators that are now putting extensive efforts in handling the bulk volume of food waste in their daily operation to turn their “trash” (food waste) into “treasure” (organic fertilizer). The operation flowchart is shown in Figure 4.

Figure 4. Operation Flowchart of the Food Waste Conversion System



The Food Waste Conversion System (FWCS) comprises a revolving Digestive Bioreactor drum, a Condenser and a Bio-filter as the core equipment. By adopting revolving design of the Bioreactor, the system avoids labor intensive pre-sorting procedure of food waste, use of high power electric mixer and damage of mixer due to waste blockage; at the same time achieves thorough mixing and contact of waste with microorganism and air inside the Bioreactor. Food waste is mixed with bulking agent and then put into the Bioreactor. When the food waste is converted into pre-cured product in about 7 days in the reactor, it can be taken out from the outlet of the Bioreactor. Some of the pre-cured product will be placed in the curing area for around 20 days to mature further, while the remaining output will be returned to the bioreactor inlet and mixed with fresh food waste to act as inoculum. Fresh air is supplied to the Digestive Bioreactor to facilitate aerobic digestion. Exhaust gases generated from the digestion process is directed through the condenser and bio-filter for cooling down of the exhaust temperature and removal of odour respectively before discharge. All the process equipment is operated in an automatic mode by a dedicated control unit. Normally a noticeable volume reduction in waste quantity for about 75% can be achieved after the rapid decomposition reaction in the Bioreactor.

In a system that was installed for a scenery park in Hong Kong for treating food waste from restaurant and green waste, the total nutrient level could achieve over 4%. The product from that system can be classified as eco-fertilizer. The laboratory analysis results in comparison to GB8172-87 (Control Standards for Urban Wastes for Agricultural Use) of the People of Republic China are shown in Table 1 below.

Samples	Batch 1	Batch 2	Batch 3	GB8172-87
Parameters	Based on dry weight (mg/kg unless specified)			
Total Nitrogen	2.7%	2.2%	2.8%	$\geq 0.5\%$
Total Phosphorus (as P ₂ O ₅)	0.61%	0.14%	1.2%	$\geq 0.3\%$
Total Potassium (as K ₂ O)	1.2%	1.3%	1.8%	$\geq 1\%$

Table 1. Laboratory Results on the quality of eco-fertilizer from the FWCS in the scenery park

CONCLUSION

Hong Kong has been adopting unsustainable ways on waste management by relying on disposal of the wastes in our 3 landfills that will be exhausted soon. To achieve long term sustainability on waste management, good government initiatives together with the participation of the whole community are needed. As about 90% of our population is living or working in premises with facilities management, this sector is an important partner to help achieve sustainable waste management for Hong Kong. One of the demonstrated examples is to conduct in-situ conversion of considerable amount of food waste into resources. The Food Waste Conversion System offers a viable solution not only on reducing waste at source, but also recovers useful matters from wastes. The facilitation of collection, separation and recycling of different types of waste could not be more effective without the active participation of the facilities management sector. Hence it is necessary that the Government, premises users and facilities operators will join hand to foster a more sustainable environment.

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16/F, World Tech Centre,
95 How Ming Street, Kwun Tong, Kowloon
Tel: (852) 2828 0888 Fax: (852) 2827 6300
Web Site: www.hongyip.com
E-Mail: hongyip@hongyip.com



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 Mr Keith Kerr, SBS, JP
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 Ir Dr Raymond Ho Chung-tai, SBS, SBStJ, JP
 Mr Phillip Lo
 Mr Alex Lam
 Mr Chung Pui-lam, GBS, OBE, JP
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香港灣仔道185號康樂商業大廈2102室
Suite 2102 Connaught Commercial Building, 185 Wanchai Road, Hong Kong
Tel : 25370456
Fax : 25374426
Website : <http://www.hkifm.org.hk>
E-mail : info@hkifm.org.hk

