

Manpower & Education Development for the Electrical & Mechanical Services Industry

*- BS O&M Education Study and Industry Case
Study Sharing for EDB / VTC)*

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Presentation Outline

- 1) A Study on Building Operation & Maintenance Education Needs
- 2) Career Ladder in BS O&M Industry – Case Study
- 3) Job Description / Skills Required for BS O&M Industry
- 4) Ways Forward



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The BS O&M Education Needs Study

- Background of the Study

- Supported by BSOMES
- Conducted by Dr. Joseph H.K. Lai (HK PolyU, BSOMES)
 - Reviewed existing education programmes
 - Questionnaire survey with 145 useful responses (Lai J.H.K., 2010)

	Mean
Age	36.6
Experience in building industry	12.4
Experience in building O&M field	9.0
<i>Position</i>	
Strategic (%)	11.0
Managerial (%)	48.3
Supervisory (%)	40.7
<i>Qualification</i>	
Postgraduate (%)	28.3
Degree (%)	41.4
Sub-degree (%)	30.3



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The BS O&M Education Needs Study

- Building Stock and Gross Value of Construction Work

Source: Lai, J.H.K. (2010), Building operation and maintenance: education needs in Hong Kong, *Facilities*, Vol. 28, No. 9/10, pp. 475-493.

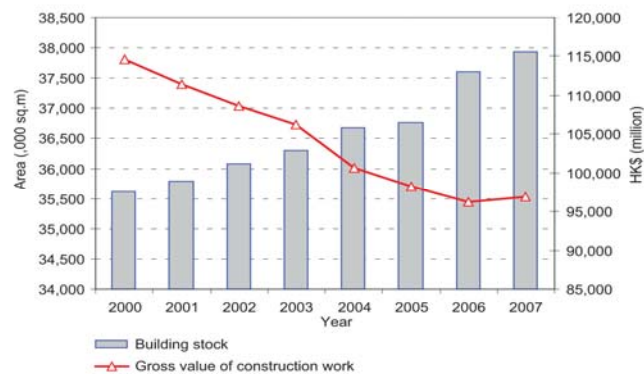
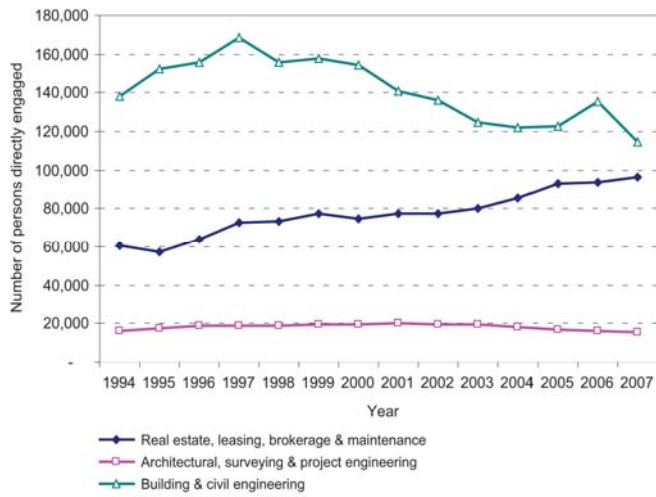


Figure 1.
Building stock and gross value of construction work

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The BS O&M Education Needs Study

- Manpower of Building-related Sectors



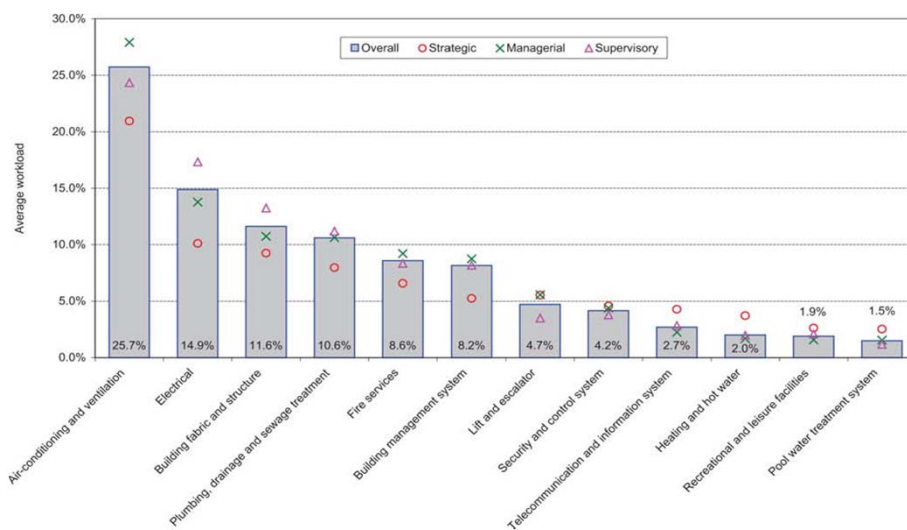
Building O&M:
education needs
in Hong Kong

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Figure 2.
Manpower of
building-related sectors

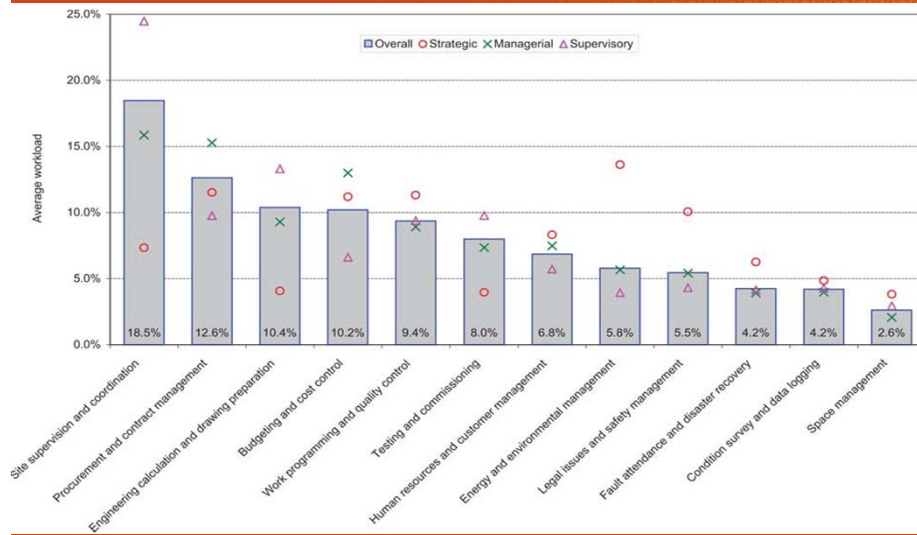
The BS O&M Education Needs Study

- Average Workloads (by Trades)



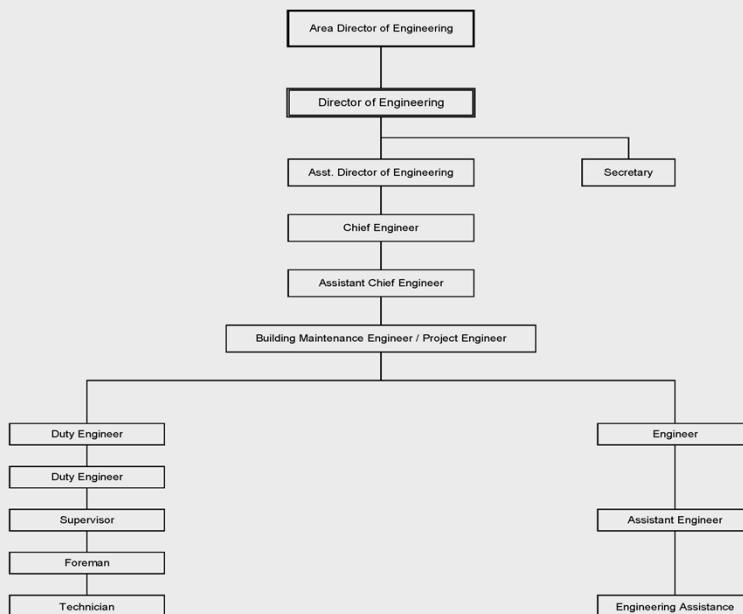
The BS O&M Education Needs Study

- Average Workloads (by Natures)



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Organization Chart of Sample Hotel Engineering Department



Samples of Job Description / Skills Required

BS O&M = Building Services Operation and Maintenance

(related to IVE Building Services Engineering, Electrical Engineering, Mechanical Engineering)

DEPARTMENT: Engineering

JOB TITLE: Engineering Assistant
Assistant Engineer
Engineer, Duty Engineer



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Samples of Job Description / Skills Required

QUALIFICATIONS

PHYSICAL: Good health.

EDUCATION: HD Engineering graduate.

LANGUAGE: Chinese / English / Mandarin

EXPERIENCE: 0 - 5 years experience working in the hotel.

OTHERS: Ability to work independently.

Good interpersonal skill.

A creative, practical and pro-active approach to problem solving.

Ability to build, lead and manage a team.

An energetic and dynamic personality.



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Samples of Job Description / Skills Required

SCOPE

- Responsible for the daily operation.
- Executor of preventive maintenance and work orders.
- Assist in renovation projects.
- Supervision of subordinates.
- Perform other duties as requested by the seniors.



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Samples of Job Description / Skills Required

KEY ROLES & RESPONSIBILITIES

1) LEADERSHIP

- a) Determine priorities, set goals, and follow up.
- b) Set and maintain service standards by constantly comparing the performance with standards.
- c) Motivate, coach, counsel and discipline employees as required.
- d) Seek out employees' concerns and offer assistance.
- e) Provide positive feedback and reinforcement.



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Samples of Job Description / Skills Required

KEY ROLES & RESPONSIBILITIES

2) CONTROL OF ALL BUILDING & SERVICES MAINTENANCE

- a) Assist to monitor the smooth operation of all building and services system and equipment, take appropriate action if necessary.
- b) Update on latest information from log books and service reports.
- c) Ensure fast reaction to emergencies, take immediately direct control of affected systems such as fire alarm, power interruption, water flooding, lift trapping, etc. and remedial action as required.



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Samples of Job Description / Skills Required

KEY ROLES & RESPONSIBILITIES

3) WORK ORDER CONTROL SYSTEM

- a) Execute the Work Order Control System.
- b) Distribute work orders to technicians.
- c) Follow up and check reason(s) of outstanding work orders.
- d) Check the work load and efficiency of various sections.
- e) Quality check of completed work orders randomly.
- f) Solicit feedbacks / suggestions from technicians and others for ongoing improvement of Work Order Control System.



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Samples of Job Description / Skills Required

KEY ROLES & RESPONSIBILITIES

4) PREVENTIVE MAINTENANCE PROGRAMME

- a) Assist in carrying out the Preventive Maintenance Program.
- b) Ensure the personnel on duty to carry out Preventive Maintenance works according to the program.
- c) Monitor work schedule and quality of work.



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Samples of Job Description / Skills Required

KEY ROLES & RESPONSIBILITIES

5) ENERGY CONSERVATION PROGRAMME

- a) Monitor utility consumption and record.
- b) Assist in carrying out the Energy Conservation Programme.
- c) Ensure normal utility consumption and take action if utility supplies are affected/interrupted.



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Samples of Job Description / Skills Required

KEY ROLES & RESPONSIBILITIES

6) SPECIAL PROJECTS

- a) Assist / take charge for certain assigned renovation / upgrading / improvement projects.
- b) Supervise the project installation work, testing & commissioning and carry out site progress records.
- c) Assist in project hand-take over, defect rectification and post-project review.



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Samples of Job Description / Skills Required

KEY ROLES & RESPONSIBILITIES

7) TRAINING

- a) Orientation & induction of new employees.
- b) Review training needs on an on-going basis using guest comments, observations, performance appraisals.
- c) Personally conduct technical job knowledge training sessions.



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Samples of Job Description / Skills Required

KEY ROLES & RESPONSIBILITIES

8) EMERGENCIES

- a) Fire Alarms.
- b) Ensure fire protection systems operate immediately.
- c) Co-ordinate engineering support as required in hotel emergency procedures immediately.
- d) Other emergencies: co-ordinate engineering per procedures.



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Samples of Job Description / Skills Required

KEY ROLES & RESPONSIBILITIES

9) RELATIONSHIP

- a) Internal: All Department Heads.
- b) External: Fire Services Department, Water Services Department, and other government departments, utilities companies, etc.



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Ways Forward

Source: Lai, J.H.K. (2010), Building operation and maintenance: education needs in Hong Kong, *Facilities*, Vol. 28, No. 9/10, pp. 475-493.

1) A proper supply of competent practitioners (BS O&M) is essential for this growing sector.

2) Higher education programmes tailored for producing BS O&M professionals were unavailable, exposing a mismatch between the demand and the supply.

3) 88.7 per cent of the respondents considered that a dedicated O&M academic programme is needed.



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Ways Forward

Source: Lai, J.H.K. (2010), Building operation and maintenance: education needs in Hong Kong, *Facilities*, Vol. 28, No. 9/10, pp. 475-493.

4) The natures of work that the practitioners were most desirous to learn about include energy and environment, testing and commissioning, legal issues and safety, and budgeting and cost control. A greater emphasis of O&M education should be placed on these aspects.

5) Further researches on BS O&M manpower and education are strategic importance for further development of our workforce, our industry and our economy.



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Thank You!

