

BEng Level 1 Engineering Training Seminar
6 June 2008 (Fri)



I Have a Date with BSE
“我和 BSE 有個約會”



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BSE



Who Am I?

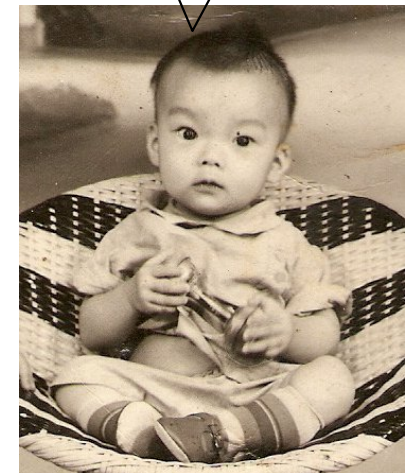


- An Engineer, a Teacher, a Traveller, ...

珠穆朗瑪峰
(Mt. Qomolangma)



I am
Sam Hui
(3 months
old).



Who Am I?



- **Dr. Sam C. M. Hui**

- Education:

- PhD in Building Engineering
- BEng(Hons) in Building Services Engineering
- Higher Diploma in Building Services Engineering

- Job history:

- HKU Dept. of Mechanical Engineering (6 years)
- HKU Dept. of Architecture (6 years)
- Asia Pacific Energy Research Centre, Japan (~1 year)
- Full-time PhD study (4 years)
- Associated Consulting Engineers (2 years)

Who Am I?



- **Dr. Sam C. M. Hui**

- Professional qualifications: (also show my profile)
 - Chartered Engineer (CEng)
 - Certified Energy Manager (CEM)
 - Life Member, Association of Energy Engineers (AEE)
 - Member, American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)
 - Member, Chartered Institution of Building Services Engineers (CIBSE)
 - Member, Hong Kong Institution of Engineers (HKIE)
 - Member, Illuminating Engg. Society of North America (IESNA)
 - Associate Member, American Institute of Architects (AIA)

Who Am I?



- Do you know WHO ARE YOU?

- Career planning process:

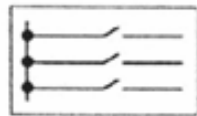
- 1. Self-Assessment
- 2. Career Exploration
- 3. Targeting
- 4. Career Preparation
- 5. Marketing Yourself
- 6. Career Management



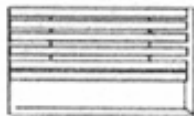


Why BSE?

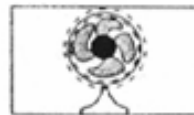
- Building Services Engineering (BSE)
 - A very practical subject
 - Closely related to Physics & Mathematics
- Significance of BSE
 - BSE is important for every building & the society
 - BSE affects people's comfort, health, productivity & safety
 - “We shape our buildings, and they shape us” – Winston Churchill



Electrical installation



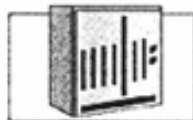
Blinds and shutters



Ventilation



Air conditioning



Switchgear and controlgear



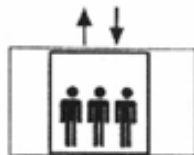
Heating



Stand-by power supply



Cooling



Elevator



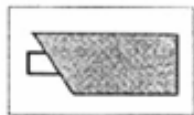
Sanitation



Security



Lighting



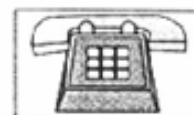
Video



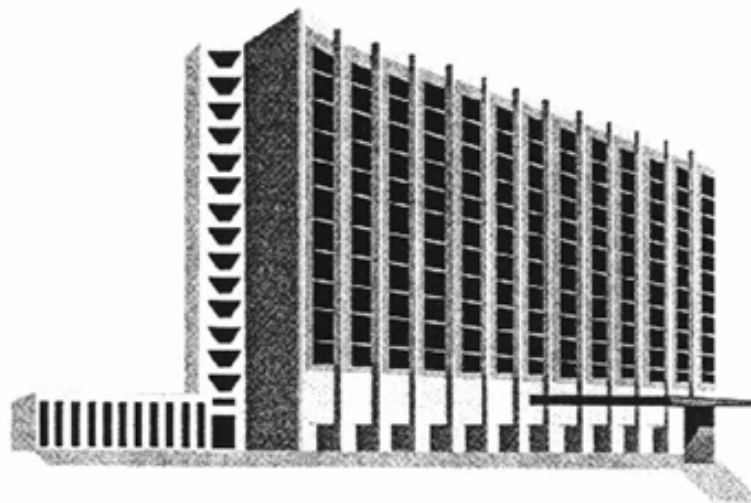
Waste disposal



Office and data systems technology



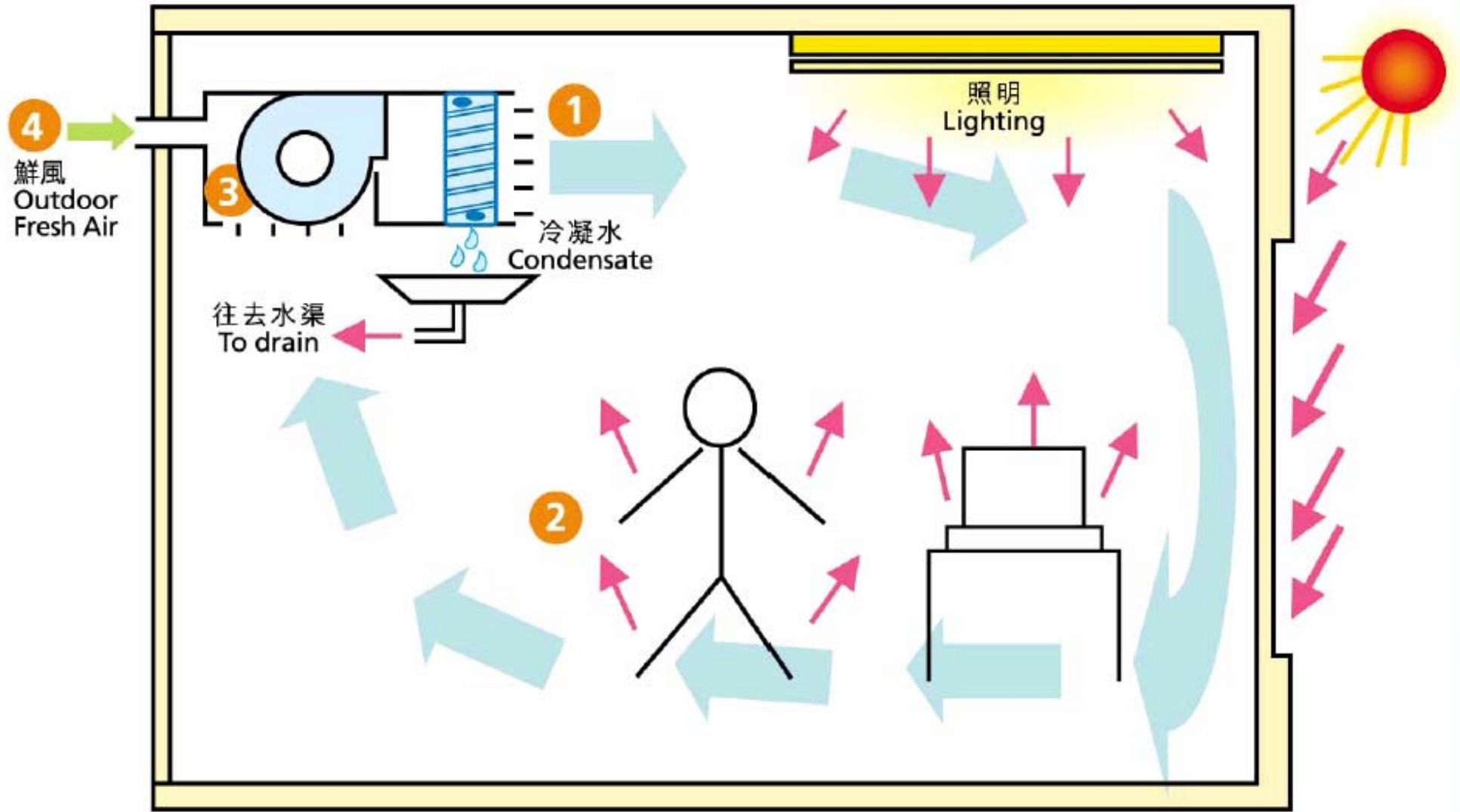
Telephone



典型空調系統

Typical Air-conditioning Process

冷卻盤管具冷卻及抽濕功效
Cooling Coil for Cooling & Dehumidification



The Beauty of Building Services



(Centre Pompidou, Paris, www.centrepompidou.fr)

The Beauty of Building Services



(Centre Pompidou, Paris, www.centrepompidou.fr)

Examples of BSE Elements



Stansted Airport, UK



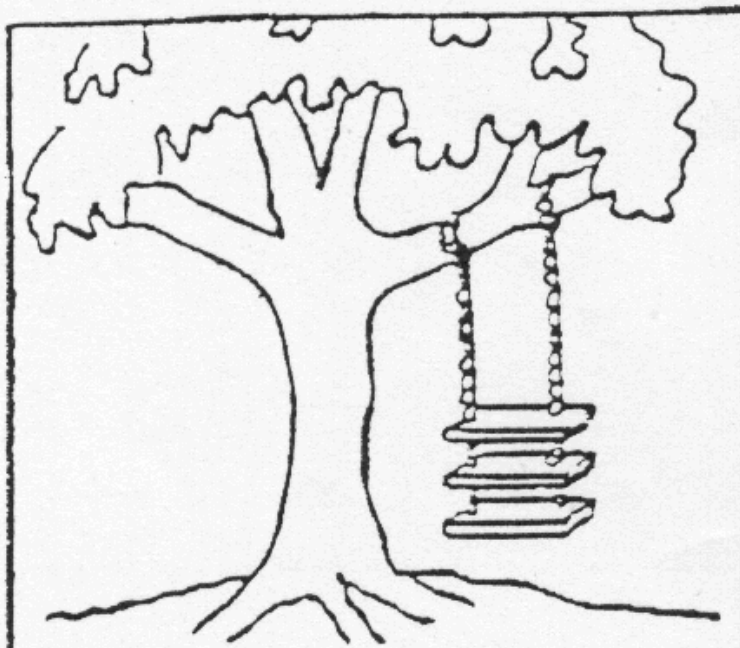
Hongkong Bank Headquarters

Why BSE?

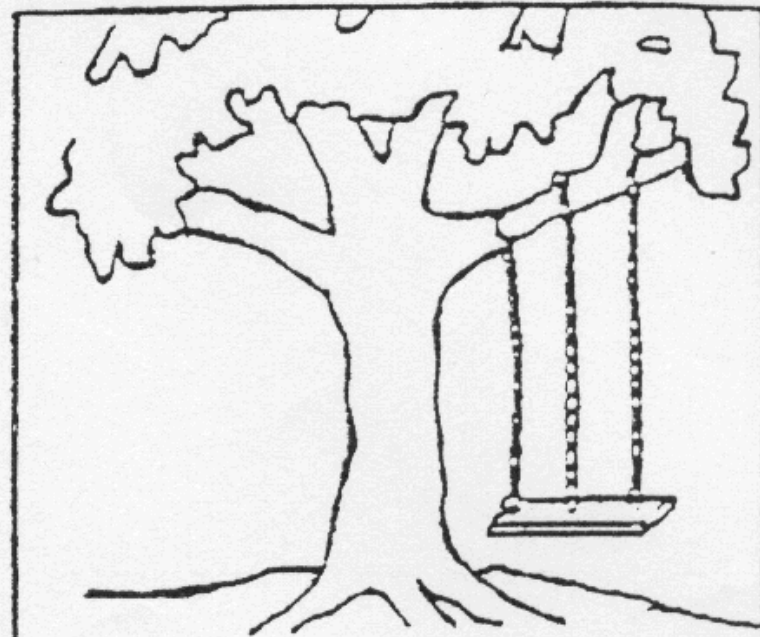


- Outcomes of BSE education
 - Problem-solving skills
 - System design & analytical skills
 - Project management skills
 - A good teamworker and potential leader
 - A good communicator
 - A creative and enquiring mind
 - Ability to develop & apply new technologies

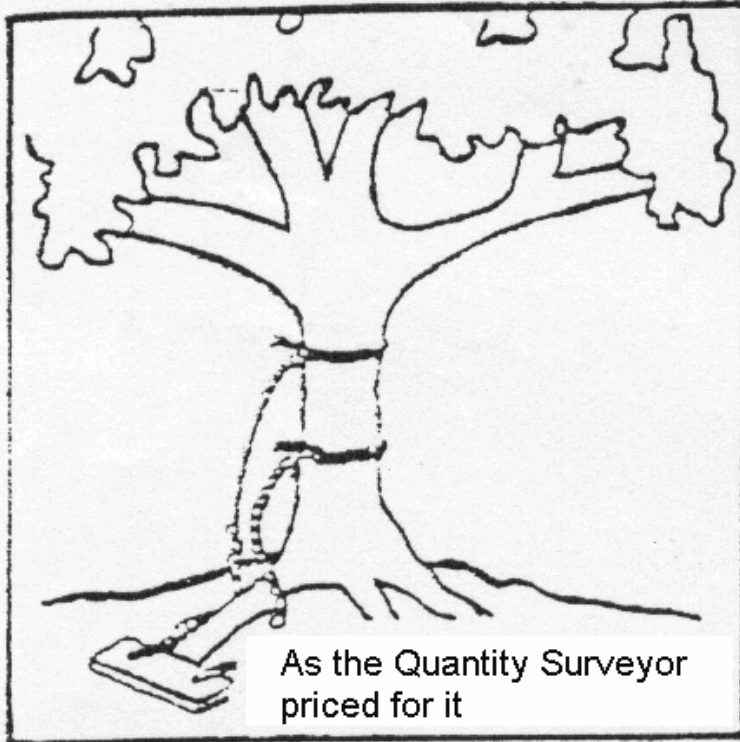




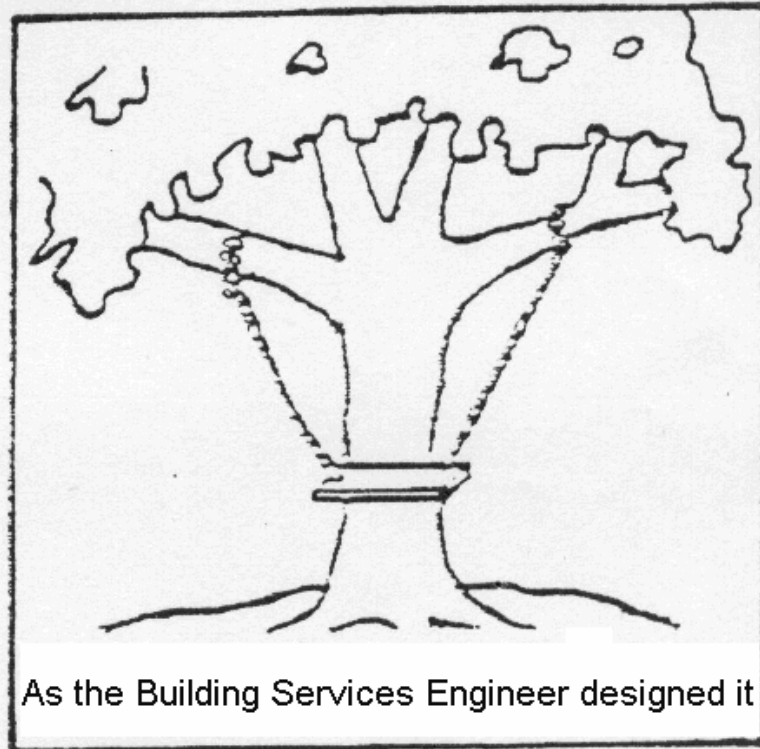
As the Architect detailed it



As the Civil/Structural Engineer designed it



As the Quantity Surveyor priced for it



As the Building Services Engineer designed it

Why BSE?



- BSE graduates at all levels:
 - Building services consultant
 - Engineering contractor
 - Properties developer/management
 - Public utility
 - Government department
 - Equipment supplier/manufacturer
 - Teachers/researchers



HKU BSE graduates 2006



BSE in Hong Kong



- Three major professional institutions

- ASHRAE Hong Kong Chapter

- <http://www.ashrae.org.hk>
- About 1,000 members



- CIBSE Hong Kong Branch

- <http://www.cibse.org.hk>
- About 2,500 members



- HKIE Building Services Division

- <http://www.hkiebsd.org>
- About 4,700 members



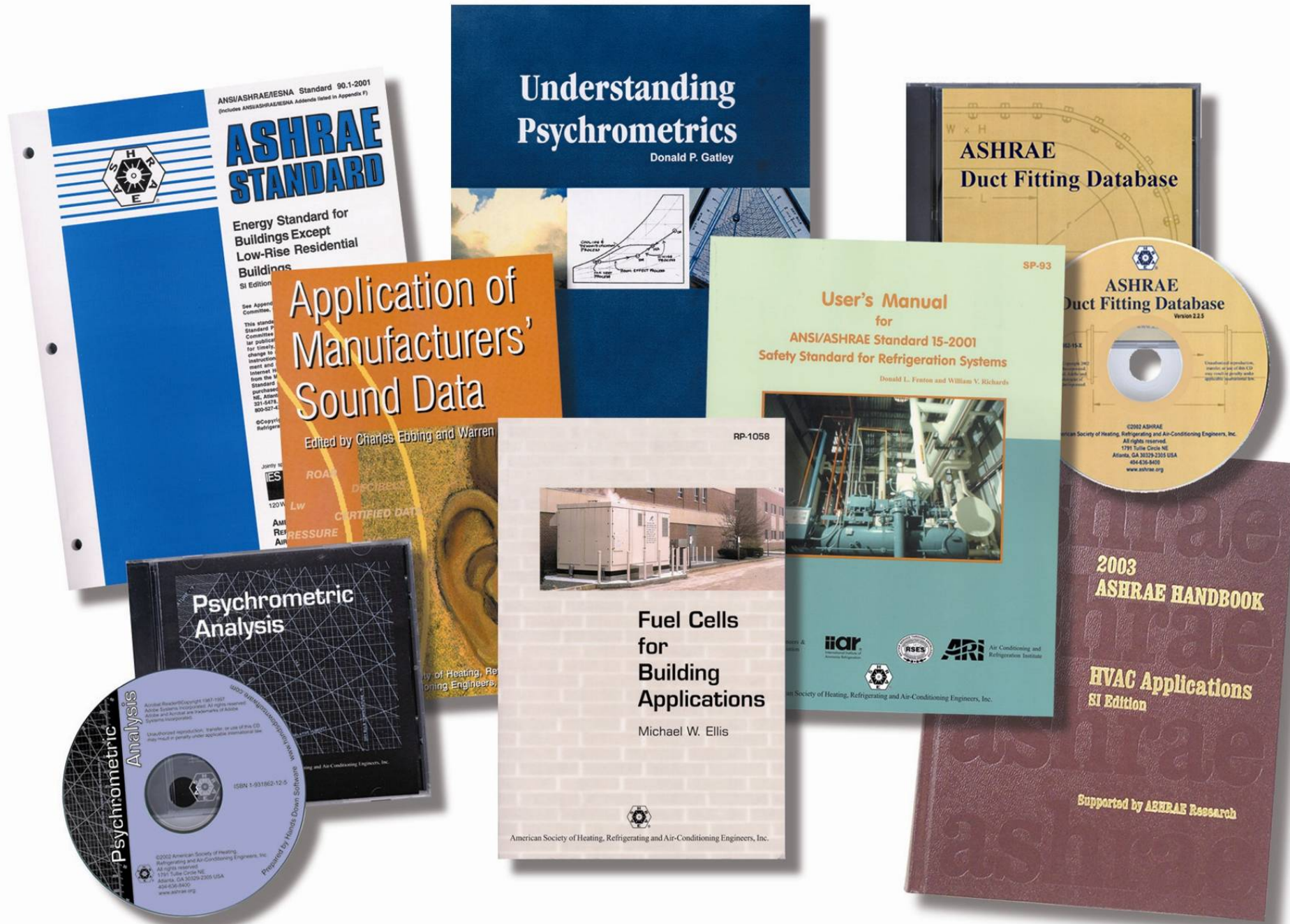
BSE in Hong Kong



- Scholarships to students
 - ASHRAE Hong Kong Chapter
 - Student Awards
 - CIBSE Hong Kong Branch
 - Student Prize, Project Prize, Book Prize
 - HKIE Building Services Division
 - HKIE-BSD Scholarships

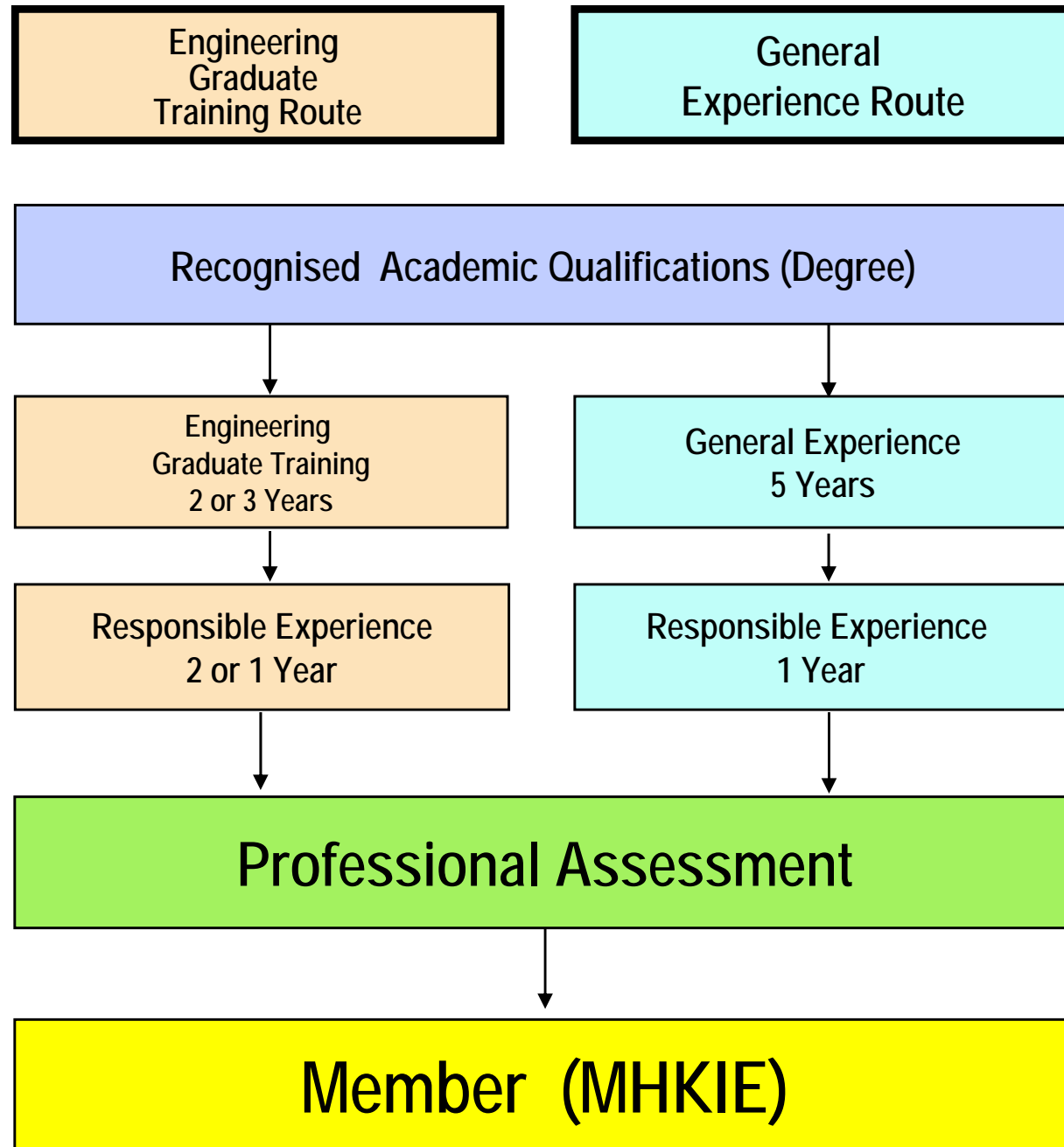






(Source: www.ashrae.org)

HKIE Route to Corporate Membership



(Source: HKIE Building Services Division)

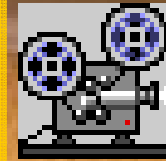
BSE in Hong Kong



- If you want to be a qualified professional engineer, you must
 - Obtain an accredited/recognised degree in an acceptable engineering discipline
 - Receive adequate training
 - Have sufficient responsible working experience
- Hong Kong Institution of Engineers (HKIE)
 - Further info: <http://www.hkie.org.hk/>

My BSE friends from HKIE

(Seeking for donation to Sichuan incident)



The Hong Kong Institution of Engineers Building Services Division 21st Anniversary Dinner

Ir Paco Tang

Ir Victor Cheung

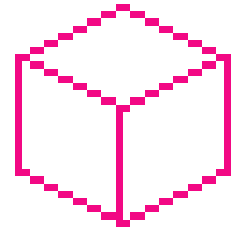
Ir Fred Au

Ir Clarence Mak

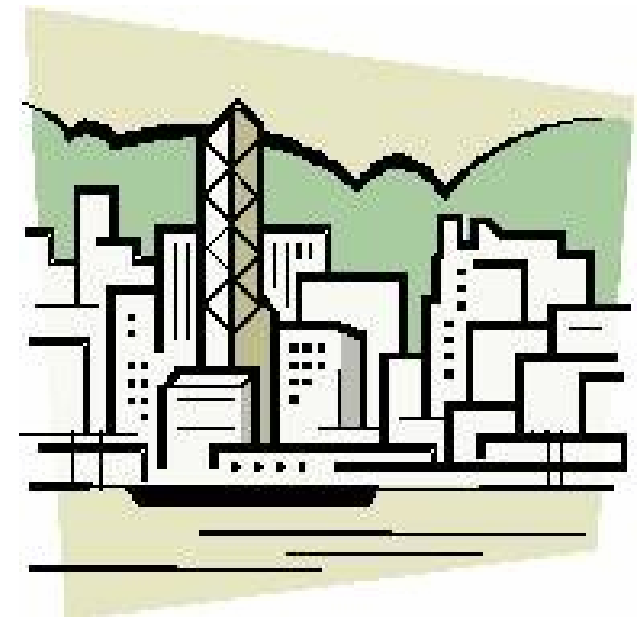
Ir Peter Wong

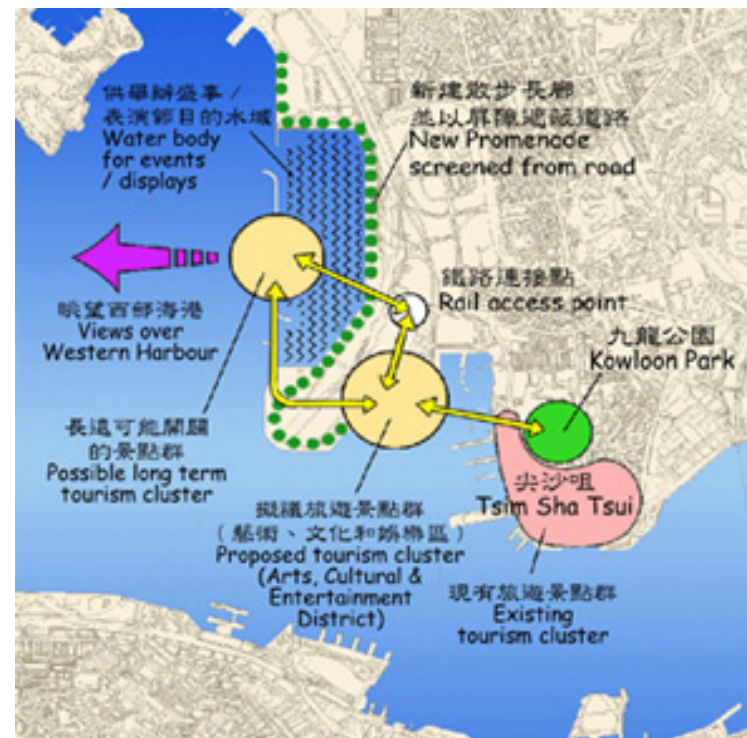


Prospects

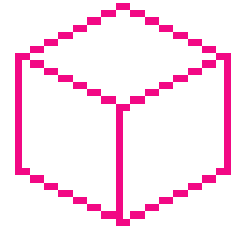


- Building and infrastructure projects in HK
 - Kwun Tong Redevelopment
 - West Kowloon Development
 - MTR West Island Line
 - MTR South Island Line
 - New Tamar Project
- Projects in nearby areas
- Projects in other countries



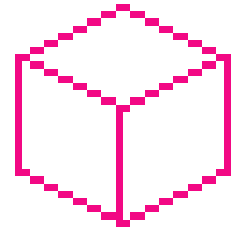


Prospects



- (*smart*) Building Services Engineers are in high demand by industry and employment prospects are very good
 - HK, Macau, mainland China, Asian countries
- BSE not only focus on new building design, but also operation & management of existing buildings (for *whole life cycle* of a building)
 - Such as hotel management, facilities management

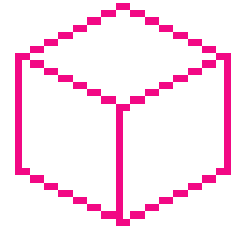
Prospects



- Some trends of the BSE industry
 - Energy efficiency
 - Sustainable building
 - Indoor air or environmental quality
 - Integrated design
 - Intelligent building
 - Renewable/clean energy
 - Green roof & urban greening



Prospects



- Typical BSE skills
 - BSE system designs
 - Project and contract management
- New BSE skill sets
 - Building energy simulation
 - Computational fluid dynamics (CFD)
 - Fire engineering
 - Green building design

Are you ready for the challenge?



Thank you for your attention