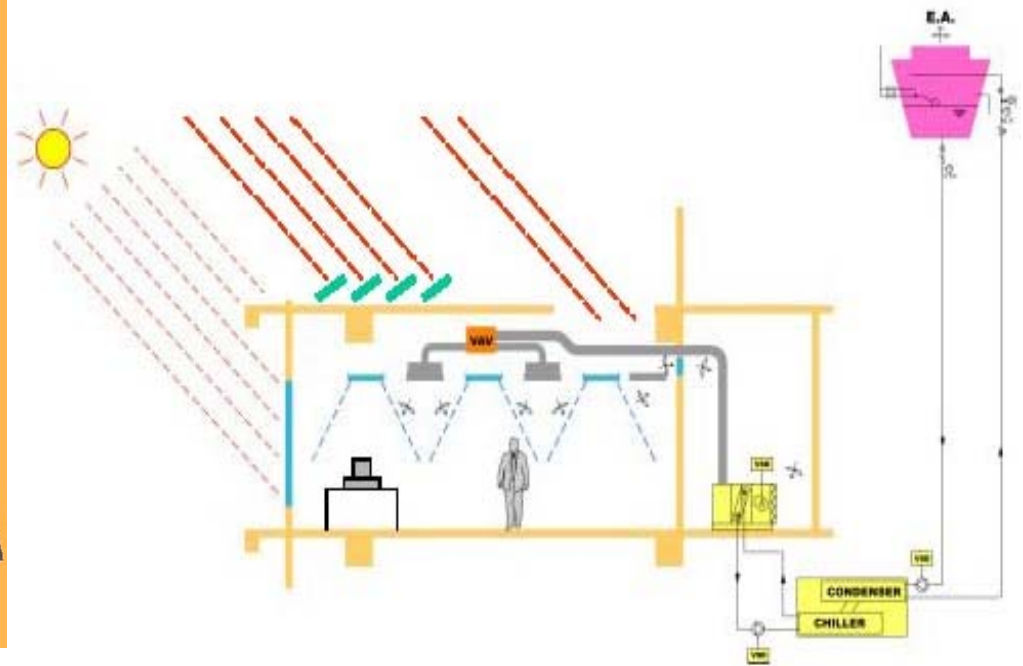
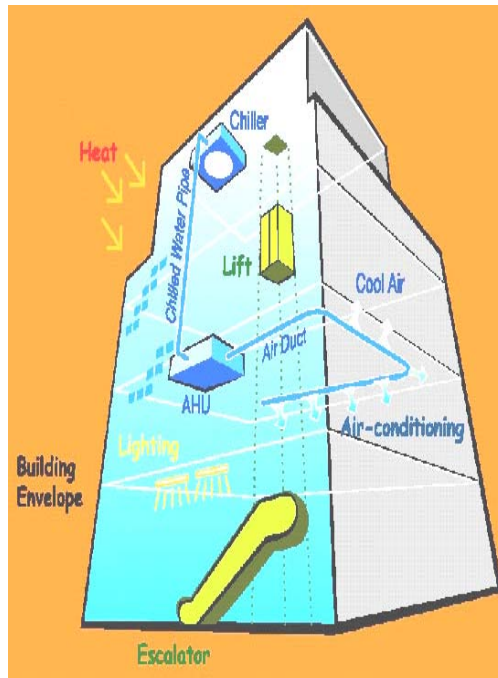


Proposed Legislative Framework for Mandatory Implementation of the Building Energy Code

強制實施《建築物能源效益守則》的立法建議框架



29 Oct 2009

Background

背景

- About 50% of the energy consumed belonged to electricity consumption, of which around 89% were for buildings
電力消耗佔最終用途總耗能量當中約一半，其中89%用於建築物
- Energy efficiency in buildings is an area where significant energy savings and greenhouse gas emission reduction can be made.

提升建築物能源效益是一個合乎成本效益的方法以回應全球暖化和本地空氣質素的日益關注

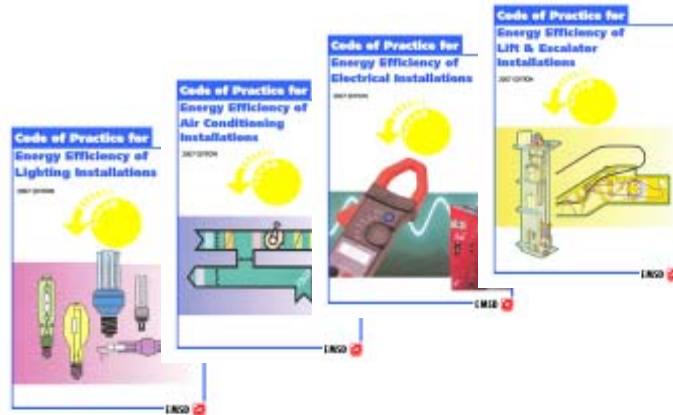


Voluntary Building Energy Codes

自願性建築物能源效益守則

- The Electrical and Mechanical Services Department (the EMSD) has issued a set of 5 Building Energy Codes since 1998

機電工程署自 1998 年起出版了五冊《建築物能源效益守則》，並推行《香港建築物能源效益註冊計劃》，以鼓勵自願遵守《建築物能源效益守則》



**Prescriptive approach on setting
MINIMUM Energy Performance Standards,
SIMPLE & EASY to follow**
提供基本能源效益標準規範，簡單及容易採用

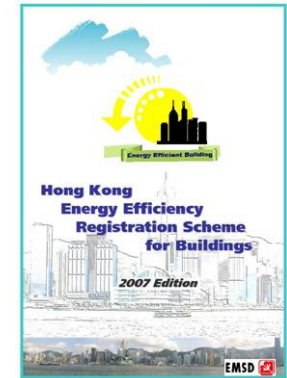


**Performance-based approach
requiring TOTAL Building
Energy Computation**
提供成效為本方案，計算
建築物整體能耗量

The Hong Kong Energy Efficiency Registration Scheme for Buildings

香港建築物能源效益註冊計劃

- Introduced in 1998
於1998年推行
- On voluntary basis
自願性參與
- Up to September 2009
截至2009年9月
Certificates issued : 2,515
已頒發證書 : 2,515
Covered installations : 2,682
涵蓋裝置 : 2,682
Buildings registered : 1,061 (only
292 nos. non-government buildings)
註冊建築物 : 1,061 (只有292幢非政府建築物)



Mandatory Implementation of Building Energy Code

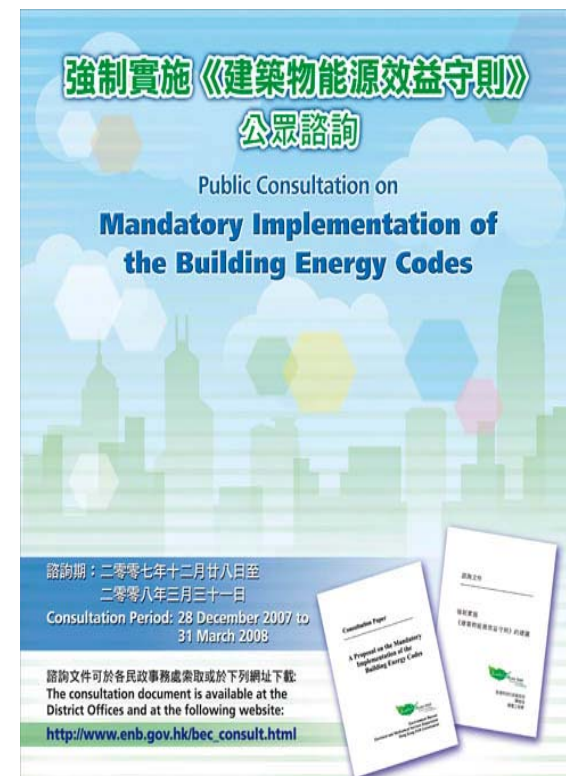
強制實施《建築物能源效益守則》

- Improving energy efficiency is a cost-effective measure to address global warming and local air quality
改善能源效益能減少空氣污染和減低能源需求
- Voluntary compliance with Building Energy Codes for non-government buildings is not forthcoming in Hong Kong
自願性計劃的非政府建築物參與率不高 (約28%)
- Well-established international practice to pursue mandatory implementation by legislation
內地和不少海外國家均已立法強制實施基本建築物能源效益標準

Public Consultation

公眾諮詢

- Public consultation from December 2007 – March 2008
於二零零八年三月結束三個月公眾諮詢
- Support from the general public and stakeholders
絕大部份的回應及意見都支持強制實施《建築物能源效益守則》



After Public Consultation.....

完成公眾諮詢後 ...

- Trade Task Force;
業界專責小組;
- Technical Task Force;
技術專責小組;
- Business Impact Assessment; and
營商環境影響評估; 及
- Consultation meetings with other bodies –
 - Business Liaison Groups under the Economic Analysis and Business Facilitation Unit與多個組織舉行諮詢會議 –
 - 包括經濟分析及方便營商處的營商聯絡小組等



Mandatory Building Energy Code

強制性《建築物能源效益守則》

- As a result of the public consultation, we're now drafting the MBEC based on the latest voluntary BECs 2007 Edition.

按公眾諮詢的共識，我們現正採用現行的自願性《建築物能源效益守則》二零零七年版為藍本，草擬未來強制性實施的《建築物能源效益守則》。

- The mandatory energy efficiency requirements will be more or less the same as the latest BECs 2007 Edition.

草擬中的強制性《建築物能源效益守則》之技術規範與現行的《建築物能源效益守則》二零零七年版將大同小異。

Minimum energy performance standards

基本能源效益表現標準

Lighting Installation

照明裝置

- Lighting power density
照明功率密度
- Lighting control points
照明控制點



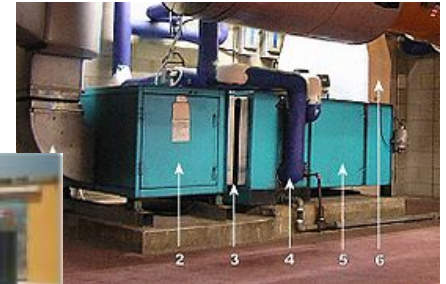
Minimum energy performance standards

基本能源效益表現標準

Air Conditioning Installation

空調裝置

- Equipment COP 空調設備能效系數
- Fan power per volume air flow 送風機送風功率
- Pipe frictional loss 管道磨擦損耗
- Thermal insulation 隔熱物料
- Air-conditioning control 空調控制



Minimum energy performance standards

基本能源效益表現標準

Electrical Installation

電力裝置

- Motor efficiencies
電動馬達效率
- Power distribution loss
配電損耗
- Power quality
電力質素
- Metering devices
電力及耗電計量儀器



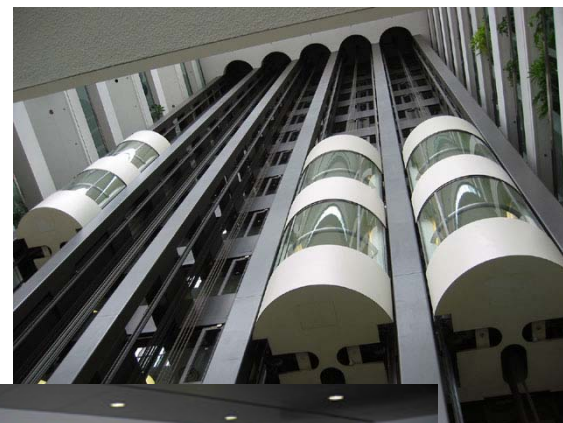
Minimum energy performance standards

基本能源效益表現標準

Lift and Escalator Installation

升降機及自動梯裝置

- Power demand of lifts/escalators
升降機及自動梯的電功率需求
- Utilization of Power 電力的使用
- Power quality 電力質素
- Metering devices
電力及耗電計量儀器





Proposed Legislative Framework : Coverage

立法建議框架：涵蓋範圍

Coverage of Buildings

- Commercial buildings
- Hotel & guesthouse
- Composite buildings: non-residential portions, non-industrial portions & common areas only
- Residential buildings and industrial buildings: both common areas only
- Educational buildings
- Community buildings (e.g. community centers, elderly homes, youth centres etc)
- Municipal buildings (e.g. markets, libraries etc)
- Medical and health care services building (e.g. hospitals, rehabilitation centres etc)
- Government buildings
(e.g. government office buildings, police stations, fire stations etc)
- Airport passenger terminal building
- Railway station





Relationship with Other Licenses

與其他牌照的關係

- Not affect the application of occupation permits nor any other licensing requirements

建議強制實施《建築物能源效益守則》的規定不會影響建築物申請「入伙紙」或其他與商務營運有關的牌照

Exemptions

豁免

- Buildings with the main electrical switch at approved loading $\leq 100A$, 1-phase or 3-phase
主要電力開關掣的允許負載量不超過單相或三相100安培的樓宇；
- NT Exempted houses 新界豁免管制樓宇；
- Declared or proposed monument or historical building under Antiquities and Monuments Ordinance
《古物及古蹟條例》下的法定或暫定古蹟或歷史建築；
- Buildings that will be demolished or redeveloped within 12 months
將於一年內清拆或重建的樓宇；

Exemptions

豁免

- Building services installations for special purposes (e.g. fire suppression , surgical operation...etc.) will be exempted from the mandatory scheme ; and
某些類別的屋宇裝備裝置基於操作或技術理由，將獲豁免遵從守則的規定(例如配合滅火，外科手術用途的裝置等等)；及
- Special exemption on individual BS installations granted by the Director of Electrical and Mechanical Services (DEMS) upon receiving written applications with justifications
負責人亦可以書面提出理據，向署長申請豁免個別屋宇裝備裝置遵從守則的規定



Post-enactment Buildings

條例生效後樓宇

- Buildings that obtain the consent for commencement of works for superstructure construction from the Building Authority

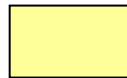
Post-enactment Buildings

條例生效後建築物

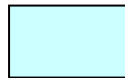
	Central building services installations (Common facilities) 中央屋宇裝備裝置 (公用設施)	Other building services installations serving individual unit 個別單位的其他屋宇裝備裝置	
		with floor area <500m ² 樓面面積 少於500平方米	with floor area ≥500m ² 樓面面積 500平方米或以上
Need to comply with BEC? 是否需要遵守《守則》?	✓(occupation approval stage) (佔用准許階段)	✓	✓
	✓		
Need to obtain Certificate of Compliance Registration from EMSD? 是否需向機電署取得 遵行規定登記證明書?	✓(occupation approval stage) (佔用准許階段)	✓(for installations provided by developers at the occupation approval stage) (發展者在佔用准許階段提供的裝置)	
	✓(10-year renewal) (每10年續領一次)	x (10-year renewal) (每10年續領一次)	
Need to obtain Form of Compliance from registered energy assessors? 是否需向註冊能源效益評核人 取得遵行規定表格?	✓(major retrofitting works of main component) (主要組件的主要裝修工程)	x	✓(major retrofitting works) ¹ (主要裝修工程) ¹



發展者
Developer



業主
Owner



負責人 (佔用、管有或控制建築物或單位的人)
Responsible persons (persons who occupy or are in possession or control of buildings or units)

¹ Also applicable to common area ≥ 500m² where it should be the owners to fulfill the requirement under the Ordinance
亦適用於樓面面積500平方米或以上的公用地方，並該由業主遵守條例的規定。



Pre-enactment Buildings

條例生效前樓宇

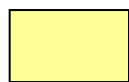
- Buildings which have obtained their consent for commencement of works on or before the new legislation comes into operation

新法例生效當日或以前已獲發上蓋建築施工同意書的樓宇

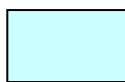
Pre-enactment Buildings

條例生效前建築物

	Central building services installations 中央屋宇裝備裝置	Other building services installations serving individual unit 個別單位的其他屋宇裝備裝置	
		with floor area <500m ² 樓面面積少於500平方米	with floor area ≥500m ² 樓面面積500平方米或以上
Need to comply with BEC? 是否需要遵守《守則》?	✓ (major retrofitting works) (主要裝修工程)	x	✓ (major retrofitting works) (主要裝修工程)
Need to obtain Form of Compliance from registered energy assessors? 是否需向註冊能源效益評核人取得遵行規定表格?	✓ (major retrofitting works of main component) (主要組件的主要裝修工程)	x	✓ (major retrofitting works) ¹ (主要裝修工程) ¹



業主
Owner



負責人 (佔用、管有或控制建築物或單位的人)
Responsible persons (persons who occupy or are in possession or control of buildings or units)

¹ Also applicable to common area $\geq 500\text{m}^2$ where it should be the owners to fulfill the requirement under the Ordinance 亦適用於樓面面積500平方米或以上的公用地方，並該由業主遵守條例的規定。

Major Retrofitting Work

主要裝修工程

Type 1

1類

- Addition or replacement of a building services installation in the retrofitting works covering a floor area aggregated to or greater than 500 square meters under the same series of works within 12 months in a unit / common area.

於一單位或公用地方內增加或更換屋宇裝備裝置而相關的同一系列裝修工程於12個月內累計樓面面積達500平方米或以上

OR 或

Type 2

2類

- Addition/replacement of a main component of the central BS installation, incl. –
 - a complete electrical circuit at rating $\geq 400\text{A}$; or
 - a unitary air-conditioner or a chiller at rating $\geq 350\text{kW}$ (cooling or heating); or
 - motor drive and mechanical drive of a lift, escalator or passenger conveyor.

增加或更換中央屋宇裝備裝置的主要組件，包括 –

- 400安培或以上的完整電路；或
- 制冷或供暖功率為350千瓦或以上的單式組裝空調機或制冷機；或
- 升降機、自動梯或乘客輸送機的電動機驅動系統及機械驅動系統

Major Retrofitting Work

主要裝修工程

Further technical elaboration in the type 1 in order to avoid catching building services works of too minor nature:

避免過份規管太小型的裝修工程，現進一步列出1類工程的技術規定細節如下：

- addition or replacement of luminaires, where the sum of rated wattage of the additional/replacement luminaires is not less than 3kW (equivalent to about 200 nos. 15W compact fluorescent lamps or over 90 nos. standard T5 fluorescent tubes of 1.2m)

新增或更換燈具，而該等燈具的合計功率不低於3千瓦（相當於約200個15瓦慳電膽或90多枝標準1.2米長的T5光管）

or 或

- addition or replacement of air handling unit(s) or unitary air-conditioner(s) serving the area, where the sum of cooling/heating capacity is not less than 60kW (equivalent to about 17 nos. 1.5hp air-conditioners);

新增或更換供應該範圍空調的送風機或單式組裝空調機，而該等空調機組的合計制冷量或供熱量不低於60千瓦（相當於約17部匹半冷氣機）

or 或

- addition or replacement of motor drive and mechanical drive of a lift, escalator or passenger conveyor;

新增或更換升降機、自動梯或乘客輸送機的電動機驅動系統及機械驅動系統



Energy Audits

能源審核

- Only apply to common areas of –
 - Commercial buildings
 - Commercial portions of a composite buildings

只限以下類別樓宇之公用地方

- 商業樓宇
- 綜合用途樓宇之商業部份

Energy Audits

能源審核

- Compliance procedures –
 - Appoint a registered energy assessor to conduct an energy audit once every 10 yrs
建築物的業主須每10年安排由註冊能效評核人進行能源審核
- Exhibit a copy of the valid energy audit form in a prominent position at the main entrance of building
在樓宇主要入口的當眼處展示能源審核表格
- Energy audit form should show the annual energy utilization index (EUI) in MJ/m²/annum of the building in the past 12 months
能源審核表格應載述建築物過去一年的能源使用指數(兆焦耳/平方米/年)

Registered Energy Assessor (REA)

註冊能源效益評核人

- **Registered Professional Engineer** under Engineers Registration Ordinance – electrical, mechanical, building services or environmental discipline
工程師註冊條例下之電機、機械、屋宇裝備或環境界別的註冊專業工程師
 - ≥ 2 years post-qualification experience
於取得該等專業資格後兩年或以上的相關工作經驗

Or 或

- **Corporate member of HKIE or such equivalent** in electrical, mechanical, building services or environmental discipline
電機、機械、屋宇裝備或環境界別的香港工程師學會法定會員或同等資格
 - ≥ 3 years post-qualification experience
於取得該等專業資格後三年或以上的相關工作經驗

Both need to demonstrate experience & knowledge thro' assessment by DEMS or any other means accepted by DEMS

兩者的相關工作經驗和知識皆須通過機電工程署署長的評核或其他機電工程署署長接納的評核方法

Duties of Registered Energy Assessor

註冊能源效益評核人的職責

- Certify compliance with the BEC for developers / building owners of post-enactment buildings to apply for Certificate of Compliance Registration;
替發展商/業主核證條例生效後樓宇已遵從守則的規定並提交規定登記證明書的申請
- Certify that building services installations of major retrofitting works have complied with the BEC and issue Form of Compliance to responsible persons of buildings/ premises, and copy the form to the Electrical and Mechanical Services Department (EMSD); and
核證主要裝修工程中屋宇裝備工程已遵從守則的規定並向建築物負責人發出遵行規定表格及送呈副本至機電工程署
- Conduct energy audits for building owners
替業主進行能源審核



Way forward

未來路向

- It is planned to introduce the proposed legislation into the Legislative Council of HKSAR by end 2009.

我們會在二零零九年底向立法會提交有關條例草案



Energy Efficiency Office

能源效益事務處

Enquiry 查詢 : 28083465

Email 電郵: mbec@emsd.gov.hk

Address 地址: 3 Kai Shing Street,
Kowloon

Website 網站 : <http://www.emsd.gov.hk>

Thank You!

多謝!