



Full Implementation of the Buildings Energy Efficiency Ordinance and Latest Development of the Codes

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Agenda

- Brief introduction to the BEEO;
- Key Requirements;
- Publicity;
- Enforcement;
- Latest Development

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Legislation and Codes

Buildings Energy Efficiency Ordinance (Cap 610)
(BEEO)

Building Energy Code
(BEC)

Energy Audit Code
(EAC)

Technical Guidelines
on BEC (TG-BEC)

Technical Guidelines
on EAC (TG-EAC)

Legislation & Codes (Cont'd)



BEC Coverage

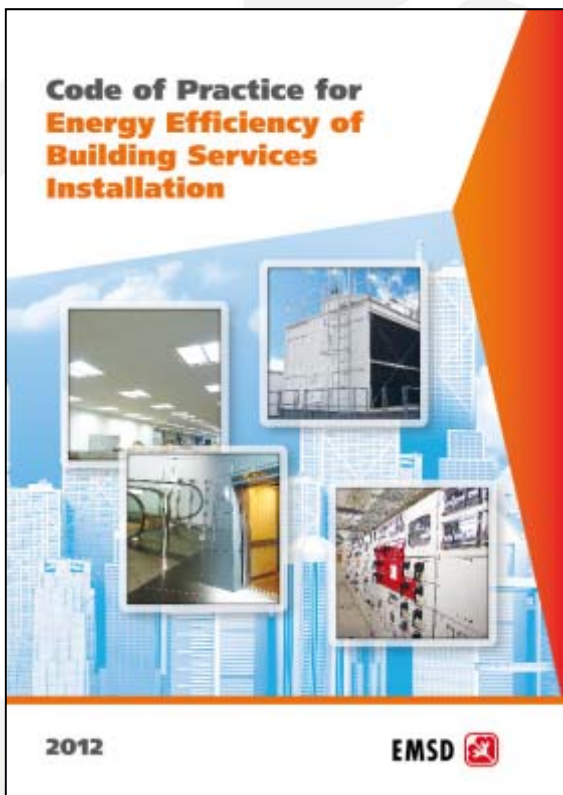
- Hotel & guesthouse
- Educational building
- Community building
- Municipal services
- Hospital & clinic
- Government building
- Airport passenger building
- Railway station
- Commercial building
- Industrial building – **common area**
- Residential building – **common area**
- Composite building –
 - commercial portion
 - **common area** of portion for residential or industrial use

EAC Coverage

- Commercial building
- Composite building – commercial portion



Key Requirements: Compliance with BEC



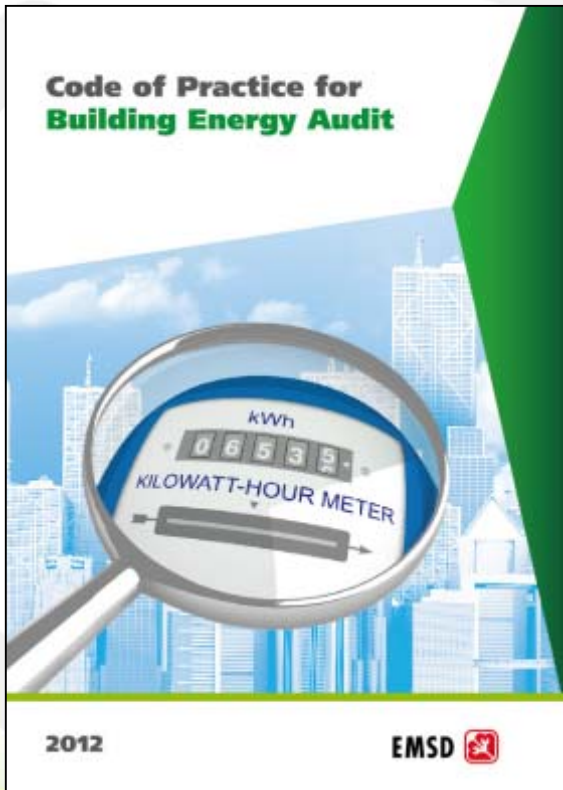
- Newly constructed buildings and
- Major retrofitting works in units or common areas

Building services (BS) installations:

1. Lighting;
2. Electrical;
3. Air-conditioning; and
4. Lift and escalator

to comply with the min. design standards of the Building Energy Code (BEC)

Key Requirements (Cont'd) Compliance with EAC



Commercial buildings

Office, shops, entertainment facilities;
Trade, business, profession

Commercial portion of composite buildings

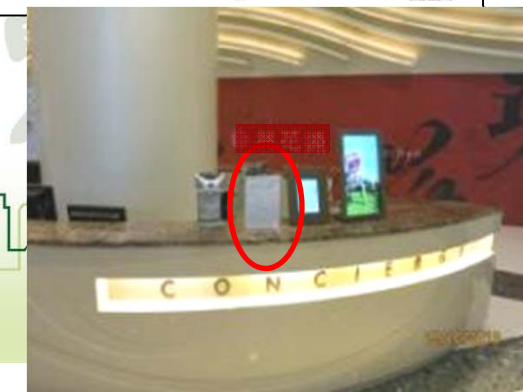
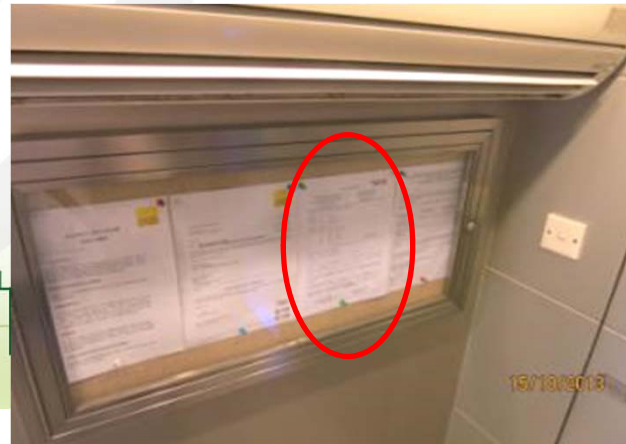
- Conduct energy audit for central BS installations every 10 years

Key Requirements of BEEO (Cont'd)



Display Energy Audit Form

- Obtain from Registered Energy Assessor (REA) the Energy Audit Form with Energy Utilization Index (EUI in MJ/m²/annum or kWh/m²/annum) and Energy Audit Report
- Exhibit Energy Audit Form at building main entrance

Compliance with the BEC and EAC



Technical Guidelines on Code of Practice for Energy Efficiency of Building Services Installation



2012

EMSD 

- Provide an overview and explanations of legislative requirements and the engineering requirements of BEC and EAC
- Provide the good engineering practices for enhanced energy efficiency and energy audit results

Technical Guidelines on Code of Practice for Building Energy Audit



2012

EMSD 

Publicity



Briefings, Seminars, Talks	<ul style="list-style-type: none">• More than 165 nos. since Jan 2011<ul style="list-style-type: none">– covering academia, professionals, engineering trades, business sector, property management companies and building owners, etc.– more than 15,000 audiences attended
Publications	<ul style="list-style-type: none">• Posters, leaflets and pamphlets are dispatched through various channels (e.g. seminars, site inspections and etc.)
Advisory Letter	<ul style="list-style-type: none">• Issue of advisory letters to alert the responsible parties of other target buildings/premises
Outreaching Programme	<ul style="list-style-type: none">• 1st batch to 1,000 buildings was completed and 2nd batch to 3,000 buildings has commenced in Nov 2015 to<ul style="list-style-type: none">(a) enhance awareness of buildings owners(b) To collect information of major retrofitting works

Implementation of BEEO



Stage One Declaration	More than 850 nos.
Application for Certificate of Compliance Registration	More than 80 nos.
Form of Compliance	More than 3,700 nos.
Energy Audit	More than 2,100 nos.

Schedule 5 of BEEO

Issue date of OP	Deadline
After 1987 (Batch 1)	20.9.2013
1978 – 1987 (Batch 2)	20.9.2014
1970 – 1977 (Batch 3)	20.9.2015
Before 1970 (Batch 4)	20.9.2016

Improvement Notice (IN)



Prosecution after specified period

The Prosecution Cases



- **5 prosecution cases** against belated first energy audit up to present
- The Incorporated Owners of the relevant building were convicted of contravening the relevant requirements and fined from **\$2,000 to \$21,000**
- EMSD will strictly enforce the law and is also progressively taking prosecution action

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Review of BEC and EAC

- Being reviewed by the Technical Taskforce and Working Groups of Mandatory Implementation of BEC
 - to take advantage of new technologies;
 - to capture prevailing good practices;
 - to tighten energy efficiency requirements with reference to the development trend worldwide;
 - to address the community aspiration and comments received during the implementation of the BEEO.
- Review completed in 2015

BEC 2015 - Lighting Installation



- **Lighting Power Density (W/m²)**
- **Lighting Control Point**



BEC 2015 - Lighting Installation



Tightening Requirement

- Widen the coverage and tightening of LPD requirement
- Extend the requirement of lighting control point to cover all spaces

New Requirement

- Provision of automatic lighting control to shut off or reduce the general lighting power
- Provision of **daylight responsive control** for space with fenestrations (skylight area)

BEC 2015 - Air Conditioning Installation



- **Coefficient of Performance**
- **System Fan Power**
- Piping Frictional Loss
- Thermal Insulation
- **System Control**
- **Energy Metering**



BEC 2015 - Air Conditioning Installation



Tightening Requirement

- **Coefficient of Performance (COP)** for different type of air-conditioning equipment
- Air distribution system fan power

New Requirement

- Provision of **demand control ventilation**

BEC 2015 - Electrical Installation



- **Motor Efficiency**
- Motor Sizing
- Power Distribution Loss
- Power Quality
- **Energy Metering**



BEC 2015 - Electrical Installation



Tightening Requirement

- Upgrade of motor efficiency requirement (use of IE3 motors)
- Separate metering devices for individual CBSI.



BEC 2015 - Lift and Escalator Installation

- **Electrical Power of motor drive**
- **Energy Metering**
- **Lift Decoration Load**
- **Lift idling**



BEC 2015 - Lift and Escalator Installation



New Requirement

- Provision of escalator **automatic speed reduction** mode
- **Regenerative braking system**
- Addition of **metering device** for measurement

EAC 2015



The EAC 2015

Explicitly allows applying on-site measurement for:

- aged building lack of engineering information; or
- the available engineering information not reflecting the actual situation nor accurate enough

EA Report to include:

- Judgement/rationale on proceeding with on-site measurement;
- Methodology

Form EE-EAes (Executive Summary of EA Report):

- Refined to suit



Exemption for carrying out energy audit

	EAC 2012 Add. # EAC01	EAC 2012 Add. # EAC02
Issue Date	9 Aug 2013	10 April 2015
Applicability	Composite building's commercial portion.	Composite building's commercial portion; and Commercial building
Criteria	CBSI w/ power supply \leq 100A, 1-ph; and Common area IFA \leq 195 m ²	CBSI w/ power supply \leq 100A, 1-ph



Way Forward

- Target to **gazette** the BEC and EAC 2015 in **Dec 2015**.
- **Take effective in 2016** with grace period allowed.
- Conduct briefing session to stakeholder groups
- Comprehensive review to be conducted in 2018, 2021 and 2024 respectively.

BEEO's Website



<http://www.beeo.emsd.gov.hk/>

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EMSD

ENG 繁體 简体

《建築物能源效益條例》
The Buildings Energy Efficiency Ordinance

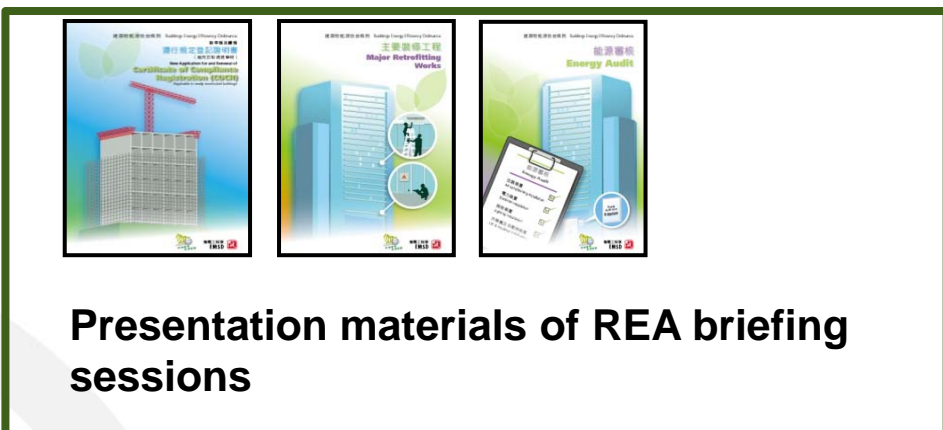
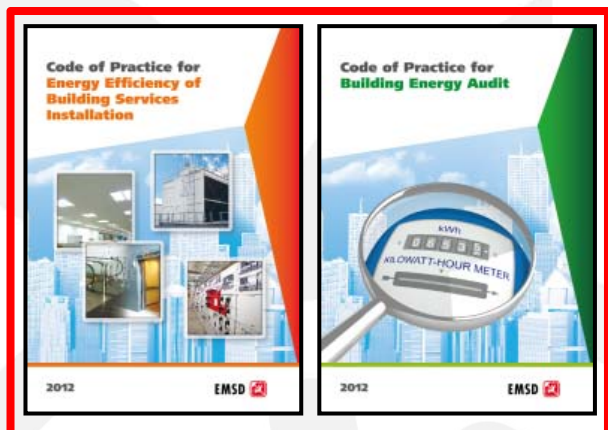
空調裝置
Air-conditioning installation

電力裝置
Electrical installation

升降機及自動梯裝置
Lift & escalator installation

照明裝置
Lighting installation

Energy Audit Form
能源審核表格



Presentation materials of REA briefing sessions

ABOUT BEEO	CODES AND FORMS	CIRCULAR	REGISTER & LIST	REGISTERED ENERGY ASSESSOR (REA)	PUBLICITY	FAQS	USEFUL LINKS
<p>About BEEO</p> <ul style="list-style-type: none"> Background Appeal Board Disciplinary Board 	<p>Background</p> <p>About 90% of total electricity consumption in Hong Kong is contributed by buildings. Through enhancement of building services, greenhouse emissions can be effectively reduced. In October 1998, the Electrical and Mechanical Services Department introduced the Buildings Energy Code of Practice (BECOP) to promote the application of Best Management Practices (BMP) in the building energy sector. The Buildings Energy Code of Practice (BECOP) is a set of technical guidelines for building energy efficiency, the Government introduced the Buildings Energy Efficiency Ordinance (the Ordinance) which is to regulate building energy efficiency from 21 September 2012 onward (Note: Registered Energy Assessors (REAs) under the voluntary Scheme is not regarded as having complied with the Ordinance).</p> <p>The 3 key requirements of the Ordinance</p> <p>Developers or building owners of newly constructed buildings should ensure that the building services installation, lighting installation, electrical installation, comply with the standards of the Building Energy Code (BEC).</p>						

- Specified Forms
- Technical guidelines

- Register of REA
- List of Stage One Declaration, FOC, EA Form and IN
- Register of COCR

- Frequently Asked Questions



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Thank You!

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