Department of Energy

SE4All Workshop on Building Standards

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JOAN C. ESCALONA

Philippines

ENERGY UTILIZATION MANAGEMENT BUREAU

Philippine Green Building Code

A. Status

- Senator Ferdinand R. Marcos, Jr. filed a Senate Bill No. 410, “PHILIPPINE GREEN BUILDING ACT” on July 2013
- Philippine Green Building Code launched on January 2016
- Philippine Department of Public Works & Highways (DPWH) is the initiator of the implementation of Green Building Code in the Philippines, with assistance from World Bank Group – International Finance Corporation, technical support from Philippine Green Building Initiative, and inputs from national agencies including the Philippine Department of Energy (DOE)

DEFINITION

- Philippine Green Building Code is the practice of increasing efficiency with which buildings and their sites use energy, water, and materials, and reducing building impacts on human health and the environment, through better sitting, design, construction, operation, maintenance, and demolition.

FOCUSING ASPECTS

- Energy Efficiency
- Water and wastewater management
- Materials sustainability
- Solid waste management
- Site sustainability
- Indoor environmentally quality

IMPLEMENTING RULES AND REGULATIONS

- Upon the effectivity of the Philippine Green Building Code, the DPWH, DOE, and Department of Environment and Natural Resources (DENR) shall jointly promulgate the IRR to effectively implement and monitor the Green Building Rating and Certification System.

Philippine Green Building Code

CLASSIFICATION

- Philippine Green Building Code adopts incremental approach, subject to periodic review of DPWH through National Building Code Development Office to modify or include new aspects and emerging efficient technologies and to expand the coverage to other building use / occupancy or to replace outmoded measures.

SCOPE

- New Construction Buildings
- Altered / Modified / Any expansion of buildings with Total Gross Floor Area of the following:

CATEGORY	TOTAL GROSS FLOOR AREA (m^2)
Residential / Condominium	20,000 m^2
Hotel / Resort	10,000 m^2
Educational School	10,000 m^2
Institutional Hospital	10,000 m^2
Business Office	10,000 m^2
Mercantile Mall	15,000 m^2
Mixed Occupancy	10,000 m^2

NOTE:

- *The Code does not apply to buildings of the above use/occupancy classification constructed before its effectivity*
- *When alterations, additions, conversions, and renovations of existing buildings constructed after the effectivity of the Code fit with the minimum TGFA, the whole building shall be subject to the applicable provisions of the GB Code.*

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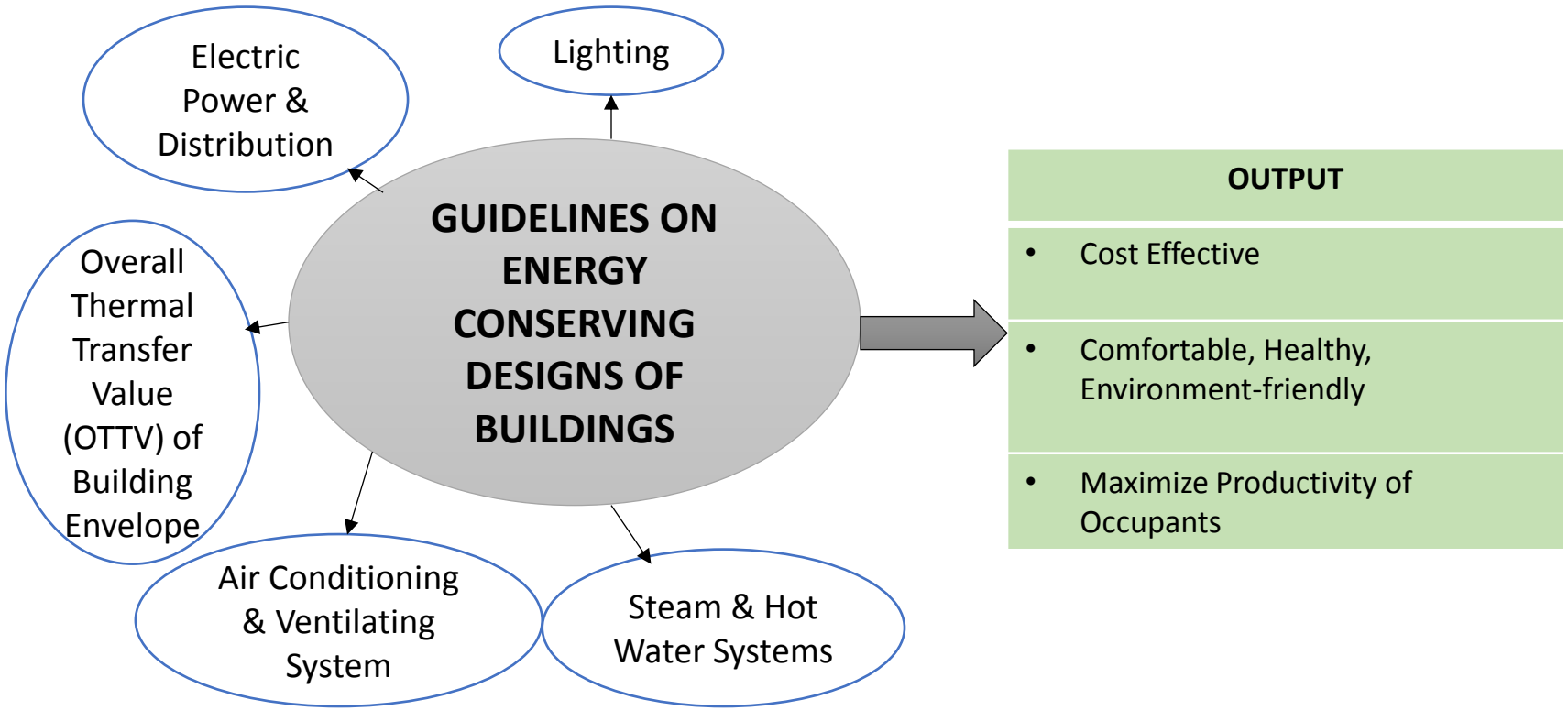
SENATE BILL NO. 410

- Under **Section 4. Green Building Laws and Regulations, p) Department of Energy (DOE) Guidelines on Energy Conserving Designs of Buildings.**



Guidelines on Energy Conserving Design of Buildings

LIGHTING SYSTEM

- **SCOPE**
  - Interior spaces of buildings
  - Exterior areas of buildings
  - Roads, grounds and other ext. areas including open-air covered
- Lighting requirements are generally expressed in terms of:
  - Illumination Level (lux)
  - Luminous Efficacy (lm/W)
  - Lighting Power Density (W/m²)
- Factors in choosing Lighting:
  - Type of Lighting
  - Color Rendition
  - Color Appearance
- Lighting System Requirements:
  - Light Distribution
  - Uniformity
  - Glare

NOTE:

- *Reflectors reduce the number of required lamps without reducing illumination level*
- *Electronic ballasts with 85% power factor are recommended*
- Selective Switching possibilities should be provided
- Natural lighting should be coordinated with artificial lighting
- Requirement of at least 1 control point per 1,500 W of lighting load

TASK	MIN. & MAX. (lux)	APPLICATIONS
Lighting for infrequently used areas	50 - 150	Circulation areas and corridors
	100-200	Stairs; Hotel, escalators
Lighting for working interiors	200-300	Infrequent reading and writing
	300-750	General offices, typing and computing; Conference Rooms
	500-1000	Deep-plan general offices; Drawing offices
Localized lighting for exacting tasks	500-1000	Proofreading
	750-1500	Designing, architecture and machine engineering
	1000-2000	Detailed and precise work

AREA / ACTIVITY	LIGHTING POWER DENSITY (W/m²)
Auditoriums, Churches	8
Food Service Snack Bars and Cafeteria Leisure / Dining Bar	 14 10
Offices and Banks	10
Retail Stores Type A Type B	 23 22
Shopping Centers / Malls / Arcades	15
Clubs / Basements / Warehouses / General Storage Areas	2
Commercial Storage Areas / Halls Corridors / Closets	4
Schools Preparatory / Elementary High School Technical / Universities	 17 18 18
Hospitals / Nursing Homes	16
Hotels / Motels Lodging Rooms / Guest rooms Public Areas Banquet / Exhibit	 12 17 20

LAMP TYPE	RATED POWER RANGES (W)	EFFICACY RANGES (lm/W)	MINIMUM CRI
Incandescent Lamp	10-100	10-25	100
Compact Fluorescent Lamp	3-125	41-65	80
Linear Fluorescent Lamp Halophosphate Triphosphor	 10-40 14-65	 55-70 60-83	 70 80
Mercury Vapor Lamp	50-2000	40-63	20
Metal Halide Lamp	Up to 1000	75-95	65
Low Pressure Sodium Lamp	20-200	100-180	0
High Pressure Sodium Lamp	50-250	80-130	21

SURFACE	%REFLECTANCE
Ceilings	80-92
Walls	40-60
Furnitures	26-44
Floors	21-39

Other Tables:

- Maximum Values for Lighting Power for Building Exteriors
- Maximum Values for Lighting Power for Roads and Grounds
- Control Types and Equivalent Number of Control Points

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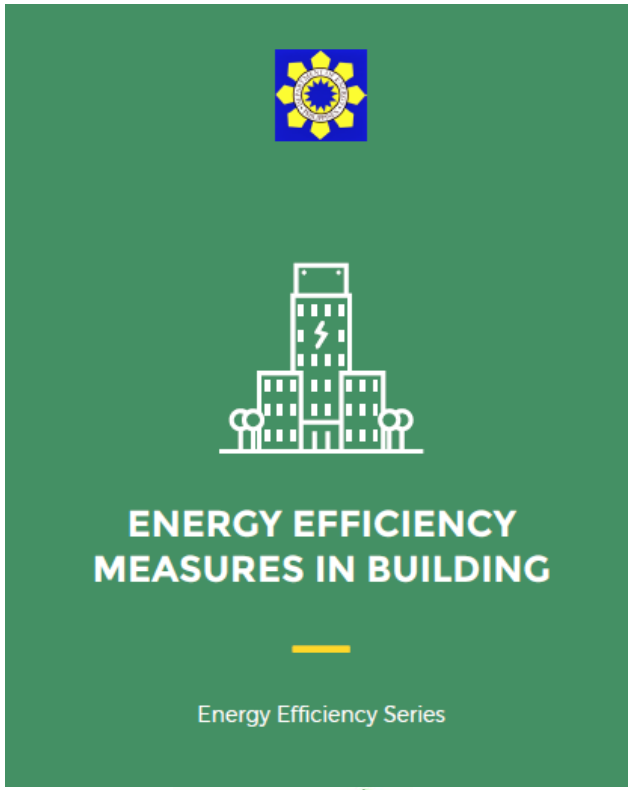
Energy Efficiency Measures in Building

Energy Efficiency series booklet 2
2017

- For printing/publication
- Dissemination of booklet to intended users



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B. Future

- **Creation of Checklist for Application Purposes**
  - To be used as reference of Building Officials

C. Barriers

- **Submission of Quarterly Report**

-out of all current submissions, none have yet to qualify to a minimum of 10,000 sq.m Total Gross Floor Areas (TGFA).

- Due to few submissions, it is believed that a number of newly constructed buildings have not complied with their report. Probably due to the possibility that most of building officials were not aware of the required reports.

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D. Countermeasures

- Sending of reminders to building officials for them to start submitting their compliance reports and within the specified timeline.

E. Request of Support by ECCJ and

- Providing details of how Japan enforces compliance to the building code (Penalties, monitoring method, etc.)
- Obtain information or tips on the contents of the planned checklist as well as information on Japan's Building code for small buildings (smaller than 10,000sq.m)

Thank you