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:

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>TOTAL GROSS FLOOR AREA (m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential / Condominium</td>
<td>20,000 m²</td>
</tr>
<tr>
<td>Hotel / Resort</td>
<td>10,000 m²</td>
</tr>
<tr>
<td>Educational School</td>
<td>10,000 m²</td>
</tr>
<tr>
<td>Institutional Hospital</td>
<td>10,000 m²</td>
</tr>
<tr>
<td>Business Office</td>
<td>10,000 m²</td>
</tr>
<tr>
<td>Mercantile Mall</td>
<td>15,000 m²</td>
</tr>
<tr>
<td>Mixed Occupancy</td>
<td>10,000 m²</td>
</tr>
</tbody>
</table>

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.
SENATE BILL NO. 410


GUIDELINES ON ENERGY CONSERVING DESIGNS OF BUILDINGS

- Electric Power & Distribution
- Lighting
- Overall Thermal Transfer Value (OTTV) of Building Envelope
- Air Conditioning & Ventilating System
- Steam & Hot Water Systems

OUTPUT

- Cost Effective
- Comfortable, Healthy, Environment-friendly
- Maximize Productivity of Occupants
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

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**TASK**

<table>
<thead>
<tr>
<th>MIN. &amp; MAX. (lux)</th>
<th>APPLICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lighting for infrequently used areas</td>
<td>50 - 150 Circulation areas and corridors</td>
</tr>
<tr>
<td>100-200</td>
<td>Stairs; Hotel, escalators</td>
</tr>
<tr>
<td>200-300</td>
<td>Infrequent reading and writing</td>
</tr>
<tr>
<td>300-750</td>
<td>General offices, typing and computing; Conference Rooms</td>
</tr>
<tr>
<td>500-1000</td>
<td>Deep-plan general offices; Drawing offices</td>
</tr>
<tr>
<td>500-1000</td>
<td>Proofreading</td>
</tr>
<tr>
<td>750-1500</td>
<td>Designing, architecture and machine engineering</td>
</tr>
<tr>
<td>1000-2000</td>
<td>Detailed and precise work</td>
</tr>
</tbody>
</table>

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**AREA / ACTIVITY**

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

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**SURFACE**

<table>
<thead>
<tr>
<th>%REFLECTANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceilings</td>
</tr>
<tr>
<td>Walls</td>
</tr>
<tr>
<td>Furnitures</td>
</tr>
<tr>
<td>Floors</td>
</tr>
</tbody>
</table>

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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
Energy Efficiency Measures in Building
Energy Efficiency series booklet 2
2017

- For printing/publication
- Dissemination of booklet to intended users
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.
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 SE4All

- 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