

Green Buildings in an Urban Jungle

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Is it possible to live green in a concrete jungle like Bangkok? Does Thailand have policies to stimulate sustainable development? The United Nations World Commission on Environment and Development in 1987 defined sustainable development as development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs.



Developed nations such as the United States of America, Canada, Japan and Singapore have formulated policies that promote sustainable development. Energy efficient construction – so-called “green buildings” - are integral to these policies. A green building is often defined as a facility that is designed, built and operated using ecological principles for the purpose of promoting occupant health and resource efficiency while minimizing the building’s impact on the natural environment.

Lessons learned from other countries show that effective green construction practices are dependent on three interlinked factors, being (i) the development of effective national green building codes, (ii) the existence of reputable certification systems and authorities to confirm compliance with those codes, and (iii) the development of effective incentives or penalties.

Various states in the United States have green building codes; for example, California’s Green Building Code (CALGreen) sets minimum requirements with which new and existing buildings must comply. Similarly, Singapore enacted its Building Control (Environmental Sustainability) Regulations in 2008. These apply to all new/modified buildings with a gross floor area of 2,000 square meters or more. Thailand’s equivalent of a green building code is the Ministerial Regulation Prescribing the Type and Size of Buildings and Standards, Rules and Procedures for Designing Energy Conservation Buildings B.E. 2552 (“**Green Building Code**”). At merely 4 pages and 11 simple clauses, it has none of the complexity of the comparable legislation in some of the more developed jurisdictions, but it is a start.

Thailand's Green Building Code was issued by the Minister of Energy under Section 19 of the Energy Conservation Promotion Act. It applies to 9 types of new buildings with a gross floor area of 2,000 square meters or more, and to any modifications to those types of buildings that increase the gross floor area to 2,000 meters or more.

These buildings are: (i) health-care centers such as hospitals, (ii) educational institutions, (iii) office buildings, (iv) condominiums, (v) buildings where more than 500 people can gather, such as sports stadiums or convention centers, (vi) theatres, (vii) hotels, (viii) certain entertainment establishments and (ix) shopping centers and department stores.

The Green Building Code prescribes standards for the building's (i) building envelope system, (ii) electrical lighting system, (iii) water heating and air-conditioning systems, (iv) overall energy consumption, and (v) renewable energy deployment within the building.

A building's envelope system, in which insulation plays a large role, determines the heat transfers from the building. Heat transfer is measured in the Overall Thermal Transfer Value (OTTV) and the Roof Thermal Transfer Value (RTTV). OTTV and RTTV are control measures to cut down heat transfers to reduce the cooling load of the building. The Green Building Code provides maximum values for OTTV and RTTV for the 9 categories of regulated buildings, with educational institutions and offices having the highest permitted OTTV and RTTV and hotels, hospitals and condominiums have the lowest.

The Green Building Code also prescribes maximum luminance levels of lighting inside the building to ensure that the rate of power utilized by the electric lighting system is below a certain threshold (which varies subject to the type of building).

Air conditioning systems are the main source of energy consumption for buildings in countries like Thailand given the constant hot and humid weather throughout the year. As such, the Green Building Code prescribes standards for the coefficient of performance, energy efficiency and electric power demand of air conditioning systems in the regulated buildings. Water heating systems also must meet minimum energy efficiency levels.

Finally, the Green Building Code encourages the deployment of renewable energy in buildings. The Code provides that may deduct the value of solar generated electricity when calculating the overall energy consumption of the building.

Is the Green Building Code a mere statement of ideals without any legal weight behind it, or does it have teeth? Next week we will examine the second and third planks in Thailand green building platform, being the existence of authorities to certify whether a building is green, and penalties and incentives to ensure compliance with the Green Building Code.

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