LEADING BY EXAMPLE
Building design and construction in Singapore is guided by the city-state’s Green Building Masterplan, which addresses environmental sustainability and includes policy incentives to stimulate the growth of green buildings. With the support of a strong construction industry, Singapore’s green building movement is further advanced by various collaborations and efforts by both the public and private sector.

The Singapore Building and Construction Authority’s (BCA) Green Mark Scheme was launched in 2005 to promote sustainability in the built environment. The Singapore Green Building Council (SGBC) complements BCA’s efforts through green building products and services certification schemes, which were launched in 2010 and 2012, respectively.

GREEN RESIDENTIAL BUILDINGS
The incentive scheme was established in October 2012 to encourage residents to identify technical solutions to achieve higher sustainability thresholds. The incentive provides up to S$100,000 per application, supporting the testing of green solutions and implementations within the precinct.

GREEN CODES
Singapore has established a goal to achieve the national target to green at least 80% of the buildings in Singapore by 2030. The BCA Green Building Masterplan and its initiatives are regularly reviewed and recalibrated in order to meet this ambitious target.

In 2008, the Building Control Act was amended, requiring all new construction and retrofits of existing buildings to achieve, at minimum, a Certified rating under the Green Mark Scheme. Singapore aims to train some 20,000 green specialists by 2020 to boost the green workforce.

CITY EMISSIONS TARGET:
In 2009, Singapore pledged to reduce its emissions by 7-11% below business-as-usual levels by 2020. This figure will increase to 16% in the event of a legally binding global agreement.

PROJECT Type AND PRESENCE

<table>
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<td>Energy Benchmarking and Data Transparency</td>
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MAYORAL POWERS

This graph depicts the level of control or influence a Mayor has with respect to the assets under the city’s jurisdiction. Powers are assessed by four factors (ownership and control, ability to set and enforce regulations, control over infrastructure budgets, and capacity to set vision), and covers the city-wide geographic area.
**GREEN SCHOOLS**
The inclusion of youth in sustainability efforts is paramount to achieving future environmental goals. The SGBC’s Green Schools Initiative and the BCA’s Greenovate Challenge were introduced to educate students and teachers on the role that buildings play in environmental sustainability, as well as the impact that building design and technology have on student health and productivity.

**RETOFFITS**
The Green Mark Incentive Scheme for Existing Buildings provides S$100 million for owners to undertake retrofits and renovations to improve energy, water and resource efficiency. The scheme provides cash incentives for upgrades and retrofits and co-funds up to 50% (capped at S$3 million) of the costs of energy efficient equipment. Additionally, under the Building Retrofit Energy Efficiency Financing (BREEF) Scheme, the government shares 50% of the risk of any loan default with the participating financial institution and provides credit facilities for the purchase and installation of energy efficient equipment.

**NEIGHBORHOOD-SCALE SUSTAINABILITY**
In 2012, the Housing and Development Board (HDB)’s “Greenprint Precinct Plan” was announced. The Greenprint Precinct Plan established a Greenprint community test-bedding fund to encourage the co-creation of innovative green solutions in a pilot neighborhood, covering 38 blocks and comprising 3,194 units. Greenprint introduced energy and water-saving solutions through installation of solar panels, sensor-controlled LED lightings for outdoor street lamps and rainwater saving systems. The preparation for the Greenprint Precinct Plan started in January 2013 and the pilot neighborhood was displayed to collect feedback from local residents.

In addition, HDB is working with the Town Council to introduce the “Save-As-You-Reduce” scheme, which will encourage reduction in waste per household, as well as recycling. Wherein, each household will save a dollar on the monthly waste collection fee if they reduce their waste by 20%.

**PROJECT SPOTLIGHT:**
**Zero Energy Building**
The Zero Energy Building (ZEB), as part of the Building and Construction Authority’s BCA Academy, is the first zero energy building in Singapore to be retrofitted from an existing building. This retrofitting eliminated the aspect of waste usually incurred by demolishing a building and reconstructing a zero-energy building on the same site. Thanks to the ZEB, there is now a precedent set for retrofitting existing buildings to zero-energy buildings, which will help Singapore meet the Inter-Ministerial Committee on Sustainable Development’s (IMCSD) target for 80% Green Mark Certification by 2030 for all buildings. The ZEB also uses passive design measures and solar energy to save the building S$84,000 a year compared to a typical Singapore office building.

**PROJECT SPOTLIGHT:**
**Asia Square Tower 1**
The Asia Square Tower 1, located in the heart of the city-state, is Platinum certified to both the Green Mark and LEED for Core and Shell Rating Systems. The building features Singapore’s first on-site biodiesel plant to convert waste cooking oil to bio-diesel. Zero potable water is used for irrigation, which, in addition to rigorous water efficiency measures, resulted in a 40% reduction in baseline water use with a 50% reduction in wastewater generation.

**REFERENCES**
2. LEED Professionals and Project Figures were retrieved on 6 January 2015.

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**POLICY SPOTLIGHT:**
**GREEN MARK CERTIFICATION POLICIES**
- In 2008, legislation was passed requiring all buildings, 2,000 square meters or larger to achieve, at a minimum, Green Mark Certification.
- Public sector buildings with air-conditioned floor areas 5000 square meters or more are required to achieve Green Mark Platinum certification.
- Existing public sector buildings with an air-conditioned area greater than 10,000 square meters are required to achieve Green Mark GoldPlus certification by 2020 through renovations and retrofits.