MEDIA RELEASE

Landmark legislation to green existing buildings under Building Control Act
- Singapore first in the world to mandate minimum environmental sustainability standards for existing buildings

10 September 2012 – From the second half of next year, building owners will have to fulfil three requirements under the Building Control Act:

- Achieve minimum Green Mark standard for existing buildings when a cooling system is installed or retrofitted
- Carry out three-yearly energy audit on building cooling systems
- Submit building information and energy consumption data annually

2. Phase one of the new legislative requirement of achieving minimum Green Mark standard for existing buildings will focus on hotels, retail and office buildings with a minimum gross floor area of 15,000m², when they install or replace a chiller system. The building owner will be required to review the state of environmental sustainability of the building holistically, including overall building energy efficiency, water efficiency and indoor air quality to meet the minimum Green Mark standard. If necessary, the owner will also need to make other improvements such as improving the overall cooling system, lighting and lift equipment.

3. In 2008, legislation was passed, requiring new buildings with Gross Floor Area (GFA) of more than 2,000 square metres to achieve a Green Mark certified rating via the Building Control (Environmental Sustainability) Regulations.

4. Together with the current legislation for new buildings, these new regulatory measures will contribute towards improving the energy efficiency of existing buildings to meet Singapore’s target of greening 80% of our building stock by 2030.

Minimum Green Mark standard for existing buildings

5. “Our greatest challenge is to green existing buildings. Typically, a building cooling system consumes about 30% – 50% of the building total energy consumption and the typical lifespan of the building cooling system can be as long as 15 – 20 years. Since building owners have to change their chiller systems when it is running out of their useful life, they
should ensure that the replaced systems are more energy efficient to last another 15 years or more. The payback period for such retrofitting work can be as short as three to seven years, depending on the extent of the retrofitting work. After the payback, the rest is net gain by the owner,” said Dr John Keung, CEO of BCA.

**Three-yearly Audit on Building Cooling Systems**

6. To ensure that the building owners regularly maintain the new energy efficiency cooling systems they installed, building owners are required to conduct energy audits every three years on the building cooling systems. This will ensure that the cooling systems operate at an optimum performance level and efficiencies of the systems are maintained to minimum regulatory standards.

7. Upon being notified by BCA, building owners are required to carry out an energy audit of their buildings; Building owners either have to engage Mechanical Professional Engineers or energy auditors registered with BCA to carry out the audit within the specified timeframe. The audit results must also meet the minimum system efficiency standards. This audit requirement is applicable to two groups of buildings, the first group is existing buildings which have installed or replaced their building cooling systems to meet the minimum GM Certified level. The second group is new buildings and retrofitted buildings (except industrial and residential ones) which are installed with the chilled-water cooling system and have met the minimum Green Mark Certified level under the Building Control (Environmental Sustainability) Regulations imposed from December 2010.

8. Together with the earlier measure to require existing buildings to meet the minimum Green Mark standard, this regular energy auditing requirement will make Singapore the first in the world to mandate minimum environmental sustainability standards and regular energy audit for existing buildings.

**Annual Mandatory Submission of Building Information and Energy Consumption Data**

9. The third regulatory measure requires the annual submission of building information and energy consumption data. This will be done in stages starting with hotels, retail and office buildings.

10. Utilities suppliers, such as SP Services, are required to provide the annual electricity consumption data of individual buildings while specific building owners are required to provide other building data such as GFA, tenancy composition and building system details.
This information can be submitted via an online portal and it will be a one-off exercise for the building owners upon receiving notices from BCA. Subsequently, they only need to update the information online only when there are changes.

11. The data collected will form the basis of the national energy benchmark for the building sector. BCA will also analyse the data collected, and share with building owners their electricity consumption in comparison to other buildings of similar types, so that they would be able to pro-actively monitor and improve their building’s energy efficiency.

Issued by the Building and Construction Authority on 10 September 2012

About BCA

The Building and Construction Authority (BCA) of Singapore champions the development of an excellent built environment for Singapore. BCA’s mission is to shape a safe, high quality, sustainable and friendly built environment, as these are four key elements where BCA has a significant influence. In doing so, it aims to differentiate Singapore’s built environment from those of other cities and contribute to a better quality of life for everyone in Singapore. Hence, its vision is to have “the best built environment for Singapore, our distinctive global city”. Together with its education arm, the BCA Academy of the Built Environment, BCA works closely with its industry partners to develop skills and expertise that help shape the best built environment for Singapore. For more information, visit www.bca.gov.sg.
### SUMMARY OF REGULATORY MEASURES TO RAISE ENVIRONMENTAL SUSTAINABILITY STANDARDS FOR EXISTING BUILDINGS

<table>
<thead>
<tr>
<th>S/N</th>
<th>Regulatory Measure</th>
<th>Building type</th>
<th>Course of action by building owners</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Achieve minimum GM standard for existing buildings</strong></td>
<td>• Hotel, Retail malls &amp; Office buildings which are installing or replacing chiller system&lt;br&gt;• GFA 15,000m² or more</td>
<td>• Building owner must engage a Professional Mechanical Engineer to look into the overall building design, propose any additional necessary retrofitting measure if necessary, and ensure that the overall performance of the building can achieve at least Green Mark 50 points.&lt;br&gt;• The retrofitted design must be approved by BCA before the commencement of the retrofitting works.&lt;br&gt;• Cooling system used must achieve minimum specified design system efficiency. Permanent Measurement and Verification (M&amp;V) instrumentations must be installed to monitor the energy efficiency of the central air-conditioning system.&lt;br&gt;• Owner to submit the as-built Green Mark score upon completion of the retrofitting works.</td>
<td>Out of a building’s total energy use, typically 30% to 50% is consumed by its cooling system, and the cooling system has a lifespan of 15 to 20 years.&lt;br&gt;Instead of a installing a standard cooling system, an energy efficient cooling system, will make a significant difference in a building’s energy consumption and operating cost.&lt;br&gt;Thus, by imposing minimum Green Mark standards at the point when the building owner changes the cooling system is both practical and critical.</td>
</tr>
<tr>
<td>2.</td>
<td><strong>Submit energy audit on cooling system every three years</strong></td>
<td>• New buildings (excluding industrial and residential buildings)&lt;br&gt;• Existing buildings that have been retrofitted.</td>
<td>• Existing building owners that have retrofitted and complied with the proposed legislation will have to conduct regular energy audits, in at least 3 yearly intervals upon receiving notice from BCA.&lt;br&gt;• New building owners must conduct their first energy audit within one year from the date of the first TOP/CSC (whichever is earlier).&lt;br&gt;• Subsequently, owners must conduct regular energy audits, in at least 3 yearly intervals upon receiving notice from BCA.</td>
<td>Installing energy efficient equipment will not suffice in conserving energy, building owners must regularly maintain and operate the cooling systems at an optimum performance level.&lt;br&gt;Through these energy audits, the energy efficiency of the system will be monitored to ensure that it continues to operate efficiently and achieve the energy savings.</td>
</tr>
<tr>
<td>S/N</td>
<td>Regulatory Measure</td>
<td>Building type</td>
<td>Course of action by building owners</td>
<td>Rationale</td>
</tr>
<tr>
<td>-----</td>
<td>-----------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| 3.  | Submit building information and energy consumption data annually                  | • All new and existing buildings buildings (excluding industrial and residential buildings)  
• Phase 1- commercial buildings, namely offices, hotels and retail malls. | • Owners to submit basic building information such as:  
  − gross floor area (GFA)  
  − building activity  
  − building systems (e.g. air-conditioning and lighting systems)  
• Data submission will start in phases with commercial buildings, namely offices, hotels and retail malls.  
• Data to be submitted via the online system called Building Energy Submission System, BESS. | Behavioural change can be motivated through feedback. By providing building owners with access to their energy consumption data, we aim to raise their awareness about their energy consumption pattern as compared with other similar building types.  
This information will also encourage building owners to take pro-active measures to reduce their energy consumption and or improve their buildings’ energy efficiency in the long term.  
In addition, the availability of data will facilitate the monitoring of energy consumption patterns and measure the effectiveness of various BCA initiatives that have been adopted to improve energy efficiency. |