

SUMMARY OF REGULATORY MEASURES TO RAISE ENVIRONMENTAL SUSTAINABILITY STANDARDS FOR EXISTING BUILDINGS

S/N	Regulatory Measure	Building type	Course of action by building owners	Rationale
1.	Achieve minimum GM standard for existing buildings	<ul style="list-style-type: none"> • Hotel, • Retail malls & • Office buildings which are installing or replacing chiller system • GFA 15,000m² or more 	<ul style="list-style-type: none"> • 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. • The retrofitted design must be approved by BCA before the commencement of the retrofitting works. • Cooling system used must achieve minimum specified design system efficiency. Permanent Measurement and Verification (M&V) instrumentations must be installed to monitor the energy efficiency of the central air-conditioning system. • Owner to submit the as-built Green Mark score upon completion of the retrofitting works. 	<p>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.</p> <p>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.</p> <p>Thus, by imposing minimum Green Mark standards at the point when the building owner changes the cooling system is both practical and critical.</p>
2.	Submit energy audit on cooling system every three years	<ul style="list-style-type: none"> • New buildings (excluding industrial and residential buildings) • Existing buildings that have been retrofitted. 	<ul style="list-style-type: none"> • 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. • New building owners must conduct their first energy audit within one year from the date of the first TOP/CSC (whichever is earlier). • Subsequently, owners must conduct regular energy audits, in at least 3 yearly intervals upon receiving notice from BCA. 	<p>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.</p> <p>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.</p>

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3.	Submit building information and energy consumption data annually	<ul style="list-style-type: none"> • All new and existing buildings (excluding industrial and residential buildings) • Phase 1- commercial buildings, namely offices, hotels and retail malls. 	<ul style="list-style-type: none"> • Owners to submit basic building information such as: <ul style="list-style-type: none"> – 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. 	<p>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.</p> <p>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.</p> <p>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.</p>