

LEGISLATION ON ENVIRONMENTAL SUSTAINABILITY FOR BUILDINGS

Frequently Asked Questions (FAQs)

Q1. What is the difference between the proposed legislation on environmental sustainability and the current regulation on energy conservation?

A1. The legislation requires new building developments and those undergoing major retrofitting to achieve between 10% to 15% energy savings over the current regulatory requirement. In addition to energy efficiency, the requirements include other aspects of environmental sustainability in building developments such as water efficiency, environmental protection, indoor environmental quality and sustainable construction. It will require standards on environmental sustainability that are equivalent to the BCA Green Mark Certified level. Whilst the current regulation on energy conservation focus on compliance with minimum energy efficiency standards, which may not effectively facilitate an optimal use of energy in buildings in a longer term.

Q2. What are the benefits of the proposed legislation on environmental sustainability?

A2. Based on the new requirement, BCA anticipates an improvement in energy performance of at least 10% to 15% energy savings over the existing mandatory requirement. This will help to enhance our energy security and help to cushion the rising energy cost.

The legislation will encourage a balanced approach in ensuring that the achievements and saving in energy and water as well as focusing on environmental friendliness, which do not compromise the comfort and health of the occupants.

Q3. What are the cost impacts of the proposed legislation on environmental sustainability? What is the typical payback period for a green building?

A3. It is estimated that, there is an increase of about 0.3% to 1% of the overall construction cost for buildings to meet the new requirement. The additional costs are generally required for better envelope design and using more energy efficient building equipment such as air-conditioning system, lighting, etc. Currently, the payback period for green buildings is between 2 to 8 years, depending on the Green Mark ratings achieved. With wider adoption of green building technologies in the industry, we expect the cost premiums and hence payback period for green buildings to decline over time.

Q4. Is there a rise in the number of green buildings? Are our landlords /developers /designers more aware of environment sustainability and incorporating the necessary features?

A4. Since the launch of the BCA Green Mark scheme in 2005, BCA has received good response from forward-looking developers to participate in the scheme. In recent months, through active promotion and intense educational efforts, we have seen an exponential rise in buildings requesting for Green Mark certification. We have to date, awarded BCA Green Mark certification to about 75 buildings. More than 200 projects are in the pipeline waiting to be certified. Some of the outstanding environmentally friendly buildings include the National Library Building, Republic Polytechnic, Tan Tock Seng Hospital and Nanyang Polytechnic, City Square Mall, The Oceanfront @ Sentosa Cove and Goodwood Residence which have all achieved the highest Green Mark Platinum status. With the Green Mark Incentive Scheme (GMIS) launched in Dec 2006, the number of buildings applying for Green Mark certification is expected to almost triple this year. With greater awareness of the benefits of green buildings and enhanced effort by BCA to promote their development, we hope that the Green Mark label will become one of the key decision-making criteria for purchasing or choosing quality buildings in future.

Q5. When will the legislation be implemented?

A5. The regulation will come into operation on 15 April 2008. The effective date will be based on the first submission date for planning permission on or after 15 Apr 2008 so that there will be sufficient lead time for industry to be ready for the new requirement and submission.

Q6. Do I need to submit to BCA to certify my project as a third party assessment?

A6. No, the compliance with the requirement will be based on appropriate practitioners' declaration, which is in line with our self-regulatory approach for plan submission. The appropriate practitioners refer to qualified person who make the building plan submission, in short QP(BP) and the professional engineer in mechanical or electrical engineering.

Q7. Who will be responsible for the compliance and submission of the environmental sustainability requirements?

A7. The qualified person who submit the building plan in short, QP(BP) will be overall-in-charge to ensure that the minimum Green Mark score of 50 points is met. He and the other appropriate practitioners (that is Mechanical and Electrical engineers) are responsible to ensure that the building works under their areas and the points assigned to those works comply with the requirements. QP(BP) will submit the Green Mark score together with his first building plan submission. Upon completion of buildings works, the QP(BP) would submit the as-built Green Mark score before TOP or CSC (if there is no TOP required) can be granted.

Q8. What about existing buildings? Are there plans to promote or mandate their conversion into environmentally friendly buildings?

A8. Existing buildings will have to meet the legislative requirements on environmental sustainability when they undergo major retrofitting works. In addition, we are embarking on a public outreach programme to educate consumers on the benefits of green buildings, and hence demand for upgrading of their existing buildings.

Q9. The legislation on environmental sustainability also applies to buildings undergoing major retrofitting. What are the works that are classified as major retrofitting?

A9. The minimum environmental sustainability standards will only be applicable for existing buildings undergoing major retrofitting. Major retrofitting refers to the works which involve substantial alteration of building envelope and overhauling of air-conditioning systems. Alteration to existing buildings which does not involve major retrofitting is not subject to this requirement

Q10. How does the proposed legislation on environmental sustainability apply to existing buildings where retrofitting carried out in a few phases?

A10. The minimum environmental sustainability requirement which is based on the Green Mark criteria apply to only existing buildings undergoing major retrofitting. For existing buildings where retrofitting works that are carried in a few phases, they will be subject to the current energy efficiency standard (that is ETTV requirement and SS530 for air-conditioning system).

Q11. Will sustainable construction be considered in Green Mark requirements?

A11. Yes, environmental sustainability includes sustainable construction to promote more efficient use of concrete.

Q12. Apart from the compliance with minimum environmental sustainability standards, there is a new prerequisite to require building envelope of residential buildings to be designed to meet the minimum Residential Transmittance Value (RETV) of 25 W/m². What is RETV?

A12. BCA had initiated a joint study with Prof S.K Chou from NUS to develop an ETTV equivalent for residential building which is known as Residential Transmittance Value (RETV). A comprehensive survey was carried out to determine the usage pattern. This was followed by modelling and simulation to develop an equation to calculate RETV, which will determine the heat transfer into a residential building through its envelope and heat retention. From design viewpoint, a low RETV building would consume less energy should air-conditioning be used. The RETV takes into account the choice of materials of building envelopes, the use of shading devices, building orientation among other things.

Q13. Why is there a need to consider the thermal performance for residential buildings where air-conditioning would likely to be operated in the night time?

A13. There has been a rise in residential buildings adopting glass facades, which may not be adequately designed to provide the required thermal resistance to optimise comfort and minimise heat gain through its building envelope. This would also mean that more energy will be consumed should air-conditioning be used.

Given the increasing use of air-conditioning in these buildings, we find it necessary to review and enhance the current regulatory framework to ensure that it stays relevant in our current state of economic developments. RETV was researched and developed based on the usage pattern of a typical residential household. It would provide a quantifiable measure of heat gained through the building envelope during the day time as well as the heat released during the night time via elements such as walls, floors, furniture, curtains and other facilities within the units. In short, RETV can effectively determine the heat retained within the residential units and provide a useful parameter in facilitating a better building envelope design. Above all, home owners will stand to gain with a better thermal comfort level and more energy savings for their units.

Q14. The minimum RETV of 25 W/m² appeared to be more stringent than ETTV of 50 W/m² for non-residential air-conditioned buildings and should be relaxed.

A14. Though the concept of RETV is similar to ETTV, the design parameters and assumption used to derive RETV is entirely different. A residential building with RETV of 25 W/m² will yield an ETTV of about 75 W/m² if air-conditioning is to be used throughout the day as in an office. Hence the requirement is less stringent than ETTV requirement for non-residential air-conditioned buildings.

Q15. What happen if my project comprises both Residential and Non-Residential buildings which criteria should I use for compliance ?

A15. The computation of the Green Mark score will be based on the compliance with both the residential and non-residential building criteria. The respective Green Mark score should meet at least 50 points.

Q16. If my project comprises both Residential and Non-Residential buildings but the GFA of the Non-Residential building is only 500 m², do I still need to score for the non-residential building?

A16. For simplicity, you will only need to submit your Green Mark score based on Residential building criteria in this case. See below table for other scenarios as well.

Project Type	Total New GFA Residential (m²)	Total New GFA Non-Residential (m²)	GM Score Residential Applicable	GM Score Non-Residential Applicable
Mixed- use building consisting of both residential and non-residential building	=>2000	=>2000	Yes	Yes
	=>2000	<2000	Yes	No
	<2000	=>2000	No	Yes
	< 2000	< Total New GFA Residential	Yes	No
	< Total New GFA Non-Residential	<2000	No	Yes