FAQ

- **Building Control (Environmental Sustainability) Regulations 2008**
  [Regulatory Requirements for New Buildings and Existing Buildings Undergoing Major Additions and Alterations (A&A)]

- **Building Control (Environmental Sustainability) Regulations 2013**
  [Regulatory Requirements for Existing Buildings]

- **Periodic Energy Audit and BCA Energy Auditor Scheme**

- **Mandatory Energy Improvement Regime**

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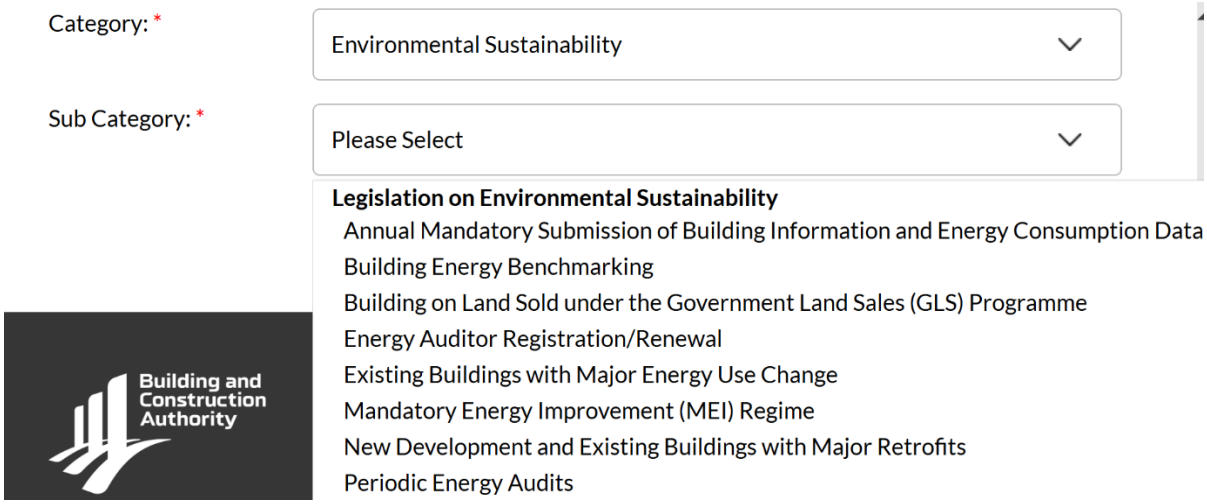
For further queries on Environmental Sustainability regulatory compliance requirements, please fill up this feedback form with "Category" = "Environmental Sustainability " and relevant sub-category.



1. FAQ on Building Control (Environmental Sustainability) Regulations 2008

a) Regulation Queries

Q1. How do I know which edition of the Code for Environmental Sustainability (ES) of Buildings to adopt?

[Added on 22 Aug 2022]

A1. The applicable ES code to adopt will be based on first submission date to URA for planning permission (PP). For project with URA's PP submission date on or after 01 Dec 2021, the project team shall adopt the ES Code (4th Edition). For project with earlier PP date, please refer to the schedule at https://go.gov.sg/esreg-for-nd for more details.

Q2. Which building types need to comply with the Building Control (Environmental Sustainability) Regulations 2008?

[Added on 22 Aug 2022]

A2. The Building Control (Environmental Sustainability) Regulations 2008 applies to ALL building types including industrial, institutional, commercial (office, hotel, retail and mixed development), stations, port facilities, residential and residential landed, simple structures such as farms and bridges etc.

For all buildings, facilities and offices that are owned, occupied, and/or operated by the public sector (with exception for those consultancy tender awarded before 22 July 2021), higher environmental sustainability requirement under the GreenGov.SG shall apply. In addition, the GreenGov.SG requirements shall apply to public infrastructure and government-funded premises. Please refer to https://www.mse.gov.sg/resource-room/category/2021-07-12-press-release-on-greengov for more details.

Q3. What does 'major retrofitting works' mean in Building Control (Environmental Sustainability) Regulations 2008?

[Added on 22 Aug 2022]

A3. Major retrofitting works refers to building works involve provision, extension, or substantial alteration of the building envelope (i.e. façade and/or roof) AND building services (air-conditioning system) in connection with an existing building. For further evaluation by BCA, please submit detailed scope of works using ES (ND) enquiry template. For projects subject to Building Control (Environmental Sustainability) Regulation, ETTV submission required for building envelope changes affecting AC areas of more than 500m^2.

Note: For building involving *ONLY* chiller retrofit, please refer to Building Control (Environmental Sustainability for Existing Buildings) Regulations 2013. Details can be found at https://go.gov.sg/esreg-for-eb.

Q4. Are buildings that subject to GreenGov requirements required to make separate submission for compliance to Building Control (Environmental Sustainability) Regulations 2008?

[Added on 22 Aug 2022, amended on 02 Oct 2025]

A4. Yes, apart from submitting a Green Mark application, the projects are required to submit
1) the Environmental Sustainability (ES) submission form generated from ES Online Portal for CORENET 2 submission; or
2) Building Control (Environmental Sustainability) Appendix 1 for CORENET X submission
for compliance with the minimum environmental sustainability standard under the regulation during Building Plan (BP) and Temporary Occupation Permit (TOP) application.

Q5. What are the submission requirements for project falls under Government Land Sales (GLS)?

[Added on 22 Aug 2022]

A5. There is no need for the Qualified Person (QP) to submit his declaration and ES Submission Form (aka GM or ES score) for these projects during BP application. Instead, the QP should:

- Before submitting the building plan, make an application to BCA for the project to be assessed and certified under the GM certification standards.
- Upon completion of building works, inform BCA early to initiate the Green Mark verification audit so as to facilitate the Temporary Occupation Permit (TOP) and Certificate of Statutory Completion (CSC) process.
- Submit the relevant clearance showing that the project has been verified and met the prescribed Green Mark Certification rating, along with the application for TOP or CSC.

For more details, please refer to
https://www1.bca.gov.sg/buildsg/sustainability/minimum-environmental-sustainability-standard-for-new-buildings-and-existing-buildings-undergoing-major-additions-and-alterations/mandatory-higher-green-mark-standard

Q6. My A&A project retrofitting area consists of 6,500m^2 and thus is subject to ES Regulations. Does the Code apply to the whole development or only to the 6,500m^2 retrofitting area?

[Added on 22 Aug 2022]

A6. The Code requirement would apply to the retrofitted area only. Hence, energy saving requirements such as lighting, aircon system, electrical sub-metering and carbon reduction measures would apply to that 6,500m^2 retrofitting area.

Q7. I have demolished an existing building with GFA of 5,000m^2 and rebuild a new building with GFA of 6,000m^2. Could I assume that this project will not subject to Building Control (Environmental Sustainability) Regulation 2008 as the project Nett GFA is 1,000m^2 (6,000m^2 - 5,000m^2).

[Added on 22 Aug 2022]

A7. BCA bases its determination on New GFA, not Net GFA to decide whether a project is subject to Building Control (Environmental Sustainability) Regulation 2008. Therefore, this project still subject to this ES Regulations as the New GFA is 6,000m^2.

Q8. For project with different phases of TOP, what is the submission requirements for compliance with ES regulations, and could the ES Submission Form/ GM Score (GM02) be submitted on last partial TOP?

[Added on 22 Aug 2022, amended on 06 Dec 2024]

A8. As-built ES Submission Form/ GM Score (GM02), together with the relevant documentary evidence are to be submitted for the 1st Partial TOP. For subsequent phases, you are only required to re-submit these documents if there is subsequent deviation to your earlier submission and As-built ES Submission Form/ GM Score (GM02).
Note: if there is no deviation to the last submitted As-built ES Submission Form/ GM Score (GM02), please provide a confirmation letter when you are applying for subsequent partial TOP.

Q9. Does the submission for CORENET X still require QP to create the ES submission form (GM01/GM02) via ES online Portal?

[Added on 06 Dec 2024]

A9. For project submission via CORENET X, please attach complied BC(ES) Appendix 1 (https://go.gov.sg/bc-es-app1) for submission. Please note that the project reference format for CORENET X (i.e. ANNN-*A*NNNN-YYYY) is different from CORENET 2 (i.e. ANNN-*N*NNNN-YYYY).

b) FAQ on Code for Environmental Sustainability of Buildings, 4th Edition

i) General

Q1. I have a mixed-use development that is more than 5,000m^2 but the residential component is less than 2,000m^2, do I need to submit for ES Regulation 2008?

[Updated on 10 Nov 2022]

A1. For projects with 1st URA PP submission on or after 1 Dec 2021 onwards, the project will be required to comply with the non-residential requirement under the 4th edition ES code. For more information, please refer to ES Code (4th Edition).

Q2. Can the treatment plants consisting of other ancillary building, such as admin building, be considered as simple structure for the whole development and comply only to the base requirements?

[Added on 06 Dec 2024]

A2

Building projects consisting of only standalone simple structures/buildings solely used for specific functions shall ONLY have to comply with the base requirements.

Building projects which include other ancillary buildings, such as admin, warehouse and workshop buildings, are required to meet all relevant Base Requirements and incorporates the number of appropriate sustainability indicators under Carbon Reduction Measures as specified in Table 3.4, Section 4.1 and 4.2.

Note 1 - standalone structures or buildings including:

- Link-ways
- Underground passes
- Open sheds
- Standalone substation
- Lift Upgrading
- Farm structures
- Temporary Workers' dormitories
- Treatment Plants
- Transport facilities (i.e. bus interchanges, transit stations and the like)

ii) Base requirement

Q1. Under the Base requirement RB01-1 and NRB01-1 Building Envelope, do I need to comply to both the RETV/ETTV requirement and the deem to satisfy criteria?

[Added on 22 Aug 2022]

A1. You will only need to comply with either RB01-1 or NRB01-1. The deem to satisfy criteria is formulated for projects with simple façade design that helps the project team to fulfil the requirement.

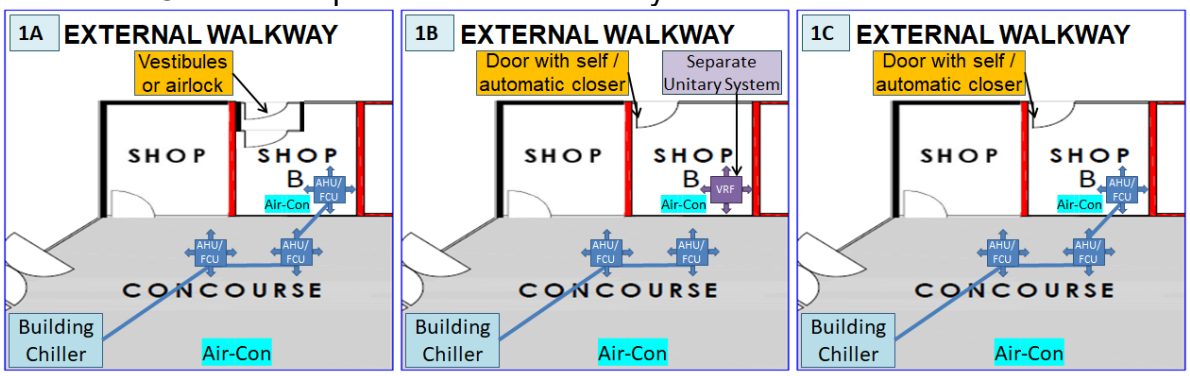
Q2. Noted that Section I of the Approved Document has been aligned with the Building Control (Environmental Sustainability) Regulations 2008. Following this, for door openings in commercial units that lead to building exteriors or non-air-conditioned spaces, under the Base Requirement NRB02-2(a) Openings between Conditioned and Non-Conditioned Spaces, how can the unit utilise the pressure independent control valve and energy meter?

[Added on 14 Sep 2023, last amended on 05 August 2025]

A2.

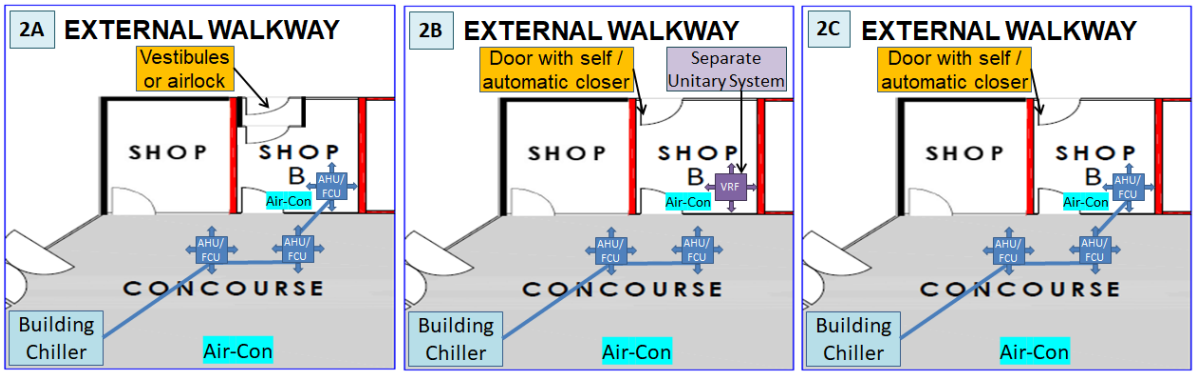
Scenario 1: Isolated space

Scenario 1A: Isolated space with vestibules or airlock
Scenario 1B: Isolated space with separate unitary system
Scenario 1C: Isolated space with connected system



Scenario 2: Connected space

Scenario 2A: Connected space with vestibules or airlock
Scenario 2B: Connected space with internal door(s) and separate unitary system
Scenario 2C: Connected space with internal door(s) and connected system

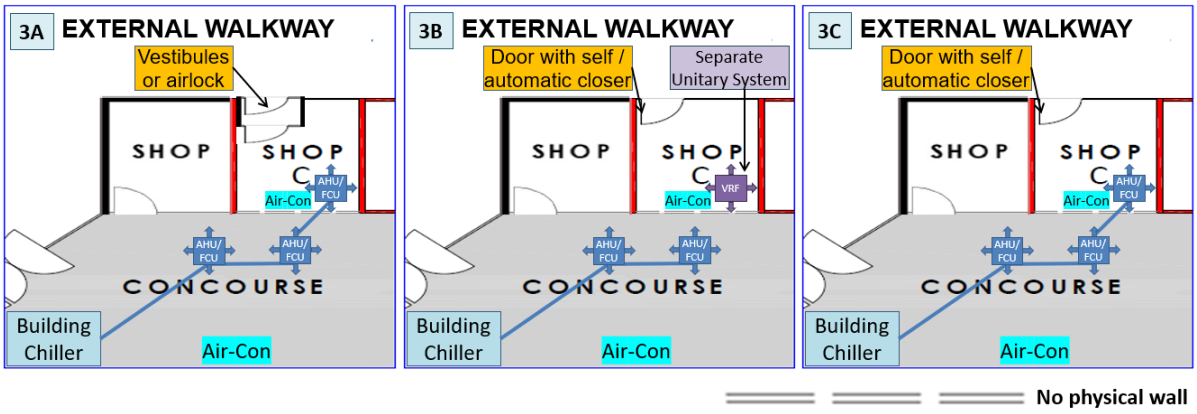


Scenario 3: Connected space without physical internal wall/door

Scenario 3A: Connected space without physical internal wall/door and with vestibules or airlock

Scenario 3B: Connected space without physical internal wall/door and with separate unitary system

Scenario 3C: Connected space without physical internal wall/door and with connected system



Scenarios	Conditions
1A, 2A and 3A	Acceptable as equipped with vestibules or airlock.
1B and 1C	Acceptable with provision of the followings for the shop, or equivalent: 1. Exterior door provided with self / automatic closer*; and 2. Dedicated energy meter to monitor consumption of the shop AC usage.
2B and 3B	Acceptable with provision of the followings for the shop, or equivalent: 1. Exterior door provided with self / automatic closer*; 2. Dedicated energy meter/BTU meter to monitor consumption of the shop AC usage; and 3. Audible alarm triggered within shop if any exterior door is opened for longer than 10 mins.
2C and 3C	Acceptable with provision of the followings for the shop, or equivalent: 1. Exterior door provided with self / automatic closer*; 2. Dedicated energy meter/BTU meter to monitor consumption of the shop AC usage;

	3. Audible alarm triggered within shop if any exterior door is opened for longer than 10 mins; and 4. Automatic cut off chilled water flow to chilled water AHUs/FCUs serving the shop if exterior door remains open for longer than 15 min^.
**Only existing buildings undergoing major A&A with affected areas may use high efficient air curtain in place of self/automatic closer. The air curtain requires performance tested in accordance with ANSI/AMCA Standard 220 to ensure it provides a minimum 2m/s airstream velocity at the floor.* *^ require linkage of door opening/closing with chilled water control valve operation. PE(Mech) to review design to minimise hunting of the control valve(s), including adding a time lag at least 5 mins after door closure before opening the control valve(s)*	

Q3: For buildings such as warehouses, under the Base requirement NRB02-2 "Openings between Conditioned and Non-Conditioned Spaces", what can the project team do if they are unable to implement an automatic self-closing roller shutter for air-conditioned spaces?

[Added on 14 March 2025]

A3: In cases where roller shutters may remain open for extended periods while the air-conditioning is operating, a notification or alert system (e.g. audible alarms and warning lights) should be implemented to remind operators to close the shutters after use to prevent air leakage.

Q4. Under NRB02-2(b), what are the items to take note for other appropriate measures for managing high pedestrian traffic flow at doorways, aside from having vestibules?

[Added on 06 Dec 2024, last amended on 02 Oct 2025]

A4
The project team should only attempt to adopt other appropriate measures when they can provide a clear explanation and strong justification demonstrating that a vestibule is not feasible for their project. As part of the other appropriate measure, the team should consider the following:

1. Use of highly efficient air-curtain system with its performance tested in accordance with ANSI/AMCA Standard 220 to ensure a minimum of 2.0 m/s airstream velocity at the floor.
   - Pressure difference with external maintained within ± 5 Pa to minimise infiltration/exfiltration of air.
   - Provision of doors with automated technology or self-closing devices.
   - For new doors, provide computation/justification to show that air-curtain system can achieve more significant energy saving than without.
   - Controls for the air-curtain system to only operate during peak hours where the doors would need to be kept open due to high pedestrian traffic flow.

2. Temperature stratification concept with justification along with appropriate placement of diffusers.

   With no door provision

   - Use Computer Fluid Dynamics (CFD) simulation to demonstrate temperature stratification occurs with the enthalpy of conditioned air near the exterior similar to the immediate external air.

   With provision of doors with automated technology or self-closing devices

   - Provide computation/justification to show that high pedestrian traffic flow occurs only certain period of the day and demonstrate the adequacy of the unconditioned space buffer, particularly its depth and coverage, to facilitate temperature stratification needed to cater for this high pedestrian traffic flow when doors need to be kept open for extended periods.
   - Pressure difference with external maintained within ± 5 Pa to minimise infiltration/exfiltration of air.

Q5. Under the Base requirement NRB03 - Building Energy Performance, do I need to use Energy Modelling as well as meet the energy savings requirement for the key building systems?

[Added on 22 Aug 2022]

A5. You can use either methodology to demonstrate the 50% energy savings from 2005 baseline. However, please note that for both methodologies, you will need to fulfil the Total System Efficiency (TSE) and the minimum chiller plant and unitary efficiency specified in NRB03-2 Air-Conditioning System.

Q6. If the Total System Efficiency (TSE) of my water-cooled chilled water plant in my new commercial building project is 0.80 kW/RT but the chiller plant efficiency is 0.65 kW/RT, is it acceptable?

[Added on 22 Aug 2022]

A6. For new commercial buildings, the required Water-Cooled Chiller Plant System Efficiency is 0.63 kW/RT. Although your project meets the TSE minimum requirement, it did not meet the minimum Water-Cooled Chiller Plant System Efficiency requirement. A design review of your chiller plant is necessary, so that it meets the 0.63 kW/RT requirement.

Q7. How should we perform air side pressure drop adjustment?

[Added on 14 Sep 2023]

A7. The baseline for pressure adjustment is the MERV13 filter pressure. If using MERV14-15 filters, a 100Pa adjustment can be used. For other situations, such as when using MERV16 filters or when dealing with a full return air duct, the adjustment method outlined in SS553 should be referred and evaluated on a case-by-case basis. It's important to note that pressure drop adjustments should only be applied to items that are installed beyond the standard air distribution design.

AHU	Description	CMH	Input kW	Proposed W/CMH	Baseline W/CMH [b]	Additional pressure drop over MERV 13	Adjusted W/CMH [b + A] where A = (Sum of PD)/2340	Baseline Power	Adjusted Power
AHU 1	Use of MERV 13 filter	20000	10.5	0.53	0.58	0	0.58	11.6	11.6
AHU 2	Use of MERV 13 filter	20000	10.5	0.53	0.58	0	0.58	11.6	11.6
AHU 3	Use of MERV 13 filter	20000	10.5	0.53	0.58	0	0.58	11.6	11.6
AHU 4	Use of MERV 14 filter	15000	9	0.60	0.58	100	0.623	8.7	9.3
AHU 5	Use of MERV 14 filter	15000	9	0.60	0.58	100	0.623	8.7	9.3
AHU 6	Use of MERV 14 filter	15000	9	0.60	0.58	100	0.623	8.7	9.3
AHU 7	Use of MERV 14 filter	15000	9	0.60	0.58	100	0.623	8.7	9.3
AHU 8	Use of MERV 16 filter and fully ducted return	30000	20	0.67	0.58	230*	0.678	17.4	20.3
AHU 9	Use of MERV 16 filter and fully ducted return	30000	20	0.67	0.58	230*	0.678	17.4	20.3
AHU 10	Use of MERV 16 filter and fully ducted return	30000	20	0.67	0.58	230*	0.678	17.4	20.3
	Total	210000	127.5				Total	121.8	133.2
	kW/RT		0.255				kW/RT	0.244	0.266
	Delta kW/RT		0.023						

*Example only

Revised baseline for new development
= baseline + delta kW/RT
= 0.85kW/RT + 0.023kW/RT
= 0.873kW/RT

Revised baseline for Existing building
= baseline + delta kW/RT
= 0.90kW/RT + 0.023kW/RT
= 0.923kW/RT

Q8. Under ES Code 4th Edition for project with 1st PP date from 1 Dec 2021 onwards, how should air-distribution equipment that are primarily designed for particulates removal, such as those serving cleanrooms, be considered under NRB03 Building Energy Performance?

[Added on 21 Jan 2025]

A8. Air-distribution equipment that are primarily designed for particulates removal, such as AHUs serving cleanroom areas, to achieve high levels of cleanliness and/or sterility through high air change rate, as declared by building owner, could:

a) Comply with the following technical standards instead of TSE requirement:
    a. SS 553 Clause 9.2.1 to use the allowable W/CMH for air-distribution equipment, or
    b. any international standard on fan power limitation (W/CMH) for air-distribution equipment in clean rooms, subject to case-by-case assessment.

and;

b) Ensure that the AHU fan systems "shall be designed to be at least 10% more energy efficient than the prescribed standard stated in SS 553", i.e. 10% better than (a) above, with reference from ES Code NRB03-2(c) Mechanical Ventilation Systems.

All other air-distribution systems shall be computed accordingly toward the required TSE. After isolating the air-distribution equipment for operations in above cleanrooms spaces, the heat load of the remaining spaces would need to be calculated at design stage and measured via M&V instrumentation for operation profile to calculate the air-distribution efficiency.

Note: For NEA's best practice guide for pharmaceutical and nutritional plants, please refer to this link: https://www.nea.gov.sg/docs/default-source/cmd-documents/energy-efficiency/best-practice-guide-for-pharmaceutical-and-nutritional-plants.pdf

Q9. For VRF systems, how should we calculate the value of TSE or can we measure it through permanent M&V?

[Added on 14 Sep 2023]

A9. During the design submission, the TSE for VRF systems can be calculated using the IEER formula stated in ESM code 3.0 and ES code 4.0 for CU efficiency plus air distribution system efficiency. For as-built submission, please include a screenshot to show that the TSE can be measured through permanent M&V. For new developments or existing buildings (including multi-tenanted buildings) undergoing major retrofitting, M&V for VRF systems is required if the VRF serving an aggregated aircon area greater than or equal to 2000m^2 belongs to a single tenant or landlord.

Q10. For chiller plants that come with metal enclosures, will the maintenance access space requirements as outlined in NRB06–1 (a) to (c) (for chillers) and NRB06–2 (a) & (b) (for pump systems) be applicable?

[Added on 06 Dec 2024, last amended on 14 Mar 2025]

A10

Yes, the access space requirements stipulated in NRB06-01 and NRB06-2 will still be applicable. If the access space requirements could not be complied with, please submit the modification application along with the proposed details. In general, the following alternatives can be considered.

(a) If the panel of the metal enclosure can be easily removed when maintenance work is required (e.g. to facilitate the removal/installation of compressor(s) and/or pumps) and that the access space clearance for chillers and pump systems are provided in accordance with the maintenance access space requirements stipulated in NRB06-1 and NRB06-2 with or without removal of panel. For example, the provision of clearance of 1.2 m or more between the chillers measured from plinth to plinth as stipulated or when the minimum clearances are provided for maintenance of the chiller plants after the removal of the designated panel.

(b) If the enclosure's roof panel is secured and lifting hooks/rings provided by chiller system suppliers are adequately designed to allow hoisting of compressor(s) and/or pumps for maintenance purposes, Method Statement stating non-labour intensive means of equipment replacement, addressing intent of NRB06-1b, NRB06-1c and NRB06-2b can be considered.

Note:
Please provide a Method Statement to substantiate the above points. The Method Statement shall:

- *Be endorsed by the Building Owner (BO), Operator, QP(BP/TOP), PE(Mech) and Facility Manager (FM)/Managing Agent (MA).*
- *Include the weight of the heaviest part and the dimensions of the largest part expected to be replaced, and details on how the parts replacement will be carried out using non-labour intensive means.*
- *For each lifting point, include calculations and indicate that it can support the heaviest expected load, e.g. total weight of the largest component with chain block and safety factor.*
- *Include details on the location of the lifting points.*
- *Include photographic evidence of the provision of lifting points in as-built submission.*
- *Include the specifications and details of the proposed chain block(s), if any, to be used, such as the heaviest expected load, so that the FM/MA team can provide when required.*
- *Include the consideration of locating/positioning each lifting point, such that the equipment to be lifted can clear across the handrails, and the zone at the main floor level below is clear of doors/human/equipment traffic.*
- *Indicate the equipment transportation route from lifting location to landing location at the main floor level and then to the exterior of the building.*

Q11. To fulfill NRB06-3, will a mobile platform be acceptable as cooling tower platform and is it necessary to provide maintenance platform(s) for cooling tower where there is no fin?

[Added on 06 Dec 2024]

A11
Mobile platforms are not acceptable. An acceptable solution is the provision of maintenance platform only on the sides where the fill media / louvres of the cooling tower are located with cat ladder to cooling tower access door is an acceptable solution. Please refer to BCA circular on 22 Mar 2024 at https://go.gov.sg/bca-circular-dfm for more info.

Q12. For NRB06-3, can omission of maintenance platform for low lying cooling tower and on the side of cooling tower without fins be acceptable?

[Added on 06 Dec 2024]

A12
It could be acceptable depending on the design of your cooling tower(s). Please refer to circular, https://go.gov.sg/bca-circular-dfm, issued on 22 Mar 2024, for more details.

Q13. Will AHUs mounted on platforms be acceptable to comply with NRB06-4?

[Added on 06 Dec 2024, last amended on 14 Mar 2025]

A13
Under NRB06-4, AHUs are deemed as floor mounted if they sit on platform with clear passage path to mezzanine floor or other floor that is accessible by lift or staircase, to the building exterior. These AHUs will still need to meet clearance requirements stated in NRB06-4. Moreover, there is a need to provide means to transport the AHUs fan/motor out of the building for maintenance/replacement by non-labour intensive means. For instance, lifting /points need to be provided to allow chain blocks or equivalent to be used to transport AHUs fan/motor for such AHUs accessible by staircase.

QPs are reminded that the above provisions need to also comply with all provisions stipulated by the relevant authorities. For example, platforms serving as exit passageway need to meet fire code requirement.

Note: Please provide a Method Statement to substantiate the above points. The Method Statement shall:

- *Be endorsed by the Building Owner (BO), Operator, QP(BP/TOP), PE(Mech) and Facility Manager (FM)/Managing Agent (MA).*
- *Include the weight of the heaviest part and the dimensions of the largest part expected to be replaced, and details on how the parts replacement will be carried out using non-labour intensive means.*
- *For each lifting point, include calculations and indicate that it can support the heaviest expected load, e.g. total weight of the largest component with chain block and safety factor.*
- *Include details on the location of the lifting points.*
- *Include photographic evidence of the provision of lifting points in as-built submission.*
- *Include the specifications and details of the proposed chain block(s), if any, to be used, such as the heaviest expected load, so that the FM/MA team can provide when required.*
- *Include the consideration of locating/positioning each lifting point, such that the equipment to be lifted can clear across the handrails, and the zone at the main floor level below is clear of doors/human/equipment traffic.*
- *Indicate the equipment transportation route from lifting location to landing location at the main floor level and then to the exterior of the building.*

Q14: Do sub-metering requirements apply to all areas within a project or development. Are tenanted areas or strata titled units required to be connected to the Energy Management System (EMS) or Building Management System (BMS)?

[Added on 02 Oct 2025]

A14

Yes, sub-metering requirements apply to all areas and premises within a building, including owner spaces, tenanted areas, and strata titled units. All these building areas and premises require proper metering, including individual electricity meters, regardless of any circumstances, such as ownership changes after TOP.

However, tenanted areas or strata titled units with individual electricity meters may not need to be connected to the EMS/BMS in view of the intended function of the metering systems. Qualified Persons (QPs) and Professional Engineers (PEs) should exercise their professional judgement to facilitate building owners in having reasonable monitoring of their systems and ensure proper documentation to support their implementation approach.

iii) Carbon reduction measurement

Q1. Under the carbon reduction measures, for example NRBE01-1 Enhanced Building Envelope Performance, we have three sustainability indicators under (a), (b) and (c). Do I need to comply to all three indicators to qualify as fulfilling one Carbon Reduction measure?

[Added on 22 Aug 2022]

A1. You will need to comply with only one out of the three indicators. So based on the case where the building's ETTV is 38 W/m^2, you will meet the base requirement NRB01 as well as one carbon reduction measure NRBE01-1(a).

Q2. What does it mean with "selection of 4 Carbon Reduction measures as listed in Table 4.2 of the ES Code?

[Added on 22 Aug 2022]

A2. Minimum 4 items are required to be selected and complied in this Carbon Reduction Measures Section. Out of these 4 items, minimum 2 of them shall be from the Section 2 - Sustainable Construction (See below screenshot taken from the 4th edition ES Code).

Residential Buildings	Non-Residential Buildings
▪ All Base Requirements as listed in Table 4.1(a), where applicable. ▪ A selection of four (4) Carbon Reduction Measures in total as listed in Table 4.2(a) including a minimum of two (2) measures from Section 2 - Sustainable Construction.	▪ All Base Requirements as listed in Table 4.1(b), where applicable. ▪ A selection of four (4) Carbon Reduction Measures in total as listed in Table 4.2(b) including a minimum of two (2) measures from Section 2 - Sustainable Construction.

Q3. Can we select item NRBE01-1 (a) ETTV as 1 of Carbon Reduction measures? OR do we have to select all inside NRBE01-1 (including a, b, and c) to be counted as 1 Carbon Reduction measure?

[Added on 22 Aug 2022]

A3. Yes, if you select item NRBE01-1 (a) ETTV, it will be considered as 1 Carbon Reduction Measure under Sustainable Design Strategies.

c) FAQ on Farm Structure

Q1. Under ES Code 4th Edition (1st PP date from 1 Dec 2021 onwards), what are considered as Simple Structures/Buildings and will naturally ventilated or mechanical ventilated greenhouses be required to meet requirements similar to other Non-Residential Buildings?

[Added on 10 Nov 2022]

A1. The list of Simple Structures and Buildings that are solely used for specified functions are listed on Page 4 of ES Code (4th Edition). Simple Structures and Buildings such as Farm Structures are only required to fulfil base requirements where applicable. For NV/MV greenhouses, QPs will only need to ensure that their (1) lighting and (2) mechanical ventilated system provision, if any, are energy efficient. Please see table below for clarification.

Non-Residential Buildings	Simple Structures/Buildings such as Farm Structures	
	Farm Structures (other than NV/MV greenhouses)	NV/MV Greenhouses*
• All Base Requirements as listed in Table 4.1(b), where applicable. ➢ NRB01 Envelope and Roof Thermal Transfer ➢ NRB02 Air-Tightness and Leakage ➢ NRB03 Building Energy Performance ➢ NRB04 Measurement and Verification (M&V) Instrumentation ➢ NRB05 Electrical Submetering ➢ NRB06 Maintenance of Building Cooling System Performance • A selection of four carbon reduction measures in total as listed in Table 4.2(b) including a minimum of two measures from Section 2 - Sustainable Construction	• All Base Requirements as listed in Table 4.1(b), where applicable. ➢ NRB01 Envelope and Roof Thermal Transfer ➢ NRB02 Air-Tightness and Leakage ➢ NRB03 Building Energy Performance ➢ NRB04 Measurement and Verification (M&V) Instrumentation ➢ NRB05 Electrical Submetering ➢ NRB06 Maintenance of Building Cooling System Performance	The base requirements that would be applicable would be: - ➢ NRB03 Building Energy Performance - NRB03-2(b) Lighting System - NRB03-2(c) Mechanical Ventilation System *Excluding spaces abutting/within the greenhouses that are A/C.

Q2. Under ES Code 3rd Edition (1st PP date from 15 January 2013 to 30 November 2021), what are the common items that farm structures scored to meet regulation?

[Added on 10 Nov 2022]

A2. Please refer to the table below (for reference only):

List of common sections scored to meet min 50 points	Remark
NRB 1-1 ETTV	≤ 50W/m^2
NRB 1-2 Air-Conditioning System	Energy efficient A/C ≤ 0.8 kW/RT.
NRB 1-3 Building Envelope - Design/Thermal Parameters	West facing façade/ Window Opening/ U-Value of roof.
NRB 1-4 Natural Ventilation / Mechanical Ventilation	NS facing with cross ventilation.
NRB 1-6 Artificial Lighting	Using LED/ T5 Lightings.
NRB 1-7 Ventilation in Carparks	Naturally ventilated.
NRB 1-8 Ventilation in Common Areas (e.g. toilet, staircase, corridor)	Naturally ventilated.
NRB 1-9 Lifts	VVVF motor drive and sleep mode features.
NRB 2-1 Water Efficient Fittings	PUB WELS Ratings.
NRB 2-2 Water Usage and Leak Detection	Private meter.
NRB 3-1 Sustainable Construction	CUI Computation
NRB 3-2 Sustainable Products	Drywall Partition, False ceiling, Waterproofing, External Paint, Floor Screed, Skim Coat, Toilet Cubicle etc.
NRB 3-4 Environmental Management Practice	• Implement effective environmental management programmes. • Green and Gracious Builder Award. • Firms ISO 14000 certified. • Recycling bins.
NRB 3-5 Green Transport	Good access to nearest MRT/LRT stations or bus stops.
NRB 3-6 Refrigerants	Compliance.
NRB 4-1 Thermal Comfort	Compliance.
NRB 4-2 Noise Level	Compliance.
NRB 4-3 Indoor Air Pollutants	• SGBP/SGLS low VOC paint. • SGBP/SGLS adhesives.
NRB 4-5 High Frequency Ballasts	T5 with high frequency ballast or LED with <30% flicker
NRB 5-1 Green Features & Innovations	• Use of air-cooled variable refrigerant flow (VRF) systems as the main air-conditioning system. • Bscore > 3 points above minimum requirement. • Computation of Concrete Usage Index (CUI) of the development.

2. FAQ on Building Control (Environmental Sustainability Measures for Existing Buildings) Regulations 2013

a) Regulation and General Queries

Q1. Do I need to apply for Green Mark certification if the building is retrofitting chiller/s?

[Added on 22 Aug 2022]

A1. No. Building owner only need to submit for design score application under the BC Regulations (Environmental Sustainability Measures for Existing Buildings 2013 prior to any installation/replacement of chillers*.
Green Mark certification is a voluntary scheme if building owner wishes to certify their building to achieve higher environmental sustainability performance.
For Design score submission (existing buildings undergoing major energy use change) and prevailing Code, please refer to the following link: https://go.gov.sg/esreg-for-eb

For Green Mark certification scheme, please refer to the following link: https://www1.bca.gov.sg/buildsg/sustainability/green-mark-certification-scheme/green-mark-assessment-criteria-and-online-application.

For any enquiry relating to Green Mark Online application, please email to bca_greenmark@bca.gov.sg
(*includes any installation or replacement of standby or night chillers)

Q2. How do I make payment for design score application?

[Added on 22 Aug 2022]

A2. Payment can be made either by credit card or bank transfer.
For credit card, the maximum amount per payment is $5000.
For bank transfer, BCA bank account details as follows:

Bank Name	: DBS BANK LTD
Bank Address	: 12 Marina Boulevard, DBS Asia Central, Marina Bay Financial Centre Tower 3, Singapore 018982
Account Number	: 0010218719
Account Name	: Building and Construction Authority
Bank Code	: 7171
Branch Code	: 001
Swift Code	: DBSSSGSG

Please email the bank transfer details to https://go.gov.sg/bca-feedback-form after payment is made.

Note: Plan fee is based on GFA, $8,900 for the first 15,000m^2 or part thereof, and $0.15 for every subsequent square metre or part thereof [GST is not required]

Q3. After making a submission, how long does it take to get a response from BCA?

[Added on 14 March 2025]

A3. Upon receiving the successful submission at BCA system, BCA will generally reply within 14 calendar days.

b) FAQ on Code on Environmental Sustainability Measures for Existing Building, 3rd Edition

Q1. Which version of the Code on ESM for Existing Buildings should I use?

[Added on 22 Aug 2022]

A1. For existing buildings, if the application is submitted before 1 June 2022, it will be subject to the Code on ESM for Existing Buildings (Edition 2). If the application is submitted on or after 1 June 2022, it will be subject to the Code on ESM for Existing Buildings (Edition 3)

Please refer to the regulatory requirements for existing building at the following link: https://go.gov.sg/esreg-for-eb

Q2. Is there any E-calculator to calculate the minimum Green Mark score of 50 points?

[Added on 22 Aug 2022]

A2 For Design and As-built score submission in compliance with the Code on ESM for Existing Building (Edition 3), E-calculator is not required. The mandatory base requirements plus the Carbon Reduction Measures specified in the Code is deemed to have met the minimum Green Mark score of 50 points.

Q3 Is it a requirement to apply for design score approval before replacing the existing back-up/standby air-cooled chiller for an office building?

[Added on 22 Aug 2022]

A3 Yes. BCA's approval is required before replacing any chillers, duty or standby air-cooled or water-cooled chiller(s). This is unless the building falls under exclusion list specified under Type A and Type B buildings. (Refer to ESM Code Section 1: Scope)

Q4. How to determine the total system efficiency (TSE) of the building cooling system inclusive of the air-side system?

[Added on 22 Aug 2022]

A4. Please refer to the Code on ESM for Existing Buildings (Edition 3). The minimum efficiency requirement and methodology to derive the TSE for central chilled water and unitary systems inclusive of the air distribution system components is shown under Section ENRB01-2(a).

Q5 An existing commercial office building served by a water-cooled chilled water system has a secondary chilled water loop serving the upper floors of the building. Does the energy consumed by the secondary chilled water pumps need to be considered in the calculation of the TSE?

[Added on 22 Aug 2022]

A5 Yes. All equipment, inclusive of the secondary chilled water pumps, must be included in the TSE calculation.

Q6. Is it a requirement to meet the lighting power budget with at least 40% savings from the code even if there is no intention of replacing lighting systems?

[Added on 22 Aug 2022]

A6. Yes. It is a requirement to meet the lighting power budget with at least 40% for all spaces (excluding tenanted areas) as prescribed in SS530 - Code of Practice for Energy Efficiency Standard for Building Services and Equipment even there is no lighting replacement works.

Q7. Is it required to comply with sections ENRB01-2 (c) MV fans and ENRB01-2 (d) Lifts/Escalators if there is no replacement work?

[Added on 22 Aug 2022]

A7. No. Section ENRB01-2 (c) and ENRB01-2 (d) is not required if there is no replacement of MV fans and Lifts/Escalators respectively.

Q8. Should IAQ audit report be submitted during design score or As-built score application?

[Added on 22 Aug 2022]

A8. IAQ audit shall be conducted by an accredited lab and the IAQ report shall be submitted during the As-built score application. However, the QP will need to declare the works in the Design score application form.

Fine-tuning of the building ACMV controls may be required to ensure all measured IAQ parameters are within the acceptable limits stated in Table 1 of SS554 - Code of Practice for indoor Air Quality for Air-Conditioned Buildings.

Q9. For air-side equipment, is there a need to install a digital meter or is the reading from VSD acceptable? What is the required accuracy class?

[Added on 22 Aug 2022]

A9. It is recommended to have all AHUs grouped under 1 power meter if it is not feasible to be installed at individual AHUs. It is recommended to have power meters of IEC Class 1 or better. The power consumption for FCUs is generally low, thus the nameplate power or spot measurement (kW or Amp) is acceptable. It is encouraged to have all FCUs grouped under 1 power meter or at individual FCUs.

VSD reading downloaded from VSD or BMS is acceptable.

Refer to page 35 of Code on ESM for more details on Measurement of Air-Distribution Efficiency.

Q10 The spot measurement for air-side component (i.e. AHUs and FCUs) using portable power meters to be taken at 10am or 3pm where peak load typically occur might not be applicable to retail malls as the chillers start operation at 10-11am, which might not be indicative of the peak load.

[Added on 22 Aug 2022]

A10. While the timing specified in the code is recommended, we note that the peak load may differ for various building typologies. Please discuss with a BCA officer if you would like to propose an alternative timing.

Q11. If EC fan already has a meter for power consumption, do I need to install another power meter?

[Added on 22 Aug 2022]

A11. It is not required to install an additional power meter if the readings can be extracted from the EC fan's meter. For FCU units, the power consumption can be based on nameplate or through spot measurements.

Q12. Is continuous monitoring for air-side component efficiency necessary?

[Added on 22 Aug 2022]

A12. It is encouraged to have continuous power measurement for the monitoring of energy performance. Hence, power meter is a requirement. This also aids in the verification after the project is completed.

Q13: For VRF systems, how should we calculate the value of TSE or can we measure it through permanent M&V?

[Added on 14 Sep 2023]

A13: During the design submission, the TSE for VRF systems can be calculated using the IEER formula stated in ESM code 3.0 and ES code 4.0 for CU efficiency plus air distribution system efficiency. For as-built submission, please show that the TSE measured through permanent M&V. For applicable existing buildings with major energy use change, M&V for VRF systems is required if the VRF serving an aggregated aircon area greater than or equal to 2000m^2 belongs to a single tenant or landlord and has undergone system replacement.

Q14. Will building's cooling systems such as chiller plant system or VRF units converting to District Cooling System (DCS) be considered as a major energy use change?

[Added on 05 August 2025]

A14: Yes, building converting its cooling system to DCS is considered a major energy use change and will be subject to Building Control (Environmental Sustainability Measures for Existing Building) regulation. The DCS will be regulated to meet the Minimum Energy Efficiency Standards (MEES) under the Energy Conservation Act. The building will be required to fulfil air distribution efficiency of 0.25kW/RT for such a change, among other requirements stipulated under Code on Environmental Sustainability Measures for Existing Building. The vice versa change is also a major energy change, and the building will be required to fulfil respective cooling system requirements, among other requirements stipulated under Code on Environmental Sustainability Measures for Existing Building.

3. FAQ on Periodic Energy Audit and BCA Energy Auditor Scheme

Q1. Why should the energy efficiency of building cooling systems be audited?

[Added on 22 Aug 2022]

A1. The system performance of any building cooling system, including the energy efficient ones, may deteriorate over time if not properly operated and maintained.

The aim of the periodic energy audit is to ensure that the building cooling system continues to operate as efficiently as per its initial design throughout its life cycle and comply with the minimum standards stipulated.

Q2. Which buildings are subjected to the energy audit?

[Added on 22 Aug 2022]

A2. The following buildings will have to carry out the energy audit:

- Existing buildings that have undergone Major Energy Use Change*; and
- New buildings that have applied for planning permission on or after 1 December 2010.

The following building types are not covered under the *Code on Periodic Energy Audit of Building Cooling System*:

- Data centres;
- Religious buildings;
- Residential buildings (other than service apartments);
- Utility buildings;
- Industrial buildings;
- Railway premises;
- Port services and facilities; and
- Airport services and facilities.

** - A major energy use change refers to the installation, substantial alteration or replacement of a building/ development's water-cooled/ air-cooled chiller(s).*

Q3. Will building owners be informed if they are subject to the energy audit?

[Added on 22 Aug 2022]

A3. BCA will issue notices to building owners and allow a reasonable timeframe for them to complete the energy audit.

Q4. Is there requirement for the energy audit to achieve a certain result?

[Added on 22 Aug 2022]

A4. Building owners must ensure that the building cooling system efficiencies meet the minimum system efficiencies stipulated in the *Code on Periodic Energy Audit of Building Cooling System*.

Q5. What must the building owner do if the result of the energy audit fails to meet the minimum design system efficiency?

[Added on 22 Aug 2022]

A5. The owner needs to carry out appropriate remedial and maintenance works to bring the system efficiency back to its design standard or the prescribed minimum system efficiencies.

Q6. Can the building owner's own employee, such as the facility manager, carry out the energy audit of the system?

[Added on 22 Aug 2022]

A6. Yes, provided that the employee is a Professional Mechanical Engineer (PE(Mech)) or an Energy Auditor registered with BCA. We encourage FM to be BCA registered Energy Auditor to better manage their facilities.

Q7. Who are qualified to carry out the energy audit of the cooling systems?

[Added on 22 Aug 2022, last amended on 04 Feb 2026]

A7. The energy audit shall be carried out either by a Professional Mechanical Engineer, PE(Mech), who has in force a practising certificate, or an Energy Auditor registered with BCA.

An Energy Auditor is a competent person registered with BCA who may be appointed to carry out the energy audit on the building cooling systems required under the Building Control Act. Professional Mechanical Engineers are not required to register with BCA as an Energy Auditor.

For more information on the duties, criteria and application process to register as an Energy Auditor, please visit: https://go.gov.sg/bca-ea

Q8. What are the requirements for the application of an Energy Auditor?

[Added on 22 Aug 2022, last amended on 04 Feb 2026]

A8. The registration criteria for application are as follows:

a. Possess at least an engineering or a building-related degree in architecture, building science, facility management, and sustainable building design or any equivalent professional qualification acceptable by the Commissioner of Building Control;
b. Have at least three (3) years of relevant practical experience in central air-conditioning design and installation, or operation, after attaining the abovementioned degree or equivalent professional qualification;
c. Completed at least two (2) ASHRAE Level III Energy Audits or three (3) BCA Periodic Energy Audits on building cooling systems in Singapore under the supervision of a PE(Mechanical) or an Energy Auditor registered with BCA; and
d. Successfully passed an interview by the Energy Auditor Registration Committee.

For more information on the duties, criteria and application process to register as an Energy Auditor, please visit: https://go.gov.sg/bca-ea

Please ensure that **ALL** the qualifying criteria are met before submitting the application form and ensure that all sections are completed with the required supporting documents.

For applicants who have applied before and were rejected or failed the interview, please note that you are not allowed to use the same projects that have been used previously to support your previous application.

Please note that the Energy Auditor Registration Committee's decision is final.

Q9. Can a non-engineering or building-related degree be considered as a basic qualification?

[Added on 22 Aug 2022]

A9. Applicants should possess either an engineering or a building-related degree (in architecture, building science, facility management, and sustainable building design) that is awarded by a local university, or any equivalent professional qualification deemed acceptable by the Commissioner of Building Control. Overseas degrees and courses conducted by distance learning will not be accepted unless accredited by BOA, PEB, SISV or IES.

Q10. Will I be allowed to use the title of "BCA-Registered Energy Auditor" on my business card?

[Added on 22 Aug 2022]

A.10 The relevant title can be printed on the business card as long as your application as an Energy Auditor has been endorsed by BCA and in accordance with the validity stated in the certificate you have been awarded. The wordings of the title to be printed on your business card have to strictly adhere to "BCA-Registered Energy Auditor".

Q11. Is there a validity period for my certification as an Energy Auditor?

[Added on 22 Aug 2022, last amended on 04 Feb 2026]

A11. To maintain high standards of professional competency, the validity period of an Energy Auditor registered with BCA is three (3) years. A renewal application is required to be submitted with a record of the Continuing Professional Development (CPD) activities and the corresponding documentary evidence of participation, upon receiving a Notice from BCA at least two (2) months before expiry of the current certificate.
For more information and submission forms for renewal and CPD record, please visit: https://go.gov.sg/bca-ea

Q12. What are the requirements for the renewal of an Energy Auditor and its objectives?

[Added on 22 Aug 2022, last amended on 04 Feb 2026]

A12. The Continuing Professional Development (CPD) renewal requirements aim to enhance professionalism, promote and ensure continuous learning by the Energy Auditors to maintain competency and achieve their professional goals. The continuing professional development enables the Energy Auditors to acquire knowledge and skills to stay relevant and be kept abreast of prevailing procedures and standards as well as advances in technologies.

CPD points are obtained from participation in CPD activities which the Energy Auditor chooses to participate in. The range of activities in this CPD framework (see Table below) is not intended to be inclusive but to act as a general guide.

As part of the CPD renewal framework, Energy Auditors are required to keep their own record of the audit projects and CPD activities claimed and submit it upon renewal every three (3) years, together with documentary evidence of participation in the various CPD activities for validation. CPD renewal submission, together with the renewal application form, should be made upon receiving a Notice from BCA which is at least two (2) months before expiry of the current certificate. The activities that are accorded CPD points are listed in the Table below for guidance.

Our CPD scheme requires an Energy Auditor to chalk up at least **30 CPD points** over a 3-year period, or about 10 CPD points a year.

The renewal application is to be done via https://go.gov.sg/ea-application with the upload of supporting documents and payment of $150 (inclusive of GST).

Table – Determination of CPD

No.	Activities	Min. CPD Points For 3-Yearly Renewal = 30 (i.e. min. 10 CPD points per year)
Part 1: Energy Audit Project Experience		
	Submission of OSE audit reports prepared/ endorsed by renewing Energy Auditor in past 3 years	1 report = 2 CPD points (max 6 points per year)
Part 2: Green Building or Energy Related Training and/or Courses *		
	• Formal study courses (post-grad/ diploma) • Lectures, short courses, conferences, workshops & seminars • In-house training ** Including overseas and e-training*	1 CPD point = 1 contact hour
Part 3: Participation in Professional Associations, Committees & Societies		
	Members of technical/ working committees of professional associations/ government agencies	3 CPD points per Committee (max 6 points over 3 years)
Part 4: Contribution to Engineering/ Management Knowledge		
a	Conduct lectures, seminars, conferences or training courses	2 CPD points each lecture hour or part thereof
b	Write/ edit published technical articles or papers	2 CPD points per topic (max 6 points over 3 years)

Note:

1. *Documentary evidence of participation for above items are to be submitted for validation.*
2. *Renewal submission to be made at least two (2) months prior to certification expiry.*
3. *Contact hour refers to an attendance or involvement lasting one clock hour of not less than 50 minutes. One (1) CPD point is awarded for one (1) contact hour. No CPD point is awarded for an activity/ course lasting less than 50 minutes.*
4. *Committee work submissions to be considered after completion of the committee term.*

Q13. What happens if I am not able to meet the number of CPD points required for renewal?

[Added on 22 Aug 2022]

A.13 A conditional renewal, for a period of one (1) year, is allowed for Energy Auditors whose Continuing Professional Development (CPD) points fall short of the requirements upon renewal submission every three (3) years.

If the Energy Auditor does not or is unable to make up for the shortfall of points and submit the relevant documentary evidence of CPD participation accordingly by the deadline, the Energy Auditor will automatically not be renewed and his/ her name will be removed from the Energy Auditor Registry.

The conditional renewal grants the Energy Auditor additional time to fulfil the shortfall of CPD points under the renewal requirements, but it does not extend the renewal cycle of the certificate. The Energy Auditor is still required to meet the three-yearly renewal requirements stipulated.

Q14. Under the renewal requirements, can I carry over excess CPD points?

[Added on 22 Aug 2022]

A14. Any excess CPD points (up to a maximum of 10 CPD points) accumulated can be carried over to the immediate subsequent year. For example, for an Energy Auditor registered on 1 Jan 2020, 30 CPD points are required for renewal by 31 Dec 2023. The CPD points obtained during the period of 1 Jan 2023 to 31 Dec 2023 is 13 points, 3 points can be carried forward to the next renewal cycle.

Q15. What should I submit for my obtained CPD activities?

[Added on 22 Aug 2022, last amended on 04 Feb 2026]

A15. The documentary evidence of the obtained CPD activities may take any one of the following forms:

a. OSE audit reports with endorsement by the renewing Energy Auditor
b. Course/seminar leaflet with course synopsis and speaker profile, including duration of course
c. Course enrolment record
d. Receipts
e. Validated/ authenticated Certified True Copy Proof of attendance such as Certificates of attendance or achievement
f. Attendance list from course organiser
g. Appointment Letter from respective Committee
h. Invitation Letter to speak or conduct training
i. Employer's report or certification
j. Statutory declaration

Please ensure that **ALL** the renewal requirements are met before submitting the renewal application form and documentation and ensure that all sections are completed with the required supporting documents. Upon submission of all the relevant documents, the Energy Auditor Registration Committee will review the renewal application(s) accordingly. The Energy Auditors will be informed upon approval of their certification renewal and issued a new certificate.

Please note that the Energy Auditor Registration Committee's decision is final.

The renewal application is to be done via https://go.gov.sg/ea-application with the upload of supporting documents and payment of $150 (inclusive of GST).

Q16. How does the energy efficiency measure under the Building Control Act and the Energy Conservation Act compare with one another?

[Added on 22 Aug 2022]

A16. Refer to the table below:

Measures	Building Control Act	Energy Conservation Act *
Requirement and Target Groups	**1. Submission of Energy Consumption and Building-related Information** Building owners of hotels, office buildings and retail buildings shall submit their building information and energy consumption data annually to BCA, via the online Building Energy Submission System (BESS). **2. Minimum Environmental Sustainability Standard for Existing Buildings Undergoing Installation or Replacement of the Building Cooling System** Building owners or MCSTs of hotels, office buildings and retail buildings with gross floor area (GFA) of 15,000 m^2 or more, and who are planning to install or replace the building cooling system(s), shall meet minimum environmental sustainability standards for existing buildings.	**1. Registration with NEA** Energy intensive companies in the industry sector shall register with NEA within 6 months of qualifying as a registrable corporation: • It has operational control over a business activity which has attained the energy use threshold (54TJ of energy used per calendar year) in at least 2 out of 3 preceding calendar years; and • The business activity is carried out at a single site and is attributable to one of the following sectors: ○ manufacturing and manufacturing-related services; ○ supply of electricity, gas, steam, compressed air and chilled water for air conditioning; and ○ water supply and sewage and waste management. Once registered, corporations will be required to implement the following energy management practices: - **2. Appointment of Energy Manager** A registered corporation shall appoint from among its employees not less than one energy manager and notify NEA of the appointment of its first energy manager not later than 30 days after registration. **3. Periodic Reporting Energy Use** A registered corporation shall submit an annual energy use report, covering each business activity under the operational control of the corporation.

Measures	Building Control Act	Energy Conservation Act *
	3. Periodic Energy Audit of Building Cooling System Upon receipt of the Notice issued by the Commissioner of Building Control under the Act, building owners of the following 2 types of buildings shall engage a Professional Mechanical Engineer (PE(Mech)) or Energy Auditor registered with BCA to carry out an energy audit on their chiller system: • Any building in respect of which an application for planning permission is submitted on or after 1st December 2010; or • Any building installing or replacing its air-cooled or water-cooled chiller and subject to the minimum standard under the Building Control (Environmental Sustainability Measures for Existing Buildings) Regulations 2013.	**4. Energy Efficiency Improvement Plan** A registered corporation shall submit an annual energy efficiency improvement plan (period of not less than 1 year and not more than 5 years), covering each business activity under the operational control of the registered corporation. **5. Energy Efficiency Opportunities Assessment** A registered corporation shall, for each relevant business activity under its operational control, be required to conduct an energy efficiency opportunities assessment, and submit an assessment report to NEA before the expiry of the respective assessment period. Each relevant business activity shall have an assessment period of not more than 6 years, and the assessment report shall be made using the relevant form. **6. Minimum Energy Efficiency Standards (MEES) for water-cooled Chilled Water System** A registered corporation with water-cooled chilled water systems installed shall be required to submit a first report by 1 December 2025 to show that its operating chilled water system performance meets the MEES threshold, and its M&V system is accurate. Other existing industrial facilities that are not regulated under the ECA will be required to conform to MEES and submit a first report by 1 December 2029.
* ***Source:*** ***https://www.nea.gov.sg/our-services/climate-change-energy-efficiency/energy-efficiency/industrial-sector/mandatory-energy-management-practices-for-existing-industrial-facilities***		

4. FAQ on Mandatory Energy Improvement Regime

a) Regime Overview and Requirements

Q1. Which buildings will be subject to the MEI regime? How is an energy-intensive building defined?

[Added on 24 Oct 2024]

A1.
The MEI regime targets commercial buildings, healthcare facilities, institutional buildings, and sports and recreation centres, with a Gross Floor Area of 5,000m^2 and above, that are energy-intensive.

Energy-intensive buildings are defined as those that have exceeded the Energy Use Intensity (or EUI) threshold prescribed in subsidiary legislation for three consecutive years prior to the issuance of the MEI audit notice.

The EUI thresholds are established based on building sub-typologies to account for the energy use profiles of different types of buildings. These sub-typologies include, for example, offices, hotels, hospitals, nursing homes, civic institutions, cultural institutions, sport centres and recreational clubs etc.

For a start, the EUI thresholds are generally pegged at the 75th percentile of the EUI for that particular building sub-typology. In other words, the MEI regime targets buildings that are consistently in the top 25% of that building sub-typology in terms of energy consumption over three years. This highlights opportunities for the building to improve its energy efficiency.

Building owners may wish to refer to BCA's annual Building Energy Benchmarking Report (BEBR) to gauge how their building's energy performance compares to others.

Q2. When will the MEI regime be implemented?

[Added on 24 Oct 2024, last amended on 05 Aug 2025]

A2. As per the circular released on 2 Jun 2025, BCA will issue the first MEI audit notices with effect from 30 Sep 2025. BCA has informed and engaged owners of buildings that are likely to be subject to the MEI regime.

Q3. What if a building is a mixed-use building? How will the EUI threshold account for these multiple uses?

[Added on 24 Oct 2024]

A3. The EUI threshold for mixed-use buildings will be pro-rated based on the space distribution of the different uses. For example, if a building comprises 70% office space and 30% retail space, the EUI threshold will be the sum of 70% of the EUI threshold for offices, and 30% of the EUI threshold for retail space.

Q4. What if a building has data centre operations or laboratories which are highly energy-intensive? How will the EUI threshold account for such uses?

[Added on 24 Oct 2024]

A4. There are established EUI thresholds for spaces dedicated to data centre operations and laboratories. The EUI threshold for buildings with such uses will be pro-rated based on the space distribution. For example, if 70% of a building is used for office space and 30% is used for data centre operations, the EUI threshold will be the sum of 70% of the EUI threshold for offices, and 30% of the EUI threshold for space dedicated to data centre operations.

Q5. If a building taps on District Cooling System (DCS), will it still be subject to the MEI regime? How will the EUI threshold account for this?

[Added on 24 Oct 2024]

A5. Yes, the building will still be subject to the MEI regime as its other energy consuming systems such as air handling units or hot water systems may still be energy-intensive.

That said, the EUI threshold that the building will be benchmarked against will be 80% of the threshold set for its building typology as the energy consumption that is used for cooling is not included.

Buildings that use DCS also do not need to carry out an audit of its cooling system since this is centralised and not under the ownership of the individual building.

Q6. On what grounds can an MEI audit notice not be issued / be cancelled for a building that is assessed to be energy-intensive?

[Added on 24 Oct 2024, last amended on 05 Aug 2025]

A6. The Commissioner of Building Control (CBC) may choose not to issue or cancel the MEI audit notice if he/she assesses that it would not be reasonable for the building owner to comply with the regime. Examples include buildings that are scheduled for redevelopment or undergoing major energy use change. Building owners will need to provide the necessary evidence of such plans to the CBC for assessment on a case-to-case basis.

Q7. How is energy use for data centre operations defined?

[Added on 05 Aug 2025]

Electric Vehicle

A7. For the purpose of MEI regime, energy consumption from facilities/spaces with total Information Technology Equipment (ITE) load exceeding 10 kW and ITE load density greater than 215 W/m² of conditioned floor area is considered as energy use for data centre operations. This is subject to review.

Note: Energy consumption from IT equipment in building support facilities (such as MDF/IDF rooms, Fire Command Centres, Security Control Rooms) is not considered as energy use from data centre operation.

Q8. How is energy use for laboratory operations defined?

[Added on 05 Aug 2025]

A8. For the purpose of MEI regime, energy consumption from facilities/spaces requiring higher air change rates to deal with experiments involving fume hoods, biosafety cabinets and/or laboratory-specific equipment is considered energy use for laboratory operations. This is subject to review. These premises are typically where testing, examination, or analysis of any article is carried out.

b) Implementation and Compliance

Q1. What types of energy efficiency improvement works do building owners need to undertake if they are subject to the MEI regime?

[Added on 24 Oct 2024]

A1. The MEI regime is outcome-based, and building owners have the autonomy and flexibility to implement measures that are most appropriate for their buildings. These could include simple maintenance works such as replacement of faulty parts and sensors, or getting their tenants to use energy saving lighting for their unit fit-out. Building owners may also choose to do more extensive retrofitting works of key energy consuming systems which may yield longer-term benefits in enhancing the building's overall energy performance.

Q2. What are the key steps to consider when improving your building's energy performance?

[Added on 05 Aug 2025]

A2.

Immediate Actions:

- Review and analyse building's energy performance reports
- Engage Specified Individual [BCA-registered Energy Auditor or Professional Engineer (Mechanical)] to conduct comprehensive energy audits
- Identify potential improvement areas for Energy Efficiency Improvement Plan (EEIP)

Strategic Planning:

- Develop long-term energy efficiency strategies
- Evaluate cost-benefit analysis of potential improvements
- Consider various financing options, including Energy Performance Contracting
- Integrate energy efficiency into overall business planning

Tenant Engagement:

- Implement green lease agreements
- Offer rebates for energy-efficient practices
- Work with marketing teams to promote energy-saving initiatives
- Collaborate with tenants to reduce energy consumption
- Address potential energy wastage through tenant partnerships

Ongoing Management:

- Monitor and track energy consumption patterns regularly
- Implement identified energy-saving measures
- Plan for future compliance as MEI thresholds become more stringent
- Review and update energy management strategies periodically
- Document all implemented energy efficiency retrofits

Q3. For buildings scheduled for redevelopment within 5 years, including cases involving planned demolition or en bloc sales etc, what documentary evidence is required for consideration?

[Added on 02 Oct 2025]

A3. Supporting documentary evidence includes the following, where relevant:

- URA Planning Permission
- BP submission
- Project Development Schedules including demolition
- Permit to commence works or demolition
- Contractual agreements
- Land lease expiry
- Collective Sale Agreement
- Strata Title Board Approval

Q4. For energy audits, do they need to be done by external consultants, or is in-house allowed?

[Added on 02 Oct 2025]

A4. The energy audit must be conducted by a Specified Individual, either a BCA-registered Energy Auditor or a Professional Engineer (Mechanical), who can be an external consultant or in-house professional.

Q5. How are different operational factors, such as opening hours and business activity levels, considered in the assessment of building energy performance?

[Added on 02 Oct 2025]

A5. The approach broadly considers the diverse energy usage patterns and requirements across different building types. Buildings are compared within their respective sub-typologies (e.g., hotels, office buildings, retail malls, institutional buildings) since buildings of the same type typically have comparable opening hours and business activity levels. Those with higher energy consumption within their category will need to comply with the regime and evaluate potential areas for improvement.

Q6. What does it mean by reducing 10% of energy consumption?

[Added on 02 Oct 2025]

A6. Under the MEI regime, building owners of energy-intensive buildings are required to reduce the building's EUI by at least 10% from pre-audit levels (that is the average of the EUIs over three consecutive years prior to the year of notice).

Q7. If the building has a valid Green Mark certification, do we still need to engage an audit consultant?

[Added on 02 Oct 2025]

A7. If a building is considered energy intensive due to EUI exceeding the specified EUI threshold for three consecutive years prior to the year of notice, it will still be subject to the regime irrespective of its Green Mark certification status.

Please note that the MEI requirements differ from those for Green Mark certification. Building owners may wish to evaluate with their consultant on whether the current scope of works can be aligned with the MEI requirements.

If the consultant is qualified and appointed as the Specified Individual (i.e. BCA-registered Energy Auditor or Professional Engineer (Mechanical)] under the MEI regime, there is no need to engage another consultant.

Q8. Can Electric Vehicle (EV) facilities' energy consumption be excluded from total building energy use?

[Added on 02 Oct 2025]

A8. For the purpose of MEI regime, energy consumption from EV charging can be excluded from the building's overall energy use, provided building owners install a dedicated power meter to track this consumption and report it in the annual Building Energy Submission (BES).

c) Costs, Funding, Professional Services and Others

Q1. How much would it cost building owners to comply with MEI requirements?

[Added on 24 Oct 2024, last amended on 05 Aug 2025]

A1. Based on current market rates, the cost of an energy audit is typically no more than $50,000.

The cost of the energy efficiency improvement measures that building owners will have to undertake will depend on various factors, including (i) the existing building system condition and performance; (ii) the type of measures adopted; and (iii) the scale of implementation.

Depending on the work scope, simpler measures such as maintenance-related works of existing systems as well as optimisation of chiller systems and air distribution system equipment could cost around $50,000 to $200,000.

More extensive retrofitting works, such as the upgrade of building management systems, partial replacement of chiller systems, as well as the full replacement of chiller systems and air-handling units can range from $150,000 to $2,000,000 or more. Building owners who undertake such extensive retrofitting works may apply for funding support under the Green Mark Incentive Scheme for Existing Buildings 2.0 (GMIS-EB 2.0).

While building owners will incur upfront cost when implementing measures to comply with the MEI regime, building owners should also take into consideration the long-term energy cost savings, as well as other types of savings such as maintenance and even manpower savings that can be expected.

For example, extensive retrofitting works involving the replacement of chillers are expected to have an average payback period of around 6 years. In other words, building owners can expect to offset the upfront cost of the retrofit through the downstream energy cost savings within an average of 6 years. Correspondingly, the upfront investment for simpler measures is typically lower, and will likely have an even shorter payback period.

As carbon pricing is set to increase further in the coming years, the business case for pursuing greater sustainability in our buildings will become more compelling. Furthermore, corporate clients such as tenants are also increasingly placing more emphasis on sustainability and prefer to lease from sustainable buildings. This would further bolster the business and reputational case for building owners to implement more sustainable measures for their buildings.

Q2. Will there be funding provided to building owners subject to the MEI regime to carry out the energy audits and implement the energy efficiency improvement measures?

[Added on 24 Oct 2024]

A2. While funding will not be directly provided to building owners to meet the requirements under the MEI regime, building owners who choose to undertake more significant retrofitting works can tap on the Green Mark Incentive Scheme for Existing Buildings 2.0 (GMIS-EB 2.0) to do so.

This scheme co-funds retrofitting works based on the Green Mark rating and the amount of carbon emissions reduction achieved. Building owners can receive up to 50% co-funding to support such works, and a building that achieves Zero Energy standards is eligible for up to $1.2 million in co-funding support.

Q3. What if building owners are unable to afford the cost of energy efficiency improvement measures? What financing options or business models are there out there?

[Added on 24 Oct 2024]

A3. Building owners who are unable to afford the cost of energy efficiency improvement measures can explore various financing options or business models. For example, there are existing green financing options from financial institutions to finance energy efficiency projects (e.g. UOB's U-Energy Programme).

Building owners may also consider engaging in energy performance contracting models with Energy Services companies (ESCOs) which guarantee an outcome (either in terms of achieving a certain level of energy efficiency or energy savings). Some of such models also include an agreement where the ESCO or third-party financing firm finances the energy efficiency retrofits, which is subsequently repaid through the resulting energy savings.

Q4. Who can be appointed to carry out the energy audit and develop the energy efficiency improvement plan? Is there sufficient capacity?

[Added on 24 Oct 2024, last amended on 05 Aug 2025]

A4. Professional Engineers in the field of Mechanical Engineering and Energy Auditors registered with BCA have the necessary capabilities to carry out energy audits and develop energy efficiency improvement plans.

There are about 500 Professional Engineers, BCA-registered energy auditors that can provide energy audit services. This will be sufficient to support building owners whose buildings will be subject to the MEI regime.

Q5. Will the new MEI regime raise prices for the services provided by energy auditors? Will there be measures to ensure that these rates remain competitive?

[Added on 24 Oct 2024, last amended on 05 Aug 2025]

A5. The MEI regime is unlikely to raise the prices of services provided by energy auditors.

While the MEI regime is new, its requirements are similar to that of the Periodic Energy Audit regime for cooling systems which was implemented in 2014. As such, the skillsets required of the professional or energy auditor under the MEI regime are neither niche nor new. Given the limited number of buildings (~ 100) subject to the regime, we do not expect a surge in demand that would cause service prices to increase.

Building owners have 90 days from the issuance of the notice to appoint a professional. We encourage building owners to use this time to obtain quotations from different professionals and compare prices.

Note: The EUI of a building is derived based on the energy consumption and building information data provided by the building owners. Building owners are responsible for ensuring that the information provided is factual and accurate. If verification of the submitted details is required, please inform BCA via this feedback form with "Category" = "Environmental Sustainability" and "Sub Category" = "Mandatory Energy Improvement (MEI) Regime".