



HKGBC
BEAM Affiliate
綠建通才

Candidate Handbook
考生手冊

(2017.04)

BEAM
建築環保評估協會

 HKGBC
香港綠色建築議會

Part A – Introduction

A **BEAM Affiliate** is a person accredited by the Hong Kong Green Building Council Limited (HKGBC) as being competent to support green building design, construction and operations. The BEAM Affiliate Training and Examination, organised by BEAM Society Limited (BSL), aims at equipping participants with knowledge in green building in the areas of design, construction, operation, maintenance, as well as the BEAM Plus rating tool.

The programme welcomes **practitioners working in the construction or real estate industry (including planning, design, construction, testing, commissioning, operation, maintenance, facility management, product supplies or interior design), or recent graduates** who are in the process of working towards a professional qualification.

Two major reasons to go for the BEAM Affiliate credential are:

- **Knowledge**
Preparation for the BEAM Affiliate Examination requires training and study. In the process, your knowledge in green building will definitely be enhanced.
- **Recognition**
BEAM Affiliate credential serves as an unbiased endorsement of your green building knowledge.

PART B – Applying for BEAM Affiliate Training and Examination

Minimum Qualification Requirements	<p>To enrol the Training and Examination, you must fulfil one of the followings:</p> <p>A diploma or above, in a subject related to the built environment</p> <p>OR</p> <p>Any person who has worked in the construction or real estate industry (including planning, design, construction, testing, commissioning, operation, maintenance, facility management, product supplies or interior design, etc.) for at least 5 years</p>							
Registration	<p>Please click here to download the registration form. You are required to submit the completed registration form with full payment and all relevant supporting documents e.g. Certificates and CV. Applicants will receive an email notifying them if the application is successful or not.</p>							
Training and Examination Fee	<table border="1" data-bbox="373 1570 1476 1839"> <tr> <td data-bbox="373 1570 1134 1630"> Members of BEAM Society Limited Associate / Ordinary membership from 1 April 2015 onwards </td> <td data-bbox="1142 1570 1476 1697" rowspan="2"> HK\$1,500 for Training and Examination </td> </tr> <tr> <td data-bbox="373 1630 1134 1697"> Hong Kong Green Building Council Institutional / Associate membership </td> </tr> <tr> <td data-bbox="373 1697 1134 1765"> Supporting Organisations </td> <td data-bbox="1142 1697 1476 1765"> HK\$1,800 for Training and Examination </td> </tr> <tr> <td data-bbox="373 1765 1134 1839"> Others </td> <td data-bbox="1142 1765 1476 1839"> HK\$2,000 for Training and Examination </td> </tr> </table> <p>Payment can be made by cheque payable to “BEAM Society Limited” and send to the following address:</p>	Members of BEAM Society Limited Associate / Ordinary membership from 1 April 2015 onwards	HK\$1,500 for Training and Examination	Hong Kong Green Building Council Institutional / Associate membership	Supporting Organisations	HK\$1,800 for Training and Examination	Others	HK\$2,000 for Training and Examination
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	<p>1/F Jockey Club Environmental Building 77 Tat Chee Avenue Kowloon Tong Hong Kong Reference: BEAM Affiliate Training and Examination</p> <p><i>Please ensure your name, contact number and payment details (BEAM Affiliate Training & Examination) are written on the back of the cheque.</i></p>
Bulk Scheduling	Special request for bulk scheduling of BEAM Affiliate Training shall be reviewed by BSL based on the group size per training.
Collection of Personal Data	Your personal data will be collected through BSL and the HKGBC for purposes in connection with BEAM Affiliate Training and Examination. For details of Privacy Policy of BSL and the HKGBC, please visit: www.beamsociety.org.hk/en_privacy.php www.hkgbc.org.hk/eng/privacypolicy.aspx

PART C – BEAM Affiliate Training

Training Outline	<p>The BEAM Affiliate Training includes the general concepts of BEAM Plus New Buildings, BEAM Plus Existing Buildings, BEAM Plus Interiors and BEAM Plus Neighbourhood rating tools. Trainers are invited from the Green Building Faculty, which consist of a group of experts and professionals that supports the initiatives of green building and sustainable environment in Hong Kong.</p>	
	<p>(A) Framework and Innovations (IA)</p>	<p>框架與創新 (IA)</p>
	1 Building Environmental Assessment Method (BEAM)	建築環境評估法
	2 BEAM Plus	綠建環評
	3 BEAM Affiliate (BA)	綠建通才
	4 BEAM Professional (BEAM Pro)	綠建專才
	5 BEAM Assessor (BAS)	綠建評委
	6 Provisional Assessment (PA)	暫定評估
	7 Final Assessment (FA)	最終評估
	8 Credit Interpretation Request (CIR)	評分演譯要求
	9 Appeal	上訴
	10 Bonus	獎勵分
	11 Innovative Techniques	創新技術
	12 Performance Enhancement	性能提升
	<p>(B) Site Aspects (SA)</p>	<p>用地與室外環境 (SA)</p>
	1 Microclimate	微氣候
	2 Urban Heat Island	城市熱島效應
	3 Building Permeability	建築物通透度
	4 Air Ventilation Assessment	空氣流通評估
	5 Cool Materials	降溫材料
	6 Vertical Daylight Factor	垂直採光系數
	7 Ecological Value / Biodiversity	生態價值 / 生物多樣性
	8 Pervious / Impervious Hard Landscape	透水 / 不透水地面

	(C) Materials Aspects (MA)	用材 (MA)
1	Construction Waste	建築廢物
2	Waste Minimization	減廢 / 廢物減量
3	Waste Recycling	廢物回收 / 廢物循環再造
4	Ozone Depletion	臭氧層耗蝕 / 臭氧層損耗
5	Waste Management Plan	廢物管理計劃
6	Prefabrication	預製
7	Modular Design	模組化設計
8	Sustainable Timber	可持續木材
9	CFC	氟氯化碳
10	Structural Adaptability	結構可適應性
	(D) Energy Use (EU)	能源使用 (EU)
1	Building Energy Codes	建築物能源效益守則
2	Carbon Emission Reduction	減少碳排放
3	Building Simulation and Exceptional Calculation Method	建築物模擬和特殊計算方法
4	Embodied Energy	內含能源
5	Renewable Energy	可再生能源
6	Energy Management	能源管理
7	Testing and Commissioning	測試及調試
8	Operation and Maintenance	操作及維修
9	Passive Design	被動式設計
	(E) Water Use (WU)	用水 (WU)
1	Quality Water Recognition Scheme (QWRS)	優質食水認可計劃
2	Water Efficiency Labelling Scheme (WELS)	用水效益標籤計劃
3	Harbour Area Treatment Scheme (HATS)	淨化海港計劃
4	Legionella	退伍軍人病桿菌
5	Potable Water Storage Tanks	食水缸
6	Rainwater Harvesting	雨水收集
7	Flushing Water / Sea water	沖廁水 / 海水
8	Greywater	中水
9	Irrigation	灌溉
10	Periodic Inspection	定期檢查
	(F) Indoor Environmental Quality (IEQ)	室內環境質素 (IEQ)
1	Minimum Ventilation	最低限度通風
2	Plumbing and Drainage Systems	給排水系統
3	Biological Contamination	生物污染
4	Waste Disposal	廢物棄置
5	Indoor Environmental Quality	室內環境質素
6	Outdoor Air Quality	室外空氣質素
7	Acceptable Indoor Air Quality	合格室內空氣質素
8	Thermal Quality	室溫質量

	<p>9 Visual Quality 照明質量</p> <p>10 Aural Quality 聲音質量</p>																				
Programme Rundown	<table border="1"> <tr> <td>8:30am – 8:45am</td> <td>Registration</td> </tr> <tr> <td>8:45am – 9:20am</td> <td>Introduction to BEAM Plus Framework & Innovations (IA)</td> </tr> <tr> <td>9:20am – 9:40am</td> <td>Supplementary Session of BEAM Plus ND - NEW</td> </tr> <tr> <td>9:40am – 10:10am</td> <td>Site Aspects (SA)</td> </tr> <tr> <td>10:10am – 10:40am</td> <td>Materials Aspects (MA)</td> </tr> <tr> <td>10:40am – 10:55am</td> <td>Tea Break</td> </tr> <tr> <td>10:55am – 11:25am</td> <td>Water Use (WU)</td> </tr> <tr> <td>11:25am – 12:00am</td> <td>Energy Use (EU)</td> </tr> <tr> <td>12:00am – 12:30pm</td> <td>Indoor Environmental Quality (IEQ)</td> </tr> <tr> <td>12:30pm – 1:00pm</td> <td>Mini Mock Exam & Wrap Up</td> </tr> </table> <p><i>*Remarks: The Organiser reserves the right to modify the programme rundown without prior notice. Please refer to the latest training flyer on BSL's website. The half day training is equivalent to 3 CPD hours for members of Professional Institutions.</i></p>	8:30am – 8:45am	Registration	8:45am – 9:20am	Introduction to BEAM Plus Framework & Innovations (IA)	9:20am – 9:40am	Supplementary Session of BEAM Plus ND - NEW	9:40am – 10:10am	Site Aspects (SA)	10:10am – 10:40am	Materials Aspects (MA)	10:40am – 10:55am	Tea Break	10:55am – 11:25am	Water Use (WU)	11:25am – 12:00am	Energy Use (EU)	12:00am – 12:30pm	Indoor Environmental Quality (IEQ)	12:30pm – 1:00pm	Mini Mock Exam & Wrap Up
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Training Date and Venue	Please click here to view the schedule for the next BEAM Affiliate Training.																				
References – BEAM Plus Manual	<ul style="list-style-type: none"> • BEAM Plus for New Buildings Version 1.2 • BEAM Plus for Existing Buildings Version 2.0 Comprehensive Scheme • BEAM Plus for Existing Buildings Version 2.0 Selective Scheme • BEAM Plus Interiors Version 1.0 • BEAM Plus Neighbourhood Version 1.0 																				
PART D – BEAM Affiliate Examination																					
Examination Format and Language	<p>The purpose of BEAM Affiliate Examination is to test the core concept of the aspects under BEAM Plus assessment tools and the knowledge to support BEAM Plus projects and green buildings in the areas of design, construction, operation and maintenance.</p> <p>The Examination is computer-based test and questions are randomly generated. Candidates are required to answer 60 multiple-choice questions within 90 minutes. A score of 75% must be achieved to pass the examination.</p> <p>This is an open-booked examination; however, candidates attend the examination are ONLY allowed to bring their respective identification documents into the examination room. A hard copy of Training Materials will be provided at the examination centre.</p> <p>The language for the Examination is English only.</p>																				
Examination Date and Venue	<p>Candidates can choose their preferred session of Examination as shown on the registration form. Final assigned session will depend upon availability. Please refer to the latest training flyer on BSL's website.</p> <p>Candidates must arrive the examination centre 20 minutes before the Examination.</p>																				

	<p><u>Address of the examination centre:</u> Hong Kong Examinations and Assessment Authority 17 Tseuk Luk Street San Po Kong Kowloon Hong Kong</p>
Identification Requirements	<p>Candidates have to ensure their English Name and HKID/Passport No. are identical to those shown on their HKID/Passport presented at the examination centre.</p>
Examination Rescheduling	<p>Rescheduling of the Examination is permitted; and candidate is allowed to submit an application ONCE, if he/she cannot attend the original scheduled date of examination. The application must be submitted to the BSL at least 10 working days before the original scheduled date of examination. An Administration Fee of HK\$600 will be applied per application. The Applicant will be advised to choose two more options for the new schedule (subject to seats availability).</p> <p>If the candidate fails to attend the examination per the new schedule, he/she will be required to apply for re-sit the examination.</p> <p>Payment can be made to BSL by cheque or bank transfer. Please refer to the “Training and Examination Fee” section for details of the payment method.</p>
Failing to Appear for a Scheduled Examination	<p>Any candidate who is absent from the examination due to medical reason or personal issue is eligible to re-sit the examination subject to the same additional payment.</p> <p>Please refer to “Failing the Examination” section in Part E.</p>
Examination Centre Regulations	<p>Candidates attending the examination are only allowed to bring their respective identification documents into the examination room. No papers, books, food, beverages, bags (including pocketbooks and purses), writing or drawing instruments (including pencils which will be provided) or electronic devices (including calculators, computers, cellular phones and any other communication devices) are allowed in the examination room.</p> <p>A hard copy of Training Materials, scratch papers and pencils will be provided by the examination centre. Candidates are not allowed to take away anything from the examination centre after they finish the examination.</p>
Breach of Examination Regulations	<p>Candidates are warned that any of the following offences may lead to disqualification from the examination:</p> <ul style="list-style-type: none"> • Obtaining knowledge of contents of questions prior to the examination. • Copying from notes, books or electronic devices brought into the examination room or from the work of other candidates. (Note: Possession of unauthorised material / devices found on / in the examination desk or on the candidate will be considered sufficient grounds for a charge of premeditated cheating and this will lead to disqualification.) • Communicating or attempting to communicate in any form with persons inside or outside the examination centre during an examination session. • Attempting to take away any examination material from the examination centre. • Attempting to tamper with a computer. • Attempting to copy or record examination questions (in any format) from the examination centre. • Impersonation or requesting others to impersonate. • Deliberately disturbing or causing a nuisance to other candidates. • Disobeying the instructions of the Centre Supervisor and/or being excessively rude to the Centre Supervisor.

	<ul style="list-style-type: none"> Leaving the examination room before the end of the session without authorisation.
Arrangement of BEAM Affiliate Examination during Bad Weather	Please refer to our memo .
Services to Special Needs Candidates	The Hong Kong Examinations and Assessment Authority (HKEAA) provides special examination arrangements for candidates with special needs and disabilities. Please click here for details.
Sample Q&A (English version only)	<p>1. Negative impact on microclimate will be resulted by using:</p> <ul style="list-style-type: none"> A. non-renewable energy sources. B. materials of high Volatile Organic Compound level. C. water inefficient planting. D. impervious paving surfaces on the ground. <p><u>Answer: D</u></p> <p>2. Which of the following features will likely improve the microclimate near the ground around a high-rise office building?</p> <ul style="list-style-type: none"> A. roof gardens. B. photovoltaic panels. C. vertical greenery on podium facades (less than 15m above ground). D. water features on podium gardens (over 15m above ground). <p><u>Answer: C</u></p> <p>3. The use of indigenous / native plant species will enhance the ecological value of a site because they are likely to:</p> <ul style="list-style-type: none"> A. create a better microclimate. B. require less maintenance. C. support a diverse assemblage of local animal species. D. consume less water. <p><u>Answer: C</u></p> <p>4. The primary objective of the Air Ventilation Assessment method is to evaluate the impact of:</p> <ul style="list-style-type: none"> A. wind on structural design of buildings. B. natural ventilation design of buildings on energy use. C. building separation on risk of fire spread. D. building design on the wind environment. <p><u>Answer: D</u></p> <p>5. According to Environmental Protection Department, in how many years will all Hong Kong's landfills be full?</p> <ul style="list-style-type: none"> A. 1-5 years. B. 6-10 years. C. 10-15 years. D. 15-20 years. <p><u>Answer: B</u></p> <p>6. Which of the following refrigerant shall not be used in HVAC&R or other equipment in BEAM Plus?</p>

- A. CFC
- B. Ethane
- C. Dimethyl ether
- D. Propane

Answer: A

7. How many assessment tools are currently available to be registered under BEAM Plus?

- A. 1
- B. 2
- C. 3
- D. 4

Answer: C

8. Which of the following development project cannot be assessed by BEAM Plus NB?

- A. Commercial building
- B. Residential building
- C. Complex building with shopping mall on the ground floor and residential tower on top
- D. Open garden with no building

Answer: D

9. What kind of “Innovative Technology” can be considered under BEAM Plus?

- A. Advance technique which has not yet been widely adopted in HK or even elsewhere with environmental benefit.
- B. LED lighting in office area
- C. Solar panel for hot water system
- D. Natural ventilation in residential unit

Answer: A

10. 70% of Hong Kong’s raw water is provided from:

- A. Dongjiang.
- B. Shenzhen.
- C. Huangpu.
- D. Dongguan.

Answer: A

11. Under BEAM Plus NB WU 2 Water monitoring, which of the following areas can be omitted?

- A. Plant room areas.
- B. Concealed areas.
- C. Toilet areas.
- D. Pipe ducts.

Answer: C

12. What is the most important issue to consider in design relating to indoor environmental quality?

- A. Ventilation.
- B. Thermal comfort.
- C. Aural comfort.
- D. Visual comfort.

Answer: A

13. Ventilation protects indoor users against poor indoor air quality by limiting pollutant levels. What is the document be referred to as assessment criteria for pollutant levels?

- A. ASHRAE Standard 62 for minimum ventilation rate.
- B. IAQ Certification Scheme of EPD.
- C. BEAM Plus NB Version 1.2.
- D. CIBSE Handbook.

Answer: B

14. Objective of IEQ assessment is to engender a feeling of well-being amongst building users. Which of the following is not considered as 'well-being' under BEAM Plus NB and EB:

- A. Indoor air quality.
- B. Health and safety.
- C. Social interaction.
- D. Security.

Answer: C

15. Assessment of biological contamination in BEAM Plus refers to prevention of:

- A. Avian flu.
- B. Infection due to virus and fungi.
- C. Legionnaires' disease.
- D. Pneumonia.

Answer: C

16. Which of the following is a common energy saving method used in car park ventilation?

- A. CO monitoring
- B. Decoupler system
- C. Occupancy sensor
- D. Free air cooling

Answer: A

17. Which of the following systems carries the highest electricity load in commercial buildings?

- A. Electrical lighting.
- B. Air-conditioning and refrigeration plant.
- C. Lift and escalators.
- D. Building management system.

Answer: B

18. Which of the following electrical appliances is currently not included under MEELS of the EMSD energy label certification list?

- A. Washing machine.
- B. Room air conditioner.
- C. Electric storage water heater.
- D. Microwave oven.

Answer: D

	<p>19. In Hong Kong, what percentage of electricity is consumed by buildings?</p> <p>A. 50%</p> <p>B. 60%</p> <p>C. 70%</p> <p>D. 90%</p> <p><u>Answer: D</u></p> <p>20. Which type of lift driving system is the most energy efficient?</p> <p>A. AC Variable Frequency Drive</p> <p>B. AC Variable Voltage Drive</p> <p>C. AC Variable Voltage Variable Frequency Drive</p> <p>D. DC Thyristor Leonard Drive</p> <p><u>Answer: C</u></p>
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PART E – After your Examination

Examination Result	Provisional examination result slip with the result of pass/fail will be generated immediately after the examination.							
Passing the Examination	Candidates who have passed the Examination are required to make formal registration through the webpage of the HKGBC www.hkgbc.org.hk . Upon completion of registration, the HKGBC will send the official result document and Certificate (only e-cert is available) to candidates in a month after the examination.							
Failing the Examination	<p>Candidates who fail the examination can re-take the examination after payment of an additional fee each time. Any candidate who is absent from the examination due to medical reason or personal issue is eligible to re-sit the examination subject to the same additional payment.</p> <p>The fee for re-take the examination is as follows:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: #e6f2ff;">Members of BEAM Society Limited Associate / Ordinary membership from 1 April 2015 onwards</td> <td rowspan="2" style="background-color: #e6f2ff; text-align: center;">HK\$700 per examination session</td> </tr> <tr> <td style="background-color: #e6f2ff;">Members of Hong Kong Green Building Council Institutional / Associate membership</td> </tr> <tr> <td style="background-color: #e6f2ff;">Members of Supporting Organisations</td> <td style="background-color: #e6f2ff; text-align: center;">HK\$900 per examination session</td> </tr> <tr> <td style="background-color: #e6f2ff;">Others</td> <td style="background-color: #e6f2ff; text-align: center;">HK\$1,200 per examination session</td> </tr> </table> <p>Payment must be received not less than one month before the new examination date and can be made to BSL by cheque or bank transfer. Please refer to the “Training and Examination Fee” section for details of the payment method.</p> <p>The validity period of examination retake shall be limited to one year from the first Examination date of the candidate; Candidates fail to pass the examination within the one-year period will be required to retake the BEAM Affiliate Training and to pay for the full payment of Training and Examination fee.</p>	Members of BEAM Society Limited Associate / Ordinary membership from 1 April 2015 onwards	HK\$700 per examination session	Members of Hong Kong Green Building Council Institutional / Associate membership	Members of Supporting Organisations	HK\$900 per examination session	Others	HK\$1,200 per examination session
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Members of Supporting Organisations	HK\$900 per examination session							
Others	HK\$1,200 per examination session							
Appeal to Examination	Appeal to the process, procedure and questions of the examination are acceptable.							

	<p>Some examples of "Appeal to Process and Procedure" are the delay in allowing candidate enter the examination centre, computer glitch, unclear instructions for the examination, etc. Candidates must provide clear and concise description of the issue or the question number under the appeal.</p> <p>An administrative fee of HK\$500 (non-refundable) will be charged per Process / Procedure.</p> <p>An administrative fee of \$500 will be charged per appeal case. For appeals on examination questions, the charge would be \$500 per question. If the appeal is successful, the fee shall be refunded to applicant.</p> <p><u>Appeal Process</u></p> <p>Step 1 Click here to download the Appeal Application Form</p> <p>Step 2 Send the completed Appeal Application Form with cheque or a copy of the bank transfer to BSL within 10 working days upon receiving the Examination result</p> <p>Step 3 An acknowledgement via email will be issued to the Appeal Applicant within 3 working days from the day the form and payment are received</p> <p>Step 4 BSL will review the case and get back to the Appeal applicant within 20 working days</p>
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PART F – Credential Maintenance and Prospect of BEAM Affiliate Credential

<p>Credential Maintenance</p>	<p>A BEAM Affiliate maintains his/her credential by earning 3 Mandatory Continuing Professional Development (CPD) hours and 3 General CPD hours every year.</p> <p>In brief, Mandatory CPD activities are CPD activities specifically designed for BEAM Pro/BEAM Affiliate, which are organised by BSL or the HKGBC; while General CPD activities are other CPD activities related to green buildings, which may be organised by other institutions. Please refer to the websites of BSL (www.beamsociety.org.hk) and the HKGBC (www.hkgbc.org.hk) for the upcoming schedules of CPD Programme.</p>
<p>Prospect of BEAM Affiliate Credential</p>	<p>For BEAM Affiliate who are accredited from 2017 onwards, they must fulfill the minimum entry requirements of BEAM Professional Training as stipulated in the new scheme of BEAM Pro Training launched in 2017 (here) if they wish to gain the BEAM Pro NB/EB/BI/ND credentials.</p> <p>For enquiries, please contact us at 3610 5700 or email ba.training@beamsociety.org.hk</p>

Note: This Handbook has been translated into Chinese. If there is any inconsistency or ambiguity between the English version and the Chinese version, the English version shall prevail.