HKGBC
香港綠色建築議會

BEAM
建築環保評估協會

# BEAM Plus
# Interiors - Non-Residential

Version 2.0 (2023.11)

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Note:

⏲ The proponent is cautioned that the supporting information for credit claim has to be taken at the material time, which needs to be captured during the process and cannot be done retrospectively.

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# 1 Introduction

## 1.1 Overview

**BEAM**

Building Environmental Assessment Method (BEAM) Plus is a comprehensive environmental assessment tool for buildings which is carried out on a voluntary basis. It defines the best practice criteria for a range of sustainability issues across the whole life cycle of buildings and projects, such as how buildings should be designed, constructed and operated, etc. Recognised as one of the world's leading green building assessment tools, it provides a comprehensive set of performance standards that can be pursued by developers and owners.

Owned and operated by the BEAM Society Limited (BSL), BEAM Plus Interiors is one of the BEAM Plus rating tools that covers the design and construction of the interior spaces.

Based on the credit achievement where the standard or defined performance criteria are satisfied, the project will be rated Platinum, Gold, Silver or Bronze, to reflect the overall performance.

**BEAM Plus Interiors Version 2.0 (BI V2.0)**

The upgraded BEAM Plus Interiors Version 2.0 (BI V2.0) aims to be up-to-date, practical, clear and standardised in defining the key elements of green interior spaces including health and wellbeing, hygiene, site impacts, use of materials, water quality, energy efficiency, indoor environmental quality, etc. During the upgrade process, the following fundamentals have been established:

Above Statutory Requirements – Requirements for each credit should be set above the statutory requirements.

Simplification – Certification process and submittals should be simplified so that the amount of records will not be laborious.

Adaptability – Routes for standard and bespoke interior space types should be established. Requirements for standard interior space types should be better defined with more assurance of the applicability of the criteria.

Certainty – Requirements should be clearly defined to reduce ambiguity and promote better certainty in the assessment process. Submittal requirements should be standardised as well as practicable.

Human-centric – Requirements are expanded to emphasise on human factors to provide an environment which yields better health benefits to the occupants of the certified interior spaces.

It is envisaged that these fundamentals form the basis of the holistic green interior space performance indicators which suitably integrate different green features into a user-friendly assessment tool.

**BEAM Society Limited (BSL)**

BEAM is owned and operated by BSL, an independent non-profit public body whose membership is drawn from many professional and interest groups in Hong Kong's building construction and real estate sectors. BSL is committed to developing and implementing the BEAM assessment tools, assessing green buildings and training professionals.

**Hong Kong Green Building Council (HKGBC)**

HKGBC was established in 2009 as Hong Kong's industry body that coordinates efforts towards green building. HKGBC certifies BEAM Plus projects, accredits BEAM Professional (BEAM Pro), BEAM Affiliate (BA) and BEAM Assessor (BAS). It is also responsible for funding the development/

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updating of BEAM Plus rating tools and for administering BEAM Plus project registrations.

**Development of BI V2.0**

The development of BI V2.0 was led by a BSL Steering Committee, comprising industry practitioners and experts. Industry stakeholders have been consulted via engagement workshops for feedback and opinion in areas, including but not limited to the overall framework, performance categories and their relative emphasis, assessment criteria, submission requirements and rating methodology. The Steering Committee comprises:

Convener – Mr HK LI

Members – Mr Peter CHAN, Ir Prof Joseph CHI, Dr Benny CHOW, Ir Tony HO, Ms Yvonne IEONG, Ir Ryan LEE, Ir Kenneth LI, Mr Adrian LO, Mr Horace PAN, Mr KM SO

Advisors – Mr Nevin LAM, Dr Evan YUNG

**Disclaimer**

BEAM Plus has been prepared with the assistance and participation of many individuals and representatives from various organisations. The outcome represents a general consensus, but unanimous support from each and every organisation and individual consulted is not implied. The BEAM Plus documentation shall be reviewed on a regular basis and as frequently as necessary. BSL reserves the right to amend, update and change this Manual from time to time without prior notice. Where changes in regulations necessitate changes to the assessment criteria, they will be issued to all parties involved in an assessment and will be announced in the BSL's website. An appropriate transitional period shall be allowed for projects undergoing assessment process.

It should be noted that none of the parties involved in the funding of BEAM, including BSL and its members, provide any warranties or assume any liability or responsibility to the users of BEAM, or any third parties for the accuracy, completeness or use of, or reliance on, any information contained in BEAM, or from any injuries, losses, or damages arising out of such use or reliance.

As a condition of use, users covenant not to sue, and agree to waive and release BSL and its members from any and all claims, demands and causes of actions for any injuries, losses and damages that users may now or hereafter have a right to assert against such parties as a result of the use of, or reliance of BEAM.

**Limitations**

BSL does not endorse any self-assessed rating of BEAM Plus Interiors.

HKGBC offers a formal certification process of rating, which provides an independent third-party review of credit submission in order to ensure all credits claimed are supported by the provision of the necessary documentary evidence. Any users or parties without a formal certification are not entitled to issue any rating certification of BEAM Plus Interiors.

**Application and Eligibility**

Area of the assessed interior spaces must not be less than 20 m2 usable floor area.

BEAM Plus Interiors covers the planning, design, construction and "as-built" condition of the fit-out of interior spaces.

Certification under BEAM Plus Interiors is designed to take place as a one-stage process at the end of the fit-out works and associated testing and commissioning. This helps to ensure that design commitments have been

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implemented, construction practices have met the required standards, and that testing and commissioning have verified the installation's performance.

Projects cannot be certified before their completion. It is the BSL's aim for certification to be granted as soon as possible upon project completion so that the Applicant is able to promote their achievements at the earliest opportunity.

Existing premises or previously certified premises that have their BEAM Plus certificates about to expire are also eligible to participate.

**Eligible Premises Types**

BEAM Plus Interiors targets the most frequently encountered interior fit-out projects in Hong Kong, namely:
- Food Space;
- Hotel Space;
- Institutional Space;
- Leisure & Entertainment Space;
- Residential Communal Space;
- Shopping Space; and
- Work Space.

Table A illustrates the typical functions and installations within the premises for which BEAM Plus Interiors criteria are provided.

**TABLE A - ELIGIBLE TYPES OF INTERIOR SPACE**

**Food Space** (commercial kitchen space is excluded)
- Cafe
- Bar
- Lounge
- Restaurant
- Canteen
- Food Court

<u>Typical scope of works in:</u>
- Eating / Dining Space
- Office / Staff Space
- Washroom Facility

**Hotel Space**
- Commercial Hotel
- Budget Hotel
- City Hotel
- Resort
- Serviced Apartment

<u>Typical scope of works in:</u>
- Entrance / Reception Space
- Playroom
- Function Rooms / Social Space
- Eating / Dining Space
- Washroom Facility
- Room

**Institutional Space**
- Community Centre
- University / Learning Centre
- Library
- Hospital / Clinic
- Airport / Public Transport Station

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- Government Space

Typical scope of works in:
- Classroom / Teaching Room
- Assembly / Sports Hall, Etc.
- General Ward / Consultation Room
- Entrance / Reception / Circulation Space
- Printer / Copier Room
- Washroom Facility (if included)

**Leisure & Entertainment Space**
- Spa
- Swimming Pool
- Club
- Cinema / Theatre
- Health / Fitness Centre
- Gym
- Beauty Centre
- Salon
- Game Centre
- Theme Park

Typical scope of works in:
- Function room / Social space
- Entrance / Reception / Circulation Space
- Washroom Facility
- Office / Staff Space

**Residential Communal Space**
- Clubhouse Space
- Lift Lobby

Typical scope of works in:
- Library / Reading Room
- Gym / Playroom
- Function Room / Social Space
- Eating / Dining Space
- Washroom Facility

**Shopping Space**
- Shop
- Retail Outlet
- Showroom
- Department Store
- Food Market
- Shopping Mall
- Kiosk

Typical scope of works in:
- Entrance / Reception / Circulation Space
- Washroom Facility
- Function room / Social Space

**Work Space**
- Office
- Studio
- Warehouse
- Factory
- Co-Working Space

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Typical scope of works in:
- Main Office Space (Open Plan / Cellular)
- Entrance / Reception Space
- Conference / Meeting Room
- Wet/Dry Pantry
- Social Space
- Printer / Copier Room
- Washroom Facility (if included)

**Specialist Spaces Excluded**

To avoid undue complexity, process related equipment, services and functions that involve specialist requirements described in the following spaces are excluded from the assessment.
- Plantroom;
- Data Centre, Server Room, Water Meter Cabinet;
- Karaoke Room, Clean Room, Cold Room;
- Commercial Kitchen, Kitchen Equipment, Walk-In Freezer;
- Steam Room, Sauna;
- Car Park, Loading Bay Space; and
- Balcony, Roof and Terrace Space.

**Assessment Boundaries**

The Applicant shall define the assessment boundary to undergo the BEAM Plus assessment. The assessment boundary needs not necessarily follow the site boundary of the premises, which however, should be consistent throughout the project assessment.

Under normal circumstances, BI V2.0 only assesses those spaces which are under the control of the Applicant. It is understood that the involvement of the tenants also plays an important role in improving the building's environmental performance. Therefore, additional or bonus credit point(s) could be awarded when the Applicant can demonstrate that their tenants are also getting involved in the assessment. Details shall be referred to the assessment criteria of individual credit.

**Certification Framework**

Assessment under BI V2.0 covers the demolition, planning, design, construction and commissioning of the interior spaces and should be initiated in the early stages of project development. BI V2.0 aims to reduce the environmental impacts of the interior spaces while improving the quality and user satisfaction, by the adoption of the best techniques available within reasonable cost.

A notable attribute of BI V2.0, as compared with other mostly used schemes elsewhere, is that an assessment for the interior spaces is not finalised until the spaces are completed, ensuring that "green" and "sustainable" design features are actually implemented, and construction practice meets the required performance standards. Besides being in the interests of the Client and tenants in certifying the actual performance of the finished product, this approach also serves to "dovetail" assessment with BEAM Plus New Buildings and Existing Buildings.

**Certification Process**

Independent BAS or BSL in-house BAS will be assigned to each project to undertake the assessment works. The Assessment Sub-committee (ASC) of BSL will review the assessment reports done by the BAS and endorse the assessment results, followed by the issuance of certification by the HKGBC. Detail assessment procedures can be found in the BEAM Plus Project Assessment Procedures Manual which is available in the HKGBC and BSL websites.

**Certificate Validity**

BI certificates are normally valid for 5 years, but in case the fit-out works of a certified space are substantially modified or removed during the validity period, the concerned BI certificate shall become void prematurely.

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| | |
|---|---|
| **Certificate Renewal** | BI certificates can be renewed if an Applicant registers and submits its premises for re-assessment. The as-built condition of the premises will then be examined by BSL again to determine the BEAM Plus rating. Applicants are advised to initiate the above process at least 6 months before the expiry of the current BEAM Plus certificates so as to ensure there is sufficient time to complete the re-certification process. |
| **BEAM Professional (BEAM Pro)/ Affiliate (BA)** | BEAM Pro/ BA mentioned in this manual should process the valid credential for BI V2.0 for facilitating the certification process and to ensure the compliance of relevant credit requirements. |
| **Site Audit** | BSL reserves the right to conduct on-site inspection(s) at any time without advance notice to verify and validate Applicants' submission. The outcome of this audit shall be used for assessment purposes. |
| **Documentation** | The Applicant has the obligation to provide evidence to demonstrate credit compliance. In BI V2.0, only sufficient amount of material (by way of example) is required to be submitted. However, the Applicant must make sure all supporting information is timely collected and properly documented. In the event when the BAS considers that it is necessary to supplement additional material of the same sort for clarification, the Applicant is obligated to produce such material upon request. |
| **Certification Fee** | BEAM Plus certification fee comprises 2 parts, namely Registration Fee and Assessment Fee. Details on the fee structure can be found in the HKGBC and BSL websites. |
| **Credit Interpretation Request (CIR)** | CIR is designed to allow project teams to obtain specific guidance on whether certain BEAM Plus credits can be fulfilled pertaining to the special situation of a project. Details on CIR can be found in HKGBC and BSL websites. |
| **Appeal** | The Applicant may submit an appeal on an individual credit if they disagree to and/ or do not accept the decision made by the BSL. More details can be found in the HKGBC and BSL websites. |

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## 1.2 Framework

**Performance Categories**

Different assessment methods have different credit distribution based on different preferences of the tool developer. In BI V2.0, credits are grouped into the following categories:

i. Integrated Design and Construction Management (IDCM);
ii. Management (MAN);
iii. Materials and Waste (MW);
iv. Energy Use (EU);
v. Water Use (WU);
vi. Health and Wellbeing (HWB); and
vii. Innovations and Additions (IA).

While BI V2.0 adopts similar categories as in other BEAM Plus tools, the number and nature of credits within each category are specific to the context of fit-out projects in Hong Kong.

**Integrated Design and Construction Management (IDCM)**

IDCM focuses on the integration between design and operation, integrated design between design team members and the client, and integration throughout the development process from design to construction. The core objectives of IDCM are as follows:

i. Integrated Design Process; and
ii. Green Construction Practices.

**Management (MAN)**

MAN focuses on the sustainable management of the occupied spaces during occupancy. The core objective of MAN is as follows:

i. Green and Healthy Management.

**Materials and Waste (MW)**

MW focuses on the minimisation of materials consumption and waste generation. The core objectives of MW are as follows:

i. Use of Materials;
ii. Selection of Materials; and
iii. Waste Reduction.

**Energy Use (EU)**

EU focuses on the reduction of energy consumption during occupancy. It is energy performance based and it seeks to encourage quality passive design. The core objectives of EU are as follows:

i. Energy Use Reduction and Control;
ii. Energy Efficient Equipment; and
iii. Energy Management and Monitoring.

**Water Use (WU)**

WU focuses on the reduction of water consumption and discharge management. The core objectives of WU are as follows:

i. Water Conservation;
ii. Effluent; and
iii. Water Management.

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**Health and Wellbeing (HWB)**

HWB focuses on the human development and environmental quality. It is designed to expand the scope of previous indoor environmental quality (IEQ) category and adopt human centric design elements. The core objectives of HWB are as follows:

i. Design for Green Living;
ii. Inclusive Design;
iii. Indoor Environmental Quality; and
iv. Good Hygiene Design.

**Innovations and Additions (IA)**

IA focuses on promoting and rewarding true innovations. The core objectives of IA are as follows:

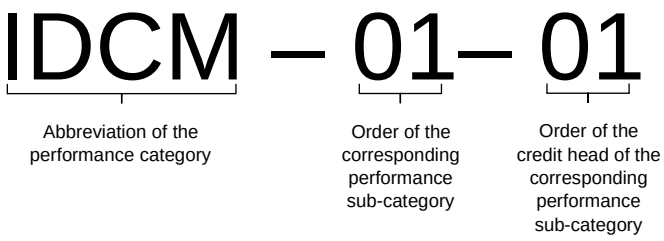
i. Innovation Techniques; and
ii. Innovation Challenges.

**Credit Point Allocation**

Credit points have been broadly allocated to each assessment criterion by taking into account other internationally recognised green building assessment tools as well as the sensitivity analysis and the comments received during the stakeholder engagement workshops.

**Credit Code**

All BEAM Plus tools will adopt the same nomenclature. The classification of each credit is divided into three levels which includes: i) Performance category, ii) Performance sub-category and iii) Credit head.




The coding system of each credit consists of English letters and Arabic numbers. The first level of the coding system is the performance category which adopts the abbreviation. The second level is coded by Arabic numbers to present the corresponding performance sub-category. The third level represents the order of credit head.

**Credit Applicability**

While all credits in BI V2.0 are deemed to be applicable, sub-item of a credit could be demonstrated as non-applicable and justifications for each non-applicable sub-item must be provided.

**Absolute Point-Based Scoring**

Having reviewed the local and international assessment schemes as well as echoing the design principle “Simple”, the final BEAM Plus result is calculated based on the total credit points achieved across performance categories without category weighting or averaging scores. The maximum possible score under each category is 100%.

**Bonus Credit Point & Additional Bonus Credit Point**

The bonus credit points and additional bonus credit points are counted under corresponding performance categories. A factor of 1.2 is applied in score calculation for the attainment of bonus credit point and additional bonus credit point.

Bonus credit points are independent from the normal credit point(s) under the same credit item. They can be achieved regardless of the success or failure in attaining the normal credit point(s). Whereas the additional bonus credit point(s) are dependent on the normal credit point(s) under the same credit

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item. The award of normal credit point(s) is the prerequisite for attaining the additional bonus credit point(s).

**IA Bonus Credit Point**

The IA bonus credit points in BI V2.0 are counted towards the total number of credit points achieved in all the respective categories for an award classification. One (1) point is counted towards the total number of credit points for each successful IA bonus credit and a maximum of ten (10) IA bonus credit points could be awarded in IA performance category for achieving a higher overall credit points in the assessment.

**Example for Credit Points Achievement**

Below tables demonstrate the credit points achievement based on the abovementioned absolute point-based scoring system and counting methodology of bonus credit point in each performance category.

| Performance Category | Available Credit Points | Maximum Possible Score in Each Performance Category (100%) | Factor Applied for Bonus Credit Point |
|---|---|---|---|
| IDCM | 17+7B | 17 | 1.2 |
| MAN | 3+3B | 3 | |
| MW | 26+6B | 26 | |
| EU | 20+3B | 20 | |
| WU | 6 | 6 | |
| HWB | 25+10B | 25 | |
| IA | Max. 10 | 10 | 1 |

Example of the overall score calculation based on the above methodology is illustrated below:

| Performance Category | Achieved Credit Points | Calculation Demonstration | Final Achieved Score |
|---|---|---|---|
| IDCM | 14+3B | 14 + 3 * 1.2 = 17.6 | 17 |
| MAN | 2+1B | 2 + 1 * 1.2 = 3.2 | 3 |
| MW | 18+2B | 18 + 2 * 1.2 = 20.4 | 20.4 |
| EU | 13+3B | 13 + 3 * 1.2 = 16.6 | 16.6 |
| WU | 3 | 3 | 3 |
| HWB | 18+6B | 18 + 6 * 1.2 = 25.2 | 25 |
| IA | 5 | 5 * 1 = 5 | 5 |
| | | Overall Score | 90 |

**Determination of Overall Rating**

The final certificate rating for projects certified under BI V2.0 is subject to the following conditions:

i. Achieving overall credit points required; and
ii. Obtaining minimum percentage (%) for each category listed below.

| Rating | Minimum Percentage for Each Category (except WU and IA) | Overall Credit Points Achieved |
|---|---|---|
| Platinum | 20% | ≥ 75 |
| Gold | 20% | ≥ 65 |
| Silver | 20% | ≥ 55 |
| Bronze | 20% | ≥ 40 |

If a project cannot comply with both the minimum percentage of each performance category and requirements of overall credit achieved for each rating, it will be rated as “Assessment Completed Without Any Rating”.

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### 1.3 Summary of Credits

| | Credit Head | Credit Requirement | Credit Point(s) |
|---|---|---|---|
| **2** | **Integrated Design and Construction Management (IDCM)** | | **17 + 7 Bonus** |
| IDCM-00-01 | Sustainability Champions – Project | 1 credit point for demonstrating that an accredited BEAM Professional (BEAM Pro) with a valid credential for BI V2.0 is engaged as the Project BEAM Pro.<br><br>***Alternatively,***<br>• *1 credit point for involving at least two (2) members from the project team who have accredited with BEAM Affiliate (BA) qualification.* | 1 |
| IDCM-00-02 | Environmental Management Plan | *This credit head is not available under BI V2.0.* | |
| IDCM-00-03 | Timber Used for Temporary Works | 1 credit point for using the timber originated from sustainable sources/ re-used from other sites for all temporary works.<br><br>***Alternatively,***<br>• *1 credit point for not using timber for temporary works.* | 1 |
| IDCM-01-01 | Sustainability Champions - Design | 1 credit point for involving one (1) specialist in the project design who has accredited with BEAM Pro qualification for BI V2.0.<br><br>***Alternatively,***<br>• *1 credit point for involving at least two (2) specialists in the project design who has accredited with BA qualification.*<br><br>1 additional Bonus credit point will be awarded if that Design BEAM Pro is also a Hong Kong Professional Institution qualified holder. | 1 + 1 Bonus |
| IDCM-01-02 | Complimentary Certification | For the host building being certified with final certification rating by any of the following BEAM Plus Assessment Tools:<br><br>**Bonus Credit Point(s)**<br>**BEAM Plus Assessment Tools** / **Bronze/ Silver Rating** / **Gold Rating** / **Platinum Rating** / **Very Good/ Excellent rating**<br>**New Buildings (NB)**<br>**Existing Buildings (EB) (Comprehensive Scheme)**<br>**New Data Centres (NDC)**<br>**Existing Data Centres (EDC)**<br>**Neighbourhood (ND)**<br>1 / 2 / 3 / (shaded)<br>**Existing Buildings (EB) (Selective Scheme)**<br>(shaded) / (shaded) / (shaded) / 1<br><br>The certification should be valid at the time of project registration for BI V2. | 3 Bonus |

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| | Credit Head | Credit Requirement | Credit Point(s) |
|---|---|---|---|
| IDCM-01-03 | Integrated Design Process | 1 credit point for considering an integrated design process to explore the interrelationships among different green interior design strategies and systems in the conceptual design stage.<br><br>1 additional credit point for organising at least one (1) multi-disciplinary design charrette to formulate passive and active design strategies in the conceptual/ schematic design stage. | 2 |
| IDCM-01-04 | Life Cycle Costing | *This credit head is not available under BI V2.0.* | |
| IDCM-01-05 | Commissioning | **(a) Commissioning Specification/ Clause**<br><br>1 credit point for providing specification(s)/ clause(s) in contract documents that specify details of the commissioning requirements for building services systems and equipment being installed by the Applicant within the assessment boundary.<br><br>**(b) Commissioning Method Statement**<br><br>1 credit point for providing commissioning method statement(s) that specify details of all the specified commissioning work for building services systems and equipment being installed by the Applicant within the assessment boundary.<br><br>**(c) Commissioning Report**<br><br>1 credit point for providing commissioning report(s) for building services systems and equipment being installed by the Applicant within the assessment boundary.<br><br>***Alternatively,***<br>• *2 credit points for providing a contractual document confirming that no alterations to building services system in the host building have been undertaken and no supplementary building services have been installed within the assessment boundary by the Applicant.* | 3 |
| IDCM-02-01 | Sustainability Champions – Construction | 1 Bonus credit point for demonstrating that one (1) accredited BEAM Pro with valid credential for BI V2.0 is engaged by the fit-out contractor of the project.<br><br>***Alternatively,***<br>• *1 Bonus credit point for demonstrating at least two (2) accredited BAs are engaged by the fit-out contractor of the project.* | 1 Bonus |

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| | Credit Head | Credit Requirement | Credit Point(s) |
|---|---|---|---|
| IDCM-02-02 | Measures to Reduce Site Emissions | **(a) Minimisation of Air Pollution**<br><br>1 credit point for implementing mitigation measures to minimise air pollution during the entire fit-out period.<br><br>**(b) Minimisation of Noise Pollution**<br><br>1 credit point for implementing mitigation measures to minimise noise pollution during the entire fit-out period.<br><br>**(c) Minimisation of Chemical Waste**<br><br>1 credit point for implementing mitigation measures to minimise pollution from chemical waste during the entire fit-out period. | 3 |
| IDCM-02-03 | Construction and Demolition Waste Recycling | **(a) Waste Management Plan**<br><br>1 credit point for implementing the Waste Management Plan (WMP).<br><br>**(b) Construction Waste Recycling**<br><br>1 to 2 additional Bonus credit points for recycling at least 10%/ 30% of waste arising from fit-out activities. | 1 + 2 Bonus |
| IDCM-02-04 | Construction IAQ Management | 1 credit point for implementing a Construction IAQ Management Plan.<br><br>1 credit point for undertaking flush-out and replacement of all filters that are under the Applicant's control within the normally occupied assessment boundary prior to occupancy.<br><br>***Alternatively.***<br>• *1 credit point for providing an IAQ (Good Class) report of the assessment boundary endorsed by an accredited IAQ Certificate Issuing Body (CIB).* | 2 |
| IDCM-02-05 | Construction Safety/ Considerate Construction | 1 credit point for implementing a Safety Management Plan for fit-out activities. | 1 |
| IDCM-02-06 | Building Management Manuals | **(a) Operation and Maintenance Manual Development and Storage**<br><br>1 credit point for preparing operation and maintenance (O&M) manuals for building services systems and equipment, which are installed by the Applicant within the assessment boundary and demonstrating that the manuals have been stored in a local device drive/ an electronic platform. | 2 |

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| | Credit Head | Credit Requirement | Credit Point(s) |
|---|---|---|---|
| | | **(b) Stakeholder Orientation**<br><br>1 credit point for organising an orientation tour for the end users of assessment boundary by suitable person for demonstrating the appropriate use of the maintenance facilities. | |
| IDCM-02-07 | Operator Training plus Chemical Storage and Mixing Room | *This credit head is not available under BI V2.0.* | |
| IDCM-03-01 | Digital Facility Management Interface | *This credit head is not available under BI V2.0.* | |
| IDCM-03-02 | Occupant Engagement Platform | *This credit head is not available under BI V2.0.* | |
| IDCM-03-03 | Document Management System | *This credit head is not available under BI V2.0.* | |
| IDCM-03-04 | BIM Integration | *This credit head is not available under BI V2.0.* | |
| IDCM-04-01 | Design for Engagement and Education on Green Buildings | *This credit head is not available under BI V2.0.* | |

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| | Credit Head | Credit Requirement | Credit Point(s) |
|---|---|---|---|
| **3** | **Management (MAN)** | | **3 + 3 Bonus** |
| MAN-00-01 | Green Purchasing Plan | *This credit head is not available under BI V2.0.* | |
| MAN-01-01 | EHS and Energy Management System | *This credit head is not available under BI V2.0.* | |
| MAN-02-01 | Environmental, Social and Governance (ESG) Disclosure | *This credit head is not available under BI V2.0.* | |
| MAN-03-01 | Staff Training and Resources | *This credit head is not available under BI V2.0.* | |
| MAN-03-02 | Building and Site Operation and Maintenance | *This credit head is not available under BI V2.0.* | |
| MAN-03-03 | Building Services Operation and Maintenance | *This credit head is not available under BI V2.0.* | |
| MAN-04-01 | Green Lease and Long-Term Lease | **(a) Green Lease**<br><br>1 Bonus credit point for demonstrating the adoption of green lease proposed by the landlord.<br><br>**(b) Long-Term Lease**<br><br>1 Bonus credit point for demonstrating the fixed lease period is at least 3 years. | 2 Bonus |
| MAN-04-02 | Green Cleaning | 1 Bonus credit point for implementing appropriate green cleaning procedures/ practices for the assessment boundary. | 1 Bonus |
| MAN-04-03 | User Guidance | 1 credit point for providing a user's guide to encourage and promote environmentally friendly activities within the assessment boundary, including but not limited to local transport, hygiene and environmental practices, sustainable materials selection, energy conservation, indoor environmental quality, water conservation, and waste sorting, etc. | 1 |

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| | Credit Head | Credit Requirement | Credit Point(s) |
|---|---|---|---|
| MAN-04-04 | Occupational Health and Safety (OHS) | 1 to 2 credit points for scoring at least 50%/ 70% of the applicable OSH measures and facilities within the assessment boundary.<br><br>***Alternatively,***<br>• *2 credit points will be awarded if the assessment boundary has been certified with ISO 45001 certification.* | 2 |

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| | Credit Head | Credit Requirement | Credit Point(s) |
|---|---|---|---|
| **4** | **Materials and Waste (MW)** | | **26 + 6 Bonus** |
| MW-00-01 | Minimum Waste Handling Facilities | *This credit head is not available under BI V2.0.* | |
| MW-01-01 | Building Re-use | Credit point(s) for demonstrating the percentage of the reuse from salvaged or existing furniture/ components and/ or electrical appliances are over the settings shown below: | 6 + 3 Bonus |

| Category | Unit | Credit Point(s) | | |
|---|---|---|---|---|
| | | 1 | 2 | 2 + 1 Additional Bonus |
| **(a) Interior Furniture** | Mass/ Cost/ Volume/ Number of Pieces | 20% | 40% | 60% |
| **(b) Interior Components** | Surface Area/ Volume | | | |
| **(c) Electrical Appliances** | Number of Pieces | 50% | 80% | 100% |

| | | | |
|---|---|---|---|
| MW-01-02 | Modular and Standardised Design | 1 credit point for preparing a narrative that demonstrates a proactive approach in designing modular elements of the newly installed major elements and modules within the assessment boundary.<br><br>1 additional credit point for designing modular elements which contribute 25% or more of the newly installed major elements and modules within the assessment boundary. Items to be included in the assessment is shown in below table: | 2 |

| Items to Be Included in the Modular Elements Assessment (if applicable) | | |
|---|---|---|
| Partition | Wall | Ceiling |
| Door | Raised floor | Carpet tile |

| | | | |
|---|---|---|---|
| MW-01-03 | Prefabrication | *This credit head is not available under BI V2.0.* | |
| MW-01-04 | Design for Durability and Resilience | *This credit head is not available under BI V2.0.* | |
| MW-01-05 | Design for Maintainability | 1 credit point for preparing a narrative that demonstrates a proactive approach in evaluating the maintainability of the building materials with at least three (3) of the following items. | 1 |

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| | Credit Head | Credit Requirement | Credit Point(s) |
|---|---|---|---|
| | | **Items for Maintainability Assessment**<br>Panels/ partition; Flooring; Cabinetry/ fitting<br>Insulation; Furniture; Light fitting<br>Plumbing and drainage; Air terminal; Louvre<br>Other items may be proposed at the discretion of the Applicant | |
| MW-01-06 | Germ-resistance Management | **(a) Moisture Control**<br><br>1 credit point for implementing measures to reduce the potential of moisture occurrence and accumulation.<br><br>**(b) Antimicrobial High Touch Surface**<br><br>1 credit point if all high touch surfaces are coated with or comprised of or sprayed with material that is abrasion-resistant, non-leaching and antimicrobial like copper, brass and plexiglass.<br><br>**(c) Antimicrobial Wall Surface**<br><br>1 credit point if at least 50% of the wall surface has applied antimicrobial paint or coating. | 3 |
| MW-02-01 | Sustainable Forest Products | 1 to 2 credit points for demonstrating at least 30%/ 50% (by mass/ cost/ volume/ number of pieces) of all the timber and composite timber products being used within the assessment boundary are from sustainable sources/ recycled/ reused timber.<br><br>***Alternatively,***<br>• *1 credit point for demonstrating that no timber and composite timber products are used within the assessment boundary.* | 2 |
| MW-02-02 | Recycled Materials | *This credit head is not available under BI V2.0.* | |
| MW-02-03 | Ozone Depleting Substances | *This credit head is not available under BI V2.0.* | |

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| | Credit Head | Credit Requirement | Credit Point(s) |
|---|---|---|---|
| MW-02-04 | Regional Materials | 1 to 2 credit points for at least 50% of any one (1)/ two (2) of the following items which are newly installed meet the prescribed requirements of regional materials. | 2 |

| List of Items | |
|---|---|
| Furniture and partition | Wall |
| Ceiling | Flooring |

**Requirement of regional materials:**
The point of raw materials and manufacture should be located within an 800km radius of the HKSAR by road transportation; within a 1,600km radius by rail transportation; or within a 4,000km radius by sea transportation.

| | | | |
|---|---|---|---|
| MW-02-05 | Use of Green Products | Credit point(s) for demonstrating the percentage of the use of certified green products endorsed by Construction Industry Council (CIC) Green Product Certification, or regionally or internationally recognised standard are over the settings shown below: | 3 + 1 Bonus |

| Types of Interior Non-structural Components or Building Services Components | Percentage of Uses | Credit Point(s) |
|---|---|---|
| 2 | 10% | 1 |
| | 20% | 2 |
| | 30% | 3 |
| 4 | 30% | 3 + 1 Additional Bonus |

Types of interior non-structural components or building services components are shown below:

| Interior Non-structural Components: | | | |
|---|---|---|---|
| Panel board | Ceramic tile | Wall covering | Furniture |
| Stone (Natural/ Artificial) | Plant-based fibre composite | Adhesive & sealant | Block for internal partition |
| Paint & coating | Synthetic carpet | Thermal insulation | |
| Alternative element proposed by the Applicant | | | |
| **Building Services Components** | | | |
| LED lighting | Compact fluorescent lamp bulb | Electronic ballast | Cable & wire |
| Alternative element proposed by the Applicant | | | |

| | | | |
|---|---|---|---|
| MW-02-06 | Lift Cycle Assessment | *This credit head is not available under BI V2.0.* | |

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| | Credit Head | Credit Requirement | Credit Point(s) |
|---|---|---|---|
| MW-03-01 | Adaptability and Deconstruction | Maximum 2 credit points can be achieved with 1 credit point for demonstrating each of the below listed characteristics:<br>i) Adoption of flexible spaces to suit changing needs and multi-purposes;<br>ii) Demonstration of how access to daylight and the proper use of artificial light that improves the occupant's energy, disposition and health can be maintained with the adaptable design;<br>iii) Demonstration of how access to nature and biophilic design can be maintained with the adaptable design;<br>iv) Accommodation of flexible/ movable/ convertible furniture and a variety of workstations;<br>v) Provision of movable partitions to maximise the layout options and accommodate a variety of uses; or<br>vi) Adoption of minimalist interior design to reduce carbon footprint as compared to baseline case. | 2 |
| MW-03-02 | Enhanced Waste Handling Facilities | **(a) Recyclables Collection**<br>1 to 3 credit points for demonstrating the provisions of facilities for collection, sorting, storage and disposal of any four (4)/ six (6)/ eight (8) of the following recyclable streams within the assessment boundary or the host building.<br>1 additional Bonus credit point for providing recycling boxes for each type of plastic, i.e. PET & HDPE, within the assessment boundary or the host building.<br>**(b) Quantifying wastes**<br>1 credit point for providing a waste audit report of the project space by waste scale provided within the host building or assessment boundary to encourage waste audit and monitor waste disposal performance. | 4 + 2 Bonus |

| List of Recyclables | | |
|---|---|---|
| Paper | Plastic (Mixed) | Metal |
| Glass | Cloth | Foam board |
| Beverage carton | Food waste | Cartridge |
| Rechargeable battery | Compact fluorescent lamp bulb, T5 tube, T8 tube and/or LED lighting | Other recyclables may be proposed at the discretion of the Applicant |

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| | Credit Head | Credit Requirement | Credit Point(s) |
|---|---|---|---|
| | | **(c) Waste Treatment Equipment**<br><br>1 Bonus credit point for installing at least one smart on-site waste processor such as food waste composter or reverse vending machine within the assessment boundary or the host building. | |
| MW-03-03 | No Bottled Water | 1 credit point for demonstrating no plastic bottled water type dispenser is adopted for the provision of drinking water. | 1 |
| MW-04-01 | Best Practice on Material Usage | *This credit head is not available under BI V2.0.* | |

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| | Credit Head | Credit Requirement | Credit Point(s) |
|---|---|---|---|
| **5** | **Energy Use (EU)** | | **20 + 3 Bonus** |
| EU-00-01 | Minimum Energy Performance | *This credit head is not available under BI V2.0.* | |
| EU-01-01 | Low Carbon Passive Design | *This credit head is not available under BI V2.0.* | |
| EU-01-02 | Reduction of $CO_2$ Emissions | Maximum 14 credit points for using energy efficient systems and controls that reduce carbon emissions from energy use by HVAC&R and/ or lighting systems. | 14 |

| | Item | Credit Point(s) |
|---|---|---|
| **General** | | |
| i | Apply energy saving reminders at common spaces/ near switches of all building services systems/ appliances | 1 |
| ii | Arrange routine cleaning schedule for equipment/ systems to ensure operational efficiency of equipment/ systems | 1 |
| **HVAC&R** | | |
| iii | Provide a reduction of Coefficient of Performance (COP) by: 2%, 4%, 6%, 8% or 10% respectively (compared to the latest Building Energy Code in the same category) for split-type and window-type air conditioners | 1 to 5 |
| iv | Provide an appropriate zoning and thermostat distribution | 1 |
| v | Provide occupancy sensors and/or programmable timers for controlling HVACR operation | 2 |
| vi | Provide at least one (1) ceiling or wall mounted fan for normally occupied spaces within the assessment boundary to increase air circulation hence reducing demand for air conditioning | 1 |
| vii | Provide variable speed drive fan coil units (FCU) or high efficiency motors or variable air volume (VAV) box for normally occupied spaces within the assessment boundary | 3 |
| viii | Provide openable windows for mixed mode/ natural ventilation | 1 |
| ix | Install at least 30% or 50% of total window areas with direct access to daylight with solar window films (windows that are heavily shaded or do not have a direct sky view are excluded) | 2 or 4 |
| x | Install air curtain at the main entrance of the premises | 1 |
| xi | Install heat recovery system | 3 |
| **Lighting** | | |
| xii | Provide a reduction of Lighting Power Density (LPD) by: 2%, 4%, 6%, 8% or 10% respectively (compared to the latest Building Energy Code in the same category). Decorative lighting is excluded | 1 to 5 |
| xiii | Provide appropriate zoning and manual control distribution. Switches are clearly labelled and easily accessible by the occupants | 1 |
| xiv | Provide daylight dimming/ separate lighting controls of all areas accessible to daylight | 2 |
| xv | Provide occupancy sensors/ timer controls of | 2 |

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| Credit Head | | Credit Requirement | Credit Point(s) |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

| | Credit Head | Credit Requirement | Credit Point(s) |
|---|---|---|---|
| EU-03-03 | Energy Efficient Appliances | 1 to 3 credit points when 60%/ 80%/ 100% of the total quantity (number of pieces), for all newly purchased electrical appliance is certified energy efficient.<br><br>***Alternatively,***<br>• *2 credit points for project that no appliances within the assessment boundary are newly purchased by the project owner.* | 3 |
| EU-03-04 | Cooling System Efficiency | *This credit head is not available under BI V2.0.* | |
| EU-03-05 | Air Management System | *This credit head is not available under BI V2.0.* | |
| EU-04-01 | Best Practice on Energy Use | *This credit head is not available under BI V2.0.* | |
| EU-04-02 | Smart Devices | 1 Bonus credit point for adopting network of smart devices with at least two (2) of the following sensors, which are capable of connecting to the internet, gathering information from their environments and exchanging data with other smart devices for analysis to maximise energy efficiency, optimise comfort and productivity of the interior spaces.<br><br>**Sensors for smart control**<br>Occupancy/ Motion/ light sensor for lighting control<br>Temperature and humidity sensor for AC control<br>Air quality sensor for MVAC control<br>Light sensor for curtain control<br>Others proposed by the Applicant | 1 Bonus |
| EU-04-03 | Energy Management | 1 credit point for implementing energy management plan within the assessment boundary. | 1 |

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| | Credit Head | Credit Requirement | Credit Point(s) |
|---|---|---|---|
| **6** | **Water Use (WU)** | | **6 + 0 Bonus** |
| WU-00-01 | Minimum Water Saving Performance | *This credit head is not available under BI V2.0.* | |
| WU-01-01 | Annual Water Use | 1 to 3 credit points for achieving annual water saving of at least 20%/ 25%/ 30% by using water efficient flow devices with reference to BI V2.0 baseline.<br><br>***Alternatively,***<br>• *3 credit points for achieving Grade 1 under WSD's Water Efficiency Labelling Scheme (WELS) for all potable water devices within the assessment boundary; or*<br>• *3 credit points for achieving Grade 1 under WSD's WELS for all potable water devices on the same floor of the assessment boundary; or*<br>• *3 credit points for installing aerators of Grade 1 under the WSD's WELS to restrict the water flow rate of basin mixers, kitchen taps and shower heads (if applicable) on the same floor of the assessment boundary; or*<br>• *1 credit point for infrared sensor faucets installed on the same floor of the assessment boundary to restrict the water flow of basin mixers and kitchen taps and shower heads (if applicable).* | 3 |
| WU-01-02 | Water Efficient Irrigation | *This credit head is not available under BI V2.0.* | |
| WU-01-03 | Water Efficient Appliances | *This credit head is not available under BI V2.0.* | |
| WU-01-04 | Water Leakage Detection | **Scenario 1: Assessment boundary with potable water supply:**<br><br>1 credit point for installing water leakage detection system in the covered pipework near all water points.<br><br>**Scenario 2: Assessment boundary without potable water supply and with piping adjacent to the boundary:**<br><br>1 credit point for not installing built-in furniture so that seepage of water or water from the adjacent interior spaces can be easily detected. | 1 |

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| | Credit Head | Credit Requirement | Credit Point(s) |
|---|---|---|---|
| | | **<u>Scenario 3: Assessment boundary without potable water supply and no piping adjacent to the boundary:</u>**<br><br>1 credit point for project that does not have potable water supply nor piping adjacent to the assessment boundary. | |
| WU-01-05 | Twin Tank System | *This credit head is not available under BI V2.0.* | |
| WU-01-06 | Cooling Tower Water | *This credit head is not available under BI V2.0.* | |
| WU-02-01 | Effluent Discharge to Foul Sewers | 1 credit point for installing water efficient flushing devices with Grade 1 label under the WSD's WELS [1].<br><br>***Alternatively,***<br>• *1 credit point for the host building has installed dual-flush water closets and infrared sensor urinals (if applicable).* | 1 |
| WU-03-01 | Water Harvesting and Recycling | *This credit head is not available under BI V2.0.* | |
| WU-04-01 | Smart Water Metering | *This credit head is not available under BI V2.0.* | |
| WU-04-02 | Water Saving Management | *This credit head is not available under BI V2.0.* | |
| WU-04-03 | Water Quality Survey | 1 credit point for demonstrating that the quality of drinking water meets WSD's latest guideline. | 1 |

| Parameter(s) | Criteria |
|---|---|
| ***Chemical and Physical*** | |
| Turbidity | ⩽ 3.0 NTU |
| Colour | ⩽ 5 Hazen Unit |
| pH at 25°C | ⩾ 6.5 and ⩽ 9.5 |
| Free Residual Chlorine | > 0 mg/L and ⩽ 1.5 mg/L |
| Conductivity at 25°C | ⩽ 500 µS/cm |
| ***Metals*** | |
| Lead | ⩽ 10 µg/L |
| Chromium | ⩽ 50 µg/L |
| Nickel | ⩽ 70 µg/L |
| Cadmium | ⩽ 3 µg/L |
| Copper | ⩽ 2000 µg/L |
| Antimony | ⩽ 20 µg/L |
| ***Bacteriological*** | |
| Heterotrophic Plate Count | ⩽ 20 cfu/mL |
| E. Coli | 0 cfu/100 mL |

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| | Credit Head | Credit Requirement | Credit Point(s) |
|---|---|---|---|
| **7** | **Health and Wellbeing (HWB)** | | **25 + 10 Bonus** |
| HWB-00-01 | Minimum Ventilation Performance | 1 credit point for demonstrating that the normally occupied space has met the requirements of corresponding air changes per hour (ACH) of air ventilation rate.<br><br>***Alternatively,***<br>• *1 credit point for demonstrating that the $CO_2$ level within the normally occupied space can comply with Good Class requirements as stipulated in IAQ Certification Schem]; or*<br><br>• *1 credit point for demonstrating that the project is in compliance with the minimum ventilation rate stipulated in ASHRAE Standard 62.1-2019 with respective to its designed ventilation mode.* | 1 |
| HWB-01-01 | Healthy and Active Living | *This credit head is not available under BI V2.0.* | |
| HWB-01-02 | Biophilic Design | 1 to 2 credit points for fulfilling at least two (2)/ three (3) of the below list of items.<br><br>**List of Items:**<br>Potted plants or planted beds cover at least 1% of the total internal floor area of the assessment boundary<br>Plant wall(s) cover wall area that is at least 1% of the total internal floor area of the assessment boundary<br>Use of natural materials for interior design and build for at least 10% of total internal floor area of the assessment boundary<br>Nature sound in the common spaces<br>At least one (1) water features<br>Others to be proposed by the Applicant<br><br>***Alternatively,***<br>• *1 to 2 credit points for demonstrating visual connection with nature and/ or biophilic design features within the assessment boundary with Visual Quality Score (VQS) of at least 1.5 or 2.5.* | 2 |
| HWB-02-01 | Inclusive Design | **(a) Barrier Free Access (BFA) Design**<br><br>1 to 2 credit points for providing at least one (1) or two (2) applicable enhanced provisions as stipulated in the "Recommended Design Requirements" of BFA 2008. | 4 |

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| Credit Head | | Credit Requirement | Credit Point(s) |
|---|---|---|---|
| | | **(b) Corporate Social Responsibility (CSR) Facilities**<br><br>1 to 2 credit points for providing two (2) or four (4) of the following CSR facilities.<br><br>**List of CSR facilities**<br>AED/ First-aid kits; Dedicated dining spaces; Quiet or wellness room<br>Family restroom within the host building; Permanent aesthetic display; Dedicated fitness/ exercise space<br>Permanent physical or digital board for green building education; Baby-care room or lactation room within the host building; Bicycle storage for at least 5% or more for regular occupants within the host building<br>Others to be proposed by the Applicant | |
| HWB-03-01 | Enhanced Ventilation | 1 credit point for demonstrating that the space has exceeded the ACH in credit HWB-00-01 Minimum Ventilation Performance by 30%.<br><br>***Alternatively,***<br>• *1 credit point for demonstrating the minimum ventilation rate of the space has exceeded ASHRAE 62.1-2019 by 30%.* | 1 |
| HWB-03-02 | Waste Odour Control | *This credit head is not available under BI V2.0.* | |
| HWB-03-03 | Acoustics and Noise | **(a) Background Noise Level**<br><br>1 credit point for demonstrating background noise levels within the prescribed criteria.<br><br>**(b) Reverberation time**<br><br>1 credit point for demonstrating that the reverberation time in the applicable areas meets the prescribed criteria of given types of space.<br><br>**(c) Noise isolation**<br><br>1 credit point for demonstrating airborne noise isolation between spaces fulfils the prescribed criteria. | 3 |
| HWB-03-04 | Indoor Vibration | *This credit head is not available under BI V2.0.* | |

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| | Credit Head | | Credit Requirement | Credit Point(s) |
|---|---|---|---|---|
| HWB-03-05 | Indoor Air Quality | **(a)** | **Design for good IAQ**<br><br>1 credit point for providing air treatment methods, i.e. sizable standalone air purifier or exhaust system, to indoor pollution source areas, such as photocopy rooms / kitchen / bathrooms / locations, where significant indoor pollution is generated.<br><br>1 credit point for demonstrating that the fresh air louvre is at least 15m from exhaust air louvre.<br><br>***Alternatively,***<br>• *1 credit point for providing sizable standalone air purifier to normally occupied spaces.*<br><br>1 Bonus credit point if all air handling units serving the assessment boundary are equipped with UV-C lighting for air-stream disinfection. | 6 + 3 Bonus |
| | | **(b)** | **IAQ Measurement**<br><br>2 credit points for submitting an IAQ Certification Scheme (Good Class) report of the assessment boundary endorsed by an accredited IAQ CIB.<br><br>1 additional Bonus credit point for submitting an IAQ Certification Scheme (Excellent Class) report of the assessment boundary endorsed by an accredited IAQ CIB. | |
| | | **(c)** | **Continuous IAQ Monitoring**<br><br>1 to 2 credit points for installing a real-time monitor for every 500m2 and at least one (1) per floor to measure at least two (2)/ four (4) of the following parameters in a normally occupied or common space within the assessment boundary: | |

| List of Parameters | | | |
|---|---|---|---|
| PM2.5 or PM10 | $CO_2$ | Total VOCs | Formaldehyde |
| Nitrogen dioxide | Ozone | Carbon monoxide | |

Measurements are taken at an interval of no longer than 10 minutes for particulate matter and carbon dioxide and no longer than 1 hour for other pollutants.

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| | Credit Head | Credit Requirement | Credit Point(s) |
|---|---|---|---|
| | | 1 additional Bonus credit point for setting up a notification system to inform the occupants if any of the above monitored parameters fail to meet the IAQ (Good Class) requirements of IAQ certification scheme. | |
| HWB-03-06 | Thermal Comfort | 1 credit point for demonstrating that the assessment boundary meets the 80% acceptability limit on any one day during the selected hottest month from reference weather data file. The determination of the 80% acceptability limit should refer to ASHRAE 55-2020. The results shall demonstrate compliance with the prescribed design criteria within the prescribed limits, for a minimum of 80% of the prescribed locations.<br><br>***Alternatively,***<br>• *1 credit point for demonstrating the air temperature within the project space is ±1.5°C of the set temperature when the air side system is operating at steady state under normal occupied periods.*<br><br>1 credit point for providing thermal zones with the maximum size as 60m$^2$ or one (1) per ten (10) occupants, whichever is larger. | 2 |
| HWB-03-07 | Artificial Lighting | **(a) Colour Rendering Index**<br><br>1 credit point for all electric lightings with Colour Rendering Index (CRI) of 80 or above within the assessment boundary.<br><br>**(b) Unified Glare Rating**<br><br>1 credit point for demonstrating that the following Unified Glare Rating (UGR) requirements with reference to BSI Light and lighting – Lighting of work places can be achieved. | 3 |

| UGR Value | Application |
|---|---|
| 16 | Technical drawing room |
| 19 | Office, Conference room, Classroom, Lecture hall, Ward, Laboratory Library, Hotel, Clinic, |
| 22 | Common spaces, Cafeterias & restaurant, Retail space, Industrial space for fine work, Gymnasium, Staff room |
| 25 | Average industrial work, Circulation space and corridor |
| 28 | Heavy industrial work |

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| | Credit Head | Credit Requirement | Credit Point(s) |
|---|---|---|---|
| | | **(c) Smart Lighting Control**<br><br>1 credit point for having smart lighting control with controllable lighting that enable the occupants to adjust the lighting level to meet their needs. | |
| HWB-03-08 | Daylight | **(a) Glare Control**<br><br>1 credit point for providing envelope glazing shading or blinds that are manually controllable by the occupants or can be set to prevent glare automatically for normally occupied interior spaces.<br><br>**(b) Daylighting Exposure**<br><br>2 Bonus credit points for demonstrating that at least 55% of the total area of the studied normally occupied spaces achieve spatial Daylight Autonomy$_{300/50\%}$ (sDA$_{300/50\%}$) and no more than 10% of the same area receive Annual Sunlight Exposure$_{1000,250}$ (ASE$_{1000,250}$). | 1 + 2 Bonus |
| HWB-03-09 | Biological Contamination | *This credit head is not available under BI V2.0.* | |
| HWB-03-10 | Drinking Water Promotion | 1 credit point for installing water dispenser that is located within a 30m walking distance of all the normally occupied spaces and in all the dining spaces (if applicable). | 1 |
| HWB-04-01 | Touchless Environment | 1 credit point if all the waste receptacles within the assessment boundary are covered with lids and equipped with hands-free operation.<br><br>1 Bonus credit point if at least 50% of the main doors of entrances/ exits can be automatically opened and all door switches are touchless.<br><br>1 Bonus credit point if all toilet entrance doors can be hands-free opened or doorless.<br><br>1 Bonus credit point if all the water dispensers installed are equipped with hands-free operation.<br><br>1 Bonus credit points if all water closets within the assessment boundary are equipped with hands-free operation. | 1 + 4 Bonus |
| HWB-04-02 | Healthy Entrance | 1 Bonus credit points if an automatic disinfection station for sanitising spray is provided next to the entrance. | 1 Bonus |

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| | Credit Head | Credit Requirement | Credit Point(s) |
|---|---|---|---|
| **8** | **Innovations and Additions (IA)** | | **Max. 10 Bonus** |
| IA-01-01 | Innovations and Additions | Present evidence of the application of new practices, technologies and/ or techniques that are (1) not described in this manual; or (2) not market mainstream implementation; or (3) that have multiple aspects achievement; or (4) performance enhancement; and the associated benefits in addressing sustainability objectives for the interior spaces. | Maximum 10 Bonus |

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## 2 Integrated Design and Construction Management

This section focuses on the integrative design management which maximises the opportunities for integrated and cost-effective green design approaches and methodologies for fit-out activities; improvement in the occupant's health and wellbeing; facilitating better waste management and more environmental benefits during fit-out processes.

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**2 Integrated Design and Construction Management**

**IDCM-00 Basic Requirement**

**IDCM-00-01 Sustainability Champions – Project**

**Objective**

Facilitate the application of the BI V2.0 certification process and ensure the compliance of relevant requirements of the BI V2.0 Manual.

**Credit Point(s) Attainable**

1

**Credit Requirement**

1 credit point for demonstrating that an accredited BEAM Professional (BEAM Pro) with a valid credential for BI V2.0 is engaged as the Project BEAM Pro.

***Alternatively,***

- *1 credit point for involving at least two (2) members from the project team who have accredited with BEAM Affiliate (BA) qualification.*

Note: Different person shall be engaged as the Project BEAM Pro/ BEAM Affiliate under IDCM-00-01 and Construction BEAM Pro/ BEAM Affiliate under IDCM-02-01.

**Assessment**

1. Provide a copy of the meeting minutes (date and content of the minutes will be reviewed for compliance) highlighting the attendance of the Project BEAM Pro/ BAs in the following meetings:

   a. Introductory workshop/ multi-disciplinary design charrette with Design BEAM Pro/ BAs (if any);
   b. Kick-off meeting with fit-out contractor/ Construction BEAM Pro/ BAs (if any); and
   c. Review meeting with fit-out contractor/ Construction BEAM Pro/ BAs (if any).

   Confidential/ sensitive project information on the minutes is not required and could be excluded.

**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| IDCM-00-01_00 | BI submission form for IDCM-00-01 |
| IDCM-00-01_01 | Project BEAM Pro/ BAs qualification details |
| IDCM-00-01_02 | A copy of the meeting minutes of introductory workshop/ multi-disciplinary design charrette |
| IDCM-00-01_03 | A copy of the meeting minutes of kick-off meeting |
| IDCM-00-01_04 | A copy of the meeting minutes of review meeting |

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**Remark(s)**

**(a) Additional Information**

Hong Kong Green Building Council publishes the latest registers of BEAM Professionals and BEAM Affiliates on its website. [ONLINE] Available at: https://www.practitioner.hkgbc.org.hk/beam-professional
[Accessed Oct 2023].

**(b) Related Credit(s)**

IDCM-01-01 Sustainability Champions – Design

The related credit encourages the engagement of Design BEAM Pro/ BAs to integrate BEAM Plus standards and practices into the planning and design of the interior spaces.

IDCM-01-03 Integrated Design Process

The related credit encourages early consideration of integrated interior design process and operational issues to support holistic and cost-effective outcomes of interior design performance, human health and environmental benefits.

IDCM-02-01 Sustainability Champions – Construction

The related credit encourages the engagement of BEAM Pro/ BAs engaged by the fit-out contractors during fit-out activities to work collaboratively with the Project BEAM Pro/ BAs to monitor the progress towards the targeted construction-related BEAM Plus requirements.

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| | | | |
|---|---|---|---|
| **2** | **Integrated Design and Construction Management** | **IDCM-00** | **Basic Requirement** |
| | | **IDCM-00-02** | **Environmental Management Plan** |

*This credit head is not available under BI V2.0.*

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| | | | |
|---|---|---|---|
| **2** | **Integrated Design and Construction Management** | **IDCM-00** | **Basic Requirement** |
| | | **IDCM-00-03** | **Timber Used for Temporary Works** |

**Objective**

Encourage the well-managed use of timber.

**Credit Point(s) Attainable**

1

**Credit Requirement**

1 credit point for using the timber originated from sustainable sources/ re-used from other sites for all temporary works.

***Alternatively,***

- *1 credit point for not using timber for temporary works.*

**Assessment**

1. Timber being used for all temporary works locating inside or outside the project space, shall be originated from sustainable forestry/ re-used from other sites.

2. Provide the Certificate under the Chain of Custody (CoC) system to demonstrate the timber products are sourced from suppliers who have already been accredited by the Approval Organisations, i.e. Forest Stewardship Council (FSC) [1]/ Programme for the Endorsement of Forest Certification (PEFC) [2]/ "known licensed sources" [3] according to the respective protocol (accredited company).

3. Provide a summary table including type, certificate number, manufacturer, quantity, etc. which demonstrates credit requirements, prepared and declared by the fit-out contractor.

4. Provide transfer notes for <u>all reused timber</u> to demonstrate the quantity and the date of transfer of the timber products between the despatch work site and the project site (recipient). The transfer notes should bear the detailed name and address of the work sites concerned and duly signed by both the despatch and recipient parties (i.e. site representative/ stores officer in managerial position), together with company chops.

5. Provide photo records of the timbers used for temporary work.

***Alternatively,***

- *Provide a declaration letter by the fit-out contractor confirming that no timber has been used for all temporary works for entire fit-out period.*

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**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| IDCM-00-03_00 | BI submission form for IDCM-00-03 |
| IDCM-00-03_01 | Timber product compliance certificate [e.g. Chain of Custody (CoC), etc.] |
| IDCM-00-03_02 | Endorsed summary table of timber use for temporary works |
| IDCM-00-03_03 | Endorsed transfer notes for timber being reused from other sites |
| IDCM-00-03_04 | Photo record(s) of the timbers used for temporary work |
| IDCM-00-03_05 | Declaration letter from the fit-out contractor |

**Remark(s)**

**(a) Additional Information**

[1] Forest Stewardship Council. [ONLINE] Available at: http://www.fsc.org/
[Accessed Oct 2023].

[2] Programme for the Endorsement of Forest Certification. [ONLINE] Available at: https://www.pefc.org/
[Accessed Oct 2023]

[3] Architectural Services Department, General Specifications for Building 2022, Section 13, Carpentry and Joinery. [ONLINE]. Available at: https://www.archsd.gov.hk/en/publications-publicity/general-specification-for-building.html/
[Accessed Oct 2023]

Buildings Department PNAP ADV-5 gives guidance on the alternatives of hardwoods in order to reduce the amount of tropical hardwood timber being used in building projects.

World Wildlife Fund, Guide to Responsible Purchasing of Forest Products provides guidelines, templates and implementation measures to help organisations develop purchasing policies and practices that help conserve forest resources.

**(b) Related Credit(s)**

MW-02-01 Sustainable Forest Products

The related credit encourages the use of timber from well-managed forests.

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| | | | |
|---|---|---|---|
| **2** | **Integrated Design and Construction Management** | **IDCM-01** | **Integrated Design Process** |

**IDCM-01-01 Sustainability Champions – Design**

**Objective**

Encourage the engagement of Design BEAM Pro/ BAs to integrate BEAM Plus standards and practices into the planning and design of the interior spaces.

**Credit Point(s) Attainable**

1 + 1 Bonus

**Credit Requirement**

1 credit point for involving one (1) specialist in the project design who has accredited with BEAM Pro qualification for BI V2.0.

***Alternatively,***

- *1 credit point for involving at least two (2) specialists in the project design who has accredited with BA qualification.*

1 additional Bonus credit point will be awarded if that Design BEAM Pro is also a Hong Kong Professional Institution qualified holder.

Note: Different person shall be engaged as the Design BEAM Pro/ BEAM Affiliate under IDCM-01-01 and Construction BEAM Pro/ BEAM Affiliate under IDCM-02-01.

**Assessment**

1. Engage one (1) Design BEAM Pro that is employed for the project who involved in the applicable core design disciplines from project inception to completion of detailed design and specifications stage of the project. The following disciplines, if being engaged in the project, shall form the core design disciplines:

   a. Architectural;
   b. Engineering;
   c. Interior design; and
   d. Other as proposed and justified by the specific nature of the project.

2. Provide a copy of the meeting minutes (date and content of the minutes will be reviewed for compliance) highlighting the attendance of the Design BEAM Pro/ BAs in introductory workshop/ multi-disciplinary design charrette.

   Confidential/ sensitive project information on the minutes is not required and could be excluded. The Design BEAM Pro/ BAs may also assume other roles in the project team.

3. Encourage Design BEAM Pro to pursue other professional qualification from the Hong Kong Professional Institutions, including one of the following qualifications:

   a. Full member of The Hong Kong Institute of Architects (HKIA);
   b. Full member of The Hong Kong Institution of Engineers (HKIE) (relevant discipline);
   c. Certified Interior Designers of Hong Kong Interior Design Association (HKIDA); or
   d. Other as proposed and justified by the nature of the project.

   The appointed Design BEAM Pro/ BAs should maintain his/ her accreditation and credential during his/ her appointment.

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**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| IDCM-01-01_00 | BI submission form for IDCM-01-01 |
| IDCM-01-01_01 | Design BEAM Pro or BAs qualification details |
| IDCM-01-01_02 | A copy of the meeting minutes of the introductory workshop/ multi-disciplinary design charrette |
| IDCM-01-01_03 | Qualification details of any one of the listed/ proposed Hong Kong Professional Institution |

**Remark(s)**

**(a) Additional Information**

Hong Kong Green Building Council publishes the latest registers of BEAM Professionals and BEAM Affiliates on its website. [ONLINE] Available at: https://practitioner2.hkgbc.org.hk/index.php?r=Beam/Directory [Accessed Oct 2023].

**(b) Related Credit(s)**

IDCM-00-01 Sustainability Champions – Project

The related credit encourages the engagement of BEAM Pro/ BAs to facilitate the application for the BEAM Plus certification process and to ensure the compliance of relevant requirements of the BEAM Plus.

IDCM-01-03 Integrated Design Process

The related credit encourages early consideration of integrated interior design process and operational issues to support holistic and cost-effective outcomes of interior design performance, human health and environmental benefits.

IDCM-02-01 Sustainability Champions – Construction

The related credit encourages the engagement of BEAM Pro/ BAs engaged by the fit-out contractors during fit-out activities in order to work collaboratively with the Project BEAM Pro/ BAs to monitor the progress towards the targeted construction-related BEAM Plus requirements.

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**2 Integrated Design and Construction Management**

**IDCM-01 Integrated Design Process**

**IDCM-01-02 Complimentary Certification**

**Objective**

Encourage the interior spaces to adopt green building practices by taking the advantages from the host building.

**Credit Point(s) Attainable**

3 Bonus

**Credit Requirement**

For the host building being certified with final certification rating by any of the following BEAM Plus Assessment Tools:

| | **Credit Point(s)** | | | |
|---|---|---|---|---|
| **BEAM Plus Assessment Tools** | **Bronze/ Silver Rating** | **Gold Rating** | **Platinum Rating** | **Very Good/ Excellent rating** |
| **New Buildings (NB)** | 1 | 2 | 3 | |
| **Existing Buildings (EB) (Comprehensive Scheme)** | | | | |
| **New Data Centres (NDC)** | | | | |
| **Existing Data Centres (EDC)** | | | | |
| **Neighbourhood (ND)** | | | | |
| **Existing Buildings (EB) (Selective Scheme)** | | | | 1 |

The certification should be valid at the time of project registration for BI V2.0.

**Assessment**

1. Provide supporting documentation showing the attainment of BEAM Plus ND/ NB/ EB (Comprehensive/ Selective Scheme)/ NDC/ EDC certification at the time of project registration of BI V2.0 certification.

2. Provide evidence demonstrating that the project space is within the site boundary as defined in the BEAM Plus ND/ NB/ EB (Comprehensive/ Selective Scheme)/ NDC/ EDC certification.

**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| IDCM-01-02_00 | BI submission form for IDCM-01-02 |
| IDCM-01-02_01 | Supporting documentation showing that the host building has achieved BEAM Plus ND/ NB/ EB (Comprehensive/ Selective)/ NDC/ EDC |
| IDCM-01-02_02 | Evidence demonstrating the project site is within certification boundary of the BEAM Plus ND/ NB/ EB (Comprehensive/ Selective)/ NDC/ EDC |

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**Remark(s)**

**(a) Additional information**

BEAM Plus Project Directory & Statistics. Hong Kong Green Building Council. [ONLINE] Available at: https://www.hkgbc.org.hk/eng/beam-plus/beam-plus-dir-stat/BEAMPlusDirectory.jsp [Accessed Oct 2023].

**(b) Related Credit(s)**

None

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**2 Integrated Design and Construction Management**

**IDCM-01 Integrated Design Process**

**IDCM-01-03 Integrated Design Process** ⏲

**Objective**

Encourage early consideration of an integrated interior design process and operational issues to support holistic and cost-effective outcomes of interior design performance, human health and environmental benefits.

**Credit Point(s) Attainable**

2

**Credit Requirement**

1 credit point for considering an integrated design process to explore the interrelationships among different green interior design strategies and systems in the conceptual design stage.

1 additional credit point for organising at least one (1) multi-disciplinary design charrette to formulate passive and active design strategies in the conceptual/ schematic design stage.

**Assessment**

1. Provide a design review report in comparing preliminary sustainable design benefits for at least one (1) issue for each consideration in the following table with a baseline scenario.

| Considerations | Issues |
|---|---|
| Indoor environmental quality | Air ventilation/ thermal comfort<br>Daylighting access |
| Energy use/ saving | Energy efficient design<br>Smart energy controls |
| Biophilic design options | Visual connection with outdoor nature<br>Presence of water<br>Interior green wall<br>Ecological value |
| Material selection | Recycled materials<br>Reuse of materials<br>Sustainable sourced furniture |

1.1 The report should include the following contents as minimum. Strategies addressing multiple considerations and issues are acceptable.

1.2.1. Executive Summary;
1.2.2. Project Program;
1.2.3. Workshop for integrated design process (with date of workshop, record of attendance);
1.2.4. Comparison between a baseline scenario and one (1)/ multiple design options with graphical support at conceptual level and calculation in supporting the argument; and
1.2.5. Conclusion.

Note: Materials reused from other sites are acceptable to demonstrate as the strategy for reuse of materials.

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2. Provide a copy of the meeting minutes (date and content of the minutes will be reviewed for compliance) highlighting the attendance of project team members in least one (1) multi-disciplinary design charrette, which can be combined with the introductory workshop as required in IDCM-00-01, has been held before the completion of schematic design stage. The charrette with minutes provided shall, at minimum, address the following issues:

   a. Introduce fundamentals of an integrated design process [1]; and
   b. Review and agree on the principal design strategies for each of the considerations and issues as stated above.

**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| IDCM-01-03_00 | BI submission form for IDCM-01-03 |
| IDCM-01-03_01 | Design review report on preliminary sustainable design benefits |
| IDCM-01-03_02 | A copy of the meeting minutes of introductory workshop/ multi-disciplinary design charrette |

**Remark(s)**

**(a) Additional Information**

[1] Essentials of integrated design, Greenspace, NCR, Inc. [ONLINE]. Available at: https://www.greenspacencr.org/building/pros/how_b/plan_b/integrate.html [Accessed Oct 2023].

**(b) Related Credit(s)**

IDCM-00-01 Sustainability Champions – Project

The related credit encourages the engagement of BEAM Pro/ BAs to facilitate the application for the BEAM Plus certification process and to ensure the compliance of relevant requirements of the BEAM Plus.

IDCM-01-01 Sustainability Champions – Design

The related credit encourages the engagement of Design BEAM Pro/ BAs to integrate BEAM Plus standards and practices into the planning and design of the interior spaces.

IDCM-02-01 Sustainability Champions – Construction

The related credit encourages the engagement of BEAM Pro/ BAs by the fit-out contractors during fit-out activities in order to work collaboratively with the Project BEAM Pro/ BAs to monitor the progress towards the targeted construction-related BEAM Plus requirements.

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| | | | |
|---|---|---|---|
| **2** | **Integrated Design and Construction Management** | **IDCM-01** | **Integrated Design Process** |
| | | **IDCM-01-04** | **Life Cycle Costing** |

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| | | | |
|---|---|---|---|
| **2** | **Integrated Design and Construction Management** | **IDCM-01** | **Integrated Design Process** |

**IDCM-01-05 Commissioning**

**Objective**

Ensure the building systems perform as designed and the interior spaces operate as design intended.

**Credit Point(s) Attainable**

3

**Credit Requirement**

**(a) Commissioning Specification/ Clause**

1 credit point for providing specification(s)/ clause(s) in contract documents that specify details of the commissioning requirements for building services systems and equipment being installed by the Applicant within the assessment boundary.

**(b) Commissioning Method Statement**

1 credit point for providing commissioning method statement(s) that specify details of all the specified commissioning work for building services systems and equipment being installed by the Applicant within the assessment boundary.

**(c) Commissioning Report**

1 credit point for providing commissioning report(s) for building services systems and equipment being installed by the Applicant within the assessment boundary.

***Alternatively,***

- *2 credit points for providing a contractual document confirming that no alterations to building services in the host building have been undertaken and no supplementary building services have been installed within the assessment boundary by the Applicant.*

**Assessment**

**(a) Commissioning Specification/ Clause**

1. Provide extracts of contract conditions/ specifications highlighting the clause that requires the contractors to carry out commissioning for the following building services systems:

   a. Heating, ventilating, air conditioning and refrigeration (HVAC&R) systems and associated controls;
   b. Lighting systems and associated controls; or
   c. Other systems being installed by the Applicant within the assessment boundary.

2. Commissioning specifications/ clause specifying the contractors and/ or sub-contractors of their roles and responsibilities throughout the commissioning process.

**(b) Commissioning Method Statement**

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1. Engage a Commissioning Authority (CxA) who shall meet the following requirements:

    a. Member of HKIE (under the relevant disciplines) or equivalent;
    b. With proper experience and credentials including adequate expertise in the commissioning of electrical and mechanical systems, equipment and components to develop and implement effective commissioning;
    c. With relevant commissioning experience in at least two (2) buildings or fit-out projects;
    d. Should be employed by project owner directly or a qualified employee of the project owner; and
    e. Individuals must not be responsible for any aspects of the project design or construction management or supervision for the assessment boundary.

2. The Commissioning method statement should include the following contents as minimum:

    a. Systems to be commissioned;
    b. Description of the commissioning team, including team members, roles and responsibilities;
    c. Functional test procedures for all applicable building services systems;
    d. Verification of system performance;
    e. Reporting deficiencies and the resolution process; and
    f. Acceptance of all applicable systems.

**(c) Commissioning Report**

1. Provide endorsed commissioning report(s) by CxA.

2. The commissioning report should include the following contents as minimum:

    a. List of participants and their respective roles;
    b. List of systems being commissioned;
    c. Functional performance tests including date and time of test, individuals presence during testing, visual inspection observations, sensor checks, device checks, operating mode tests and result; and
    d. All identified outstanding deficiencies during commissioning activities should be listed and highlighted.

***Alternatively,***

- *Provide the contractual document from the project owner to confirm that no alternations to the building services system provided by the host building have been undertaken and no supplementary building services have been installed.*

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**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| IDCM-01-05_00 | BI submission form for IDCM-01-05 |
| IDCM-01-05_01 | Commissioning specifications/ clause specifying the commissioning requirements of each applicable system and equipment |
| IDCM-01-05_02 | Organisation chart of the project team with CxA's involvement |
| IDCM-01-05_03 | CV of the CxA to demonstrate his/her adequate expertise |
| IDCM-01-05_04 | Endorsed commissioning method statement to demonstrate all tasks in part (b) |
| IDCM-01-05_05 | Endorsed commissioning report to demonstrate all commissioning tasks fulfilling part (c) |
| IDCM-01-05_06 | Undertaking letter from the project's CxA confirming his/her involvement before the start of the schematic design stage, duties and responsibilities of the testing & commissioning process |
| IDCM-01-05_07 | Contractual document confirming no alternations to the building services system have been undertaken in the host building |

**Remark(s)**

**(a) Additional information**

The Chartered Institution of Building Services Engineers (CIBSE) – Air distribution systems. CIBSE. Commissioning Code A. [ONLINE] Available at: http://www.cibse.org/
[Accessed Oct 2023].

Building Services Research and Information Association (BSRIA) – Commissioning air systems. Application procedures for buildings. [ONLINE] Available at: https://www.bsria.co.uk/
[Accessed Oct 2023].

American Society of Heating, Air-conditioning, and Refrigerating Engineers (ASHRAE) – Standard and Guidelines on Commissioning Essentials. [ONLINE] Available at: http://www.ashrae.org/
[Accessed Oct 2023].

Architectural Services Department, Building Services Branch – Testing and Commissioning Procedure. [ONLINE] Available at:
https://www.archsd.gov.hk/en/publications-publicity/testing-commissioning-procedure.html
[Accessed Oct 2023].

**(b) Related Credit(s)**

None

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**2 Integrated Design and Construction Management**

**IDCM-02 Green Construction Practices**

**IDCM-02-01 Sustainability Champions – Construction**

**Objective**

Encourage the engagement of BEAM Pro/ BAs by the fit-out contractors during construction to work collaboratively with the Project BEAM Pro/ BAs to monitor the progress towards the targeted construction-related BEAM Plus requirements.

**Credit Point(s) Attainable**

1 Bonus

**Credit Requirement**

1 Bonus credit point for demonstrating that one (1) accredited BEAM Pro with valid credential for BI V2.0 is engaged by the fit-out contractor of the project.

***Alternatively,***

- *1 Bonus credit point for demonstrating at least two (2) accredited BAs are engaged by the fit-out contractor of the project.*

Note: Different person shall be engaged as the Construction BEAM Pro/ BEAM Affiliate under IDCM-02-01 and BEAM Pro/ BEAM Affiliate under IDCM-00-01 or Design BEAM Pro/ BEAM Affiliate of IDCM-01-01.

**Assessment**

1. Engage one (1) Construction BEAM Pro/ BAs that is employed for the project who is responsible for the construction matters from the commencement of the respective contract to completion of the certification process. The Construction BEAM Pro/ BAs should perform the following items as minimum:

   a. Collaborate with the Project BEAM Pro/ BAs to monitor the progress towards the targeted rating of BI V2.0 requirements;
   b. Participate in the kick-off meeting and at least one (1) review meeting; and
   c. Check and ensure that the fit-out activities-related submission materials comply with requirements of attempted credits in the BI V2.0 Manual. The Construction BEAM Pro/ BAs may also assume other roles in the construction team of the project.

2. Provide a copy of the meeting minutes (date and content of the minutes will be reviewed for compliance) highlighting the attendance of the Construction BEAM Pro/ BAs in the kick-off meeting and at least one (1) review meeting.

   Confidential/ sensitive project information on the minutes is not required and could be excluded.

**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| IDCM-02-01_00 | BI submission form for IDCM-02-01 |
| IDCM-02-01_01 | Construction BEAM Pro/ BAs qualification details |
| IDCM-02-01_02 | A copy of the meeting minutes of the kick-off meeting |
| IDCM-02-01_03 | A copy of the meeting minutes of any one (1) of the review meetings |

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**Remark(s)**

**(a) Additional Information**

Hong Kong Green Building Council publishes the latest registers of BEAM Professionals and BEAM Affiliates on its website. [ONLINE] Available at: https://practitioner2.hkgbc.org.hk/index.php?r=Beam/Directory
[Accessed Oct 2023]

**(b) Related Credit(s)**

IDCM-00-01 Sustainability Champions – Project

The related credit encourages the engagement of BEAM Pro/ BAs to facilitate the application for the BEAM Plus certification process and to ensure the compliance of relevant requirements of the BEAM Plus.

IDCM-01-01 Sustainability Champions – Design

The related credit encourages the engagement of BEAM Pro/ BAs engaged by respective core design disciplines so as to integrate BEAM Plus standards and practices into the planning, design and construction of the building.

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| | | | |
|---|---|---|---|
| **2** | **Integrated Design and Construction Management** | **IDCM-02** | **Green Construction Practices** |

**IDCM-02-02 Measures to Reduce Site Emissions**

**Objective**

Minimise nuisance to the immediate neighbourhood caused by air, noise and chemical usage during fit-out activities.

**Credit Point(s) Attainable**

3

**Credit Requirement**

**(a) Minimisation of Air Pollution**

1 credit point for implementing mitigation measures to minimise air pollution during the entire fit-out period.

**(b) Minimisation of Noise Pollution**

1 credit point for implementing mitigation measures to minimise noise pollution during the entire fit-out period.

**(c) Minimisation of Chemical Waste**

1 credit point for implementing mitigation measures to minimise pollution from chemical waste during the entire fit-out period.

**Assessment**

1. Provide a summary report that includes the following content as minimum:

   a. Implementation of mitigation measures [1], [2], [3] to minimise air, noise and chemical waste pollution throughout the entire fit-out period; and
   b. There are no convictions/ complaints about air emissions from the site that have been upheld by the Environmental Protection Department/ police leading to an issue of a fine/ prosecution.

   The report(s) shall be endorsed by the Construction BEAM Pro/ BAs.

2. Provide a declaration letter, signed by Construction BEAM Pro/ BAs, stating that no written complaints have been received during the entire fit-out period.

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**Submittals**

**(a) Minimisation of Air Pollution**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| IDCM-02-02a_00 | BI submission form for IDCM-02-02a |
| IDCM-02-02a_01 | Endorsed summary report demonstrating the monthly implementation of air minimisation |
| IDCM-02-02a_02 | Declaration letter stating that no written complaints have been received during the fit-out period |

**(b) Minimisation of Noise Pollution**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| IDCM-02-02b_00 | BI submission form for IDCM-02-02b |
| IDCM-02-02b_01 | Endorsed summary report demonstrating the monthly implementation of noise minimisation |
| IDCM-02-02b_02 | Declaration letter stating that no written complaints have been received during the fit-out period |

**(c) Minimisation of Chemical Waste**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| IDCM-02-02c_00 | BI submission form for IDCM-02-02c |
| IDCM-02-02c_01 | Endorsed summary report demonstrating the monthly implementation of chemical waste minimisation |
| IDCM-02-02c_02 | Declaration letter stating that no written complaints have been received during the fit-out period |

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**Remark(s)**

**(a) Additional Information**

[1] Environmental Protection Department, Pollution Problems & Practical Solutions: Air [ONLINE] Available at: https://www.epd.gov.hk/epd/english/greenproperty/poll_pro/popup_ren_air.html [Accessed Oct 2023].

[2] Environmental Protection Department, Pollution Problems & Practical Solutions: Noise [ONLINE] Available at: https://www.epd.gov.hk/epd/english/greenproperty/poll_pro/popup_ren_noise.html [Accessed Oct 2023].

[3] Environmental Protection Department, Pollution Problems & Practical Solutions: Waste and Water [ONLINE] Available at: https://www.epd.gov.hk/epd/english/greenproperty/poll_pro/popup_ren_paint.html [Accessed Oct 2023].

Hong Kong Construction Association. Best Practice Guide for Environmental Protection on Construction Sites. [ONLINE] Available at: https://www.hkca.com.hk/publications [Accessed Oct 2023].

**(b) Related Credit(s)**

IDCM-02-03 Construction and Demolition Waste Recycling

The related credit encourages best practices in the management of construction resources consumption, including waste reduction.

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| | | | |
|---|---|---|---|
| **2** | **Integrated Design and Construction Management** | **IDCM-02** | **Green Construction Practices** |
| | | **IDCM-02-03** | **Construction and Demolition Waste Recycling** |

**Objective**

Encourage best practices in the management of construction resource consumption, including waste reduction.

**Credit Point(s) Attainable**

1 + 2 Bonus

**Credit Requirement**

**(a) Waste Management Plan**

1 credit point for implementing the Waste Management Plan (WMP)

**(b) Construction Waste Recycling**

1 to 2 additional Bonus credit points for demonstrating recycling at least 10%/ 30% of waste arising from fit-out activities.

**Assessment**

**(a) Waste Management Plan**

1. Implement a WMP demonstrating waste management and recycling works have been considered within the assessment boundary during the entire fit-out period. Proactive waste management provisions shall refer to the Good Housekeeping Checklist in Appendix 8.2 of Hong Kong Construction Association's Best Practice Guide for Environmental Protection on Construction Sites [1].

2. The WMP shall be endorsed by the Construction BEAM Pro/ BAs.

**(b) Construction Waste Recycling**

1. Provide an endorsed summary report demonstrating the implementation as stipulated in the WMP that includes the following content as minimum:

   a. Waste flow table showing the quantity of waste generated and the percentage of recycled construction waste (either by weight/ by volume), prepared and declared by the contractor; and
   b. All waste and recycling records.

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**Submittal** **(a) Waste Management Plan**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| IDCM-02-03a_00 | BI submission form for IDCM-02-03a |
| IDCM-02-03a_01 | Endorsed WMP |

**(b) Construction Waste Recycling**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| IDCM-02-03b_00 | BI submission form for IDCM-02-03b |
| IDCM-02-03b_01 | Endorsed summary report on the implementation of waste management and recycling |

**Remark(s)** **(a) Additional Information**

[1] Hong Kong Construction Association (HKCA), Best Practice Guide for Environmental Protection on Construction Sites. [ONLINE]. Available at: https://www.epd.gov.hk/epd/english/greenconstruction/links/links.html [Accessed Oct 2023].

**(b) Related Credit(s)**

None

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| | | | |
|---|---|---|---|
| **2** | **Integrated Design and Construction Management** | **IDCM-02** | **Green Construction Practices** |
| | | **IDCM-02-04** | **Construction Indoor Air Quality (IAQ) Management** |

**Objective**

Reduce the potential of indoor air quality problems resulting from fit-out activities, for the benefits of workers, and adjacent neighbours.

**Credit Point(s) Attainable**

2

**Credit Requirement**

1 credit point for implementing a Construction IAQ Management Plan.

1 credit point for undertaking flush-out and replacement of all filters that are under the Applicant's control within the normally occupied assessment boundary prior to occupancy.

***Alternatively.***

- *1 credit point for providing an IAQ (Good Class) report of the assessment boundary endorsed by an accredited IAQ Certificate Issuing Body (CIB).*

**Assessment**

1. Provide a Construction IAQ Management Plan for adequate mitigation measures that reduce IAQ impacts arising from fit-out activities with the endorsement of Construction BEAM Pro/ BAs that includes the following content as minimum:

    a. Construction IAQ management plan control measures on: HVAC&R system and components protection, contaminant source control, interruption of moisture/ pollutant pathways, housekeeping, scheduling;
    b. Monitoring and auditing of implementation;
    c. In the event that HVAC&R system, building components/ air pathways have not been adequately protected, cleaning procedures have to be employed prior to occupancy; and
    d. Emergency procedures including the labour, materials and time required for implementation.

2. Provide a summary report demonstrating the effective implementation of the Construction IAQ Management Plan during the fit-out activities period. A master programme shall also be included. The report shall be endorsed by the Construction BEAM Pro/ BAs.

3. Provide a "flush-out" report that includes the following content as minimum:

    a. Details of building flush-out procedures including actual dates of flush-out;
    b. The filtration media being used has a Minimum Efficiency Reporting Value (MERV) of 13 as determined by ANSI/ASHRAE 52.2-2017 or equivalent performance specification;
    c. A flush-out with new filtration media is carried out after the completion of construction and prior to occupancy;
    d. Flushing duration as defined by the calculation of fresh air, is required to attain the IAQ Certification Scheme Good Class requirements;
    e. No construction work is done in the vicinity of the space during flushing out;
    f. The space is protected against any recontamination after flushing out; and
    g. Replacement of appropriate filter media upon completion.

    The report(s) shall be endorsed by the Construction BEAM Pro/ BAs.

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***Alternatively,***

- *Conduct air measurement conforming to IAQ Certification Scheme Good Class level. Sampling criteria, period and points should follow the latest guide on Indoor Air Quality Certification Scheme for Offices and Public Places [1].*
- *Provide an IAQ report of the assessment boundary endorsed by an accredited IAQ CIB.*

**Submittal**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| IDCM-02-04_00 | BI submission form for IDCM-02-04 |
| IDCM-02-04_01 | Endorsed construction IAQ management plan |
| IDCM-02-04_02 | Endorsed summary report with photo record(s) |
| IDCM-02-04_03 | Endorsed report on flush-out/ filter replacement |
| IDCM-02-04_04 | HVAC drawings |
| IDCM-02-04_05 | IAQ measurement report endorsed by an accredited IAQ CIB |

**Remark(s)**

**(a) Additional Information**

[1] Hong Kong Environmental Protection Department – Indoor Air Quality Information Centre. A Guide on Indoor Air Quality Certification Scheme for Offices and Public Places. [ONLINE] Available at: https://www.iaq.gov.hk/en/iaq-certification-scheme-references-and-useful-forms/
[Accessed Oct 2023]

American Society of Heating, Refrigerating and Air-conditioning Engineers (ASHRAE) – ANSI/ASHRAE Standard 52.2-2012. Method of Testing General Ventilation Air-cleaning Devices for Removal Efficiency by Particle Size. [ONLINE] Available at: www.ashrae.org
[Accessed Oct 2023]

**(b) Related Credit(s)**

None

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| | | | |
|---|---|---|---|
| **2** | **Integrated Design and Construction Management** | **IDCM-02** | **Green Construction Practices** |
| | | **IDCM-02-05** | **Construction Safety/ Considerate Construction** |

**Objective**

Encourage development of systematic safety management plan that embraces the safety and health of the workers and neighbours.

**Credit Point(s) Attainable**

1

**Credit Requirement**

1 credit point for implementing a Safety Management Plan for fit-out activities.

**Assessment**

1. Provide a Safety Management Plan with the endorsement of Construction BEAM Pro/ BAs that includes the following content as minimum:

    a. Person-in-charge and emergency contact;
    b. Hazard / risk identification;
    c. Public protection controls (e.g. prevent unauthorised access, falling debris);
    d. Hazard control methods;
    e. Site inspection programme;
    f. Common plant and equipment used;
    g. Accident/ incident investigation procedures;
    h. Promotion & training;
    i. Personal protection equipment used;
    j. Emergency preparedness;
    k. Evaluation, selection and control of the sub-contractors; and
    l. Considerate measures to (a) neighbourhood, passers-by, and (b) workers with referenced to Considerate Contractors Site Award Scheme Guidelines. [1] [2]

2. Provide a summary report/ logbook with daily monitoring records demonstrating an effective implementation of the Safety Management Plan and execution of considerate measures to (a) neighbourhood, passers-by, and (b) workers during fit-out activities. A master programme shall also be included. The report(s) shall be endorsed by the Construction BEAM Pro/ BAs.

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**Submittal**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| IDCM-02-05_00 | BI submission form for IDCM-02-05 |
| IDCM-02-05_01 | Endorsed safety management plan |
| IDCM-02-05_02 | Endorsed summary report of implementation of the safety management plan and execution of considerate measures to (a) neighbourhood, passers-by, and (b) workers during fit-out activities. |

**Remark(s)**

**(a) Additional Information**

[1] Development Bureau and Construction Industry Council. Considerate Contractors Site Award Scheme Guideline for Non-Public Works Site Participation, Appendix V Scope of Assessment Criteria. [ONLINE] Available at:
https://www.devb.gov.hk/en/construction_sector_matters/contractors/considerate_contractors_site/
[Accessed Oct 2023].

[2] Development Bureau and Construction Industry Council. Considerate Contractors Site Award Scheme Guideline for Public Works Site Participation, Appendix V Scope of Assessment Criteria. [ONLINE]. Available at:
https://www.devb.gov.hk/en/construction_sector_matters/contractors/considerate_contractors_site/
[Accessed Oct 2023].

Labour Department – Occupational Safety and Health Management in Renovation and Maintenance Works for the Property Management Industry. [ONLINE] Available at:
https://www.labour.gov.hk/eng/public/os/D/pm_renovation.pdf
[Accessed Oct 2023].

Labour Department – Code of Practice on Safety Management. [ONLINE] Available at: https://www.labour.gov.hk/eng/public/os/manage.pdf
[Accessed Oct 2023].

Labour Department – Safety Hints on Renovation Work. [ONLINE] Available at: https://www.labour.gov.hk/eng/public/os/D/Renovation.pdf
[Accessed Oct 2023].

Labour Department – A Casebook of Occupational Fatalities related to Renovation and Maintenance Works. [ONLINE] Available at:
https://www.labour.gov.hk/eng/public/os/D/CaseBook.pdf
[Accessed Oct 2023].

**(b) Related Credit(s)**

None

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**2 Integrated Design and Construction Management**

**IDCM-02 Green Construction Practices**

**IDCM-02-06 Building Management Manuals**

**Objective**

Encourage the provision of a fully documented operations and maintenance manual to enable facility management to implement the design intent and a fully documented energy management manual containing instructions that enable systems to operate at a high level of energy efficiency.

**Credit Point(s) Attainable**

2

**Credit Requirement**

**(a) Operation and Maintenance Manual Development and Storage**

1 credit point for preparing operation and maintenance (O&M) manuals for building services systems and equipment, which are installed by the Applicant within the assessment boundary and demonstrating that the manuals have been stored in a local device drive/ an electronic platform.

**(b) Stakeholder Orientation**

1 credit point for organising an orientation tour for the end users of assessment boundary by suitable person for demonstrating the appropriate use of the maintenance facilities.

**Assessment**

**(a) Operation and Maintenance Manual Development and Storage**

1. Provide an O&M manual covering the following systems as a minimum:

   a. HVAC&R systems and associated controls;
   b. Lighting systems and associated controls; and
   c. Other systems being installed by the Applicant within the assessment boundary.

2. The O&M manual with endorsement of Project BEAM Pro/ BAs should include the following content as minimum:

   a. List of person in charge;
   b. List of all applicable systems;
   c. The design intent;
   d. The basis of design;
   e. The name and contact information of the manufacturer/ vendor and installing contractor;
   f. As-fitted drawings; and
   g. Endorsed testing and commissioning records.

3. Provide photo record(s) demonstrating the path of digital O&M Manual to be stored. It can be in PDF format with table of contents linked to respective sections for easy navigation. Scanned PDF images are not accepted.

**(b) Stakeholder Orientation**

1. Carry out the guided orientation tour by suitable person. The guided orientation tour should include the following contents as minimum:

   a. Start-up and shutdown procedures;

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b. Typical operation of each system;
c. Operation under all specified modes of control and sequences of operation; and
d. Procedures under emergency/ abnormal conditions.

2. Suitable person who delivers the orientation could be either project team member, fit-out contractor or appointed facility management staff.

3. Provide evidence of carrying out the guided orientation tour (e.g. attendance list & photo records).

**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| IDCM-02-06_00 | BI submission form for IDCM-02-06 |
| IDCM-02-06_01 | Endorsed digital operation and maintenance manual |
| IDCM-02-06_02 | Photo record(s) |
| IDCM-02-06_03 | Record of attendance of the orientation tours |

**Remark(s)**

**(a) Additional Information**

None

**(b) Related Credit(s)**

None

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| | | | |
|---|---|---|---|
| **2** | **Integrated Design and Construction Management** | **IDCM-02** | **Green Construction Practices** |
| | | **IDCM-02-07** | **Operator Training plus Chemical Storage and Mixing Room** |

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|---|---|---|---|
| **2** | **Integrated Design and Construction Management** | **IDCM-03** | **Smart Design and Technologies** |
| | | **IDCM-03-01** | **Digital Facility Management Interface** |

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| | | | |
|---|---|---|---|
| **2** | **Integrated Design and Construction Management** | **IDCM-03** | **Smart Design and Technologies** |
| | | **IDCM-03-02** | **Occupant Engagement Platform** |

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| | | | |
|---|---|---|---|
| **2** | **Integrated Design and Construction Management** | **IDCM-03** | **Smart Design and Technologies** |
| | | **IDCM-03-03** | **Document Management System** |

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| | | | |
|---|---|---|---|
| **2** | **Integrated Design and Construction Management** | **IDCM-03** | **Smart Design and Technologies** |
| | | **IDCM-03-04** | **BIM Integration** |

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| | | | |
|---|---|---|---|
| **2** | **Integrated Design and Construction Management** | **IDCM-04** | **Design for Engagement and Education on Green Buildings** |
| | | **IDCM-04-01** | **Design for Engagement and Education on Green Buildings** |

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# 3 Management

This section emphasises creating environmentally friendly and healthy interior spaces that prioritise the well-being and safety of occupants. Effective communication helps occupants adjust to these new spaces and minimise negative environmental effects.

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| | | | |
|---|---|---|---|
| **3** | **Management** | **MAN-00** | **Basic Requirement** |
| | | **MAN-00-01** | **Green Purchasing Plan** |

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| | | | |
|---|---|---|---|
| **3** | **Management** | **MAN-01** | **EHS and Energy Management** |
| | | **MAN-01-01** | **EHS and Energy Management System** |

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|---|---|---|---|
| **3** | **Management** | **MAN-02** | **ESG Disclosure** |
| | | **MAN-02-01** | **Environmental, Social and Governance (ESG) Disclosure** |

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| | | | |
|---|---|---|---|
| **3** | **Management** | **MAN-03** | **Staff Training** |
| | | **MAN-03-01** | **Staff Training and Resources** |

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| | | | |
|---|---|---|---|
| **3** | **Management** | **MAN-03** | **Operation and Maintenance** |
| | | **MAN-03-02** | **Building and Site Operation and Maintenance** |

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| | | | |
|---|---|---|---|
| **3** | **Management** | **MAN-03** | **Operation and Maintenance** |
| | | **MAN-03-03** | **Building Services Operation and Maintenance** |

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**3 Management** **MAN-04** **Green and Healthy Management**

**MAN-04-01** **Green Lease and Long-Term Lease**

**Objective**

Encourage selection of the host building that adopts long-term lease/ green lease terms to conserve natural resources and reduce waste and associated environmental impacts in the same location.

**Credit Point(s) Attainable**

2 Bonus

**Credit Requirement**

**(a) Green Lease**

1 Bonus credit point for demonstrating the adoption of green lease proposed by the landlord.

**(b) Long-Term Lease**

1 Bonus credit point for demonstrating the fixed lease period is at least 3 years.

**Assessment**

**(a) Green Lease**

1. Provide a certified true copy of the green lease agreement.
2. Provide evidence/ a report demonstrating that the project owner has implemented green actions/ green lease terms as required by the green lease.

**(b) Long-Term Lease**

**Option 1: For tenants of the project space**

1. Provide a certified true copy of the lease agreement for the prescribed duration.
2. Leasing period shall mean the fixed term period of the lease. For example, a 2+2 lease, with a two (2) year fixed period, and a two (2) year optional period does NOT fulfil the requirement.

**Option 2: For building owner, the landlord or a related company**

1. Provide a letter signed by a representative of the building owner stating the occupation commitment for the prescribed duration.

**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| MAN-04-01_00 | BI submission form for MAN-04-01 |
| MAN-04-01_01 | A certified true copy of the green lease/ long-term lease agreement<br>**[or]**<br>Undertaking letter by a representative of the building owner |
| MAN-04-01_02 | An implementation report in accordance with the green lease |

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**Remark(s)**

**(a) Additional Information**

None

**(b) Related Credit(s)**

None

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**3 Management** **MAN-04** **Green and Healthy Management**

**MAN-04-02** **Green Cleaning**

**Objective** Encourage environmentally friendly cleaning products and procedures.

**Credit Point(s) Attainable** 1 Bonus

**Credit Requirement** 1 Bonus credit point for implementing appropriate green cleaning procedures/ practices for the assessment boundary.

**Assessment**

1. Demonstrate the adoption of lower toxicity cleansing agents and procedures for cleaning each area of the interior spaces.

2. Provide a green cleaning procedure manual that includes the following contents as minimum:

   2.1 List of the responsible person;
   2.2 Materials:
      2.2.1 Product catalogues/ data sheet/ material hazard data sheets (if applicable);
      2.2.2 Toxic/ pesticide/ herbicide (if applicable);
      2.2.3 Chemical handling safety (if applicable); and
      2.2.4 Photo record(s) for all cleaning products.
   2.3 Green cleaning procedures:
      2.3.1 Method statements for all routine cleaning including floors, carpet, walls, doors, partitions, windows, furniture, desks, chairs, telephones, air filters, AC units, electronic equipment, etc. in the project interior spaces;
      2.3.2 Method statements for purchase, preparation, dilution, mixing, decanting, handling, spillage, and disposal of waste;
      2.3.3 Equipment operation and maintenance; and
      2.3.4 Training and communication.

3. Provide a letter of commitment by the end user on the adoption of green cleaning procedures and products for the assessment boundary stated above.

**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| MAN-04-02_00 | BI submission form for MAN-04-02 |
| MAN-04-02_01 | Endorsed green cleaning procedure manual |
| MAN-04-02_02 | Manufacturer's data, data sheet with hazardous and non-hazardous product purchase notes, delivery notes, hazard data sheets, etc. |
| MAN-04-02_03 | Photo record(s) |
| MAN-04-02_04 | Letter of commitment on the adoption of green cleaning procedures and products |

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**Remark(s)**

**(a) Additional Information**

None

**(b) Related Credit(s)**

None

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**3 Management** **MAN-04** **Green and Healthy Management**

**MAN-04-03** **User Guidance**

**Objective**

Inform and educate the occupants regarding environmental, comfort and health impacts of their activities, and encourage actions that reduce adverse impacts.

**Credit Point(s) Attainable**

1

**Credit Requirement**

1 credit point for providing a user's guide to encourage and promote environmentally friendly activities within the assessment boundary, including but not limited to local transport, hygiene and environmental practices, sustainable materials selection, energy conservation, indoor environmental quality, water conservation, and waste sorting, etc.

**Assessment**

1. Provide a user guide for the project spaces that includes the following content as minimum:

    1.1 List of the responsible person;
    1.2 Updating frequency of the user guide; and
    1.3 At least five (5) of the following topics:
        1.3.1 Local public transport and cycling provision;
        1.3.2 Information on alternative methods of transport;
        1.3.3 Hygiene and environmental issues;
        1.3.4 Materials selection for fit-out;
        1.3.5 Energy issues;
        1.3.6 Water conservation;
        1.3.7 Waste sorting facilities/ practices; and
        1.3.8 Indoor environmental quality etc.

2. Photo record(s) demonstrating the compliance of the items as stated in item 1 and effective communication on the notice board/ electronic means.

**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| MAN-04-03_00 | BI submission form for MAN-04-03 |
| MAN-04-03_01 | User guide showing the responsible person and updating frequency |
| MAN-04-03_02 | Photo record(s) |

**Remark(s)**

**(a) Additional Information**

None

**(b) Related Credit(s)**

None

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**3 Management** **MAN-04** **Green and Healthy Management**

**MAN-04-04** **Occupational Health and Safety (OHS)**

**Objective** Interior layout provisions that embrace healthiness and safety.

**Credit Point(s) Attainable** 2

**Credit Requirement** 1 to 2 credit points for scoring at least 50%/ 70% of the applicable OHS measures and facilities within the assessment boundary.

***Alternatively,***

- *2 credit points will be awarded if the assessment boundary has been certified with ISO 45001 certification.*

**Assessment**

1. Provide a summary of the percentage of OHS measures and facilities that are provided within the assessment boundary.

| OHS Measures | Percentage of Provision |
|---|---|
| **Ergonomics** | |
| Anti-fatigue matting/ footrests | 10% of the workstations |
| Desk/ tables are rounded corners with no sharp edges | 100% of the workstations |
| Height-adjustable desks | 10% of the workstations |
| Sufficient space below desks | 100% of the workstations |
| Adjustable chairs | 100% of the workstations |
| Rotary chairs with five-pronged base | 100% of the workstations |
| Height-adjustable stands for monitor | 50% of the workstations |
| Monitors with built-in height adjustment | 100% of the workstations |
| “Ergonomic” mice | 100% of the workstations |
| Wrist rests | 10% of the workstations |
| Headsets | 10% of the workstations |
| Stretching equipment | N/A |
| **Storage** | |
| Closed lid bins for all waste storage | N/A |
| A distance of 1.2m in front of storage to provide sufficient space for safe movement | N/A |
| Safe means of climbing up to storage with a height more than 2m | N/A |
| **Interior Layout:** | |
| No exposed electrical extension cords crossing walkway/ corridor | N/A |
| No materials that can easily catch fire left near a heat source | N/A |
| **Others** | |
| Others as proposed by the Applicant | N/A |

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Note:
1. Applicant should provide justification for any not applicable sub-items above. Not applicable sub-items would not be counted towards the total number of applicable items.

2. For the sub-item "Others as proposed by the Applicant", only successfully claimed items would be counted towards the total number of applicable items.

***Alternatively,***

- *Provide a copy of ISO 45001 Certificate and the certification should be valid at the time of project registration for BI V2.0.*

**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| MAN-04-04_00 | BI submission form for MAN-04-04 |
| MAN-04-04_01 | Summary on OHS measures and facilities |
| MAN-04-04_02 | Photo record(s) |
| MAN-04-04_03 | ISO 45001 certificate |

**Remark(s)**

**(a) Additional Information**

Occupational Safety & Health Council. OSH Tips for PC users. [Online]. Available at: http://www.oshc.org.hk/eng/main/hot/dse/
[Accessed Oct 2023].

The United States Department of Labour. Occupational Safety & Health Administration. Ergonomics. [Online]. Available at:
http://www.osha.gov/SLTC/ergonomics/
[Accessed Oct 2023].

International Organization for Standardization. ISO 45001:2018 Occupational health and safety management systems — Requirements with guidance for use. [ONLINE]. Available at:
https://www.iso.org/standard/63787.html
[Accessed Oct 2023].

**(b) Related Credit(s)**

None

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## 4 Materials and Waste

In fit-out design of the interior spaces, environmentally sustainable natural resources should be used as materials to a significant extent. Practical considerations should include extracted raw materials, emissions and embodied energy. There are opportunities to reduce environmental impacts through improved design, choice of materials, and installation methods. The following items are of concern:

- Pollutants arising from manufacturing, transportation and operation; and
- Waste generated and recycled.

Encourage to reduce the use of materials through modular designs allowing off-site prefabrication, lean construction methods, etc.; and to reduce waste from a life cycle perspective, including provisions of appropriately designed waste facilities for waste recycling/ recovery/ reuse.

Due to COVID-19, an increasing importance of germ resistance management in the interior spaces, including anti-microbial coating, is anticipated.

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| | | | |
|---|---|---|---|
| **4** | **Materials and Waste** | **MW-00** | **Basic Requirement** |
| | | **MW-00-01** | **Minimum Waste Handling Facilities** |

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**4 Materials and Waste** **MW-01 Use of Materials**

**MW-01-01 Building Re-use**

**Objective** Encourage the reuse of major elements of the existing interior spaces to conserve resources and reduce waste and environmental impacts during fit-out activities.

**Credit Point(s) Attainable** 6 + 3 Bonus

**Credit Requirement** Credit point(s) for demonstrating the percentage of the reuse from salvaged or existing furniture/ components and/ or electrical appliances are over the settings shown below:

| Category | Unit | Credit Point(s) | | |
|---|---|---|---|---|
| | | 1 | 2 | 2 + 1 Additional Bonus |
| **(a) Interior Furniture** | Mass/ Cost/ Volume/ Number of Pieces | 20% | 40% | 60% |
| **(b) Interior Components** | Surface Area/ Volume | | | |
| **(c) Electrical Appliances** | Number of Pieces | 50% | 80% | 100% |

Percentage of the reuse of the above existing elements(%) should be calculated by the below equation:

$$\textbf{Reuse of Existing Elements}\ (\%) = \left(\frac{\sum \textbf{Existing Elements Reused}}{\sum \textbf{Existing Elements}}\right) \times \mathbf{100}\%$$

**Assessment**

1. Provide a narrative outlining the extent of reused major elements from the existing interior spaces.

2. Provide calculation with details of pre and post fit-out activities, drawings, and supporting documentation. Elements which are not allowed to be removed under covenants, conditions and provisions of the tenancy agreement between the landlord and project owner, (e.g. wall in between the assessment boundary and interior space of other tenants), should not be included in the calculation.

3. Demonstrate the percentage calculation (a) interior furniture, (b) interior components and/ or (c) electrical appliances of the retained and reused portions of the existing major elements being used in the new interior spaces (equation as outlined above). The interior components include non-structural wall, non-structural glazing, ceilings, doors, flooring and existing wall panel.

4. The unit should be consistent throughout the assessment of each part of this credit. For surface area, only the exposed surface area should be considered in the calculation and the inner area should be excluded.

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**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| MW-01-01_00 | BI submission form for MW-01-01 |
| MW-01-01_01 | Pre and post construction details, structural drawings that demonstrate the re-use of interior components |
| MW-01-01_02 | Pre and post schedule of interior furniture and electrical appliances that demonstrate the re-use of the interior furniture and electrical appliances |
| MW-01-01_03 | Calculation showing the percentage of interior furniture, interior components and electrical appliances being reused |

**Remark(s)**

**(a) Additional Information**

None

**(b) Related Credit(s)**

None

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**4 Materials and Waste** **MW-01 Use of Materials**

**MW-01-02 Modular and Standardised Design**

**Objective**

Encourage the increased use of modular and standardised components in interior design in order to enhance buildability and to reduce waste.

**Credit Point(s) Attainable**

2

**Credit Requirement**

1 credit point for preparing a narrative that demonstrates a proactive approach in designing modular elements of the newly installed major elements and modules within the assessment boundary.

1 additional credit point for designing modular elements which contribute 25% or more of the newly installed major elements and modules within the assessment boundary. Items to be included in the assessment are shown in below table:

| **Items to Be Included in the Modular Elements Assessment (if applicable)** | | |
|---|---|---|
| Partition | Wall | Ceiling |
| Door | Raised floor | Carpet tile |

Total quantity of modular design (%) of each of the above items should be calculated by below equation:

$$\textbf{Modular Design } (\%) = \frac{\sum \textbf{Modular Elements}}{\sum \textbf{Newly Installed Items}} \times \mathbf{100}\%$$

**Assessment**

1. Provide a narrative that demonstrates a proactive approach in designing modular elements of the newly installed major elements and modules within the assessment boundary.

2. Provide drawings or photo record(s) or other information to highlight the extent of application of modular and standardised design of elements and newly installed items.

3. Provide calculation showing the quantity (by mass/ cost/ surface area/volume) of major elements and modules that are prescribed modular and standardised design elements and modules.

4. The unit should be consistent throughout the assessment of this credit. For surface area, only the exposed surface area should be considered in the calculation and the inner area should be excluded.

**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| MW-01-02_00 | BI submission form for MW-01-02 |
| MW-01-02_01 | A narrative with drawings or photo record(s) or other information that demonstrates the modular design approach |
| MW-01-02_02 | Calculation showing the percentage of major elements and modules that are prescribed modular and standardised design elements and modules |

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**Remark(s)** **(a) Additional Information**

Reference format of narrative:

| # | Item | Description on Adoption of Modular and Standardised Design | Supporting in Form of Drawings/ Dated Photo Records / Other Information |
|---|---|---|---|
| 1 | Partition | e.g. standardisation of size/ assembly method/ manufacturing method | |
| 2 | Wall | | |
| 3 | Ceiling | | |
| 4 | Door | | |
| 5 | Raised Floor | | |
| 6 | Carpet Tile | | |

British Standards Institution. British Standard BS 6750. Specification for Modular coordination in building (1986) provides background on the requirements for modular coordination. Use of modular and standardised components in interior design can:

i) Facilitate cooperation among the occupants, interior designer and other project team members;
ii) Allows a flexible response to the occupant's requirements and individual needs, since modular elements being produced in standard ranges of sizes can be interchanged;
iii) Buildability can be enhanced since site operations can be simplified; and
iv) Reduce waste generated due to cutting to fit.

**(b) Related Credit(s)**

None

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| | | |
|---|---|---|
| **4 Materials and Waste** | **MW-01** | **Use of Materials** |
| | **MW-01-03** | **Prefabrication** |

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| | | |
|---|---|---|
| **4 Materials and Waste** | **MW-01** | **Use of Materials** |
| | **MW-01-04** | **Design for Durability and Resilience** |

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**4 Materials and Waste** **MW-01 Use of Materials**

**MW-01-05 Design for Maintainability**

**Objective**

Encourage specific measures to minimise the occurrence of defects and the expenditure of man-hours and materials to fulfil the maintenance needs during the lifecycle the of interior spaces.

**Credit Point(s) Attainable**

1

**Credit Requirement**

1 credit point for preparing a narrative that demonstrates a proactive approach in evaluating the maintainability of the building materials with at least three (3) of the following items.

| **Items for Maintainability Assessment** | | |
|---|---|---|
| Panels/ partition | Flooring | Cabinetry/ fitting |
| Insulation | Furniture | Light fitting |
| Plumbing and drainage | Air terminal | Louvre |
| Other items may be proposed at the discretion of the Applicant | | |

**Assessment**

1. Provide a narrative that demonstrates a proactive approach in building material selection and interior design with suitable maintainability to encourage design and operation approaches that facilitate easy inspection and repair of defective parts to fulfil the maintenance needs during the lifecycle of the interior spaces. The following issues should be addressed.

   a. Forecast maintenance;
   b. Access for maintenance;
   c. Minimising maintenance interventions; and
   d. Enabling simple maintenance.

2. Provide drawings, catalogues, certificates or other information to demonstrate ability to accommodate the needs of maintenance.

**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| MW-01-05_00 | BI submission form for MW-01-05 |
| MW-01-05_01 | A narrative, with drawings, catalogues, certificates or other information, that demonstrates a proactive approach in building material selection and interior design with suitable maintainability that minimises the occurrence of defects and the expenditure of man-hours and materials to fulfil the maintenance needs during the lifecycle of the interior spaces |

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**Remark(s)**

**(a) Additional Information**

The Building and Construction Authority (BCA) - Design for Maintainability [ONLINE]. Available at:
https://www1.bca.gov.sg/buildsg/facilities-management-fm/design-for-maintainability
[Accessed Oct 2023].

Reference format of narrative:

| # | Item | Description on Design for Maintainability | Supporting documents in the form of Drawings/ Catalogues / Certificates/ Other Information |
|---|---|---|---|
| 1 | Panels/ partition | | |
| 2 | Flooring | | |
| 3 | Cabinetry/ fitting | | |
| 4 | Insulation | | |
| 5 | Furniture | | |
| 6 | Light fitting | | |
| 7 | Plumbing and drainage | | |
| 8 | Air terminal | | |
| 9 | Louvre | | |

**(b) Related Credit(s)**

None

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| | | | |
|---|---|---|---|
| **4** | **Materials and Waste** | **MW-01** | **Use of Materials** |
| | | **MW-01-06** | **Germ-resistance Management** |

**Objective**

Encourage implementation of germ-resistance management to keep the interior spaces clean and reduce potential spread of germ.

**Credit Point(s) Attainable**

3

**Credit Requirement**

**(a) Moisture Control**

1 credit point for implementing measures to reduce the potential of moisture occurrence and accumulation.

**(b) Antimicrobial High Touch Surface**

1 credit point if all high touch surfaces are coated with or comprised of or sprayed with material that is abrasion-resistant, non-leaching and antimicrobial like copper, brass and plexiglass.

**(c) Antimicrobial Wall Surface**

1 credit point if at least 50% of the wall surface has applied antimicrobial paint or coating.

Percentage of the application of antimicrobial wall surface (%) should be calculated by below equation:

$$\textbf{Application of Antimicrobial Wall Surface}\ (\%) = \frac{\sum \textbf{Wall Surface With Antimicrobial Paint or Coating}}{\sum \textbf{Wall Surface}} \times \mathbf{100}\%$$

**Assessment**

**(a) Moisture Control**

1. Provide a narrative to demonstrate the design measures for moisture control, including:

   a. Investigation and inspection for moisture control;
   b. Uses of moisture tolerant materials; and
   c. Additional or alternative design measure(s) proposed by the Applicant with substantiation demonstrating strategies compatible with the listed strategies for achieving the credit objective.

2. Prepare a technical report detailing the following items:

   a. Adopted measures for moisture management;
   b. Detailed description of the adopted measures and explanation on how they could prevent condensation on cold surfaces; and
   c. Evidence showing the adoption of measures including, catalogues, drawings certificates, photo records or other information, etc.

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**(b) Antimicrobial High Touch Surface**

1. Prepare a technical report detailing the following items:

   a. Layout plan identifying the concerned high touch surfaces within the access route of the assessment boundary; and
   b. Evidence showing all high touch surfaces, including handles/ doorknobs of entrance doors and toilets, switches of lighting and countertops of the main entrance, are coated with or comprised of or sprayed with material that is abrasion-resistant, non-leaching and antimicrobial, like copper, brass and plexiglass. Evidence includes catalogues, valid test reports at the time of the first submission of Final Assessment of BI V2.0 certification, photo record(s) or other information, etc.

**(c) Antimicrobial Wall Surface**

1. Provide a narrative outlining the extent of wall surface with anti-microbial paint or coating.

2. Provide a report demonstrating the percentage calculation of wall surface area with anti-microbial paint or coating in the new interior spaces.

3. Evidence includes catalogues, valid test reports at the time of the first submission of Final Assessment of BI V2.0 certification, photo record(s) or other information, etc.

4. Only the exposed surface area should be considered in the calculation and the inner area should be excluded.

**Submittals**

**(a) Moisture Control**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| MW-01-06a_00 | BI submission form for MW-01-06a |
| MW-01-06a_01 | A narrative on the design measures for moisture control |
| MW-01-06a_02 | A technical report on moisture control |

**(b) Antimicrobial High Touch Surface**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| MW-01-06b_00 | BI submission form for MW-01-06b |
| MW-01-06b_01 | A technical report on the application of antimicrobial high touch surface |

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**(c) Antimicrobial Wall Surface**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| MW-01-06c_00 | BI submission form for MW-01-06c |
| MW-01-06c_01 | Calculation showing the percentage of wall surface area with antimicrobial paint or coating |
| MW-01-06c_02 | Supporting document including catalogue, valid test reports of the antimicrobial paint or coating and dated photo records for the application |

**Remark(s)**

**(a) Additional Information** **(c)**

The Building and Construction Authority (BCA) - Design for Maintainability [ONLINE]. Available at:
https://www1.bca.gov.sg/buildsg/facilities-management-fm/design-for-maintainability
[Accessed Oct 2023].

Reference format of narrative:

| # | Item | Description on Design for Maintainability | Supporting documents in the form of Drawings/ Catalogues / Certificates/ Other Information |
|---|---|---|---|
| 1 | Panels/ partition | | |
| 2 | Flooring | | |
| 3 | Cabinetry/ fitting | | |
| 4 | Insulation | | |
| 5 | Furniture | | |
| 6 | Light fitting | | |
| 7 | Plumbing and drainage | | |
| 8 | Air terminal | | |
| 9 | Louvre | | |

**(b) Related Credit(s)**

None

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| | | | |
|---|---|---|---|
| **4** | **Materials and Waste** | **MW-02** | **Selection of Materials** |
| | | **MW-02-01** | **Sustainable Forest Products** |

**Objective**

Encourage the use of timber from well-managed forests.

**Credit Point(s) Attainable**

2

**Credit Requirement**

1 to 2 credit points for demonstrating at least 30%/ 50% (by mass/ cost/ volume/ number of pieces) of all the timber and composite timber products being used within the assessment boundary are from sustainable sources/ recycled/ reused timber.

Total quantity of sustainable forest product (%) can be calculated by below equation:

$$\textbf{Sustainable Forest Product}\ (\%) = \frac{\sum(\textbf{Sustainable Sources/ Recycled Timber/ Reused timber})}{\sum(\textbf{Forest Product Within Assessment Bound})} \times \mathbf{100}\%$$

***Alternatively,***

- *1 credit point for demonstrating that no timber and composite timber products are used within the assessment boundary.*

**Assessment**

1. Provide a summary list of all timber products, location of all timber products on layout plan and photo record(s) of all timber products.

2. Provide the percentage calculation of timber products being used within the assessment boundary that are from sustainable source/ recycled composite/ reused timber. Timber products or accessories with insignificant amount and not forming part of timber doors, flooring, skirting, wall panels, ceiling systems and built-in furniture, can be ignored in the calculation for simplification. The unit should be consistent throughout the assessment of this credit.

3. Provide the Certificate under the Chain of Custody (CoC) system to demonstrate the timber products are sourced from suppliers who have already been accredited by the Approval Organisations, i.e. Forest Stewardship Council (FSC) [1], Programme for the Endorsement of Forest Certification (PEFC) [2] or “known licensed sources” [3] according to the respective protocol (accredited company). The quantity of the corresponding timber products can be classified as timber products from sustainable sources.

4. Provide transfer notes and photo record(s) for all reused timber products to demonstrate the original timber source, the quantity and the date of transfer of the timber products between the despatch work site and the project site (recipient). The transfer notes should bear the detailed name and address of the work sites concerned and duly signed by both the despatch and recipient parties (i.e. site representative/ stores officer in managerial position), together with company chops. The quantity of the corresponding timber products can be classified as reused timber products.

***Alternatively,***

- *Provide an undertaking letter from the project owner to substantiate that no timber products are used in the project.*

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**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| MW-02-01_00 | BI submission form for MW-02-01 |
| MW-02-01_01 | Summary list of all timber products |
| MW-02-01_02 | Drawing outlining the locations of all timber products |
| MW-02-01_03 | Photo record(s) of all timber products |
| MW-02-01_04 | Calculation of the sustainable forest product |
| MW-02-01_05 | Certificates under the Chain of Custody (CoC) system of all applicable timber products |
| MW-02-01_06 | Transfer notes and photo record(s) for all applicable reused timber products |

**Remark(s)**

**(a) Additional Information**

[1] Forest Stewardship Council. [ONLINE]. Available at: http://www.fsc.org/
[Accessed Oct 2023].

[2] American Forest and Paper Association. [ONLINE]. Available at: http://www.afandpa.org/
[Accessed Oct 2023].

[3] Programme for the Endorsement of Forest Certification. [ONLINE]. Available at: https://www.pefc.org/
[Accessed Oct 2023].

**(b) Related Credit(s)**

IDCM-00-03 Timber used for Temporary Works

The credit requires no virgin forest products being used for temporary works during construction.

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| | | | |
|---|---|---|---|
| **4** | **Materials and Waste** | **MW-02** | **Selection of Materials** |
| | | **MW-02-02** | **Recycled Materials** |

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| | | |
|---|---|---|
| **4 Materials and Waste** | **MW-02** | **Selection of Materials** |
| | **MW-02-03** | **Ozone Depleting Substances** |

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| | | | |
|---|---|---|---|
| **4** | **Materials and Waste** | **MW-02** | **Selection of Materials** |
| | | **MW-02-04** | **Regional Materials** |

**Objective**

Encourage the use of materials originated locally so as to reduce the environmental impacts arising from transportation.

**Credit Point(s) Attainable**

2

**Credit Requirement**

1 to 2 credit points for at least 50% of any one (1)/ two (2) of the following items which are newly installed meet the prescribed requirements of regional materials.

| **List of Items** | |
|---|---|
| Furniture and partition | Wall |
| Ceiling | Flooring |

**Requirement of regional materials:**
The point of raw materials and manufacture should be located within an 800km radius of the HKSAR by road transportation; within a 1,600km radius by rail transportation; or within a 4,000km radius by sea transportation.

Total quantity of regional material (%) for each of the above items should be calculated by below equation:

$$\textbf{Regional Materials}\ (\%) = \left(\frac{\sum \textbf{Newly Installed Regional Materials}}{\sum \textbf{Newly Installed Materials}}\right) \times \mathbf{100}\%$$

**Assessment**

1. Provide a list of the materials satisfying the requirements.
2. Provide the quantification of the value of materials originated locally by calculating its percentage towards the total value of the materials.
3. Provide supporting documents from the suppliers listing the names of the manufacturers with the point of raw materials and manufacture is located within the prescribed radius of the HKSAR.
4. The unit may be mass/ volume/ cost but should be consistent throughout the assessment of this credit.
5. Raw materials (constituents) being used for making the claimed building materials should fulfil the assessment requirements.
6. Reused and salvaged material such as furniture may also be included. The location from which it has been salvaged may be used as the point of manufacture.

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**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| MW-02-04_00 | BI submission form for MW-02-04 |
| MW-02-04_01 | Estimated summary of regional materials from fit-out activities |
| MW-02-04_02 | Summary of regional materials from fit-out activities endorsed by the contractor(s) |
| MW-02-04_03 | Supporting documents from the suppliers listing the names of the manufacturers and the locations of the manufacturing plants |
| MW-02-04_04 | Maps showing the point of raw materials and the manufacture, and the distance from the site |

**Remark(s)**

**(a) Additional Information**

None

**(b) Related Credit(s)**

None

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**4 Materials and Waste** **MW-02 Selection of Materials**

**MW-02-05 Use of Green Products**

**Objective**

Encourage the purchase of certified green products that have low environmental impacts.

**Credit Point(s) Attainable**

3 + 1 Bonus

**Credit Requirement**

Credit point(s) for demonstrating the percentage of the use of certified green products endorsed by Construction Industry Council (CIC) Green Product Certification, or regionally or internationally recognised standard are over the settings shown below:

| Types of Interior Non-structural Components or Building Services Components | Percentage of Uses | Credit Point(s) |
|---|---|---|
| 2 | 10% | 1 |
| | 20% | 2 |
| | 30% | 3 |
| 4 | 30% | 3 + 1 Additional Bonus |

Types of interior non-structural components or building services components are shown below:

| **Interior Non-structural Components:** | | | |
|---|---|---|---|
| Panel board | Ceramic tile | Wall covering | Furniture |
| Stone (Natural/ Artificial) | Plant-based fibre composite | Adhesive & sealant | Block for internal partition |
| Paint & coating | Synthetic carpet | Thermal insulation | |
| Alternative element proposed by the Applicant | | | |
| **Building Services Components** | | | |
| LED lighting | Compact fluorescent lamp bulb | Electronic ballast | Cable & wire |
| Alternative element proposed by the Applicant | | | |

Total quantity of green product (%) for each of the above item should be calculated by below equation:

$$\textbf{Green Products}\ (\%) = \left(\frac{\sum \textbf{Newly Installed Green Products}}{\sum \textbf{Newly Installed Products}}\right) \times \mathbf{100}\%$$

**Assessment**

1. Provide the percentage calculation (by mass/ volume/ surface area/ cost/ number of pieces) of all the items including certified green products.

2. Include a summary table listing the product type, product name/ serial no., manufacturer, certification body, calculation and reference source.

3. Provide certificate(s) of the green products.

4. Provide photo record(s).

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5. For any green products, which have been certified under other internationally recognised schemes, the Applicant should refer to the list of worldwide recognised Green Building Product Certifications and Standards under HKGBC's Eco-Product Directory (http://epdir.hkgbc.org.hk/textdisplay.php?serial=32) or provide the product's technical information with justification for BSL's consideration.

**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| MW-02-05_00 | BI submission form for MW-02-05 |
| MW-02-05_01 | Calculation showing the percentage of certified green products |
| MW-02-05_02 | Layout drawing(s) showing the provision(s) |
| MW-02-05_03 | Photo record(s) showing the provision(s) |
| MW-02-05_04 | Certificate(s) of the green product(s) |

**Remark(s)**

**(a) Additional Information**

CIC Green Product Certification [ONLINE]. Available at:
http://cicgpc.hkgbc.org.hk
[Accessed Oct 2023].

HKGBC's Eco-Product Directory [ONLINE]. Available at:
http://epdir.hkgbc.org.hk/textdisplay.php?serial=32
[Accessed Oct 2023].

**(b) Related Credit(s)**

None

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| | | |
|---|---|---|
| **4 Materials and Waste** | **MW-02** | **Selection of Materials** |
| | **MW-02-06** | **Life Cycle Assessment** |

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**4 Materials and Waste** **MW-03 Waste Reduction**

**MW-03-01 Adaptability and Deconstruction**

**Objective**

Encourage the design of building interior elements and building services components that allow modifications to space layout, and to reduce waste during churning, refurbishment and deconstruction.

**Credit Point(s) Attainable**

2

**Credit Requirement**

Maximum 2 credit points can be achieved with 1 credit point for demonstrating each of the below listed characteristics:

i) Adoption of flexible spaces to suit changing needs and multi-purposes;
ii) Demonstration of how access to daylight and the proper use of artificial light that improves the occupant's energy, disposition and health can be maintained with the adaptable design;
iii) Demonstration of how access to nature and biophilic design can be maintained with the adaptable design;
iv) Accommodation of flexible/ movable/ convertible furniture and a variety of workstations;
v) Provision of movable partitions to maximise the layout options and accommodate a variety of uses; or
vi) Adoption of minimalist interior design to reduce carbon footprint as compared to baseline case.

**Assessment**

1. Prepare a technical report, can either be in descriptive or performance approach, detailing the following items:

   a. List of each adopted characteristics;
   b. Detailed description of each adopted characteristics; and
   c. Evidence showing the adoption of characteristics, including drawings, catalogues, certificates, photo record(s) or other information, etc.

2. It is not necessary that all areas within the assessment boundary need to adopt the above characteristics. Number of flexible/ movable/ convertible furniture and movable partitions are not regulated. An undertaking letter from the project owner should be provided to substantiate that the quantity of the above provisions is sufficient in the project.

**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| MW-03-01_00 | BI submission form for MW-03-01 |
| MW-03-01_01 | A technical report on adaptability and deconstruction |
| MW-03-01_02 | Undertaking letter from the project owner to substantiate that the quantity of the above provisions is sufficient in the project |

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**Remark(s)**

**(a) Additional Information**

Reference on the characteristics:

For characteristic i)

Whole Building Design Guide - Design For The Changing Workplace [ONLINE]. Available at:
https://www.wbdg.org/design-objectives/productive/design-changing-workplace
[Accessed Oct 2023].

For characteristic ii)

Peter Boyce, Claudia Hunter and Owen Howlett - The Benefits of Daylight through Windows [ONLINE]. Available at:
https://www.researchgate.net/publication/241089667_The_Benefits_of_Daylight_through_Windows
[Accessed Oct 2023].

Whole Building Design Guide - (Day)Lighting the way to greener and healthier buildings [ONLINE]. Available at:
https://worldgbc.org/article/daylighting-the-way-to-greener-and-healthier-buildings/
[Accessed Oct 2023].

L. Edwards and P. Torcellini - A Literature Review of the Effects of Natural Light on Building Occupants [ONLINE]. Available at:
https://www.nrel.gov/docs/fy02osti/30769.pdf
[Accessed Oct 2023].

For characteristic iii)

The Applicant may make reference to the requirements on biophilic design under HWB-01-02 Biophilic Design:

i) Potted plants or planted beds cover at least 1% of the total floor area of each floor.

For characteristic vi)

The Applicant may make reference to below criteria of minimalist interiors for elaboration:

i) Clean lines – The decor features minimal patterns or details with flat and smooth surfaces.
ii) Monochromatic colours: Uses a simple colour palette.
iii) Essentiality: Provide only the elements necessary to use comfortably in that particular space, resulting in fewer pieces of furniture.
iv) Open spaces: Adopt open floor plans.

**(b) Related Credit(s)**

HWB-01-02 Biophilic Design

The credit specifies the requirements on biophilic design.

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**4 Materials and Waste** **MW-03 Waste Reduction**

**MW-03-02 Enhanced Waste Handling Facilities**

**Objective** Reduce waste generation at source, reduce pressure on landfill sites and help to preserve non-renewable resources by promoting recycling of waste materials.

**Credit Point(s) Attainable** 4 + 2 Bonus

**Credit Requirement**

**(a) Recyclables Collection**

1 to 3 credit points for demonstrating the provisions of facilities for collection, sorting, storage and disposal of any four (4)/ six (6)/ eight (8) of the following recyclable streams within the assessment boundary or the host building.

| **List of Recyclables** | | |
|---|---|---|
| Paper | Plastic (Mixed) | Metal |
| Glass | Cloth | Foam board |
| Beverage carton | Food waste | Cartridge |
| Rechargeable battery | | |
| Compact fluorescent lamp bulb, T5 tube, T8 tube and/or LED lighting | | |
| Other recyclables may be proposed at the discretion of the Applicant | | |

1 additional Bonus credit point for providing recycling boxes for each type of plastic, i.e. PET & HDPE, within the assessment boundary or the host building.

**(b) Quantifying Waste**

1 credit point for providing a waste audit report of the project space by waste scale provided within the host building or assessment boundary to encourage waste audit and monitor waste disposal performance.

**(c) Waste Treatment Equipment**

1 Bonus credit point for installing at least one smart on-site waste processor such as food waste composter or reverse vending machine within the assessment boundary or the host building.

**Assessment**

**(a) Recyclables Collection**

1. Provide a list of recycling facilities provided within the assessment boundary or the host building all of the following supporting documents.

2. Provide at least one storage bin/ storage area for recycling for each waste stream. Same type of recycling facilities in multiple locations can only be counted once. The size of the recycling facilities and collection frequency are not regulated. The facilities shall be placed in a prominent location (i.e. cannot be located in a car park or other non-occupied areas), but not necessarily within the assessment boundary.

3. Provide collection organisation information and signed agreement for the service. For the host building providing such facilities at a prominent location, the Applicant needs not duplicate the provision if the host building management could provide the required information for assessment.

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**(b) Quantifying wastes**

1. Provide a waste audit report of the project area.

2. Provide drawing with the location, specifications and photo record(s) of the waste scale used.

**(c) Waste Treatment Equipment**

1. Provide a full description and specifications of on-site waste processor being provided within the assessment boundary or the host building.

2. The size of the on-site waste processor is not regulated.

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**Submittals**

**(a) Recyclables Collection**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| MW-03-02a_00 | BI submission form for MW-03-02a |
| MW-03-02a_01 | Drawings showing the locations of the waste handling facilities |
| MW-03-02a_02 | Photo record(s) showing the provision of facilities |
| MW-03-02a_03 | Collection organisation/ recycler information, including:<br>1) Company name, address and contact information;<br>2) Collection frequency; and<br>3) Collection agreement signed by the recycling firm and the Applicant. If the Applicant adopts the host building facilities, the host building collection agreement (or an equivalent letter by the property management organisation) is required |

**(b) Quantifying Wastes**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| MW-03-02b_00 | BI submission form for MW-03-02b |
| MW-03-02b_01 | Drawings showing the location of the waste scale |
| MW-03-02b_02 | Catalogue(s)/ information of the waste scale |
| MW-03-02b_03 | Photo record(s) of the waste scale |
| MW-03-02b_04 | Waste audit report |

**(c) Waste Treatment Equipment**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| MW-03-02c_00 | BI submission form for MW-03-02c |
| MW-03-02c_01 | Drawings showing the location of the waste treatment equipment |
| MW-03-02c_02 | Catalogue(s)/ information of the waste treatment equipment |
| MW-03-02c_03 | Photo record(s) of the waste treatment equipment |

**Remark(s)**

**(a) Additional Information**

None

**(b) Related Credit(s)**

None

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**4 Materials and Waste** **MW-03** **Waste Reduction**

**MW-03-03** **No Bottled Water**

**Objective**

Reduce the environmental impact during the production and transportation of plastic water bottles.

**Credit Point(s) Attainable**

1

**Credit Requirement**

1 credit point for demonstrating no plastic bottled water type dispenser is adopted for the provision of drinking water.

**Assessment**

1. Provide layout drawing to indicate the location of all the water dispensers within the project boundary.
2. Provide the catalogues of all the water dispensers within the project boundary.
3. Provide photo record(s) of all the water dispensers within the project boundary.

**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| MW-03-03_00 | BI submission form for MW-03-03 |
| MW-03-03_01 | Layout drawing showing the location of all the water dispensers |
| MW-03-03_02 | Catalogue(s) of all the water dispensers |
| MW-03-03_03 | Photo record(s) of all the water dispensers |

**Remark(s)**

**(a) Additional Information**

None

**(b) Related Credit(s)**

None

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| | | | |
|---|---|---|---|
| **4** | **Materials and Waste** | **MW-04** | **Best Practice on Material Usage** |
| | | **MW-04-01** | **Best Practice on Material Usage** |

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# 5 Energy Use

An objective of BI V2.0 is to encourage thorough evaluation of the performance of the interior spaces and services system designs, and greater investments into measures that will help to improve the energy performance of the interior spaces, so as to reduce energy consumption and the associated environmental impacts, and summer peak electricity demand.

The assessment of the interior spaces and engineering systems is performance based as far as possible, but credits are also given to features which have proven to contribute to energy efficiency and conservation. Credits are given when management, operation and maintenance practices seek to achieve continual improvements in energy performance.

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| | | | |
|---|---|---|---|
| **5** | **Energy Use** | **EU-00** | **Basic Requirement** |
| | | **EU-00-01** | **Minimum Energy Performance** |

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| | | | |
|---|---|---|---|
| **5** | **Energy Use** | **EU-01** | **Energy Use Reduction and Control** |
| | | **EU-01-01** | **Low Carbon Passive Design** |

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## 5 Energy Use

### EU-01 Energy Use Reduction and Control

### EU-01-02 Reduction of $CO_2$ Emissions

**Objective**

Reduce the consumption of non-renewable energy and the associated carbon dioxide ($CO_2$) emissions to the atmosphere.

**Credit Point(s) Attainable**

14

**Credit Requirement**

Maximum 14 credit points for using energy efficient systems and controls that reduce carbon emissions from energy use by HVAC&R and/ or lighting systems.

| | Item | Credit Point(s) |
|---|---|---|
| **General** | | |
| i | Apply energy saving reminders at common spaces/ near switches of all building services systems/ appliances | 1 |
| ii | Arrange routine cleaning schedule for equipment/ systems to ensure operational efficiency of equipment/ systems | 1 |
| **HVAC&R** | | |
| iii | Provide a reduction of Coefficient of Performance (COP) by: 2%, 4%, 6%, 8% or 10% respectively (compared to the latest Building Energy Code in the same category) for split-type and window-type air conditioners | 1 to 5 |
| iv | Provide an appropriate zoning and thermostat distribution | 1 |
| v | Provide occupancy sensors and/or programmable timers for controlling HVACR operation | 2 |
| vi | Provide at least one (1) ceiling or wall mounted fan for normally occupied spaces within the assessment boundary to increase air circulation hence reducing demand for air conditioning | 1 |
| vii | Provide variable speed drive fan coil units (FCU) or high efficiency motors or variable air volume (VAV) box for normally occupied spaces within the assessment boundary | 3 |
| viii | Provide openable windows for mixed mode/ natural ventilation | 1 |
| ix | Install at least 30% or 50% of total window areas with direct access to daylight with solar window films (windows that are heavily shaded or do not have a direct sky view are excluded) | 2 or 4 |
| x | Install air curtain at the main entrance of the premises | 1 |
| xi | Install heat recovery system | 3 |
| **Lighting** | | |
| xii | Provide a reduction of Lighting Power Density (LPD) by: 2%, 4%, 6%, 8% or 10% respectively (compared to the latest Building Energy Code in the same category). Decorative lighting is excluded | 1 to 5 |
| xiii | Provide appropriate zoning and manual control distribution. Switches are clearly labelled and easily accessible by the occupants | 1 |
| xiv | Provide daylight dimming/ separate lighting controls of all areas accessible to daylight | 2 |
| xv | Provide occupancy sensors/ timer controls of all public areas such as corridors, toilets, etc. | 2 |

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| | | |
|---|---|---|
| xvi | Provide master switch (main switch) within the assessment boundary for the occupants to switch off all the lighting systems before leaving (Room for single user could be exempted from master switch requirement with substantiation) | 1 |
| xvii | Apply dual circuit with a timer at retail shop front/ hotel signboards and non-essential lighting in order to have a separate control for switching off these lighting after operating hours, or no later than 23:00 hours | 1 |
| xviii | Provide task lighting for all workstations within the assessment boundary | 1 |
| **Small Power** | | |
| xix | Provide a smart power strip or smart socket, which is capable of pre-setting a schedule or creating countdown timer lists for connected electrical appliances to automatically manage devices for at least 50% of power socket outlet (irrespective of number of gang) within the assessment boundary | 2 |

**Assessment**

1. Provide the following supporting documents for each item:

| ID | Supporting Documents |
|---|---|
| **General** | |
| i | Photo record(s) showing application of energy saving reminders at the common spaces/ near switches of all building services systems/ appliances |
| ii | Routine cleaning schedule for equipment/ systems |
| **HVAC&R** | |
| iii | Catalogues of air-conditioning equipment highlighting model and COP and photo record(s) of the overview and nameplate of installed air-conditioning equipment that show showing model and COP |
| iv | MVAC drawings highlighting all thermostats and their coverage area/ zone and project brief or declaration letter from project owner to demonstrate the as-built provisions could fulfil the user requirements |
| v | Catalogues of occupancy sensors and/or programmable timers and control schematic highlighting the control logic of sensors and/ or timers |
| vi | Catalogues and photo record(s) of ceiling or wall mounted fans |
| vii | Catalogues, MVAC drawings and photo record(s) of variable speed drive FCU or high efficiency motors or VAV box |
| viii | Elevation drawings and photo record(s) of openable windows |
| ix | Calculation showing the percentage of applicable total window areas with solar window film, elevation drawings highlighting extent of application of solar window films, catalogues and test report of solar window films and photo record(s) |
| x | Catalogues and photo record(s) of air curtains |
| xi | Catalogues and photo record(s) of heat recovery system |
| **Lighting** | |
| xii | Calculation showing a reduction of LPD, supported by lighting layout, lighting catalogues and photo record(s) |
| xiii | Lighting drawings highlighting all lighting switches and their coverage area/ zone, photo record(s) and project brief or declaration letter from project owner to demonstrate the as-built provisions could fulfil the user requirements |
| xiv | Catalogues and lighting drawings highlighting all daylight dimming/ |

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| | |
|---|---|
| | separate lighting controls of all areas accessible to daylight, their coverage area/ zone and photo record(s) |
| xv | Catalogues and lighting drawings highlighting occupancy sensors / timer controls of all public spaces, such as corridors, toilets, etc., their coverage area/ zone and photo record(s) |
| xvi | Electrical drawings highlighting master switch (main switch) and photo record(s) |
| xvii | Electrical drawings highlighting dual circuit with timer and photo record(s) |
| xviii | Lighting drawings highlighting all task lighting and photo record(s) |
| **Small Power** | |
| xix | Calculation showing the percentage of power socket outlet with smart power strip or smart socket, electrical drawings power socket outlet with smart power strip or smart socket, catalogue(s) of smart power strip or smart socket and photo record(s) |

2. All submittals shall be endorsed by a Registered Energy Assessor (REA).

**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| EU-01-02_00 | BI submission form for EU-01-02 |
| EU-01-02_01 | Photo record(s) showing application of energy saving reminders at the common spaces/ near switches of all building services systems/ appliances |
| EU-01-02_02 | Routine cleaning schedule for equipment/ systems |
| EU-01-02_03 | Catalogues of air-conditioning equipment highlighting model and COP and photo record(s) of the overview and nameplate of installed air-conditioning equipment that show model and COP |
| EU-01-02_04 | MVAC drawings highlighting all thermostats and their coverage area/ zone |
| EU-01-02_05 | Project brief or declaration letter from project owner for thermal zoning |
| EU-01-02_06 | Catalogues of occupancy sensors and/or programmable timers and control schematic highlighting the control logic of sensors and/ or timers |
| EU-01-02_07 | Catalogue and photo record(s) of ceiling or wall mounted fans |
| EU-01-02_08 | Catalogues, MVAC drawings and photo record(s) of variable speed drive FCU or high efficiency motors or VAV box |
| EU-01-02_09 | Elevation drawings and photo record(s) of openable windows |
| EU-01-02_10 | Calculation showing the percentage of applicable total window areas with solar window film, elevation drawings highlighting extent of application of solar window films, catalogue and test report of solar window films and photo record(s) |
| EU-01-02_11 | Catalogues and photo record(s) of air curtains |
| EU-01-02_12 | Catalogues and photo record(s) of heat recovery system |

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| | |
|---|---|
| EU-01-02_13 | Calculation showing a reduction of LPD, supported by lighting layout, lighting catalogue and photo record(s) |
| EU-01-02_14 | Lighting drawings highlighting all lighting switches and their coverage area/ zone and photo record(s) |
| EU-01-02_15 | Catalogues and lighting drawings highlighting all daylight dimming/ separate lighting controls of all areas accessible to daylight, their coverage area/ zone and photo record(s) |
| EU-01-02_16 | Project brief or declaration letter from project owner for lighting zoning |
| EU-01-02_17 | Catalogues and lighting drawings highlighting occupancy sensors / timer controls of all public spaces such as corridors, toilets, etc., their coverage area/ zone and photo record(s) |
| EU-01-02_18 | Electrical drawings highlighting master switch (main switch) and photo record(s) |
| EU-01-02_19 | Electrical drawings highlighting dual circuit with timer and photo record(s) |
| EU-01-02_20 | Lighting drawings highlighting all task lighting and photo record(s) |
| EU-01-02_21 | Calculation showing the percentage of power socket outlet with smart power strip or smart socket, electrical drawings power socket outlet with smart power strip or smart socket, catalogue(s) of smart power strip or smart socket and photo record(s) |

**Remark(s)**

**(a) Additional Information**

None

**(b) Related Credit(s)**

None

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| | | | |
|---|---|---|---|
| **5** | **Energy Use** | **EU-01** | **Energy Use Reduction and Control** |
| | | **EU-01-03** | **Peak Electricity Demand Reduction** |

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**5 Energy Use** **EU-01** **Energy Use Reduction and Control**

**EU-01-04** **Metering and Monitoring**

**Objective**

Enable operators to measure, monitor and develop measures to improve the performance of the engineering systems within the interior spaces.

**Credit Point(s) Attainable**

2 + 2 Bonus

**Credit Requirement**

**(a) Real-time monitoring system**

1 credit point for providing electrical meters for lighting system to establish a real-time energy data monitoring system.

1 to 2 additional Bonus credit points for providing electrical meters for any one (1)/ two (2) of the following engineering systems to establish a real-time energy data monitoring system.

**Engineering systems:**

i) Air-conditioner and mechanical ventilation energy consumption;
ii) Small power energy consumption; or
iii) Other proposed by the Applicant.

**(b) Data Collection Record**

1 credit point for demonstrating that the energy meters can collect and store the energy consumption data on an hourly basis for at least 1 year.

**Assessment**

**(a) Real-time monitoring system**

1. Provide electrical schematics highlighting real-time monitoring system(s) for listed installations under the Applicant's access or control. (Allow a minimum of one single meter for each system).

2. Provide the catalogue(s) of all metering. The monitoring provision requirements (Datapoint, Sensors or Meters) are listed below:

   a. Electricity metering should comply with BS EN [1] accuracy class 1 or equivalent; and
   b. Sensors for performance sub-metering should meet the minimum accuracy requirements in ASHRAE Guideline 13 [2] or equivalent.

3. Provide photo record(s) of the electrical meter.

**(b) Data Collection Record**

1. Provide the energy consumption data on an hourly basis for at least 1 year. The unit of the energy consumption (both electricity and gas (if applicable)) of the equipment, should be in kWh.

2. Provide the catalogue of the data collection facilities. All data recorded by the sub-metering system and monitoring system should be transferred to a Building Management System (BMS) or other data collection system. The BMS or other data collection system should have sufficient capacity to store for at least 1 year.

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**Submittals**

**(a) Real-time monitoring system**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| EU-01-04a_00 | BI submission form for EU-01-04a |
| EU-01-04a_01 | Electrical schematics highlighting all locations of metering |
| EU-01-04a_02 | Catalogues of all metering and measurement equipment |
| EU-01-04a_03 | Photo record(s) of the electrical meters |

**(b) Data Collection Record**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| EU-01-04b_00 | BI submission form for EU-01-04b |
| EU-01-04b_01 | Energy consumption data |
| EU-01-04b_02 | Electrical schematics highlighting BMS or data collection facilities |
| EU-01-04b_03 | Catalogue(s) of BMS or data collection facilities |

**Remark(s)**

**(a) Additional Information**

[1] British Standard BS EN 62053-11:2003. Electricity metering equipment (a.c.). Particular requirements. Electromechanical meters for active energy (classes 0.5, 1 and 2)

[2] ASHRAE Guideline 13: Specifying Building Automation Systems, American Society of Heating, Refrigerating and Air-conditioning Engineers, Inc., USA. 2015.

Code of Practice for Building Energy Audit – Electrical and Mechanical Services Department HKSAR, 2018

**(b) Related Credit(s)**

None

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| | | | |
|---|---|---|---|
| **5** | **Energy Use** | **EU-02** | **Renewable and Alternative Energy Generation** |
| | | **EU-02-01** | **Renewable and Alternative Energy Systems** |

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| | | | |
|---|---|---|---|
| **5** | **Energy Use** | **EU-03** | **Energy Efficient Equipment** |
| | | **EU-03-01** | **Air-Conditioning Units** |

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| | | | |
|---|---|---|---|
| **5** | **Energy Use** | **EU-03** | **Energy Efficient Equipment** |
| | | **EU-03-02** | **Clothes Drying Facilities** |

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**5 Energy Use** **EU-03** **Energy Efficient Equipment**

**EU-03-03** **Energy Efficient Appliances**

**Objective**

Recognise and encourage the procurement of energy-efficient equipment to ensure optimum performance and energy savings.

**Credit Point(s) Attainable**

3

**Credit Requirement**

1 to 3 credit points when 60%/ 80%/ 100% of the total quantity (number of pieces), for all newly purchased electrical appliance provided by the Applicant are certified energy efficient.

Percentage of total quantity of the certified electrical appliance (%) should be calculated by below equation:

$$\textbf{Certified Electrical Appliance}\ (\%) = \left(\frac{\sum \textbf{Newly Purchased Certified Electrical Appliance}}{\textbf{Total Newly Purchased Electrical Appliance}}\right) \times \mathbf{100}\%$$

***Alternatively,***

- *2 credit points for project that no appliances within the assessment boundary are newly purchased by the project owner.*

**Assessment**

1. Provide a narrative outlining the list and the locations of all newly purchased appliances.

2. Provide catalogue(s) and photo record(s) of newly purchased appliances.

3. Provide the calculation to demonstrate the percentage achievement of the certified electrical appliances.

4. Only eligible appliances meeting the following criteria shall be included in this assessment:

   a. Electrical appliances covered by Electrical and Mechanical Services Department (EMSD) Energy Efficiency Labelling.

   b. Except for televisions and induction cookers, the appliances should achieve Grade 1 under the Mandatory Energy Efficiency Labelling Scheme (MEELS) [1] or Voluntary Energy Efficiency Labelling Scheme (VEELS) [2] or “Recognition Type” Energy Label.

   c. For televisions and induction cookers, they should achieve at least Grade 2 under MEELS.

   d. US’s EPA ENERGY STAR Program with ENERGY STAR label [3].

***Alternatively,***

- *Provide an undertaking letter from the project owner to substantiate that no newly purchased appliances are provided by the project owner.*

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**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| EU-03-03_00 | BI submission form for EU-03-03 |
| EU-03-03_01 | Undertaking letter from the project owner to substantiate that no newly purchased appliances are provided by the project owner. |
| EU-03-03_02 | Narrative providing the schedule and locations of newly purchased appliances. |
| EU-03-03_03 | Catalogues of all electrical appliances highlighting the compliance energy efficiency labelling |
| EU-03-03_04 | Photo record(s) confirming installation of complaint electrical appliances |
| EU-03-03_05 | Calculation showing the percentage of certified electrical appliances |

**Remark(s)**

**(a) Additional Information**

[1] Mandatory Energy Efficiency Labelling Scheme [ONLINE]. Available at: https://www.emsd.gov.hk/en/energy_efficiency/mandatory_energy_efficiency_labelling_scheme/index.html
[Accessed Oct 2023].

[2] Voluntary Energy Efficiency Labelling Scheme [ONLINE]. Available at: https://www.emsd.gov.hk/en/energy_efficiency/voluntary_energy_efficiency_labelling_scheme/index.html
[Accessed Oct 2023].

[3] USEPA ENERGY STAR website [ONLINE] Available at: https://www.energystar.gov/products
[Accessed Oct 2023].

**(b) Related Credit(s)**

None

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| | | | |
|---|---|---|---|
| **5** | **Energy Use** | **EU-03** | **Energy Efficient Equipment** |
| | | **EU-03-04** | **Cooling System Efficiency** |

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| | | | |
|---|---|---|---|
| **5** | **Energy Use** | **EU-03** | **Energy Efficient Equipment** |
| | | **EU-03-05** | **Air Management System** |

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| | | | |
|---|---|---|---|
| **5** | **Energy Use** | **EU-04** | **Energy Management and Monitoring** |
| | | **EU-04-01** | **Best Practices on Energy Use** |

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**5 Energy Use** **EU-04** **Energy Management and Monitoring**

**EU-04-02** **Smart Devices**

**Objective**

Maximise energy efficiency, optimise comfort and productivity via smart devices.

**Credit Point(s) Attainable**

1 Bonus

**Credit Requirement**

1 Bonus credit point for adopting network of smart devices with at least two (2) of the following sensors, which are capable of connecting to the internet, gathering information from their environments and exchanging data with other smart devices for analysis to maximise energy efficiency, optimise comfort and productivity of the interior spaces.

| **Sensors for smart control** | |
|---|---|
| Occupancy/ Motion/ light sensor for lighting control | Temperature and humidity sensor for AC control |
| Air quality sensor for MVAC control | Light sensor for curtain control |
| Others proposed by the Applicant | |

**Assessment**

1. Provide drawing for the location of the devices, catalogues and photo record(s) of the network of smart devices with sensors provided within the assessment boundary.

**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| EU-04-02_00 | BI submission form for EU-04-02 |
| EU-04-02_01 | Drawings showing details and location of network of smart devices with sensors |
| EU-04-02_02 | Catalogue(s)/ information of the network of smart devices with sensors |
| EU-04-02_03 | Photo record(s) showing the provision(s) |

**Remark(s)**

**(a) Additional Information**

None

**(b) Related Credit(s)**

None

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**5 Energy Use** **EU-04** **Energy Management and Monitoring**

**EU-04-03** **Energy Management**

**Objective**

Encourage high level management to involve in the improvement of energy efficiency and conservation.

**Credit Point(s) Attainable**

1

**Credit Requirement**

1 credit point for implementing energy management plan within the assessment boundary.

**Assessment**

1. Provide an energy management plan endorsed by either the project owner, project owner's representative or Project BEAM Pro, including the following items:

   a. High level commitment with duty of energy management team and the organisation chart;
   b. Methodology and frequency of future energy audit;
   c. Available documents for energy management; and
   d. List of all energy saving features.

2. Provide implementation records of energy management practice.

3. It is not necessary that all energy management practices as specified in the energy management plan to be implemented.

**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| EU-04-03_00 | BI submission form for EU-04-03 |
| EU-04-03_01 | Endorsed energy management plan |
| EU-04-03_02 | Implementation records of energy management practice |

**Remark(s)**

**(a) Additional Information**

None

**(b) Related Credit(s)**

None

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## 6 Water Use

In Hong Kong, Water Supplies Department (WSD) ensures that the quality of drinking water provided to customers complies fully with the Hong Kong Drinking Water Standards, currently being the corresponding guideline values or provisional guideline values in the fourth edition of the World Health Organisation's Guidelines for Drinking-water Quality published in 2011 (WHO Guidelines).

Drinking water quality, however, can be affected by the condition of a building's inside service. To safeguard tap water quality, property owners and building managers are advised to carry out proper maintenance of inside service and regular cleaning of water storage tanks. While water quality satisfying WSD's requirement is the mandatory requirement, water conservation is another focus area under water category.

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| | | | |
|---|---|---|---|
| **6** | **Water Use** | **WU-00** | **Basic Requirement** |
| | | **WU-00-01** | **Minimum Water Saving Performance** |

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## 6 Water Use WU-01 Water Conservation

### WU-01-01 Annual Water Use

**Objective**

Reduce the consumption of potable water through the application of water saving devices that have proven performance and reliability.

**Credit Point(s) Attainable**

3

**Credit Requirement**

1 to 3 credit points for achieving annual water saving of at least 20%/ 25%/ 30% by using water efficient flow devices with reference to BI V2.0 baseline.

***Alternatively,***

- *3 credit points for achieving Grade 1 under WSD's Water Efficiency Labelling Scheme (WELS) [1] for all potable water devices within the assessment boundary; or*
- *3 credit points for achieving Grade 1 under WSD's WELS for all potable water devices on the same floor of the assessment boundary; or*
- *3 credit points for installing aerators of Grade 1 under the WSD's WELS to restrict the water flow rate of basin mixers, kitchen taps and shower heads (if applicable) on the same floor of the assessment boundary; or*
- *1 credit point for infrared sensor faucets installed on the same floor of the assessment boundary to restrict the water flow of basin mixers and kitchen taps and shower heads (if applicable).*

Water taps for cleansing are excluded from assessment.

**Assessment**

1. Provide a schedule to show the model, installed location and quantity of each type of sanitary fixtures.
2. Indicate the location of assessed sanitary fixtures on plumbing layout drawing(s).
3. Highlight the flow rate of assessed sanitary fixtures at 5 bar on catalogue(s).
4. Calculate annual water saving with the following methodologies:

   4.1 The calculation should only consider the listed fixtures.

| Fixture Type | Flow Rate (L/min) | Operation Time (sec) | Number of Use per Occupant per day |
|---|---|---|---|
| Shower | 12 | 300 | 0.1 |
| Water Taps (pantries/ kitchen) | 8 | 15 | 1 |
| Non-mixing Type Water Taps (shower rooms and toilets) | 4 | 10 | 5 |
| Mixing Type Water Taps (shower rooms and toilets) | 7 | 10 | 5 |

   4.2 If automatic controls such as proximity sensors are used in the project to reduce the operation time, product catalogues are required to substantiate

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the performance.

4.3 The number of occupants and operational days for baseline and design case should be assumed the same as follows:

| | Baseline | Design |
|---|---|---|
| Number of occupants & male to female ratio | From project sanitary fitment schedule **[or]** Assume occupancy (9m$^2$/ person) and male to female ratio (1:1) | |
| Number of occupants with disability (restriction in body movement) | Rate of the occupants is 4.47% [2] | |
| Operational Days | Project specific **[or]** Assume full year operation (365 days) | |

4.3.1 Equation for annual potable water percentage saving:

$$\mathbf{1} - \frac{\textbf{Annual potable water use (design)}}{\textbf{Annual potable water use (baseline)}} \times \mathbf{100}\%$$

4.4 The floor area used for occupancy calculation shall be referenced from the internal floor area in project information fact sheet. The Applicant shall submit layout plans with explicit area highlighted for substantiation if the adopted floor area is different from internal floor area in project information fact sheet.

***Alternatively,***

- *Provide photo record(s) and WELS proof(s) highlighting the model and grading of all potable water devices within the assessment boundary.*
- *Provide photo record(s) and WELS proof(s) highlighting the model and grading of all potable water devices on the same floor of the assessment boundary.*
- *Provide photo record(s) and WELS proof(s) highlighting the model and grading of aerators.*
- *Provide photo record(s) and catalogue(s) of infrared sensor.*

**Submittals**

| **Supporting Documents** *Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| WU-01-01_00 | BI submission form for WU-01-01 |
| WU-01-01_01 | Sanitary fixture schedule |
| WU-01-01_02 | Layout drawing(s) |
| WU-01-01_03 | Occupancy schedule |
| WU-01-01_04 | Annual water saving calculation |
| WU-01-01_05 | Grade 1 WELS label(s) of potable water devices/ aerators |
| WU-01-01_06 | Photo record(s) of potable water devices/ aerators/ infrared sensor |
| WU-01-01_07 | Catalogues(s) of infrared sensor |

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**Remark(s)**

**(a) Additional Information**

[1] Water Efficiency Labelling Scheme, Water Supplies Department. [ONLINE]. Available at:
https://www.wsd.gov.hk/en/plumbing-engineering/water-efficiency-labelling-scheme/index.html
[Accessed Oct 2023].

[2] Hong Kong Monthly Digest of Statistics (January 2015) Feature Article – Persons with Disabilities and Chronic Diseases in Hong Kong, Census and Statistics Department, Hong Kong Special Administrative Region. [ONLINE]. Available at:
http://www.statistics.gov.hk/pub/B71501FB2015XXXXB0100.pdf
[Accessed Oct 2023].

**(b) Related Credit(s)**

None

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| | | | |
|---|---|---|---|
| **6** | **Water Use** | **WU-01** | **Water Conservation** |
| | | **WU-01-02** | **Water Efficient Irrigation** |

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| | | | |
|---|---|---|---|
| **6** | **Water Use** | **WU-01** | **Water Conservation** |
| | | **WU-01-03** | **Water Efficient Appliances** |

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| | | | |
|---|---|---|---|
| **6** | **Water Use** | **WU-01** | **Water Conservation** |
| | | **WU-01-04** | **Water Leakage Detection** |

**Objective**

Identify water leakage once detected for the arrangement of maintenance work.

**Credit Point(s) Attainable**

1

**Credit Requirement**

**Scenario 1: Assessment boundary with potable water supply:**

1 credit point for installing water leakage detection system in the covered pipework near all water points.

**Scenario 2: Assessment boundary without potable water supply and with piping adjacent to the boundary:**

1 credit point for not installing built-in furniture so that seepage of water or water from the adjacent interior spaces can be easily detected.

**Scenario 3: Assessment boundary without potable water supply and no piping adjacent to the boundary:**

1 credit point for project that does not have potable water supply nor piping adjacent to the assessment boundary.

**Assessment**

**Scenario 1:**

1. Provide layout drawing(s) to highlight the water leakage detection systems being installed in all covered pipework near water points.
2. Exclude water point(s) which consists of only non-potable water from the assessment.
3. Provide catalogue of water leakage detection systems demonstrating its capability to automatically alert the operator or the security guard and identify the water point(s) with leakage when leakage occurs.

**Scenario 2:**

1. Provide layout drawing(s) to show piping system of adjacent interior spaces.
2. Provide dated photo record(s) to show no built-in furniture at each wall of project interiors spaces.

**Scenario 3:**

1. Provide layout drawing(s) to show no piping system of adjacent interior spaces.
2. Provide confirmation letter by the project owner confirming no potable water supply nor piping adjacent to the assessment boundary.

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**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| WU-01-04_00 | BI submission form for WU-01-04 |
| WU-01-04_01 | Layout drawing(s) |
| WU-01-04_02 | Catalogue(s) |
| WU-01-04_03 | Dated photo record(s) |
| WU-01-04_04 | Confirmation letter |

**Remark(s)**

**(a) Additional Information**

None

**(b) Related Credit(s)**

None

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| | | | |
|---|---|---|---|
| **6** | **Water Use** | **WU-01** | **Water Conservation** |
| | | **WU-01-05** | **Twin Tank System** |

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| | | | |
|---|---|---|---|
| **6** | **Water Use** | **WU-01** | **Water Conservation** |
| | | **WU-01-06** | **Cooling Tower Water** |

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## 6 Water Use — WU-02 Effluent

### WU-02-01 Effluent Discharge to Foul Sewers

**Objective**

Reduce the volumes of sewage discharged from buildings, thereby reducing burdens on municipal sewage services and treatment facilities.

**Credit Point(s) Attainable**

1

**Credit Requirement**

1 credit point for installing water efficient flushing devices with Grade 1 label under the WSD's WELS [1].

***Alternatively,***

- *1 credit point for the host building has installed dual-flush water closets and infrared sensor urinals (if applicable).*

**Assessment**

1. Indicate the locations of assessed sanitary fixtures on plumbing and/ or drainage layout drawing(s).
2. Provide WELS proof(s) highlighting the model and grading of all flushing water devices.
3. Provide catalogue(s) of dual-flush water closets and infrared sensor urinals (if applicable).
4. For the assessment boundary without flushing water supply, only toilets on the same floor of the assessment boundary shall be counted.

**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| WU-02-01_00 | BI submission form for WU-02-01 |
| WU-02-01_01 | Layout drawing(s) |
| WU-02-01_02 | Grade 1 WELS label(s) |
| WU-02-01_03 | Catalogue(s) |
| WU-02-01_04 | Dated photo record(s) |

**Remark(s)**

**(a) Additional Information**

[1] Water Efficiency Labelling Scheme, Water Supplies Department. [ONLINE]. Available at: https://www.wsd.gov.hk/en/plumbing-engineering/water-efficiency-labelling-scheme/index.html [Accessed Oct 2023].

**(b) Related Credit(s)**

None

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| | | | |
|---|---|---|---|
| **6** | **Water Use** | **WU-03** | **Water Harvesting and Recycling** |
| | | **WU-03-01** | **Water Harvesting and Recycling** |

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| | | | |
|---|---|---|---|
| **6** | **Water Use** | **WU-04** | **Water Management** |
| | | **WU-04-01** | **Smart Water Metering** |

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| | | | |
|---|---|---|---|
| **6** | **Water Use** | **WU-04** | **Water Management** |
| | | **WU-04-02** | **Water Saving Management** |

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**6 Water Use** **WU-04** **Water Management**

**WU-04-03** **Water Quality Survey**

**Objective** Ensure the quality of drinking water delivered to the occupants are satisfactory.

**Credit Point(s) Attainable** 1

**Credit Requirement** 1 credit point for demonstrating that the quality of drinking water meets WSD's latest guideline [1].

| Parameter(s) | Criteria |
|---|---|
| ***Chemical and Physical*** | |
| Turbidity | ≤ 3.0 NTU |
| Colour | ≤ 5 Hazen Unit |
| pH at 25°C | ≥ 6.5 and ≤ 9.5 |
| Free Residual Chlorine | > 0 mg/L and ≤ 1.5 mg/L |
| Conductivity at 25°C | ≤ 500 µS/cm |
| ***Metals*** | |
| Lead | ≤ 10 µg/L |
| Chromium | ≤ 50 µg/L |
| Nickel | ≤ 70 µg/L |
| Cadmium | ≤ 3 µg/L |
| Copper | ≤ 2000 µg/L |
| Antimony | ≤ 20 µg/L |
| ***Bacteriological*** | |
| Heterotrophic Plate Count | ≤ 20 cfu/mL |
| E. Coli | 0 cfu/100 mL |

The water quality survey should be conducted by a HOKLAS accredited laboratory and water sampling should be systematic, following the latest WSD's water sampling protocol for commissioning of freshwater plumbing system.

**Assessment**

1. Provide plumbing schematic and layout drawing(s) with all sampling points and distribution route clearly indicated to demonstrate that water sampling has been taken at farthest point(s) of use in the drinking water distribution system.

2. Provide water quality survey report issued by the HOKLAS laboratory under the food, environmental testing category to demonstrate that the result of the water quality survey meets the referenced drinking water supply standards.

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**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| WU-04-03_00 | BI submission form for WU-04-03 |
| WU-04-03_01 | Laboratory test report by HOKLAS laboratory(s) |
| WU-04-03_02 | Plumbing schematic and layout drawing(s) with all sampling points and distribution route clearly indicated |

**Remark(s)**

**(a) Additional Information**

[1] WSD Circular Letter No. 05/2023 [ONLINE]. Available at: https://www.wsd.gov.hk/filemanager/article/en/upload/538/CL_5_2023_Eng.pdf
[Accessed Oct 2023].

**(b) Related Credit(s)**

None

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# 7 Health and Wellbeing

This section of BI V2.0 considers the broader perspectives of sustainable interior spaces as well as the occupants' health and wellbeing. The broader sustainable issues include provisions of hygiene and amenities maintenance provided in the interior spaces, which have impact on the quality of working and living environments.

Given that on average people in Hong Kong spend around 85% of their time indoors on average, indoor environmental quality has a significant impact on the quality of life.

Interiors spaces should provide safe, healthy, convenient and efficient indoor spaces. Poor indoor environments can have impact on productivity and may pose health risks to the occupants. The design, management, operation and maintenance of the interior spaces should seek to provide a good quality indoor environment, with optimum use of energy and other resources.

Indoor environmental quality includes indoor air quality and ventilation provisions that safeguard health. Considerations of these issues also include thermal comfort, lighting, acoustic and noise, impact on wellbeing, comfort and productivity.

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**7 Health and Wellbeing** **HWB-00 Basic Requirement**

**HWB-00-01 Minimum Ventilation Performance**

**Objective** Ensure that a minimum quality and quantity of outdoor air is supplied to spaces in the project in order to support the well-being and comfort of the occupants.

**Credit Point(s) Attainable** 1

**Credit Requirement** 1 credit point for demonstrating that the normally occupied space has met the requirements of corresponding air changes per hour (ACH) of air ventilation rate.

***Alternatively,***

- *1 credit point for demonstrating that the $CO_2$ level within the normally occupied space can comply with Good Class requirements as stipulated in IAQ Certification Scheme [1]; or*

- *1 credit point for demonstrating that the project is in compliance with the minimum ventilation rate stipulated in ASHRAE Standard 62.1-2019 [2] with respective to its designed ventilation mode.*

**Assessment**

1. Provide a narrative that demonstrates compliance with below minimum requirements of corresponding ACH of air ventilation rate:

| Types of Spaces | Air Ventilation Requirement (ACH) |
|---|---|
| Work Space – Offices | 5 |
| Shopping Space – Retail | 6 |
| Food Space – Restaurant | 6 |
| Institutional Space – Elderly Homes | 5 |
| Institutional Space – Clinic | 6 |
| Institutional Space – Ward | 6 |
| Institutional Space – Classroom | 6 |
| Institutional Space – Library | 6 |
| Hotel Space – Hotel | 4 |
| Leisure & Entertainment Space – Function Room | 8 |
| Residential Communal Space – Clubhouse (Gym) | 6 |
| Residential Communal Space – Clubhouse (Lounge) | 6 |
| Residential Communal Space – Function Room | 8 |

ACH of air ventilation rate can be calculated as follows:

$$\boldsymbol{Air\ Changes\ Per\ Hour\ (ACH)} = \frac{\boldsymbol{Volume\ of\ air\ flow\ in\ an\ hour\ \ (Cubic\ metre\ per\ hour)}}{\boldsymbol{Volume\ of\ the\ space\ (Cubic\ metre)}}$$

***Alternatively,***

- *Conduct air measurement to check whether the indoor $CO_2$ level conforms to IAQ Certification Scheme Good Class level. Unless provided with justification, sampling criteria, period, points and required assessment area should follow the latest guide on Indoor Air Quality Certification Scheme for Offices and Public Places [3]; and*

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- *Provide an IAQ report of the assessment boundary endorsed by an accredited IAQ CIB [4]; or*
- *Provide a report demonstrating compliance with the minimum ventilation rate stipulated in ASHRAE Standard 62.1-2019 in all normally occupied spaces.*

**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| HWB-00-01_00 | BI submission form for HWB-00-01 |
| HWB-00-01_01 | Narrative demonstrating compliance with the minimum requirements of corresponding ACH of air ventilation rate |
| HWB-00-01_02 | Layout plan showing the seating arrangement |
| HWB-00-01_03 | HVAC drawing |
| HWB-00-01_04 | HVAC schedule & catalogue(s) |
| HWB-00-01_05 | IAQ measurement report endorsed by an accredited IAQ CIB |
| HWB-00-01_06 | Report demonstrating compliance with the minimum ventilation rate stipulated in ASHRAE Standard 62.1-2019 with respective to its designed ventilation mode in normally occupied spaces |

**Remark(s)**

**(a) Additional Information**

[1] IAQ Certification Scheme, Indoor Air Quality Information Centre. [ONLINE]. Available at: https://www.iaq.gov.hk/en/iaq-certification-scheme/
[Accessed Oct 2023].

[2] American Society of Heating, Refrigerating and Air-conditioning Engineers (ASHRAE) – ANSI/ASHRAE Standard 62.1-2019. Ventilation for Acceptable Indoor Air Quality. [ONLINE] Available at: www.ashrae.org
[Accessed Oct 2023]

[3] A Guide on Indoor Air Quality Certification Scheme for Offices and Public Places, Indoor Air Quality Information Centre. [ONLINE]. Available at: https://www.iaq.gov.hk/en/iaq-certification-scheme-references-and-useful-forms/
[Accessed Oct 2023].

[4] Certificate Issuing Body Accreditation, Indoor Air Quality Information Centre. [ONLINE]. Available at:
https://www.iaq.gov.hk/en/iaq-certification-scheme-iaq-service-providers/
[Accessed Oct 2023].

**(b) Related Credit(s)**

HWB-03-01 Enhanced Ventilation

The related credit awards project demonstrating enhanced ventilation performance in the normally occupied spaces.

HWB-03-05 Indoor Air Quality

Carrying out on-site indoor measurement to provide useful information of the operation of ventilation system so as to ensure a good air quality provision.

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| | | | |
|---|---|---|---|
| **7** | **Health and Wellbeing** | **HWB-01** | **Design for Green Living** |
| | | **HWB-01-01** | **Healthy and Active Living** |

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**7 Health and Wellbeing** **HWB-01 Design for Green Living**

**HWB-01-02 Biophilic Design**

**Objective**

Encourage the building occupants to have constant interaction with living things and natural surroundings to nurture the innate human-nature connection and to address human psychological need to be around life and life-like processes.

**Credit point(s) Attainable**

2

**Credit Requirement**

1 to 2 credit points for fulfilling at least two (2)/ three (3) items from table below.

| **Items:** | |
|---|---|
| Potted plants or planted beds cover at least 1% of the total internal floor area of the assessment boundary | Plant wall(s) cover wall area that is at least 1% of the total internal floor area of the assessment boundary |
| Use of natural materials for interior design and build for at least 10% of total internal floor area of the assessment boundary | Nature sound in the common spaces |
| At least one (1) water features | Others to be proposed by the Applicant |

***Alternatively,***

- *1 to 2 credit points for demonstrating visual connection with nature and/ or biophilic design features within the assessment boundary with Visual Quality Score (VQS) of at least 1.5 or 2.5.*

**Assessment**

1. Prepare a narrative showing compliance with the listed requirements. Unless specified area and quantity, the Applicant should demonstrate the proposed item(s) could meet the credit intent in term of quantity.

***Alternatively,***

- *VQS calculation:*

    1. *Prepare a report of the visual quality study of the assessment boundary by demonstrating the visual quality score of the space.*

    2. *VQS can be calculated by applying weighting factors (from 1 to 5) to images taken from the viewpoints.*

    3. *Number and location of viewpoints:*

        3.1. *A minimum of one (1) viewpoint shall be placed within the selected assessment space. The assessment space chosen shall be a normally occupied space with the highest occupancy; and*

        3.2. *The viewpoint should be appropriately located at the centre of the assessment space (for space of irregular shape, the space shall be subdivided into various notional portions for respective VQSportion calculations and the VQSportion of various portions shall be area-weighted in order to compute the overall VQS of the assessment space).*

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4. *Number of images:*

   4.1. *A series of images from three (3) different directions at 45° interval should be taken using landscape orientation.*

   4.2. *Weighting factors are listed in the following table:*

| Weighting Factor | Representation | Visual Connection to Nature and/ or Biophilic Design Features |
|---|---|---|
| 5 | Outstanding | Natural terrain; waterfront; extensive outdoor greenery with deciduous trees, seasonal flowers and/or native plants providing local fauna, including birds and butterflies with appropriate food sources and habitats |
| 4 | Excellent | Outdoor planting; Sky |
| 3 | Good | Indoor planting |
| 2 | Fair | Biomorphic forms & patterns; nature presented by digital medium, drawing or other visual means |
| 1 | Insignificant | No visual connection to the above |

5. *Methodology:*

   5.1. *Applicant shall produce images taken from single lens camera and specifications for camera are listed below:*

| Item | Setting |
|---|---|
| Vertical elevation of camera | 1,600mm above ground/ finished floor |
| Equivalent lens focal length or focal length | 27mm |
| Aspect Ratio | 3:2 |

   5.2. *For each image, assign weighting factors from 1 to 5 to different portions of the image depending on the quality of the view;*
   5.3. *Calculate the VQS of the image using Area Weighting Methodology;*
   5.4. *Repeat the process for each image; and*
   5.5. *Calculate the average VQS for the viewpoint.*

6. *Important notes:*

   6.1. *No fisheye or image distortion before or after picture taking; and*
   6.2. *No zooming or pan function shall be used.*

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**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| HWB-01-02_00 | BI submission form for HWB-01-02 |
| HWB-01-02_01 | Layout plan showing the provision(s) |
| HWB-01-02_02 | Narrative showing compliance with the listed requirements with photo record(s) |
| HWB-01-02_03 | Video showing natural sound implemented in common spaces |
| HWB-01-02_04 | Specifications or catalogue(s) of all the natural materials used |
| HWB-01-02_05 | Visual quality study report |

**Remark(s)**

**(a) Additional Information**

Biophilic Design Case Studies. Terrapin Bright Green. [ONLINE]. Available at: https://www.terrapinbrightgreen.com/report/biophilic-design-case-studies/ [Accessed Oct 2023].

Kaplan, R and Kaplan, S, 1989, “The Experience of Nature: A Psychological Perspective”, Cambridge, University Press: Cambridge, UK.

Kellert, S.R., Heerwagen, J., Mador, M., Eds., 2008, “Biophilic Design – The Theory, Science, and Practice of Bringing Buildings to Life”, Wiley: Hoboken, NJ, USA.

Patterns of Biophilic Design. Terrapin Bright Green. [ONLINE]. Available at: https://www.terrapinbrightgreen.com/report/14-patterns/ [Accessed Oct 2023].

Wilson, E.O. 1984, “Biophilia”, Harvard University Press: Cambridge, MA, USA

**(b) Related Credit(s)**

None

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**7 Health and Wellbeing** **HWB-02 Inclusive Design**

**HWB-02-01 Inclusive Design**

**Objective** Encourage user-friendliness of the interior space design for people of all backgrounds and abilities.

**Credit Point(s) Attainable** 4

**Credit Requirement**

**(a) Barrier Free Access (BFA) Design**

1 to 2 credit points for providing at least one (1)/ two (2) applicable enhanced provisions as stipulated in the "Recommended Design Requirements" of BFA 2008 [1].

**(b) Corporate Social Responsibility (CSR) Facilities**

1 to 2 credit points for providing two (2)/ four (4) of the following CSR facilities.

| **List of CSR facilities** | | |
|---|---|---|
| AED/ First-aid kits | Dedicated dining spaces | Quiet or wellness room |
| Family restroom within the host building | Permanent aesthetic display | Dedicated fitness/ exercise space |
| Permanent physical or digital board for green building education | Baby-care room or lactation room within the host building | Bicycle storage for at least 5% or more for regular occupants within the host building |
| Others to be proposed by the Applicant | | |

**Assessment**

**(a) Barrier Free Access (BFA) Design**

1. Provide a report detailing applicable enhanced provisions as stipulated in the "Recommended Design Requirements" of BFA 2008.

**(b) Corporate Social Responsibility (CSR) Facilities**

1. Provide a report detailing the applicable CSR facilities of the project. The Applicant should demonstrate the dedicated space serves the primary intention of the activity.

2. If the area is designed to be a multi-purpose space, a timetable schedule endorsed by the project owner indicating the period of each activity is required.

3. Permanent nature of items should be done with installation work or any means that the applicant has to demonstrate how the nature is achieved.

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**Submittals**

**(a) Barrier Free Access (BFA) Design**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| HWB-02-01a_00 | BI submission form for HWB-02-01a |
| HWB-02-01a_01 | Summary table listing the enhanced provisions, and their locations |
| HWB-02-01a_02 | Drawings showing the design measures and/or amenity features |
| HWB-02-01a_03 | Report showing justifications and details for each design measures and/or amenity features |
| HWB-02-01a_04 | Catalogue(s)/ information of design measures provided or photo record(s) |

**(b) Corporate Social Responsibility (CSR) Facilities**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| HWB-02-01b_00 | BI submission form for HWB-02-01b |
| HWB-02-01b_01 | Summary table listing the facilities |
| HWB-02-01b_02 | Drawings showing the facilities and locations |
| HWB-02-01b_03 | Photo record(s) of the facilities |
| HWB-02-01b_04 | Endorsed timetable schedule for multi-purpose space |

**Remark(s)**

**(a) Additional Information**

[1] Design Manual - Barrier Free Access 2008 (2021 Edition), Buildings Department. [ONLINE] Available at:
https://www.bd.gov.hk/doc/en/resources/codes-and-references/code-and-design-manuals/BFA2008_e.pdf
[Accessed Oct 2023].

**(b) Related Credit(s)**

None

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**7 Health and Wellbeing** **HWB-03 Indoor Environmental Quality**

**HWB-03-01 Enhanced Ventilation**

**Objective**

Maintain effective ventilation and prevent exposure to concentrated indoor pollutant sources to support occupants' health and wellbeing

**Credit Point(s) Attainable**

1

**Credit Requirement**

1 credit point for demonstrating that the space has exceeded the ACH in credit HWB-00-01 Minimum Ventilation Performance by 30%.

***Alternatively,***

- *1 credit point for demonstrating the minimum ventilation rate of the space has exceeded ASHRAE 62.1-2019 [2] by 30%.*

**Assessment**

1. Provide a narrative demonstrating that compliance with the minimum ventilation rate exceeds the corresponding ACH in HWB-00-01 Minimum Ventilation Performance by 30%.

***Alternatively,***

- *Provide a report demonstrating compliance with the minimum ventilation rate is exceeded by 30% as stipulated in ASHRAE Standard 62.1-2019 in all normally occupied spaces.*

**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| HWB-03-01_00 | BI submission form for HWB-03-01 |
| HWB-03-01_01 | Narrative demonstrating that compliance with minimum ventilation rate exceeds the corresponding ACH in HWB-00-01 Minimum Ventilation Performance by 30% |
| HWB-03-01_02 | Layout plan showing the seating arrangement |
| HWB-03-01_03 | HVAC drawing |
| HWB-03-01_04 | HVAC schedule & catalogue(s) |
| HWB-03-01_05 | Report demonstrating compliance with the minimum ventilation rate by exceeding 30% as stipulated in ASHRAE Standard 62.1-2019 with respective to its designed ventilation mode in normally occupied spaces |

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**Remark(s)**

**(a) Additional Information**

[1] IAQ Certification Scheme, Indoor Air Quality Information Centre. [ONLINE]. Available at: https://www.iaq.gov.hk/en/iaq-certification-scheme/
[Accessed Oct 2023].

[2] American Society of Heating, Refrigerating and Air-conditioning Engineers (ASHRAE) – ANSI/ASHRAE Standard 62.1-2019. Ventilation for Acceptable Indoor Air Quality. [ONLINE] Available at: www.ashrae.org
[Accessed Oct 2023]

[3] A Guide on Indoor Air Quality Certification Scheme for Offices and Public Places, Indoor Air Quality Information Centre. [ONLINE]. Available at: https://www.iaq.gov.hk/en/iaq-certification-scheme-references-and-useful-forms/
[Accessed Oct 2023].

[4] Certificate Issuing Body Accreditation, Indoor Air Quality Information Centre. [ONLINE]. Available at:
https://www.iaq.gov.hk/en/iaq-certification-scheme-iaq-service-providers/
[Accessed Oct 2023].

**(b) Related Credit(s)**

HWB-00-01 Minimum Ventilation Performance

The related credit awards project demonstrating enhanced ventilation performance in the normally occupied spaces.

HWB-03-05 Indoor Air Quality

Carrying out on-site indoor measurement to provide useful information of the operation of ventilation system so as to ensure a good air quality provision.

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| | | | |
|---|---|---|---|
| **7** | **Health and Wellbeing** | **HWB-03** | **Indoor Environmental Quality** |
| | | **HWB-03-02** | **Waste Odour Control** |

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**7 Health and Wellbeing** **HWB-03 Indoor Environmental Quality**

**HWB-03-03 Acoustics and Noise**

**Objective** Ensure the normally occupied interior spaces have a comfortable acoustic environment.

**Credit Point(s) Attainable** 3

**Credit Requirement**

**(a) Background Noise Level**

1 credit point for demonstrating background noise levels within the prescribed criteria.

**(b) Reverberation time**

1 credit point for demonstrating that the reverberation time in the applicable areas meets the prescribed criteria of given types of space.

**(c) Noise isolation**

1 credit point for demonstrating airborne noise isolation between spaces fulfils the prescribed criteria.

**Assessment** **(a) Internal Noise Level**

1. Demonstrate the background noise level of the interior spaces from internal building services equipment is within below criteria by computer simulation or measurement depending on the Applicant's preference. NR and NC value should be consistently used in the project.

| Types of Space | Required NR/NC |
|---|---|
| Institutional Space – Classroom<br>Institutional Space – Library | 30 |
| Work Space – Conference Rooms<br>Institutional Space – Elderly Homes<br>Institutional Space – Clinic<br>Institutional Space – Ward<br>Institutional Space – Lecture Room<br>Hotel Space – Hotel | 35 |
| Work Space – Offices<br>Residential Communal Space – Clubhouse (Lounge)<br>Residential Communal Space – Clubhouse (Gym)<br>Residential Communal Space – Function Room | 40 |
| Shopping Space – Retail<br>Food Space – Restaurant | 45 |
| Leisure & Entertainment Space – Function Room | 50 |

For on-site measurement, the measurement should be based on an equivalent continuous sound level of 5 minutes [$L_{eq}$ (5mins)] with the HVAC&R system operating under normal condition.

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**(b) Reverberation time**

1. Demonstrate the mid-frequency reverberation time (RT) of the interior spaces is within below criteria by computer simulation or measurement depending on the Applicant's preference.

   The average reverberation time for mid frequencies (500Hz, 1kHz and 2kHz) shall not exceed:

| Types of Space | Required RT (second) |
|---|---|
| Hotel Space – Hotel | 0.4 – 0.6 |
| Work Space – Offices<br>Work Space – Conference Rooms<br>Institutional Space – Elderly Homes<br>Institutional Space – Ward<br>Institutional Space – Classroom<br>Residential Communal Space – Clubhouse (Lounge) | 0.6 |
| Institutional Space – Clinic<br>Institutional Space – Lecture Room<br>Institutional Space – Library | 0.8 |
| Shopping Space – Retail<br>Food Space – Restaurant | 1 |
| Leisure & Entertainment Space – Function Room<br>Residential Communal Space – Function Room | 1.5 |
| Residential Communal Space – Clubhouse (Gym) | 2 |

**(c) Noise isolation**

1. Demonstrate airborne noise isolation between spaces fulfilling the prescribed criteria.

   Compliance should be demonstrated by computer simulation or measurements depending on the Applicant's preference. The performance of the weighted Sound Reduction Index (SRI) or Level Difference should fulfil the requirements as stated in below table:

| Type of Premises | Weighted SRI | Level Difference |
|---|---|---|
| Between offices/ conference rooms/ retail shops | $R_w$ 44 | $D_{nT,w}$ 38 |
| Between hotel rooms/ serviced apartments/ function rooms/ activity rooms | $R_w$ 52 | $D_{nT,w}$ 46 |
| Between classrooms | $R_w$ 37 | $D_{nT,w}$ 31 |
| Between bedroom to bedroom (same unit) | $R_w$ 44 | $D_{nT,w}$ 38 |

Note:
Measuring equipment shall conform to the accuracy requirements given by IEC 61672-1 [1] Class 1 requirements, or equivalent.

The assessment should take into account noise from building services equipment under normal operation mode.

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All acoustic calculations or measurement reports for this credit should be endorsed by a Corporate Member of Hong Kong Institute of Acoustics or equivalent.

**Submittals**

**(a) Internal Noise Level**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| HWB-03-03a_00 | BI submission form for HWB-03-03a |
| HWB-03-03a_01 | Layout plan |
| HWB-03-03a_02 | Measurement report for internal noise level |
| HWB-03-03a_03 | Calibration certificate for all sound level meters |
| HWB-03-03a_04 | Simulation report for internal noise level |

**(b) Reverberation time**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| HWB-03-03b_00 | BI submission form for HWB-03-03b |
| HWB-03-03b_01 | Layout plan |
| HWB-03-03b_02 | Measurement report for reverberation time |
| HWB-03-03b_03 | Calibration certificate for all sound level meters |
| HWB-03-03b_04 | Simulation report for reverberation time |

**(c) Noise isolation**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| HWB-03-03c_00 | BI submission form for HWB-03-03c |
| HWB-03-03c_01 | Layout plan |
| HWB-03-03c_02 | Schedule of the rooms within the assessment boundary |
| HWB-03-03c_03 | Measurement report for noise isolation |
| HWB-03-03c_04 | Calibration certificate for all sound level meters |
| HWB-03-03c_05 | Simulation report for noise isolation |
| HWB-03-03c_06 | Construction details of the partition walls |

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**Remark(s)**

**(a) Additional Information**

[1] International Electrotechnical Commission. IEC 61672-1:2013 Electroacoustic – Sound level meters

Acoustic windows or other attenuation may contribute to mitigate background noise problem

ASTM International. Designation: E 1007 – 97. Standard test method for field measurement of tapping machine impact sound transmission through floorceiling assemblies and associated support structures

Environmental Protection Department - Innovative Noise Mitigation Designs and Measures - Acoustic Window. [ONLINE]. Available at: https://www.epd.gov.hk/epd/Innovative/greeny/eng/innovation.html [Accessed Oct 2023].

International Organisation for Standardisation – ISO 3382:2009 - Acoustics - Measurement of room acoustic parameters.
International Electrotechnical Commission. IEC 61672-1:2013 Electroacoustic – Sound Level meters.

International Organisation for Standardisation. ISO 10140-1, Acoustics — Laboratory measurement of sound insulation of building elements — Part 1: Application rules for specific products

International Organisation for Standardisation. ISO 10140-3, Acoustics — Laboratory measurement of sound insulation of building elements — Part 3: Measurement of impact sound insulation

International Organisation for Standardisation. ISO 10140-5, Acoustics — Laboratory measurement of sound insulation of building elements — Part 5: Requirements for test facilities and equipment

International Organisation for Standardisation. ISO 140-7. Acoustics - Measurement of sound insulation in buildings and of building elements. Part 7: Field measurements of impact sound insulation of floors

Labour Department. Guidance Notes on Factories and Industrial Undertakings (Noise at Work) Regulation. [ONLINE] Available at: https://www.labour.gov.hk/eng/public/os/C/FIUNR.pdf [Accessed Oct 2023].

**(b) Related Credit(s)**

None

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| | | | |
|---|---|---|---|
| **7** | **Health and Wellbeing** | **HWB-03** | **Indoor Environmental Quality** |
| | | **HWB-03-04** | **Indoor Vibration** |

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**7 Health and Wellbeing** **HWB-03 Indoor Environmental Quality**

**HWB-03-05 Indoor Air Quality**

**Objective**

Demonstrate that airborne contaminants do not give rise to unacceptable levels of indoor air pollution in the normally occupied spaces and monitor IAQ issues continuously.

**Credit Point(s) Attainable**

6 + 3 Bonus

**Credit Requirement**

**(a) Design for good IAQ**

1 credit point for providing air treatment methods, i.e. sizable standalone air purifier or exhaust system to indoor pollution source areas, such as photocopy rooms/ kitchen/ bathrooms/ locations where significant indoor pollutant is generated.

1 credit point for demonstrating that the fresh air louvre is at least 15m from exhaust air louvre.

***Alternatively,***

- *1 credit point for providing sizable standalone air purifier to normally occupied spaces.*

1 Bonus credit point if all air handling units serving the assessment boundary are equipped with UV-C lighting for air-stream disinfection.

**(b) IAQ Certification**

2 credit points for submitting an IAQ Certification Scheme [1] (Good Class) certificate of the assessment boundary endorsed by an accredited IAQ CIB [2].

1 additional Bonus credit point for submitting an IAQ Certification Scheme (Excellent Class) certificate of the assessment boundary endorsed by an accredited IAQ CIB.

**(c) Continuous IAQ Monitoring**

1 to 2 credit points for installing a real-time monitor for every 500m$^2$ and at least one (1) per floor to measure at least two (2)/ four (4) of the following parameters in a normally occupied or common space within the assessment boundary:

| **List of Parameters** | | | |
|---|---|---|---|
| PM2.5 or PM10 | $CO_2$ | Total VOCs | Formaldehyde |
| Nitrogen dioxide | Ozone | Carbon monoxide | |

Measurements are taken at an interval of no longer than 10 minutes for particulate matter and carbon dioxide and no longer than 1 hour for other pollutants.

1 additional Bonus credit point for setting up a notification system to inform the occupants if any of the above monitored parameters fail to meet the IAQ (Good Class) requirements of IAQ certification scheme.

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**Assessment**

**(a) Design for good IAQ**

1. Provide a narrative demonstrating compliance with the separation distance between fresh air louvre and exhaust air louvre.

2. Prepare a schedule of air treatment methods being applied to the assessment boundary.

3. Specify the air treatment methods being used and the corresponding indoor air pollutants that have been tackled.

4. Demonstrate that all air handling units serving the assessment boundary are equipped with UV-C lighting.

5. Area coverage of the standalone air purifier to meet sizable requirement should be referred to manufacturer's recommendation.

**(b) IAQ Certification**

1. Submit the certificate issued by IAQ Information Centre that covers the assessment boundary; or

2. Submit the submission record to IAQ Information Centre for issuance of IAQ certification.

**(c) Continuous IAQ Monitoring**

1. Provide a narrative demonstrating compliance with the credit requirements.

2. Demonstrate the IAQ notification system for the assessment boundary.

**Submittals**

**(a) Design for good IAQ**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| HWB-03-05a_00 | BI submission form for HWB-03-05a |
| HWB-03-05a_01 | HVAC schedule |
| HWB-03-05a_02 | HVAC drawings showing the location of the fresh air louvre and exhaust air louvre |
| HWB-03-05a_03 | Narrative demonstrating compliance with the separation distance between fresh air louvre and exhaust air louvre |
| HWB-03-05a_04 | Narrative demonstrating the compliance with the appropriate use and area coverage of air purifier used |
| HWB-03-05a_05 | Catalogue(s) of air purifiers being used |
| HWB-03-05a_06 | Schedule of air treatment methods being used and corresponding indoor air pollutants that have been tackled |
| HWB-03-05a_07 | Catalogue(s) of all the air treatment methods being used |
| HWB-03-05a_08 | Specification of UV-C lighting |
| HWB-03-05a_09 | Photo record(s) of all air handling units serving the assessment boundary are equipped with UV-C lighting |

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**(b) IAQ Certification**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| HWB-03-05b_00 | BI submission form for HWB-03-05b |
| HWB-03-05b_01 | IAQ certificate issued by IAQ Information Centre |
| HWB-03-05b_02 | Submission record to IAQ Information Centre for the issuance of IAQ certificate |

**(c) Continuous IAQ Monitoring**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| HWB-03-05c_00 | BI submission form for HWB-03-05c |
| HWB-03-05c_01 | Layout plan with the locations of all IAQ monitors within the assessment boundary |
| HWB-03-05c_02 | Specification of IAQ monitors used |
| HWB-03-05c_03 | Photo record(s) of all the IAQ monitors within the assessment boundary |
| HWB-03-05c_04 | Narrative showing the communication protocol between the notification system and the occupants |

**Remark(s)**

**(a) Additional Information**

[1] IAQ Certification Scheme, Indoor Air Quality Information Centre. [ONLINE]. Available at:
https://www.iaq.gov.hk/en/iaq-certification-scheme.aspx
[Accessed Oct 2023].

[2] Certificate Issuing Body Accreditation, Indoor Air Quality Information Centre. [ONLINE]. Available at:
https://www.iaq.gov.hk/en/iaq-certification-scheme/certificate-issuing-body-accreditation.aspx
[Accessed Oct 2023].

**(b) Related Credit(s)**

HWB-00-01 Minimum Ventilation Performance

The related credit awards project demonstrating a minimum supply of outdoor air to the normally occupied spaces.

HWB-03-01 Enhanced Ventilation

The related credit awards project that demonstrates enhanced ventilation performance in the normally occupied spaces.

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| | | | |
|---|---|---|---|
| **7** | **Health and Wellbeing** | **HWB-03** | **Indoor Environmental Quality** |
| | | **HWB-03-06** | **Thermal Comfort** |

**Objective**

Ensure that the specified thermal comfort conditions can be achieved under conditions of normal occupancy.

**Credit Point(s) Attainable**

2

**Credit Requirement**

1 credit point for demonstrating that the assessment boundary meets the 80% acceptability limit on any one day during the selected hottest month from reference weather data file. The determination of the 80% acceptability limit should refer to ASHRAE 55-2020 [1]. The results shall demonstrate compliance with the prescribed design criteria within the prescribed limits, for a minimum of 80% of the prescribed locations.

***Alternatively,***

- *1 credit point for demonstrating the air temperature within the project space is ±1.5°C of the set temperature when the air side system is operating at steady state under normal occupied periods.*

1 credit point for providing thermal zones with the maximum size as 60m$^2$ or one (1) per ten (10) occupants, whichever is larger.

**Assessment**

1. Submit a thermal comfort simulation report demonstrating compliance with the assessment requirements. The report should include:

   1.1. Interior layout;
   1.2. Simulation assumption;
   1.3. HVAC equipment schedule;
   1.4. List of installed solar control features, e.g. glazing, internal blinds; and
   1.5. Results of simulations and calculations for thermal comfort that meet the requirements.

***Alternatively,***

- *Provide the site measurement report endorsed by Certificate Issuing Body (CIB). Sampling criteria, period and points should follow the latest guide on Indoor Air Quality Certification Scheme for Offices and Public Places [2].*

2. Provide a narrative to demonstrate that the thermal zones setting can meet the requirements.

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**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| HWB-03-06_00 | BI submission form for HWB-03-06 |
| HWB-03-06_01 | Thermal comfort simulation report |
| HWB-03-06_02 | Thermal comfort measurement report |
| HWB-03-06_03 | Report of thermal zones setting compliance |
| HWB-03-06_04 | Layout plan showing the seating arrangement |
| HWB-03-06_05 | HVAC drawings |
| HWB-03-06_06 | HVAC schedule |
| HWB-03-06_07 | HVAC specification |

**Remark(s)**

**(a) Additional Information**

[1] American Society of Heating Refrigeration and Air Conditioning Engineers – ANSI/ASHRAE Standard 55-2020 Thermal Environmental Conditions for Human Occupancy.

[2] Hong Kong Environmental Protection Department – Indoor Air Quality Information Centre. A Guide on Indoor Air Quality Certification Scheme for Offices and Public Places. [ONLINE] Available at: https://www.iaq.gov.hk/en/iaq-certification-scheme-references-and-useful-forms/
[Accessed Oct 2023]

**(b) Related Credit(s)**

None

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**7 Health and Wellbeing** **HWB-03 Indoor Environmental Quality**

**HWB-03-07 Artificial Lighting**

**Objective** Promote indoor lighting design which is comfortable for occupants' indoor activities.

**Credit Point(s) Attainable** 3

**Credit Requirement**

**(a) Colour Rendering Index**

1 credit point for all electric lightings with Colour Rendering Index (CRI) of 80 or above within the assessment boundary.

**(b) Unified Glare Rating**

1 credit point for demonstrating that the following Unified Glare Rating (UGR) requirements with reference to BSI Light and lighting – Lighting of work places [1] can be achieved.

| UGR Value | Application |
|---|---|
| 16 | Technical drawing room |
| 19 | Office, Conference room, Classroom, Lecture hall, Ward, Laboratory Library, Hotel, Clinic |
| 22 | Common space, Cafeterias & restaurant, Retail space, Industrial space for fine work, Gymnasium, Staff room |
| 25 | Average industrial work, Circulation space and corridor |
| 28 | Heavy industrial work |

**(c) Smart Lighting Control**

1 credit point for having smart lighting control with controllable lighting that enable the occupants to adjust the lighting level to meet their needs.

**Assessment**

**(a) Colour Rendering Index**

1. Demonstrate compliance with the CRI either by product specification.

**(b) Unified Glare Rating**

1. Demonstrate compliance with the UGR limit either by measurements that use a standardised measurement protocol appropriate to the parameter being assessed, or by modelling.

**(c) Smart Lighting Control**

.

1. Provide narrative to demonstrate that the lighting system has smart control systems with controllable lighting function. Lighting function can be change of colour and dimming of lighting with an electronic panel

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**Submittals**

**(a) Colour Rendering Index**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| HWB-03-07a_00 | BI submission form for HWB-03-07a |
| HWB-03-07a_01 | Lighting layout plan |
| HWB-03-07a_02 | Light fitting schedule |
| HWB-03-07a_03 | Catalogue(s) or other supporting documents showing the colour rendering index of the lighting system |

**(b) Unified Glare Rating**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| HWB-03-07b_00 | BI submission form for HWB-03-07b |
| HWB-03-07b_01 | Lighting layout plan |
| HWB-03-07b_02 | Light fitting schedule |
| HWB-03-07b_03 | Catalogue(s) or other supporting documents showing the unified glare rating of the light fitting |
| HWB-03-07b_04 | Measurement report |
| HWB-03-07b_05 | Modelling report |

**(c) Smart Lighting Control**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| HWB-03-07c_00 | BI submission form for HWB-03-07c |
| HWB-03-07c_01 | Narrative showing the smart lighting control |
| HWB-03-07c_02 | Light fitting schedule |
| HWB-03-07c_03 | Catalogue(s) or other supporting documents of the lighting system |
| HWB-03-07c_04 | Photo record(s) showing the smart lighting control |

**Remark(s)**

**(a) Additional Information**

[1] BS EN 12464-1:2011 Light and lighting – Lighting of work places Part 1: Indoor work places, BSI Standard Publication.

**(b) Related Credit(s)**

None

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**7 Health and Wellbeing** **HWB-03 Indoor Environmental Quality**

**HWB-03-08 Daylight**

**Objective**

Achieve satisfactory daylight performance in normally occupied interior spaces by considering the sufficiency of daylight illuminance and the potential risk of excessive sunlight penetration

**Credit Point(s) Attainable**

1 + 2 Bonus

**Credit Requirement**

**(a) Glare Control**

1 credit point for providing envelope glazing shading or blinds that are manually controllable by the occupants or can be set to prevent glare automatically for normally occupied interior spaces.

**(b) Daylighting Exposure**

2 Bonus credit points for demonstrating at least 55% of the total area of the studied normally occupied spaces achieve spatial Daylight Autonomy$_{300/50\%}$ ($sDA_{300/50\%}$) and no more than 10% of the same area receive Annual Sunlight Exposure$_{1000,250}$ ($ASE_{1000,\ 250}$).

**Assessment**

**(a) Glare Control**

1. Provide a report demonstrating the compliance with the credit requirement for normally occupied interior spaces within the assessment boundary.

**(b) Daylighting Exposure**

1. Conduct simulations to show that at least 55% of the total area of the normally occupied spaces can receive at least 300 lux of sunlight for at least 50% of operating hours each year and no more than 10% of the same area can receive more than 1,000 lux for more than 250 hours each year.

2. Follow IES LM-83-12 Approved Method: IES Spatial Daylight Autonomy (sDA) and Annual Sunlight Exposure (ASE). Annual sky file referencing a local climate file, such as an EnergyPlus weather format data file (*.epw) [1], should be used for the sky model. Surrounding buildings and terrain included in the model should be based on the GIS information from Lands Department [2]. The following simplifications are allowed:

    a. The presence of trees can be ignored;

    b. The overall external reflectance of the building can be assumed to be 0.2;

    c. If furniture layout is not known by the time of design, it can be assumed that no furniture is in the space or a typical furniture layout can be applied; and

    d. Internal doors within a unit are assumed to be fully opened.

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3. Submit a Daylight Analysis Report demonstrating compliance with the credit requirement. The report shall include:

   1.1. Scale drawing(s) depicting the building layout;

   1.2. Screen captures of the 3D model, including the project building, surrounding buildings and terrain; and

   1.3. Simulation assumption and results.

**Submittals**

**(a) Glare Control**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| HWB-03-08a_00 | BI submission form for HWB-03-08a |
| HWB-03-08a_01 | Layout plan showing the glazing location |
| HWB-03-08a_02 | Catalogue(s) or specification of the envelope glazing shadings or blinds |
| HWB-03-08a_03 | Photo record(s) showing the glazing shading or blinds |

**(b) Daylighting Exposure**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| HWB-03-08b_00 | BI submission form for HWB-03-08b |
| HWB-03-08b_01 | Daylight simulation report (if applicable) |
| HWB-03-08b_02 | Lux measurement report |
| HWB-03-08b_03 | Valid calibration certificate of the lux meter |

**Remark(s)**

**(a) Additional Information**

[1] Weather Data by Region – Standard Hong Kong weather data file, EnergyPlus. [ONLINE] Available at: https://energyplus.net/weather-region/asia_wmo_region_2/CHN%20%20. [Accessed Oct 2023].

[2] Lands Department – Survey and Mapping Office – GIS Projects Section. 2017. Survey and Mapping Office – GIS Projects Section. [ONLINE] Available at: https://www.landsd.gov.hk/en/survey-mapping/mapping.html. [Accessed Oct 2023].

**(b) Related Credit(s)**

None

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| | | | |
|---|---|---|---|
| **7** | **Health and Wellbeing** | **HWB-03** | **Indoor Environmental Quality** |
| | | **HWB-03-09** | **Biological Contamination** |

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**7 Health and Wellbeing** **HWB-03 Indoor Environmental Quality**

**HWB-03-10 Drinking Water Promotion**

**Objective**

Promote regular water consumption by providing easily accessible drinking water facilities to the occupants.

**Credit Point(s) Attainable**

1

**Credit Requirement**

1 credit point for installing water dispenser that is located within a 30m walking distance of all the normally occupied spaces and in all the dining spaces (if applicable).

**Assessment**

1. Demonstrate the location of installed water dispenser(s).
2. Demonstrate the distance from all the normally occupied space to the water dispenser(s).
3. Water pitcher(s) are accepted as an alternative to water dispenser(s). The water pitcher(s) must be refilled regularly to ensure uninterrupted water supply. A declaration letter by the project owner should be provided to confirm the above provision.

**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| HWB-03-10_00 | BI submission form for HWB-03-10 |
| HWB-03-10_01 | Layout drawing(s) |
| HWB-03-10_02 | Declaration letter by the project owner to confirm the refilling of water pitcher(s) |
| HWB-03-10_03 | Photo record(s) of water dispenser(s) and/ or water pitcher(s) |

**Remark(s)**

**(a) Additional Information**

None

**(b) Related Credit(s)**

None

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| | | | |
|---|---|---|---|
| **7** | **Health and Wellbeing** | **HWB-04** | **Good Hygiene Design** |
| | | **HWB-04-01** | **Touchless Environment** |

**Objective**

Reduce the exposure to microbes through touchless design.

**Credit point(s) Attainable**

1 + 4 Bonus

**Credit Requirement**

1 credit point if all the waste receptacles within the assessment boundary are covered with lids and equipped with hands-free operation.

1 Bonus credit point if at least 50% of the main doors of entrances/ exits can be automatically opened and all door switches are touchless.

1 Bonus credit point if all toilet entrance doors can be hands-free opened or doorless.

1 Bonus credit point if all the water dispensers installed are equipped with hands-free operation.

1 Bonus credit points if all water closets within the assessment boundary are equipped with hands-free operation.

**Assessment**

1. Provide a narrative demonstrating that waste receptacles within the assessment boundary are covered with lids and equipped with hands-free operation.
2. Provide a narrative demonstrating that the percentage of automatically opened main doors and touchless switches can fulfil the credit requirements.
3. Provide a narrative demonstrating that all toilet entrance doors are hands-free operation or doorless.
4. Provide a narrative demonstrating that all the water dispensers are equipped with hands-free operation.
5. Provide a narrative demonstrating that all water closets within the assessment boundary are equipped with hands-free operation.

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**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| HWB-04-01_00 | BI submission form for HWB-04-01 |
| HWB-04-01_01 | Layout plan with the locations of the items applied |
| HWB-04-01_02 | Specification of waste receptacles within the assessment boundary |
| HWB-04-01_03 | Photo record(s) of all waste receptacles within the assessment boundary |
| HWB-04-01_04 | Photo record(s) of toilet entrance doors with hands-free operation or doorless |
| HWB-04-01_05 | Specification of all the water dispensers installed |
| HWB-04-01_06 | Photo record(s) of all the water dispensers installed |
| HWB-04-01_07 | Specification of all water closets within the assessment boundary |
| HWB-04-01_08 | Photo record(s) of all water closets within the assessment boundary |

**Remark(s)**

**(a) Additional Information**

None

**(b) Related Credit(s)**

None

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**7 Health and Wellbeing** **HWB-04** **Good Hygiene Design**

**HWB-04-02** **Healthy Entrance**

**Objective**

Minimise the introduction of pollutants into indoor air through appropriate entrance design.

**Credit point(s) Attainable**

1 Bonus

**Credit Requirement**

1 Bonus credit points if automatic disinfection station for sanitising spray is provided next to the entrance.

**Assessment**

1. Provide a narrative demonstrating compliance with the credit requirements. The report should include:

   a. Layout plan with the location automatic disinfection station;
   b. Specification of the automatic disinfection station; and
   c. Photo record(s).

**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| HWB-04-02_00 | BI submission form for HWB-04-02 |
| HWB-04-02_01 | Report for the healthy entrance set up |

**Remark(s)**

**(a) Additional Information**

None

**(b) Related Credit(s)**

None

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## 8 Innovations and Additions

BEAM encourages innovative and/ or new techniques that are yet to be found in the mainstream application in Hong Kong addressing sustainability objectives for the interior spaces.

This section allows the Applicant to submit any innovative techniques or performance enhancements, where additional environmental benefits can be provided, on top of those covered in this manual for consideration of the award of Bonus credit point(s).

The Applicant shall be solely responsible to submit qualitative and/or quantitative evidence for BEAM Society Limited Assessment Sub-Committee (BSL ASC) review and approval.

Generally, the submission materials shall comprehensively detail the benefits, environmental impacts averted, or exemplary performance achieved as compared to the existing criteria.

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## 8 Innovations and Additions

### IA-01 Innovations and Additions

### IA-01-01 Innovations and Additions

**Objective**

Encourage innovative and/ or new techniques/ practices/ design that are yet to be found in the mainstream application in Hong Kong addressing sustainability objectives by the design or build of the interior spaces.

**Credit Point(s) Attainable**

Maximum 10 Bonus credit points for IA.

**Assessment**

1. Present evidence of the application of new practices, technologies and/ or techniques that are (a) not described in this manual; or (b) not market mainstream implementation; or (c) that have multiple aspects achievement; or (d) performance enhancement; and the associated benefits in addressing sustainability objectives by the design and build of the interior spaces:

    1.1. Identify the sustainability objectives addressed by the proposed innovative applications;

    1.2. Detail the methods and criteria that evaluate the benefits and effectiveness of the applications (quantifiable performance indicators are to be proposed if applicable);

    1.3. Justify the number of Bonus credit points for the proposed applications;

    1.4. Provide evidence of the implementation of the applications; and

    1.5. Evaluate preliminary achievements and propose suggestion for improvement of the applications.

The assessor will refer the proposal to the BSL Assessment Sub-Committee who will consider each application on its merits.

**Submittals**

| **Supporting Documents**<br>*Please provide softcopies with filename prefix as indicated in the leftmost column below.* | |
|---|---|
| IA-01-01_00 | BI submission form for IA-01-01 |
| IA-01-01_01 | Report on the objectives, evaluating method and criteria, and proposed number of Bonus credit points for the innovative techniques |
| IA-01-01_02 | Report on the evidence of implementation and evaluation of preliminary achievements / proposed improvements for the innovative techniques |

**Remark(s)**

**(a) Additional Information**

None

**(b) Related Credit(s)**

None

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# 9 Appendices

## 9.1 Glossary

**Biophilic Design**

Designing for people as a biological organism and respecting the mind-body systems as indicators of health and well-being in the context of what is locally appropriate and responsive.

**Certificate Validity**

Certificate Validity refers to the duration for which a BEAM Plus certificate and rating remains effective and officially recognised by the HKGBC.

**Charrette**

A design workshop to that quickly generates a design solution while integrating the aptitudes and interests of project team and core design disciplines, shall be held no later than design development phase and preferably during schematic design.

**Construction Waste**

Any substance, matter or thing which is generated as a result of construction work and abandoned whether or not it has been processed or stockpiled before being abandoned. It is a mixture of surplus materials arising from site clearance, excavation, construction, refurbishment, renovation, demolition and road works.

**Demolition Waste**

All wastes (including recyclable waste) generated from deconstruction of existing interior space at the demolition stage are counted as demolition waste.

**FSC Certification**

A certification system for timber products which confirms that timber has been harvested in a sustainable manner.

**Interior General Lighting**

Interior general lighting provides a substantially uniform level of illumination in an area. General lighting shall not include decorative lighting or lighting that provides a dissimilar level of illumination to serve a specialised application or feature within such area.

**Multi-disciplinary Design Charrette**

An intensive, multiparty workshop that brings people from different disciplines and backgrounds together to explore, generate, and collaboratively produce design options.

**Normally Occupied Spaces**
Normally occupied spaces are enclosed areas where people normally stay more than 1 hour. Spaces which are not used daily but will be occupied for more than 1 hour being used, are considered as normally occupied spaces. Refer to Appendix 9.2 for examples of normally occupied spaces.

**Not Normally Occupied Spaces**
Not normally occupied spaces are enclosed areas within the building where people normally stay less than 1 hour. Refer to Appendix 9.2 for examples of not normally occupied spaces.

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**Regional Materials**

Materials which are extracted and manufactured within an 800km radius of the HKSAR by road transportation; within a 1,600km radius by rail transportation; or within a 4,000km radius by sea transportation.

**Temporary Works**

Temporary works refer to enabling works, temporary protection works, temporary protection erected between different phases of the works or other occupants, temporary protection erected for walls, doors, finishes, cabinets, partitions, equipment, lifts, escalators, and the like, temporary protection applied for floors, flooring, and carpets, temporary hoardings, and all temporary doors, supports, bracing, cross bracing, fixings, trimming, hangers, and the like.

**Unoccupied Spaces**

Unoccupied spaces are areas within the building where the primary function is not intended for human activities. These spaces are occupied by the occupants for a short period of time and only occasionally. Refer to Appendix 9.2 for examples of unoccupied spaces.

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# 9 Appendices

## 9.2 Space Type

BEAM Plus considers indoor environmental quality as a key to sustain occupants' health and wellbeing. To assist the Applicant in designing a more thorough and satisfactory strategies, BEAM Plus imposes high requirements on indoor environmental quality covering ventilation, air quality, acoustics and lighting.

As the impacts of indoor environmental quality are dependent on the level of interaction between the occupants and the indoor spaces where they spend their time in, it is crucial for the Applicant to understand and identify the level of usage of each indoor space. To facilitate assessment, the Applicant should prepare a schedule including all spaces present within the building and their respective location. The spaces should be categorised into the following three types (refer to Glossary for definitions):

- Normally occupied spaces
- Not normally occupied spaces
- Unoccupied spaces

Space Usage of *normally occupied spaces*

- Auditorium
- Concourse
- Conference room
- Food and beverage dining space
- Front desk
- Gallery space
- Gymnasium
- Information desk
- Meeting room
- Open office
- Private office
- Reception

Space Usage of *not normally occupied spaces*

- Break room
- Copy rooms
- Corridor
- Entrance lobby (other than hotel)
- Lift lobby
- Pantry
- Staircases
- Toilet

Space Usage of *unoccupied spaces*

- Car park
- Emergency exit corridor
- Mechanical and electrical rooms
- Storeroom
- Warehouse

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