

<b>6</b>	<b>IEQ</b>	<b>6.P PREREQUISITE</b>	
		<b>IEQ P1 MINIMUM VENTILATION PERFORMANCE</b>	
	<b>EXCLUSIONS</b>	Residential and similar buildings without central air conditioning.	
	<b>OBJECTIVE</b>	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 occupants.	
	<b>REQUIREMENT</b>	Demonstrate that the project is in compliance with the minimum requirements of ASHRAE 62.1-2007 [1] in respect of Outdoor Air Quality; and Minimum Ventilation Rate.	1 2
	<b>ASSESSMENT</b>	<p>The Client shall provide evidence in the form of a report prepared by a suitably qualified person detailing the outdoor ventilation performance. The report shall include:</p> <ol style="list-style-type: none"> <li>Confirmation that the outdoor air pollutants Carbon monoxide (CO), Nitrogen dioxide (NO<sub>2</sub>), Ozone (O<sub>3</sub>) and Respirable Suspended Particulates (RSP) conform to the IAQ Certification Scheme Good Air Quality level.</li> <li>Completion of Table H-2 of ASHRAE Standard 62.1-2007 demonstrating compliance with the minimum ventilation rate(s) provided.</li> </ol>	3 4
	<b>BACKGROUND</b>	<p>The purpose of this prerequisite is to provide the minimum outdoor air ventilation for the control of odours, that is, the supply, distribution and control of ventilation to maintain carbon dioxide (CO<sub>2</sub>) levels within the design targets in normally occupied spaces, and the control of indoor pollutants such as TVOC's, formaldehyde, etc.</p> <p>The assessment for building follows requirements of ASHRAE 62.1:2007. The standard includes significant requirements other than outdoor air rates, such as requirements for equipment to reduce the potential for microbial growth, air cleaning requirements, and start-up and commissioning requirements. All of these requirements must be met to comply with this prerequisite.</p>	

1 American Society of Heating Refrigeration and Air Conditioning Engineers. ANSI/ASHRAE Standard 62.1-2007. Ventilation for Acceptable Indoor Air Quality.

## Indoor Environmental Quality

### Q1. IEQ P1, How to achieve the outdoor air quality standard in local context of Hong Kong?

The outdoor air quality shall conform to the IAQ Certification Scheme Good Air Quality level. This criterion encourages the building team to:

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a) Ensure that the IAQ conforms to the Good Air Quality from source;

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b) Locate the indoor air intake with due care (orientation and height with respect to the climate at proximity, site environment and other pollutant sources);

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c) Provide outdoor air treatment or re-circulate air treatment if necessary (e.g. adequate filtration of particulates).

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Circular Letter No.: 2019.162

Issue Date: 11 September 2019

Application: BEAM Plus NB Version 1.1 & 1.2

Effective Date: All first assessment submission<sup>1</sup> made on or after 11 March 2020

### **IEQ P1 – Minimum Ventilation Performance**

1. It is observed that more developers have opt for the option in developing new buildings with bare shell spaces (i.e. the responsibility of providing the fresh air equipment to supply fresh air into indoor space will rest on the future users/tenants). Under the current assessment guideline, projects with bare shell spaces may not be completely assessed under the current assessment criteria, given that there are no clear guideline on how the ventilation quality and quantity of outdoor air supplying into indoor space can be assessed for these projects.
2. BEAM Society has always taken a pragmatic approach in assessing the minimum ventilation performance of indoor space. To ensure projects with bare shell space meet the objective of the credit and to avoid excessive requirement being applied onto these projects, this Circular Letter hereby provides a clarification on the design and submittal needed for these projects to comply with the credit.
3. On the design requirement, the project proponent shall ensure that there will be adequate fresh air louvre(s) to draw outdoor air into the project's indoor space. The project proponent shall make reference to an authoritative sources, such as the criteria for louvre sizing specified under ASHRAE Fundamentals Handbook, when determining the actual number and size of louvre(s) to be provided at the façade of the development.
4. As for the submittal requirement, the project proponent shall provide the submittal outlined in the chart below:

	<b><u>Provisional Assessment</u></b>	<b><u>Final Assessment</u></b>
a.	Layout drawing showing the location and size of the fresh air louvre(s) for future duct connection.	
b.	Fresh air calculation <sup>2,3</sup> showing that the proposed design of fresh air louvre(s) will be adequate for drawing fresh air into the indoor spaces.	

<sup>1</sup> First assessment submission refers to the date when the initial assessment is formally accepted by BSL. For example, if the project has both PA and FA, then it would be the date when BSL formally accepts the project for PA submission. If the project has only FA, then it will be the date when BSL formally accepts the project for FA submission

<sup>2</sup> The quantity of fresh air shall be computed based on the criteria stipulated in ASHRAE 62.1

<sup>3</sup> A reasonable assumption on occupancy shall be applied when calculating the fresh air quantity.

	<b><u>Provisional Assessment</u></b>	<b><u>Final Assessment</u></b>
c.	<p>Contract specification detailing the requirements on outdoor air quality measurement for the outdoor air pollutants carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>) and respirable suspended particulate (RSP). 11</p> <p><i>or</i></p> <p>Outdoor air quality measurements report conducted by a suitably qualified persons to substantiate that the outdoor air pollutants carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>) and respirable suspended particulate (RSP) could conform the IAQ Certification Scheme Good Air Quality level. 12</p>	<p>Outdoor air quality measurements report conducted by a suitably qualified persons to substantiate that the outdoor air pollutants carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>) and respirable suspended particulate (RSP) could conform the IAQ Certification Scheme Good Air Quality level. 13</p>
d.		<p>Declaration letter endorsed by the project proponent declaring that the project will <u>NOT</u> be provided with fresh air equipment and only louvre(s) for fresh air intake will be provided. 14</p> <p><i>or</i></p> <p>Tenant guideline specifying the recommended amount of fresh air<sup>4</sup> to be provided into the indoor space. 15</p>

5. **Approved PA Projects:** For projects that have already completed PA and have certain design and assessment approach approved, the Applicant may opt to adopt the same assessment criteria for FA or voluntarily comply with this Technical Circular. For the avoidance of doubt, the Applicant shall provide PA evidences (e.g. extract of the PA report, documents submitted for assessment in PA, etc) in subsequent assessments to support the intention of using the same assessment methodology as in PA.



Mr KM So  
Chairperson of Standards Sub-committee

<sup>4</sup> The recommended amount of fresh air shall be calculated based on ASHRAE 62.1.

Q21. EU 10e, For BEAM Plus New Buildings Version 1.1 & 1.2, What should be submitted to demonstrate credit compliance in the Provisional Assessment (PA) stage?

Q22. EU 12, For BEAM Plus New Buildings Version 1.1 & 1.2, What are the requirements for metering and monitoring for clubhouse and carpark?

### Water Use

Q1. WU P1 & WU 1, Do I need to consider the water pressure indicated in the baseline figures for different water appliances when predicting the water consumption?

Q2. WU P1, Is water sample necessary to be taken from the supply point of WSD for water quality analysis under WU P1?

Q3. WU P1, WU P2/WU 1, For BEAM Plus New Buildings / Existing Buildings Version 1.1 and 1.2, is a conceptual plumbing sketch satisfactory for PA stage?

Q4. WU 5, For BEAM Plus New Buildings Version 1.2, how is WU 5 applied to different building types?

Q5. WU 5, For BEAM Plus New Buildings Version 1.1, how is WU 5 applied to different building types?

Q6. WU 5, For BEAM Plus New Buildings Version 1.1 & 1.2, how is WU 5 applied to different building types?

Q7. WU 5, For BEAM Plus New Buildings Version 1.1 & 1.2, what type of appliances shall be included into the assessment of this credit?

Q8. WU 5, For BEAM Plus New Buildings Version 1.1 & 1.2, what type of washing machine would meet the credit requirement and what type of substantiations shall be provided to justify for the performances of the washing machine?

### Indoor Environmental Quality

Q1. IEQ P1, How to achieve the outdoor air quality standard in local context of Hong Kong?

Q2. IEQ P1, IEQ 6 and IEQ 7, For BEAM Plus New Buildings Version 1.2, please clarify the assessment criteria under the new Indoor Air Quality (IAQ) objectives (IAQ Objective 2019) under the Indoor Air Quality Certification Scheme for Offices and Public Places

The assessment criteria shall follow the Good Class of the IAQ Objectives and they are extracted below for reference. Please be reminded for nitrogen dioxide (NO<sub>2</sub>) and formaldehyde (HCHO), limit for BOTH averaging time shall be complied.

#### IEQ P1 and IEQ 6

	Parameter	Averaging Time	IAQ Objectives
1.	Carbon monoxide (CO)	8-hour averaging time	7000µg/m <sup>3</sup> or 6.1ppmv
2a.	Nitrogen dioxide (NO <sub>2</sub> )	8-hour averaging time	150µg/m <sup>3</sup> or 80ppbv
2b.		1-hour averaging time	200µg/m <sup>3</sup> or 106ppbv
3.	Ozone (O <sub>3</sub> )	8-hour averaging time	120µg/m <sup>3</sup> or 61ppbv
4.	Respirable Suspended Particulates (RSP)	8-hour averaging time	100µg/m <sup>3</sup>

#### IEQ 7

	Parameter	Averaging Time	IAQ Objectives
1.	Volatile organic compounds (VOCs)	8-hour averaging time	600µg/m <sup>3</sup> or 261ppbv
2a.	Formaldehyde (HCHO)	8-hour averaging time	100µg/m <sup>3</sup> or 81ppbv
2b.		30-minute averaging time	100µg/m <sup>3</sup> or 81ppbv
3.	Radon (Rn)	8-hour averaging time	167Bq/m <sup>3</sup>

Q3. If a clubhouse is provided with VRV or split type units but with fresh air provided by PAU or fresh air fans, are IEQ P1 and IEQ 9 (NB) / IEQ 10 (EB) applicable?

Q4. IEQ P1, IEQ 9 and IEQ 12a, For BEAM Plus New Buildings Version 1.1 and 1.2, should T&C records showing the measured flow rate of the Fresh Air Equipment such

Q21. EU 10e, For BEAM Plus New Buildings Version 1.1 & 1.2, What should be submitted to demonstrate credit compliance in the Provisional Assessment (PA) stage?

Q22. EU 12, For BEAM Plus New Buildings Version 1.1 & 1.2, What are the requirements for metering and monitoring for clubhouse and carpark?

### Water Use

Q1. WU P1 & WU 1, Do I need to consider the water pressure indicated in the baseline figures for different water appliances when predicting the water consumption?

Q2. WU P1, Is water sample necessary to be taken from the supply point of WSD for water quality analysis under WU P1?

Q3. WU P1, WU P2/WU 1, For BEAM Plus New Buildings / Existing Buildings Version 1.1 and 1.2, is a conceptual plumbing sketch satisfactory for PA stage?

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Q8. WU 5, For BEAM Plus New Buildings Version 1.1 & 1.2, what type of washing machine would meet the credit requirement and what type of substantiations shall be provided to justify for the performances of the washing machine?

### Indoor Environmental Quality

Q1. IEQ P1, How to achieve the outdoor air quality standard in local context of Hong Kong?

Q2. IEQ P1, IEQ 6 and IEQ 7, For BEAM Plus New Buildings Version 1.2, please clarify the assessment criteria under the new Indoor Air Quality (IAQ) objectives (IAQ Objective 2019) under the Indoor Air Quality Certification Scheme for Offices and Public Places

Q3. If a clubhouse is provided with VRV or split type units but with fresh air provided by PAU or fresh air fans, are IEQ P1 and IEQ 9 (NB) / IEQ 10 (EB) applicable?

Q4. IEQ P1, IEQ 9 and IEQ 12a, For BEAM Plus New Buildings Version 1.1 and 1.2, should T&C records showing the measured flow rate of the Fresh Air Equipment such as Fresh Air Fan (FAF) or Primary Air Handling Unit (PAU) be submitted in the Final Assessment (FA) stage?

Yes. T&C records should be submitted to show that the Fresh Air Equipment has sufficient measured flow rate in compliance with the prescribed standard in BEAM Plus manual. In case that the fresh air flow rate cannot be ascertained from the outlet of the air diffusers, the measured flow rate at the nearest maintenance point in the premises/room can be accepted as an alternative.

(Released on 29 November 2019)

Q5. IEQ 2, For BEAM Plus New Buildings Version 1.1 and 1.2, sub-item 7 “maintenance of water seals”, are water seal traps required for all floor drains?

Q6. Should the noise level of the ventilation system or de-odourising system be considered under IEQ 4 (NB and EB)?

Q7. IEQ 5, For BEAM Plus New Buildings Version 1.1 and 1.2, how frequent should the records/evidence be submitted to demonstrate the implementation of IAQ management practice during construction?

Q8. IEQ 6 & 7, For BEAM Plus New Buildings Version 1.1 and 1.2, is HOKLAS accredited laboratory considered as acceptable to conduct the measurement of airborne contaminants?



Circular Letter No.: 2019.161

Issue Date: 11 September 2019

Application: BEAM Plus NB Version 1.1 & 1.2

Effective Date: 11 September 2019

**IEQ P1, 6 & 7 – Application of New IAQ Objectives for Minimum Ventilation Performance and Outdoor / Indoor Sources of Air Pollutants**

1. The Environmental Protection Department (EPD) has launched the new Indoor Air Quality (IAQ) objectives (“IAQ Objective 2019”) under the Indoor Air Quality Certification Scheme for Offices and Public Places on 1 July 2019. The IAQ objective 2019 takes into account of local circumstances and the latest World Health Organization’s IAQ guideline<sup>1</sup>.
2. To better align the credit assessment criteria for IEQ P1, IEQ 6 & 7 under BEAM Plus New Buildings (NB) against the IAQ Objective 2019, this Technical Circular Letter hereby announces the transitional arrangement as follow:
  - i. All projects registered after the effective date of this Technical Circular must adopt the criteria under IAQ Objective 2019; and
  - ii. For all project registered on or before the effective date, the project proponents can opt to adopt the criteria under previous IAQ objectives (“IAQ Objective 2003”)<sup>2</sup> or IAQ Objective 2019<sup>3</sup> for the assessment. However, the Applicant must apply either one of the IAQ objectives throughout the project assessment (i.e. If the project proponent decides to use the IAQ Objective 2019, then all parameters under IEQ 6 & 7 must follow the IAQ Objective 2019 throughout); and;
  - iii. For all projects commence Final Assessment on or after 1 July 2024, including those fall under paragraph (2)(ii) above, the project proponent must adopt the criteria under IAQ Objective 2019.
3. For projects that were registered on or before the effective date but are unable to commence Final Assessment before 1 July 2024, the project shall adopt the criteria under IAQ Objective 2019 under normal circumstance. For special case project, the Applicant is encouraged to file a Credit Interpretation Request for clarification and the Technical Review Committee will consider on a case-by-case basis.

<sup>1</sup> Government announcement on new IAQ objectives under the Indoor Air Quality Certification Scheme for Offices and Public Places, <https://www.iaq.gov.hk/en/iaq-certification-scheme/newiaqo.aspx>

<sup>2</sup> A Guide on Indoor Air Quality Certification Scheme for Offices and Public Places (2003), <https://www.iaq.gov.hk/media/8694/certguide-eng.pdf>

<sup>3</sup> A Guide on Indoor Air Quality Certification Scheme for Offices and Public Places (2019), [https://www.iaq.gov.hk/media/65346/new-iaq-guide\\_eng.pdf](https://www.iaq.gov.hk/media/65346/new-iaq-guide_eng.pdf)

4. Approved PA Projects: For projects that have already completed PA and have certain measurement report approved, the Applicant may opt to adopt the same assessment criteria for FA or voluntarily comply with this Technical Circular. For the avoidance of doubt, the Applicant shall provide PA evidences (e.g. extract of the PA report, documents submitted for assessment in PA, etc) in subsequent assessments to support the intention of using the same assessment methodology as in PA.



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Circular Letter No.: 2020.168

Issue Date: 5 June 2020

Application: BEAM Plus NB Version 1.1 and 1.2

Effective Date: 5 June 2020

### **Updated Exclusion Clauses for IEQ Credits**

1. **Technical Circular Letter No. 2016.134 dated 09 August 2016 will be withdrawn on the effective date.**
2. This Circular Letter clarifies the exclusion clause for the following credits:

Credits	New Exclusions
IEQ P1 IEQ 9	Residential premises, or Premises without any fresh air provision <sup>1</sup> .
IEQ 3	Residential premises, or Premises without any provision of air-conditioning equipment.
IEQ 5	Residential premises, or Premises without any fresh air provision <sup>1</sup> and HVAC system.
IEQ 6	Residential premises, or Premises without any fresh air provision <sup>1</sup> .
IEQ 7a IEQ 7b	Residential premises without any interior decoration, or Premises without any fresh air provision <sup>1</sup> and interior decoration.
IEQ 10	Premises with fresh air provision <sup>1</sup> .
IEQ 11b	Residential premises, or Premises without any future tenant (for example, single owner occupier premises).
IEQ 12	Premises without any enclosed common area in the main circulation route.
IEQ 13a	Normally occupied premises <sup>2</sup> without any air-conditioning equipment installed and provided by the project proponent, or without any fresh air provision <sup>1</sup> .
IEQ 13b	Normally occupied premises <sup>2</sup> without any installation of air diffuser in the air-conditioning system.
IEQ 14a	Normally occupied premises <sup>2</sup> with fresh air provision <sup>1</sup> .
IEQ 14b	Normally occupied premises <sup>2</sup> with fresh air provision <sup>1</sup> , or without any air-conditioning equipment installed and provided by the project proponent.



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Chairperson of Standards Sub-committee

<sup>1</sup> Fresh air provision means any fresh air equipment such as PAU, AHU, FAU, FAP, FAF, etc.; and/or premises with fresh air louvers, etc.

<sup>2</sup> Normally occupied premises are enclosed spaces / areas where people normally stay there for more than 1 hour per person per day on average.