

6	IEQ	6.6 LIGHTING QUALITY	
		IEQ 15 NATURAL LIGHTING	
	EXCLUSIONS	None.	
	OBJECTIVE	Encourage a holistic examination of site layout, building design, and fenestration design, such as to maximise access to daylight for the purposes of improved health and comfort.	
	CREDITS ATTAINABLE	2	
	PREREQUISITES	None.	
	CREDIT REQUIREMENT	1 credit where at least 80% of the floor area in all normally occupied spaces is adequately lit with an average daylight factor of 1%. 2 credits where at least 95% of the floor area in all normally occupied spaces is adequately lit with an average daylight factor of 1%.	
	ASSESSMENT	<p>The Client shall submit evidence in form of a report prepared by a suitably qualified person demonstrating compliance with the assessment criteria. Daylight availability, based on 'worst case' scenarios, i.e., the most obstructed windows, shall be demonstrated by either one of the following methods:</p> <p>a) Measurement of DF</p> <p>Measurement of average daylight factor (DF) shall be by the methods recommended by CIBSE [1], or equivalent.</p> <p>Given that the specified sky condition can be difficult to obtain in practice the following modelling methods are acceptable alternatives.</p> <p>b) Estimation of DF</p> <p>The average daylight factor (DF) shall be estimated according to the preferred method [2], that given in the CIBSE design guide [3], or equivalent method. Alternatively, daylighting design software such as Radiance [4] can be used to calculate the average DF provided it can be demonstrated that the method of computation employed by the software used is not inconsistent with the preferred calculation method.</p> <p>The report submitted shall identify the key parameters used in the computations/modelling, especially with regard to glazing transmittance, and the reflectances of external and internal surfaces; and the suitable daylight glare control. The values of the parameters shall reflect the nature and type of surfaces on the external vertical obstructions and horizontal surfaces, and likely internal finishes.</p> <p>The room dimensions shall be taken to be a typical perimeter room for the building, such as a habitable room, office, classroom, etc.</p> <p>Where at least 80% of floor area in all normally occupied spaces is adequately lit with an average daylight factor of 1% or more the credit shall be awarded. The second credit shall be awarded where at least 95% of floor area in all normally occupied spaces is adequately lit with an average daylight factor of 1% or more.</p> <p>In addition, to ensure a realistic result that reflects the urban density of</p>	<p>1</p> <p>2</p> <p>3</p> <p>4</p> <p>5</p> <p>6</p> <p>7</p>

- 1 The Chartered Institution of Building Services Engineers. Applications Manual – Window design.
- 2 Cheung H D, Chung T M. Calculation of Mean Daylight Factor in a Building Interior Within a Dense Urban Environment. Department of Building Services Engineering, Hong Kong Polytechnic University.
- 3 The Chartered Institution of Building Services Engineers. Lighting Guide LG10. daylighting and window design. CIBSE.
- 4 Ward Larson, G. and Shakespeare, R. Rendering with RADIANCE. Morgan Kaufmann. San Francisco.

Hong Kong, surrounding buildings shall be included in the model.

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BACKGROUND

Access to daylight is an important aspect of building design from the perspectives of comfort and health. Critical to providing sufficient daylight is the provision of a view of the sky. The amount of daylight available for specific rooms is related to:

- window and room geometry and room surface finishes;
- sky obstruction due to the form of the building and its overshadowing from neighbouring buildings; and
- glazing transmittance.

In Hong Kong's congested built form rooms on lower floors of buildings may be considerably overshadowed by the built form. This can result in significantly reductions in natural light, and will incur increased electricity consumption for artificial lighting, and degradation of internal comfort and health conditions. It is possible to take into account the overshadowing by adjacent buildings using appropriate design tools.



Circular Letter No.: 2014.119

Issue Date: 23 June 2014

Application: BEAM Plus NB Version 1.1
BEAM Plus NB Version 1.2

Effective Date: 23 June 2014

Credits Not Applicable to Not Normally Occupied Buildings

This circular letter announces that the following credits are not applicable to buildings that are not normally occupied (e.g. pump stations, sewerage treatment plants).

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- SA 2
- SA 3
- IEQ 10
- IEQ 15
- IEQ 16
- IEQ 21
- IEQ 23a

Signed :

A handwritten signature in blue ink, appearing to read "Ray", is written over a horizontal line.

Dr. Raymond Yau
Chairperson of Technical Review Committee

EU 1 Reduction of CO2 Emissions

EU 1 - Option 2 Alternative Route: Passive Design

EU 2 Peak electricity demand reduction

EU 3 Embodied energy in building structural elements

EU 6 Renewable Energy System

EU 7 Air-conditioning units

EU 9 Energy efficient appliances

EU 10 Testing and Commissioning

EU 11 Operation and Maintenance

EU 12 Metering and monitoring

Water Use

WU P1 Water Quality Survey

WU P2 Minimum water saving performance

WU 1 Annual water use

WU 3 Water Efficient Irrigation

WU 5 Water efficient appliances

Indoor Environmental Quality

IEQ P1 Minimum ventilation performance

IEQ 1 Security

IEQ 2 Plumbing and Drainage

IEQ 4 Waste Disposal Facilities

IEQ 5 Construction IAQ Management

IEQ 6 Outdoor Sources of Air Pollution

IEQ 7 Indoor Sources of Air Pollution

IEQ 9 Increased ventilation

IEQ 10 Background Ventilation

IEQ 11 Localised Ventilation

IEQ 12 Ventilation in Common Areas

IEQ 14 Thermal Comfort in Naturally Ventilated Premises

IEQ 15 Natural Lighting

#103. What features can be considered as glare control under IEQ 15 in BEAM Plus Version 1.1?

Fixed shading devices, balconies, utility platforms, solar films, blinds, screens etc can be considered as glare control measures.

#104. IEQ 15, For BEAM Plus NB V1.1 and 1.2, there are a number of methodologies in the computation of the average daylight factor from various software. Will it be acceptable if the output provides the average daylight factor for the entire area of a room?

Yes. Apart from using the grid of calculation points to determine the percentage area which meets the daylight factor requirement, simulated output which produces the average daylight factor result for the entire room is also acceptable.

(Released on 2 June 2017)

#151. IEQ 15, IEQ16 and IEQ 17, For BEAM Plus New Buildings Version 1.1 and 1.2, what documentation is required to substantiate the values of reflectance used in the computations/ modelling?

The Applicants can opt to adopt the following typical reflectance values in the computer modelling, or propose the reflectance values that are specific to their projects.

Surfaces	Typical Reflectance
Ceiling	0.8
Walls	0.5
Floor	0.2

In case the adopted reflectance values exceed the typical reflectance values, the Applicant shall provide the corresponding international standards or supporting documents such as finishing schedule, catalogue, on-site photos, etc. to support the assumption of reflectance.

(Released on 28 January 2022)

IEQ 16 Interior Lighting in Normally Occupied Areas

IEQ 17 Interior Lighting in Areas not Normally Occupied

IEQ 18 Room Acoustics

IEQ 19 Noise Isolation

IEQ 20 Background Noise

IEQ 21 Indoor Vibration

IEQ 22 Access for Persons with Disability

IEQ 23 Amenity Features