

Circular Letter No.: 2024.213

Issue Date: 21 June 2024

Application: BEAM Plus NB Version 2.0

Effective Date: 21 June 2024

HWB 10 Artificial Lighting and HWB 11 Daylight

- 1. The Technical Circular Letter hereby announces an update to the credit content for **HWB 10** Artificial Lighting and **HWB 11 Daylight** under BEAM Plus NB v2.0.
- 2. The aim of the update is to clarify the simulation setting for typical surface reflectance values of ceiling, walls and floor adopted for the computer modelling.
- 3. The requirements given in Section 7.3 of the BEAM Plus NB v2.0 Manual (2023 Edition) are hereby updated with the enclosures in Annex A and Annex B of this Technical Circular Letter respectively.
 - Pages Annex A-1 to A-4 shall replace all contents in Section 7.3 on HWB 10 specified in Pages 380 to 382 of the Manual; and
 - Pages Annex B-1 to B-3 shall replace all contents in Section 7.3 on HWB 11 specified in Pages 383 to 385 of the Manual.
- 4. <u>Approved PA projects</u>: For projects that have already completed PA and have certain assessment approach approved, the Applicant may opt to adopt the same assessment criteria for FA or voluntarily comply with this Technical Circular Letter. For the avoidance of doubt, the Applicant shall provide PA evidence (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.
- 5. For the ease of reading, the credit content in Pages Annex A-1 to A-4 and Annex B-1 to B-3 of this Technical Circular Letter has incorporated the published FAQs #225 and #226 for HWB 10 and previously published Technical Circular Letter No. 2023.192 for HWB 11. The Applicant shall observe the respective Technical Circular Letter and FAQs for their issue dates and effective dates.



Ir Victor Cheung Chairperson of Standards Sub-committee

Annex A: Updated Credit Content for Section 7.3 under BEAM Plus NB v2.0

7	Health and Wellbeing	7.3	Indoor Environmental Quality
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	HWB 10 Artificial Lighting
Extent of Application	All buildings
Objective	Promote indoor lighting design which is comfortable for occupants' indoor activities.
Credits Attainable	2
Credit Requirement	(a) Artificial lighting in normally occupied spaces
	1 credit for achieving the prescribed lighting performance in normally occupied spaces.
	(b) Artificial lighting in not normally occupied spaces and unoccupied spaces
	1 credit for achieving the prescribed lighting performance in not normally occupied spaces and unoccupied spaces.
Assessment	(a) Artificial lighting in normally occupied spaces
	This credit only assesses indoor normally occupied spaces with permanently installed lighting fixtures provided by the project owner. Spaces with fixtures, which are temporarily installed for Occupation Permit (OP) inspection purposes and out of the project owner's fit-out scope, are not assessed.
	Considering that the design of indoor lighting arrangement for visual comfort inside residential units within private/ public housing developments and government quarters is usually subject to change based on the preferences of future occupants, all spaces inside those residential units should be excluded from the assessment.
	For development with one-single family domestic building(s), in case the lighting fixtures are provided and permanently installed by the project owner not for Occupation Permit (OP) inspection purposes, the recreational/ non-habitation spaces inside the building(s), such as gym room, play room, reading room, etc., shall be included for the assessment.
	Demonstrate the achievement of the prescribed lighting performance in normally occupied spaces regarding the lighting performance criteria adopted based on The SLL Code for Lighting 2012 Section 2.2 [1] or equivalent. If the task area is unknown by the time of design, assume the entire space, with 0.5m from walls, is the task area.
	In consideration that the detailed design of the lighting systems will be taken in later stages of the construction program for building projects, at least one sample of each type/ each functional use of normally occupied spaces shall be included in the Provisional Assessment.
	For the Final Assessment, ALL spaces shall be considered to ensure a thorough evaluation of the lighting performance of the permanently installed lighting systems provided by the project owner across the entire building.

¹ Chartered Institution of Building Services Engineers (CIBSE) – The SLL Code for Lighting 2012

Demonstrate compliance with the assessment criteria including maintained illuminance, Unified Glare Rating limit and minimum illuminance uniformity either by measurements using a standardised measurement protocol appropriate to the parameter being assessed, or by computer modelling.

For computer modelling, the following typical surface reflectance can be adopted. If different values are adopted, supporting documents (cut sheets/ catalogues/ laboratory reports) showing the corresponding information are required for justification.

Table	HWB	10-1	[2]
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Surfaces	Reflectance of surfaces
Ceiling	0.8
Walls	0.5
Working planes	0.2
Floor	0.2

Submit an Artificial Lighting Performance Report, including the following content:

- 1. Technical details of the installed lighting systems;
- 2. Design criteria for each room type; and
- 3. Results of measurements or simulation.

(b) Artificial lighting in not normally occupied spaces and unoccupied spaces

This credit only assesses indoor not normally occupied spaces and unoccupied spaces with permanently installed lighting fixtures provided by the project owner. Spaces with fixtures, which are temporarily installed for Occupation Permit (OP) inspection purposes and out of the project owner's fit-out scope, are not assessed.

Considering that the design of indoor lighting arrangement for visual comfort inside residential units within private/ public housing developments and government quarters is usually subject to change based on the preferences of future occupants, all spaces inside those residential units should be excluded from the assessment.

For development with one-single family domestic building(s), in case the lighting fixtures are provided and permanently installed by the project owner not for Occupation Permit (OP) inspection purposes, the recreational/ non-habitation spaces inside the building(s), shall be included for the assessment.

Demonstrate the achievement of the prescribed lighting performance in not normally occupied spaces and unoccupied spaces regarding the lighting performance criteria adopted based on The SLL Code for Lighting 2012 Section 2.2 or equivalent.

In consideration that the detailed design of the lighting systems will be taken in later stages of the construction program for building projects, at least one sample of each type/ each functional use of not normally occupied spaces and unoccupied spaces shall be included in the Provisional Assessment.

² Chartered Institute of Building Services Engineers (CIBSE) – Lighting Guide LG 10: Daylighting - A Guide for Designers (2014)

Submittals

For the Final Assessment, ALL spaces shall be considered to ensure a thorough evaluation of the lighting performance of the permanently installed lighting systems provided by the project owner across the entire building.

Demonstrate compliance with the assessment criteria including maintained illuminance, Unified Glare Rating limit and minimum illuminance uniformity either by measurements using a standardised measurement protocol appropriate to the parameter being assessed, or by computer modelling.

For computer modelling, the following typical surface reflectance can be adopted. If different values are adopted, supporting documents (cut sheets/ catalogues/ laboratory reports) showing the corresponding information are required for justification.

Table HWB 10-2 [2]

Surfaces	Reflectance of surfaces
Ceiling	0.8
Walls	0.5
Working planes	0.2
Floor	0.2

Submit an Artificial Lighting Performance Report, including the following content:

- 1. Technical details of the installed lighting systems;
- 2. Design criteria for each room type; and
- 3. Results of measurements or simulation

(a) Artificial lighting in normally occupied spaces

Supporting Documents Please provide softcopies with filename prefix as indicated on the leftmost column below.			CA	FA/ RFA
HWB_10a_00	BEAM Plus NB submission template for HWB 10a	~	~	~
HWB_10a_01	Summary of Artificial Lighting in Normally Occupied Spaces [Appendix A]	~	~	~
HWB_10a_02	Lighting layout plan	-	~	~
HWB_10a_03	Catalogues or other supporting documents showing the reflectance value (for computer modelling approach and if values other than those specified in Table HWB 10-1 have been adopted)	✓	✓	✓
HWB_10a_04	Light fitting schedule	~	~	~
HWB_10a_05	Artificial Lighting Performance Report	~	~	~

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Supporting Documents Please provide softcopies with filename prefix as indicated on the leftmost column below.			CA	FA/ RFA
HWB_10b_00	BEAM Plus NB submission template for HWB 10b	\checkmark	~	~
HWB_10b_01	Summary of Artificial Lighting in Not Normally Occupied Spaces and Unoccupied Spaces [Appendix B]	~	~	~
HWB_10b_02	Lighting layout plan	-	~	~
HWB_10b_03	Catalogues or other supporting documents showing the reflectance value (for computer modelling approach and if values other than those specified in Table HWB 10-2 have been adopted)	~	~	~
HWB_10b_04	Light fitting schedule	✓	~	~
HWB_10b_05	Artificial Lighting Performance Report	~	~	~

(b) Artificial lighting in not normally occupied spaces and unoccupied spaces

Remarks

(a) Additional Information

None

(b) Related Credit

None

Health and Wellbeing

7

Annex B: Updated Credit Content for Section 7.3 under BEAM Plus NB v2.0

7.3

	HWB 11	Daylight	
Extent of Application	All buildings		
Objective	To achieve satisfactory daylight performance in indoor normally occupied spaces by considering the sufficiency of daylight illuminance and the potential risk of excessive sunlight penetration.		
Credits Attainable	2 BONU	S	
Credit Requirement	2 BONUS credits for demonstrating at least 55% of the total area of the studied normally occupied spaces achieves spatial Daylight Autonomy _{300/50%} (sDA _{300/50%}) and no more than 10% of the same area receives Annual Sunlight Exposure _{1000,250} (ASE _{1000, 250}).		
Assessment	1. Cor occ ope rece	Induct simulations to show that at least 55% of the total area of normally cupied spaces can receive at least 300 lux of sunlight for at least 50% of erating hours each year and no more than 10% of the same area can ceive more than 1,000 lux for more than 250 hours each year.	
	2. Foll (sD. loca [1], inclu Dep	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:	
	2.1.	The presence of trees can be ignored;	
	2.2.	The overall external reflectance of the building can be assumed to be 0.2 ;	
	2.3.	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;	
	2.4.	Internal doors within a unit are assumed to be fully opened; and	
	2.5.	The surface reflectance of ceiling, walls and floor can be assumed to be 0.8, 0.5 and 0.2 respectively (based on Table HWB 10-1).	
	3. Sub crea	mit a Daylight Analysis Report demonstrating compliance with the lit requirement. The report shall include:	
	3.1.	3.1. Name of simulation software used;	
	3.2.	 Scaled drawing(s) depicting the building layout and locations of studied normally occupied space; 	
	3.3.	Simulation assumptions, including sky model file, surface reflectance and glass transmittance, etc.;	

Indoor Environmental Quality

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¹ Standard Hong Kong weather data file from Energyplus. Weather Data by Region | EnergyPlus. [ONLINE]. Available at: https://energyplus.net/weather-region/asia_wmo_region_2/CHN%20%20. [Accessed April 2021].

² Lands Department - Survey and Mapping Office. [ONLINE]. Available at: https://www.landsd.gov.hk/en/survey-mapping.html. [Accessed April 2021].

- 3.4. Screen captures of project building, surrounding building and terrain of the 3D model; and
- 3.5. Simulation results and output files/ render images.

The Daylight Analysis Report shall be endorsed by a Locally Qualified Professional who has at least 3 years of relevant experience in daylight study. The Locally Qualified Professional shall attain at least one of the following local professional qualifications:

- Member of The Hong Kong Institution of Engineers (MHKIE);
- Member of Hong Kong Institute of Qualified Environmental Professionals Limited (MHKIQEP);
- Registered Energy Assessor (REA), under the Buildings Energy Efficiency Ordinance (Cap. 610); and
- Registered Professional Engineer (R.P.E.), under the Engineers Registration Ordinance (Cap. 409).

The accepted disciplines of the above local professional qualifications include Building Services, Mechanical, Electrical, Energy and Environmental.

CV of the Locally Qualified Professional shall be provided to demonstrate that the Locally Qualified Professional holds the required local professional qualification(s) and with the relevant experience.

- 4. If the simulation software is not on the list in Annex 4 of PNAP APP-130, a software validation report from the software developer should be provided to ensure the accuracy of simulation by the software.
- 5. For buildings other than residential, office and education buildings,
 - 5.1. Provide a comprehensive narrative explaining why daylight is beneficial in the context of sustainability for the specific building type that is submitted. The narrative should also include the positive impacts of daylight on energy efficiency, occupant well-being, energy conservation etc.; and
 - 5.2. Ensure that the submission adheres to the assessment criteria specified in Assessment 1 4 for the specific building type applying for BONUS credits.

Submittals

Supporting Documents Please provide softcopies with filename prefix as indicated on the leftmost column below.			CA	FA/ RFA
HWB_11_00	BEAM Plus NB submission template for HWB 11	\checkmark	✓	~
HWB_11_01	Endorsed daylight analysis report	\checkmark	~	~
HWB_11_02	CV of the professional as per requirements in the assessment	~	~	~
HWB_11_03	Validation report of the simulation software*	~	~	~
* It is required only if the simulation software is not on the list in Annex 4 of PNAP APP-130.				

Remarks

(a) Additional Information

Whole Building Design Guide, National Institute of Building Sciences – Daylighting. [ONLINE]. Available at:

https://www.wbdg.org/resources/daylighting. [Accessed April 2021].

(b) Related Credit

EU 1 Low carbon passive design

This credit considers health and wellbeing of occupants therefore stipulate requirements for drawing natural light but neither too dim nor too fierce. On the other hand, in EU 1 daylight is promoted as means to replace artificial lighting.

SS 4 Neighbourhood Daylight Access

This credit promotes building designs which allow the access to daylight of neighbouring sensitive buildings to be maintained at the prescribed levels.