

Lighting and Ventilation Requirements – Performance-based Approach

Based on the findings of a consultancy study to review the standards of the lighting and ventilation requirements in buildings, the Building Authority (BA) is prepared to accept the following alternative performance standards on the provision of natural lighting and ventilation in habitable rooms and domestic kitchens for the purpose of regulations 30, 31 and 32 of the Building (Planning) Regulations (B(P)R):

(a) Natural Lighting

Room of domestic building	Vertical Daylight Factor (VDF)¹ (measurement taken on the centre of the window pane)
Habitable Room	8 %
Kitchen	4 %

(b) Natural Ventilation

Room of domestic building	Air Change per Hour (ACH)
Habitable Room	1.5 (natural means)
Kitchen	1.5 (natural means) plus 5 (mechanical means)

2. The BA would accept proposals based on the above standards. Applications to modify the prescriptive requirements set out in regulations 30, 31 and 32 of the B(P)R will be accepted if the above performance standards are met. In this connection, the performance standards are deemed to be met if it can be proved that the provision of windows meets the simplified assessment method on natural lighting and ventilation requirements stipulated in Appendix A.

3. Apart from the simplified assessment method in Appendix A, the Authorized Persons (APs) may alternatively demonstrate compliance with the above performance standards using any suitably verified and scientifically validated methods. As there are a number of such assessment tools for lighting and ventilation performance of a building available in the market such as lighting simulation software and Computational Fluid Dynamic (CFD) tools, APs should substantiate the validity and appropriateness of such tools to the satisfaction of the BA. Guidance notes on validation of lighting simulation and CFD assessment of the ventilation performance in buildings are given in Appendices B and C respectively.

/4. The...

¹ "Vertical Daylight Factor" means the ratio in percentage of the total amount of illuminance falling onto a vertical surface of a building to the instantaneous horizontal illuminance from a complete hemisphere of sky excluding direct sunlight. It takes into account light coming from the sky directly and from reflected light of surrounding buildings and the ground both above and below the horizon.

4. The BA accepts the design of a project partly based on the prescriptive requirements and partly based on the performance standards set out in paragraph 1 above. For the purpose of regulation 31(2) of the B(P)R, the base may be measured at an angle not more than 15° from the external wall.

5. The need for any refinement to the standards and replacement of the current prescriptive regulations would be considered when a review on the application of the alternative performance standards has been conducted.

6. In the case of wholesale conversion of existing industrial buildings or other types of buildings to office use where there are difficulties in providing the required natural lighting and ventilation due to constraints posed by the original design of the existing building, application for modification of regulations 30 and 31 of the B(P)R will be favourably considered if adequate artificial lighting and mechanical ventilation and energy efficient design that could achieve 40% in the categories of Energy Use (EU) and Indoor Environmental Quality (IEQ) with the BEAM Plus Certification conferred by the Hong Kong Green Building Council (HKGBC) are incorporated in the proposal. As the pre-requisites for the granting of the modification, the applicant in applying for approval of plans should submit the official letter issued by the HKGBC acknowledging the satisfactory completion of project registration application for BEAM Plus Certification and a letter by the applicant undertaking to submit to the BD the following documents:

- (a) Result of the Provisional Assessment under the BEAM Plus Certification conferred by the HKGBC to demonstrate achievement of 40% in the categories of EU and IEQ to be submitted prior to the application for consent to the commencement of the building works shown on the approved plans; and
- (b) Result of the Final Assessment under the BEAM Plus Certification conferred by the HKGBC to demonstrate achievement of 40% in the categories of EU and IEQ within 6 months of the date of the BA's letter of acknowledgment of the Form BA14 for the project.

(HUI Siu-wai)
Building Authority

Ref : BD GP/BREG/P/42
BD GP/BREG/P/18/1(E) (VII)
BD GP/BREG/P/18/1(G) (II)

First issue December 2003

Last revision June 2013

This revision February 2015 (AD/NB1) (Paras. 1 and 2 and Appendices A and B amended, and para. 3 and Appendix C added)