

Energy Efficiency of Buildings Building (Energy Efficiency) Regulation

Introduction

Building (Energy Efficiency) Regulation, which came into effect on 21 July 1995, imposes energy efficient requirements. It aims at reducing heat transfer through building envelope thus saving the electricity consumption for air-conditioning by requiring the external walls and roofs of a commercial or hotel building to be designed and constructed to have a suitable Overall Thermal Transfer Value (OTTV). The Regulation applies to building works in accordance with section 39 of the Buildings Ordinance.

Review of OTTV Control

2. Recently, Buildings Department has completed a review of the OTTV control. This practice note has accordingly been revised to incorporate the recommendations made in the review. This revision will take effect on 17 July 2000 and is applicable to all new building projects for which building plans are submitted for the first time for approval.

3. As a result of the review, the amendments made to the Code of Practice for Overall Thermal Transfer Value in Buildings 1995 are :

- (a) in the case of a building tower, the OTTV should not exceed 30 W/m^2 (previously 35 W/m^2); and
- (b) in the case of a podium, the OTTV should not exceed 70 W/m^2 (previously 80 W/m^2).

4. The associated administrative arrangements have also been reviewed and revised. Details of these revised arrangements are given below.

Procedure

5. It is possible that the design of the facade of a building may not have been finalised when building plans are first submitted. Accordingly, the Building Authority would accept that the first submission of building plans needs not be accompanied by the information and calculations as required by Building (Energy Efficiency) Regulation 5. However, after the approval of building plans and prior to the application for consent to commence building works, submission of detailed OTTV calculations and information on the standard forms (Form OTTV 1 to 4) set out in the schedule to the OTTV Code is required under Regulation 10 of the Building (Administration) Regulations.

6. At the time of building plan submission or upon application for occupation permit as the case may be, the OTTVs of the external walls and roofs of the building and the shading coefficient of glass should be indicated on the building plans or record plans as relevant.

7. Upon application for Occupation Permit, the following OTTV documents together with the record plans are required to be submitted :

- (a) the finalised version of the OTTV report, including OTTV calculations;
- (b) test certificates or other published specifications for the building materials used, such as glass used for fenestration and facade; and
- (c) the OTTV Summary Sheet on a standard form in **Appendix A**.

Acceptance of Building Materials

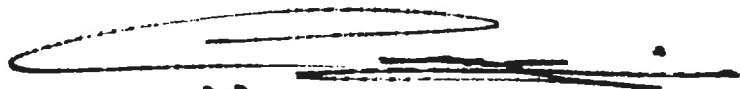
8. If building materials other than those listed in the OTTV Code are used, their OTTV or equivalent should be obtained from reliable sources. It would facilitate processing of building plans if full background to the source of information and suitability for local conditions is detailed in the submission.

Sunshading and Innovative Designs

9. Genuine sunshades used to assist in the reduction of the OTTV will not be counted for plot ratio and site coverage calculations or be regarded as obstructions to prescribed windows if they project 1.5m or less from external walls. Sunshades will not normally be allowed to project over streets under section 31(1) of the Buildings Ordinance, but exemptions may be considered in individual cases if special circumstances so justify.

10. The Building Authority can accept designs other than those stipulated in the Code of Practice for OTTV in Buildings provided that these designs are comparable or better in terms of energy efficiency. Innovative designs which aim at reducing OTTV would not be penalised in terms of plot ratio and site coverage if they could be demonstrated to be effective.

11. Authorized persons are encouraged to consult a Registered Professional Engineer in building services or mechanical discipline in assessing the design assumptions adopted in the evaluation of energy efficiency in buildings, particularly for innovative designs other than the method stipulated in the Code of Practice. A comprehensive approach to energy conservation produces better results. The services of a Registered Professional Engineer in these disciplines will contribute to this.



(C M LEUNG)
Building Authority

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Index under : Building (Energy Efficiency) Regulation
Code of Practice for OTTV in Buildings
Energy Efficiency, OTTV, Sunshading

OTTV Summary Sheet

Address :				BD Ref. No.			
Building Type		<input type="checkbox"/> 1. Hotel					
		<input type="checkbox"/> 2. Office (including industrial/office)					
		<input type="checkbox"/> 3. Shops					
		<input type="checkbox"/> 4. Others*, please specify :					
OTTV calculated by		<input type="checkbox"/> 1. Registered Professional Engineers (Building Services/Mechanical)					
		<input type="checkbox"/> 2. Architect					
		<input type="checkbox"/> 3. Others, please specify :					
Classification		Podium		Tower			
Designated Use		<input type="checkbox"/> 1. Shops		<input type="checkbox"/> 4. Cinema			
		<input type="checkbox"/> 2. Offices		<input type="checkbox"/> 5. Plant Rooms			
		<input type="checkbox"/> 3. Restaurants		<input type="checkbox"/> 6. Others			
				<input type="checkbox"/> 1. Office			
				<input type="checkbox"/> 2. Hotel Rooms			
				<input type="checkbox"/> 3. Others			
No. of Storeys (excluding ground floor)							
Gross Floor Area		m ²		m ²			
Usable Floor Area		m ²		m ²			
Total External Wall Area (including windows)		m ²	window to wall ratio = :	m ²	window to wall ratio = :		
Total Window Area		m ²		m ²			
Total Skylight Area		m ²		m ²			
*Weighted Average U-value (W/m ² K)	Opaque Wall	W/m ² K		W/m ² K			
	Window	W/m ² K		W/m ² K			
	Opaque Roof	W/m ² K		W/m ² K			
	Skylight	W/m ² K		W/m ² K			
Window	Glass Type	<input type="checkbox"/> Reflective, Area = m ² , SC = VLT =		<input type="checkbox"/> Reflective, Area = m ² , SC = VLT =			
		<input type="checkbox"/> Tinted, Area = m ² , SC = VLT =		<input type="checkbox"/> Tinted, Area = m ² , SC = VLT =			
		<input type="checkbox"/> Clear, Area = m ² , SC = VLT =		<input type="checkbox"/> Clear, Area = m ² , SC = VLT =			
	Double Glazing	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
	External Shading	Overhang	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Overhang	<input type="checkbox"/> Yes	<input type="checkbox"/> No
		Sidefin	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Sidefin	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Skylight	Glass Type	<input type="checkbox"/> Reflective, Area = m ² , SC = VLT =		<input type="checkbox"/> Reflective, Area = m ² , SC = VLT =			
		<input type="checkbox"/> Tinted, Area = m ² , SC = VLT =		<input type="checkbox"/> Tinted, Area = m ² , SC = VLT =			
		<input type="checkbox"/> Clear, Area = m ² , SC = VLT =		<input type="checkbox"/> Clear, Area = m ² , SC = VLT =			
	Doubling Glazing	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
	External Shading	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
**Weighted Average Absorptivity	Wall						
	Roof						
**Weighted Average Density	Wall	kg/m ²		kg/m ²			
	Roof	kg/m ²		kg/m ²			
OTTV	Wall	W/m ²		W/m ²			
	Roof	W/m ²		W/m ²			
	Overall average	W/m ²		W/m ²			
Additional information/views on energy efficiency control :							

SC = Shading Coefficient

VLT = Visible Light Transmittance

*Other commercial buildings may include : department stores, places of public entertainment, places of public assembly, restaurants etc.

**Weighted by area

Note :

1. Please tick in the box as appropriate
2. Window and skylight data should represent the major proportion of its use in the development.