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OWL Technical Guidance Note – Upcoming changes to Part O

1. Introduction:

Significant changes are taking place to the Building Regulations 2010 (as amended). This guidance note describes the specific details associated with the new regulation Approved Document Part O (Over-heating).

Subsequent Guidance Notes will cover the changes to Part F Volume 2 (Volume 1 & 2), Part L (Volume 1 & 2) & the new Regulation S.

2. Transitional Arrangements:

The application of the updated Building Regulations will depend upon the date of the submission of the Initial Notice, and the date of the commencement of works. Details are described within Table 1 below.

Table 1:

Commencement of Works	Submission of Initial Notice	
	Prior to 15th June 2022	From 15th June 2022
Prior to 15th June 2023	Not applicable	Part O Applicable
From 15th June 2023	Part O Applicable	Part O Applicable

- For projects with multiple buildings per application (e.g. 10 new dwellings) transitional provisions apply per **individual** building.

Further information regarding the transitional arrangements can be found in Building (Amendment) Regulations 2021: circular 01/2021.

3. Commencement of Works:

To ensure complete clarity with the application of these transitional arrangements, the definition of 'commencement' is key.

The following actions would (generally) be considered to mark the commencement of work:

- *excavation for strip or trench foundations or for pad footings*
- *digging out and preparation of ground for raft foundations*
- *vibrofloatation (stone columns) piling, boring for piles or pile driving*
- *drainage work specific to the building(s) concerned.*

Further information regarding the designation of commencement can be found in BCA Policy Note 1.

4. Introduction:

The introduction of Part O is designed to mitigate the future risks of global warming, and the serious health concerns to health and wellbeing caused by increasing frequency of high temperatures events (e.g. Heat waves).

It has been created as a result increased utilisation of 'non-traditional' construction methods (off-site / Modern Methods of Construction), and aesthetic preferences for large volumes of glazing.

5. Scope:

Part O is applicable to: New Dwellings, Flats / Apartments, HMOs, Student Accommodation & Care Homes. It's remit includes the shared communal areas within the buildings (e.g. lobbies, lounges etc).

Note – Part O does **not** apply to Hotels.

Note 2 – In mixed use buildings Part O does **not** apply to those areas which are not listed above, e.g. retail or office floors.

Note 3 – Part O is **not** applicable to all building types (listed above) which are formed by a material change of use (e.g. Barn Conversions).

6. Part O Requirement(s):

Reasonable provision must be made to limit unwanted solar gains & provide adequate means to remove heat from the indoor environment.

Mechanical cooling is only permissible as a solution, where it is not possible to remove sufficient heat (from indoor environment) without it's installation.

Note – Recognition of differing / individual building occupant(s) 'comfortable' temperature is highlighted, as justification that the guidance provided cannot 'guarantee' occupant(s) comfort.

7. Possible methods of Compliance:

7a. Simplified Method

(More likely approach to be utilised for single dwellings)

Strategy selected (and risk of overheating) is classified by the location of the building and whether cross ventilation is achieved.

- Location:
 - Majority of England is listed as *Moderate Risk*
 - Post code specific risk category(s) are listed in Appendix C of AD O.
 - Areas of central London and Manchester are listed as *High Risk*.
- Cross Ventilation
 - To achieve 'cross-ventilation designation' the building requires openings on opposite facades.
 - Single façade and corner flats do **not** have cross ventilation.
 - Each residential unit (e.g. dwelling) shared communal room, or common space should be assessed separately.

7a(i) Limiting Solar Gain:

These two components (cross ventilation & location) directly impact upon the extent of allowable glazing permissible within the Guidance of AD O. Table 2 (Table 1.1 & 1.2 in AD O) details these requirements. There are two requirements to comply with: the total façade as a whole & most glazed room within that façade.

Table 2:

Buildings with cross ventilation				
	High risk Locations		Moderate risk Locations	
Largest glazed façade orientation	Maximum area of glazing (% of floor area)	Maximum area of glazing in the most glazed room (% floor area of room)	Maximum area of glazing (% of floor area)	Maximum area of glazing in the most glazed room (% floor area of room)
North	15	37	18	37
East	18	37	18	37
South	15	22	15	30
West	18	37	11	22
Buildings without cross ventilation				
	High risk Locations		Moderate risk Locations	
Largest glazed façade orientation	Maximum area of glazing (% of floor area)	Maximum area of glazing in the most glazed room (% floor area of room)	Maximum area of glazing (% of floor area)	Maximum area of glazing in the most glazed room (% floor area of room)
North	15	26	18	26
East	11	18	18	26
South	11	11	15	15
West	11	18	11	11

Note: Buildings in high risk locations should also provide shading in glazed areas at specific locations (detailed within AD O).

7a(i) Removing excess heat:

These two components (cross ventilation & location) also directly impact upon the minimum free areas allowable within the Guidance of AD O. Table 3 (Table 1.3 & 1.4 in AD O) details these requirements. There are two requirements to comply with: each bedroom & the whole development.

Table 3:

Buildings with cross ventilation		
	High risk Locations	Moderate risk Locations
Total minimum free area	The greater of the following: a. 6% of the floor area b. 70% of the glazing area	The greater of the following: a. 9% of the floor area b. 55% of the glazing area
Bedroom minimum free area	13% of the floor area of the room	4% of the floor area of the room
Buildings without cross ventilation		
	High risk Locations	Moderate risk Locations
Total minimum free area	The greater of the following: a. 10% of the floor area b. 95% of the glazing area	The greater of the following: a. 12% of the floor area b. 80% of the glazing area
Bedroom minimum free area	13% of the floor area of the room	4% of the floor area of the room

Note: Simplified method is **not** suitable for multi-unit buildings and those with significant horizontal pipework in a communal heating system. Vertical distribution & vertical risers enables the *simplified methodology* to be used.

7b. Dynamic Thermal Modelling (DTM):

DTM offers more design flexibility particularly with those building that are highly insulated or are shaded by neighbouring environments.

DTM assessment should follow CIBSE Guide TM59. TM59 modelling should include data related to occupancy hours, opening or windows and maximum temperatures (2.5 & 2.6 of AD O).

TM59 reports should be produced and issued confirming that a PASS has been achieved.

Note: Strategies relating to reduced overheating risk (detailed within AD O) **should** still be followed irrespective of the TM59 report(s).

8. Limiting solar gains in summer (considerations):

Solar gains in summer should be limited by the following aspects:

1. Glazing design, size & orientation.
2. G-value of glass and depth of window reveal
3. Fixed Shading Devices
4. Shutter, external blinds, overhangs, awnings,
5. Balconies (and their location)
6. Adjacent buildings, structures or landscaping.

Note: foliage, internal blinds and curtains should **not** be taken into account.

9. Removing excess heat (considerations):

Excess heat should be removed by the following aspects:

1. Opening windows
2. Ventilation louvers in external walls
3. Mechanical ventilation systems
4. Mechanical cooling systems

Note: Passive means should be utilised as far as is reasonably practicable, mechanical cooling only permitted **if** Part O requirement cannot be made by openings alone.

10. Usability:

Overheating mitigation strategy must be usable for the future occupants of the building. Examples include:

- If Local Planning Authority (LPA) detail that noise of traffic pollution may become an issue for future / current occupants – DTM methodology is more suitable.
- For ground floor and easily accessible bedrooms, the free area of opening windows **must** be made secure during sleeping hours.
- Opening windows with risk of falling should have barriers at 1100mm, no gaps of more than 100mm and non-climbable guarding.
- Looped cords must be fitted with child safety devices.

11. Interaction with other Approved Documents:

The new Part O is significantly more onerous than some guidance within other Approved Documents, most notably Parts F, K, Q and L. However, where there is any conflict, the **most onerous** requirement applies / takes precedence.

12. Provision of information:

Building Control Bodies (including OWL BCS) will need to be provided with an overheating calculation for **each** dwelling to prove compliance. These calculations **should** be provided at the earliest opportunity and issued to the BCB.

At completion the owner / occupier should be provided user information that enables the efficient use of overheating mitigation systems.

This information can include;

1. overheating mitigation strategy
2. TM59 Assessment or Calculations for Simplified Method
3. Location of equipment, sensors and controls
4. Operating and maintenance instructions for every element
5. Time of year & day that the strategy applies.

13. Conclusion:

The upcoming changes to Part O relating to dwellings are significant. All relevant stakeholders should be aware of the increased / changed role requirements to Building Control Bodies (e.g. OWL BCS).

Early consultation with an OWL BCS Surveyor is essential to ensure Building Regulation requirements are met.

The requirements to achieve Building Regulations compliance remain (as always) with the owner / developer. However, OWL BCS is committed to promoting education & support regarding these upcoming changes.

14. References:

Approved Document O 2022
Approved Document F (Vol 1 & 2) 2022
Approved Document L (Vol 1 & 2) 2022
Approved Document K 2013
Approved Document Q 2015
CIBSE Guide TM59

15. Disclaimer:

The information within this guidance document is not a replacement for the Approved Documents or consultation with Building Control Surveyors. Nor does it provide a methodology / specification to 'follow' to achieve compliance.

The aim of this document is to ensure early consultation with competent professionals to promote Part O of the Building Regulations 2010 as amended.

Signed:



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Signed:



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