

LABSS INFORMATION PAPER INFOP39 – March 2023 Version 1**Changes to Technical Handbooks from June 2022
Mandatory Standard 2.6 and guidance clause 2.6.4 External wall cladding****Information for verifiers****PURPOSE**

The purpose of this information paper is to highlight the changes to Mandatory Standard 2.6 and guidance clause 2.6.4 External wall cladding, which came into force on 1 June 2022, including outlining background information to these changes as advised by the BSD.

RISKS ASSOCIATED WITH SMALL OPENINGS

Prior to the changes on 1 June 2022, guidance clause 2.6.4 within both the Domestic and Non-Domestic Handbooks noted that:

However combustible cladding need not be included in the calculation of unprotected area where:

- the combustible cladding is attached to the structure of the [building](#) and the [external wall](#) contains no openings other than the small openings described in clause 2.6.2b, and
- the wall behind the cladding (or the cladding itself) has the appropriate fire resistance duration from the inside.

The Technical Handbooks from 1 June 2022 have omitted this wording.

The BSD confirmed that as part of the recent amendments the risk of fire spread onto external wall cladding via small openings was reviewed (2.6.2). The BSD also confirmed that post Grenfell Tower and with the review to tighten fire safety around cladding it was considered that small openings, such as those permitted in 2.6.2b, posed a significant means of fire spread onto the cladding.

For reference, guidance clause 2.6.2b covers unprotected openings of an area of not more than 0.1m², which are at least 1.5m from any other unprotected area in the same wall, which are permitted in a wall between 500mm and 1m from the boundary.

BACKGROUND INFORMATION

The intent of the Domestic and Non-Domestic Handbook guidance is for all combustible cladding (i.e. not A1/A2), more than 1 mm thick, to be included in the calculation of unprotected area (except for houses, as outlined in the last paragraph within clause 2.6.4 of the Domestic Technical Handbook).

Approved Document B in England and Wales (ABD) allows this calculation of unprotected area to be equal to half of the actual area of combustible cladding where small openings can be ignored as unprotected area and sprinklers can double the permissible unprotected area or half the boundary distance to minimum 1.0 m.

For situations where the simple method cannot be applied, methods in BRE 187 can be referred to. All the calculation methods in the Handbooks, ADB and BR 187 are based on a number of assumptions (which may or may not be the same for fire engineered approaches) including notably the following:

- The fire involves only one compartment which is fully involved.
- All unprotected areas have failed.

- An exposed surface on an adjacent building should not receive an incident heat flux greater than 12.6 kW/m² (this figure is based on historic extensive research on the ignition of wood by thermal radiation)
- The boundary is considered to be a symmetry plane and the adjacent building is assumed to be a mirror image of the burning building an equal distance from the boundary. The separation distance between buildings is therefore assumed to be twice the boundary distance.

While based on a domestic compartment fire temperature of 800°C, BRE research 'external fire spread: building separation and cladding' 2009 confirms:

Based on the experimental data from the earlier report⁶, it is conservative to represent the cladding as an unprotected area equal to the actual area of cladding. Further, if the unprotected area is equal to half the actual area of cladding the outcome is still conservative.

BR 187 'External fire spread building separation and boundary distances' suggests that halving the area of actual cladding area is an engineering judgement that considers the reduced duration of a cladding fire compared to the duration of a compartment fire and goes on to confirm the following in its calculation methods:

Combustible surface materials more than 1 mm thick are also considered to be unprotected areas. However, the fire duration of a burning area of surface material would usually be much less than a compartment, therefore the effective area of the surface material is reduced by a half for the purposes for boundary distance calculations.

CONSIDERATION FOR VERIFIERS

Taking cognisance of these changes, the use of cladding, which is more than 1m from a boundary and is constructed from products more than 1mm thick with a European Classification B, C, D or E, should be included in the calculation of unprotected area, irrespective of whether the elevation has any openings and irrespective of whether the wall behind the cladding (or the cladding itself) has the appropriate fire resistance duration from the inside (except for houses, as outlined in the last paragraph within clause 2.6.4 of the Domestic Technical Handbook).

Following discussion with the BSD and taking cognisance of BRE report 'External fire spread: Building separation and cladding' 2009 and BRE 187 External fire spread Building separation and boundary distances, it is considered reasonable to apply a 50% rule to the full area of relevant combustible cladding on the elevation for the unprotected area calculation.

Clause 2.6.3 from the DTH & NDTH provides clarity on the plane of reference measurements as does BR 187 and confirms that a wall at 90 deg (or perpendicular) to the wall / plane of reference under consideration is generally excluded and each elevation is generally assessed separately for distance to boundary. This approach is considered conservative and therefore appropriate for most situations.

Should a particular layout or design be considered complex or high risk, for example where radiation intensity is expected to be non standard due to a high fire load, an approach from 1st principles may be more appropriate, such as through the methodology outlined in BS 7974:2019 Application of fire safety engineering principles to the design of buildings. Further information on such an approach can be found in section 4 of BR 187.

Note - This information paper does not have the status of guidance issued under Section 4 of the Act and does not preclude consideration, by the verifier, of any other design approach.

End.