

IFIC FLARE



Building Regulations and Fire Safety Requirements

Following the tragic fire at Grenfell Tower and the Government's announcement that it will test the fire risk of cladding on 600+ buildings; this extended FLARE details some of the existing practical guidance and fire risk tests.

Approved Document B

Approved Document B is one of a series of documents that has been approved and issued by the United Kingdom Secretary of State for the purpose of providing practical guidance with respect to the requirements of Schedule 1 and Regulation 7 of the Building Regulations 2000 S.I. 2000/2531 ⁽¹⁾ pertaining to England and Wales ⁽²⁾. It covers the requirements with respect to fire safety.

1. The current edition of Approved Document B refers to the Building Regulations 2010 S.I. 2010/2214 being the regulations currently in force.

2. Scotland and Northern Ireland have their own building regulations. Scotland does not use Approved Document B but has its own technical standards.

Approved Document B is not a British Standard and is not published by the British Standards Institution, it cites compliance with certain British Standards as satisfying the Building Regulations.

Class 0

Class 0 is a shorthand used by the UK Building Regulations to denote a material which has a low propensity to allow flame to spread over its surface and makes a low contribution to fire growth. It is defined in Approved Document B at paragraph 13 of Appendix A:

"The highest National product performance classification for lining materials is Class 0. This is achieved if a material or the surface of a composite product is either:

a. composed throughout of materials of limited combustibility; or

b. a Class 1 material which has a fire propagation index (I) of not more than 12 and sub-index (i1) of not more than 6.

Note: *Class 0 is not a classification identified in any British Standard test".*

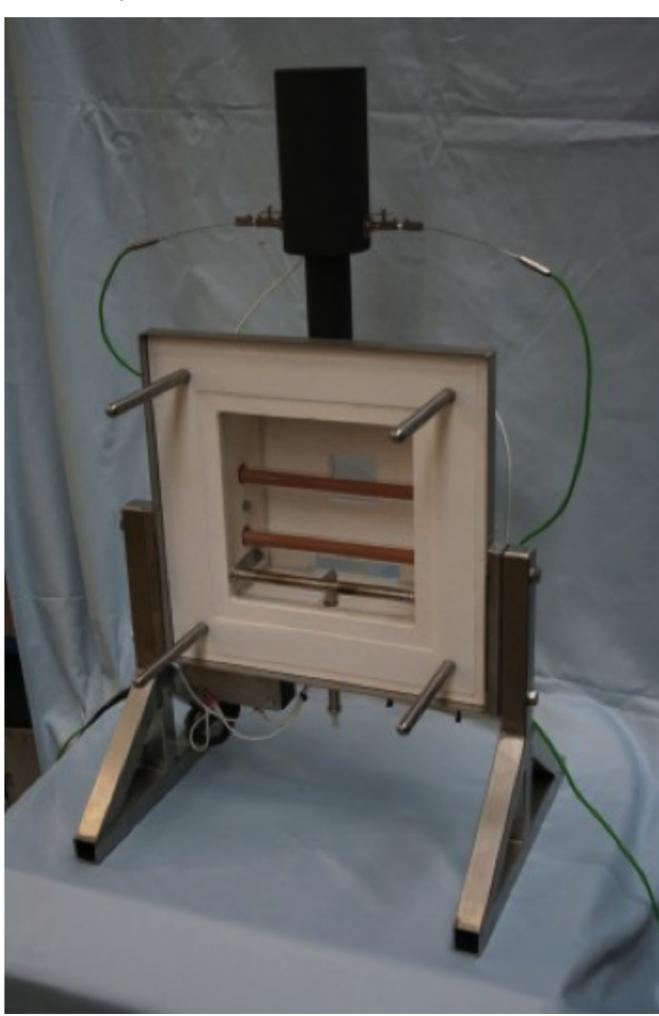
In other words a Class 0 material will burn, however it will burn at a slow rate and what combustion there is will make a small contribution to the overall energy released.

A material tested to BS 476 Part 4 and which passes the non-combustibility test, satisfies the Class 0 criteria. Those that do not, require to be tested to BS 476 Part 6 and BS 476 Part 7.

Fire Propagation Test - BS 476 Part 6

A material's contribution to fire growth is evaluated by considering the effect of energy released during combustion by measuring the increase in flue gas temperature. Fire propagation is measured by the BS 476 Part 6 test.

Fire propagation propensity is determined by placing a small sample of material in an oven and measuring the increase in temperature over a given period of time when the material is heated in the presence of a pilot flame.



Typical fire propagation test apparatus

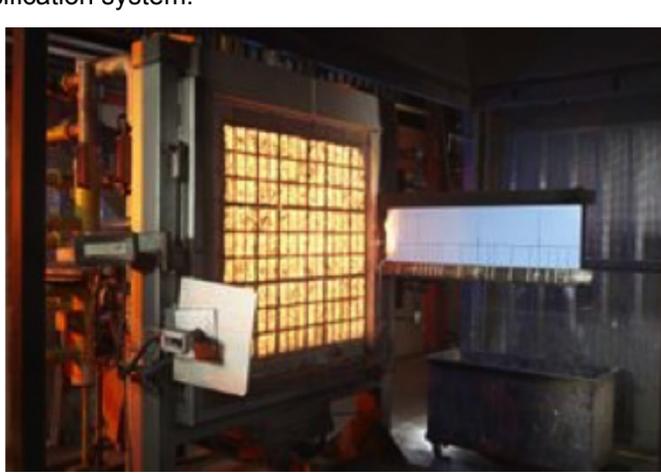
A material that has a low propensity to propagate fire will not cause large increases in temperature because it burns slowly and or produces small amounts of energy when it combusts.

Surface Spread of Flame Test – BS476 Part 7

The surface spread of flame test BS 476 Part 7 aims to classify products by their propensity to spread flame over their surface under an imposed radiant heat flux.

This test is meant to simulate the conditions in a fire, and is designed to test the flammability of gases emitted when a material is heated. It is not intended to test the ignitability of the material.

A sample is mounted in a frame and the frame is swung into position sitting at right angles to a radiant panel. When the frame is in position, the radiant panel will heat up the surface of the sample. Gases are emitted from the sample as its surface breaks down. A gas pilot flame impinges on the lower left hand corner of the sample. This ignites any flammable gases emitted by the sample, leading to a flame on the surface of the sample. The distance to which the flame is observed to spread at various time intervals is recorded and forms the basis of the classification system.



Typical surface spread of flame test apparatus

Lines are drawn on the face of the specimen to assist observation of how long it takes for the flame to spread over the surface of the specimen as shown in the diagram above. The lines assist interpretation of the classification of the test result.

A material is classified Class 1 if after 1.5 minutes and after 10 minutes the flame has not spread more than 165 mm (except that the permissible spread in 1 out of 6 of the samples tested may be up to 190 mm).

Note: BS 476 Part 7 was developed in the 1940's and BS 476 Part 6 in the 1960's. Although the standards have been reviewed and updated, their applicability and relevance to sandwich panel technology is a matter of debate in the fire safety engineering community.

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