



## **Subject: Cavity Barrier Requirement (Approved Document B and TEK)**

### **What is a Cavity Barrier?**

Cavity barriers are intended to restrict the spread of flame or smoke within a concealed space or cavity. As with all construction systems, it is imperative to control the spread in these spaces as the effects of fire in such locations can very often remain undetected until it has taken a significant hold on the building structure.

A cavity barrier is described in Approved Document B (Fire Safety) as:

*'A construction, other than a smoke curtain, provided to close a concealed space against penetration of smoke or flame, or provided to restrict the movement of smoke or flame within such spaces'.*

The cavity barriers can be of the following materials:

- Preservative-treated timber battens; minimum 38mm x cavity width.
- Calcium silicate, cement-based or gypsum-based boards, at least 12.5mm thick.
- Wire reinforced mineral wool or mineral wool blanket at least 50mm thick.
- Polythene sleeved mineral wool or mineral wool slab that is compressed in the cavity.

### **Meeting the Requirements**

Approved Document B, of the Building Regulations (England and Wales) 2000, gives very specific guidance for the requirements for cavity barriers in section B3. The requirements are well detailed in Table 13 of this document as demonstrated in the following table:

- Note

*Purpose groups 1b and 1c are described in table D1 appendix A of the approved document as:*

*1b Dwelling house which contains a habitable storey with a floor level which is more than 4.5m above ground*

*1C Dwelling house which does not contain a floor level which is more than 4.5m above ground*

*All other purpose groups are largely self explanatory. A description of these, if required, can be found in Table D1 of Appendix A in AD B.*



<b>Requirements based on Table 13 Approved Document B (England and Wales)</b>				
<b>Purpose group to which the provision applies</b>				
	<b>1b and c Dwelling- houses</b>	<b>1a Flat or maisonette</b>	<b>2 Other residential and institutional</b>	<b>3-7 office, shop and recreation, industrial, storage and other non- residential</b>
<b>Cavity barriers to be provided (√)</b>				
1	At the junctions between an external cavity wall and a compartment wall that separates buildings; and at the top of such an external cavity wall.	√	√	√
2	Above the enclosures to a protected stairway in a house with a floor more than 4.5m above the ground level	√		
3	At the junction between an external cavity wall and every compartment floor and compartment wall.		√	√
4	At the junctions between a cavity wall and every compartment floor, compartment wall, or other wall or door assembly which forms a fire-resisting barrier.		√	√
5	In a protected escape route, above and below any fire-resisting construction which is not carried full storey height, or (in the case of a top storey to the underside of the roof covering.		√	√
6	Where the corridor should be sub-divided to prevent fire or smoke affecting two alternative escape routes simultaneously, above any such corridor enclosures which are not carried full storey height, or (in the case of the top storey) to the underside of the roof covering.			√
7	Above any bedroom partitions which are not carried full storey height, or (in the case of the top storey) to the underside of the roof covering.			√
8	To sub-divide any cavity (including any roof space but excluding any underfloor service void) so that the distance between cavity barriers does not exceed the dimensions given in Table 14.			√
9	Within the void behind the external face of the rainscreen cladding at every floor level, and on the line of compartment walls abutting the external wall, of buildings which have a floor 18m or more above ground level.	√	√	



10 At the edges of cavities (including around openings)

√ √ √ √

The following footnotes are applied to the table:

- 1) The provisions in items 1,3 and 4 do not apply where the cavity wall has two skins of masonry at least 75mm thick a complies with Diagram 32 of the approved document
- 2) The provisions in 2, 5 and 7 do not apply where the cavity is enclosed on the lower side by a fire-resisting ceiling which extends through the building.
- 3) The provision of item 6 does apply where the storey is sub-divided by fire-testing construction carried full storey height and passing through the line of the corridor, or where the cavity is enclosed on the lower side as described in note 3.

In addition to the above table, a further table (Table 14) of Approved Document B suggests that fire barriers must be considered in the cavities of non-domestic buildings at a maximum distance of 20m apart when using barriers made of class O or class 1 rated materials. If the materials used do not achieve the fire class ratings of O and 1 then the barriers must be at 10m.

The most applicable materials to use as cavity barriers for buildings incorporating the TEK building system are timber battens and mineral wool (cavity stop-socks). Tops of cavities and around openings on single units (e.g. 1 house in a terrace) can use timber battens to close cavities. All other applications, especially compartment floor and wall junctions, are best dealt with using barriers of mineral wool as this lends itself well to solving issues of sound transmission and the requirements of Approved Document E of the Building Regulations (Resistance to the passage of sound). Board based products such as calcium silicate, cement-based boards and gypsum-based boards are more suited to masonry cavity walls and specialist rainscreen systems.

## **Conclusion**

The requirements for cavity barriers vary depending on the building use. These requirements are well detailed in table 13 of Approved Document B and should always be consulted for detailed information. The purpose groups that most commonly apply to the TEK building system are 1a, 1b, 1c and 2.

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