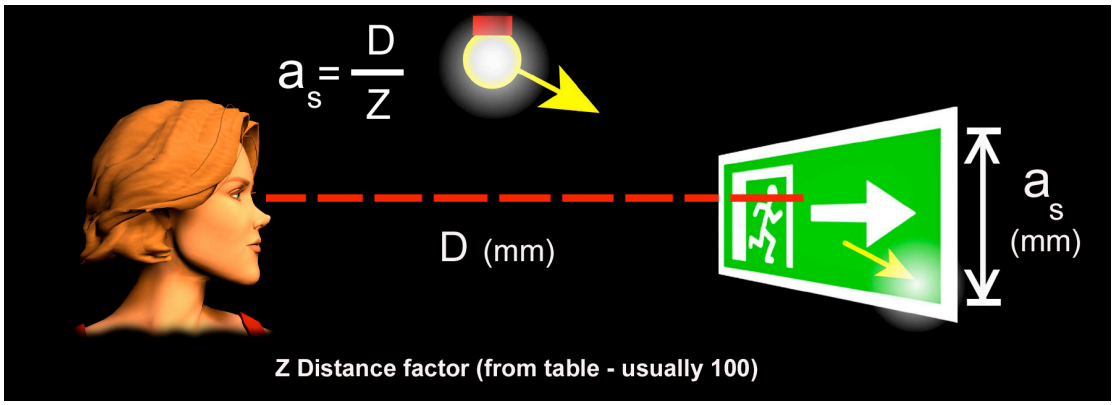
Exit signs 1 - What size should an exit sign be?

In the old days sizing exit signs was simple. The height of a sign was based upon the distance from which it was viewed. There were three heights 50mm where seen at a distance of not more than 15m, 75mm where seen between 15m and 25m and 125mm where seen at a greater distance than 25m [1]. The size of exit signs has become more complicated in recent years since the use of pictograms.

Approved Document B 2006 to the Building Regulations states that exit signs should comply with the signs and signals Regulations 1996. These regulations are however a performance standard, in other words they do not specify the exact standards of size, colour etc. The Approved document goes on to say that signs conforming to BS 5499: Part 1 will satisfy the signs and signals regulations. The problem is that the BS does not give any guidance on the height of signs.

Standards for the height of signs are given in two codes; BS 5266; Part 1 (A code for escape lighting!) and BS 5499: Part 4. Both these codes relate the size of the sign to the amount of light reaching the sign. Based upon the light level, a table provides us with a figure known as the 'Distance factor', which is entered into a calculation. The same formula is given in both codes.



Where a_s = height of the sign

D = distance viewed

Z = distance factor from the table below (reproduced from BS 5266: Part 1)

Distance factor for externally illuminated signs	
Vertical illuminance at the sign (lux)	**Distance Factor (Z)**
Minimum level for Escape lighting to BS 5266: Part 1	100
≥ 005	95
≥ 100	170
≥ 200	185
≥ 400	200

Therefore to know the height of an exit sign we need to know how much light is reaching the sign. This is fine in theory but means that building control surveyors are now expected to check each sign with a light meter on every job. Read off the distance factor based upon this light level, and then perform the calculation. It's possible but is it really practical? There must be an easier way. And there is.

The worst light level we are likely to encounter in a building is that from escape lighting. Escape lighting has its own specific distance factor, therefore where escape lighting is provided, we can use this as a constant. Thus avoiding the need for measuring the light levels on each sign. There are a couple of areas where this theory does not work. Buildings where no escape lighting is needed (these are small premises as described in table 9 of Approved Document B) 2000. Also buildings where the normal level of lighting is less than that of escape lighting (perhaps clubs). Using the distance factor for escape lighting will however cover the majority of cases.

It should be noted that the minimum level of illumination of an externally illuminated sign is at least 100 lux from normal lighting and 5 lux with a uniformity of 0.7 from an escape lighting fitting. The distance factor of 100, is based upon this (BS 5499: Part 4 paragraph 5.2).

Example:

Find the size of an exit sign in the following situation. The viewing distance is 18m; the illumination is to normal escape lighting standards in BS 5266: Part 1.

From the table the Distance factor (Z) is 100.

$$a_s = \frac{18000}{100}$$

Therefore the height of sign is 180 mm.

The following is a simple guide to considering exit signs (which are not internally illuminated):-

1. Exit signs need to be in the form of a 'pictogram', either the running person or door shape.

2. Text is not needed but if provided must not dominate the pictogram. The size of text is not controlled, as it is not needed.

3. The size of the sign be determined by the viewing distance from the above formula.

In dimly lit situations replace the 100 figure with the appropriate distance factor from the table.

4. The colour of exit signs is Green to Pantone® 3405CVC [2]. This is rarely an issue so I would not worry about carrying a pantone colour chart!

Conclusion

Considering exit signs today is not quite as simple as the old text based signs, but the majority of cases where escape lighting is provided, it is only necessary to consider the viewing distance as before.

An exit sign calculator is available from the moebuildingcontrol.co.uk

References

1. GLC code of practice means of escape in case of fire 1974 - 1976.
2. The Pantone matching system is a method of ensuring a colour will be accurately reproduced. Most professional graphic software includes the pantone pallet.

Revisions

22/8/06 - Changed title to Exit signs 1. Added title to table. Changed sign to BS colour. Added min levels of illumination for normal and escape lighting, which equates to a distance factor of 100.

31/7/10 – Changed AB references to 2006 document.