Gradus Guarantee for Stair Edgings

BS8300-2:2018 and The Building Regulations 2010 - Approved Document M Guidelines

This guidance is given after direct consultation with Communities and Local Government and written confirmation related to the specification of stair edgings to the revised Approved Document M (ADM) guidelines - 2015 Edition incorporating 2016 amendments.

Gradus Ltd is the leading manufacturer of stair edgings in the UK, offering the most comprehensive range of products to provide specifiers and building owners with profiles for stairs that offer the highest standards of safety and performance.

With over 40 years' experience in the design, manufacture and testing of such products, Gradus is able to recommend a satisfactory solution for most internal and external stair edging requirements.

The development of stair edgings in recent years has been in consultation with bodies such as BRE and RNIB Access Consultancy Service to ensure the need for all people to have access and ease of circulation through building environments.

Gradus, as part of its profile design programme, has developed a range of colours to provide specifiers with choice where colour contrast is required for visually impaired people.

The Equality Act 2010 contains duties to make reasonable adjustments to physical features of premises or provide a reasonable alternative means of making the service available. Since 1 October 2004, service providers have had to take reasonable steps to remove, alter or provide a reasonable means of avoiding a physical feature of their premises, which makes it unreasonably difficult or impossible for disabled people to make use of their services.

In support of this guidance, BS8300-2:2018 and Approved Document M 2010 have been published. These documents are designed to assist specifiers and building owners by providing guidance on the provision of inclusive environments.

BS8300-2:2018

Design of an accessible and inclusive built environment. Part 2: Buildings - Code of practice.

10.1.4 Identification and slip resistance of nosings

Each step nosing should incorporate a durable, permanently contrasting continuous material for the full width of the stair on both the tread and the riser to help blind and partially sighted people appreciate the extent of the stair and identify individual treads (a). The contrasting material should extend 50mm to 65mm in width from the front edge of the tread and 30mm to 55mm from the top of the riser, and should contrast visually with the remainder of the tread and riser (b).

NOTE 1 Particular care is needed to ensure that there is adequate contrast between nosings and landings.

NOTE 2 Nosing that wraps around the riser might assist blind or partially sighted people

NOTE 3 A proprietary nosing can provide a durable solution that satisfies both visual contrast and slip resistance criteria (see BRE IP 15/03) (c)

The whole tread or the nosing should incorporate slip-resistant material.

NOTE 4 Guidance on slip resistance of surfaces is given in Annex C.

Surface material tread and risers should be free from patterning.

NOTE 5 It is beneficial that surface material at landings and floors contrasts with surface material of stairs, subject to maintaining visual contrast at top and bottom nosings.

(a) All Gradus stair edging colours have had their Light Reflectance Values (LRVs)* measured in order to provide the specifier with information to ensure that suitable contrast is achieved with the surrounding stair material. The range of PVC-u Hardnose stair edgings can provide an ideal solution as channel and insert colours can be matched to contrast with the tread and riser.

** These values have been determined using the CIE Y value, in accordance with BS8493:2008+A1:2010.*

(b) The profile dimensions stated are guidance only and other factors should be taken into consideration when specifying stair edgings such as step dimension and type and frequency of traffic. However, a large proportion of Gradus stair edgings fall between these dimensions stated, including the XT range.

(c) The XT range of stair edgings features a slip-resistant PVC insert that extends around the leading edge of the profile to ensure that foot contact is always made with the slip-resistant element of the stair edging, providing the ideal solution for reducing the risk of slips, trips and falls on stairs in line with BRE.

10.1.7 Surface materials

The surface materials used for internal steps and stairs should be chosen to be easy to maintain and as slip-resistant as possible, especially if surfaces are likely to become wet due to location or use, or if spillage occurs.

NOTE 1 Advice and further references on slip resistance of surfaces is given in Annex C.

A choice of slip-resistant insert materials are available for all Gradus stair edgings. Xtra-grip and Xtra-grip Plus inserts have been specifically designed to reduce the risk of slip in internal wet areas or where spillages are likely to occur.

Annex C Slip potential characteristics of treads, ramp surfaces and floor finishes

C. 2 Slip resistance

The following indices are used to indicate the slipperiness of surfaces:

a) Pendulum Test Values (PTVs) obtained using a pendulum tester in line with BS 7976-2;

b) Surface micro-roughness (Rz) measurements using a stylus instrument in accordance with BS 1134

C. 4 Step nosings

Where slip resistance is required for nosings and treads, the slip resistance needs to be the equivalent to that expected for level surfaces. A PTV greater than 36 is considered to be suitable, as pushing and turning are unlikely on stairs. On existing nosings, the slip resistance of step nosings are generally expressed by their Rz roughness value as PTV is difficult to measure. In such cases a roughness Rz value of 20 pm is considered to be suitable.

All Gradus stair edging inserts are tested for slip-resistance using the pendulum tester - all inserts have a low slip potential (inserts measured in dry conditions - PTV >36; inserts measured in wet conditions – PTV >36). All inserts are also tested for wear, surface roughness, chemical resistance and bacterial/fungal resistance.

Approved Document M 2010

Stepped access

1.33 A stepped access will satisfy Requirement M1 or M2 if:

i. All nosings are made apparent by means of a permanently contrasting material 55mm wide on both the tread and the riser.

Gradus has successfully achieved design registration on a family of stair edgings with a dimension of 55mm on the tread and riser and will be able to supply product in accordance with the guidelines.

However, after direct consultation with the Office of the Deputy Prime Minister (ODPM) in 2006, it was made clear that there are many alternative specifications that are equally as compliant as the 55mm stated in ADM. Gradus will not only offer products of these dimensions in its range but through consultation and agreement we will continue to offer numerous other solutions which take further consideration of important aspects of durability, level of foot traffic, slip resistance etc.

This is therefore consistent with what ODPM confirmed in 2006 and has been confirmed again by the Ministry of Housing, Communities and Local Government in 2018 that:

"The Department for Transport publication 'Inclusive Mobility' advises that steps should be fitted with a permanent colour and tone contrasting nosing extending the full width of the step, 55mm deep on both the tread and riser. This advice was accepted and incorporated, in the interests of consistency, into the final published version of the guidance Approved Document M in 2004.

RNIB Access Consultancy Service of the Royal National Institute of Blind People (RNIB) are pleased that stair nosing dimensions have now been incorporated into Approved Document M. This advice also recognises that the nosing on the riser of the step could fall between 30 and 50mm depending on the height of the riser which could vary from staircase to staircase. This is now accepted as best practice by other organisations in the field.

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The guidance given in Approved Documents is not mandatory. Approved Documents are intended to provide guidance for some of the more common building situations. However, there may well be alternative ways of achieving compliance with the requirements. Thus there is no obligation to adopt any particular solution contained in an Approved Document if you prefer to meet the relevant requirement in some other way.

The guidance does not, nor is it intended to, rule out other equally satisfactory solutions that might be established by, for example, British Standards, industry representative bodies or expert advice from organisations such as RNIB or the Centre for Accessible Environments (CAE)."

BRE - Research and Guidelines

In addition to the Building Regulations, several other areas of guidance exist that relate to stair edgings.

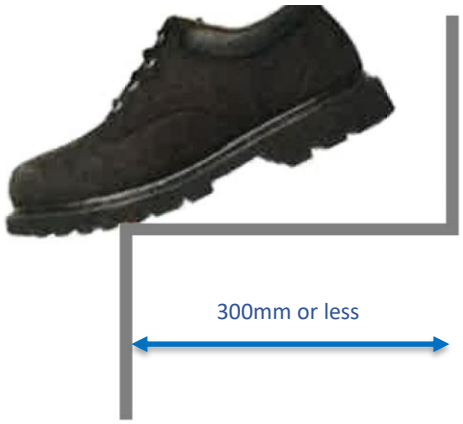
BRE has published an information paper (ref. IP15/03) entitled "Proprietary nosings for non-domestic stairs". This paper provides guidance to designers and building managers on the best way to assess the types of proprietary nosings that should be provided on non-domestic stairs.

Detailed below is an overview and summary of the key findings in the BRE information paper.

Overview

The study considered the dynamics of pedestrian stair use. Previous studies have shown that 80% of slips on stairs are likely to occur when users are descending the stairs. This usually occurs as a result of an overstep (i.e. when a substantial portion of the foot overhangs the tread). Therefore, as the going (tread width) becomes narrower the likelihood of a slip incident becomes greater. Where the going is less than 300mm the risk of slip is increased. Most non-domestic stairs have a going of between 250mm and 280mm. The risk of slip is further increased if the tread surface is smooth, becomes wet or there is a lack of clear colour contrast at the step edge.

Diagram to show how a typical overstep situation can occur when the going is less than 300mm.



Conclusion

The application of a proprietary nosing may reduce the risk of slipping against the factors highlighted above. The proprietary nosing should incorporate a slip resistant material that should extend to the point at which it meets the vertical face to minimise the risk of slip in descent. Proprietary nosings should all offer a colour contrast to clearly highlight the step edge.

Taking the recommendations in the BRE report into account, the Gradus XT range of stair edgings has been designed to ensure maximum safety underfoot. The profiles feature an extended slip-resistant insert that continues around the leading edge of the stair edging to ensure that foot contact is always made with the slip resistant element of the stair edging.

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Hazard Warning and Photoluminescent Stair Edging Inserts

Step definition by way of colour contrast has become an important factor in making buildings accessible for visually impaired people. Clarification of the type of stair edging insert required for suitable colour contrast is essential.

Hazard Warning Inserts

There was a misconception that stair edgings with hazard warning (or sharks tooth) inserts could provide a suitable colour contrast to the surrounding floorcovering. However, mixed colour insert finishes do not meet the best practice guidelines for providing an inclusive environment and have been replaced by single colour inserts which are carefully chosen to give the recommended 30 point difference in LRV.

The Building Regulations 2010 through the guidance document Approved Document M refers directly to colour, contrast and perception - Design guidance for internal built environments (Project Rainbow) for information on visual contrast.

This guidance recommends that:

'Contrast should be provided by the use of a single line across and around the nosing. Patterned highlighting, especially of the "sharks tooth" variety should be avoided as it can mimic the visual image experienced by some visually impaired people and lead to confusing, conflicting messages.

Dr. Geoff Cook, Director of The Research Group for Inclusive Environments (RGIE) and one of the authors of Project Rainbow, clarifies the guidance further:

"The built environment is a confusing place for visually impaired people with strong patterns at floor level, stair treads and risers, being particularly confusing. Research carried out by RGIE at the University of Reading has shown that a single colour identifying the nosing to tread/riser junction is preferred by people who are visually impaired and can therefore be considered good practice. The research also shows that strong patterns, e.g., sharks tooth patterns, are confusing and should be avoided."

To support the view that hazard warning inserts should be avoided, A design guide for the use of colour and contrast to improve the built environment for visually impaired people states that:

'Stair nosings in a single solid colour which contrasts with the colour of the stairs should be used.'

In addition, Sharon Almond of RNIB Access Consultancy Service, an independent body providing guidance on accessibility, offers the following advice on hazard warning inserts:

‘Sharks tooth, due to its patterned design, can prove visually confusing to some people with visual impairments, making the edge of the step difficult to locate.'

The Rail Vehicle Accessibility Regulations Guidance also recommends that sharks tooth inserts should be avoided:

'The convention of using “shark's teeth' on the nosings of steps is one that is discouraged since the effective contrast is reduced by half. Whilst the principle of disrupting the visual field with shark's teeth' is one that some people will find useful, there are many more people with visual impairments who will benefit from a single colour contrast. In addition, patches of dark and light across the visual field may well begin to simulate the picture that some eye conditions create, and can therefore have a detrimental effect rather than a positive one'.

Photoluminescent Inserts

There have been concerns associated with the installation of photoluminescent inserts as the product is often incorrectly specified. A common perception about photoluminescent inserts is that they provide superior definition of step edges. This is only the case in temporarily dark conditions where the correct light has been used. Under normal lighting conditions, photoluminescent inserts often do not provide suitable colour contrast and are an expensive option. The recommended and more cost-effective solution is to use a stair edging in a single solid colour that contrasts with the floorcovering.

For further details of the profiles in the Gradus range or advice in specifying stair edgings, barrier matting, wall protection, Tread Alert and other products relating to ADM, contact 01625 428922.