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Textile floor coverings — Guidelines for installation and use on stairs

Revêtements de sol textiles — Lignes directrices pour la mise en œuvre et l'utilisation sur les escaliers

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 13746 was prepared by Technical Committee ISO/TC 219, *Floor coverings.*

Introduction

Although the problem of suitability of carpets for use on stairs is worldwide, different countries have approached its solution from different philosophical positions, e.g. not guaranteeing carpets on stairs, stating that carpets should be periodically moved on stairs, accepting that the wear life on stairs may be half that in the equivalent flat location, use of proprietary stair nosings, etc.

Associated with some of these positions are tacit test methods, although no universal test method exists to predict the property for all carpet types.

In order to define the problem more closely ISO/TC 38/SC 12/WG 2 circulated a questionnaire to its participating experts. From the replies it became apparent that the problem centres on three different characteristics:

— wear to the backing, particularly on stair nosings;

— tuft loss;

— appearance retention on the treads.

The problem is further complicated by the fact that some countries suggest movement to even out wear and appearance changes, and also that use and type of underlay plays an important part in the subsequent performance of the carpet on stairs.

For all the above reasons it was agreed that, until test methods can be developed to cover all eventualities, the standard should be developed as guidelines for the installation and use of textile floor coverings on stairs.

Textile floor coverings — Guidelines for installation and use on stairs

1 Scope

This International standard provides recommendations for the installation and use of textile floor coverings on stairs for both residential/domestic and contract/commercial purposes. It covers all products composed of textile material with a pile or non-pile use surface including the use of such products in tile form.

NOTE In many split-level dwellings, a room may have one or two steps between different levels. This situation differs from a stairway in several important respects:

— the steps are usually wider and therefore traffic intensity in any one place is usually less;

— the carpet may be bent over steps in either the machine direction or the across-machine direction. On a stairway, it is normal practice to lay the carpet with the pile lying down the stairs.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 2424, *Textile floor coverings — Vocabulary*.

ISO 4919, *Textile floor coverings — Determination of tuft withdrawal force*.

EN 1963, *Textile floorcoverings — Tests using the Lisson Tretrad machine*.

3 Terms and definitions

For the purposes of this International Standard, the terms and definitions given in ISO 2424 as well as the following apply.

3.1
stair nosing
the junction of the top edge of the riser and the forward edge of the tread

3.2
protective stair nosing
prefabricated, decorative, angled retaining strip made from metal, vinyl, wood, etc., used to eliminate the need to bend the carpet over the stair nosing, thereby extending the life of the carpet

3.3
crotch
junction of the lower edge of the riser with the rearmost edge of the stair-tread

4 Materials

4.1 Textile floor coverings

4.1.1 General

4.1.1.1 The textile floor covering to be used on stairs should meet the requirements for the equivalent flat location use and, in the case of loop pile carpets, should have a surface pile thickness $\leqslant$ 12 mm.

NOTE Thicker carpets can be potential tripping hazards.

4.1.1.2 The recommended minimum tuft bind forces when products are tested in accordance with ISO 4919 are shown in Table 1.

Table 1 — Recommendations for tuft bind

Product type		Light and general use	Heavy and extra-heavy use
Woven	cut pile	$\geqslant$ 5 N	$\geqslant$ 7 N
	loop pile	$\geqslant$ 10 N	$\geqslant$ 12 N
Tufted	cut pile	$\geqslant$ 10 N	$\geqslant$ 15 N
	loop pile	$\geqslant$ 20 N	$\geqslant$ 30 N

NOTE Tuft bind is an important property because it relates to problems associated with tuft loss on stairs.

4.1.1.3 To ensure that when the carpet is fitted over a stair nosing there is sufficient density to prevent “grinning”, the carpet should not display base fabric when bent through 90° over a 12,5 mm $\pm$ 1 mm radius.

NOTE Other functional test methods are available for testing suitability of carpets for stairs such as the Lisson test. See method B in EN 1963:1997.

4.1.2 Foam backed carpets

Foam backed carpets can be used on stairs if recommended by the manufacturer. Because of the problem of fitting such carpets to stairs it is preferable that they be totally adhered.

4.1.3 Carpet tiles

When carpet tiles are used on stairs, protective stair nosings should be used.

4.1.4 Fibre-bonded floor coverings

When fibre-bonded textile floor coverings are used on stairs, protective stair nosings should be used.

4.2 Carpet underlays/carpet cushion

Special care should be taken in the selection of carpet underlays/carpet cushion to be used on stairs in both domestic/residential and contract/commercial installations since stairs represent one of the most demanding areas of use.

In order to prevent premature wear, woven carpets with sewn seams should be used in conjunction with a carpet underlay/carpet cushion which does not allow the seams to be raised prominent above the general surface level.

Thicker, high density underlays assist the carpet to resist wear over stair nosings.

5 Design

5.1 General

Stair nosings should, if possible, have a minimum radius of 12,5 mm. If the radius is less than 12,5 mm, protective stair nosings should be used.

New stairs should be constructed in accordance with any relevant national standard or building regulations. It is important to ensure that the stairs are prepared to a finish ready to receive the floor covering.

Existing stairs should have the treads levelled and prepared wherever possible to receive the flooring in a manner similar to the main body of the floor. Where it is not possible, when e.g. the stairs are heavily damaged or where the construction of the stair differs from that of the floor, specific preparation work should be carried out so that the stairs are brought up to the same quality of finish as the prepared floor. Existing floorings and floor coverings should be removed and then the flooring brought up to the required quality of finish to receive the new floor coverings.

5.2 Planning and layout

In all installations the pile direction should run down the stairs. This ensures that the pile leans over the stair nosing (where protective stair nosings are not used) and that the colour and design are shown in their best light at eye level. The carpet design should be centralized on the stairs. Whilst the design should be continuous it is not practical when change of direction occurs, i.e. at half landings.

Consideration should be given to the positioning of seams. Longitudinal seams should be placed away from the traffic area. Cross seams should be located in the crotch of the stairs and not on either the riser or the tread of the step.

Exposed edges on open plan stairs and runners should be cut and sealed or overlocked or bound or the cut edges turned back > 20 mm. The fold is held in place with latex or a similar adhesive. When using the latter method the underlay is cut undersize by the same width as the folded-back carpet in order that:

a) it hides the edges of the underlay; the pile wraps around to touch the floor;

b) the undersize underlay compensates for the thickness of the fold, resulting in a level surface from side-to-side.

6 Installation

6.1 Carpet gripper method

The textile floor covering should be taken over the nose and secured by two lengths of carpet gripper fixed at each crotch on the stairs, one on each riser and one on each tread. When textile floor coverings are installed on stairs by this system, the gap between the carpet gripper and crotch of the stairs should be twice that used around the perimeter of an area.

The textile floor covering should be stretched tightly over each step and securely anchored on the grippers and nosings, if fitted. It should be driven into the gap between the grippers at the crotch of the step.

When underlay is used on stairs, it is recommended that the underlay cover both tread and riser and be tightly butted to the carpet gripper, if used. If the textile floor covering does not closely fit the perimeter, the underlay should be cut undersize by between 10 mm and 15 mm less than the width of the floor covering. It is important that the underlay be fixed so that it is secured over the nose of each step.

6.2 Direct stick method

The adhesive manufacturer's recommendations should be followed at all times. When a direct stick method is used appearance retention at the nose of each step may be affected when compared to other areas, the use of protective stair nosings is therefore advantageous.

6.3 Protective stair nosings

Various types of protective stair nosing are available and the suitability and detailed fitting recommendations of the manufacturer should be adhered to.

NOTE The use of these edgings in public areas is often the subject of local by-laws.

To ensure continuity of level between the textile floor covering and the protective stair nosing, the protective stair nosing should, where necessary be adhered to spacers, e.g. hardboard or plywood strips. The protective stair nosing and the spacers, if used, should be fixed with both adhesive and screws. In direct stick applications the spacers should be 10 mm to 15 mm narrower than the protective stair nosing in order to allow the textile floor covering to be trapped under the protective stair nosing. Textile floor coverings should not be fitted over the protective stair nosings.

Wherever possible protective nosings between 60 mm and 100 mm deep should be used in order to ensure adequate fixing and avoid rocking under heavy usage.