BCA COMPLIANCE

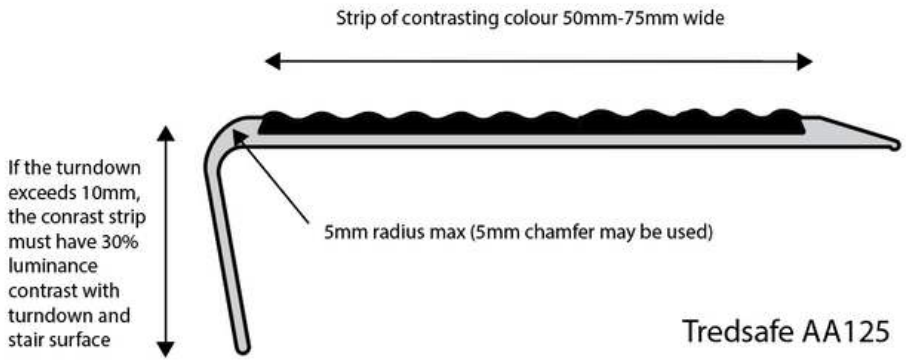
In relation to Tredsafe

Tredsafe®

CONTENTS

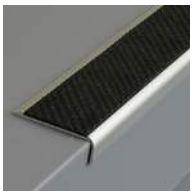
Stair Nosing Compliance Summary

- If the contrast strip extends down the riser, then it should not exceed 10mm to avoid any confusion about the steps edge
- If the vertical edge (turndown) is more than 10mm, the contrast strip should have at least 30% luminance contrast with both the turndown and the stair surface.
- Single strip of non-slip material between 50-75mm in width
- Stair nosings should have a sharp intersection, be rounded up to 5mm radius, or be chamfered up to 5mm x 5mm.



Compliant Nosings

Uncovered


AA125


AA128


AA129


AA137


AA138

Carpeted


AA123


AA124


AA134

Vinyl


AA110


AA130

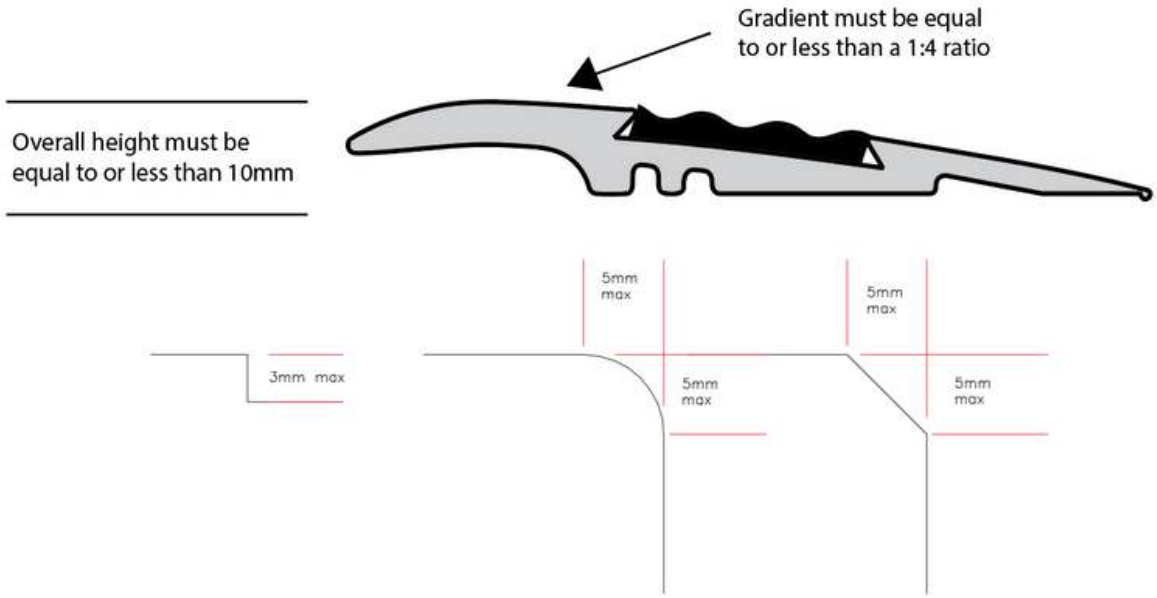
Ceramic


AA151

Refer to Appendix A for further information

Change in Level Compliance Summary

- Floor coverings should have a smooth transition. Carpet trim and mat edges shall have a vertical face no higher than 3mm, or a rounded or beveled edge no higher than 5mm or above that height a gradient of 1:4 up to a maximum of 10mm.



Compliant Transitions


DT047


DT022


DT027


DT028


DT024

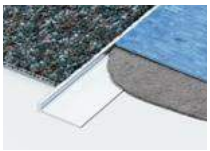

DT029

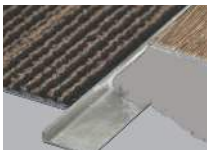

DT030

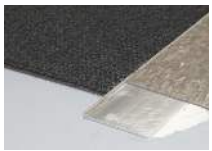

DT065

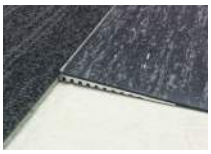

DT070


DT071


DT036


DT038


DT040


DT084


DT085


DT086

Refer to Appendix B for further information

Fire Resistance Compliances

Specification C1.10a of the NCC 2019 Volume One Amendment 1, states that a floor material of floor covering must have:

a) A critical radiant flux (CRF) between 1.2 - 4.5, dependant on location; and

b) in a building not protected by a sprinkler system, a maximum smoke development rate of 750 percent-minutes

Refer to appendix C for further information

Slip Resistance Compliances

When tested in accordance with AS 4586, the stair nosing must comply with a particular slip-resistance classification, refer to appendix D table 1. This consists of two tests, the wet pendulum test and the oil-wet inclining platform test. Our insert meets and exceeds these classifications.

Refer to appendix D for further information

A

8.1 Stair construction

Where required, stairs shall be constructed as follows:

(a) Where the intersection is at the property boundary, the stair shall be set back by a minimum of 900 mm so that the handrail (in accordance with Clause 9) and TGSIs do not protrude into the transverse path of travel, as shown in Figure 26(A).

(b) Where the intersection is not at the property boundary, the stair shall be located so that the handrail does not protrude into the transverse accessway. See Figure 26(B).

NOTE 1 Examples of stair handrail terminations are given in Figures 26(C) and 26(D).

(c) Stairs shall have opaque risers.

(d) Stair nosings shall not project beyond the face of the riser and the riser may be vertical or have a splay backwards up to a maximum 25 mm, as shown in Figures 27(A) and 27(B).

(e) Stair nosing profiles shall —

(i) have a sharp intersection;

(ii) be rounded up to 5 mm radius; or

(iii) be chamfered up to 5 mm × 5 mm.

(f) At the nosing, each tread shall have a single strip (not multistrip) not less than 50 mm and not more than 75 mm deep across the full width of the path of travel. The single strip shall be of a continuous colour. The strip may be set back a maximum of 15 mm from the front of the nosing. The strip shall have a minimum luminance contrast of 30 % to the background (see Figure 27(C)). Where the luminous contrasting strip is affixed to the surface of the tread, any change in level shall be in accordance with Figure 6(a).

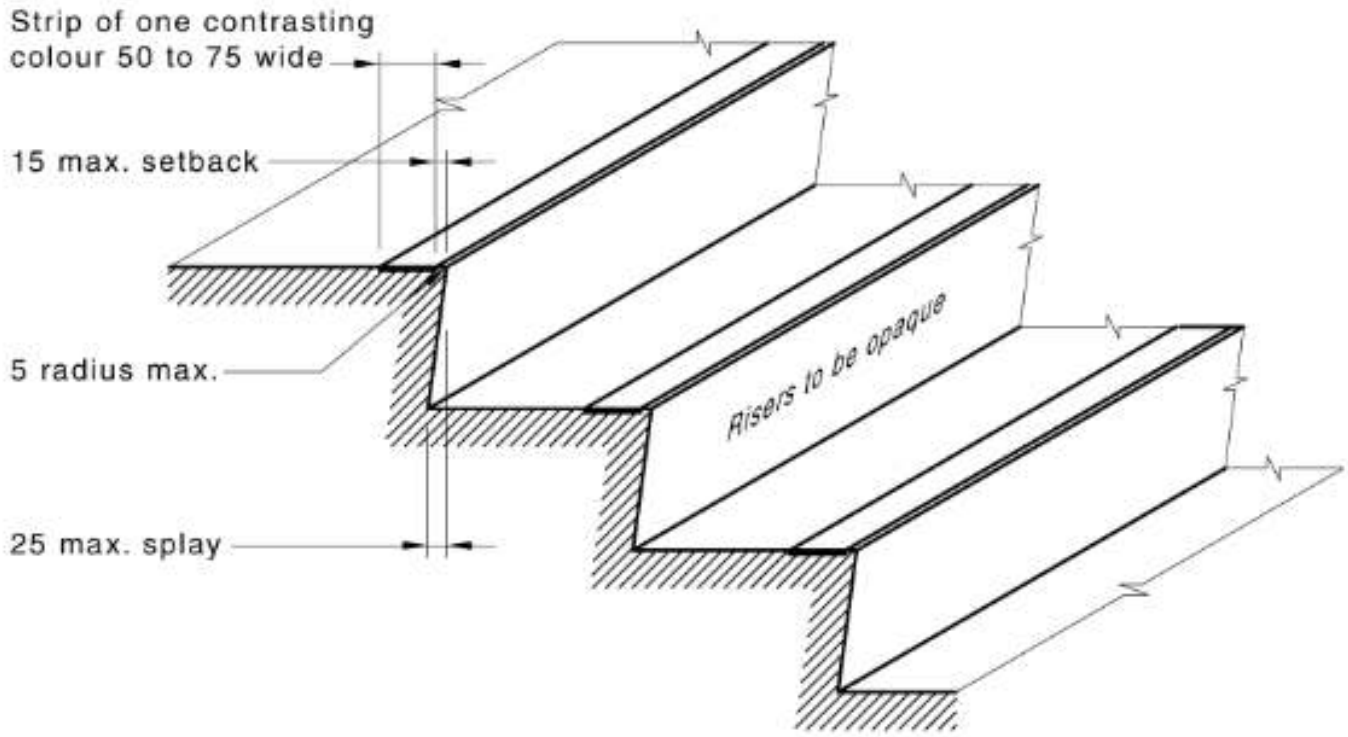
NOTE 2 See Appendix B for information on the determination of luminance contrast.

(g) Where the luminance contrasting strip is not set back from the front of the nosing then any area of luminance contrast shall not extend down the riser more than 10 mm.

(h) TGSIs shall be installed in accordance with AS 1428.4.1 .

Figure 27(A) — Typical stair nosing profile with nosing strip

Dimensions in millimetres



NOTE A chamfered nosing 5 × 5 mm may be used.

Figure 27(B) — Typical stair nosing profile with exposed nosing strip

Dimensions in millimetres

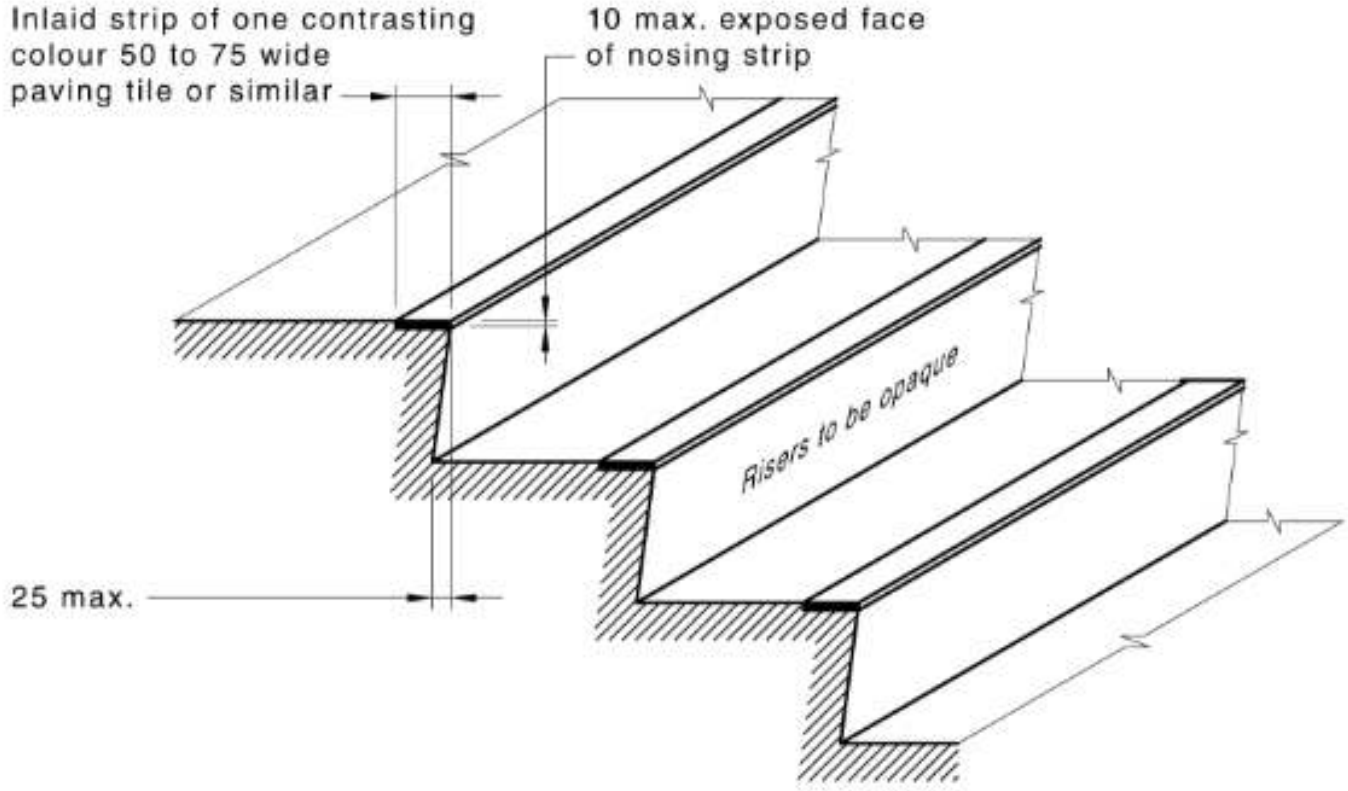
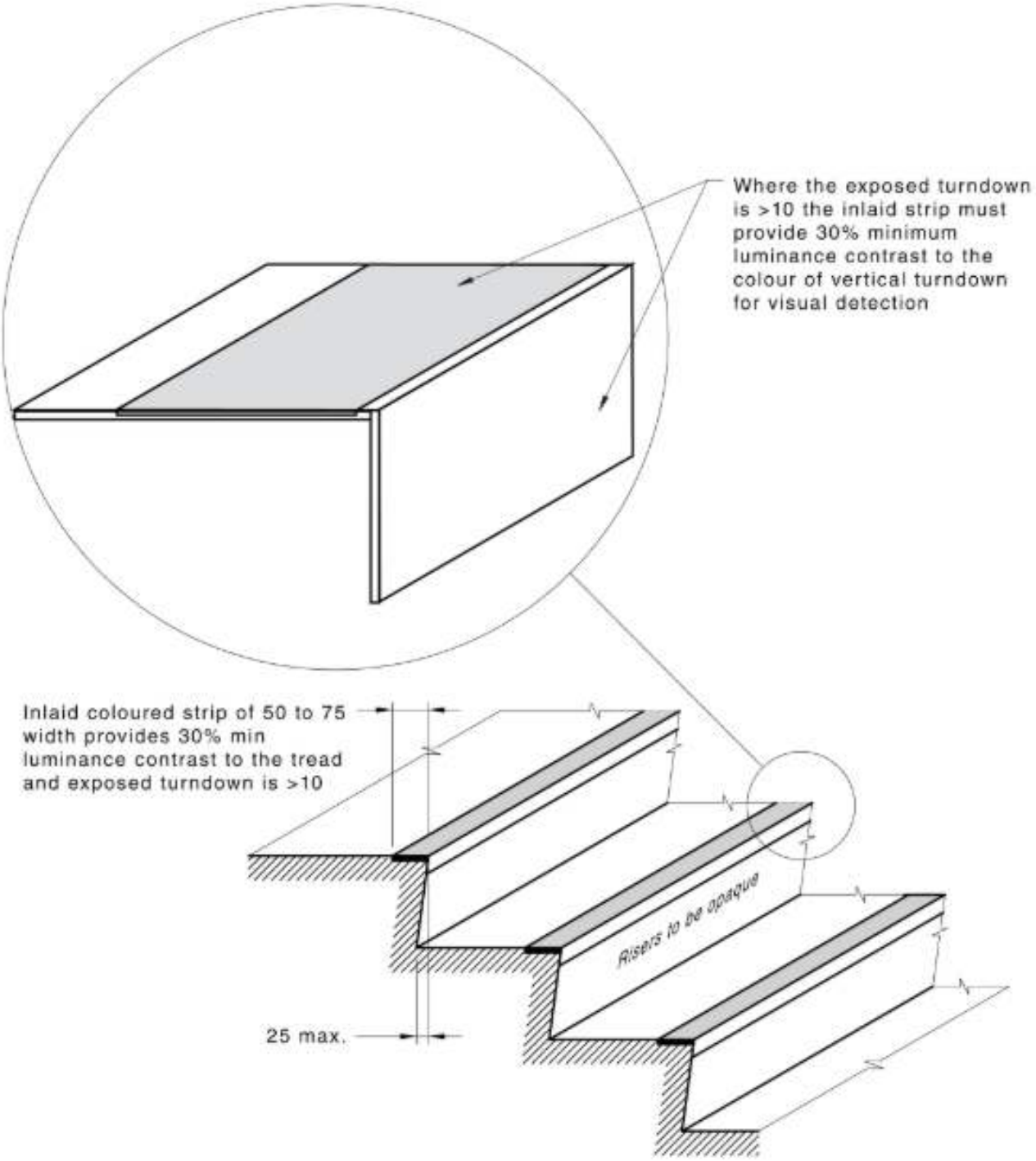


Figure 27(C) — Typical stair nosing profile



4.2 Construction tolerances at abutment of surfaces

Abutment of surfaces shall have a smooth transition. Design transition shall be 0 mm. Construction tolerances shall be as follows:

(a) 0 ± 3 mm vertical; and

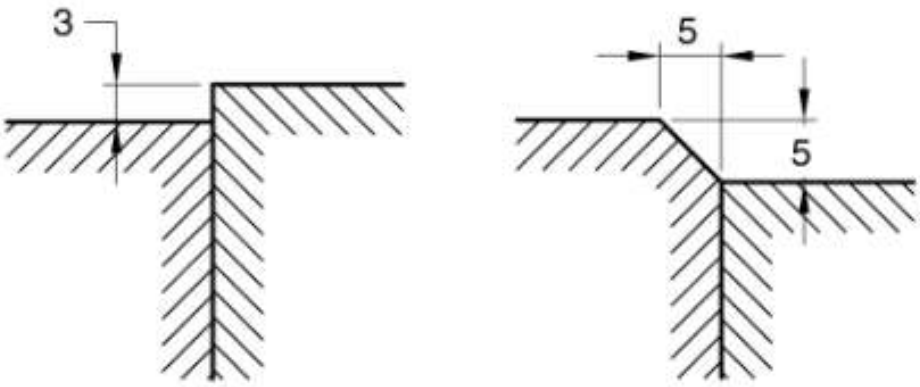
(b) 0 ± 5 mm, provided the higher edge is bevelled or rounded to reduce the likelihood of tripping as shown in Figure 6 (a).

Design allowance for the joints of abutting pavers shall be as shown in Figure 6 (b).

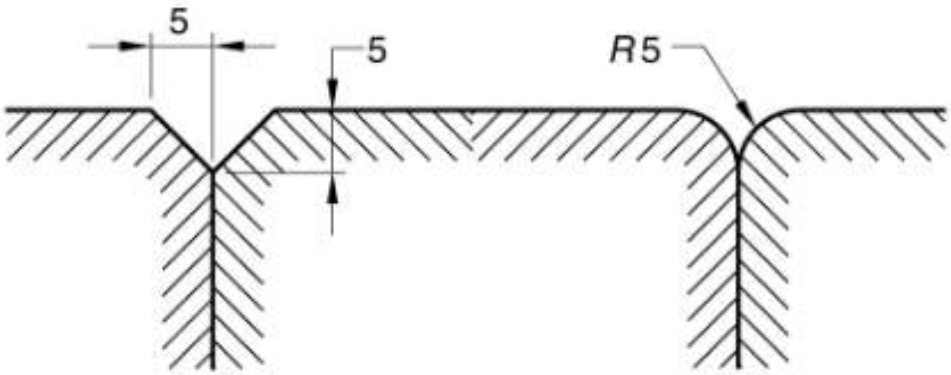
Design allowance for joints in pavers shall be as shown in Figure 7A. Design allowance for timber decking and boardwalks shall be as shown in Figure 7B.

Figure 6 — Acceptable construction tolerances for abutment of surfaces

Dimensions in millimetres



(a) Change in level



(b) Continuous paving units — flush-jointed with level surfaces

4.3.1 Carpets and other soft flexible materials

Where carpets or any soft flexible materials are used on the ground or floor surface —

(a) the pile height or pile thickness shall not exceed 11 mm and the carpet backing thickness shall not exceed 4 mm; and

(b) the carpet pile height or pile thickness dimension, carpet backing thickness dimension and the combined dimensions shall be a maximum of 11 mm, maximum of 4 mm and a maximum of 15 mm respectively.

NOTE An example is given in Figure 8.

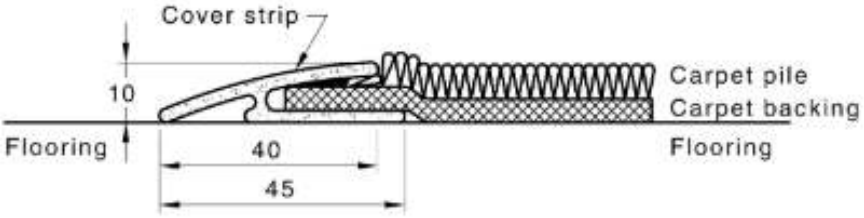
Abutting floor coverings shall have a smooth transition. At the leading edge, carpet trim and mat edges shall have a vertical face no higher than 3 mm, or a rounded or bevelled edge no higher than 5 mm or above that height a gradient of 1:4 up to a maximum of 10 mm.

A range of trims are available, such as curved metal covers, cap vinyl covers, small and larger threshold trims, flat metal covers, metal edge trims, smooth edge trims, plank ramp and the like.

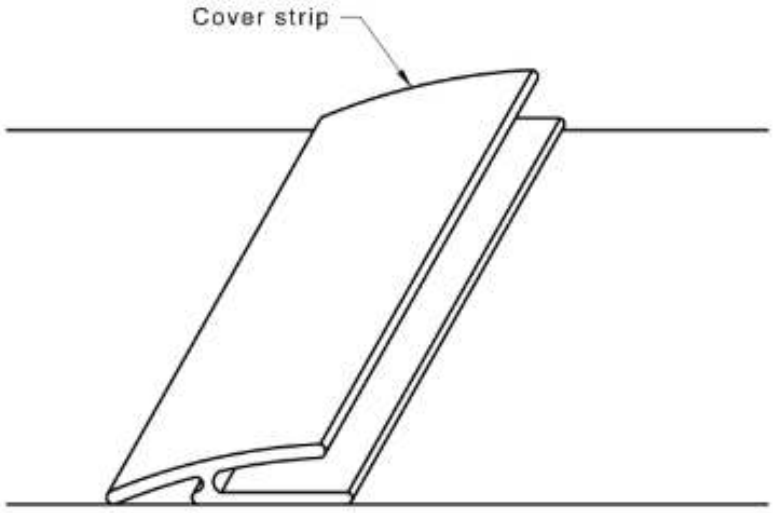
This clause also applies to mats, rugs and temporary matting/rugs on other floor finishes.

Figure 8 — Example of abutting floor coverings on a continuous accessible part path of travel

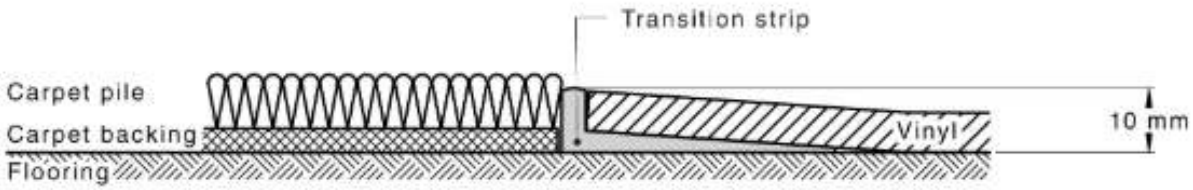
Dimensions in millimetres



(a) Optional section A



(b) View of optional section A



3. Floor linings and floor coverings

Guide

A floor lining or floor covering must have—

(a)
a *critical radiant flux* not less than that listed in Table 2; and

(b)
in a building not protected by a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5, a maximum *smoke development rate* of 750 percent-minutes; and

(c)
a *group number* complying with Clause 6(b), for any portion of the floor covering that is continued more than 150 mm up a wall.

Table 2 Critical radiant flux (CHF in kW/m$^{2)}$ of floor linings and floor coverings

Class of building	Building not fitted with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5	Building fitted with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5	Fire-isolated *exits* and fire control rooms
Class 2, 3, 5, 6, 7, 8 or 9b, excluding — (i) Class 3 accommodation for the aged; and (ii) Class 9b as specified below	2.2 kW/m^2	1.2 kW/m^2	2.2 kW/m^2
Class 3 Accommodation for the aged	4.5 kW/m^2	2.2 kW/m^2	4.5 kW/m^2
Class 9a	4.5 kW/m^2	2.2 kW/m^2	4.5 kW/m^2
Class 9a Areas other than *patient care areas*	2.2 kW/m^2	1.2 kW/m^2	4.5 kW/m^2
Class 9b auditorium or audience seating area used mainly for indoor swimming or ice skating	1.2 kW/m^2	1.2 kW/m^2	2.2 kW/m^2
Class 9b auditorium or audience seating area used mainly for— other sports or multi-purpose functions.	2.2 kW/m^2	1.2 kW/m^2	2.2 kW/m^2
Class 9c *resident use areas*.	N/A	2.2 kW/m^2	4.5 kW/m^2
Class 9c Areas other than	N/A	1.2 kW/m^2	4.5 kW/m^2

Critical Radiant Flux

The Critical Radiant Flux (CRF) test measures the radiant energy required to just sustain burning. It is used in Australia, and in some parts of the USA and some parts of Europe to regulate floor coverings.
The test involves the product being held horizontally under the influence of a radiant heat source at one end. It is ignited at that end and the radiant heat flux at the point at which combustion ceases is determined. This is the Critical Radiant Flux.

During the test the floor covering is allowed to burn under the influence of the radiant heat source. There is just sufficient air movement in the test chamber to remove the products of combustion into the flue.

Heat Evolved Index

The heat evolved index relates to the amount of heat released by a burning material, and allows, by its linear scale, distinctions to be drawn between materials on the basis of whether or not the amount of heat evolved from them would be sufficient to cause ignition of nearby combustibles. The higher the index, the more likely is the fire involvement of nearby combustible materials.

Ignitability Index

The ignitability index relates to the time taken for the volatiles from the test specimens, irradiated at increasing intensity, to form an ignitable gas mixture and be ignited by a small flame. The index is zero if ignition does not occur under the maximum impressed radiation of the heat and could be as high as twenty (20) if ignition occurred within 30 seconds of the test commencement.

Material Group Numbers

Material Group Number	Description
Group 1	Materials that do not reach flashover following exposure to 300kW for 600 seconds, after not reaching flashover when exposed to 100kW for 600 seconds.
Group 2	Materials that do reach flashover after exposure to 300kW for 600 seconds, after not reaching flashover when exposed to 100kW for 600 seconds.
Group 3	Materials that reach flashover in more than 120 seconds but less than 600 seconds after exposure to 100kW.
Group 4	Materials that reach flashover in less than 120 seconds after exposure to 100kW.

Smoke Developed Index

The smoke developed index relates to the optical density of smoke produced under the conditions of the standard test. Doubling of the optical density of the smoke increases the smoke developed index by unity. The higher the index, the greater the hazard is likely to be from smoke.

Spread of Flame Index

The scale of the spread of flame index is based on studies of actual rates of spread of flame on various wall-lining materials. Where the walls of rooms with 2.75m ceiling height were lined with materials with high spread of flame indices, flames rapidly spread up the wall and, by igniting combustible gases that had accumulated below

the ceiling, rapidly involved the whole room in fire. An index of 10 indicates, from the original corner-burn experiments, that the material could be expected to cause flames to reach the ceiling of such a room within 10s of ignition; an index of zero means that the materials will not cause flames to reach the ceiling.

Steps in establishing a Fire Resistance Level

After a protective layer of char has developed the char rate slows considerably. The charring rate of dry wood has been shown to continue for several hours at a reasonably constant rate given in AS1720.4-2006 by:

$$c = \frac{dh}{dt} = 0.4 + (280/\rho)^2$$

where:

$c = \frac{dh}{dt}$ = notional charring rate (mm/minute);

ρ = timber density (kg/m^3) at a moisture content of 12%.

The charring rate of a typical softwood having a density of 500kg/m3 is 0.76mm/minute. During a fire a realistic assessment of structural response can be made by neglecting 10mm of unburnt wood and assuming the remainder retains its full strength and stiffness.

The effective depth of charring (d_e) for each exposed surface after a period of time (t) is given by:

$$d_e = ct + 7.5$$

where:

d_e = calculated effective depth of charring (mm);

c = notional charring rate;

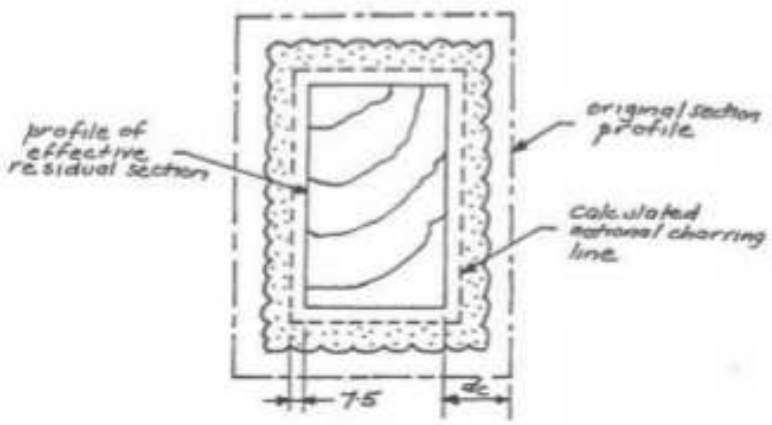
t = period of time (minutes)

NOTE: t can be taken as either the:

(a) time taken for the FRL to be achieved;

(b) fire resistance period determined by a series of successive iterations.

The effective residual section is determined by subtracting d_e from all fire-exposed surfaces of the timber member as shown below :



The Dts Proivisions in Volumes One and Two of the BCA require:

Staiway treads to have a:

- Surface with slip-resistance classification not less than that listed on Table 1 (refer below, when tested in accordance with AS 4586; or
- nosing strip with a slip-resistance classification not less than that listed on Table 1, when tested in accordance with AS 4586

Table 1: Slip-Resistance Classifications

Application	Dry	Wet
Ramp steeper than 1:14	P4 or R11	P5 or R12
Ramp steeper than 1:20 but not steeper than 1:14	P3 or R10	P4 or R11
Tread or landing surface	P3 or R10	P4 or R11
Nosing or landing edge strip	P3	P4

Note: AS 4586 applies to all new pedestrian surfaces. The BCA requirements only apply to stairways in Volumes One and Two and also ramps in landings in Volume One. Therefore, where a general surface requirement is in conflict with a stairway, ramp or landing requirement, the latter takes precedence.

There are six slip-resistance classifications wtihin the BCA DtS Provisions and these classifications deifferentiate between:

- the application;
- the type of test to be used; and
- the surface condition (e.g. wet or dry)

AS 4586 contains four test types, however, only two of these are applicable to the BCA DtS Provisions. The two tests are a wet pendulum test and an oil-wet inclining platform test.

The wet pendulum test provides a classification range of P0 to P5 and can be tested in-situ or in a laboratory. The oil-wet inclining platform test provides a classification range of R9 to R13 and is a laboratory based test.

In respect to determining the appropriate surface condition (as expected at the time of construction), a wet surface includes a surface that:

- is exposed to weather, such as an external stairway; or
- on occasions, becomes wet such as in an entry lobby

Likewise, a dry surface is one that is not normally wet or likely to be made wet, other than by an accidental spill or general cleaning.