

Specification Guidelines

Stair Edgings

The Building Regulations and British Standards specifying the right Gradus product

The Building Regulations and British Standards are designed to ensure the optimum specification of products through a combination of legislative requirements and guidance.

The following extracts have been taken from The Building Regulations 2010 and British Standard BS 8300-2:2018, BS 9266:2013, BS 5395-1:2010 and show how Gradus products can be used to help satisfy these requirements, and help achieve an inclusive environment in line with the Equality Act 2010.

For further details on this or any other aspect of The Building Regulations and British Standards contact Gradus Technical Services on 01625 428922. Guidance varies internationally, please refer to the relevant countries' building standards (or equivalent) before specification.

Extracts shown below represent examples of good practice.

BS 8300-2:2018

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

8.1.4 Threshold

Commentary on 8.1.4

Upstands and gradients impede access. Small variations from any point taken as level can make a threshold inaccessible and potentially dangerous. People pushing wheelchairs also find sharp upstands difficult to manage.

Gradus transition (threshold) strips are engineered to minimise upstands and gradients, helping prevent tripping and making access easier, especially for people using wheelchairs or mobility aids.

They provide a smooth transition between different floor surfaces, making movement safer and more comfortable.

Made from durable materials like aluminium and PVC, Gradus transition (threshold) strips offer long-lasting solutions.

Guidance on Stair Edgings

10 Vertical movement

10.1 Steps and stairs

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 people who are blind or partially sighted appreciate the extent of the stair and identify individual treads ①. The contrasting material should extend 50 mm to 65 mm 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 ②.

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

NOTE 2 Nosing that wraps around the riser might assist people who are blind or partially sighted ③.

NOTE 3 A proprietary nosing can provide a durable solution that satisfies both visual contrast and slip resistance criteria (see BRE IP 15/03). The whole tread or the nosing should incorporate a 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.

① All Gradus stair edging colours have been measured to provide Light Reflectance Values (LRVs)* in order to provide the specifier with information to ensure that suitable contrast is achieved with the surrounding stair material. 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. XT Bronze and XT Aluminium can also be selected with matching metal castellated insert finish.

* These values have been determined using the CIE Y value, in accordance with BS 8493:2008+A1:2010.

② 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 the dimensions stated, including the XT range.

③ The XT range of stair edgings features a slip-resistant PVC insert or metal castellated 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 recommendations. The XT range is available in Bronze, Aluminium and PVC-u Hardnose.

10 Vertical movement

10.1 Steps and stairs

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 are 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.

Specification Guidelines

Stair Edgings

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.

Detailed information on assessing slip resistance, together with a table illustrating common surface materials and their dry and wet slip resistance values (SRV), also known as pendulum test values (PTV), can be found in BS 5395-1:2010, Clause 7.

NOTE Depending on the precise nature of the wearing surface, seemingly similar products made from the same material can be totally different in terms of their slip potential characteristics.

C.4 Step nosings

Where slip resistance is required for nosings and treads, the slip resistance needs to be 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 µm 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 of >36; inserts measured in wet conditions – PTV of >36).

All inserts are also tested for wear, surface roughness, chemical resistance and bacterial/fungal resistance.

Guidance on Skirtings

11 Surface finishes

11.1 Visual characteristics

The LRV of a wall should be 30 points different from that of the ceiling and of the floor. To avoid giving the wrong impression about the size of a room, skirtings should have the same LRV as the wall so that the junction between the skirting and the floor marks the extent of the room, except where coved skirtings are used, where the skirting should have the same LRV as the floor and should extend not more than 100mm above finished floor level.

All Gradus skirting colours have been measured to provide Light Reflectance Values* in order to provide the specifier with information to ensure that the skirting can be matched to the wall and contrast with the floor.

* These values have been determined using the CIE Y value, in accordance with BS 8493:2008+A1:2010.

BS 9266:2013

Design of accessible and adaptable general needs housing - Code of Practice.

The requirements of a dwelling's occupants can change as a result of accident, illness or ageing, giving rise to reduced mobility or increasing sensory loss. In order to meet these changing requirements, homes need to be accessible and adaptable; accessible for both visitors and residents and adaptable to meet residents' changing needs both temporary and longer term.

The standard outlines recommendations for design features which can be incorporated when the dwelling is first built, or have provision made at the outset for their future adaptation. This helps reduce the need for expensive or disruptive alterations or substantial adaptations in the future.

This British Standard gives recommendations for methods of selection, planning, installation and maintenance for both stair nosings and barrier matting. Gradus advice and recommendations are [shown in blue text](#).

Guidance on Stair Edgings

6 External access routes

6.8 Steps on access routes

6.8.1 Stepped access routes to individual houses

All step nosings should incorporate a permanently contrasting continuous material for the full width of the stair on both the tread and the riser. The material should contrast visually with the remainder of the tread and riser ❶.

❶ All Gradus stair edging colours have been measured to provide Light Reflectance Values (LRVs)* in order to provide the specifier with information to ensure that suitable contrast is achieved with the surrounding stair material.

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.

XT Bronze and XT Aluminium can also be selected with matching metal castellated insert finish.

*These values have been determined using the CIE Y value, in accordance with BS 8493:2008+A1:2010.

NOTE 2

A contrasting nosing at the junction between tread and riser might assist people with a visual impairment.

NOTE 3

Further information on the design of steps, and on visual contrast, refer to BS 8300-1:2018, BS 8300-2:2018

continued...

Specification Guidelines

Stair Edgings

6.8.2 Stepped access routes to blocks of flats

All step nosings should incorporate a permanently contrasting continuous material for the full width of the stair on both the tread and the riser, to help people with a visual impairment appreciate the extent of the stair and identify individual treads ❶.

❶ All Gradus stair edging colours have been measured to provide Light Reflectance Values (LRVs)* in order to provide the specifier with information to ensure that suitable contrast is achieved with the surrounding stair material.

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.

XT Bronze and XT Aluminium can also be selected with matching metal castellated insert finish.

*These values have been determined using the CIE Y value, in accordance with BS 8493:2008+A1:2010.

The material should be 50 mm to 65 mm wide on the tread and 30 mm to 55 mm on the riser, and should contrast visually with the remainder of the tread and riser ❷.

❷ 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 for internal use and the TEX range of heavy duty stair edgings suitable for external use.

The whole tread and the nosing should incorporate a slip-resistant material, starting as close as practicable to the front edge of the nosing and extending the full width and depth of the tread ❸.

❸ Gradus offer a Heavy-Duty Stair & Floor system suitable for heavy traffic exterior and interior environments. The system features stair edgings and tread plates for use on stairs and sheet material for use as a floorcovering on landings and walkways to help reduce the risk of slips and trips in the most demanding environments.

NOTE 1

A proprietary nosing can provide a durable solution that satisfies both visual contrast and slip resistance criteria (see BRE IP 15/03 [12]).

NOTE 2

Further information on slip resistance is given in BS 8300-1:2018, BS 8300-2:2018

8 Communal areas within blocks of flats

8.2 Design of common steps and stairs

The design of common steps and stairs should conform to 6.8.2

Guidance on light reflectance values

8.5 Visual contrast between surfaces or building elements

Differences in light reflectance value (LRV) should be used to assess the degree of visual contrast between surfaces such as floors, walls, doors and ceilings, and between key fittings/fixtures and surrounding surfaces.

Note

Relevant LRV differentials and methods of LRV measurement are provided in BS 8300-1:2018, BS 8300-2:2018 - Annex B.

Visual contrast is used to indicate the visual perception of one element of the building, or fitting within the building, against another to ensure the difference in light reflectance value between the two surfaces is greater than 30 points.

All Gradus stair edging colours have been measured to provide Light Reflectance Values* in order to provide the specifier with information to ensure that suitable contrast is achieved with the surrounding stair material.

*These values have been determined using the CIE Y value, in accordance with BS 8493:2008.

Permission to reproduce extracts from British Standards is granted by BSI. British Standards can be obtained in PDF or hard copy formats from BSI Knowledge: <https://knowledge.bsigroup.com> or by contacting BSI Customer Services for hardcopies only: Tel: +44 (0)20 8996 9001, Email: cservices@bsigroup.com.

The Building Regulations 2010 - Approved Document K 2013 edition

Protection from falling, collision and impact

This approved document takes effect on 6th April 2013 for use in England. Current building standards should be checked at time of specification for Wales, Scotland and Northern Ireland.

Approved documents are intended to provide guidance. The main points relating to stairs that are detailed in Approved Document K are shown below with supporting recommendations by Gradus [shown in blue text](#).

K1 Stairs and ladders

Construction of steps

For buildings other than dwellings

1.7 For steps apply the following guidance.

a. Make step nosings apparent: use material that will contrast visually, a minimum of 55mm wide, on both the tread and the riser.

Specification Guidelines

Stair Edgings

For common access areas in buildings that contain flats

- 1.10 Provide a stair with steps that comply with the following guidance.
- a. Make step nosings apparent: use material that will contrast visually, 50mm to 65mm wide on the tread and 30mm to 55mm on the riser.

All Gradus stair edging colours have been measured to provide Light Reflectance Values (LRVs)* in order to provide the specifier with information to ensure that suitable contrast is achieved with the surrounding stair material.

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.

XT Bronze and XT Aluminium can also be selected with matching metal castellated insert finish.

*These values have been determined using the CIE Y value in accordance with BS 8493:2008+A1:2010.

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 within the dimensions stated, including the XT range.

Source: Building Regulations - Protection from falling, collision and impact - Approved Document K - 2013 Edition. Crown Copyright material is reproduced with the permission of the Controller of HMSO and the Queen's Printer for Scotland.

The Building Regulations 2010 - Approved Document M "Access to and use of buildings"

(2015 edition incorporating 2020 and 2024 amendments – for use in England)

The latest version of Approved Document M is stated 'for use in England'. Current building standards should be checked at time of specification for Wales, Scotland and Northern Ireland.

Approved Document M is split into two parts:

- Volume 1: Dwellings
- Volume 2: Buildings other than dwellings

Volume 1 refers to Approved Document K for specific guidance notes on stair edgings (detailed opposite). The below abstracts of guidance are taken from Volume 2.

Building owners have a legal duty to ensure all people can gain access to and use a building and its facilities.

Approved documents are intended to provide guidance and much of the guidance in Approved Document M is based on BS 8300. The main points relating to stair and stepped access that are detailed in Approved Document M are shown below, with supporting recommendation by Gradus [shown in blue text](#).

Stepped Access

- 1.27 People with impaired sight risk tripping or losing their balance if there is no warning that steps provide a change in level.

Use of a stair edging that contrasts with the surrounding tread/riser material will help to clearly define the step edge and warn of a change in level.

- 1.29 Materials for treads should not present a slip hazard, especially when the surface is wet.

Gradus provides a range of inserts for use in interior (dry and wet) and exterior conditions.

- 1.30 People should easily be able to appreciate where to place their feet by highlighting nosings and avoiding open risers.

Use of a stair edging that contrasts with the surrounding tread/riser material will help to clearly define the step edge. Both the insert and channel of the stair edging should be of a suitable contrast to the surrounding floor finishes. ADM directly refers to colour contrast in the definitions section stating that:

'Contrast visually, when used to indicate the visual perception of one element of a building, or fitting within the building, against another means that the difference in light reflectance value between the two surfaces is greater than 30 points.'

All Gradus stair edging colours have been measured to provide Light Reflectance Values* in order to provide the specifier with information to ensure that suitable contrast is achieved with the surrounding stair material.

*These values have been measured using the CIE Y value in accordance with BS 8493:2008+A1:2010.

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

The 55mm dimension detailed is guidance only and other factors should be taken into consideration when specifying stair edgings such as step dimension, type and frequency of traffic. Communities and Local Government (formerly The Office of the Deputy Prime Minister) also acknowledges that advice given by other expert bodies should be taken into consideration, for example the RNIB Access Consultancy Services who state that the ideal dimension for a stair edging is 55mm on the tread and 30-50mm on the riser, which takes into account lower risers where a 55mm stair edging may take up a large proportion of the riser surface and therefore could be confusing for partially sighted people.

If 55mm profiles are required they are available in the Gradus range.

continued...

Specification Guidelines

Stair Edgings

Accessible Entrances

2.7 e A threshold that is level or, if raised, has a total height of not more than 15mm, a minimum number of upstands and slopes and with any upstands higher than 5mm chamfered. Other acceptable solutions are described in Accessible thresholds in new housing – Guidance for house builders and developers, The Stationary Office Ltd. ISBN 0 11 702333 3. 1999.

Gradus transition (threshold) strips are designed to ensure that any raised threshold does not exceed a total height of 15mm. This helps in maintaining accessibility for all users, including those with mobility impairments.

Gradus transition (threshold) strips have a minimal number of upstands and slopes, ensuring a smooth transition between different floor coverings. This reduces the risk of tripping and makes it easier for wheelchair users to navigate.

Available in aluminium or PVC, providing durable and safe solutions for different types of floor coverings.

Entrance Lobbies

2.29 (e) floor surface materials within the lobby do not impede the movement of wheelchairs e.g. not coir matting, and changes in floor materials do not create a potential trip hazard.

The majority of Gradus mats are suitable for use with wheelchairs.

2.29 (f) the floor surface helps to remove rainwater from shoes and wheelchairs.

A combination of Gradus primary and secondary barrier matting will help prevent the ingress of rainwater.

2.29 (g) where matwells are provided, the surface of the mat is level with the surface of the adjacent floor finish.

Gradus offers a range of matwell frames and primary barrier mats designed to work together to provide a smooth transition to the surrounding floor finish.

Corridors and Passageways

3.12 In order to help people with visual impairment to appreciate the size of a space they have entered, or to find their way around, there should be a visual contrast between the wall and floor.

Gradus skirting profiles are available in a wide choice of colours and will provide a suitable colour contrast, helping define where the floor ends and the wall begins.

Source: *Building Regulations - Access to and use of buildings - Approved Document M - 2015 edition incorporating 2020 amendments*. Crown Copyright material is reproduced with the permission of the Controller of HMSO and the Queen's Printer for Scotland.

BS 5395-1:2010

Stairs – Part 1:

Code of practice for the design of stairs with straight flights and winders

This standard provides guidance or good practice in the design of stairs with straight flights and winders. Gradus advice and recommendations are shown in blue text

4 Safety

4.7 Marked nosings

On a normal-use stair, each step or landing nosing should incorporate a permanently contrasting 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. The material should be 50 mm to 65 mm wide on the tread and 30 mm to 55 mm on the riser, and should contrast visually with the remainder of the tread and riser.

NOTE Advice on visual contrast can be found in BS 8300-1:2018, BS 8300-2:2018 - Annex B.

All Gradus stair edging colours have been measured to provide Light Reflectance Values (LRVs)* in order to provide the specifier with information to ensure that suitable contrast is achieved with the surrounding stair material.

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.

XT Bronze and XT Aluminium can also be selected with matching metal castellated insert finish.

*These values have been determined using the CIE Y value, in accordance with BS 8493:2008+A1:2010.

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.

continued...

Specification Guidelines

Stair Edgings

7 Slip resistance

Treads and landings should have a surface (and proprietary nosing, if provided) that does not become slippery in use.

Assessments in slip resistance should be undertaken using a combination of the following:

- a) Pendulum test value (PTVs) obtained using a pendulum tester in line with BS 7976-2; and
- b) Surface micro roughness measurements using a stylus instrument in accordance with BS 1134-1.

NOTE 1

Attention is drawn to the information found in the UK Slip Resistance Group Guidelines [6].

NOTE 2

Any flooring material providing sufficient slip resistance for use on the level, typically with a PTV greater than 36, is suitable for use on stairs.

PTV should be measured in the conditions to which the stair is likely to be exposed.

If strips or inserts are used to improve the slip resistance of steps and stairs, they should be fitted as close possible to the leading edge of the tread and should be of a contrasting colour/brightness. An Rz roughness of 20 µm or more is recommended. Such strips or inserts should be firmly fixed.

NOTE 9

For further information on proprietary nosings see BRE IP 15/03 [7].

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.

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.

The XT range is available in Bronze, Aluminium and PVC-u Hardnose.

Permission to reproduce extracts from British Standards is granted by BSI. British Standards can be obtained in PDF or hard copy formats from BSI Knowledge: <https://knowledge.bsigroup.com> or by contacting BSI Customer Services for hardcopies only: Tel: +44 (0)20 8996 9001, Email: cservices@bsigroup.com.



Gradus is a key contributor to the UK Slip Resistance Group, the leading independent authority on slip resistance in the UK that aims to promote greater understanding of the causes of and solutions to slips.

A new guide is now available entitled "What Makes Stairs Safer?" that offers an overview of the key aspects involved in creating safe internal stairs and aims to provide valuable, independent advice to anyone involved in the design, specification, construction, installation, fitting or maintenance of stairs.

For more information and to keep up-to-date with the latest developments, visit: www.ukslipresistance.org.uk

Specification Guidelines

Stair Edgings

BRE - Research and Guidelines

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.

Gradus has combined the key findings of this report with in-house research and development, and as a result has developed the XT range of profiles.

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.

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.

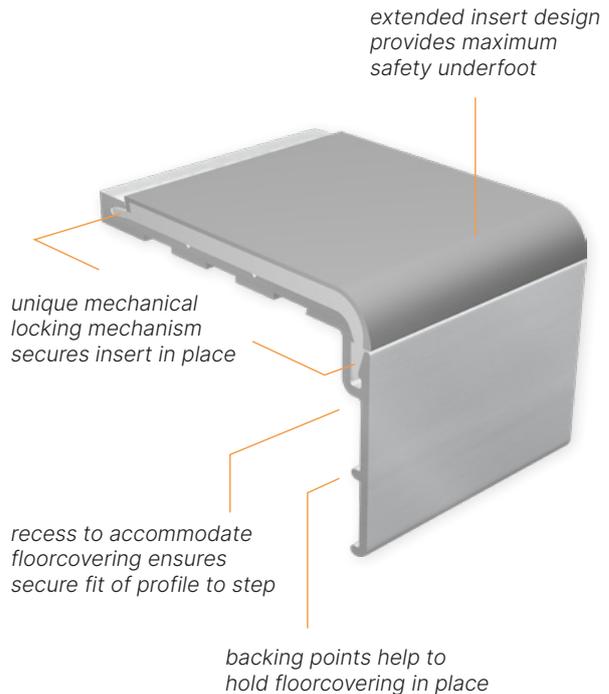


← 300mm or less →

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

Gradus recommendation

The **XT range** of stair edgings offers a new edge in safety for stairs and has been developed to take into account the latest guidance contained in the BRE information paper IP15/03, BS 8300-2:2018 and in The Building Regulations 2010 - Approved Document M.



Extracts from BRE Information Paper IP15/03, Proprietary nosings for non-domestic stairs, copyright BRE, reproduced by permission. IP15/03 is available from IHS BRE Press, Bracknell RG12 8FB, www.ihsbrepress.com

Guide to matching PVC-u Hardnose™ colours

Stair Edgings

XT PVC-u Hardnose™ channel and insert colours

Channel	Insert Availability				
	LRV	Interior Standard	LRV	Xtra-grip	LRV
Black	5	Jet	5	Onyx	5
Ink	5	Ink	5	Neptune	5
Burgundy	6	Burgundy	6	Claret	7
Brown	7	Coffee	6	Umber	6
Granite	12	Lead	13	Graphite	13
Dove	26	Steel	27	Quarry	25
Glacier	43	Glacier	42	Concrete	37
Clay	52	Clay	48	Ivory	44
Canvas	55	Canvas	53	Pumice	47
Wisp	57	Wisp	58	Platinum	53
Buttercup	63	Buttercup	56	Ochre	50
Oatmeal	65	Oatmeal	68	Cream	63
Opal	75	Opal	76	Shell	65
Snowdrift	81	Snowdrift	84	Frost	67

Traditional PVC-u Hardnose™ channel and insert colours

Channel	Insert Availability								
	LRV	Interior Standard	LRV	Interior Grained	LRV	Xtra-grip	LRV	Xtra-grip Plus	LRV
Black	5	Jet	5	Black	6	Onyx	5	Asphalt	5
Ink	5	Ink	5	-	-	Neptune	5	Shark	5
Burgundy	6	Burgundy	6	-	-	-	-	-	-
Evergreen	7	Evergreen	7	-	-	-	-	-	-
Midnight	7	Midnight	7	-	-	-	-	-	-
Brown	7	Coffee	6	Brown	12	Umber	6	Bark	6
Bluebell	10	Ocean	8	-	-	-	-	-	-
Granite	12	Lead	13	Granite	13	Graphite	13	Mercury	13
Dove	26	Steel	27	Dove	23	Quarry	25	Smoke	25
Linen	38	Linen	39	-	-	-	-	-	-
Glacier	43	Glacier	42	-	-	Concrete	37	Dusk	37
Canvas	55	Canvas	53	-	-	Pumice	47	Sandstone	47
Buttercup	63	Buttercup	56	-	-	Ochre	50	Citrine	50
Oatmeal	65	Oatmeal	68	-	-	Cream	63	Merino	63
Opal	75	Opal	76	-	-	Shell	65	Daisy	65
Snowdrift	81	Snowdrift	84	-	-	Frost	67	Calcite	67