

DARWIN

GLAZED CERAMIC & PORCELAIN | WALL & FLOOR TILES

CONCRETE STRUCTURE SELECT



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JOHNSON • TILES 
MADE IN THE UK SINCE 1901

DARWIN

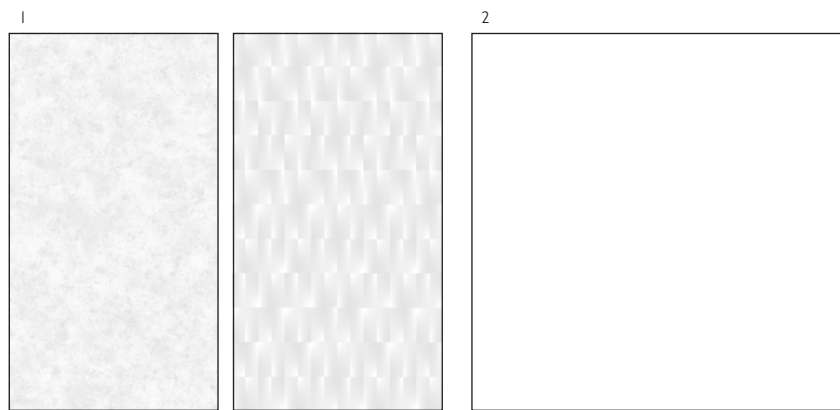
 2 COLOURS  2 SIZES  1 FINISH

Offering delicate textures and timeless aesthetic, Darwin explores the surface quality of nature with character. Choose from two stylish structures - Rockfall and Rectangular, in two understated yet impactful neutral tones. Available in modern 450x250mm and 450x450mm size-formats, the Darwin range achieves an impressive 36+ PTV slip resistance rating in dry and wet conditions, making it the perfect range to consider in both commercial and residential settings.





Size Formats Sizing & Packing Information



#	Size	Thickness	Finish	Structure	Availability	Class	Pcs / Box	M2 / Box	Kg / Box
1	450x250mm	8mm	M Matt	Rockfall	DRWN1A / 2A	BIII	9 Tiles	1.01 m ²	15.00 kg
				Rectangular	DRWN1D / 2D	BIII	9 Tiles	1.01 m ²	15.00 kg
2	450x450mm	9mm	M Matt	-	DRWN1F / 2F	Bla	6 Tiles	1.21 m ²	25.92 kg

Note: Class BIII: Glazed Ceramic Tiles, Class Bla: Glazed Porcelain Tiles. For more information please see the suitability advice given in the technical section. All sizes indicated are metric modular. All sizes shown are nominal. For the most up-to-date size, colour and finish availability, please visit our website - www.johnson-tiles.com.



Putty Matt (Rockfall) 450x250x8mm - DRWN2A
Putty Matt (Rectangular) 450x250x8mm - DRWN2D
Putty Matt 450x450x9mm - DRWN2F



Colours & Product Codes

V2: Low to Moderate Shade Variation



CLAY (Rockfall Structure) LRV: 55
Product Code - 450x250mm [BIII]: M DRWNIA



CLAY (Rectangular Structure) LRV: 55
Product Code - 450x250mm [BIII]: M DRWNID



CLAY LRV: 55 PEI: IV
Product Code - 450x450mm [BIIa]: M DRWNIF



Colours & Product Codes

V2: Low to Moderate Shade Variation



PUTTY (Rockfall Structure) LRV: 50

Product Code - 450x250mm [BIII]: M DRWN2A



PUTTY (Rectangular Structure) LRV: 50

Product Code - 450x250mm [BIII]: M DRWN2D



PUTTY LRV: 50 PEI: III

Product Code - 450x450mm [Bla]: M DRWN2F



Technical, Sustainability & Important Information

Specification

Range	Finish	Wall Suitability	Floor Suitability	Wet Barefoot	CSV	Material / Class
Darwin	Matt	Internal Only	-	-	V2	Glazed Ceramic [BIII]
	Matt	Internal & External	Internal Only	-	V2	Glazed Porcelain [BIa]

Floor Values

Finish	Colour	Structure	PTV (4S)	PTV (TRL)	R Value	Wet Ramp	PEI	Traffic
Matt	Clay	-	Dry 36+ Wet 36+	-	-	-	IV	Commercial
	Putty	-	Dry 36+ Wet 36+	-	-	-	III	Light Commercial

Physical Properties - Glazed Ceramic [BIII]

Test & Standard	Requirement	Test Result	Test & Standard	Requirement	Test Result
Length / Width EN ISO 10545 - 2	$\pm 0.5\% \leq \pm 2\text{mm}$	$\pm 0.25\%$	Modulus of Rupture EN ISO 10545 - 4	Min. 15N / mm ²	$\geq 25\text{N} / \text{mm}^2$
Thickness EN ISO 10545 - 2	$\pm 10\% \leq \pm 0.5\text{mm}$	$\pm 2.5\%$	Thermal Shock EN ISO 10545 - 9	Pass	Pass
Straightness of Side EN ISO 10545 - 2	$\pm 0.3\% \leq \pm 1.5\text{mm}$	$\pm 0.15\%$	Frost Resistance EN ISO 10545 - 12	-	Not Suitable
Rectangularity EN ISO 10545 - 2	$\pm 0.5\% \leq \pm 2\text{mm}$	$\pm 0.4\%$	Chemical Resistance EN ISO 10545 - 13	Min. Class B	Class A - B
Surface Flatness EN ISO 10545 - 2	$\pm 0.5\% \leq \pm 2\text{mm}$	$\pm 0.2\%$	Stain Resistance EN ISO 10545 - 14	Min. Class 3	Class 3
Water Absorption EN ISO 10545 - 3	10% to 20%	15% to 17%	Fire Rating	-	Class A I Non Combustible
Weight / M ²	14.85 kg 8mm thick				

Physical Properties - Glazed Porcelain [BIa]

Test & Standard	Requirement	Test Result	Test & Standard	Requirement	Test Result
Length / Width EN ISO 10545 - 2	$\pm 0.6\% \leq \pm 2\text{mm}$	Pass	Modulus of Rupture EN ISO 10545 - 4	Min. 35N / mm ²	$\geq 35\text{N} / \text{mm}^2$
Thickness EN ISO 10545 - 2	$\pm 5\% \leq \pm 0.5\text{mm}$	Pass	Thermal Shock EN ISO 10545 - 9	Pass	Pass
Straightness of Side EN ISO 10545 - 2	$\pm 0.5\% \leq \pm 1.5\text{mm}$	Pass	Frost Resistance EN ISO 10545 - 12	Resistant	Resistant
Rectangularity EN ISO 10545 - 2	$\pm 0.5\% \leq \pm 2\text{mm}$	Pass	Chemical Resistance EN ISO 10545 - 13	Min. Class B	Class A
Surface Flatness EN ISO 10545 - 2	$\pm 0.5\% \leq \pm 2\text{mm}$	Pass	Stain Resistance EN ISO 10545 - 14	Min. Class 3	Class 3
Water Absorption EN ISO 10545 - 3	$\leq 0.5\%$	$\leq 0.1\%$	Fire Rating	-	Class A I FL Non Combustible
Weight / M ²	18.31 kg 9mm thick				

Sustainability Information

Range	Material / Class	EPD	Recycled Content of the Tiles	Recycled Content of the Packaging	Recyclable Content of the Packaging
Darwin	Glazed Ceramic [BIII]	Yes	Up to 20%	Up to 100%	Up to 100%
	Glazed Porcelain [BIa]	Yes	-	Up to 100% (Boxes)	Up to 100% (Boxes)

Note: Due to the manufacturing process of all floor tiles there may be small variations in slip resistance. Given this, please refer to our website for the most up-to-date information. The slip resistance properties of a surface can only be maintained with the implementation of an effective regular cleaning and maintenance regime. The frequency of cleaning should be determined by the property manager based on the potential level of surface contaminants. The need for an additional regular cleaning and maintenance regime is further heightened when tiles are used for external floor and wet barefoot applications.

Please contact our technical helpline for specification and installation advice. All glazed ceramic [BIII] and glazed porcelain [BIa] products shown in this range overview conform to BS EN 14411, CSV, Colour Shade Variation, PTV (4S): Pendulum Test Value - Slider 96, PTV (TRL): Pendulum Test Value - Slider 55, R Value (DIN 51130), Wet Ramp (DIN 51097), PEI: Porcelain Enamel Institute.

For a full overview of our environmental credentials please visit www.johnson-tiles.com/about/sustainability. EPD: Environmental Product Declaration.

Technical, Sustainability & Important Information

Important Information

During the manufacturing process of ceramic and porcelain tiles, some variation in shade and pattern can occur. Before fixing any tiles, several boxes should be opened and their contents mixed to ensure that size, colour, shade and patterning are acceptable. The tiles shown are quality products and conform to the physical properties listed. For a comprehensive colour, size and finish overview along with full technical and sustainability information for all of the product shown in this product presenter, please visit our website - www.johnson-tiles.com.

- All sizes shown are metric modular.
- For specific suitability details please contact our technical department.
- Johnson Tiles cannot accept responsibility for tiles that have been fixed.
- Every effort has been made to ensure the accuracy of the information given.
- Johnson Tiles reserves the right to change specification and availability information without prior notice.
- Nothing in these statements does/will affect the statutory rights of the consumer.

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All product technical values quoted in this product presenter are supported by laboratory testing from our own and independent ceramic test houses. Johnson Tiles are British Standard registered and all products conform to the standards set in BS EN 14411.

For the reassurance of single-source supply, Johnson Tiles offers a free of charge NBS M40 specification writing service featuring the Norcros Adhesives range of tile fixing products. To find out more or for any questions or queries relating to any tile related technical information featured in this overview, please contact our technical advice helpline on +44 (0)1782 524 111 or email ddunlop@johnson-tiles.com

The colours shown in this range overview download are as accurate as printing processes will allow. Please refer to actual product samples before specifying. Every effort has been made to ensure the accuracy of the information given.



Clay Matt (Rockfall) 450x250x8mm - DRWN1A
Clay Matt (Rectangular) 450x250x8mm - DRWN1D
Putty Matt 450x450x9mm - DRWN2F

Installation Advice

Codes of Practice

All fixing of floor and cladding tiles should be in accordance with the following codes of practice guidelines:

BS5385 Part 1 - 2018

Design and installation of internal ceramic, natural stone and mosaic wall tiling in normal conditions.

BS5385 Part 2 - 2015

Design and installation of external ceramic, natural stone and mosaic wall tiling in normal conditions.

BS5385 Part 3 - 2014

Design and installation of internal and external ceramic and mosaic floor tiling in normal conditions.

BS5385 Part 4 - 2015

Design and installation of ceramic and mosaic tiling in specific conditions.

BS5385 Part 5 - 2009

Design and installation of terrazzo, natural stone, and agglomerated stone tile and slab flooring.

BS8000 Part 11 - 2011

Workmanship on building sites. Internal and external wall and floor tiling. Ceramic and agglomerated stone tiles, natural stone and terrazzo tiles and slabs and mosaics.

BIll (Ceramic) tiles smaller than 400x300mm require the use of an adhesive with a D1 or D2 classification. Larger tiles require an adhesive with C2 classification.

BlA (Porcelain) tiles require the use of a polymer modified adhesive with a classification of C2* and grouts specifically formulated for the fixing and grouting of porcelain tiles.

* Check with the adhesive manufacturer for additional C1 product suitability.

Substrates

Before tiling is commenced it is important to ensure that the correct minimum curing periods have been observed for all substrates:

Concrete (6 Weeks)

Screed - Non Modified (3 Weeks)

Rendering - Non Modified (2 Weeks)

Gypsum Plastering (4 Weeks)

Brickwork / Blockwork (6 Weeks)

Accuracy of the substrate must be checked to ensure that the guidance given in BS5385 has been achieved i.e. "local variations in level for a nominally flat floor or wall should be such that, when checked with a 2m

straight-edge, any gap under the straight-edge between points of contact does not exceed 3mm".

Movement Joints

The location, type and scope of all movement joints must be ascertained prior to any fixing works. All structural joints must be followed through to the face of the tile at full width with intermediate movement joints (minimum 6mm wide) being situated at:

Changes of Plane (Incl. Wall Corners)

Wall / Floor Junctions

Where Tiling Abuts Other Materials

Additionally at 3 to 4.5m maximum centres for wall tiling and 8 to 10m maximum bay centres for floor tiling (in suspended floors the bay dimensions should be reduced by providing additional joints over supporting walls and beams).

Movement joints can either be filled with a suitable backer, bond breaker and filler (e.g. silicone for walls tiles only or epoxy polysulphide for floor and wall tiles - please check with manufacturer for suitability) or be of the pre-formed variety.

Design / Layout

Consideration to locations of plane changes and room sizes should be undertaken to ensure the best tile size is selected to minimise cutting and improve aesthetics.

Adhesives

Adhesives should be in accordance with BS EN 12004, Class D1 or D2 for ceramic tiles and Class C2 or C1* for porcelain tiles. Particular adhesive choice will be governed by the type of substrate.

* Check with the adhesive manufacturer for additional C1 product suitability.

Johnson Tiles recommends the use of Norcros Adhesives products - see below:

Ceramic Tiles (BIll)

Substrate	Product
Concrete	One Part Flexible
Sand / Cement Screed	One Part Flexible
Brick / Blockwork	One Part Flexible
Plaster Gypsum	One Part Flexible
Plasterboard	One Part Flexible

Porcelain Tiles (BlA)

Substrate	Product
Concrete	Rapid Porcelain / Flexible
Sand / Cement Screed	Rapid Porcelain / Flexible
Wood Floors	Rapid Porcelain / Flexible*
Brick / Blockwork	Rapid Porcelain / Flexible
Plaster Gypsum	Rapid Porcelain / Flexible
Plasterboard	Rapid Porcelain / Flexible**

* Overlay with minimum 15mm WBP / Marine Ply and Prime using Norcros Adhesive Prime and Seal.

** Prime using Norcros Adhesive Prime and Seal.

Grouts

The choice of grout type should reflect the expected service conditions of the installation.

For general internal wall tiling in dry conditions and walls subject to frequent wetting i.e. showers and pool halls, use Norcros Adhesives 4 in 1 Cement Based Grout - classified as CG2.

For walls where hygiene is important i.e. commercial kitchens and hospitals, use Norcros Adhesives Super Epoxy Grout - classified as RG1.

For general floor tiling use Norcros Adhesives 4 in 1 Flexible Wall and Floor Tile Grout - classified as CG2.

For floors subject to frequent wetting i.e. showers and pool halls, use Norcros Adhesives 4 in 1 Flexible Wall and Floor Tile Grout - classified as CG2 (hard water areas) or Norcros Adhesives Super Epoxy Grout - classified as RG1 (soft water areas).

For specific adhesive and grout advice, please contact Norcros Adhesives' technical helpline on +44 (0) 1782 524 140.

Fixing Tiles

All tiles should be fixed with a solid bed of adhesive, this ensures maximum durability and strength within the installation and long term adhesion performance. This is achieved with the use of a notched solid bed trowel. It is good practice to periodically remove a recently fixed tile to ensure that the correct bedding is being achieved and maintained. When fixing all tiles care must be taken to ensure that no lipping of tiles occurs.

All tiles shown in this brochure are recommended to be fixed with a nominal 3mm wide joint.

Cleaning and Maintenance

Maintaining the appearance and characteristics (especially slip resistance values) of floor tiles is achieved with the implementation of a suitable cleaning regime. It must be stressed that the cleaning material manufacturers instructions must be followed at all times. Regular and correctly undertaken cleaning should maintain a flooring product as close to its original state as possible. Incorrect or infrequent cleaning will adversely affect the properties of the flooring material and increase potential hazards. Generally the smoother the surface of the tile the easier it is to clean. However, it should be noted that textured products, required to give adequate slip resistance when wet, can be satisfactorily cleaned - the cleanability of a surface is more a function of the contaminant than the texture of the surface. It is therefore essential when selecting and specifying a floor finish that the use of the area and likely contaminants, safety, aesthetic and hygiene requirements are all taken into account at the specification stage.

Cleaning can be split into several categories, each of which is dependant upon installation type (i.e. wet barefoot areas, shopping malls, public toilets, etc.) and frequency of usage (i.e. high, medium or low traffic):

Builders Clean

This should be undertaken before a floor is being brought into service. The builders clean removes any residual film leftover from the grouting operation and is a one-off cleaning process. This must be carried out as any grout residues left behind will act as a key for dirt resulting in the installation being difficult to clean. Temporary sealers may be used to facilitate cleaning off after laying which can be removed with the use of alkaline detergents.

Cementitious Grouts

The use of a mild acid de-cementing solution followed by thorough rinsing will remove all but the most stubborn of cement residues.

Epoxy Grouts

It is essential that ALL residue must be removed from the surface of the tiles during the grouting process and before the resin cures. Failure to achieve this will result in a very difficult and expensive process using gel-type epoxy removers.

Routine Cleaning

The regular use of detergents or other cleaning agents, which are excessively acidic or alkaline could cause irreversible damage to the ceramic tile surface. Degreasing agents that contain wax, sodium silicate or other additives which leave sticky deposits and thus retain dirt should be avoided. Oil residues or build-ups of wax can be removed with a proprietary wax and polish remover.

Manual Cleaning

In normal conditions tiles require little maintenance and can be easily kept clean by sweeping and then mopping with warm water to which a neutral or nearly neutral detergent has been added. The cleaning solution should remain on the floor for 5 to 15 minutes (see manufacturers instructions) to allow it to penetrate and emulsify the dirt after which it should be removed by rinsing thoroughly with clean water. The rinsing process removes the dirt so the use of clean water is important.

Mechanical Cleaning

For larger floor areas or areas of textured tiles the use of a rotary scrubbing machine is recommended (machines should not be used at speeds in excess of 450rpm). The choice of brush type is very important. Union mix brushes are suitable for light washing and scrubbing, polypropylene brushes are suitable where dirt deposits are especially heavy. The cleaning solution should remain on the floor for 5 to 15 minutes (see manufacturers instructions) after which a secondary scrubbing action and clean mop or suction should be undertaken to remove the solution and dirt.

High Pressure Cleaning

Tiles seldom require the use of high-pressure cleaning. Whilst the process will not damage the tiles care must be taken to avoid erosion of the grout. To minimise grout erosion ensure that the water beam is continually moved from side to side and not allowed to concentrate on the grouted joints. Water containing abrasives or steam cleaners should not be used on ceramic tiles.

Wet Areas

Wet barefoot areas may attract build-ups of body fats, soaps, oil residues and organic growth. To prevent these a mildly acidic cleaning agent used regularly is preferable. If build-up has been allowed a preliminary deep clean with a proprietary cleaner is required followed by regular use of a mildly acidic cleaning agent solution.

Periodic Deep Cleaning

Occasionally foreign matter may cause surface marks that cannot be removed with the usual cleaning processes and materials. If the surface mark cannot be removed, other materials should be considered (it's advisable to experiment on a small inconspicuous area):

Paint - Paint Remover

Organic Stains - Bleach / Washing Soda

Rust - Masonry Cleaner

Oil / Fat / Grease - Detergent or Degreaser

Mould Growth - Bleach / Proprietary Cleaner

Tea / Coffee / Ink - Bleach / Proprietary Cleaner

Abrasive powders or cleaners should never be used on glazed or polished tiles.

For more information about **Darwin** or any
of our other product ranges simply visit
www.johnson-tiles.com |       

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