One portfolio...

We operate from one core product portfolio used internationally. Three collections built on a Good, Better and Best principle. Each group has both wall and floor co-ordinating options. Our colour and design story works across all three collections allowing clients to ‘mix and match’ between price points and styles.

 Intro, a collection of high quality wall and floor tiles. Choose from ceramic, vitrified and porcelain. The Intro Collection offers a stylish yet affordable product range, covering both traditional and contemporary design styles. The full Intro Collection is available from stock.

About us

You can be assured that with more than 100 years’ expertise, all Johnson Tiles products are designed and manufactured to the highest possible standards and performance ratings.

We are very conscious of our part in protecting the environment. Listed in ‘The Sunday Times Best Green Companies’, each year we re-use internal water supplies, recapture and distribute heat generated from our tiles, and recycle approximately 10k tonnes of ceramic waste, and all product manufactured at our Stoke on Trent base contains up to 20% recycled ceramic materials – a unique process worldwide.

Johnson Tiles is a division of Norcros Group (Holdings) Limited, Ladyfield House, Station Road, Wilmslow, Cheshire, SK9 1BU. Registered in England number 566694.

The Intro Collection - Available ranges...

To learn more about these or any of our other ranges, simply go to www.johnson-tiles.com
Bevel Brick is available in one subtle and versatile size.

Size

200 x 100mm

Thickness

All tiles in this range are 6.8mm thick.

Availability

All sizes

BVBR1A White Gloss
BVBR2A Cream Gloss
BVBR3A Black Gloss
BVBR4A Red Gloss

One finish

Example below is not to scale but has been enlarged to show detail:

Four colours offering a neutral and contemporary palette.

White

Cream

Red

Black

Bevel Brick Black
Borders are available in five sizes, perfectly designed for easy installation.

<table>
<thead>
<tr>
<th>Size</th>
<th>Availability</th>
<th>Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 x 22mm</td>
<td>22 x 22mm</td>
<td>10mm</td>
</tr>
<tr>
<td>35 x 17mm</td>
<td>35 x 17mm</td>
<td>10mm</td>
</tr>
<tr>
<td>27 x 27mm</td>
<td>27 x 27mm</td>
<td>10mm</td>
</tr>
<tr>
<td>300 x 50mm</td>
<td>300 x 50mm Ribbed</td>
<td>10mm</td>
</tr>
<tr>
<td>300 x 50mm Mixed</td>
<td>300 x 50mm Mixed</td>
<td>10mm</td>
</tr>
<tr>
<td>50 x 50mm</td>
<td>50 x 50mm</td>
<td>10mm</td>
</tr>
<tr>
<td>300 x 20mm</td>
<td>300 x 20mm Mixed</td>
<td>10mm</td>
</tr>
</tbody>
</table>

Three finishes combine form and function.

Examples below are not to scale but have been enlarged to show detail.

12 colours offering a neutral and contemporary palette.
City Touchstone is available in two sizes, perfectly designed for easy installation.

<table>
<thead>
<tr>
<th>Size</th>
<th>450 x 450mm</th>
<th>360 x 275mm</th>
</tr>
</thead>
</table>

Eight colours offering a neutral and contemporary palette.

<table>
<thead>
<tr>
<th>Thickness</th>
<th>450 x 450mm tiles in this range are 9.8mm thick.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Availability</th>
<th>360 x 275mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTO1A Stone White Matt</td>
<td>CTO2A Soft Pebble Matt</td>
</tr>
<tr>
<td>CTO3A Sand Dune Matt</td>
<td>CTO4A Natural Slate Matt</td>
</tr>
<tr>
<td>CTO5A Greystone Matt</td>
<td>CTO6A Blackrock Matt</td>
</tr>
<tr>
<td>CTO1L Beige Mix Matt Structured</td>
<td>CTO2L Grey Mix Matt Structured</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Size</th>
<th>450 x 450mm</th>
<th>360 x 275mm</th>
</tr>
</thead>
</table>

Two finishes combine form and function. Examples below are not to scale but have been enlarged to show detail.

Matt
Matt Structured

Examples below are not to scale but have been enlarged to show detail:

<table>
<thead>
<tr>
<th>Size</th>
<th>450 x 450mm</th>
<th>360 x 275mm</th>
</tr>
</thead>
</table>

Stone White | PEI IV | Soft Pebble | PEI III | Sand Dune | PEI III |
Greystone | PEI II | Natural Slate | PEI II | Blackrock | PEI I |
Beige Mix | | Grey Mix | | | |
Country Stones is available in two sizes, perfectly designed for seamless installation.

<table>
<thead>
<tr>
<th>Size</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 x 100mm</td>
<td>COS01A Clay Brown Satin</td>
</tr>
<tr>
<td>100 x 100mm</td>
<td>COS02A Barley Cream Satin</td>
</tr>
</tbody>
</table>

Seven colours offering a neutral and contemporary palette.

- Midnight
- Summer Storm
- Hearth Grey
- Dovetail
- Millstone White
- Barley Cream
- Clay Brown

One finish
Example below is not to scale but has been enlarged to show detail.

Satin
**County** is available in **two sizes**, perfectly designed for easy installation.

**Size**

- 305 x 305mm
- 305 x 200mm

**Thickness**

305 x 305mm tiles in this range are 8mm thick.

**Availability**

- 300 x 200mm
  - CNY01A Old Stone Matte
  - CNY12A Classic White Matt
  - CNY13A Natural Grey Matt
  - CNY14A Rustic Taupe

- 305 x 305mm
  - CNY01F Old Stone Matte
  - CNY12F Classic White Matt
  - CNY13F Natural Grey Matt
  - CNY14F Rustic Taupe

---

**Four colours** offering a neutral and contemporary palette.

- **Classic White** PEI III
- **Old Stone** PEI III
- **Rustic Taupe** PEI III
- **Natural Grey** PEI III

---

**One finish**

Example below is not to scale but has been enlarged to show detail.

- **Matt**

---

**County** Rustic Taupe
**Cristal** is available in one subtle and versatile size.

**Size**

150 x 150mm

**Thickness**

All tiles in this range are 5.5mm thick.

**N.B**

All Stripe Border and Inset tiles are only available in White in a Gloss finish.

**Availability**

- CRWHIT: White Gloss
- CRWH1B: Grey Stripe Border Gloss
- CRWH1I: Grey Stripe Inset Gloss
- CRWH2B: Beige Stripe Border Gloss
- CRWH2I: Beige Stripe Inset Gloss
- CRWH3B: Blue Stripe Border Gloss
- CRWH3I: Blue Stripe Inset Gloss
- CBWHIT: White Bumpy Gloss
- CBCREM: Cream Bumpy Gloss

**Five colours** offering a neutral and contemporary palette.

**Examples below are not to scale but have been enlarged to show detail:**

**Gloss**

- White
- Cream
- Grey Stripe Border
- Beige Stripe Border
- Blue Stripe Border
- Grey Stripe Inset
- Beige Stripe Inset
- Blue Stripe Inset

**Bumpy Gloss**

- White
- Cream
- Grey Stripe Border
- Beige Stripe Border
- Blue Stripe Border
- Grey Stripe Inset
- Beige Stripe Inset
- Blue Stripe Inset
Drift is available in one subtle and versatile size.

**Size**

300 x 200mm

**Availability**

All sizes
DRIF A Autumn Reeds Matt Structured
DRIF A Spring Frost Matt Structured
DRIF A Summer Shadows Matt Structured

**One finish**

Example below is not to scale but has been enlarged to show detail:

Matt Structured

**Three colours** offering a neutral and contemporary palette.

Spring Frost
Autumn Reeds
Summer Shadows

Drift Spring Frost, Autumn Reeds and Summer Shadows
Formations is available in one subtle and versatile size, with two scored options.

| Size          | 300 x 200mm | 300 x 200mm - Scored One Way | 300 x 200mm - Scored Two Ways |

Availability

*SHLE1A* Shale Matt
*SHLE2A* Shale Scored One Way Matt
*SHLE3A* Shale Scored Two Ways Matt
*DOLO1A* Dolomite Matt
*DOLO2A* Dolomite Scored One Way Matt
*DOLO3A* Dolomite Scored Two Ways Matt

Basalt Scores:

*BSLT1A* Basalt Matt
*BSLT1E* Basalt Scored One Way Matt
*BSLT1F* Basalt Scored Two Ways Matt

One finish

Example below is not to scale but has been enlarged to show detail:

Three colours offering a neutral and contemporary palette.

Shale

Dolomite

Basalt
**Grain** is available in one subtle and versatile size.

### Size

300 x 200mm

### Border

Border size 300 x 58mm

<table>
<thead>
<tr>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>75 x 27mm</td>
<td>27 x 27mm</td>
</tr>
</tbody>
</table>

**GRIN1B**  
(Ash, Driftwood and Mahogany Mix)  
**GRIN2B**  
(Ash, Driftwood and Mahogany Mix)

### Availability

All sizes  
**GRIN1A** Ash Matt  
**GRIN2A** Driftwood Matt  
**GRIN3A** Mahogany Matt

### One finish

Example below is not to scale but has been enlarged to show detail:

---

**Three colours** offering a neutral and contemporary palette.

- Ash
- Driftwood
- Mahogany

Grain Ash, Driftwood and 75 x 17mm Border
**Grasmere** is available in one subtle and versatile size.

**Size**

360 x 275mm

**Availability**

All sizes
- GRA1A Bracken Matt
- GRA2A Slate Matt

**One finish**

Example below is not to scale but has been enlarged to show detail:

**Two colours** offering a neutral and contemporary palette.

![Bracken](image1)

![Slate](image2)
Kerastar is available in four sizes, perfectly designed for seamless installation.

**Size**
- 200 x 200mm
- 300 x 300mm
- 600 x 600mm
- 900 x 450mm

**Thickness**
- 900 x 450mm tiles in this range are 10.2mm thick.
- 600 x 600mm tiles are 10.5mm thick. All other tiles are 8.3mm thick.

**Fitting**
- 300 x 95mm – Step tread
- 300 x 110mm – Cove
- 200 x 110mm – Cove
- 100 x 30mm – Cove internal
- 100 x 30mm – Cove external

**Availability**

<table>
<thead>
<tr>
<th>Size</th>
<th>Code</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 x 200mm</td>
<td>KER505 String Natural</td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>KER506 Clay Natural</td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>KER507 Shadow Natural</td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>KER509 Hail Natural</td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>KER510 Hail Diamond</td>
<td>Diamond</td>
</tr>
<tr>
<td></td>
<td>KER511 Granite Diamond</td>
<td>Diamond</td>
</tr>
<tr>
<td>300 x 300mm</td>
<td>KER501 Chalk Natural</td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>KER502 Linen Natural</td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>KER503 String Natural</td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>KER504 Mud Natural</td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>KER505 Putty Natural</td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>KER506 Clay Natural</td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>KER507 Shadow Natural</td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>KER508 Night Natural</td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>KER509 Hail Natural</td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>KER510 Biscuit Natural</td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>KER511 Cord Natural</td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>KER512 Fawn Natural</td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>KER513 Pursuit Natural</td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>KER514 Night Sky Natural</td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>KER515 Granite Natural</td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>KER516 Night Sky Natural</td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>KER517 Granite Diamond</td>
<td>Diamond</td>
</tr>
<tr>
<td>600 x 600mm</td>
<td>KER503 String Natural</td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>KER504 Clay Natural</td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>KER507 Shadow Natural</td>
<td>Natural</td>
</tr>
<tr>
<td>900 x 450mm</td>
<td>KER505 String Natural</td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>KER506 Clay Natural</td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>KER507 Shadow Natural</td>
<td>Natural</td>
</tr>
</tbody>
</table>

**All skirtings/coves**
- KER501 Chalk Natural
- KER503 String Natural
- KER504 Mud Natural
- KER505 Putty Natural
- KER506 Clay Natural
- KER507 Shadow Natural
- KER508 Night Natural
- KER509 Hail Natural
- KER510 Biscuit Natural
- KER511 Cord Natural
- KER512 Fawn Natural
- KER513 Pursuit Natural
- KER515 Granite Natural
- KER516 Night Sky Natural
- KER517 Granite Diamond

**All fittings**
- KER503 String Natural
- KER506 Clay Natural
- KER507 Shadow Natural

**Examples**
- Natural
- Diamond
- Discface
- Rocktop

Four finishes combine form and function. Examples below are not to scale but have been enlarged to show detail.
16 colours offering a neutral and contemporary palette.

Chalk  Linen  String  Mud
Hail  Biscuit  Cord  Fawn
Putty  Clay  Shadow  Night
Granite  Pumice  Graphite  Night Sky
Lagos is available in one subtle and versatile size.

Size
330 x 330mm

Availability
All sizes
LAGO1F Dark Grey Matt
LAGO2F Black Matt
LAGO3F Light Grey Matt
LAGO4F White Matt
LAGO5F Beige Matt

Thickness
All tiles in this range are 8.5mm thick.

One finish
Example below is not to scale but has been enlarged to show detail:

Matt

Five colours offering a neutral and contemporary palette.

White, PEI IV
Beige, PEI III
Light Grey, PEI II
Dark Grey, PEI I
Black, PEI I

Lagos Black
**Six colours** offering a neutral and contemporary palette.

**Micros** is available in one subtle and versatile size.

**Size**

150 x 150mm

**Availability**

**Gloss**

PRG1 White Gloss
PRG4 Black Gloss
PRG1 Shark Gloss
PRG31 Magnolia Gloss
PRM30 White/Shark Gloss
PRM64 Magnolia/Redwood Gloss

**Thickness**

All tiles in this range are 6.5mm thick.

**One finish**

Example below is not to scale but has been enlarged to show detail.

---

White  
Magnolia  
Shark  
Black  
White/Shark  
Magnolia/Redwood  
Micros Black, Shark and White/Shark
**Polar** is available in **two sizes**, with scored options, perfectly designed for seamless installation.

### Availability

<table>
<thead>
<tr>
<th>Size</th>
<th>200 x 200mm</th>
<th>300 x 200mm - Scored One Way</th>
<th>300 x 200mm - Scored Two Ways</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRG1 White Gloss</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRS12 White Satin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALPN1A White Bumpy Gloss</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Thickness

200 x 200mm tiles in this range are 6.5mm thick.

### Size

- 300 x 200mm
- 300 x 200mm - Scored One Way
- 300 x 200mm - Scored Two Ways

### Four finishes combine form and function.

Examples below are not to scale but have been enlarged to show detail:

- **Gloss**
- **Satin**
- **Bumpy Gloss**
- **Satin Structured**

### One colour

- **White**

---

Polar White and White Scored One Way Gloss
Sanctuary is available in one subtle and versatile size.

**Five colours** offering a neutral and contemporary palette.

Size

300 x 200mm

Availability

All sizes
CTBC1A Bianco Carrara Gloss
MLOCKA Matlock Gloss
HORI01 Horizon Gloss
BATHA Bath Gloss
CTBC1A Bianco Carrara Satin
MLOCS Matlock Satin
BXTONA Buxton Satin
BATHA Bath Satin

Two finishes combine form and function.

Examples below are not to scale but have been enlarged to show detail.
Shimmer is available in two sizes, perfectly designed for easy installation.

Size

![316 x 316mm](image1)

![600 x 200mm](image2)

Availability

<table>
<thead>
<tr>
<th>Size</th>
<th>SHI01F Warm White Satin</th>
<th>SHI02F Platinum Satin</th>
<th>SHI03F Buff Steel Satin</th>
</tr>
</thead>
<tbody>
<tr>
<td>316 x 316mm</td>
<td>SHI01F Warm White Satin</td>
<td>SHI02F Platinum Satin</td>
<td>SHI03F Buff Steel Satin</td>
</tr>
<tr>
<td>600 x 200mm</td>
<td>SHI01A Warm White Satin</td>
<td>SHI02A Platinum Satin</td>
<td>SHI03A Buff Steel Satin</td>
</tr>
</tbody>
</table>

Thickness

All tiles in this range are 9.5mm thick.

One finish

Example below is not to scale but has been enlarged to show detail:

![Satin](image3)

Three colours offering a neutral and contemporary palette.

![Warm White PEI IV](image4)

![Platinum PEI III](image5)

![Buff Steel PEI II](image6)

Shimmer Warm White and Buff Steel.
**Studio** is available in one subtle and versatile size, with one scored option.

**Six colours** offering a neutral and contemporary palette.

**Size**
- 360 x 275mm
- 360 x 275mm - Scored One Way

**Border**
- Border size 360 x 50mm
- 360 x 50mm

**Availability**

<table>
<thead>
<tr>
<th>All sizes</th>
<th>TUND1A Tundra Satin</th>
<th>TUND1S Tundra Gloss</th>
<th>TUND2A Mist Satin</th>
<th>TUND2G Mist Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>STUDIO Sand Gloss</td>
<td>STUDIO Haze Satin</td>
<td>STUDIO Haze Gloss</td>
<td>STUDIO Sand Satin</td>
<td>STUDIO Mist Satin</td>
</tr>
<tr>
<td>STUDIO Sand Gloss</td>
<td>STUDIO Haze Satin</td>
<td>STUDIO Haze Gloss</td>
<td>STUDIO Sand Satin</td>
<td>STUDIO Mist Satin</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>All borders</th>
<th>TUND2A Beige Mix Satin</th>
<th>TUND2G Mist Satin</th>
<th>TUND2E Haze Satin</th>
<th>TUND2E Mist Satin</th>
</tr>
</thead>
<tbody>
<tr>
<td>STUDIO Beige Mix</td>
<td>STUDIO Mist Satin</td>
<td>STUDIO Haze Satin</td>
<td>STUDIO Mist Satin</td>
<td>STUDIO Haze Satin</td>
</tr>
<tr>
<td>STUDIO Beige Mix</td>
<td>STUDIO Mist Satin</td>
<td>STUDIO Haze Satin</td>
<td>STUDIO Mist Satin</td>
<td>STUDIO Haze Satin</td>
</tr>
</tbody>
</table>

**Three finishes** combine form and function.

Examples below are not to scale but have been enlarged to show detail.

- **Gloss**
- **Satin**
- **Satin Structured**

**Examples**
- Tundra
- Haze
- Sand
- Mist
- Beige Mix
- Grey Mix

**Studio Sand and Sand Scored One Way Satin**
Threads is available in one subtle and versatile size.

Size

300 x 200mm

Availability

All sizes
THR01A Cotton Satin
THR02A Taupe Satin
THR03A Flax Satin

One finish

Example below is not to scale but has been enlarged to show detail.

Satin

Three colours offering a neutral and contemporary palette.

Cotton

Taupe

Flax
Tundra is available in one subtle and versatile size.

Size

360 x 275mm

Availability

All sizes

TUND1A  White  Gloss
TUND1A  White  Satin
TUND1A  White  Satin Polygon
DMNS1A  White  Gloss Dimensions
DMNS1A  White  Satin Dimensions

Five finishes combine form and function.

Examples below are not to scale but have been enlarged to show detail.

One colour

White

Gloss

Satin

Satin Polygon

Gloss Dimensions

Satin Dimensions

Tundra White Satin
Urbanique is available in one subtle and versatile size, with one scored option.

**Size**

- 360 x 275mm
- 360 x 275mm - Scored Two Ways

**Availability**

All sizes:
- URBN1A Stone Matt
- URBN1S Stone Scored Two Ways Matt
- URBN2A Honey Matt
- URBN2S Honey Scored Two Ways Matt
- URBN3A Mink Matt
- URBN3S Mink Scored Two Ways Matt

**One finish**

Example below is not to scale but has been enlarged to show detail:

- Matt

**Three colours** offering a neutral and contemporary palette.

- Stone
- Honey
- Mink
Technical

Detailed information on slip resistance, colour notations and CSV, PEI’s, physical properties, installation and leaning and maintenance for all of the tiles illustrated in this brochure.
Slip resistance

HSE slip resistance guidelines

The slip resistance of a floor finish is the most important safety consideration. Effective and suitable slip resistant characteristics will reduce the likelihood of slipping, particularly for older, mobility impaired and visually impaired people.

Slip resistance of a floor depends upon many factors:

- The roughness of the surface.
- Whether it is wet or dry when in use.
- Whether the floor finish is regularly contaminated by liquids or other contaminants.
- The wear characteristics of the floor finish.
- Implementation of a suitable cleaning and maintenance schedule.

In addition to the above there are other factors that can affect the slip resistance and performance characteristics of a floor finish, these include:

- Lighting and glare.
- Humidity.
- Slopes and ramps.
- Visual or acoustic distractions.
- Type of footwear worn.

Where there is a change of floor material or texture there is an increased risk of slipping or tripping due to differences of friction values of the two materials vary greatly. This can be minimised by locating the material or finish change at predictable locations i.e. door or wall openings.

Slip resistant floor finishes are recommended for use in areas where safety is paramount i.e. entrances, ramps, stairs and landings, escape routes, commercial kitchen areas, adjacent to hazardous machinery or activities and areas subject to frequent wetting i.e. shower floors, swimming pool surrounds – this is not an exhaustive list.

Based on recommendations from the HSE, you should use floor finishes that achieve a Pendulum 45 (slider 96) of 36+ for shod foot areas and/or a Pendulum 4S (Slider 55) of 15+ for wet barefoot areas, to achieve a low slip potential environment. We personally suggest using a structured tile with a Pendulum 45 (slider 96) of 40+ for external floor areas and Pendulum TRL (slider 53) of 40+ for wet barefoot areas, as good practice, due to possible slight variation from tile to tile and possible cleaning and maintenance issues.

The table below illustrates how the HSE categorise the results from the Pendulum test for both the 4s (slider 96) and TRL (slider 55).

<table>
<thead>
<tr>
<th>Classification (PTV)</th>
<th>Pendulum Test Value</th>
<th>TRL Test Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>High slip potential</td>
<td>0 - 24</td>
<td></td>
</tr>
<tr>
<td>Moderate slip potential</td>
<td>25 - 35</td>
<td></td>
</tr>
<tr>
<td>Low slip potential</td>
<td>36+</td>
<td></td>
</tr>
</tbody>
</table>

Maintaining slip resistance of floor finishes

The two main factors that affect the ongoing slip resistance performance of a floor finish are wear resistance and surface contamination.

Wear resistance

Of all the floor finishes available to the commercial specifier un-glazed porcelain tile has the greatest slip resistance. Correctly specified and installed un-glazed porcelain tiles would be expected to last the lifetime of the building. The slip resistant characteristics of an un-glazed porcelain tile are maintained with the implementation of a suitable cleaning regime.

Surface contaminants

Areas subject to excessive surface contaminants should incorporate the use of slip resistant floor tiles. The degree of slip resistance changes with the predicted contaminant – for example water as a contaminant has less of an effect on slip resistance than gear oil or margarine. Further details can be found on www.hse.gov.uk.

Falls in floors

Where fluid contamination cannot be avoided HSE guidance recommends that floors be laid to falls so that the majority of the contamination drains away to properly constructed outlets. The use of profiled tiles allows the contaminant to collect in the low areas whilst the high areas remain relatively dry or at least above the surface of the contaminant. The degree of slope of a fall depends upon many factors including – surface contaminant, degree of usage, affected area etc. As an example a minimum fall of 1:50 is recommended in the “Specifiers Handbook for Inclusive Design – Internal Floor Finishes” available from RIBA Bookshops for areas that are frequently or permanently wet.

Floor finishes should also be easy to clean and stain resistant to maintain hygiene.

Pendulum test

The standard and preferred Health and Safety Executive (HSE) test method for the assessment of floor slipperiness in dry and contaminated conditions. This portable test can be used to test flooring products in the laboratory or in-situ and uses a swinging test apparatus which simulates the act of walking over the flooring material.

Pendulum 45 (Slider 96) for Shod Trafficked Areas

The 45 Slider 96 replicates typical shod traffic. Products are tested dry and with a water lubricant and then classified into one of three groups as an indication of their suitability. Products for wet shod trafficked areas should have the highest grade of slip resistance.

Pendulum TRL (Slider 55) for Wet Barefoot Areas

The TRRL Slider 55 replicates wet barefoot trafficking in areas such as wet changing rooms, pool surrounds, showers etc. Products are tested with a water lubricant and then classified into one of three groups as an indication of their suitability. Products for wet barefoot areas should have the highest grade of slip resistance.

Commercial kitchens

Hygiene and slip resistance are extremely important in commercial kitchens. Kitchens are likely to not only receive water contamination but also wet and dry foods and oils and greases from cooking either through spillage or splashing.

Floors for commercial kitchens should provide sufficient surface roughness to create a slip resistant finish. Roughness values of over 20 microns are normally adequate ("Specifiers Handbook for Inclusive Design – Internal Floor Finishes“ available from RIBA Bookshops) for areas that are frequently or permanently wet.

Floor finishes should also be easy to clean and stain resistant to maintain hygiene.

Ramp Tests

The German ramp test is used to generate the DIN 51 130 R ratings and DIN 51 097 ABC ratings used commonly in North America. These tests can only be carried out in a laboratory, so does not allow in-situ testing of materials.

R Ratings (DIN 51 130) – This is a shod foot test which uses oil as a contaminant. These results are interpreted into 5 groups, R9 to R13. R9 being the slipperiest and R13 being the least. Please note: R9 is not suitable for areas requiring slip resistance. The are no such categories as R1 – R8.

ABC Ratings (DIN 51 097) – This is a wet barefoot where a soap solution is applied as a contaminant, the results from this test are placed into three categories.

Clasa A – Dry areas including dry changing areas, dry barefoot corridors.

Clasa B – As A plus pools surrounds, communal showers, pool beach areas, wet change areas.

Clasa C – As A and B plus pool surround inclines, walk through pools, Jacuzzi floors and seats, in lined pool edges and steps.

R and ABC rating have generally been used to assess product suitability in the UK. However this is changing dramatically in accordance with recommendations from the HSE with the preferred test method being the Pendulum test.

Slip Resistance Further Reading

The slip resistance information contained in this brochure is for guidance only and is based on information available at the time of production, project specific requirements should be used and checks made that the requirements at time of specification are incorporated. Further information is available from: www.hse.gov.uk

All of the slip resistance values given in this publication are factory gate values (un-fired product from a typical production run). These slip resistance values can only be maintained in service with the implementation of a suitable cleaning and maintenance regime. In-situ testing of materials is to be used as a guide only. It must be noted that slip resistance values can vary from production batch to production batch in all floor tiles so specific batch testing should be carried out before installation. Johnson Tiles cannot be held liable for any variations in slip resistance performance once product has been fixed.
Technical Colour Reflectance (contrast)
The Equality Act gives guidance on good visual contrast for the visually impaired between various elements of a building by the use of Light Reflectance Values (LRV).

LRV is a general term for contrast and is measured as the proportion of useful light reflected by a coloured object, floor, wall or ceiling. LRV is measured on a scale of 0 to 100 where 0 is perfect black and 100 perfect white (in reality 0 and 100 are unobtainable colours). According to NCS Colour Centre in practical terms black is approx 6 and white approx 85.

The current guidelines from Building Regulations Approved Document M on contrast are that a minimum difference of 30 LRV points should be specified for adjacent surfaces to ensure that visually impaired people are not discriminated against. In specific example of ceramic tiles this difference should be between:

- Floors to walls
- Ceiling to walls
- Handrails to walls
- Sanitary fittings to walls

Visual contrast between floors and walls is important in enabling visually impaired people to assess and gauge the size and shape of a room. It is important the greatest visual contrast occurs where the floor meets the wall (skirting) as this gives the most accurate visual indication of the extent of the room. Where provided, skirtings should contrast visually with the floor and be similar in colour and tone to wall surface.

This information is not exhaustive and the requirements at the time of specification must be checked.

BS8300:2001 Amendment 1 indicates that there is anecdotal evidence to suggest that a 20 point LRV difference may be sufficient – especially where large adjacent areas are involved.

It must be noted that the guidance on LRV values given in this brochure is correct at the time of print.

This is a subject that may be reviewed by the regulatory body at any time so it is advisable to check the guidelines at the time of specification of product.

**Colour shade variation (CSV)**

Due to the manufacturing process of all floor tiles there may be small variations in slip resistance. Given this, we suggest you refer to our website or call our technical helpline for the most up-to-date information.

### Range | Colour | Finish | Pendulum 45 | R value | Wet ramp
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>City Touchstone</td>
<td>All colours</td>
<td>Matt</td>
<td>36+ 25 - 35</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>County</td>
<td>All colours</td>
<td>Matt</td>
<td>36+ 25 - 35</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Kerastar</td>
<td>All colours</td>
<td>Natural</td>
<td>36+ 36+</td>
<td>R9</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Diamond</td>
<td>36+ 36+</td>
<td>R12</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Discface</td>
<td>36+ 36+</td>
<td>R11</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rocktop</td>
<td>36+ 36+</td>
<td>R12</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Lagos</td>
<td>All colours</td>
<td>Matt</td>
<td>36+ 0 - 24</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Shimmer</td>
<td>IF</td>
<td>Satin</td>
<td>36+ 0 - 24</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>All other colours</td>
<td>Satin</td>
<td>36+ 25 - 35</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Colour notations and CSV

**Colour Reflectance (contrast)**

The Equality Act gives guidance on good visual contrast for the visually impaired between various elements of a building by the use of Light Reflectance Values (LRV).

LRV is a general term for contrast and is measured as the proportion of useful light reflected by a coloured object, floor, wall or ceiling. LRV is measured on a scale of 0 to 100 where 0 is perfect black and 100 perfect white (in reality 0 and 100 are unobtainable colours). According to NCS Colour Centre in practical terms black is approx 6 and white approx 85.

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**Colour shade variation (CSV)**

Due to the manufacturing process of all floor tiles there may be small variations in slip resistance. Given this, we suggest you refer to our website or call our technical helpline for the most up-to-date information.

![CSV](image1)

### Range | Colour | Finish | Pendulum 45 | R value | Wet ramp
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>City Touchstone</td>
<td>All colours</td>
<td>Matt</td>
<td>36+ 25 - 35</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>County</td>
<td>All colours</td>
<td>Matt</td>
<td>36+ 25 - 35</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Kerastar</td>
<td>All colours</td>
<td>Natural</td>
<td>36+ 36+</td>
<td>R9</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Diamond</td>
<td>36+ 36+</td>
<td>R12</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Discface</td>
<td>36+ 36+</td>
<td>R11</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rocktop</td>
<td>36+ 36+</td>
<td>R12</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Lagos</td>
<td>All colours</td>
<td>Matt</td>
<td>36+ 0 - 24</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Shimmer</td>
<td>IF</td>
<td>Satin</td>
<td>36+ 0 - 24</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>All other colours</td>
<td>Satin</td>
<td>36+ 25 - 35</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Slip resistance ratings**

Due to the manufacturing process of all floor tiles there may be small variations in slip resistance. Given this, we suggest you refer to our website or call our technical helpline for the most up-to-date information.

![Slip Resistance](image2)
# Colour notations values

<table>
<thead>
<tr>
<th>Range</th>
<th>Code</th>
<th>Colour</th>
<th>NCS</th>
<th>LRV</th>
<th>CSV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bevel Brick</td>
<td>BBR1A</td>
<td>Black</td>
<td>9000-N</td>
<td>4</td>
<td>V1</td>
</tr>
<tr>
<td></td>
<td>BBR2A</td>
<td>Cream</td>
<td>1505-Y40R</td>
<td>62</td>
<td>V1</td>
</tr>
<tr>
<td></td>
<td>BBR4A</td>
<td>Red</td>
<td>1580-Y90</td>
<td>14</td>
<td>V1</td>
</tr>
<tr>
<td></td>
<td>BBR8A</td>
<td>Stone</td>
<td>1002-Y50R</td>
<td>73</td>
<td>V1</td>
</tr>
</tbody>
</table>

| Borders             |          | Due to the colour variance of these tiles, an accurate Light Reflectance Value and colour notation cannot be accurately calculated. For further information, please contact our technical helpline. | V4  |

| City Touchstone     | CTD0A/6F | Blackrock    | 8000-N | 8 | V2  |
|                     | CTD0A3F  | Greystone    | 3502-Y | 38 | V2  |
|                     | CTD0A4F  | Natural Slate| 6005-Y20R | 18 | V2  |
|                     | CTD0A3F  | Sand Dune    | 3010-Y30R | 41 | V2  |
|                     | CTD2A2F  | Soft Pebble  | 2005-Y40R | 54 | V2  |
|                     | CTD1A/F  | Stone White  | 1502-Y | 64 | V2  |
|                     | CTD1L2L  |               | 6500-N | 16 | V2  |

| Country Stones      | COS02A   | Barley Cream | 2005-Y40R | 54 | V2  |
|                     | COS01A   | Clay Brown   | 5010-Y10R | 24 | V2  |
|                     | COS04A   | DoveTail     | 2005-Y50R | 53 | V2  |
|                     | COS05A   | Hearth Grey  | 4005-Y50R | 31 | V2  |
|                     | COS07A   | Midnight     | 8000-N | 8 | V2  |
|                     | COS03A   | Millstone White | 1505-Y50R | 62 | V2  |
|                     | COS06A   | Summer Storm | 6500-N | 16 | V2  |

| County              | CNY02A/2F | Classic White | 1505-Y70R | 62 | V2  |
|                     | CNY03A/3F | Natural Grey | 2005-Y80R | 53 | V2  |
|                     | CNY1A/I/F | Old Stone    | 2005-Y60R | 54 | V2  |
|                     | CNY04A/4F | Rustic Taupe | 3005-Y50R | 40 | V2  |

| Cristal             | CBCREM    | Bumpy Cream  | 1005-Y20R | 71 | V1  |
|                     | CBWHIT    | Bumpy White  | 0500-N | 86 | V1  |
|                     | CBWHI    | White        | 0500-N | 86 | V1  |
|                     | CBWHI/1/2/1/2/3/3/A | Accurate colour notations are unavailable. | V4  |

| Drift               | BSL1A/1/E/1F | Basalt | 6502-R | 15 | V2  |
|                     | DOLO1A/1/E/1F | Dolomite | 1510-Y60R | 61 | V2  |
|                     | SHEL1A/1/E/1F | Shale | 1002-Y50R | 71 | V2  |

| Grain               | GRN1A     | Ash         | 1505-Y70R | 62 | V3  |
|                     | GRN2A     | Driftwood   | 4005-Y50R | 31 | V3  |
|                     | GRN3A     | Mahogany    | 7005-Y50R | 12 | V3  |

| Grain               |          | Due to the colour variance of these tiles, an accurate Light Reflectance Value and colour notation cannot be accurately calculated. For further information, please contact our technical helpline. | V4  |

| Kerastar            | KERS10   | Biscuit     | 2005-Y40R | 54 | V1  |
|                     | KERS11   | Chalk       | 1505-G90Y | 64 | V1  |
|                     | KERS12   | Clay        | 5502-R | 21 | V1  |
|                     | KERS11   | Cord        | 3010-Y20R | 40 | V1  |
|                     | KERS12   | Fawn        | 5005-Y50R | 24 | V1  |
|                     | KERS1F   | Granite     | 4005-Y20R | 32 | V1  |
|                     | KERS1S   | Graphite    | 7000-N | 13 | V1  |
|                     | KERS09   | Hail        | 3005-Y20R | 42 | V1  |
|                     | KERS05   | Linen       | 2005-Y50R | 55 | V1  |
|                     | KERS04   | Mud         | 5005-Y80R | 24 | V1  |
|                     | KERS08   | Night       | 8000-N | 8 | V1  |
|                     | KERS16   | Night Sky   | 8000-N | 8 | V1  |
|                     | KERS14   | Pumice      | 3502-Y | 38 | V1  |
|                     | KERS05   | Putty       | 4502-Y | 29 | V1  |
|                     | KERS07   | Shadow      | 7005-R50B | 12 | V1  |
|                     | KERS03   | String      | 2005-Y40R | 54 | V1  |

| Kerastar            |          | Due to the colour variance of these tiles, an accurate Light Reflectance Value and colour notation cannot be accurately calculated. For further information, please contact our technical helpline. | V4  |

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**Note:** These results are from Johnson Tiles’ internal test reports and are to be used for guidance only. LRV: Light Reflectance Value (Reflectance Y).
Technical

PEI test results

Abrasion resistance of glazed floor tiles (PEI)
This approximate classification is given for guidance only. It should not be taken to provide accurate product specifications for specific requirements.

PEI I
Floor coverings in areas that are walked on essentially with soft soled footwear or bare feet without scratching dirt (e.g. residential bathrooms or bedrooms without direct access from the outside).

PEI II
Floor coverings in areas that are walked on by soft soled or normal footwear with, at most, the occasional small amounts of scratching dirt (e.g. rooms in living areas of homes but with the exception of kitchens, entrances and other rooms which may have a lot of traffic). This does not apply to abnormal footwear; for example hobnailed boots.

PEI III
Floor coverings in areas that, with normal footwear, are walked on more often with small amounts of scratching dirt (e.g. residential kitchens, halls and corridors). This does not apply to abnormal footwear, for example hobnailed boots.

PEI IV
Floor coverings that are walked on by regular traffic with some scratching dirt so that the conditions are more severe than Class III (e.g. conservatories).

PEI V
Floor coverings that are subject to severe pedestrian traffic over sustained periods with some scratching dirt, so that the conditions are the most severe for which glazed floor tiles may be suitable (e.g. public areas such as restaurant floors, office internal walkways and reception areas).

This classification is valid for the given applications in normal conditions. Consideration should be given to footwear, type of traffic and cleaning methods expected and the floors should be adequately protected against scratching dirt at the entrance to the buildings by interposing footwear cleaning devices.

PEI test values

<table>
<thead>
<tr>
<th>Range</th>
<th>Code</th>
<th>Colour</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>City Touchstone</td>
<td>CTO1</td>
<td>Stone White</td>
<td>IV</td>
</tr>
<tr>
<td>City Touchstone</td>
<td>CTO2</td>
<td>Soft Pebble</td>
<td>III</td>
</tr>
<tr>
<td>City Touchstone</td>
<td>CTO3</td>
<td>Sand Dune</td>
<td>III</td>
</tr>
<tr>
<td>City Touchstone</td>
<td>CTO4</td>
<td>Natural Slate</td>
<td>II</td>
</tr>
<tr>
<td>City Touchstone</td>
<td>CTO5</td>
<td>Greystone</td>
<td>II</td>
</tr>
<tr>
<td>City Touchstone</td>
<td>CTO6</td>
<td>Blackrock</td>
<td>I</td>
</tr>
<tr>
<td>County</td>
<td>CNY01</td>
<td>Old Stone</td>
<td>III</td>
</tr>
<tr>
<td>County</td>
<td>CNY02</td>
<td>Classic White</td>
<td>III</td>
</tr>
<tr>
<td>County</td>
<td>CNY03</td>
<td>Natural Grey</td>
<td>III</td>
</tr>
<tr>
<td>County</td>
<td>CNY04</td>
<td>Rustic Taupe</td>
<td>III</td>
</tr>
<tr>
<td>Lagos</td>
<td>LAGO1</td>
<td>Dark Grey</td>
<td>I</td>
</tr>
<tr>
<td>Lagos</td>
<td>LAGO2</td>
<td>Black</td>
<td>I</td>
</tr>
<tr>
<td>Lagos</td>
<td>LAGO3</td>
<td>Light Grey</td>
<td>II</td>
</tr>
<tr>
<td>Lagos</td>
<td>LAGO4</td>
<td>White</td>
<td>IV</td>
</tr>
<tr>
<td>Lagos</td>
<td>LAGO5</td>
<td>Beige</td>
<td>III</td>
</tr>
<tr>
<td>Shimmer</td>
<td>SH01</td>
<td>Warm White</td>
<td>IV</td>
</tr>
<tr>
<td>Shimmer</td>
<td>SH02</td>
<td>Platinum</td>
<td>II</td>
</tr>
<tr>
<td>Shimmer</td>
<td>SH03</td>
<td>Buff Steel</td>
<td>II</td>
</tr>
</tbody>
</table>

Note: These results are from Johnson Tiles’ internal test reports and are to be used for guidance only.

Physical properties

Ceramic tile

<table>
<thead>
<tr>
<th>Test</th>
<th>Standard</th>
<th>Requirement</th>
<th>Typical test value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length/width</td>
<td>EN ISO 10545-2</td>
<td>±0.5% ± 2mm</td>
<td>Pass</td>
</tr>
<tr>
<td>Straightness of side</td>
<td>EN ISO 10545-2</td>
<td>±0.3% ± 1.5mm</td>
<td>Pass</td>
</tr>
<tr>
<td>Water absorption</td>
<td>EN ISO 10545-3</td>
<td>10% to 20%</td>
<td>Pass</td>
</tr>
<tr>
<td>Modulus of rupture</td>
<td>EN ISO 10545-4</td>
<td>Min 50N/mm²</td>
<td>Pass</td>
</tr>
<tr>
<td>Frost resistance</td>
<td>EN ISO 10545-12</td>
<td>Resistant</td>
<td>Resistant</td>
</tr>
<tr>
<td>Stain resistance</td>
<td>EN ISO 10545-14</td>
<td>Min Class 3</td>
<td>Pass</td>
</tr>
</tbody>
</table>

Vitrified tile

<table>
<thead>
<tr>
<th>Test</th>
<th>Standard</th>
<th>Requirement</th>
<th>Typical test value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length/width</td>
<td>EN ISO 10545-2</td>
<td>±0.6% ± 2mm</td>
<td>Pass</td>
</tr>
<tr>
<td>Straightness of side</td>
<td>EN ISO 10545-2</td>
<td>±0.5% ± 1.5mm</td>
<td>Pass</td>
</tr>
<tr>
<td>Water absorption</td>
<td>EN ISO 10545-3</td>
<td>3% to 6%</td>
<td>Pass</td>
</tr>
<tr>
<td>Modulus of rupture</td>
<td>EN ISO 10545-4</td>
<td>Min 22N/mm²</td>
<td>Not suitable for installations where temperatures may fall below freezing.</td>
</tr>
<tr>
<td>Frost resistance</td>
<td>EN ISO 10545-12</td>
<td>Resistant</td>
<td>Resistant</td>
</tr>
<tr>
<td>Stain resistance</td>
<td>EN ISO 10545-14</td>
<td>Min Class 3</td>
<td>Pass</td>
</tr>
</tbody>
</table>

Porcelain tile

<table>
<thead>
<tr>
<th>Test</th>
<th>Standard</th>
<th>Requirement</th>
<th>Typical test value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length/width</td>
<td>EN ISO 10545-2</td>
<td>±0.6% ± 2mm</td>
<td>Pass</td>
</tr>
<tr>
<td>Straightness of side</td>
<td>EN ISO 10545-2</td>
<td>±0.5% ± 1.5mm</td>
<td>Pass</td>
</tr>
<tr>
<td>Water absorption</td>
<td>EN ISO 10545-3</td>
<td>≤ 0.5%</td>
<td>Pass</td>
</tr>
<tr>
<td>Modulus of rupture</td>
<td>EN ISO 10545-4</td>
<td>Min 35N/mm²</td>
<td>Pass</td>
</tr>
<tr>
<td>Frost resistance</td>
<td>EN ISO 10545-12</td>
<td>Resistant</td>
<td>Resistant</td>
</tr>
<tr>
<td>Stain resistance</td>
<td>EN ISO 10545-14</td>
<td>Min Class 3</td>
<td>Pass</td>
</tr>
</tbody>
</table>
Codes of Practice
All fixing of floor and cladding tiles should be in accordance with the following codes of practice guidelines:
BS 5385 Part 1 – 1995 (Code of practice for the design and installation of internal wall tiling and mosaics, in important new constructions)
BS 5385 Part 2 – 2006 (Code of practice for the design and installation of external ceramic wall, tiling and mosaics)
BS 5385 Part 3 – 1999 (Code of practice for the design and installation of ceramic floor tiles and mosaics)
BS 5385 Part 4 – 1992 (Code of practice for ceramic tiling and mosaic in specific conditions)

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 (Randox, 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 viewed from above 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 ascertain 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
- Wall/tile 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. epoxy polyurethane – 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 C2*. Particular adhesive choice will be governed by the substrate.

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

For general floor tiling grouts should be class C2G i.e. Johnson Professional Wide Joint Flexible Grout.

For floors subject to frequent wetting i.e. showers and pool halls should be class CG2 for hard water areas or RG1 for soft water areas i.e. Johnson Professional Wide Joint Flexible Grout (CG2), Easy Clean Epoxy (RG1).

Where hygiene is important i.e. commercial, kitchens and hospital should be class RG1 i.e. Johnson Professional Easy Clean Epoxy.

For specific adhesive or grout advice please contact Johnson Professional helpline 0870 609 2851.

Fixing Tiles
All floor 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.

Cleaning and maintenance

Wall tiles
Builders Clean
This should be undertaken prior to wall being brought into service. The builders clean removes cement and residual film left over from grouting process and is a one-off cleaning process. It is important that this is carried out professionally and thoroughly as any grout residues left behind will act as a key for dirt.

Cementitious Grouts
The use of a mild acid decementing solution followed by thorough rinsing will remove all but the most stubborn of cement residues.

Epoxy Grouts
Glazed wall tiles can be wiped with warm water to which a neutral or nearly neutral detergent has been added.

Periodic Deep Cleaning
Occasionally foreign matter may cause surface marks on tiles. If the surface mark cannot be removed with the normal cleaning procedures detailed above, other cleaning materials should be considered. It is advisable to try a small inconspicuous area first.

Paint Paint remover
Organic stains Bleach or a one-off treatment with washing soda
Rust Muriatic cleaner
Rubber Abrasive powder or liquid but not on glazed tiles
Oil, fat, grease Detergent or degreasers
Mould growth Household bleach or proprietary cleaner
Tea, coffee, ink Household bleach or proprietary cleaner

Abrasive powders or cleaners should never be used on ceramic tiles.

Floor tiles
Builders Clean
This should be undertaken prior to floor being used. The builders clean removes cement and residual film left over from the grouting process and is a one-off cleaning process. It is important that this is carried out professionally and thoroughly as any grout residues left behind will act as a key for dirt.

Cementitious Grouts
The use of a mild acid decementing solution followed by thorough rinsing will remove all but the most stubborn of cement residues.

Epoxy Grouts
In normal conditions ceramic tiles require little maintenance. Un-glazed porcelain floor tiles can be maintained by sweeping and cleaning with warm water to which a neutral or nearly neutral detergent has been added. The cleaning solution should be allowed to remain on the floor for 5 to 15 minutes to allow it to penetrate and emulsify the dirt, after which it should be removed by rinsing thoroughly with clean water. It is the rinsing process which removes the dirt so the use of clean water is essential.

Mechanical Floor Cleaning
When cleaning large floor areas or areas of textured floor tiles mechanical scrubbing machines can be used – although they should not be used at over 450rpm. Rotary scrubbing machines fall into 3 categories, Rotary Action, Contra–Rotating and Cylindrical, and choice of brush is important on all three. Union brushes are suitable for light washing and scrubbing whereas Polypropylene brushes are more suitable when dirt deposits are especially heavy. The cleaning solution should be allowed to remain in contact with the dirt for 5 to 15 minutes after which a secondary scrubbing action and clean mop or suction should be undertaken to remove the dirt and solution.

High Pressure Floor Cleaning
This is not often required with modern porcelain floor tiles. While the process will not damage the tiles, care must be taken to avoid erosion of the grouting medium. It is important to ensure that the water beam is not allowed to concentrate on the joints but is moved side to side in a continuous flowing movement avoiding joints wherever possible. Water containing abrasives or steam cleaners must NEVER be used on any ceramic tiles.

Organic stains
Bleach or a one-off treatment with washing soda
Rust Muriatic cleaner
Rubber Abrasive powder or liquid but not on glazed tiles
Oil, fat, grease Detergent or degreasers
Mould growth Household bleach or proprietary cleaner
Tea, coffee, ink Household bleach or proprietary cleaner

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Tea, coffee, ink Household bleach or proprietary cleaner

For more information please call the Johnson Technical helpline on +44 (0)1782 541111 or email technical@johnson-tiles.com.
Important information

During the manufacture of all ceramic, vitrified and porcelain tiles, some variation in shade or pattern can occur. Before fixing tiles, several cartons should be opened, and the contents mixed, to ensure that the size, shade, colour and patterning are acceptable. The tiles illustrated in this brochure are quality products and conform to the physical properties listed above.

- For specific suitability and fit-for-purpose details, contact the technical helpline.
- Johnson Tiles cannot accept responsibility for any tiles that have been fixed.
- Every effort has been made to ensure the accuracy of the information given in this brochure.
- In the interest of progress, Johnson Tiles reserves the right to change specifications and availability without prior notice.
- Nothing in these statements does, or will affect the statutory rights of the consumer.

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Intro Collection index

<table>
<thead>
<tr>
<th>Product ranges</th>
<th>Page No.</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>04 - 05</td>
<td></td>
<td>Bevel Brick</td>
</tr>
<tr>
<td>06 - 07</td>
<td></td>
<td>Borders</td>
</tr>
<tr>
<td>08 - 09</td>
<td></td>
<td>City Touchstone</td>
</tr>
<tr>
<td>10 - 11</td>
<td></td>
<td>Country Stones</td>
</tr>
<tr>
<td>12 - 13</td>
<td></td>
<td>County</td>
</tr>
<tr>
<td>14 - 15</td>
<td></td>
<td>Cristal</td>
</tr>
<tr>
<td>16 - 17</td>
<td></td>
<td>Drift</td>
</tr>
<tr>
<td>18 - 19</td>
<td></td>
<td>Formations</td>
</tr>
<tr>
<td>20 - 21</td>
<td></td>
<td>Grain</td>
</tr>
<tr>
<td>22 - 23</td>
<td></td>
<td>Grasmere</td>
</tr>
<tr>
<td>24 - 27</td>
<td></td>
<td>Kerastar</td>
</tr>
<tr>
<td>28 - 29</td>
<td></td>
<td>Lagos</td>
</tr>
<tr>
<td>30 - 31</td>
<td></td>
<td>Micros</td>
</tr>
<tr>
<td>32 - 33</td>
<td></td>
<td>Polar</td>
</tr>
<tr>
<td>34 - 35</td>
<td></td>
<td>Sanctuary</td>
</tr>
<tr>
<td>36 - 37</td>
<td></td>
<td>Shimmer</td>
</tr>
<tr>
<td>38 - 39</td>
<td></td>
<td>Studio</td>
</tr>
<tr>
<td>40 - 41</td>
<td></td>
<td>Threads</td>
</tr>
<tr>
<td>42 - 43</td>
<td></td>
<td>Tundra</td>
</tr>
<tr>
<td>44 - 45</td>
<td></td>
<td>Mélange</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technical</th>
<th>Page No.</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>48 - 49</td>
<td></td>
<td>Slip resistance</td>
</tr>
<tr>
<td>50</td>
<td></td>
<td>Slip resistance ratings</td>
</tr>
<tr>
<td>51</td>
<td></td>
<td>Colour notations and CSV</td>
</tr>
<tr>
<td>52 - 53</td>
<td></td>
<td>Colour notations values</td>
</tr>
<tr>
<td>54</td>
<td></td>
<td>PSE test results</td>
</tr>
<tr>
<td>55</td>
<td></td>
<td>Physical properties</td>
</tr>
<tr>
<td>56</td>
<td></td>
<td>Installation advice</td>
</tr>
<tr>
<td>57</td>
<td></td>
<td>Cleaning and maintenance</td>
</tr>
</tbody>
</table>
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