

GRAND  
LEGACY OF  
**65**  
YEARS

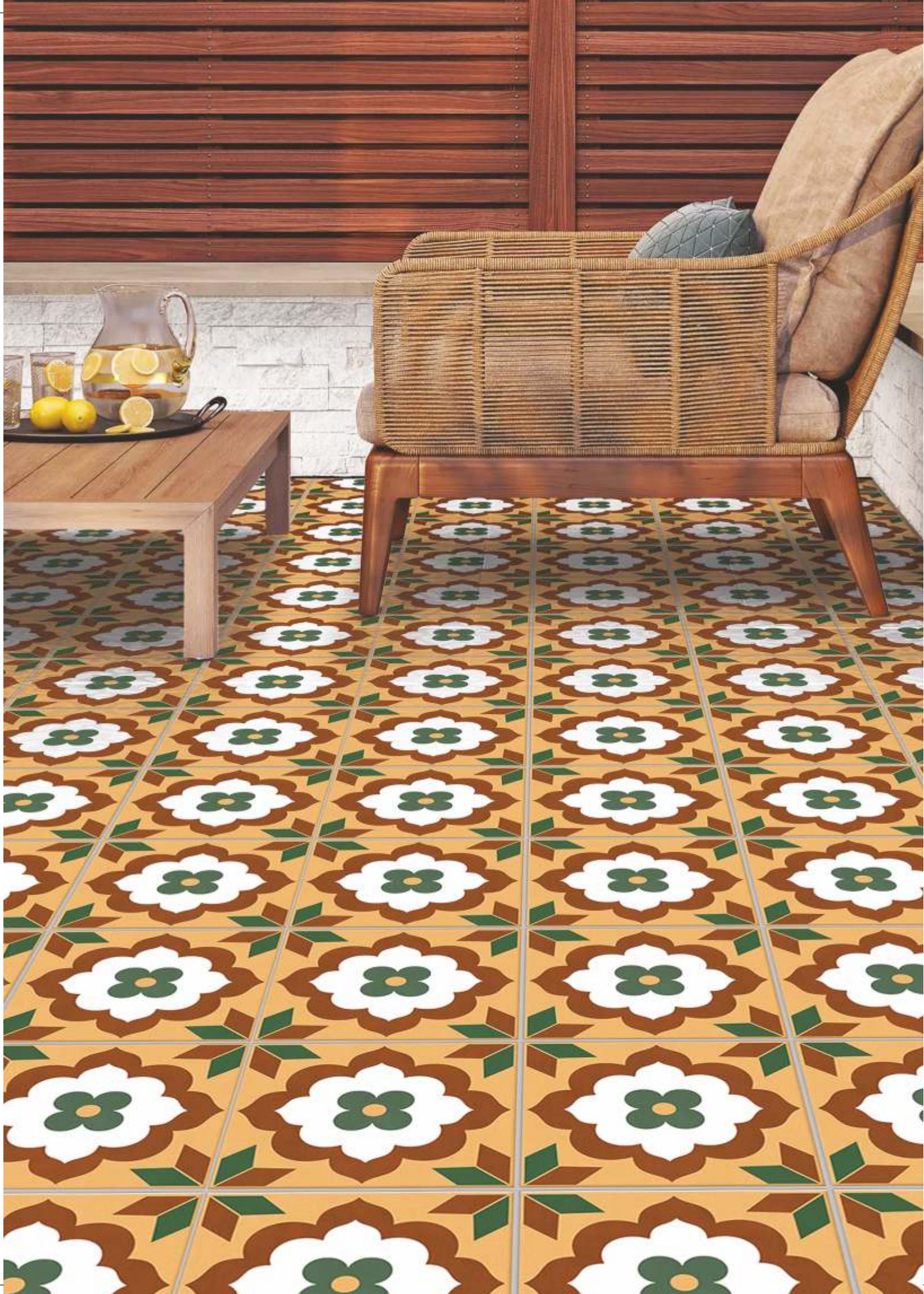
 **JOHNSON**<sup>®</sup>  
**E N D U R A**  
INDUSTRIAL TILING SOLUTIONS

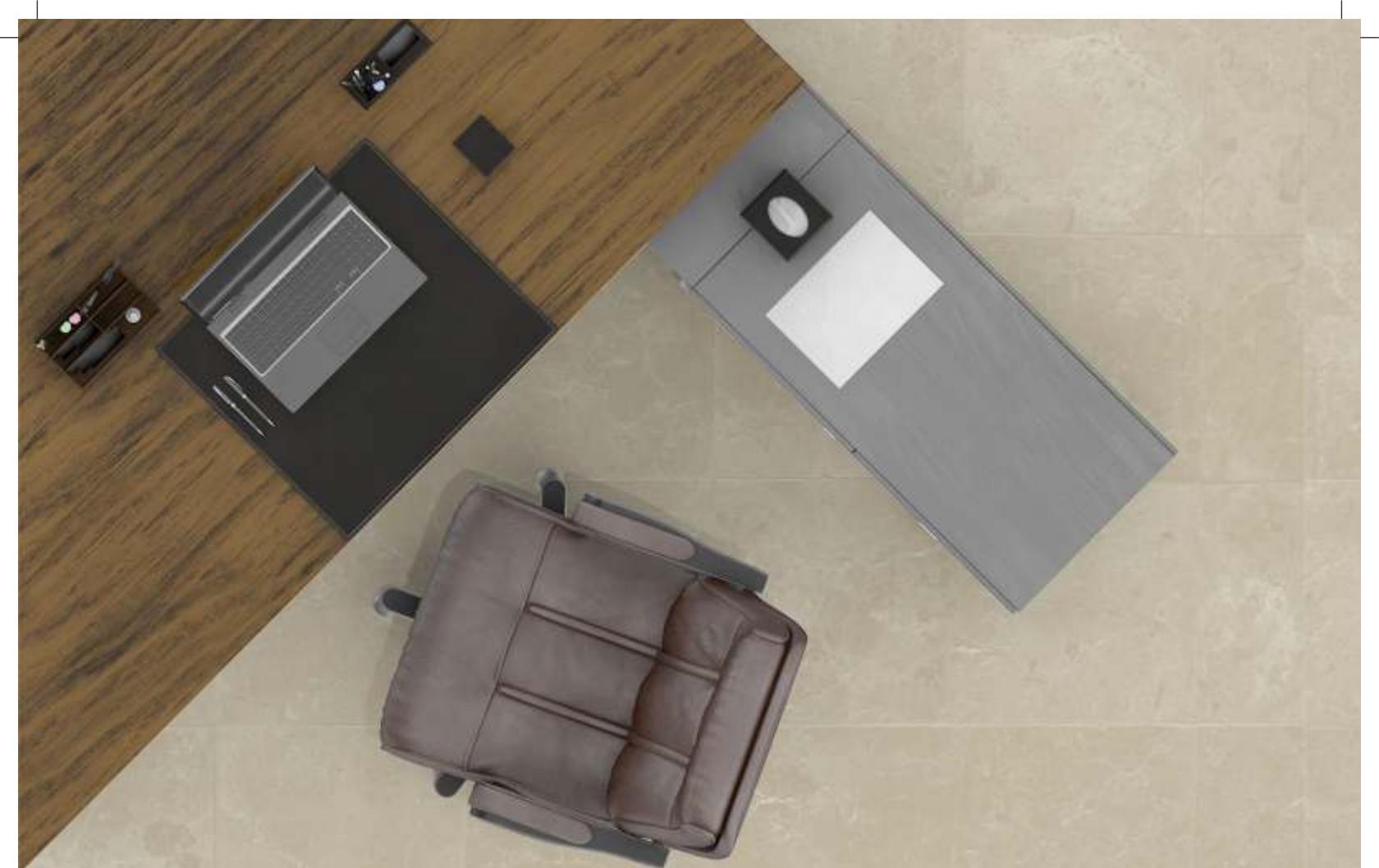
**FUNCTIONAL & SPECIALITY**

# JOHNSON









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FUTURE  
CON

## 20X20 Vitrified Paving Tiles

The outdoor area of your house tells a lot about your stature. In fact, it creates the first impression that further complements your elegant interiors. Now beautify your outdoor areas with Johnson Endura Pavers, a collection of 20X20 cm fully vitrified paving tiles. With its unique small size and palette of 4 lively colours Endura Pavers enable you to create the mix and match combinations of your choice. The tiles are virtually maintenance free owing to their ability to resist impacts, scratches, stains, chemicals and frost. Its incredible strength and textured, anti-skid surfaces make it a perfect choice for sloping ramps, entrance lobbies, pathways, patios, parking areas, swimming pool decks and garden pathways. Easy to install, Johnson Endura Pavers are an ideal solution for renovation as they can be installed over existing concrete. An amazing melange of elegance, strength and practicality, Johnson Endura Pavers are designed to give new lease of life to your outdoor areas.



# PAVERS SERIES

20X20 cm | 1 CM THICK

## HI-TRAFFIC



Salt n Pepper   
Black



Salt n Pepper   
Grey



Salt n Pepper   
Terracotta



Salt n Pepper   
White



# COLOUR SERIES

30X30 cm | 1 CM THICK

## HI-TRAFFIC



Coated Black D



Coated Grey Plus D/K



Grainflow Light D



Green D/K



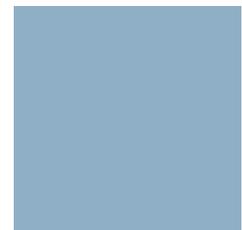
Green Coated K



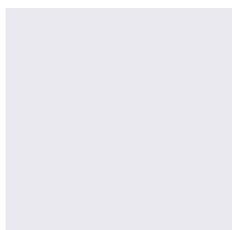
Red D



Super Ivory D



Tata Blue D/K



White Plus D/K



Yellow D/K



# ENDURA

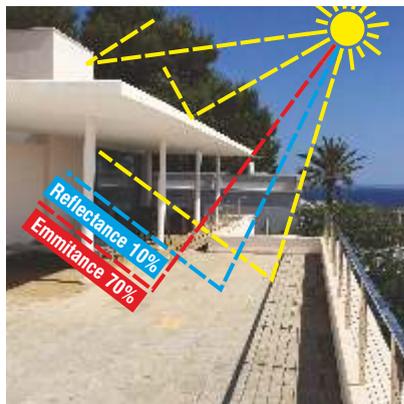
## COOL ROOF

### SRI TILES

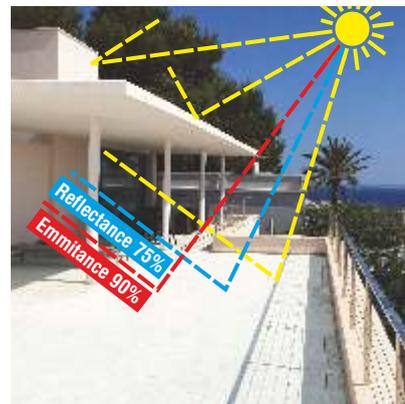
Summers! They have a knack of bringing out the worst in us, Especially Indian summers. The sun shines with a vengeance and let's rip its heat upon us. What if we told you that you can now beat the heat inside your home? That your surface temperature could be cooler upto 15° C without increasing load on your cooling appliances? Sounds unbelievable? Understandably, so presenting Endura Cool Roof SRI tiles. A range of unique tiles that, keep the harsh rays of the sun off your building and bounce them back into the atmosphere. The upshot of an ingenious Glazing Process, these tiles help to keep the room temperatures cool naturally and therefore helps reduce load on external cooling appliances like your air-conditioner or cooler. Now, experience the cool and ambient temperature in your house. This may also help you to reduce electricity consumption, while you sit cosily and relax within the cool comforts of your home. Lay them out on your terrace, your balcony or exterior walls directly exposed to sunlight and they will continue to perform for years to come.

## What is SRI?

- Solar Reflectance Index (SRI) measures the surface's ability to reflect solar heat and emit infra-red heat.
- Endura Cool Roof SRI tiles reflect solar heat and emit absorbed radiation back into the atmosphere thus help keep the interiors of the building cooler.
- The U. S. Green Building Council's LEED 2.2 uses SRI as a way to evaluate the surface's capacity to reflect solar heat. The roof of the building need to have a minimum SRI value of > 78 to qualify for LEED accreditation.
- Endura Cool Roof SRI Tiles have SRI value >90 (White Colour).
- Endura Cool Roof SRI Tiles on the roof and facades of the building can reduce surface temperature upto 15° celsius.
- The effectiveness & reduction in surface temperature after installation of Johnson Endura Cool Roof tiles may vary from place to place depending on exposed ambient temperature & changing climatic conditions.



Ordinary Roof

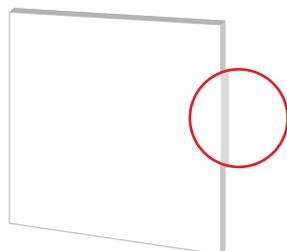


Roof having Endura Cool Roof SRI

## The Revolutionary Technology

With Endura we have devised a special process of glazing that makes the tiles reflect most of the solar heat. The special glaze is composed of Alumina silicate fine particles embedded with nano particles of zirconium silicate and zinc oxide admixtures, fired at a very high temperature. The result is tile surface having a Solar Reflectance Index (SRI) value above 90 (White Colour).

## Endura Cool Roof Tile Size & Thickness



Available in  
0.8 cm, 1 cm & 2 cm thickness

Sizes to be mention  
30 x 30 - 0.8 cm  
30 x 30 - 1 cm  
30 x 30 - 2 cm



White

Endura Cool Roof SRI tiles are offered in satin matte finish that provides anti-skid surface making them safe and practical for terraces, roofs, pavements etc. They come in a convenient size of 30 X 30 cm and thicknesses of 0.8cm, 1cm and 2cm.\*

\* 2cm thickness are available on made-to-order basis only.

### Benefits of Endura Cool Roof SRI:

- Reduce surface temperature upto 15° celsius.
- Improve indoor comfort.
- Reduce cooling requirement and save electricity.
- Reduce conduction of heat into the building.
- Reduce the "heat island effect" in cities.
- Reduction in global warming and saving of ozone layer.
- Endura Cool Roof SRI Tiles is a sensible choice for the buildings - saving electricity and saving the environment.

### Application Areas:

- Building roofs
- Balconies
- Exterior facades cladding
- Pavements



## Test Report For Endura Cool Roof SRI



**BUILDING ENERGY PERFORMANCE LABORATORY**

Test Report for Solar Reflectance Index (SRI)



T-2169

Report No: BEPLRPT/SRI/126

Report Date: 27<sup>th</sup> March 2014

### 3. Results of the measurement:

#### Solar Direct Reflectance

Sample name	Sample ID	Measurement 1	Measurement 2	Measurement 3	Average
Endura White (D)	SRI/03/14/1127	0.7397	0.7380	0.7394	0.7390

#### Emissivity

Sample name	Sample ID	Measurement 1	Measurement 2	Measurement 3	Average
Endura White (D)	SRI/03/14/1127	0.896	0.896	0.896	0.896

#### Solar Reflectance Index (SRI) under different wind conditions

Sample name	Sample ID	Solar Reflectance Index (SRI)		
		Low Wind( $h_w=5 \text{ W m}^{-2} \text{ K}^{-1}$ )	Medium Wind( $h_w=12 \text{ W m}^{-2} \text{ K}^{-1}$ )	High Wind( $h_w=30 \text{ W m}^{-2} \text{ K}^{-1}$ )
Endura White (D)	SRI/03/14/1127	91	91	92

#### Surface Temperature ( $T_s$ ) under different wind conditions

Sample name	Sample ID	Surface Temperature ( $^{\circ}\text{C}$ )		
		Low Wind( $h_w=5 \text{ W m}^{-2} \text{ K}^{-1}$ )	Medium Wind( $h_w=12 \text{ W m}^{-2} \text{ K}^{-1}$ )	High Wind( $h_w=30 \text{ W m}^{-2} \text{ K}^{-1}$ )
Endura White (D)	SRI/03/14/1127	54.4	47.9	42.5

### 4. Certificate of Accuracy:

This is to certify that the test results herein presented are, to the best of my knowledge, true and accurate representations of the samples submitted.

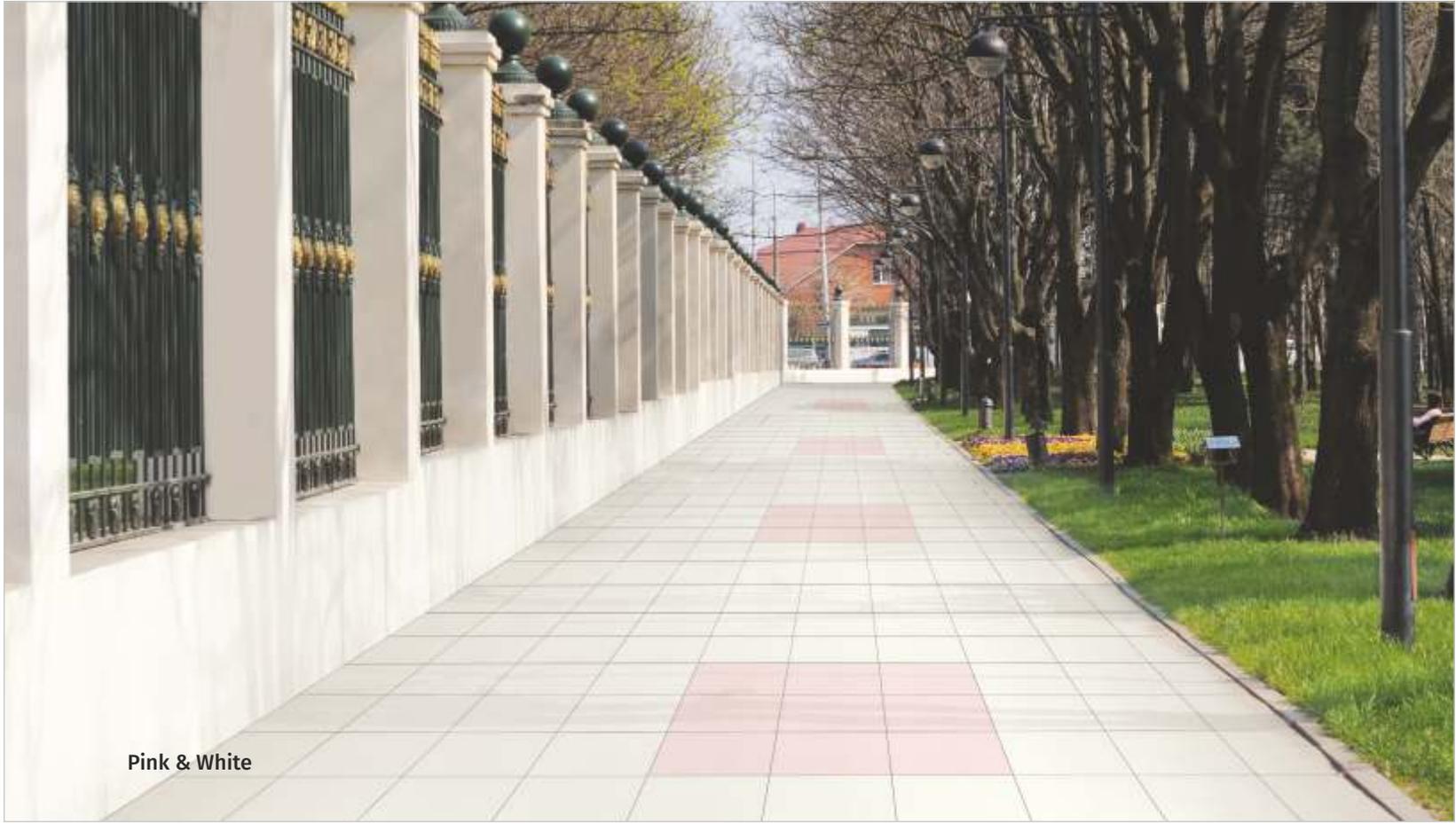
Dr. V. P. Patel  
Technical Director  
Building Energy Performance Laboratory

#### Disclaimer:

1. The CARBSE / BEPL are not responsible for any kind of alterations in the physical property of the sample and the customer is solely responsible for it and its consequences.
2. Result relates to the sample tested only. Sample will be destroyed after 7 days of issue of the report unless specified by the customer.
3. Any complains about this report should be communicated in writing within 7 days of issue of the report.
4. The test report shall not be reproduced fully or partially or in parts and cannot be used as an evidence in a court of law and shall be used in advert singeing media without written approval of Executive Director, BEPL.

BEPL, Centre for Environmental Planning and Technology, K. L. Campus, Navrangpura, Ahmedabad- 380 015  
Phone No. 079-26302470- Extn. 263, 26302740 Fax. +91 79 26302075 Email: ashjoshi@bepl.ac.in/bepl@cept.ac.in  
Page 2 of 2

FTR/01/SRI, ISSUE No. 2



Pink & White



16 | Light Grey

## ENDURA COOL ROOF SRI TILES : SPECTRUM OF COLOURS

Although it is scientifically proven that white surface reflects heat like no other colour can, Endura Cool Roof SRI Tiles offer a spectrum of 5 beautiful pastel shades other than white. What's more, all these colour tiles have SRI value greater than 78. Endura has truly achieved a golden mean - developing energy efficient, highly practical tiling solutions that are aesthetically appealing as well.



Endura Cool Roof tiles are suitable for low sloped and steep sloped roof applications starting from a pitch of 9.5 degree (2:12 rise over run). They are designed to meet IGBC / LEED SRI requirements for both low slopes and steep slopes. Besides, the Cool-Roof tiles are suitable for use on pavements and will qualify for IGBC / LEED Heat Island Effect Reduction Non-Roof credits.

1. Pink (Kunigal), Almond (Dewas & Kunigal) & Ivory (Dewas) also available in 1cm thickness.
2. 1cm & 2cm thickness will have a lead time of 45 days and Minimum Order Quantity of 1500sqm.
3. 2cm thickness is available in white from Dewas.

## Sandex Collection

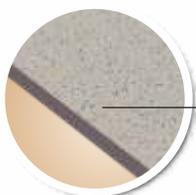
Exterior flooring is prone to wear and tear caused by heavy pedestrian and vehicular traffic. The challenge here is to meet these demands without hampering aesthetics or adding to maintenance costs. The Endura Sandex collection strikes a perfect balance between aesthetics, functionality, and cost. Endura Sandex comprises of full body vitrified tile and few customized glazed vitrified tile which is recognized and accepted as the best long terms performing product in the industry. Endura Sandex is a full body vitrified tile that stands apart when compared to other matt GVT & scratch resistant ceramic tiles owing to its full body characteristics, and is recognized and accepted as the best long term performing product in the industry. The Endura full body Sandex collection has beautiful, natural earthen shades, in two exclusive textures - Neutral and Plus - that offers tremendous design opportunities for discerning customers.

The Sandex Neutral texture is a matt antiskid finish that is ideal for all types of exterior applications subjected to high pedestrian traffic or light vehicular movement, and wherever high antiskid properties and safety standards are desired. Its non-slip finish with a high coefficient of friction makes it an ideal choice for use in driveways, gardens, skywalks, terraces etc.

The Sandex Plus texture provides a finish in-between neutral & satin surface, and is recommended for internal applications. This finish makes ease of cleaning a breeze, making it ideally suited for floors subjected to high foot-fall coupled with a need for a high level of aesthetics and easy of maintenance, such as hyper marts, hospitals, educational institutions, restaurants, automobile showrooms etc.

### Endura Sandex

- Full body vitrified tile
- Neutral Matt Finish
- Anti-skid property with high coefficient of friction
- Suitable for high pedestrian and light vehicular traffic
- Salt & Pepper designs in earthen shades
- Scratch resistant
- Tough and durable
- Low recurring or maintenance cost
- Suitable for driveways, gardens, auto showrooms, skywalks etc.



Unique  
Anti-Skid surface

### Endura Sandex Plus

- Full body vitrified tile
- Neutral-to-Satin Finish
- Easy to clean - no footmarks
- Suitable for interior application
- Salt & Pepper earthen shades
- Scratch resistant
- Tough and durable
- Low maintenance cost
- Suitable for hyper marts, retail chains, religious places, restaurants, educational institutions, hospital corridors, auto showrooms etc.



Unique Satin  
easy clean surface

SANDEX SERIES

HI-TRAFFIC





# SANDEX SERIES

60X120 cm | 1 CM THICK

## HI-TRAFFIC



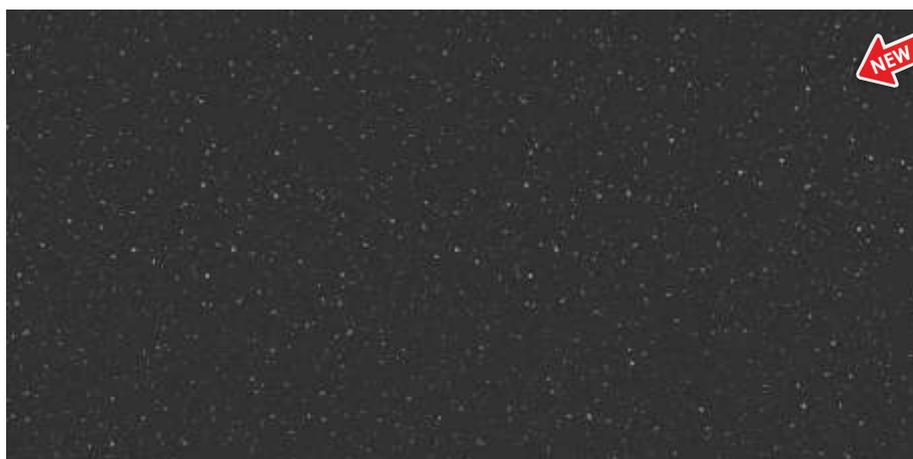
Mosaic Beige

P



Mosaic Coffee

P



Mosaic Dark Grey

P



# SANDEX SERIES

60X120 cm | 1 CM THICK

## HI-TRAFFIC



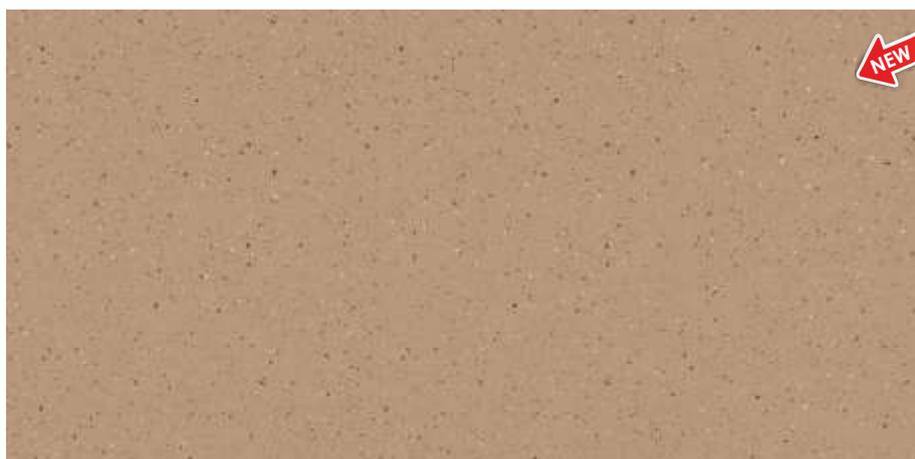
Mosaic Grey

P



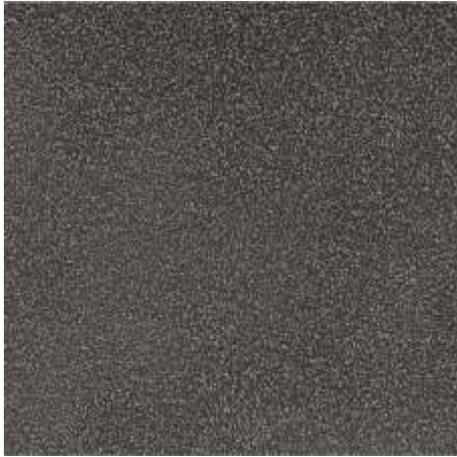
Mosaic Nero

P

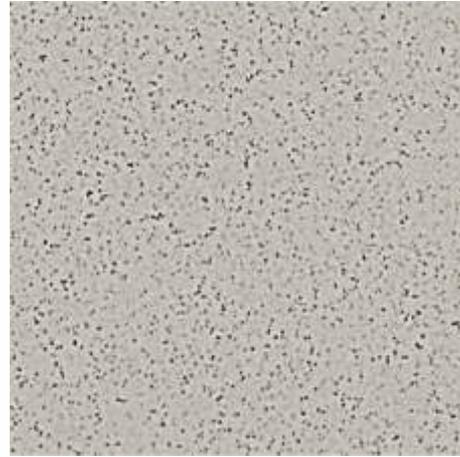


Mosaic Pastel Brown

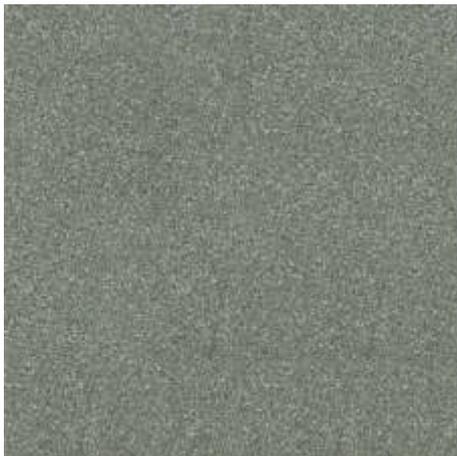
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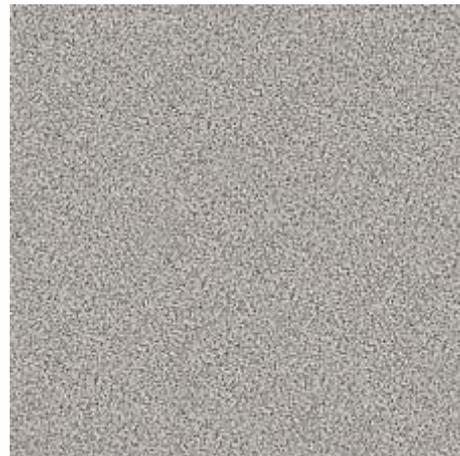
Benaulim



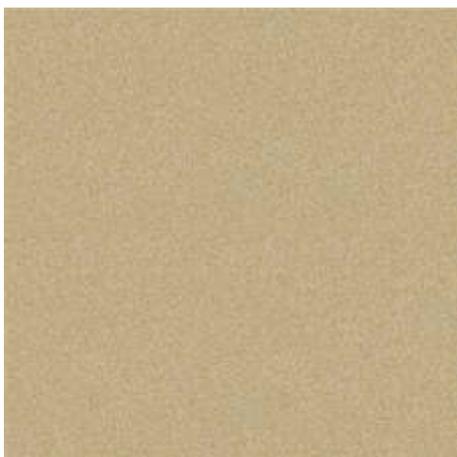
Candolim



Colva



Donapaula



Gmalo



Grey



# SANDEX SERIES

60X60 cm | 1 CM THICK

## HI-TRAFFIC



Grey Coated



Ivory



Ivory Coated



Majorda



Miramar



Mosaic Beige





Mosaic Coffee

P



Mosaic Dk Grey

P



Mosaic Grey

P



Mosaic Nero

P



Mosaic Pastel Brown

P



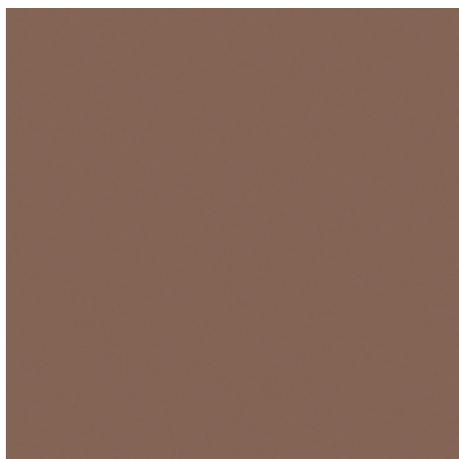
Palolem

P

# SANDEX SERIES

60X60 cm | 1 CM THICK

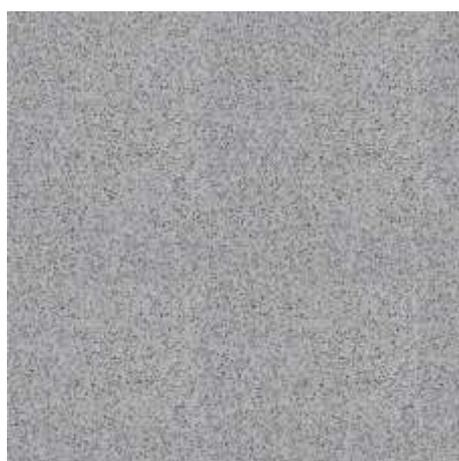
## HI-TRAFFIC



S&P Coffee



Terracotta



Vaga



Velsoa



Venezia



Johnson Endura's latest collection exudes the timeless architectural vintage look enhancing aesthetics and a unique style with this series of wall and floor tiles.



Athangudi   
Deco Azul



Athangudi   
Deco Noir



Athangudi   
Gold Deco



Epoch   
Paradigm Gris



# EVOKE SERIES

20X20 cm | 0.80 CM THICK

# EVOKE



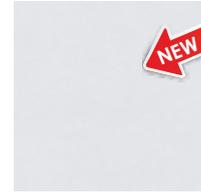
Era Aspire 



Era Grey Deco 



Era Grey Deep 



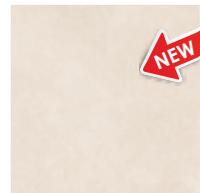
Era Grey Glow 



Era Ivory Deco 



Era Ivory Glow 



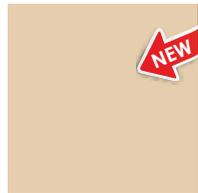
Harmony Beige 



T- Razzo Grey 



Tropical Green 



Veteran Beige Plain 



Veteran Print Deco 



Epic Decor\* 



Genre Deco Indigo\* 



Harmony Beige Deco



Realfeel Glow

(Available in 12 random faces)



Tropical Green Deco



Veteran Beige Deco

(Available in 8 random faces)



Veteran White Deco\*

(Available in 8 random faces)



# EVOKE SERIES

20X20 cm | 0.80 CM THICK

# EVOKE



## Science Friction:

### What is R value?

When it comes to floor tiles in high traffic areas, a little bit of friction helps you go a long way - quite literally. Science defines Friction as "the force that acts between two bodies so as to resist their sliding over one another." Simply put, a floor with more friction will provide enough grip in most circumstances to prevent a person from falling. And in tiles it is measured in a unit called R value which ranges from R 9 to R 12, with R 13 being the best anti skid property.

### Slip Prevention 'R' Ratings for Flooring Surfaces



## Putting the science to test:

The test performed to determine the value are BOT Digital Tribometer test, Pendulum test & RAMP test. The most popular is the RAMP Test.

### RAMP Test

#### A) Oil wet ramp slip resistance test:

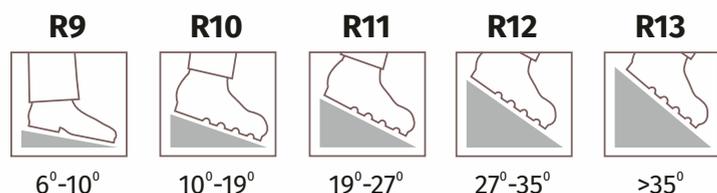
DIN 51130- The slip resistance of tile is tested on an inclined surface with a predetermined slope angle and classified according to rating rules R9 to R13.

This test requires an operator who is protected by a fall restraint harness. The operator, wearing standard footwear, walks back wards and forwards over a sample of a flooring material that has been evenly coated with oil. Beginning with the ramp in a horizontal position he gradually increases the angle of inclination until the limit of safe walking is reached and the test person slips. The acceptance angle obtained is used to express the degree of slip resistance.



### Assessment Groups:

	Lower limit value	Upper limit value
<b>R9</b>	6°	10°
<b>R10</b>	>10°	19°
<b>R11</b>	>19°	27°
<b>R12</b>	>27°	35°
<b>R13</b>	>35°	



## B) Wet barefoot slip resistance test- (DIN 51097 ABC rating)

The ramp test is carried out barefoot with the use of soapy water as a contaminant (DIN 51097). The angle at which slipping occurs is used to establish an A, B or C rating for the barefoot test

### Classification Groups and Areas of Application:

Classification Groups	Lower limit value	Upper limit value
<b>A</b> 	12°	18°

- Barefoot hallways (mainly dry)
- Individual and group changing rooms with lockers
- Pool floors in non-swimmer areas, where the water level exceeds 80 cm
- Sauna and relaxation areas (mainly dry)

Classification Groups	Lower limit value	Upper limit value
<b>B</b> 	>18°	24°

- Barefoot hallways, if not classified in A
- Showers
- Area surrounding the disinfectant sprayers
- Pool surrounds
- Pool floors in non-swimmer areas in the tide effect pool
- Lift slab floors
- Paddling pools
- Steps and ladders outside the pool area
- Sauna and relaxation area, provided they are not assigned to A

Classification Groups	Lower limit value
<b>C</b> 	>24°

- Steps and ladders leading into the water
- Stairways leading to diving boards and water slides
- Foot basins
- Inclined pool borders



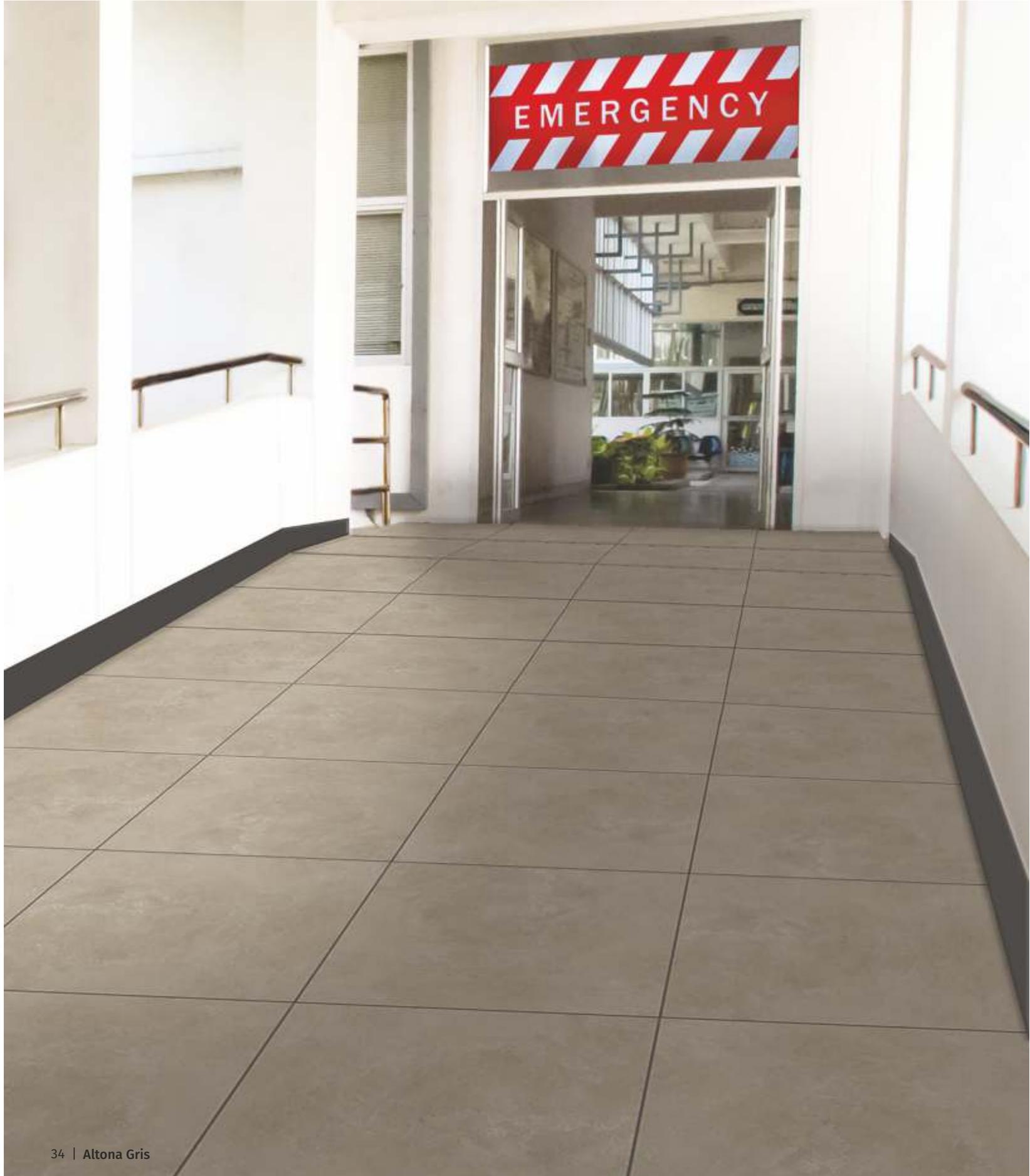
### BOT-3000E Digital Tribometer

The tribometer can accurately measure both static coefficient of friction (SCOF) and dynamic coefficient of friction (DCOF), wet or dry



### Pendulum Test

Pendulum slip resistance test (Dry & Wet) – Pendulum Test value (PTV) MunroStanley – Skid resistance Tester, is based on the Izod principle. In operation, a pendulum of a known mass rotates about a vertical spindle.



# MAXGRIP R10

60X60 cm | 1 CM THICK

# MAXGRIP



Aegis Beige



Altona Brown



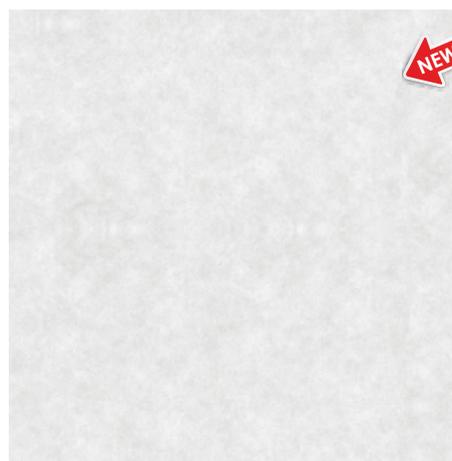
Altona Gris



Ash Grey



Caberio Cotto



Cloud Grey





Cloud Nero

P



Crest Brown

P



Crest Grey

P



Dacia Nero

P



Nuvaro Nero

P



Trento Bianco

P

# MAXGRIP R10

60X60 cm | 1 CM THICK

# MAXGRIP



Trento Brown

P



Trento Crema

P



Vivid Burst Beige

P



Vivid Cool Grey

P



Vivid Spring

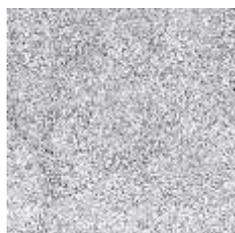
P



# MAXGRIP R10

30X30 cm | 1 CM THICK

# MAXGRIP



Max Ash 



Max Brick 



Max Cotto 



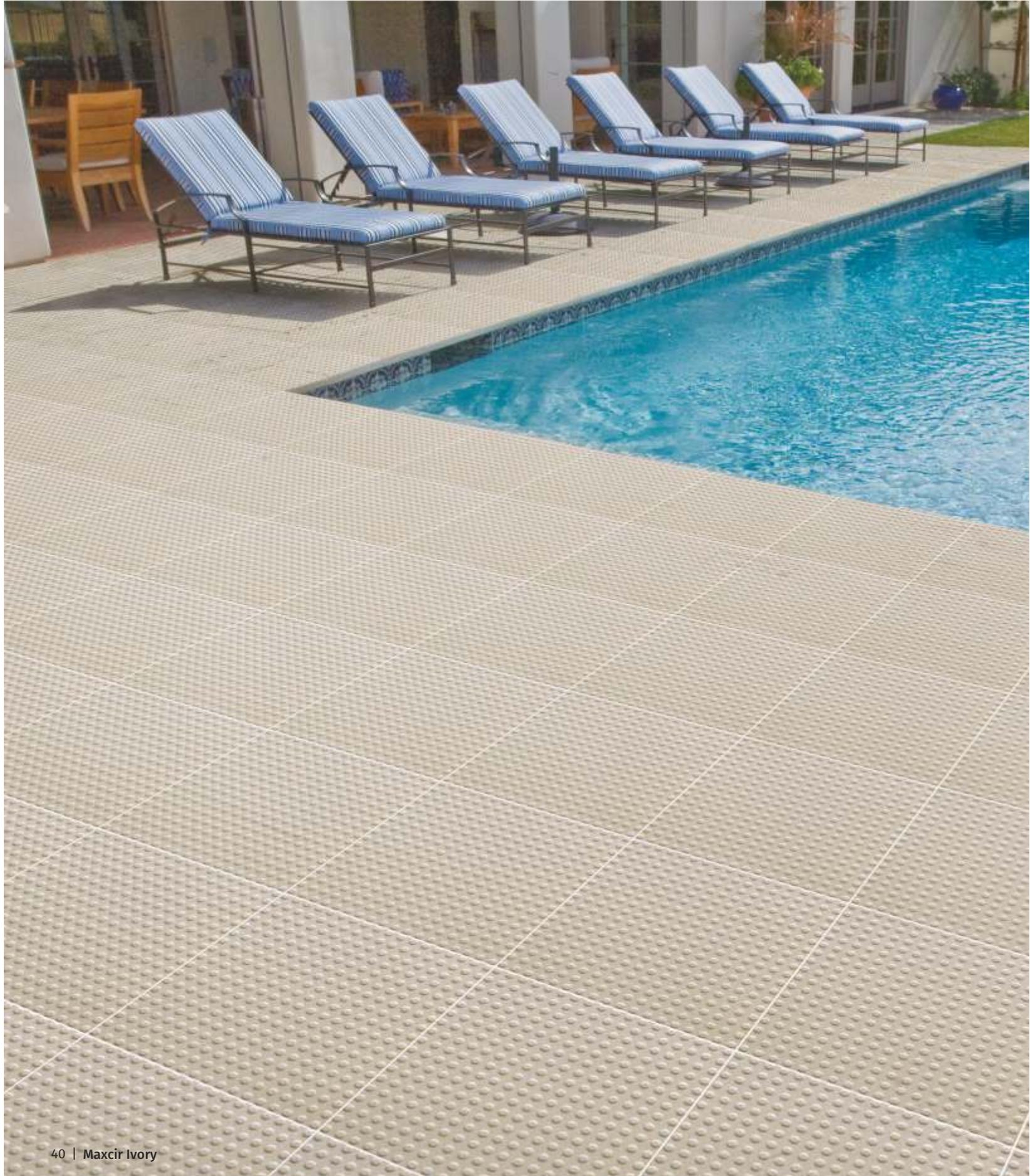
Max Gris 



Max Steel 



Max Verde 



# MAXGRIP R11

30X30 cm | 1 CM THICK

# MAXGRIP



Maxcir Cotto 



Maxcir Grey 



Maxcir SnP Noir 



Maxcir SnP White 



Maxcir Ivory 



Maxtri Ivory 



Maxtri SnP Noir 



Maxtri SnP White 



Maxtri Cotto 



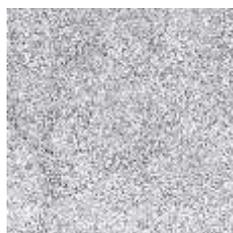
Maxtri Grey 



# MAXGRIP R12

30X30 cm | 1 CM THICK

# MAXGRIP



Max Ash



Max Beige



Max Bruno



Max Cotto



Max Gris



Max Steel



Max Umber







SPRINT



# MAXGRIP R11

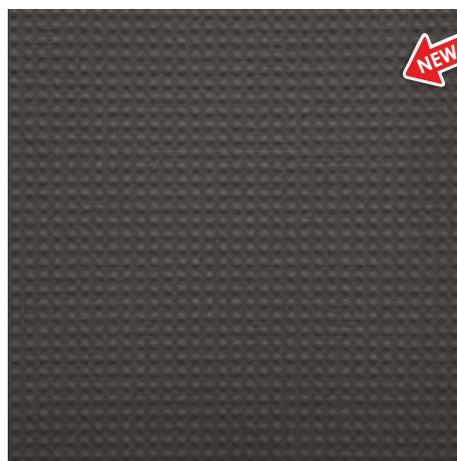
60X60 cm | 1.5 CM THICK

# MAXGRIP



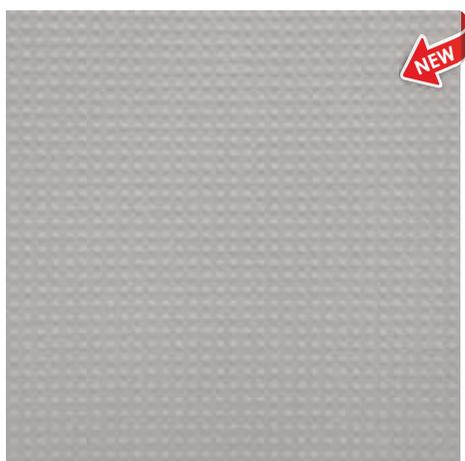
Dots Beige

P



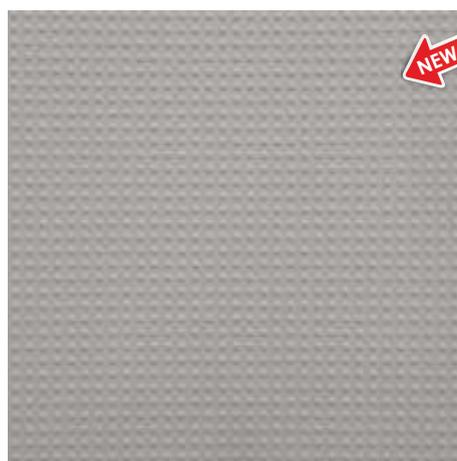
Dots Benalium

P



Dots Grey

P



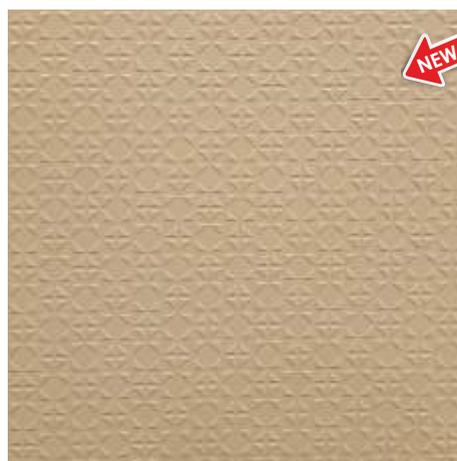
Dots S&P Grey

P



Dots Teracota

P



Triangle Beige

P



Triangle Benalium



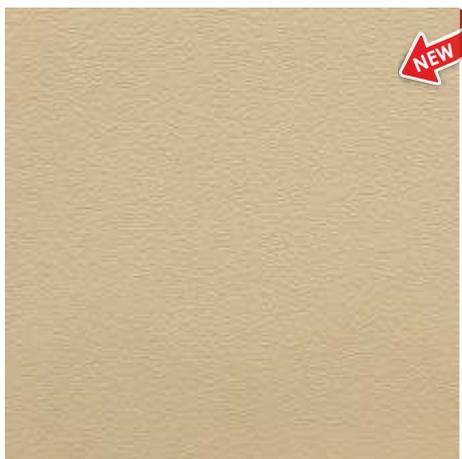
Triangle Grey



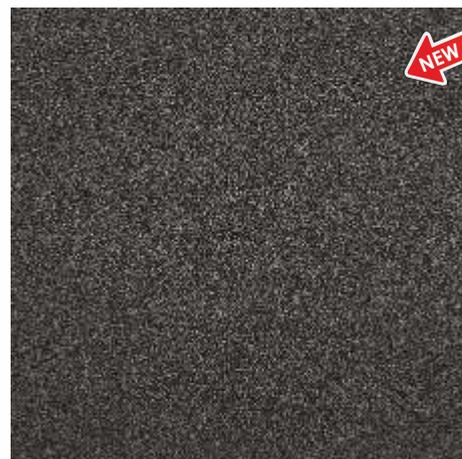
Triangle S&P Grey



Triangle Teracota



Volcano Beige



Volcano Benalium



# MAXGRIP R11

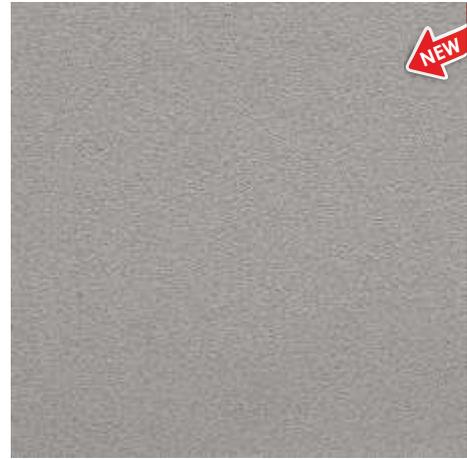
60X60 cm | 1.5 CM THICK

# MAXGRIP



Volcano Grey

P



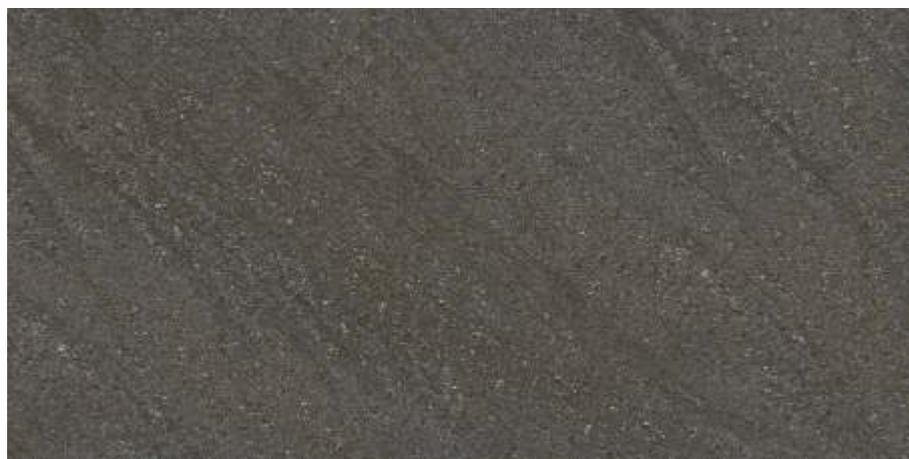
Volcano S&P Grey

P



Volcano Teracota

P



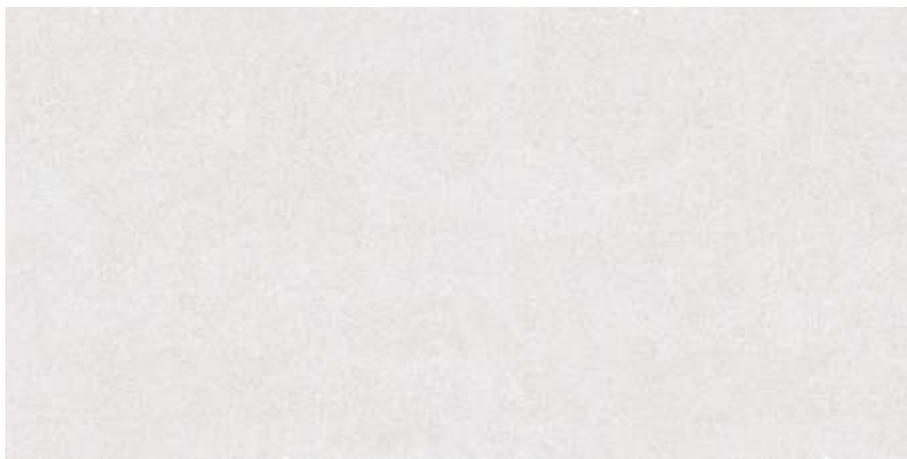
Adocks Sandune



# SANDEX PLUS SERIES

60X120 cm

HI-TRAFFIC



Adoks Glitter Satin



Stone Finish MM Grey



# SANDEX PLUS SERIES

20X120 cm | 1 CM THICK



Adoks Firewood

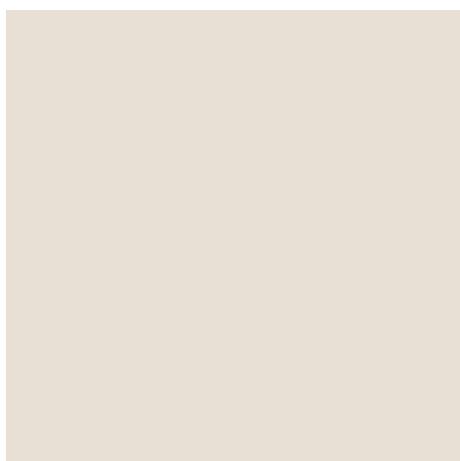




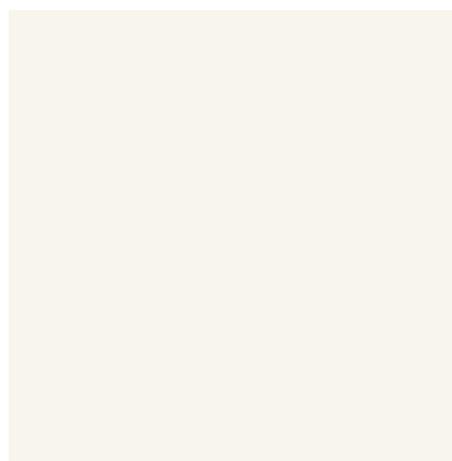
# SANDEX PLUS SERIES

60X60 cm | 1 CM THICK

## HI-TRAFFIC



Adoks Beige



Adoks Chalk New



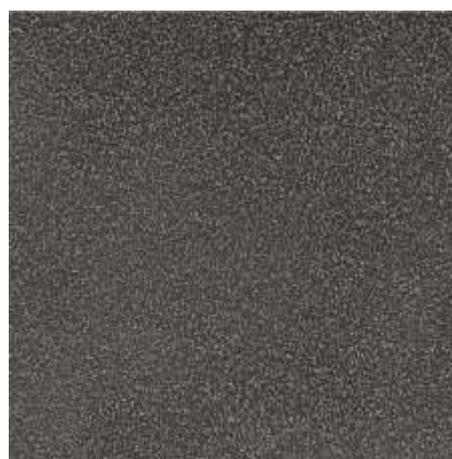
Adoks Grey



Adoks Rusto Brown\*



Au Black Plus

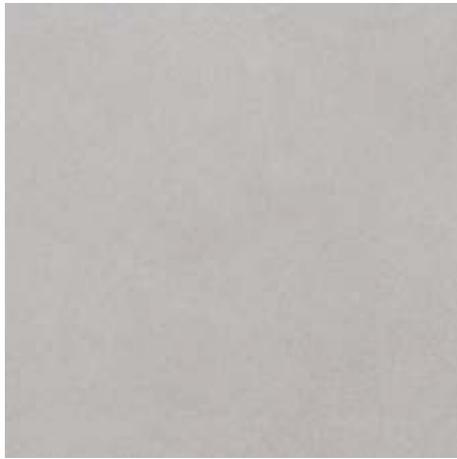


Benaulim Plus



# SANDEX PLUS SERIES

60X60 cm | 1 CM THICK



Grey Plus



Ivory Plus



Miramar Plus



Terracotta Plus



White Plus



# SANDEX SPECIALITY SERIES

## HI-TRAFFIC

60X60 cm | 1 CM THICK



Adoks Mosiaco Calcada



Charcoal Black



Nero Black



## Plain Series 30X30 cm, 20X10 cm

Extra tough, non-abrasive, acid/alkali resistant Endura industrial tiles are designed to withstand the extreme demands of industrial manufacturing areas.

Being anti-skid ensures safety of workers and also minimizes loss of productivity caused by accidents. Easy to clean and maintain Endura industrial tiles are must for warehouses, food, chemical, petrochemical, pharmaceutical and other similar industries where the flooring is constantly prone to fluid spillage.



# PLAIN SERIES

30X30 cm | 2 CM THICK

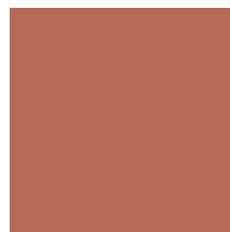
INDUSTRIAL



Grey



Ivory

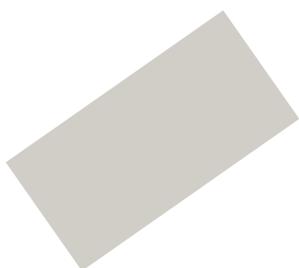


Terracotta

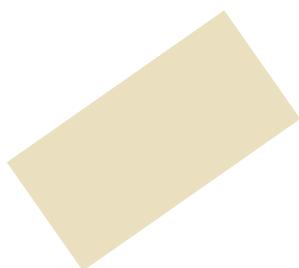


# PLAIN SERIES

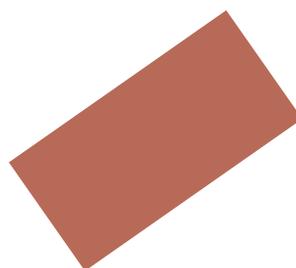
20X10 cm | 2 CM THICK



Grey

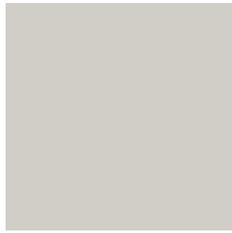


Ivory



Terracotta





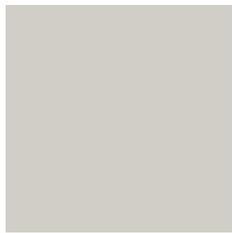
Grey



Ivory



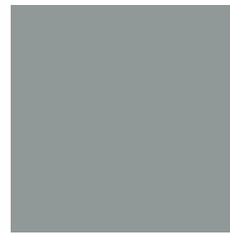
Terracotta



Coated Grey Plus



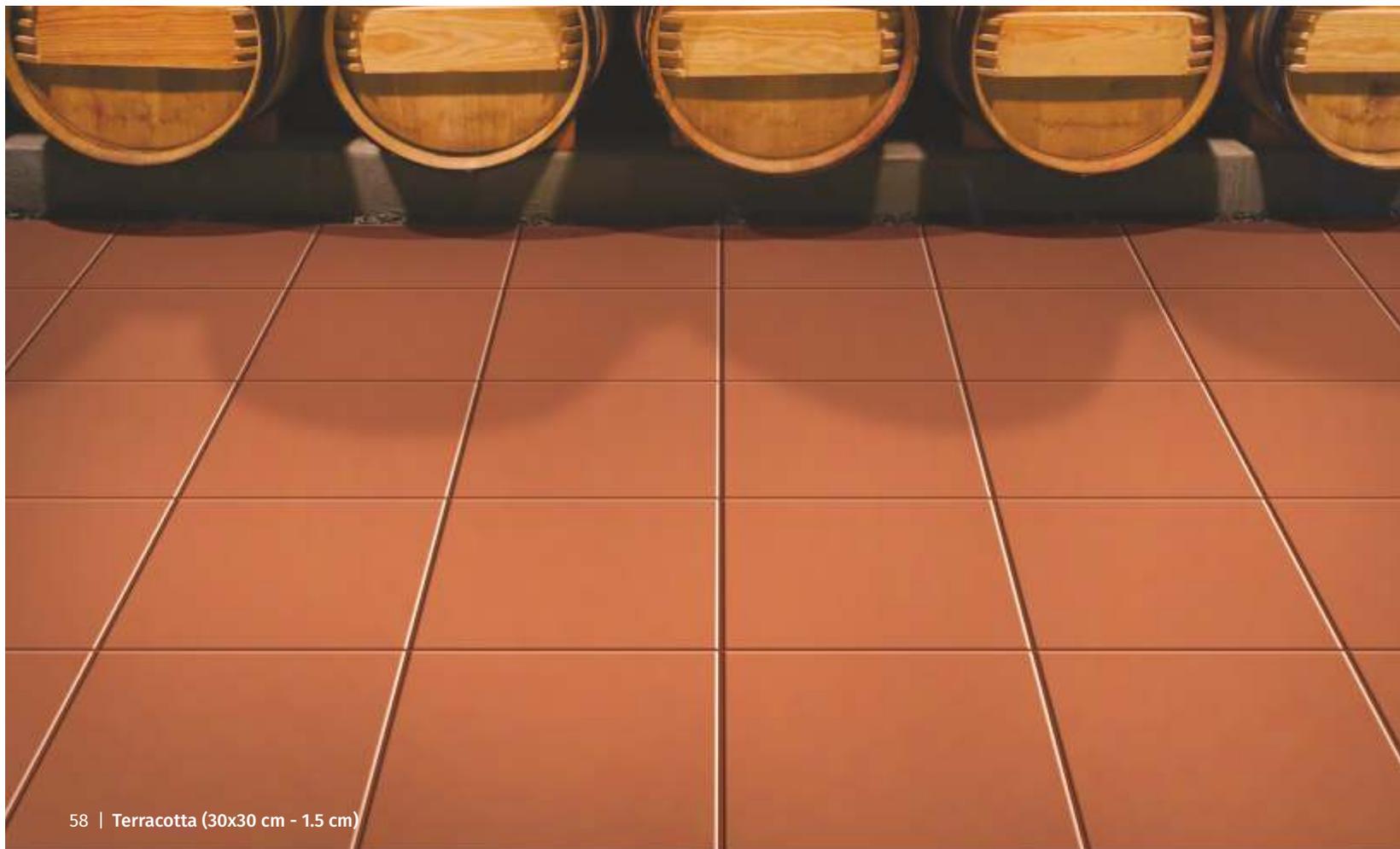
Grey Plus



Silver Grey Plus



Silver Grey Plus Special



# SPECIALITY SERIES

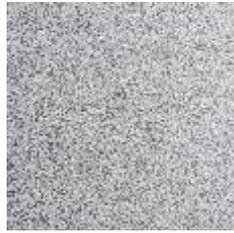
30X30 cm | 1.5 CM THICK

INDUSTRIAL



Caranz

D



Cavelo

D

# PLAIN SERIES

30X30 cm | 1.2 CM THICK



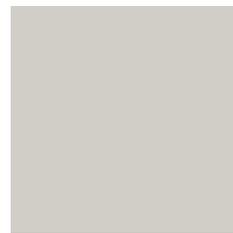
Benaulim

D



Grey

D/K



Grey Plus

D/K



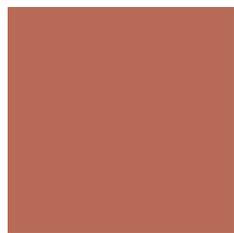
Ivory

D/K



Majorda

D



Terracotta

D/K



# COLOUR SERIES

30X30 cm | 1.2 CM THICK

## INDUSTRIAL



Coated Black Plus D



Coated Grey Plus D/K



Ivory Plus D



Silver Grey Plus D/K



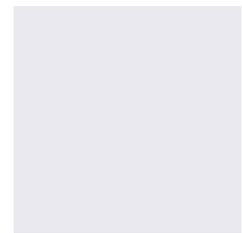
To Blue Plus D



To Green Plus D



Yellow Plus D



White Plus D



Checkered Grey D/K



Checkered Ivory D



Checkered  
Terracotta D



## Benefits of Endura Industrial Tiles

Johnson endura Industrial Tiles	AR Bricks
Johnson Endura tiles conform to IS 4457 : 2007. These are stringent specifications.	AR Bricks conform to IS 4860 specification.
Lowest water absorption (<0.5%). Acids cannot percolate through tile body, thereby leaving the bedding underneath intact for years.	Water absorption 3% to 5%. High porosity and hence acid or chemical percolation possible resulting in corrosion of the bedding material underneath.
Johnson Endura is a vitrified tile body with a compact mass that provides high strength. Thus with the recommended 1.2, 1.5 and 2cm thick tiles, overall structural load can be reduced.	AR bricks are ceramic tiles in nature with high porosity and low strength, requiring the need for a high thickness of 38mm that results in increased structural load.
Mohs hardness of Endura is $\geq 7$ making the surface virtually scratch proof. Even metals like hardened steel used in trolley, etc. cannot scratch the tile.	Mohs hardness scale of AR brick is 5 to 6 making it prone to scratches and flaking.
Johnson Endura tiles are manufactured to meet highest quality standards by H & R Johnson (India) in state-of-the-art plants.	AR bricks are manufactured by the unorganized sector.
Johnson Endura Industrial tiles are available in a variety of sizes and thicknesses such as :- 30X30 - 2cm, 20X10 - 2cm, 30X30 - 1.5cm 30X30 - 1.2cm	AR bricks are typically available in a single fixed size of 9"x 4" - 3.8cm.
Johnson Endura Industrial Tiles	Epoxy Floorings
High traction resistance. Excellent performance under continuous vehicular traffic without any erosion.	Poor traction resistance. Gets scratched and wears-off on continuous vehicular traffic movement.
Very high breaking strength. Suitable for heavy loads with hard-wheel trolley movements.	High wear and tear on use of hard-wheel heavy load trolley movements.
Very high scratch resistance. Mohs scale $\geq 7$ . Even metals cannot create scratch on tiles.	Prone to scratches. Mohs hardness 4-5.
Highest abrasion resistance amongst all flooring options with abrasion value of $<120 \text{ mm}^3$ (ISO 13006/EN 176). Retains aesthetics for a long term.	Low abrasion resistance. Leads to high wear & tear on continuous use.
Can withstand point loads.	Cannot take point loads.
Ease of repair and maintenance. Even a single damaged tile can be replaced quickly without affecting surrounding tiles.	Repair and maintenance is difficult. Repairing the affected area gives the floor a patchy incongruent look.
Johnson Endura is maintenance free and is a very durable floor covering.	Epoxy floors have a huge recurring cost for maintenance besides workshop shut down costs and inconvenience.
Johnson Endura Industrial tiles are highly durable, maintenance free, scratch proof, economical and an aesthetic flooring option for industrial shop floors.	Epoxyes are aesthetic, but delicate and expensive in the long run
Johnson Endura Industrial Tiles	Kota & Other Natural Stones
Properties are homogeneous across the entire body of tile. Shades are fairly consistent across the tile.	As natural stones are mined, their properties may vary from stone to stone and also within a stone. They are also prone to a high degree of shade variation.
Compact body with low water absorption of $< 0.5\%$ .	Very high porosity. Water absorption may vary from 2-4%.
High traction resistance.	Poor traction resistance.
Very high breaking strength. Suitable for heavy loads with hard-wheel trolley movements.	Susceptible to breakage on heavy load ( $> 1 \text{ ton}$ ) movement with hard-wheel trolleys.
Very high scratch resistance. Mohs scale $>7$ . Even metals cannot create scratch on tiles.	Prone to scratches. Mohs hardness 4-5.
Highest abrasion resistance amongst all flooring options with abrasion value of $<120 \text{ mm}^3$ (ISO 13006/EN 176). Retains aesthetics for a long term.	Low abrasion resistance. Leads to high wear & tear on continuous use.
Use of 12 to 20mm thickness ensures low structural load with high performance.	Use of higher thickness increases weight and structural load.

## Comparison of Kota Stone, Mandana, Epoxy and Endura Industrial Tiles

Technical Features / Flooring Material	Kota Stone	Mandana Stone	Epoxy Flooring	Endura Industrial Tiles
Main Constituents	Limestone or Calcite	Quartzitic Sandstone	Organic Copolymers	Inorganic oxides
Flexural Strength (N/mm <sup>2</sup> )	20 to 25	25 to 30	25 to 35	>38
Water Absorption	2% to 4%	1% to 2%	0.2% to 0.5%	<0.5%
Bulk Density (g/cm <sup>3</sup> )	2.1 to 2.3	2.3 to 2.5	2.1	2.4
Slipperiness	Polished surface is slippery	Less Slippery	Slippery	Antiskid with co-efficient of friction > 6
Acid-Alkali Resistance	Not Resistant to Acids	Not Resistant to Alkalis	Not Resistant to Acids	Resistant to Acids & Alkalis
Shear Resistance	Low	Low	Very Low	High
Resistance to heavy duty hard wheel trolley movement	Low	Low	Very Low	High
Scratch Resistance (Mohs Scale)	3 to 4	5 to 6	4 to 5	>7
Fire Resistance	Moderate	Good	Inflammable	Fire Proof
Maintenance Cost	High	High	Very High	Low
Service Life	5 years	5 years	1 year	10 years plus
Shade Variation	High	High	Very Low	Low
Environment friendliness	Requires extensive mining and destroys natural resources	Requires extensive mining and destroys natural resources	NA	Environment friendly and adherence to ISO 14001 standards
Production & Working Conditions	Very Hazardous. Unorganized.	Very Hazardous. Unorganized.	Adherence to ISO 18001 standards	Adherence to ISO 18001 standards
Safety Standards	No safety standards	No safety standards	Complies with all safety gear requirements as per ISO 18001 health & safety standards	Complies with all safety gear requirements as per ISO 18001 health & safety standards
Waste Disposal	Disposal in open land without any treatment	Disposal in open land without any treatment	Effluent treatment as per ISO 14001 standards	Effluent treatment as per ISO 14001 standards
Child Labor	Employed	Employed	No Child Labor	No Child Labor
Labor Exploitation	Yes. Day-Night shifts with below minimum wages	Yes. Day-Night shifts with below minimum wages	Safe & good working conditions. Adhering to Minimum Wages Act	Safe & good working conditions. Adhering to Minimum Wages Act
Ecological Imbalance	Extensive digging and mining can lead to earthquakes	Extensive digging and mining can lead to earthquakes	NA	NA
Sizes	2'x 2', 2'x 1.5'	2' x 1.5', 2' x 2', 2' x 2.5'	NA	30X30-2cm, 20X10-2cm, 30X30-1.5cm, 20X20-15cm, 20X10-1.5cm, 30X30-1.2cm,

## Industrial Tile

Features	Advantages	Benefits
Higher breaking strength 1.2 cm - > 3000 N 1.5 Cm > 5500 N 2 cm - > 8000 N	Higher breaking strength performs the function of transferring large loads effectively down to the bedding underneath without breaking.	Customer is benefitted with a strong and durable floor with no maintenance.
High Mohs Hardness >7	Mohs is a measure to test surface scratch hardness value on a relative scale from 1 to 10. Higher the value, more the hardness, thus protecting the surface from scratches. Mohs value of > 7 ensures Endura Industrial tiles do not get scratched even with metals thus providing a tough, rigid, floor without scratches especially on continuous use & even during maintenance activities.	Customer is benefitted by enhanced long lasting aesthetic beauty due to scratch free surface.
High Abrasion Resistance. Deep Abrasion Volume Loss <120 mm <sup>3</sup>	Johnson Endura Industrial tiles have the highest abrasion resistance value when compared with other traditional floors like VDF, Natural Stones, Epoxies, PU, PVC etc, thus ensuring lowest possible abrasion & wear off.	This helps customers maintain aesthetic value of floor year on year and avoid recurring maintenance costs.
Matt Finish Skid Resistance Floor – Coefficient of Friction >0.42	Provides reasonably good traction to vehicles, pedestrians, material carrying carts, fork lifts, trolleys.	Customer benefitted by a safe floor meeting Industrial safety norms.
Stain resistance	Provides sufficiently good stain resistance property to effectively maintain the matt finish floor.	Helps in maintaining good housekeeping norms.
Low water absorption < 0.5%	Ensures compact body thus preventing stains & percolation of liquid based media.	Helps in maintaining good housekeeping norms.
<b>For Acid Resistant flooring</b>		
Resistance to concentrated Acid – Weight loss < or = 0.8%	Extremely high acid resistance of Johnson Endura Industrial tiles (1.2, 1.5 & 2 cm) meeting the stringent specification norms of IS 4457:2007 ensure excellent performance in Acid/Chemical/Alkali (except HF acid and its derivatives) attack area thus helping corrosion protection of reinforcement in concrete & protecting erosion of the structure.	Customer benefitted by the long service life of the structure and enhanced safety. Application areas of pollution control & corrosion protection, lend themselves well to Johnson Endura Industrial tiles.

## Antistatic Tile

Johnson Endura, the industrial tiling solution provider has looked into very niche but highly important areas, which are sensitive to static electricity. Johnson Endura Anti-Static Tiles have been specially developed for such areas:

### Fire Hazardous Areas :

Anti-static Dissipative type : (Surface Resistance between 1 Mega Ohm to 1 Giga Ohm)

Static electricity accumulates on the surface of any floor be it natural stone, ceramic tile or any other flooring material. This static electricity is accumulated due to the friction between any two surfaces like shoes and the floor. This static electricity could lead to sparks which could lead to fire hazards in areas like petrochemical industries, shell making factories, ordnance factories, defence industries, chemical plants, bulk drug plants and other fire prone areas. Johnson Endura Anti-static tiles remove the static electricity charge from the surface of the tile and earth it; and hence the fire hazard is minimized.

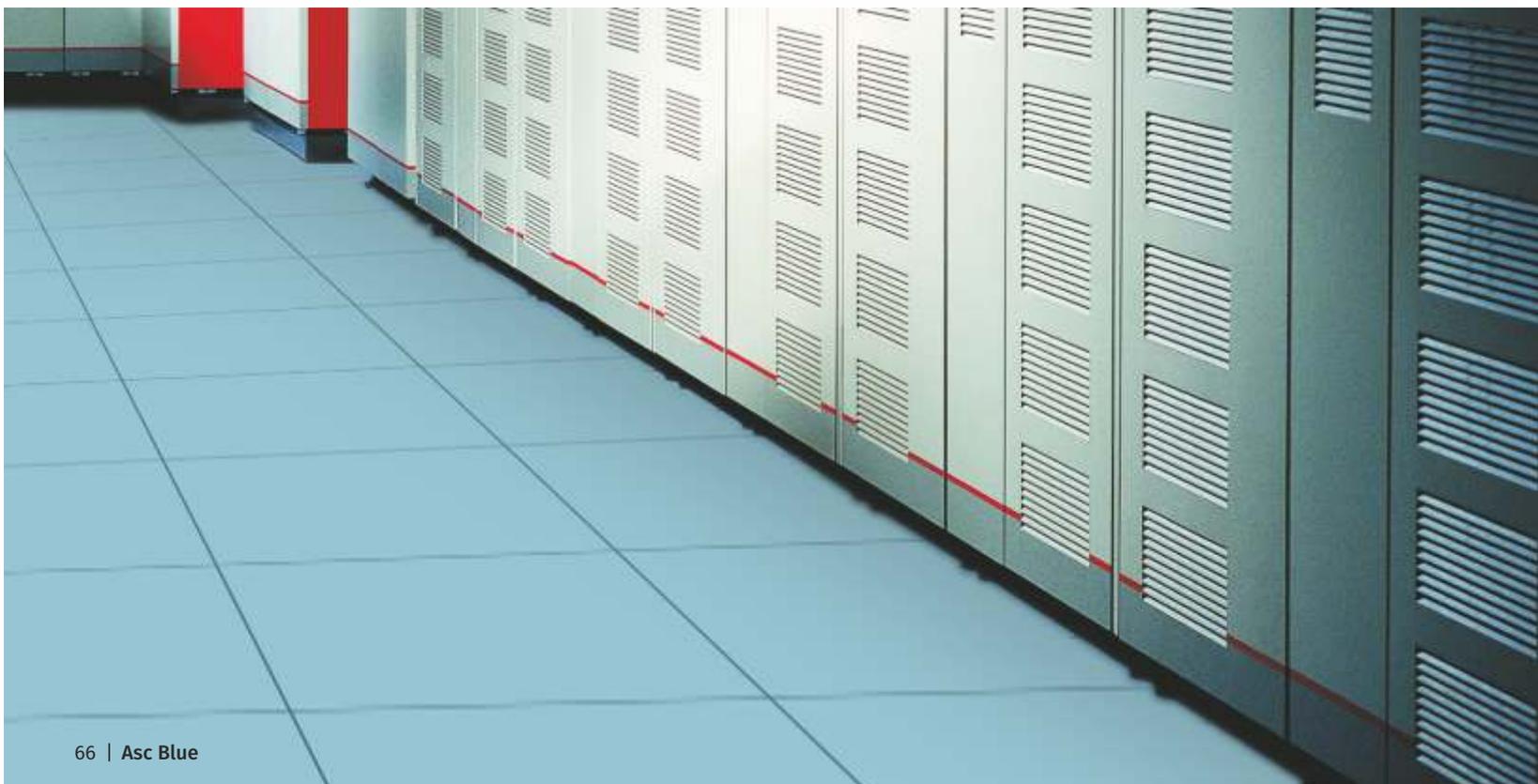
### Electronic Equipment Areas :

Anti-static Conductive Type: (Surface Resistance below 1 Mega Ohm)

Anti-static tiles are also used for server rooms, computer rooms & electronic equipment rooms where static electricity can damage the working of electronic equipments.

### Application Areas :

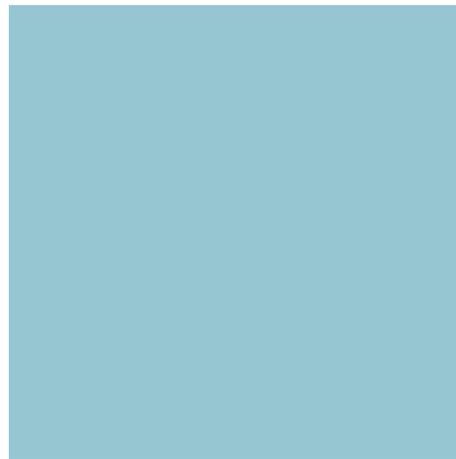
Server Rooms, Petrochemical Factories, Ordnance Factories, Chemical Plants, Bulk Drug Plants, Fire Prone Areas, Computer Rooms, Electronic Equipment Rooms, PLC Panel Rooms, PCB Manufacturing, IT Industry, Sophisticated Equipment Laboratories, Shell Making Factories, Defence Factories, Hospital Operation Theatres.



# ANTISTATIC SERIES

60X60 cm | 1 CM THICK

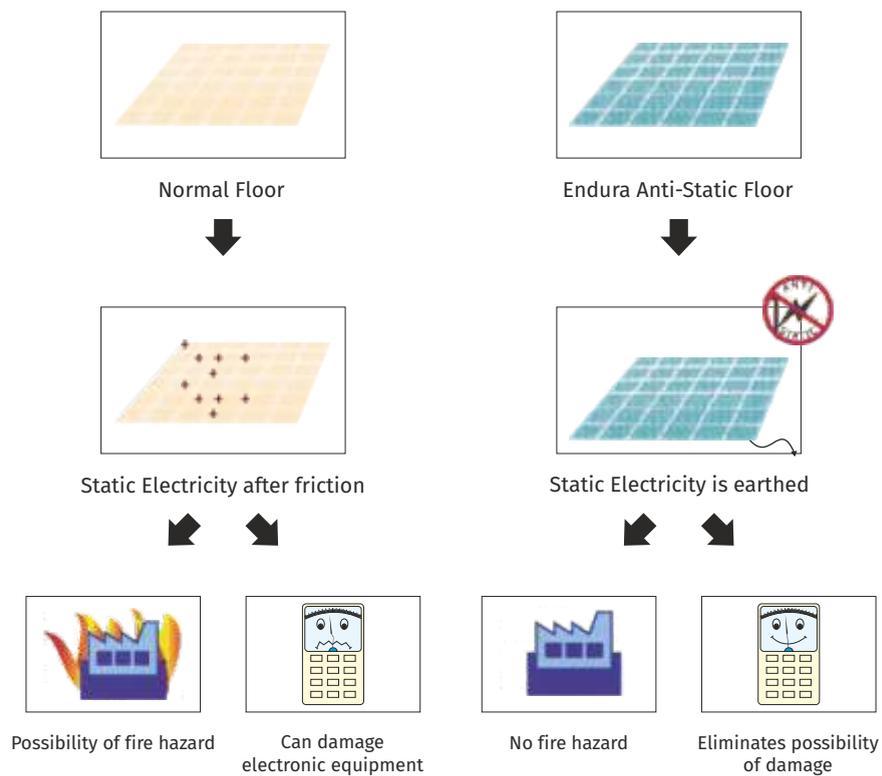
# INDUSTRIAL



Asc Blue



## Working of antistatic tiles





Features	Advantages	Benefits
Surface Electrical Resistance – Conductive <1 Mega Ohm & Dissipative – 1 Mega Ohm to 1 Giga Ohm	Surface electrical resistance being the property of material decides the nature of product in terms of its charge conductance. Surface Electrical resistance as per ANSI norms ensures smooth transfer of accumulated static charge to grounding path.	Static hazard-free area resulting in smooth uninterrupted functioning of critical equipments. Helps in mitigating fire hazard from floor due to static charges.
Static decay Time – Conductive - <0.5 sec Dissipative - <0.5 sec	Static decay time as per ANSI norms ensure smooth discharge of accumulated static electricity from the surface.	Compliance with critical requirement of such sensitive areas. Static Hazard free area resulting in smooth uninterrupted functioning of critical equipments. Helps in mitigating fire hazards from floors due to static charges.
Firm & Effective Grounding of Floors	Vitrified anti-static tiles help provide firm and permanent grounding.	Assures Anti Static property throughout the service life of product.
60cm X 60cm Matt finish Asc Blue Tile	Bigger size offers lesser joints. Matt finish with anti-skid elegant floor in blue shade.	Customer benefitted by safe floor to meet industrial safety norms along with excellent aesthetic ambience.
Stain Resistance	Provides sufficiently good stain resistance property to effectively maintain the matt finish floor.  Being a glazed vitrified tile, the tile is virtually stain proof	Helps in maintaining good housekeeping norms.
Endura Anti-Static Tiles Patented Product	In ceramic tile industry, whereas all products are insulators, Johnson Tiles have developed a special patented product for their customers to address the specific concerns on ESD hazard.	Customer benefitted by the best and only product from ceramic industry which not only offers protection from ESD hazards but also provides excellent service life due to its mechanical properties.



# TAC TILE SERIES

30X30 cm | 1.2, 1.5 & 2.5 CM THICK

## HI-TRAFFIC

### What are Tactiles?

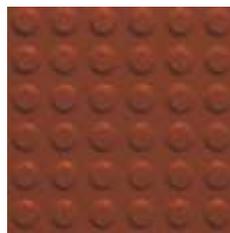
Tactiles (also called truncated domes, detectable warnings, Tactile ground surface indicators, detectable warning surfaces) are unique non-fade, non-slip ground surface indicators. These indicators provide cues, which combines with other environmental information, assist visually challenged people with their orientation.

Tactile warnings provide a distinctive surface pattern of “truncated domes” (which are small domes that have had their tops cut off, or truncated) or “truncated bars” detectable by long cane or underfoot which are used to alert visually challenged people of their approach to streets and hazardous drop-offs-thereby alerting them of impending danger from oncoming vehicles or a change in path gradient.

Tactile ground surface indicators are an important and mandatory design element in all modern construction and public infrastructure projects. The Johnson Endura Hi-Traffic Tactile collection has been designed with emphasis on reliability, safety, dignity and independence for visually challenged people.



Tac Button   
Metro Yellow



Tac Button   
Terracotta



Tac Button   
Yellow



Tac Liner   
Metro Yellow

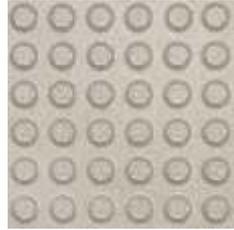


Tac Liner   
Terracotta

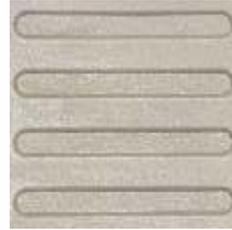


Tac Liner Yellow 

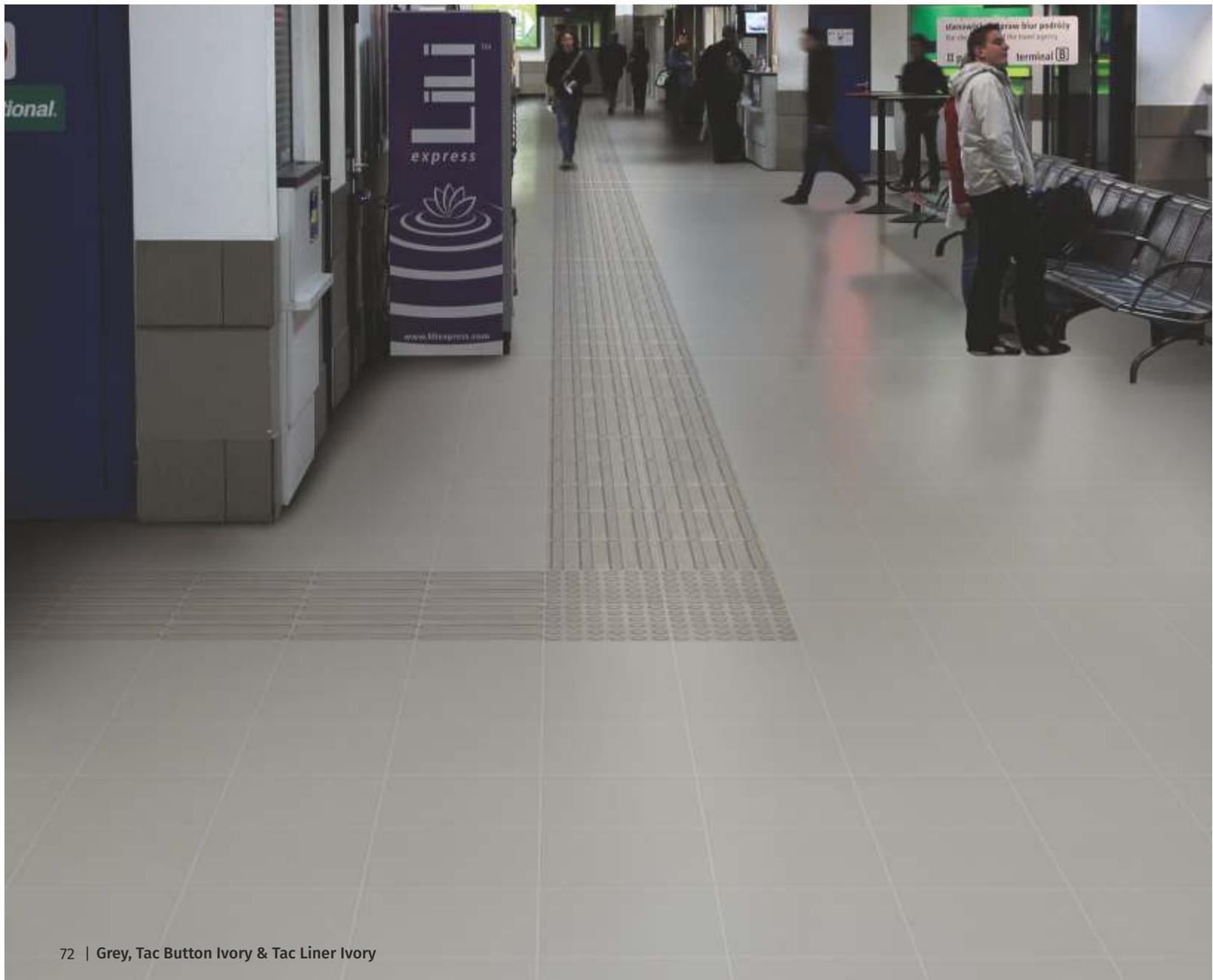
All designs available in 1.2 & 1.5mm in Kunigal.  
Make to order subject to minimum order quantity & lead time confirmation.



Tac Button Ivory 



Tac Liner Ivory 



# TAC TILE SERIES

30X30 cm | 1.2, 1.5 & 2.5 CM THICK

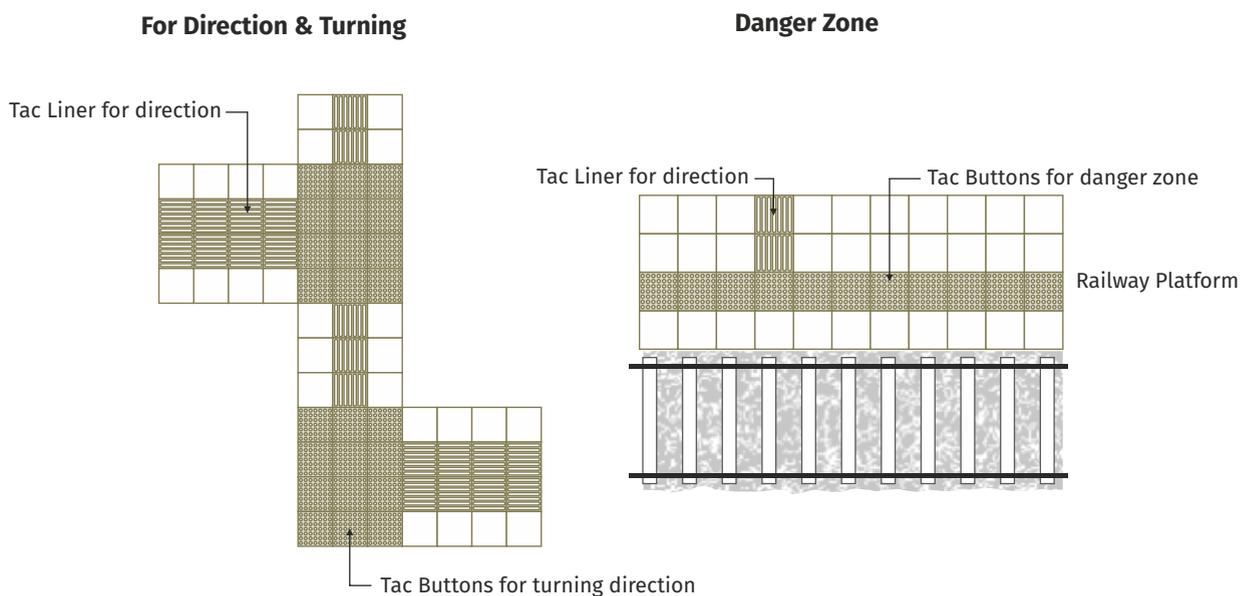
## HI-TRAFFIC

### Endura Tactiles - Benefits & Features

- Specially designed to assist the visually impaired - "Foot Braille".
- Special textures & colors for use as "Warning Floor Tile" located at areas of risk.
- Vitrified porcelain body suitable for exterior or interior application - frost, heat and weather proof.
- Corundum finish for enhanced hardness and slip-resistance.
- Standardized designs which conform to with RNIB (The Royal National Institute for the Blind, UK), DETR (Department of the Environment, Transport and the Regions, UK) & ADA (Americans with Disabilities Act, USA).
- Two types of textures to suit a variety of applications.
- Colours that best represent areas requiring demarcation.
- Low water absorption, below 0.5% - high strength and durability.
- High stain and chemical resistance.
- Four times more abrasive resistant than concrete or polymer based products.
- Support services: drawings / layouts etc.

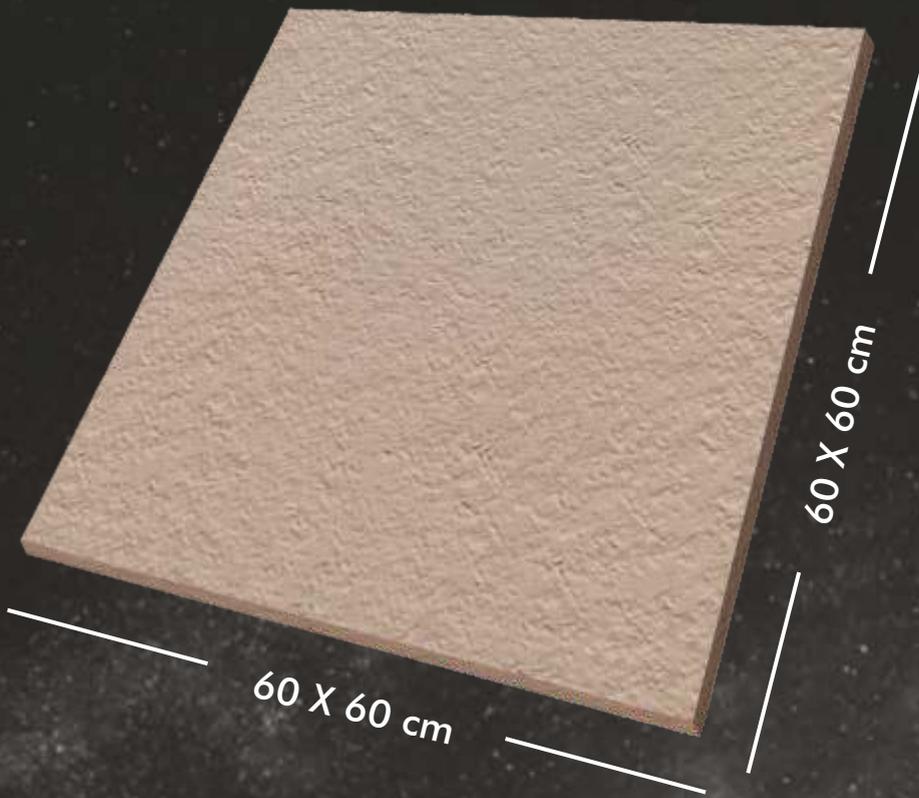
### Technical Characteristics

- Fully vitrified porcelain tile.
- Low water absorption, below 0.5%.
- Approved profiled tactile design.
- Approved size = 30cm x 30cm.
- Tac Button Profile thickness = 0.45cm.
- Tac Liner Profile thickness = 0.45cm.
- Corundum addition for Mohs hardness >7.
- Excellent slip resistance.
- Very dense, durable and abrasion resistant.
- Solid through color - fade proof.
- High chemical and stain resistance.



All designs available in 1.2 & 1.5mm in Kunigal.

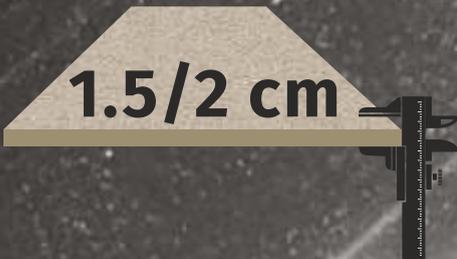
Make to order subject to minimum order quantity & lead time confirmation.



### **Endura Meteor promises you a strong & beautiful outdoor.**

Johnson Endura Meteor collection is the most recent addition to the Endura product portfolio. These 60 X 60 cm tiles are of 1.5 cm & 2 cm thickness and are perfect for gardens, pathways, swimming pool decks, verandah/porches, public places & corridors. They are an ideal combination of performance, looks and versatility.

Johnson Endura Meteor tiles are more suitable than standard flooring alternatives like concrete tiles, paver blocks, natural stones etc. making it the best choice for outdoor usage. The exceptional features of Endura meteor do not diminish with the passage of time and can be fitted by using one of the following tile fixing method- raised flooring with support, directly on top of gravel/soil/sand or using the traditional solution with adhesive.



**1.5/2 cm**

## METHODS OF INSTALLATION



**RAISED FLOORING WITH SUPPORTS**

The raised installation allows for the creation of a technical gap of variable height between the substrate and the foot plan. It can be replaced and inspected at any time without damaging the surface and allows wires, pipe ducts and lighting systems to be concealed.

### APPLICATION AREAS



VERANDAH / PORCHES



SERVER ROOM & IT INDUSTRY



**DRY INSTALLATION GRAVEL**

The dry installation allows for the positioning of the slabs directly onto substrates in gravel to create pedestrian pathways that can be immediately walked upon. This type of application is easy & quick and does not require the use of adhesive for installation.

### APPLICATION AREAS



GARDENS



PATH WAYS



PUBLIC PLACES



COURTYARDS



**TRADITIONAL ADHESIVE SYSTEM**

The traditional adhesive installation onto screed guarantees an excellent breakage load thanks to the performance of 2cm thickness. This installation method represents the perfect solution for carriageable lanes as well as lanes with vehicular movement.

### APPLICATION AREAS



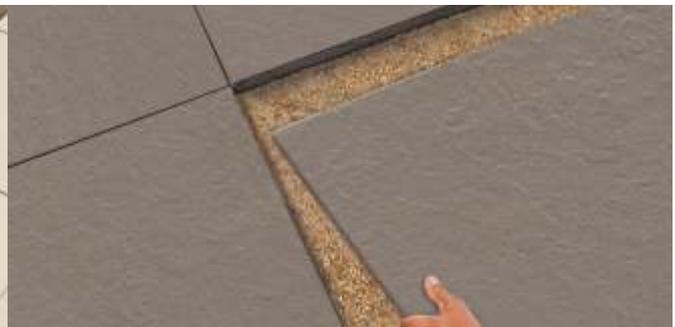
COURTYARDS



SWIMMING POOL DECKS



PUBLIC PLACES



**DRY INSTALLATION SAND**

The dry installation allows for the positioning of the slabs directly onto substrates in sand to create pedestrian pathways that can be immediately walked upon. This type of application is easy & quick and does not require the use of adhesive for installation.

### APPLICATION AREAS



GARDENS



PATH WAYS



PUBLIC PLACES



### DRY INSTALLATION GRASS

The dry installation allows for the positioning of the slabs directly onto substrates in grass to create pedestrian pathways that can be immediately walked upon. This type of application is easy & quick and does not require the use of adhesive for installation.

### APPLICATION AREAS



PATHWAYS



SWIMMING POOL DECKS

# METEOR SERIES

60X60 cm | 2 CM THICK

# METEOR



Korneto Beige



Korneto Gris



Korneto Ivory



Kreo Beige

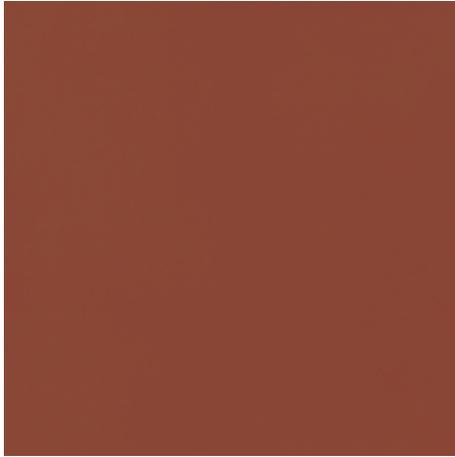


Kreo Gris



Kreo Ivory





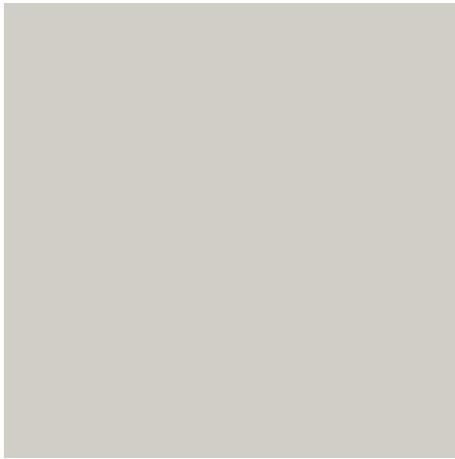
Kreo Terracotta



# METEOR SERIES

60X60 cm | 1.5 CM THICK

# METEOR



Coated Grey Plus

D



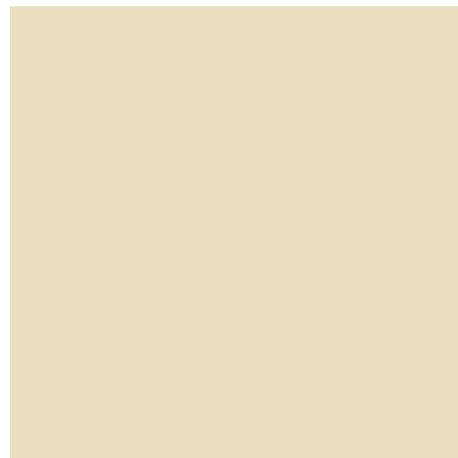
Galaxy Gl Lava-1

P



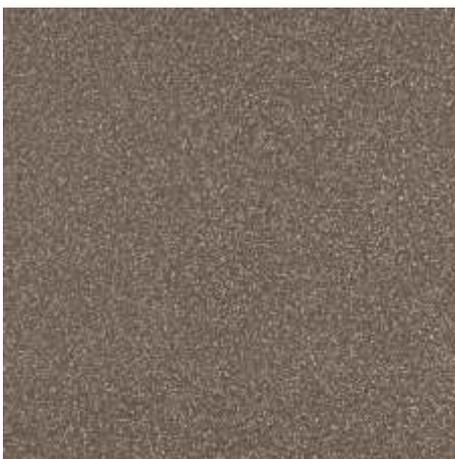
Galaxy Gl Marble Brown

P



Ivory

P



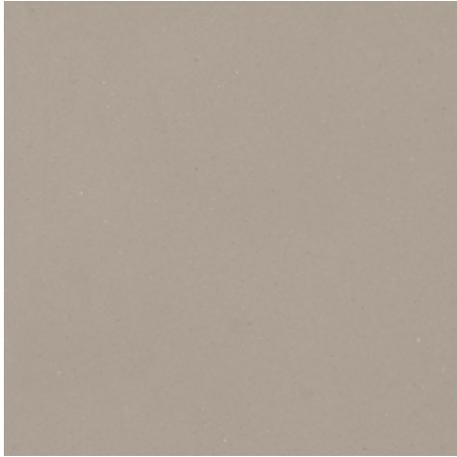
Plain Benaulim

P

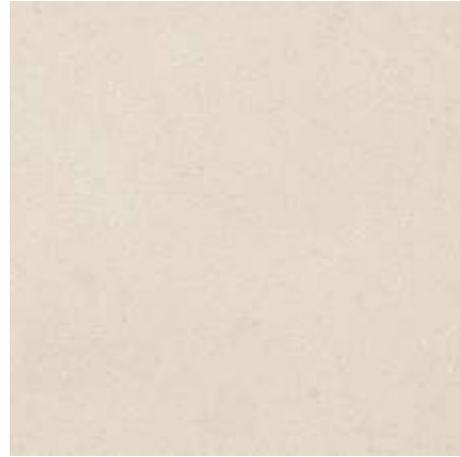


Plain Donapaula

P



Plain Grey



Plain White



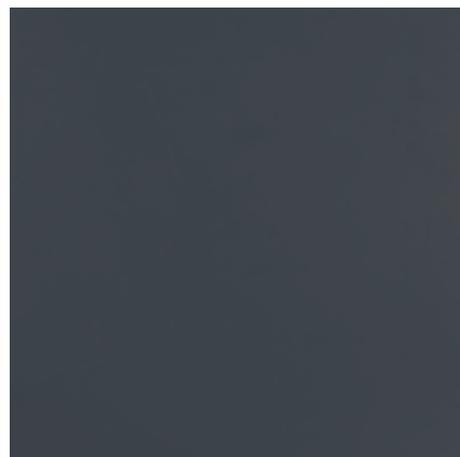
Rustic GI Metallic



Slate Bianco



Slate Kota green



Slate Nero



# METEOR SERIES

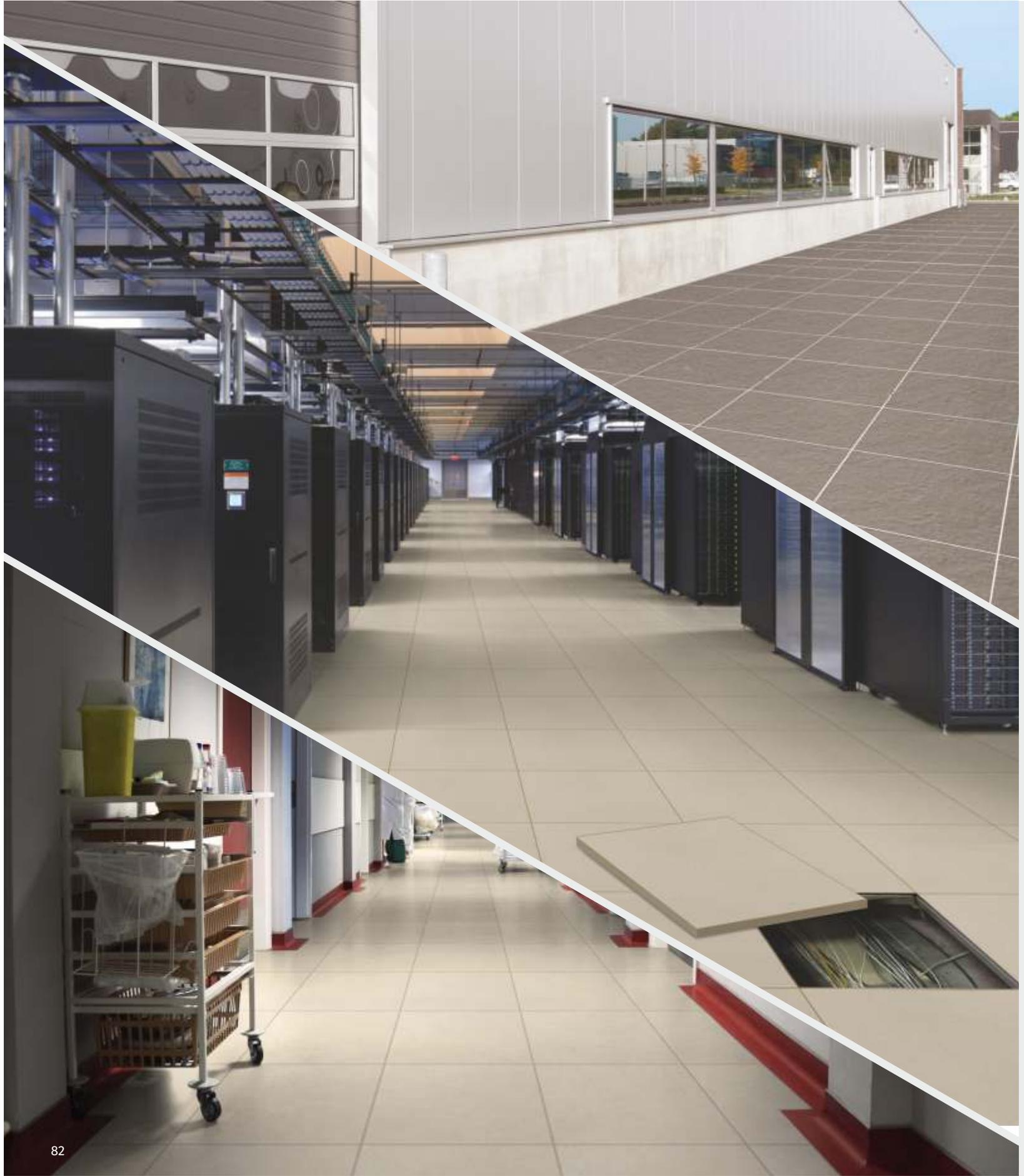
60X60 cm | 1.5 CM THICK

# METEOR



Terracotta





# METEOR SERIES

60X60 cm

# METEOR

Features	Advantages	Benefits
High Abrasion Resistance. Deep abrasion volumeloss <120mm <sup>3</sup>	Johnson Endura Meteor tiles have the highest abrasion resistance value when compared with other traditional floors like concrete tiles, paver blocks, natural stones etc, thus ensuring lowest possible abrasion & wear off.	This helps customer maintain aesthetic value of floor year on year and avoid recurring maintenance costs.
Harsh weather & UV Resistance - Neutral to the Sun's UV effect	No fading of floor colors	Ideal for external flooring.
Easy to Install	Quick & easy fixing in least possible time with less cumbersome process. Three ways: 1. Raised flooring with supports (accessible underneath floor). Can be reused & refitted. 2. On top of gravel (bank gravel i.e. river run, crushed stone/ fine gravel) or compacted soil. Can be reused & refitted. 3. Cement sand mortar / adhesive system.	Quick completion of project.
Acid Alkali Resistant	Any spills or stains can be easily cleaned with commercial acids or alkalis (except HF and their derivatives)	Ideal for flooring in extreme weather conditions. Also helps in getting newer look over a period of time by acid wash on floor affected by stains due to uncontrolled external use.
High MOH Hardness (>6)	MOH is a measure to test surface scratch hardness value on a relative scale from 1 to 10 Higher the value, more the hardness, thus protecting the surface from scratches. MOH value of > 6 ensures these do not get scratched even with coarser sand, stone grits etc thus providing a tough, rigid, floor without scratches especially on continuous use & vehicular traffic.	Enhanced long lasting aesthetic beauty due to scratch free surface .
Higher breaking strength	Endura Meteor tiles can take large loads, high pedestrian traffic much better than stone & concrete tiles in a variety of outdoor / indoor applications without giving away .	Suitable for high load and heavy traffic usage.
Stain resistance	Provides sufficiently good stain resistance property making the surface impervious to dusts, stains and external liquid agents.	Retains aesthetics.
Low water absorption ≤ 0.5%	Ensures compact body thus preventing stains & percolation of liquid based media.	Helps in maintaining good housekeeping norms.

## Effective in Shielding Harmful X-rays

Discovered more than 100 years ago, X-rays continues to play an important role in patient care, are used to look inside the body to diagnose many ailments and are also used in cancer treatments-Radiotherapy, Interventional Radiology, Computed Tomography, Mammography, Bone Mineral Densitometer, Dental Radiography.

As all good things come with few ill effects, long and over the limit (1mSv/yr for Public) exposures to the radiations and its leakages leads to far reaching health risks, we seriously need to look into the radiation hazards for the technicians, support staffs, people around the imaging facilities and the environment.

As per the regulatory requirement from AERB (Atomic Energy Regulatory Board), appropriate structural shielding shall be provided for walls, doors of the room housing the X-ray equipment so that radiation exposures received by workers and the members of the public are kept to the minimum and shall not exceed their respective dose limits (20mSv/year average over five years for healthcare workers).



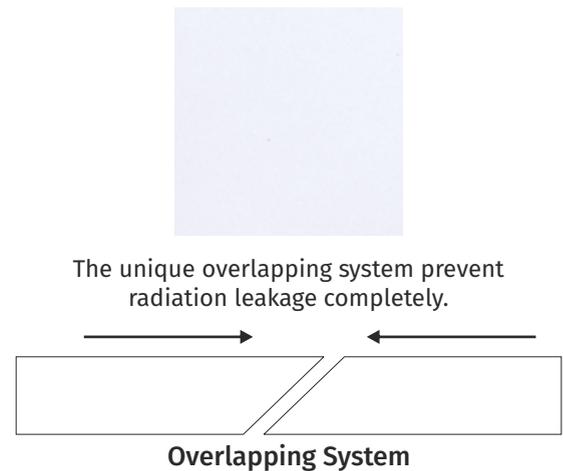
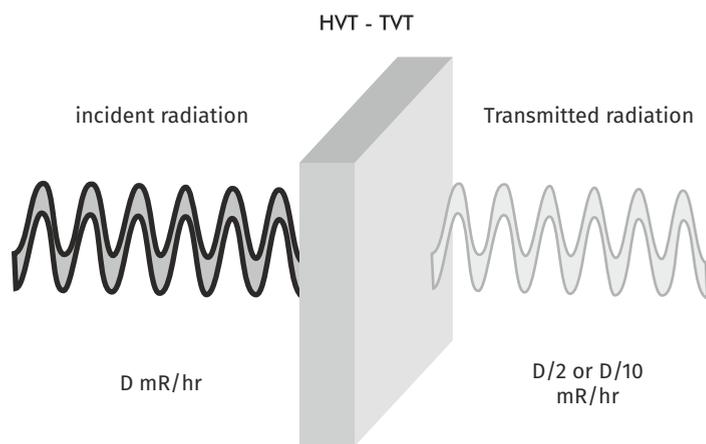
# RADIATION SHIELDING TILES

30X30 cm | 1.2 CM THICK

# RADIATION

## shielding...

Thickness of protective shielding is necessary to reduce the exposure rate from any x-ray machine to the desired permissible level.



JOHNSON ENDURA RADIATION SHIELDING TILES (RST): Non Toxic, non-reactive, permanent radiation shielding, easy installation, cost effective

Size: 30 X 30 cm | Tiles: 12 mm thickness ( =2mm Pb @ 100 kV) | Density: 3.9 g/cc  
Color: White (glazed) & Terracotta (non glazed)

Currently Lead, Brick, Concrete and Steels are used as alternate shielding Material as recommended by AERB (Atomic Energy Regulatory Board), but most of them are not effective enough over a period, carcinogenic, expensive and difficult to handle.

Also long-time exposure to lead has been reported to cause anaemia, along with an increase in blood pressure, and that mainly in old and middle aged people. Severe damage to the brain and kidneys, both in adults and children, were found to be linked to exposure to heavy lead levels resulting in death. It is the second topmost hazardous material.

The Department of Health and Human Services (DHHS), Environmental Protection Agency (EPA), and the International Agency for Research on Cancer (IARC) have determined that lead is probably cancer-causing in humans.

“H & R Johnson India has introduced Johnson Radiation Shielding Tile”  
Under Technology License Agreement with CSIR - AMPRI (Advanced Materials and Processes Research Institute), Bhopal



## Current Shielding Materials In Use (As Recommended By Atomic Energy Regulatory Board - Aerb):

Materials	Disadvantages
LEAD	Highly toxic and carcinogenic in nature, life of shielding is less, gap generates due to its self-weight, need high skills of installations, very expensive.
BRICK	No standard control on density, varies from place to place, no guaranteed shielding, no recommendations on grouts, mortars available for grouts are highly porous in nature and not suitable for shielding.
CONCRETE	Prone to develop cracks over a period, have air pockets during casting, X-rays when propagates further develops cracks due to high instant temperature. The shielding efficiency drops within one or two years.
STEEL	Heavy structures difficult to handle and install, conducive in nature and very expensive.

\*\* Lead free shielding materials have been developed by Council of Scientific and Industrial Research (CSIR)- Advanced Materials and Processes Research Institute (AMPRI), Bhopal.

## Johnson Endura Radiation Shielding Tile Benefits Over Existing Lead Sheets

Radiation Shielding Tiles	Carcinogenic Lead Sheet
High thickness of 12 mm.	Low thickness of 1-2mm
Low price	High price
Non toxic	Toxic/Carcinogenic as per IARC
Life of shielding is very high	Life of shielding is less
Easy installation	High skill installation
Non toxic resources	Use of toxic Natural source

## Johnson Endura Radiation Shielding Tile Advantage

- 100% Lead free and environment friendly.
- Atomic Energy Regulatory Board-AERB recommended for shielding adequacy
- Brings down cost of Radiation Shielding.
- Avoids need for periodic survey as compared to lead which tends to lose its structural integrity over time.
- Easy and fast installation.

# RADIATION SHIELDING TILES

30X30 cm | 1.2 CM THICK

# RADIATION

## Laying Installation

- Read tile fixing instruction before tile laying (available on carton)
- A minimum 6 inch thick brick wall with proper levelled plaster is required for holding high density tiles like RST effectively up to 12 ft height or more.
- The sides of the tile are cut diagonally to overlap the adjacent tile.
- Coat the tile edges with radiation shielding special additive which shall be supplied by H & R Johnson (Approx. consumption of 15 kg for 100 boxes).
- Fix tiles with 'Platinum Star Plus' adhesive from Ardex Endura in 5 to 8 mm Thickness.
- Fill all joint gaps with X-ray Radiation Shielding Additive.
- Post installation, H & R Johnson shall help in getting the facility certified by authorised AERB lab for effective radiation shielding.
- System components & suppliers:
  1. Radiation Shielding Tiles - H & R Johnson (India)
  2. Platinum Star Plus Adhesive - Ardex Endura (India) Pvt. Ltd.
  3. X-ray Radiation Shielding additive for edge & joints - H & R Johnson (India) -Approx. Consumption of 15 kg for 100 boxes.



Effective Shield from Harmful Rays



Non-Toxic Non- Reactive



Unique Overlap System



Permanent Radiation Shielding



Vitrified Tiles in 12mm Thickness



100% Lead Free & Environment Friendly



Atomic Energy Regulatory Board Certified

## application areas

Radiography & Fluoroscopy unit

Interventional Radiology (Cardiac Angiography)

Computed Tomography

Mammography

Bone Mineral Densitometer

Dental Radiography (Dental CBCT/OPG)

Increased awareness among institutions, health professionals will improve radiation safety standards in healthcare. H & R Johnson with the technical support of CSIR-AMPRI, BHOPAL and all stakeholders is determined to collaborate and introduce such innovative products!



## Pool Tiles 24.7 X 12.2 CM

Our swimming pool tile range brings new variants for leisure, private and competition pools. The comprehensive range includes fittings, accessories, field tiles and tiles for steps & edges making it a complete pool solution. Hygienic and easy to maintain these tiles prevent germs and moss accumulation.



# SWIMMING POOL

## DESIGNER MOSAIC TILES

24.7X12.2 cm | 0.8 CM THICK



Neo Pool Art Blue 



Neo Pool Azure 



Black 



Dark Blue 



Neo Pool Deep Blue 



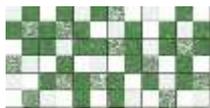
New Blue 



Neo Pool Ocean 



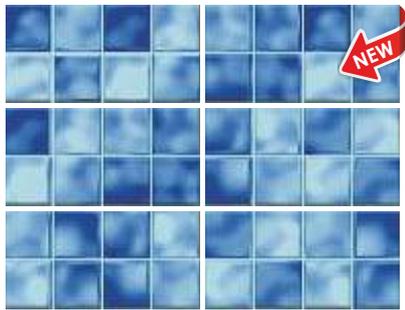
Orient Blue 



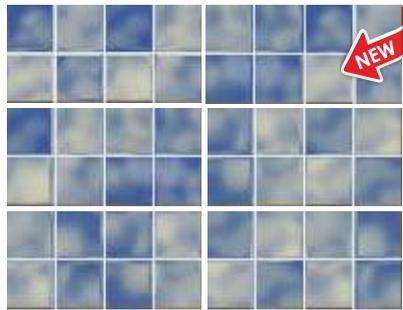
Neo Pool Verde 



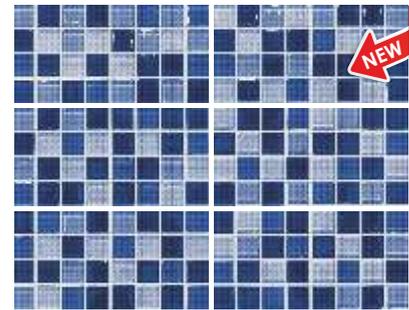
White 



Cloud Deep Sky 



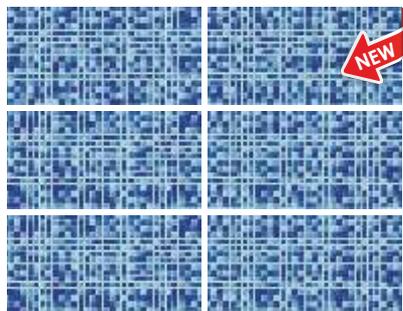
Cloud Light Sky 



Pearl Glass Azul 



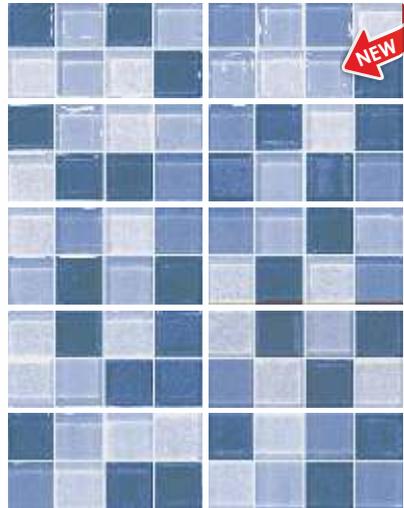
Pearl Fin 



Pearl Royal Blue 



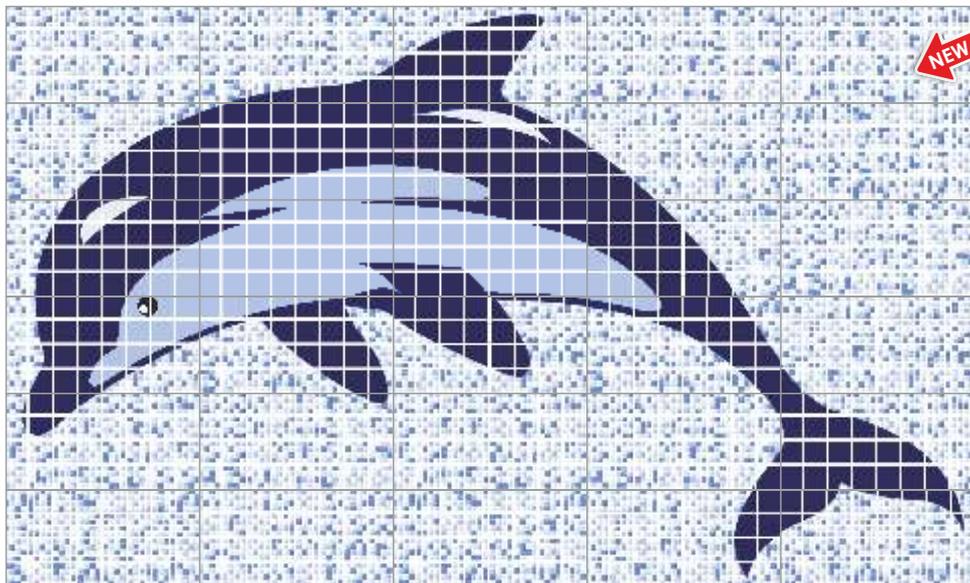
Cloud Mist Green



Cloud Mist Smoke



Pearl Azul

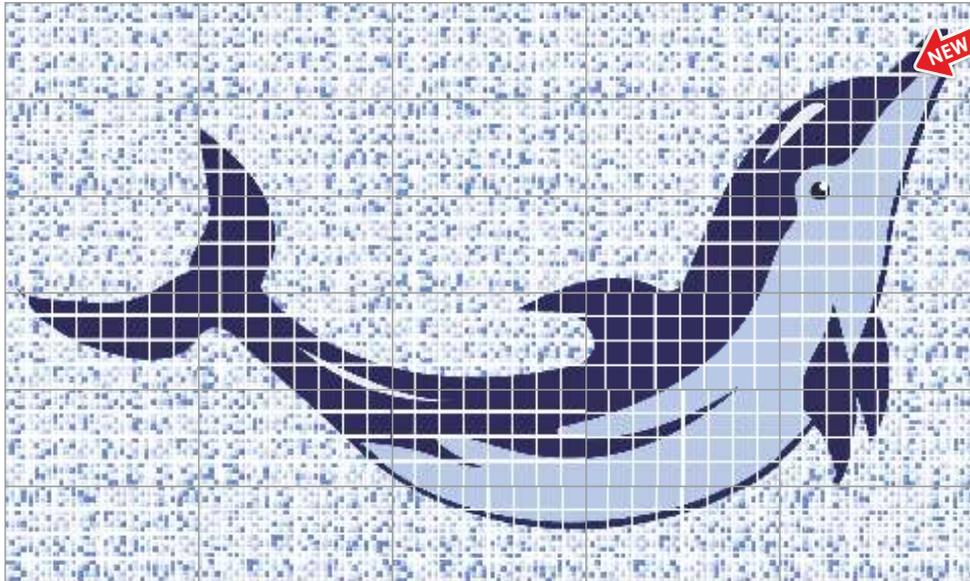


Pearl Fin Diving In

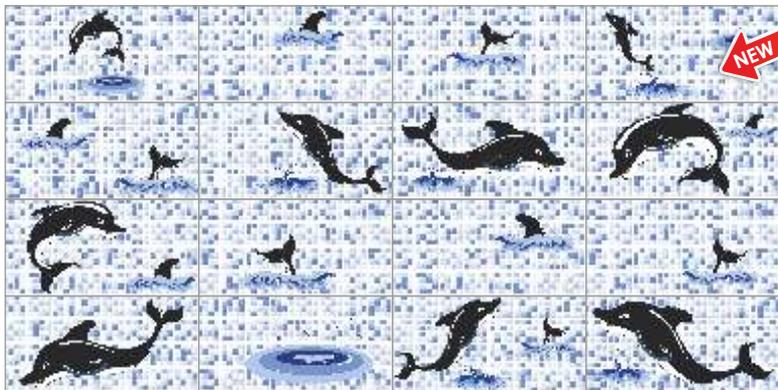


DESIGNER MOSAIC TILES

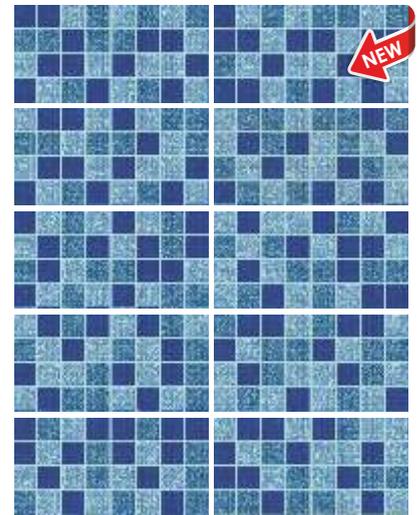
24.7X12.2 cm | 0.8 CM THICK



Pearl Fin Diving Out



Pearl Fin Mix



Pearl Textura Blue





Internal Cove ●  
Size: 24.4cm X 4cm  
Code: P 1050  
Colour: Orient Blue



External Angle ●  
Size: 25cm X 5cm  
Code: P 2050  
Colour: Orient Blue



Internal Angles of  
Wall-Floor Junction ●  
Size: 4cm X 4cm  
Code: P 6050  
Colour: Orient Blue



Junction of 3  
External Angles ●  
Size: 4cm X 4cm  
Code: P 4050  
Colour: Orient Blue

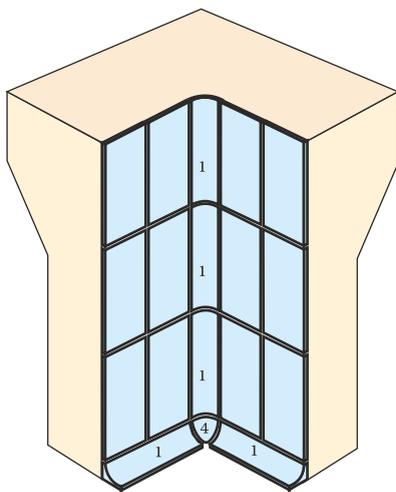


External Angles of  
Wall-Floor Junction ●  
Size: 7.2cm X 7.2cm  
Code: P 5050  
Colour: Orient Blue

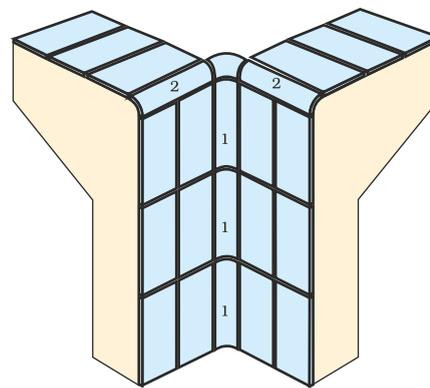
● Sizes & thickness of pool fittings are subject to change without prior notice. Kindly verify the actual sample before placing the order .



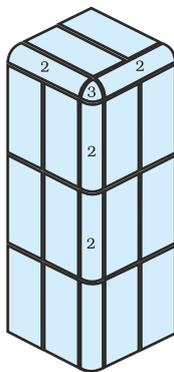
## POOL FITTINGS - ASSEMBLY DIAGRAM



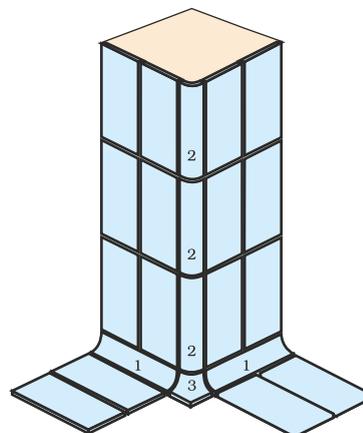
Internal



Top Internal Corner



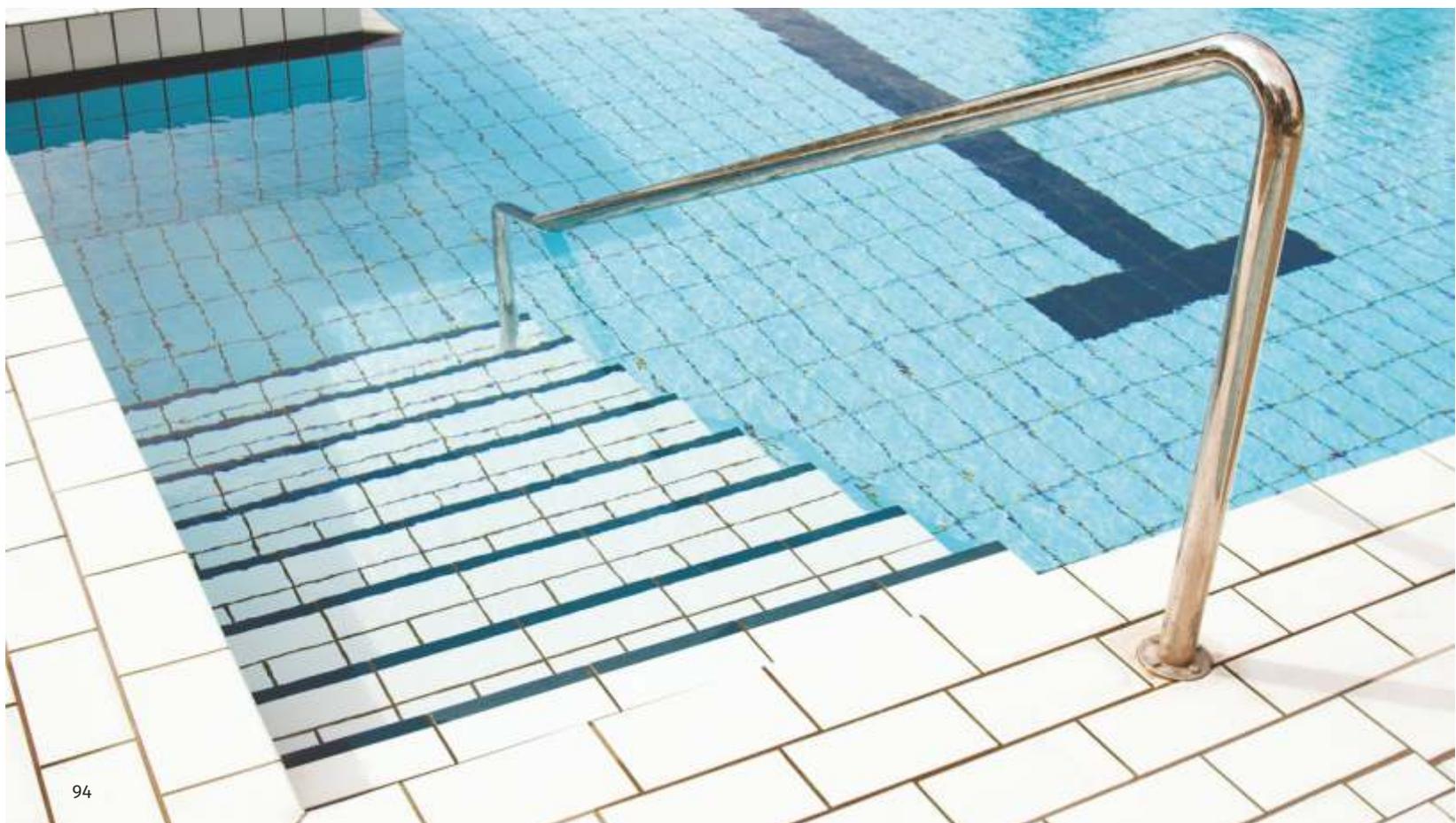
External



Bottom External Corner

1. Internal Cove (P 1050)
2. External Angle (P 2050)
3. Junction of 3 External Angles (P 4050)
4. Internal Angles of Wall-Floor Junction (P 6050)

1. Internal Cove (P 1050)
2. External Angle (P 2050)
3. External Angles of Wall-Floor Junction (P 5050)



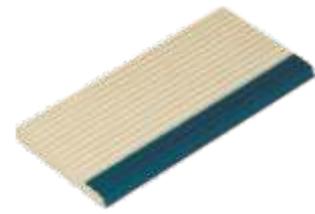
## STEP & EDGES



Anti-Slip Tile ●  
Size : 24.4cm X 11.9cm  
Code : E 1070  
Colour : Ivory



Finger Grip with  
Safety Marking ●  
Size : 24.4cm X 11.9cm  
Code : E 4070  
Colour : Blue



Grooved Anti-Slip Tile  
With Safety Marking ●  
Size : 24.4cm X 11.9cm  
Code : E 2070  
Colour : Ivory

● Availability needs to be verified with the plant before order confirmation.





## Swimming Pool Tiles

Features	Advantages	Benefits
Size 24.7 cm x 12.2 cm	In conformance with Standard Olympic Pools norms.	Easier path to certification with related benefits . Ideal for competition pools.
Wide range of Colours – Orient blue, New Blue, Dark Blue, White, Black	As desired by Olympic standard norms. Dark Colours are used especially as lane markers.	Provides conformance to Olympic full & half size competition pools with enhanced aesthetic appeal .
Specialized pool fittings – Internal Cove, External Cove, Internal Angles wall – floor junction, External Angles of Wall floor Junction, Junction of 3 external angles	Enables proper rounding of corners & junctions avoiding sharp edges & dust, dirt accumulations.	Customer benefitted by enhanced safety & hygiene factor.
Tiles for Steps & Edges	Provides higher grip to soles of feet while entering into the pool. Safety marking cautions about the level difference in the pool. Finger grip with safety marking provides holding support while in pool & also highlights the level difference at the edge of the pool.	Customer benefitted by enhanced safety and great aesthetics . Helps in compliance with International standards
Specialized Glazed tiles	Ensures no algae formation on pool tiles.	Higher Hygiene factor and safety.
Higher MOR >30 N/mm <sup>2</sup>	Withstands water pressure better than ordinary ceramic tiles.	Longer service life.
Water Absorption <3%	Lower Water Absorption means superior crazing & frost.	Better hygiene & Safety for Pool users.

## Say Goodbye to conventional Staircases

Stairs are used in lieu of elevators in buildings or houses and also play a very important role as emergency exit areas in office buildings and commercial spaces. Until today, staircases were built using marbles and granite, which are expensive, require on - site cutting and finishing, leading to a lot of wastage. They need a lot of manual labour for handling and fixing. Besides, they can stain easily, the surface may be slippery and they can chip or crack during use. They are difficult to replace with same shade and texture if broken, besides also needing constant maintenance.



## Get the Johnson Endura Stepping Stone Advantage!

The Johnson Endura Stepping Stone range is a revolutionary way to build staircases with step tiles and risers. The result of an unquantifiable amount of time spent researching the very many possibilities in the world of staircases. At the center of this research, we kept people and a few important questions concerning them -

"Will it be safe enough for senior citizens and children to use?"

"Are they safe for use by people with physical and visual disabilities?"

"How long would they last before needing a replacement?"

"Should durable mean cumbersome installation and frequent maintenance?"

"Are they easy to install, without any cumbersome cutting and finishing or wastage?"

"Are they non - combustible and safe during a fire emergency?"

# STEPPING STONE

## Here's why it makes more sense to build your Staircases with Endura Stepping Stone

### Safety for All

These full-bodied vitrified tiles come with bull nosing and tread lines that make them skid-resistant and much more safer than conventional stairs.

### Faster Installation

No more handling issues. No more labour-intensive on-site installations, no more wastage costs. Endura Stepping Stone can be easily and speedily installed on site.

### Long Lasting & Easy on Maintenance

Chipped and worn out staircases, constant need for polishing and repairs, are all things of the past. Endura Stepping Stone are full-bodied vitrified tiles, which means they absorb very low water and are impervious to weather or wear and tear induced damage. Fit them and forget them for years of trouble free performance.



Less than  $\leq 0.05\%$  Water Absorption



Bull Nosing



Anti Skid



High Flexural Strength



Robust, durable tiles than conventional options



23 Beautiful Shades



Faster Installation

## The Endura Stepping Stone Advantage.

FEATURE	BENEFITS
Fully Body Vitrified Step Tiles & Risers	Highly durable, ideal for heavy traffic and commercial areas.
Ready to install tiles	Easy and speedy installation. Say goodbye to cumbersome cutting and finishing on site.
Embossed Tread Lines	Provide extra grip for higher safety near step edge.
Unique full bull nose edges	Unlike other step tiles, Endura Stepping Stone is India's first bull nosing tile, which makes the staircase safer and comfortable to step on. Bull nosing also helps to prevent chipping from sharp edges and it improves the overall aesthetics of the stairs.
1.2 cm & 1.5 cm thickness	Provides higher strength and durability as desired in big size slabs. An assurance to replace natural stones in a confident way.
Lowest water absorption of $\leq 0.05\%$ along with enhanced stain resistance.	Strongest of dyes – methylene blue can not stain Endura Stepping Stone. Impervious surface ensures ease of cleaning.
Highest abrasion resistance of $< 120 \text{ mm}^3$	Ensures 10 times superior surface protection against wear and tear over natural stones.
Available in 23 beautiful shades.	Suits the building theme, décor and desired contrast.

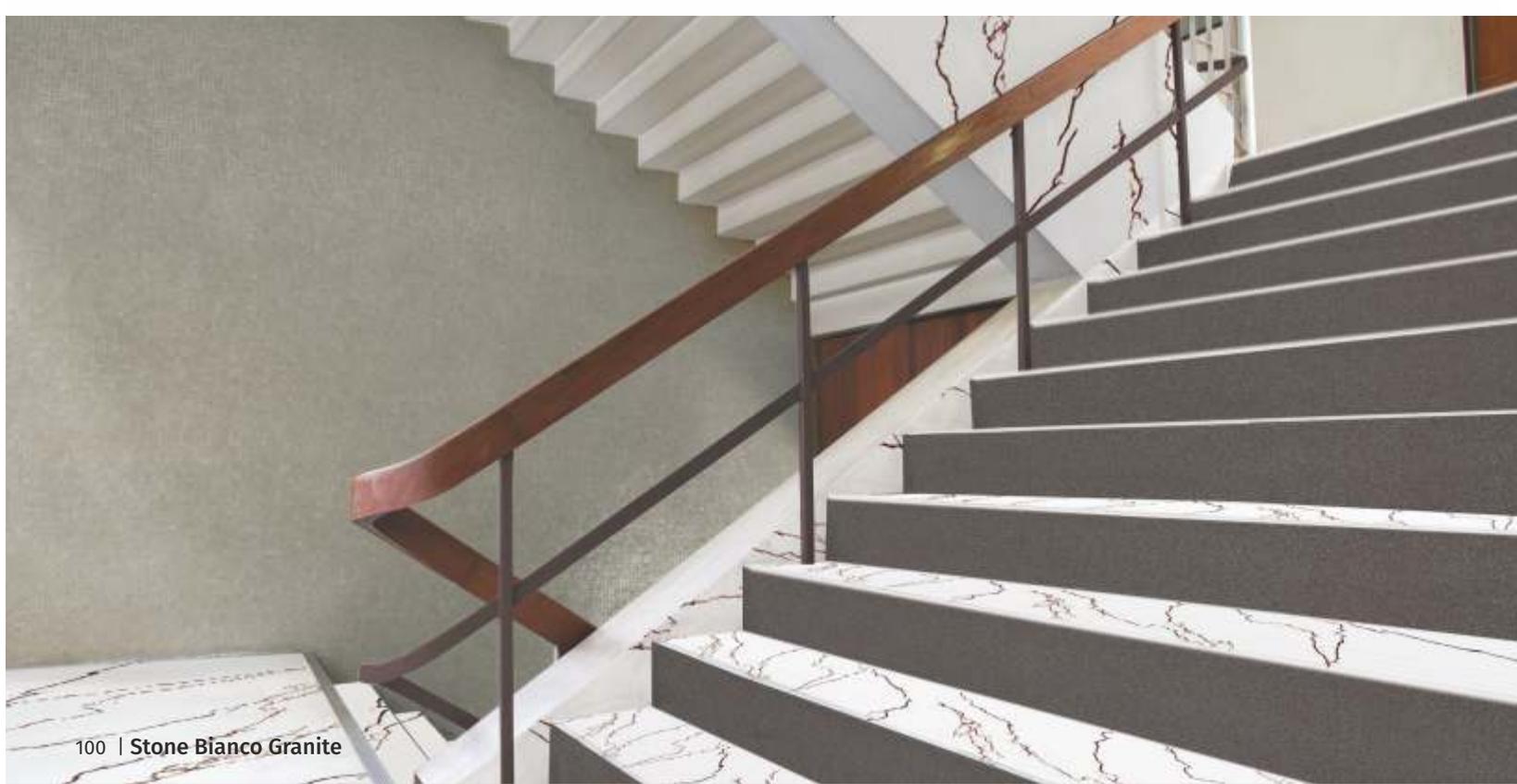
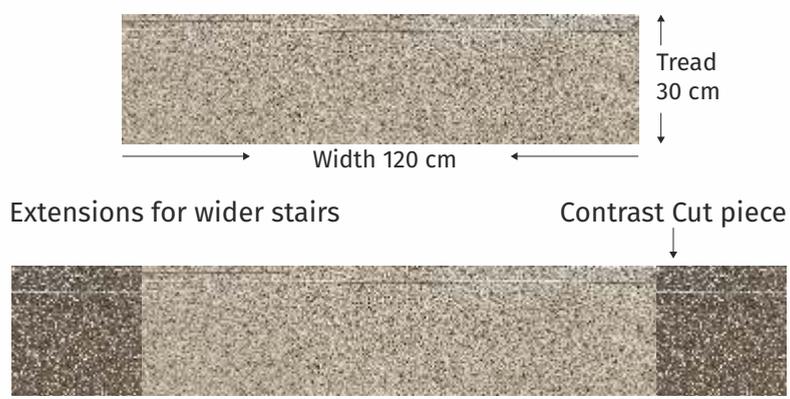
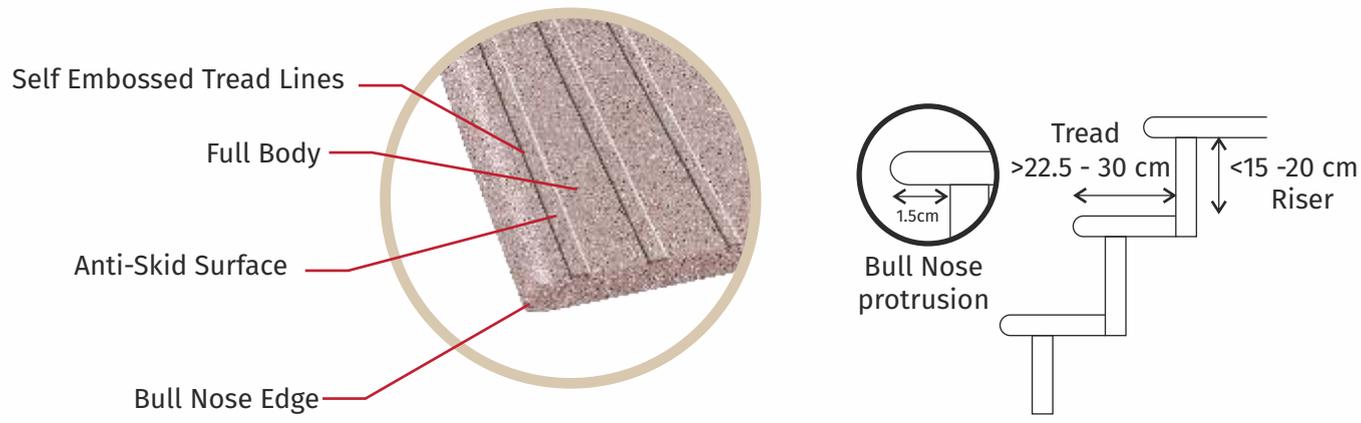
### Disclaimer in Stepping Series

All mentioned shades are available in 12mm 600x1200 & 300x1200. S & P shades are available in 15mm 600x1200 & 300x1200. Other sizes will be as make to order basis with MOQ of 1500 sq.mtr.

\*15 mm - Full bull nose.

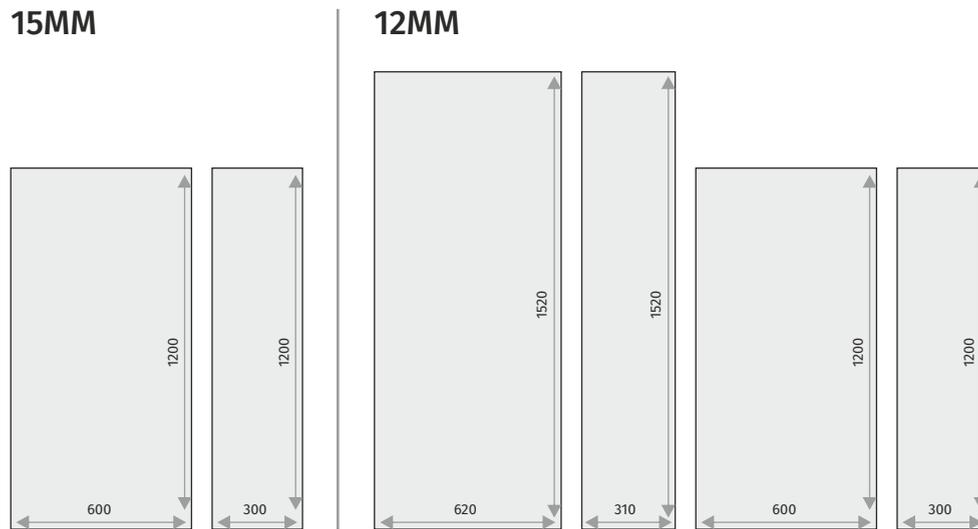
12 mm - Half bull nose.

**India's First Bull Nosing Fully Vitrified Step Tile.**



# STEPPING STONE

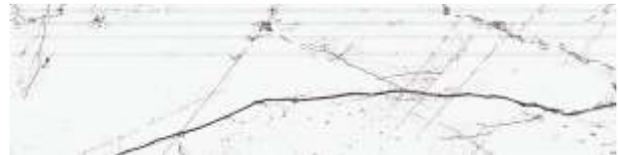
## Riser & Landing Area Tiles



## Step Tiles - Full Body Marble & Granite Series



Stone Bianco Marble



Stone Bianco Granite



Stone Grey Granite



Stone Light Beige Granite



## Full Body S & P Colors



S & P Coffee



S & P Dark Beige



S & P Grey



S & P Jet Black



# STEPPING STONE

## Step Tiles - Full Body S & P Colors



S & P Kota



S & P Light Beige



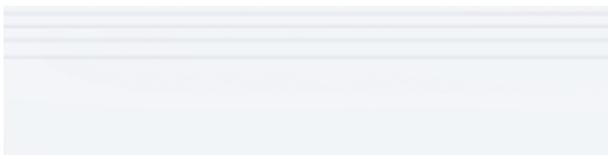
S & P Nero



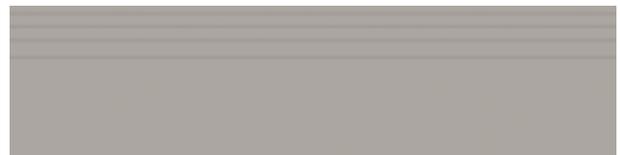
S & P Sky



## Full Body Plain Color



Stone Bianco



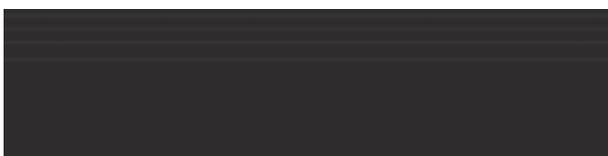
Stone Grey



Stone Kota



Stone Light Beige



Stone Nero



Stone Sky



## Riser & Landing Area Tiles - Full Body Marble & Granite Series



Bianco Marble



Bianco Granite



Grey Granite



Light Beige Granite



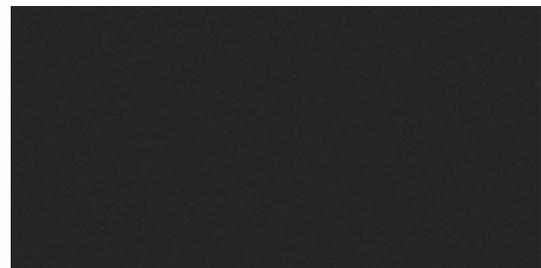
S & P Coffee



S & P Dark Beige



S & P Grey



S & P Jet Black



# STEPPING STONE

## Riser & Landing Area Tiles - Full Body S & P Colors



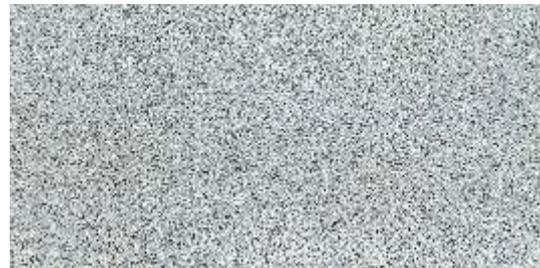
S & P Kota



S & P Light Beige

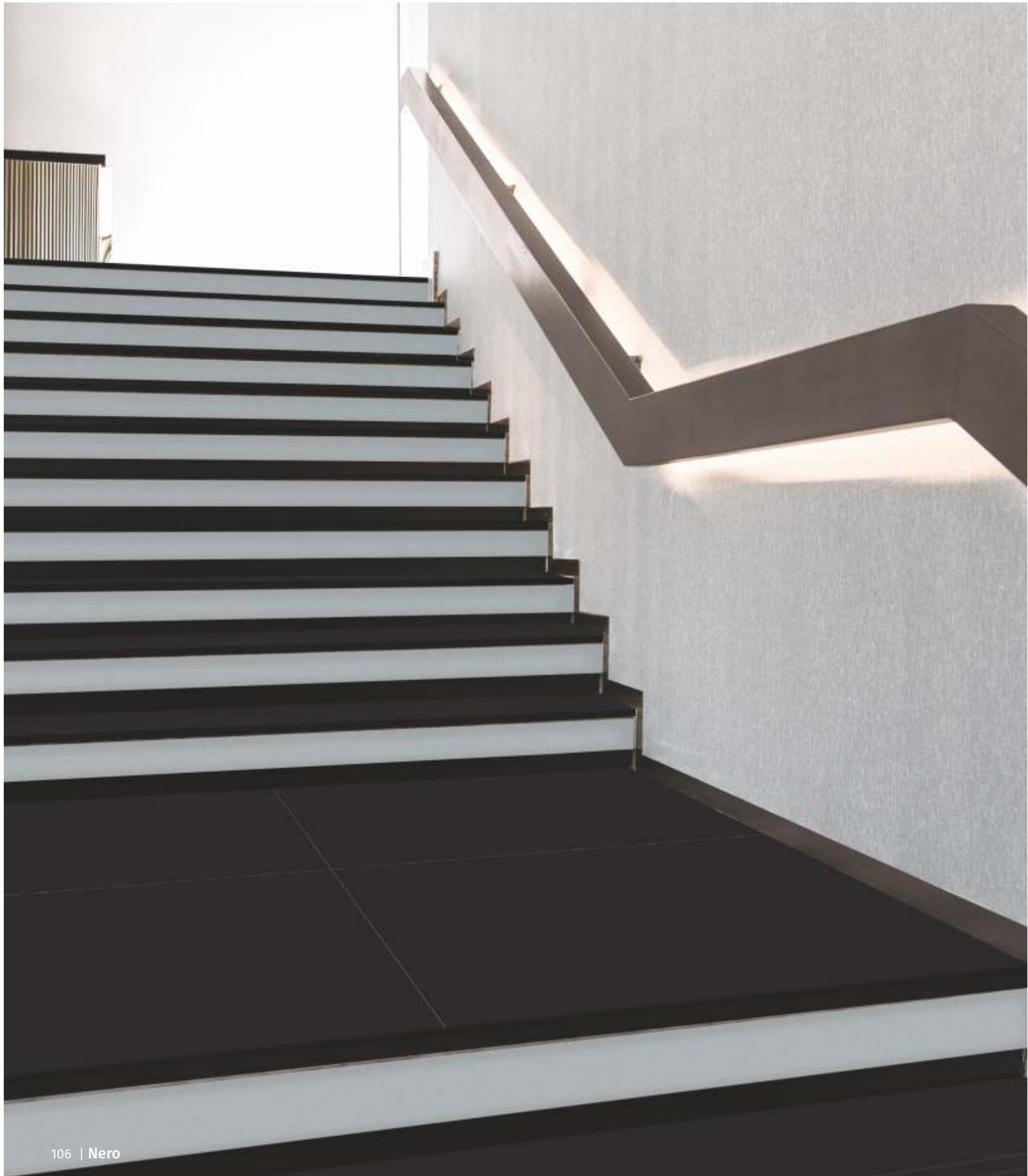


S & P Nero



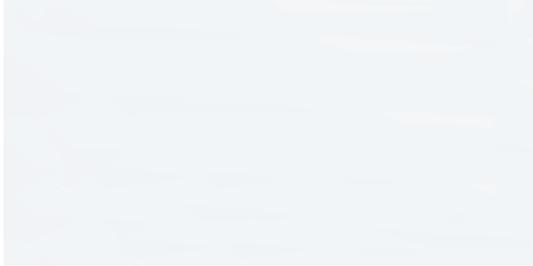
S & P Sky





# STEPPING STONE

## Riser & Landing Area Tiles - Full Body Plain Colors



Bianco



Grey



Kota



Light Beige



Nero



Sky



### Disclaimer:

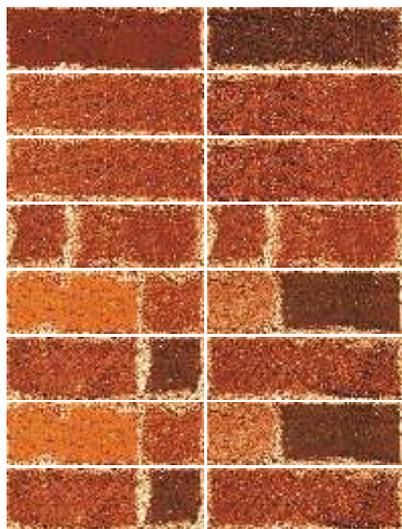
1520x310 & 1520x620mm - All designs are make to order, min order qty is 1000sqm

1200x300 & 1200x600mm - 15mm S&P is make to order - 1000sqm

1200x300 & 1200x600mm - 12mm Plain & S&P all designs are available

1200x300 & 1200x600mm - 12mm Marble & Granite designs are make to order - 1000sqm

Matt



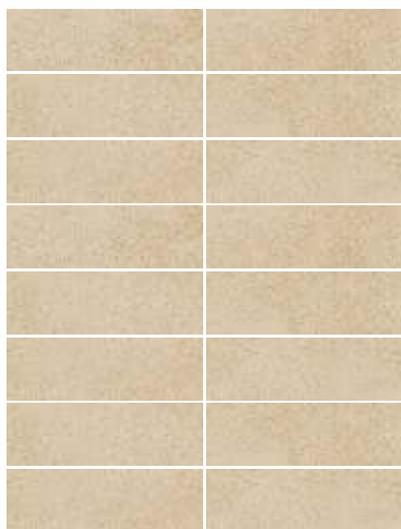
Boston Brick



Claire Brick Café



Brique Brick



Claire Brick Beige



Claire Brick Beige Deco



Claire Brick Noir



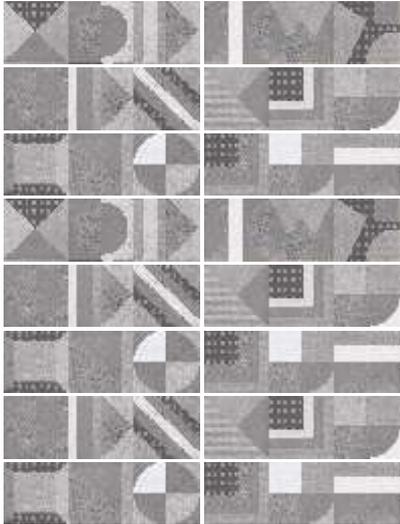
# CLAD CARE SERIES

24X7.5 cm | 0.5 CM THICK

## CLAD CARE



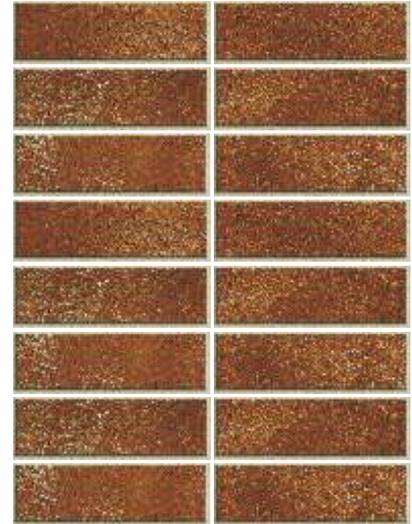
Matt



Claire Brick Noir Deco



Claire Brick Ivory



Solaire Brick



Oxide Brick



Slate Rock



# CLAD CARE SERIES

24X7.5 cm | 0.5 CM THICK

## CLAD CARE



## Hi-Traffic

### Sandex :

- Office Lobbies
- Corridors
- Super Markets
- Automobile Service Centres
- Restaurants
- Community Halls
- Schools & Colleges

### Colour :

- Parking Lots
- Pathways
- Walk Ways
- Corridors
- Building Compounds
- Terrace Areas
- Outdoor Sit Out Areas
- Skywalks
- Bridges & Patios

### Tactile :

- Train Station
- Bus Stops
- Pavements
- Footpaths
- Airports
- Signal Crossings
- Housing Projects
- Commercial Projects
- Townships

### Pavers :

- Garden Walkways
- Building Entrance
- Walkways
- Pathways
- Corridors
- Building Compounds
- Terrace Areas
- Outdoor Sit Out Areas
- Skywalks and Bridges
- Patios
- Parking Lots

### Industrial:

- Chemical Plants
- Power Plants
- Air Hangers
- Food Processing Units
- Breweries
- Factory Floors
- Automobile Workshops
- Pharma Units
- Steel Plants
- Textile Units
- Cement Plants
- Showroom Floors
- Parking Areas
- Depots & Warehouse
- Forklift Movement Areas
- Material Handling Areas
- Processing Units
- Galas
- Storage Units

## Anti-Static

- Server Rooms
- Petrochemical Factories
- Ordnance Factories
- Chemical Plants
- Bulk Drug Plants
- Fire Prone Areas
- Computer Rooms
- Electronic Equipment Rooms
- PLC Panel Rooms
- PCB Manufacturing
- IT Industry
- Sophisticated Equipment Laboratories
- Shell Making Factories
- Defence Factories
- Hospital Operation Theatres

## Swimming Pools

- Private, Commercial & Competition Pools
- Water Storage
- Leisure pools

## MaxGrip

- Malls
- Parking Lots
- Hospitals
- Educational Institutes
- Ramps
- Pools & Gymnasiums
- Bathrooms

## Radiation Shielding Tile

- Radiography & Fluoroscopy unit
- Interventional Radiology (Cardiac Angiography)
- Computed Tomography
- Mammography
- Bone Mineral Densitometer
- Dental Radiography (Dental CBCT/OPG)
- Radiology Wards of all Government & Private Hospitals, Scanning Centers etc.

## Meteor

- Verandah / Porches
- Server Room & It Industry
- Gardens
- Path Ways
- Courtyards
- Public Places
- Courtyards
- Public Places
- Swimming Pool Decks
- Gardens
- Path Ways
- Public Places
- Food & Dairy Industries
- Resorts

## Cool Roof

- Building roofs
- Balconies
- Exterior facades cladding
- Pavements

**Q1. What is Endura?**

A. Endura is brought to you by H & R Johnson (India), the country's largest manufacturer of Industrial, Pavement and Specialty tiles such as Swimming pool tiles, Antistatic tiles, Tac tiles etc. Endura offers virtually all types of interior and exterior tiling solutions.

**Q2. What differentiates Endura Pavers in the Hi-Traffic tiles range?**

A. Endura Pavers are smaller format of Hi-Traffic tiles available in a wide range of 5 colors, which help in creating artistic floor combinations that enhance the aesthetics and ruggedness of the landscape. The rock like textured surface of Endura Pavers along with the Salt & Pepper effect offers a rocky- sandy look much sought after. It is recommended to lay Endura Pavers with a gap of 0.6cm to 1cm between the tiles with ARDEX ENDURA tile grouts to enhance both the beauty and functionality of the pavers range.

**Q3. What are the benefits of Johnson Endura Sandex compared to Marble and Granite?**

Parameter	Italian Marble	Natural Granite	Johnson Endura Sandex	Benefits of Endura
Porosity	Very high	Medium porosity	Very low porosity	High chemical & stain resistance, clean & hygienic, (Bacteria resistant).
Water absorption	>5%	>1%	≤ 0.05%	
Flexural strength	6.3 N/mm <sup>2</sup>	13.8 N/mm <sup>2</sup>	≥ 38N/mm <sup>2</sup>	High strength, durability. Maintenance free.
Abrasion resistance	> 1500 mm <sup>3</sup>	> 1240 mm <sup>3</sup>	< 120 mm <sup>3</sup>	
Hardness on Mohs scale	4	6	≥7	
Colour & design variation	Very high	High	Low	Aesthetically superior.
Polish	Tin Oxide polish. Poor durability.	Surface polish. Medium durability.	Unpolished matt finish. High durability.	Unpolished finish is long lasting.
Laying / installation	Time consuming process. Assorting required.	Time consuming process. Assorting required.	Pre – sized, easy & faster to install.	Ready to use. Easy to lay.
Discolouring (Becomes yellowish)	Frequent	Frequent	Nil	Aesthetically superior.
Life / durability	Low	Low	High	Lasts the lifetime of your home.

Other advantages of Johnson Endura are that it is fade resistant, ecologically compatible, and environmentally green with no chemical or toxic substances, it is odourless and has good heat energy retaining and conducting (conserving) properties. It is not inflammable and is also UV resistant.

**Q4. What if any object falls on Endura Industrial Tiles? Will the tile break?**

A. Endura Industrial tiles can withstand normal impact. They have been tested in automobiles garages where various implements and equipment often keep falling with no significant damage to tiles. However, the tiles are not unbreakable and hence the extent of damage, if any, would depend on the weight and shape and height of fall of the falling object. We therefore recommend a gap of few mm between tiles for easy maintenance or replacement, in the event of any damage.

**Q5. What are the advantages of Endura Industrial Tiles over cement concrete tiles and Epoxy floors over a long term?**

A. Cement and Cement concrete tiles tend to pit that form pot holes on usage. In epoxy floors, there is a tendency to develop micro cracks which then tend to peel-off the floor. In both these cases it is difficult to repair the floor. When Endura Industrial floors are installed with proper spacing and grouting, they can be easily repaired by replacing the damaged tile.

**Q6. Do Endura Industrial Tiles stain easily?**

A. Endura Industrial is a vitrified tile with a very low water absorption. It is highly stain resistant as compared to most natural stones. The application of special over-spray helps seal any residual micro porosity and enhances the stain resistance of the tile.

**Q7. Are Endura Industrial tiles good for using above waterproofing surfaces? Do they help in waterproofing?**

A. Endura Industrial tiles are most suited for use over waterproofed terraces as they withstand all the weathering effects roofs are exposed to and insulate against expansion and contraction of the waterproofing layer below. Normally dust on the roof and movement of people leads to abrasion of the waterproofing layer. Endura tiles on a waterproofed roof helps protects this surface. Care should be taken to test the waterproofing layer prior to tiling and tile joints should be sealed properly with epoxy or any other water-proof grouting material.

**Q8. Is Endura Industrial Tile available in various shapes?**

A. Endura Industrial tiles come in squares and rectangles. This makes it convenient to cut and create any designs or pattern as desired at the time of laying. Cement concrete tiles are cast into shapes and these cannot be cut.

**Q9. What is the best way to fix Endura Industrial Tiles?**

A. Endura Industrial tiles are best fixed using ARDEX ENDURA Tile Fixing Adhesive and the gap between the tiles can be filled with ARDEX ENDURA grouts. ARDEX ENDURA Tile Fixing Adhesives and Grouts are available in India and are most compatible with Endura tiles.

**Q10. Are Endura Industrial tiles acid / alkali resistant?**

A. Endura Industrial tiles are resistant to all alkalis and all acid (in high concentration), except HF or their derivatives.

**Q11. In what sizes and thicknesses are Endura Industrial tiles available?**

A. Endura Industrial tiles are available in the following sizes and thicknesses: 60X60-2cm, 60X60-1.5cm, 30X30-2cm, 30X30-1.5cm, 30X30-1.2cm, 20X10-2cm.

**Q12. Why are Anti static tiles required?**

A. Static charge is a constant source of problem in various industrial processes, in areas where highly sensitive electronic or computing equipments are in operation, and in many areas of industries where inflammable chemicals or explosives are being used. In such areas sparking resulting from build up of static charge can become a major fire hazard. The use of antistatic conductive and dissipative flooring products helps conduct the static charge away, thus eliminating the hazard.

**Q13. Is the Anti-static effect on Endura tiles long lasting?**

A. The Antistatic ceramic tiles (dissipative & conductive variety) are produced by mixing fine semi-conducting oxide powders into the ceramic glaze. Firing of the glaze to a high temperature results in sintering and formation of a stable electrically conducting network of ions in solid solution. This electrically conducting network is fused on the tile, thus making the Antistatic effect permanent for the lifetime of the product.

**Q14. How do Antistatic tiles help reduce fire hazards?**

A. Static electricity accumulates on the surface of any floor be it natural stone, ceramic tile or other flooring material. This static electricity is accumulated due to the friction between any two surfaces like shoes and the floor. Endura Anti-static tiles are manufactured using a specially formulated conducting glaze that carries the static electricity charge from the surface of the tile to ground thus eliminating the fire hazard.

**Q15. Which are the application areas recommended for Endura Antistatic tiles?**

A. Recommended application areas for Endura Antistatic tiles are Server rooms, Computer Data Center rooms, PLC Panel rooms, PCB Manufacturing units, Laboratories handling sensitive equipment or chemicals, Petro chemical industries, Shell making factories, Ordnance factories and other Defence factories, Bulk Drug plants, Chemical and Fertilizer plants, etc.

**Q16. What are the other advantages of using Endura Antistatic tiles?**

A. Apart from antistatic property Endura Anti-static tiles are highly abrasion resistant, have superior chemical durability, very high mechanical strength and are stain-proof.

**Q17. What are the advantages of Anti-static Endura tiles versus Vinyl or Epoxy based Polymer tiles and conducting rubber based flooring products?**

**Comparison between Endura Antistatic Tile & Vinyl Flooring**

S. No.	Test Description	Vinyl/Epoxy/ Rubber Antistatic Floor	Endura Antistatic Tile
1	Abrasion Resistance	Will easily scratch & tear	Will not tear & is highly scratch resistant
2	Chemical Resistance	Easily reacts with mild acids and alkalis	Very high resistance to even concentrated acids & alkalis
3	Durability	Low	Very high
4	Stain Resistant	Easily stains	Stain resistant
5	Color Permanence	Fades with time	Color is permanent
6	Hygiene	Dampness or humidity causes fungus formation	Glazed surface is impervious & is easy to clean & maintain
7	Maintenance	High Maintenance	Virtually no maintenance
8	Fire Resistant	Susceptible to fire	Fire resistant
9	Mechanical Strength	Low	High
10	Impact Resistance	Low	High

**Q18. What is the recommended procedure for installing Endura Antistatic tiles?**

A. Endura Antistatic tiles can be installed using conventional cement - sand mortar or using synthetic adhesives such as ARDEX ENDURA and maintaining a 0.3cm to 0.5cm joint that is about 0.6cm to 0.8cm deep. Rake open the joints and fix good quality copper wire into the joints. The joints would then need to be sealed with conducting epoxy grout, to allow for a smooth discharge of any accumulated static charge.

**Q19. Why are special tiles required for swimming pools ?**

A. Safety of the swimmer and spectator is an important criteria for the swimming pool design. The pool surface is used when the feet are wet and the feet soles are soft after soaking in water. This condition necessitates the tiles to be specially designed to suit barefoot usage since the skin is soft and can get hurt easily.

**Q20. What benefits do Endura swimming pool tile offer ?**

A. Endura offers the best designed tiles for covering all areas of the swimming pool. Anti-skid property that give good grip without hurting in dry and wet areas. Coloured pool tiles that show depth and pool edge tiles with safety markings as per international colour coding standard (FINA) Specially designed fitting tiles to cover all corners ensuring no sharp edges. The unique body and glaze composition have been specially designed factoring in the fact that the pool tiles would be continuously exposed to water.

**Q21. Do the swimming pool tiles adhere to any international standard?**

A. Yes. These tiles are made as per the stringent standards laid down by ASA, FINA ( Federation Internationale de Natation Amateur ) & European Standards.

**Q22. What are the other applications of swimming pool tiles?**

A. Endura swimming pool tiles can be used to line water tanks in buildings. The water storage tank which are either underground or overhead can be lined in the inside with Endura tiles to keep the area clean. The surface will have less algae growth as the tiles are coated with a impervious glass surface, thus making it an ideal choice for water storage, including drinking water.

## (Industrial Tiles)

S. No.	Test Description	Endura Industrial Tile					Test Method	
		I.S. - 4457:2007	20X10CM (UR)	IS - 15622:2017 Group B1b	30X30 CM ('R)			
A) Dimension Quality								
1	Deviation in Length & Width	±0.75%	±0.6%	±0.1%	±0.1%	±0.1%	±0.1%	IS 4457:2007 Annex B / IS 13630-1
2	Deviation in Thickness	±5%	±4%	±5%	±4%	±4%	±4%	
3	Straightness of Sides	±0.5%	±0.5%	±0.1%	±0.1%	±0.1%	±0.1%	
4	Rectangularity	±0.6%	±0.6%	±0.1%	±0.1%	±0.1%	±0.1%	
5	Surface Flatness	±0.5%	±0.4%	±0.5%	±0.3%	±0.3%	±0.3%	
6	Surface Quality	Min 95%	Min 95%	Min 95%	Min 95%	Min 95%	Min 95%	
B) Physical Properties								
1	Water Absorption	<0.5%	<0.5%	0.08<E <sub>s3</sub>	<0.5%	<0.5%	<0.5%	IS 4457:2007 Annex C / IS 13630-2
2	a) Scratch hardness of surface (Moh's scale) - Unglazed tile	-	≥7	≥5	≥7	≥7	≥7	IS 13630 part 13
	b) Scratch hardness of surface (Moh's scale) - Glazed tile	-	≥6	≥5	≥6	≥6	≥6	
3	Flexural Strength (Average MOR)	>35N/mm <sup>2</sup>	>38 N/mm <sup>2</sup>	>30N/mm <sup>2</sup>	>38 N/mm <sup>2</sup>	>38 N/mm <sup>2</sup>	>38 N/mm <sup>2</sup>	IS 4457:2007 Annex D / IS 13630-6
4	Breaking Strength	≥1300N	>8000N	≥1100N	>3000N	>5500N	>8000N	IS 4457:2007 Annex D / IS 13630-6
5	Impact Resistance	Manufacturer to declare	≥0.55	≥0.55	≥0.55	≥0.55	≥0.55	IS 13630 -14
6	Deep Abrasion Resistance (Unglazed tile)	<175mm <sup>3</sup>	<120 mm <sup>3</sup>	<175mm <sup>3</sup>	<120 mm <sup>3</sup>	<120 mm <sup>3</sup>	<120 mm <sup>3</sup>	IS 4457:2007 Annex E / IS 13630-12
7	Resistance to Surface Abrasion of Glazed Tiles for Floor Application	-	Min PEI IV - V	Class II, Min	Min PEI IV - V	Min PEI IV - V	Min PEI IV - V	IS 13630 - 11
# Skid Resistance								
8	a) Skid Resistance - Ramp Test	-	>R9	-	>R9	>R9	>R9	DIN 51130
	b) Coefficient of Friction	-	>0.42	-	>0.42	>0.42	>0.42	ISO 10545 -17 / ANSI A 326.3
9	Frost Resistance	-	No damage	Manufacture to declare	No damage	No damage	No damage	IS 13630-10
10	Density (gm/cc)	-	>2.2	≥2	>2.2	>2.2	>2.2	IS 13630 part 2
11	Moisture Expansion	Manufacturer to declare	≤0.02mm/m	Max0.02mm/m	≤0.02mm/m	≤0.02mm/m	≤0.02mm/m	IS 13630-part 3
12	Color Resistance to UV Light	-	No change in color	-	No change in color	No change in color	No change in color	DIN 51094
C) Chemical Properties								
1	Resistance to Concentrated HNO <sub>3</sub> & H <sub>2</sub> SO <sub>4</sub> Acid (wt. Loss)	<1.5 %	<0.8 %	-	<0.8 %	<0.8 %	<0.8 %	IS 4457:2007 Annex G
Resistance to Chemicals								
2	a) Resistance to Low concentrations of acids & alkalis	Manufacturer to declare	ULA/GLA	Manufacturer to declare	ULA/GLA	ULA/GLA	ULA/GLA	ISO 10545-13 / IS 13630 part 8
	b) Resistance to High concentrations of acids & alkalis	Manufacturer to declare	UHA/GHA	Manufacturer to declare	UHA/GHA	UHA/GHA	UHA/GHA	
	c) Resistance to household chemicals and swimming pool salts	Manufacturer to declare	AA min					
3	Stain Resistance	-	Class 1 min	IS 13630 part 8				
D) Thermal Properties								
1	Linear Thermal Expansion	-	<7x10 <sup>-6</sup> K <sup>-1</sup>	IS 13630 part 4 / ISO 10545-8				
2	Thermal Shock Resistance	-	No damage	10 cycle, Min	No damage	No damage	No damage	IS 13630 part 5 / ISO 10545-9

# Ramp Test: Suitable for all kind of surfaces (Plain, structural, etc.)

# Slider (BOT-3000E Digital Tribometer): Suitable for plain / smooth surface and not working for structural / profiled surface

# TECHNICAL SPECIFICATION

## (Hi-Traffic & Industrial Tiles)

S. No.	Test Description	I.S.- 4457:2007	IS - 15622:2017 Group B1b	Hi-Traffic Colours Series	Test Method
A) Dimension Quality				30X30X1.0 CM	
1	Deviation in Length & Width (Rectified)	±0.5%	±0.1%	±0.1%	IS 4457:2007 Annex B / IS 13630-1
2	Deviation in Thickness	±5%	±5%	±4%	
3	Straightness of Sides (Rectified)	±0.2%	±0.1%	±0.1%	
4	Rectangularity (Rectified)	±0.2%	±0.1%	±0.1%	
5	Surface Flatness	±0.3%	±0.5%	±0.3%	
6	Surface Quality	Min 95%	Min 95%	Min 95%	
B) Physical Properties					
1	Water Absorption	<0.5%	0.08<E≤3	<0.5%	IS 13630-2
2	a) Scratch hardness of surface (Moh's scale) - Unglazed tile	-	≥5	>7	IS 13630 part 13
	b) Scratch hardness of surface (Moh's scale) - Glazed tile	-	≥5	≥6	
3	Flexural Strength (Average MOR)	>35N/mm <sup>2</sup>	>30N/mm <sup>2</sup>	>35N/mm <sup>2</sup>	IS 13630 - 6
4	Breaking Strength	≥1300N	≥1100N	>1800 N	IS 13630 - 6
5	Impact Resistance	Manufacturer to declare	≥0.55	≥0.55	IS 13630 -14
6	Deep Abrasion resistance (Unglazed tile)	<175mm <sup>3</sup>	<175mm <sup>3</sup>	<120 mm <sup>3</sup>	IS 13630 -12
7	Resistance to Surface Abrasion of Glazed Tiles for Floor Application	-	Class II, Min	Min PEI IV - V	IS 13630 - 11
# Skid Resistance					
8	a) Skid Resistance - Ramp Test	-	-	>R9	DIN 51130
	b) Coefficient of Friction	-	-	>0.42	ISO 10545 -17 / ANSI A 326.3
9	Frost Resistance	-	Manufacture to declare	No damage	IS 13630 -10
10	Density (gm/cc)	-	≥2	>2.2	IS 13630 part 2
11	Moisture Expansion	Manufacturer to declare	-	≤0.3 mm/m	IS 13630-part 3
12	Color Resistance to UV Light	-	-	No change in color	DIN 51094
C) Chemical Properties					
1	Resistance to Concentrated HNO <sub>3</sub> & H <sub>2</sub> SO <sub>4</sub> Acid (wt. Loss)	<1.5 %	-	<0.8%	IS 4457:2007 Annex G
Resistance to Chemicals					
2	a) Resistance to Low concentrations of acids & alkalies	Manufacturer to declare	Manufacturer to declare	ULA/GLA	ISO 10545-13
	b) Resistance to High concentrations of acids & alkalies	Manufacturer to declare	Manufacturer to declare	UHA/GHA	
	c) Resistance to household chemicals and swimming pool salts	Manufacturer to declare	AA min	AA min	
3	Stain Resistance	-	Class 1 min	Class 1 min	IS 13630 part 8
D) Thermal Properties					
1	Linear Thermal Expansion	-	<7 x10 <sup>-6</sup> K <sup>-1</sup>	<7 x10 <sup>-6</sup> K <sup>-1</sup>	IS 13630 part 4 / ISO 10545-8
2	Thermal Shock Resistance	-	10 cycle, Min	No damage	IS 13630 part 5 / ISO 10545-9

# Ramp Test: Suitable for all kind of surfaces (Plain, structural...etc)

# Slider (BOT -3000E Digital Tribometer): Suitable for plain / smooth surface and not working for structural / profiled surface

## (Hi-Traffic Pavers Series)

S. No.	Test Description	I.S.- 4457:2007	Hi-Traffic Pavers Series	Test Method
A) Dimension Quality				
1	Deviation in Length & Width	±0.75%	±0.4%	IS 4457:2007 Annex B
2	Deviation in Thickness	±5%	±4%	
3	Straightness of Sides	±0.5%	±0.3%	
4	Rectangularity	±0.6%	±0.3%	
5	Surface Flatness	±0.5%	±0.3%	
6	Surface Quality	Min 95%	Min 95%	
B) Physical Properties				
1	Water Absorption	<0.5%	<0.5%	IS 4457:2007 Annex C
2	Scratch Hardness of Surface (Moh's scale)	-	>7	IS 13630 part 13
3	Flexural Strength (Average MOR)	>35N/mm <sup>2</sup>	>35N/mm <sup>2</sup>	IS 4457:2007 Annex D
4	Breaking Strength	≥1300N	>1800N	IS 4457:2007 Annex D
5	Impact Resistance	Manufacturer to declare	≥0.55	IS 13630-14
6	Deep Abrasion resistance (Unglazed tile)	<175mm <sup>3</sup>	<120mm <sup>3</sup>	IS 4457:2007 Annex E
# Skid Resistance				
7	a) Skid Resistance - Ramp Test	Manufacturer to declare	>R9	DIN 51130
	b) Coefficient of Friction		>0.42	ISO 10545 -17 / ANSI A 326.3
8	Frost Resistance	-	No damage	IS 13630-10
9	Density (gm/cc)	>2.0	>2.2	IS 13630 part 2
10	Moisture Expansion	Manufacturer to declare	≤0.3mm/m	IS 13630-part 3
11	Color Resistance to UV Light	-	No change in color	DIN 51094
C) Chemical Properties				
1	Resistance to Concentrated HNO <sub>3</sub> & H <sub>2</sub> SO <sub>4</sub> Acid (wt. Loss)	< 1.5 %	< 0.8 %	IS 4457:2007 Annex G
Resistance to Chemicals				
2	a) Resistance to Low concentrations of acids & alkalies	Manufacturer to declare	ULA	IS 4457:2007 Annex F / ISO 10545-13
	b) Resistance to High concentrations of acids & alkalies	Manufacturer to declare	UHA	
	c) Resistance to household chemicals and swimming pool salts	UB	UA	
3	Stain Resistance	Resistant	Resistant	IS 13630 part 7 / ISO 10545-14
D) Thermal Properties				
1	Linear Thermal Expansion	<7x10 <sup>-6</sup> K <sup>-1</sup>	<7x10 <sup>-6</sup> K <sup>-1</sup>	IS 13630 part 4 / ISO 10545-8
2	Thermal Shock Resistance	10 Cycle, Min	No damage	IS 13630 part 5 / ISO 10545-9

# Ramp Test: Suitable for all kind of surfaces (Plain, structural..etc)

# Slider (BOT -3000E Digital Tribometer): Suitable for plain / smooth surface and not working for structural / profiled surface

# TECHNICAL SPECIFICATION

## (Hi-Traffic Sandex Series)

S. No.	Property	I.S. 15622:2017 Group B1a Requirement	Hi-Traffic Sandex Series	Test Method
A) Dimensions & Surface Quality				
1	Deviation in Length & Width	± 0.1 %	± 0.1 %	IS 13630-1
2	Deviation in Thickness	± 5 %	± 4 %	
3	Straightness of Sides	± 0.1 %	± 0.1 %	
4	Rectangularity	± 0.1 %	± 0.1 %	
5	Surface Flatness	± 0.5 %	± 0.2 %	
6	Surface Quality	Min 95% free from visible defects	>95% free from visible defects	
B) Physical Property				
1	Water Absorption	Average ≤0.08, Individual 0.1%, Max	≤0.05%	IS 13630-2
2	Modulus of Rupture	Average 35N/mm <sup>2</sup> , Individual 32N/mm <sup>2</sup> , Min	≥38 N/mm <sup>2</sup>	IS 13630-6
3	Breaking Strength	1300N Min for thickness ≥ 7.5 mm	≥2000 N	
4	Moisture Expansion	0.02 mm/m, Max	≤0.02 mm/m	IS 13630-3
5	Scratch Hardness of Surface (Moh's scale)	5, Min	≥7	IS 13630 -13
6	Deep Abrasion Resistance (Unglazed tile)	<140mm <sup>3</sup>	<120 mm <sup>3</sup>	IS 13630-12
7	Resistance to Surface Abrasion of Glazed Tiles for Floor Application	Class II, Min	PEI III-IV	IS 13630 -11
8	Impact Resistance	0.55, Min	≥0.55	IS 13630-14
10	# Skid Resistance			
	a) Skid Resistance - Ramp Test	Manufacturer to declare	>R9	DIN 51130
	b) Coefficient of Friction	Manufacturer to declare	>0.42	ISO 10545 -17 /ANSI A 326.3
11	Frost Resistance	Required if requested by purchaser	No damage	IS 13630-10
12	Bulk Density (g/cc)	2.2, Min	≥2.2	ASTM C373-16 / IS 13630-2
13	Color Resistance to UV Light	-	No change in color	DIN 51094
C) Chemical Properties				
1	Resistance to Concentrated HNO <sub>3</sub> & H <sub>2</sub> SO <sub>4</sub> Acid (wt. Loss)	<1.5 %	<0.8 %	IS 4457:2007 Annex G
2	Resistance to Chemicals			IS 13630 -8/7
	a) Resistance to Low concentrations of acids & alkalis	Manufacturer to declare	AA/U/LA	
	b) Resistance to High concentrations of acids & alkalis	Manufacturer to declare	AA/U/HA	
	c) Resistance to household chemicals and swimming pool salts	AA min	AA min	
3	Stain Resistance	Glazed tile- Class 1 min, Unglazed tile -Class 2 min	Glazed tile- Class 1 min, Unglazed tile -Class 2 min	IS 13630 -8/7
D) Thermal Properties				
1	Coefficient of Linear Thermal Expansion	Max, 6 x 10 <sup>-6</sup> K <sup>-1</sup>	≤6 x 10 <sup>-6</sup> K <sup>-1</sup>	IS 13630-4
2	Thermal Shock Resistance	10 cycles Min	No Damage	IS 13630 -5

# Ramp Test: Suitable for all kind of surfaces (Plain, structural..etc)

# Slider (BOT -3000E Digital Tribometer): Suitable for plain / smooth surface and not working for structural / profiled surface

## (Meteor Tiles)

S. No.	Test Description	ISO 13006:2018 / EN 14411 Group Bla Requirement	IS - 15622:2017 Group B1b	Johnson Endura Meteor		Test Method
				1.5 cm	2.0 cm	
A) Dimension Quality		Whichever is less applicable. Rectified	Rectified			
1	Deviation in Length & Width	± 0.3% or ±1.0mm	±0.1%	±0.1%	±0.1%	ISO 10545-2 / IS 13630-1
2	Deviation in Thickness	± 5% or ± 0.5mm	±5%	±4%	±4%	
3	Straightness of Sides	± 0.3% or ±0.8mm	±0.1%	±0.1%	±0.1%	
4	Rectangularity	± 0.3% or ± 1.5mm	±0.1%	±0.1%	±0.1%	
5	Surface Flatness	± 0.4% or ±1.8mm	±0.5%	±0.3%	±0.3%	
6	Surface Quality	Min 95%	Min 95%	Min 95%	Min 95%	
B) Physical Properties						
1	Water Absorption	≤ 0.5%, individual Max 0.6%	0.08%<E≤3	≤0.5%	≤0.5%	ISO 10545-3 / IS 13630-2
2	Scratch Hardness of Surface (Moh's scale)	-	≥5	>6	>6	IS 13630 part 13
3	Flexural Strength (Average MOR)	≥35 N/mm <sup>2</sup> , Individual 32N/mm <sup>2</sup> , Min	≥30N/mm <sup>2</sup> , Individual 27 min	>38N/mm <sup>2</sup>	>38N/mm <sup>2</sup>	ISO 10545-4 / IS 13630-6
4	Breaking Strength	≥1300 N	≥1100 N	>5500 N	>8000 N	
5	Impact Resistance	Report value	≥0.55	≥0.55	≥0.55	ISO 10545-5 / IS 13630 -14
6	Surface Abrasion Resistance (PEI Rating) Glazed	Report cycle	Class II, Min	Min PEI IV - V	Min PEI IV - V	ISO 10545-7 / IS 13630 - 11
7	Deep Abrasion Resistance (Ungalzed)	Report abrasion class	<175mm <sup>3</sup>	<120mm <sup>3</sup>	<120mm <sup>3</sup>	ISO 10545- 6 / IS 13630-12
# Skid Resistance						
8	a) Skid Resistance - Ramp Test	Manufacturer to declare	Manufacturer to declare	>R9	>R9	DIN 51130
	b) Coefficient of Friction	Manufacturer to declare	Manufacturer to declare	>0.42	>0.42	ISO 10545 -17 / ANSI A 326.3
9	Bulk Density, in (g/cc)	≥2.0	≥2.0	>2.2	>2.2	ASTM C373-16 / IS 13630-2
10	Moisture Expansion	Manufacturer to declare	Max 0.02 mm/m	≤0.02 mm/m	≤0.02 mm/m	IS 13630-part 3 /ISO 10545-10
11	Frost Resistance	Manufacturer to declare	Manufacturer to declare	No damage	No damage	ISO 10545-12 / IS 13630-10
12	Color Resistance to UV Light	Manufacturer to declare	report result	No change in color	No change in color	DIN 51094
C) Chemical Properties						
1	Resistance to Concentrated HNO <sub>3</sub> & H <sub>2</sub> SO <sub>4</sub> Acid (wt. Loss)	-	<1.5 %	<0.8%	<0.8 %	IS 4457:2007 Annex G
Resistance to Chemicals						
2	a) Resistance to Low concentrations of acids & alkalies	Manufacturer to declare	Manufacturer to declare	ULA/GLA	ULA/GLA	ISO 10545-13 / IS 13630-8
	b) Resistance to High concentrations of acids & alkalies	Manufacturer to declare	Manufacturer to declare	UHA/GHA	UHA/GHA	
	c) Resistance to household chemicals and swimming pool salts	Min B	AA min	B(ISO)/AA ( IS)	B(ISO)/AA( IS)	
3	Stain Resistance	Min Class 3	Class 1 min	Class 3 (ISO)/ Class 1 ( IS)	Class 3 (ISO)/ Class 1 ( IS)	ISO 10545-14 / IS 13630-8
D) Thermal Properties						
1	Linear Thermal Expansion	Report value	≤7x10 <sup>-6</sup> K <sup>-1</sup>	≤7 x 10 <sup>-6</sup> K <sup>-1</sup>	≤7 x 10 <sup>-6</sup> K <sup>-1</sup>	ISO 10545-8 / IS 13630 -4
2	Thermal Shock Resistance	-	10 Cycle, Min	No damage	No damage	ISO 10545-9 / IS 13630 -5

# Ramp Test: Suitable for all kind of surfaces (Plain, structural..etc)

# Slider (BOT -3000E Digital Tribometer): Suitable for plain / smooth surface and not working for structural / profiled surface

# TECHNICAL SPECIFICATION

## (Swimming Pool Tile & Pool Fittings)

S. No.	Properties	Pool Tiles		Pool Fittings -Specification Architectural typical		Test Method
		ISO 13006 /2018 EN 14411 Group Bib	Johnson Endura Swimming Pool Tiles	BS EN ISO 13006 / 14411:2016 Group A1b	Test Value	
A) Dimension Quality						
1	Deviation Length/Width	±0.6% or ± 2.0 mm	±0.6%	±2%	±1.25%	ISO 10545-2 / IS 13630-1
2	Deviation Thickness	±5% or ±0.5 mm	±4%	±10%	±10%	
3	Straightness of Side	±0.5% ± 1.5 mm	±0.3%	±0.6%	±0.5%	
4	Rectangularity	±0.5% ± 2.0 mm	±0.3%	±1%	±1%	
5	Surface Flatness	±0.5% ± 2.0 mm	±0.3%	±1.5%	±1%	
6	Surface Quality	Min 95%	Min 95%	Min 95%	Min 95%	
B) Physical Properties						
1	Water Absorption	Max 3%	Avg. 2.5%	0.5% to 3.0%	<2.5%	ISO 10545-3 / IS 13630-2
2	Modulus of Rupture (Minimum)	≥30N/mm <sup>2</sup>	≥30N/mm <sup>2</sup>	≥23N/mm <sup>2</sup>	≥23N/mm <sup>2</sup>	ISO 10545-4 / IS 13630-6
3	Breaking Strength	≥1100N	>1100N	≥1100N	>1100N	
4	Crazing Resistance of Glazed Tiles	Report result	4 cycles Min	Report result	4 Cycles	ISO 10545-11 / IS 13630- 9
5	Scratch Hardness	–	Min 5	–	Min. 5	IS 13630 part 13
6	Impact Resistance	Report value	≥0.55	–	–	ISO 10545-5 / IS 13630 -14
7	Bulk Density, in (g/cc)	Report value	>2.2	–	>2.2	ASTM C373-16 / IS 13630-2
8	Moisture Expansion	Manufacturer to declare	0.4 mm/m, Max	0.4 mm/m, Max	0.4 mm/m, Max	IS 13630-part 3 / ISO 10545-10
9	Frost Resistance	Manufacturer to declare	No damage	No damage	No damage	ISO 10545-12 / IS 13630-10
10	Color Resistance to UV Light	Report result	No change in color	No change in color	No change in color	DIN 51094
C) Chemical Properties						
1	Resistance to Chemicals					ISO 10545-13
	a) Resistance to Low concentrations of acids & alkalies	Manufacturer to declare	GLA	Manufacturer to declare	ULA/GLA	
	b) Resistance to High concentrations of acids & alkalies	Manufacturer to declare	GHA	Manufacturer to declare	UHA/GHA	
2	Resistance to Swimming Pool salts & water Cleaning agent	Min B	Min B	Min B	Min B	ISO 10545-14
3	Stain Resistance	Min Class 3	Min Class 3	Min Class 3	Min Class 3	
D) Thermal Properties						
1	Linear Thermal Expansion	Declare value	<7x10 <sup>-6</sup> K <sup>-1</sup>	Declare value	<7x10 <sup>-6</sup> K <sup>-1</sup>	ISO 10545-8/ IS 13630-4
2	Thermal Shock Resistance	No damage	No damage	No damage	No damage	ISO 10545-9 / IS 13630 -5

# Ramp Test: Suitable for all kind of surfaces (Plain, structural...etc)

# Slider (BOT -3000E Digital Tribometer): Suitable for plain / smooth surface and not working for structural / profiled surface

## (Cool Roof Tile)

S. No.	Test Description	ISO 13006:2018 / EN 14411 Group Bla Requirement	IS - 15622:2017 Group B1b	Johnson Endura Cool Roof Tile			Test Method
				0.8 cm	1.0 cm	2.0 cm	
A) Dimension Quality		Whichever is less applicable. Rectified	Rectified				
1	Deviation in Length & Width	±0.3% or ±1.0mm	±0.1%	±0.1%	±0.1%	±0.1%	ISO 10545-2 / IS 13630-1
2	Deviation in Thickness	±5% or ±0.5mm	±5%	±4%	±4%	±4%	
3	Straightness of Sides	±0.3% or ±0.8mm	±0.1%	±0.1%	±0.1%	±0.1%	
4	Rectangularity	±0.3% or ±1.5mm	±0.1%	±0.1%	±0.1%	±0.1%	
5	Surface Flatness	±0.4% or ±1.8mm	±0.5%	±0.3%	±0.3%	±0.3%	
6	Surface Quality	Min 95%	Min 95%	Min 95%	Min 95%	Min 95%	
B) Physical Properties							
1	Water Absorption	≤ 0.5%, Individual Max 0.6%	0.08%<E≤3	≤ 0.5%	≤ 0.5%	≤ 0.5%	ISO 10545-3 / IS 13630-2
2	Scratch Hardness of Surface (Moh's scale)		≥5	≥6	≥6	≥6	IS 13630 part 13
3	Flexural Strength (Average MOR)	≥35 N/mm <sup>2</sup> , Individual 32N/mm <sup>2</sup> , Min	≥30N/mm <sup>2</sup> , Individual 27 min	>35N/mm <sup>2</sup>	>35N/mm <sup>2</sup>	>35N/mm <sup>2</sup>	ISO 10545-4 / IS 13630-6
4	Breaking Strength	≥1300 N	≥1100N	>1300N	>1800N	>8000N	
5	Impact Resistance	Report value	≥0.55	≥0.55	≥0.55	≥0.55	ISO 10545-5 / IS 13630 -14
6	Crazing Resistance	Report cycle	4 cycle	No damage	No damage	No damage	ISO 10545-11 / IS 13630- 9
7	Abrasion Resistance (PEI Rating)	Report abrasion class	Class II, Min	Min PEI IV	Min PEI IV	Min PEI IV	ISO 10545-7 / IS 13630 - 11
8	Skid Resistance (Coefficient of Friction)	Manufacturer to declare	Manufacturer to declare	>0.42	>0.42	>0.42	ISO 10545 -17 /ANSI A 326.3
9	Bulk Density, in (g/cc)	≥2.0	≥2.0	>2.2	>2.2	>2.2	ASTM C373-16 / IS 13630-2
10	Moisture Expansion	Manufacturer to declare	Max 0.02 mm/m	≤0.02 mm/m	≤0.02 mm/m	≤0.02 mm/m	IS 13630-part 3 / ISO 10545-10
11	Frost Resistance	Manufacturer to declare	Manufacturer to declare	No damage	No damage	No damage	ISO 10545-12 / IS 13630-10
10	Color Resistance to UV Light	Report result	Report result	No change in color	No change in color	No change in color	DIN 51094
C) Chemical Properties							
1	Resistance to Chemicals						ISO 10545-13 / IS 13630-8
	1) Resistance to Low concentrations of acids & alkalis	Manufacturer to declare	Manufacturer to declare	GLA	GLA	GLA	
	2) Resistance to High concentrations of acids & alkalis	Manufacturer to declare	Manufacturer to declare	GHA	GHA	GHA	
	3) Resistance to household chemicals and swimming pool salts	UB/GB	Manufacturer to declare	B(ISO)/AA (IS)	B(ISO)/AA (IS)	B(ISO)/AA (IS)	
2	Stain Resistance	Min Class 3	Class 1 min	Class 3 (ISO)/ Class 1 ( IS )	Class 3 (ISO)/ Class 1 ( IS )	Class 3 (ISO)/ Class 1 ( IS )	ISO 10545-14 / IS 13630-8
D) Thermal Properties							
1	Linear Thermal Expansion	Report value	≤7x10 <sup>-6</sup> K <sup>-1</sup>	≤7x10 <sup>-6</sup> K <sup>-1</sup>	≤7x10 <sup>-6</sup> K <sup>-1</sup>	≤7x10 <sup>-6</sup> K <sup>-1</sup>	ISO 10545-8 / IS 13630 -4
2	Thermal Shock Resistance	No damage	10 Cycle . Min	No damage	No damage	No damage	ISO 10545-9 / IS 13630 -5
E) Solar Reflectance Index (SRI)		>78	-	>90 (White colour)	>90 (White colour)	>90 (White colour)	ASTM E1980, EN 673, and EN411

# Ramp Test: Suitable for all kind of surfaces (Plain, structural..etc)

# Slider (BOT -3000E Digital Tribometer): Suitable for plain / smooth surface and not working for structural / profiled surface

# TECHNICAL SPECIFICATION

## (Anti-Static Tiles)

S. No.	Property	Indian Standard IS 15622:2017 Group B1a Requirement	Endura Anti-Static Value	Test Method
A) Dimensions & Surface Quality				
1	Deviation in Length & Width	± 0.1 %	± 0.1%	ISO 10545-2 / IS 13630-1
2	Deviation in Thickness	± 5 %	± 4%	
3	Straightness of Sides	± 0.1 %	± 0.1%	
4	Rectangularity	± 0.1 %	± 0.1%	
5	Surface Flatness	± 0.5 %	± 0.2%	
6	Surface Quality	Min 95% free from visible defects	>95% free from visible defects	
B) Physical Property				
7	Water Absorption	Average ≤0.08, Individual 0.1%, Max	≤0.05%	ISO 10545-3 / IS 13630-2
8	Modulus of Rupture	Average 35N/mm <sup>2</sup> , Individual 32N/mm <sup>2</sup> , Min	≥38N/mm <sup>2</sup>	ISO 10545-4 / IS 13630-6
9	Breaking Strength	700 N Min for thickness < 7.5 mm, 1300 Min for thickness ≥7.5mm	≥1800N	ISO 10545-4 / IS 13630-6
10	Moisture Expansion	0.02 mm/m, Max	≤0.02 mm/m	ISO 10545-10 / IS 13630-3
11	Scratch Hardness of Surface (Moh's scale)	5, Min	≥5	IS 13630 -13
12	Resistance to Surface Abrasion of Glazed Tiles for Floor Application	Class II, Min	PEI III-IV	ISO 10545-7 / IS 13630 -11
13	Coefficient of Linear Thermal Expansion	Max, 6 x 10 <sup>-6</sup> K <sup>-1</sup>	≤6 x 10 <sup>-6</sup> K <sup>-1</sup>	ISO 10545-8 / IS 13630-4
14	Thermal Shock Resistance	10 cycles Min	No Damage	ISO 10545-9 / IS 13630 -5
15	Crazing Resistance of Glazed Tiles	4 cycles @7.5 bar Min	No Damage	ISO 10545-11/ IS 13630-9
16	Impact Resistance	0.55, Min	≥0.55	ISO 10545-5 / IS 13630-14
17	# Skid Resistance			
	a) Skid Resistance - Ramp Test	Manufacturer to declare	>R9	DIN 51130
	b) Coefficient of Friction	Manufacturer to declare	>0.42	ISO 10545 -17 / ANSI A 326.3
18	Frost Resistance	Required if requested by purchaser	No damage	ISO 10545-12 / IS 13630-10
19	Bulk Density (g/cc)	2.2, Min	≥2.2	ASTM C373-16 / IS 13630-2
20	Color Resistance to UV Light	-	No change in color	DIN 51094
21	Resistance to Chemicals			ISO 10545-13 / IS 13630-8
	1) Resistance to Low concentrations of acids & alkalies	Manufacturer to declare	GLA	
	2) Resistance to High concentrations of acids & alkalies	Manufacturer to declare	GHA	
	3) Resistance to household chemicals and swimming pool salts	AA min	AA min	
22	Resistance to Staining - Glazed Tiles	Class 1 min	Class 1 min	ISO 10545-14 / IS 13630-8
23	Lead & Cadmium Release-for Glazed Tiles, where required	-	Nil	ISO 10545-15
24	Surface Electrical Resistance (ANSI Norms)	Below 1 Mega Ohm (Conductive)	< 50 Kilo Ohm	ANSI ESD S7.1
		Between 1Mega Ohm to 1 Giga Ohm (Dissipative)	1Mega Ohm to 1 Giga Ohm	
	Static Decay Time	<0.5 Sec (Conductive)	<0.5Sec	MIL-B-8170 Para 4.8.3 & FED-STD- 101C. Method 4046
	< 2 Sec (Dissipative)	<0.5Sec		

# Ramp Test: Suitable for all kind of surfaces (Plain, structural...etc)

# Slider (BOT -3000E Digital Tribometer): Suitable for plain / smooth surface and not working for structural / profiled surface

## (Stepping Stone Tiles)

S. No.	Test Description	ISO 13006:2018 / EN 14411 Group B1a Requirement	IS - 15622:2017 Group B1a	Johnson Endura Stepping Stone / Riser	Johnson Endura Stepping Stone / Riser	Test Method
A) Dimension Quality		Whichever is less applicable. Rectified edge		12mm	15mm	
1	Deviation in Length & Width	±0.3% or ±1.0mm	± 0.1 %	±0.1%	±0.1%	ISO 10545-2 / IS 13630-1
2	Deviation in Thickness	±5% or ±0.5mm	± 5 %	±4%	±4%	
3	Straightness of Sides	±0.3% or ±0.8mm	± 0.1 %	±0.1%	±0.1%	
4	Rectangularity	±0.3% or ±1.5mm	± 0.1 %	±0.1%	±0.1%	
5	Surface Flatness	±0.4% or ±1.8mm	± 0.5 %	±0.3%	±0.3%	
6	Surface Quality	Min 95%	Min 95% free from visible defects	Min 95%	Min 95%	
B) Physical Properties						
1	Water Absorption	≤0.5%, individual Max 0.6%.	Average <0.08, Individual 0.1%, Max	≤ 0.05%	≤ 0.05%	ISO 10545-3 / IS 13630-2
2	Scratch Hardness of Surface (Moh's scale)	–	5, Min	>6	>6	IS 13630 part 13
3	Flexural Strength (Average MOR)	≥35 N/mm <sup>2</sup> , Individual 32N/mm <sup>2</sup> , Min	Average 35N/mm <sup>2</sup> , Individual 32N/mm <sup>2</sup> , Min	>38N/mm <sup>2</sup>	>38N/mm <sup>2</sup>	ISO 10545-4 / IS 13630-6
4	Breaking Strength	≥1300N	≥1300N	>3500N	>5000N	
5	Impact Resistance	Report value	5, Min	≥0.55	≥0.55	ISO 10545-5 / IS 13630-14
6	Deep Abrasion Resistance (Ungalzed)	<175mm <sup>3</sup>	<175mm <sup>3</sup>	<120mm <sup>3</sup>	<120mm <sup>3</sup>	ISO 10545- 6 / IS 13630-12
# Skid Resistance						
7	a) Skid Resistance - Ramp Test	Manufacturer to declare	Manufacturer to declare	>R9	>R9	DIN 51130
	b) Coefficient of Friction	Manufacturer to declare	Manufacturer to declare	>0.42	>0.42	ISO 10545 -17/ANSI A 326.3
8	Bulk Density, in (g/cc)	–	>2.0	>2.2	>2.2	ASTM C373-16 / IS 13630-2
9	Moisture Expansion	Manufacturer to declare	Manufacturer to declare	≤0.3mm/m	≤0.3mm/m	IS 13630-part 3 / ISO 10545-10
10	Frost Resistance	–	Manufacturer to declare	No damage	No damage	ISO 10545-12 / IS 13630-10
11	Color Resistance to UV Light	Manufacturer to declare	–	No change in color	No change in color	DIN 51094
C) Chemical Properties						
1	Resistance to Concentrated HNO <sub>3</sub> & H <sub>2</sub> SO <sub>4</sub> Acid (wt. Loss)	–	< 1.5 %	<0.8%	<0.8%	IS 4457:2007 Annex G
Resistance to Chemicals						
2	a) Resistance to Low concentrations of acids & alkalis	Manufacturer to declare	Manufacturer to declare	GLA	GLA	ISO 10545-13/IS 13630 -8
	b) Resistance to High concentrations of acids & alkalis	Manufacturer to declare	Manufacturer to declare	GHA	GHA	
	c) Resistance to household chemicals and swimming pool salts	Min B	Class AA min	B(ISO)/AA ( IS )	B(ISO)/AA ( IS )	
3	Stain Resistance	Min Class 3	Class 1 min	Min Class 3 ( ISO ), Class 1 ( IS )	Min Class 3 ( ISO ), Class 1 ( IS )	ISO 10545-14 / IS 13630-8
D) Thermal Properties						
1	Linear Thermal Expansion	–	≤6x10 <sup>-6</sup> K <sup>-1</sup>	≤6x10 <sup>-6</sup> K <sup>-1</sup>	≤6x10 <sup>-6</sup> K <sup>-1</sup>	ISO 10545-8 / IS 13630-4
2	Thermal Shock Resistance	No damage	10cycle, Min	No damage	No damage	ISO 10545-9 / IS 13630 -5

# Ramp Test: Suitable for all kind of surfaces (Plain, structural..etc)

# Slider (BOT -3000E Digital Tribometer): Suitable for plain / smooth surface and not working for structural / profiled surface

# TECHNICAL SPECIFICATION

(Tactile)

S. No.	Test Description	I.S.- 4457:2007	IS - 15622:2017 Group B1b	Johnson Endura Tactile			Test Method
				1.2 cm	1.5 cm	2.5 cm	
A) Dimension Quality							
1	Deviation in Length & Width	±0.5%	±0.1%	±0.1%	±0.1%	±0.1%	IS 4457:2007 Annex B / ISO 10545-2
2	Deviation in Thickness	±5%	±5%	±4%	±4%	±4%	
3	Straightness of Sides	±0.2%	±0.1%	±0.1%	±0.1%	±0.1%	
4	Rectangularity	±0.2%	±0.1%	±0.1%	±0.1%	±0.1%	
5	Surface Flatness	±0.3%	±0.5%	±0.3%	±0.3%	±0.3%	
6	Surface Quality	Min 95%	Min 95%	Min 95%	Min 95%	Min 95%	
B) Physical Properties							
1	Water Absorption	< 0.5%	0.08<E≤3	< 0.5%	< 0.5%	< 0.5%	IS 4457:2007 Annex C / ISO 10545-3
2	a) Scratch hardness of surface (Moh's scale) - Unglazed tile	-	≥5	≥7	≥7	≥7	IS 13630 part 13
	b) Scratch hardness of surface (Moh's scale) - Glazed tile	-	≥5	≥6	≥6	≥6	
3	Flexural Strength (Average MOR)	>35N/mm <sup>2</sup>	>30N/mm <sup>2</sup>	>38N/mm <sup>2</sup>	>38N/mm <sup>2</sup>	>38N/mm <sup>2</sup>	IS 4457:2007 Annex D / ISO 10545-4/IS 13630-6
4	Breaking Strength	≥1300N	≥1100N	>1600 N	>3000 N	>8500 N	IS 4457:2007 Annex D / ISO 10545-4/IS 13630-6
5	Impact Resistance	Manufacturer to declare	≥0.55	≥0.55	≥0.55	≥0.55	ISO 10545-5 / IS 13630 -14
6	Deep Abrasion Resistance (Unglazed tile)	<175mm <sup>3</sup>	<175mm <sup>3</sup>	<120 mm <sup>3</sup>	<120 mm <sup>3</sup>	<120 mm <sup>3</sup>	IS 4457:2007 Annex E / ISO 10545- 6/IS 13630-12
7	Resistance to Surface Abrasion of Glazed Tiles for Floor Application	-	Class II, Min	Min PEI IV	Min PEI IV - V	Min PEI IV - V	ISO 10545-7 /IS 13630-11
8	# Skid Resistance						
	a) Skid Resistance - Ramp Test	Manufacturer to declare	Manufacturer to declare	≥R9	≥R9	≥R9	DIN 51130
	b) Coefficient of Friction	Manufacturer to declare	Manufacturer to declare	>0.42	>0.42	>0.42	ISO 10545 -17 / ANSI A 326.3
9	Frost Resistance	-	-	No damage	No damage	No damage	ISO 10545-12 / IS 13630-10
10	Density (gm/cc)	-	≥2.0	>2.2	>2.2	>2.2	IS 13630 part 2
11	Moisture Expansion	Manufacturer to declare	Manufacturer to declare	≤0.3mm/m	≤0.3mm/m	≤0.3mm/m	IS 13630-part 3 / ISO 10545-10
12	Color Resistance to UV Light	Report result	-		No change in color	No change in color	DIN 51094
C) Chemical Properties							
1	Resistance to Concentrated HNO <sub>3</sub> & H <sub>2</sub> SO <sub>4</sub> Acid (wt. Loss)	<1.5 %	-	<0.8%	<0.8%	<0.8 %	IS 4457:2007 Annex G
2	Resistance to Chemicals						
	a) Resistance to Low concentrations of acids & alkalis	Manufacturer to declare	Manufacturer to declare	ULA /GLA	ULA /GLA	ULA /GLA	ISO 10545-13/IS 13630 -8
	b) Resistance to High concentrations of acids & alkalis	Manufacturer to declare	Manufacturer to declare	UHA /GHA	UHA /GHA	UHA /GHA	
c) Resistance to household chemicals and swimming pool salts	Manufacturer to declare	AA min	AA min	AA min	AA min		
3	Stain resistance	Resistant	Resistant	Resistant	Resistant	Resistant	IS 13630 part 7 / ISO 10545-14
D) Thermal Properties							
1	Linear Thermal Expansion	-	≤7x10 <sup>-6</sup> K <sup>-1</sup>	IS 13630 part 4 / ISO 10545-8			
2	Thermal shock resistance	No damage	No damage	No damage	No damage	No damage	IS 13630 part 5 / ISO 10545-9
E) The profile of raised Button / Liner							
20	Raised Button / Liner Height	-	-	4.5mm to 5.0mm	4.5mm to 5.0mm	4.5mm to 5.0mm	DETR Standard Chapter 6 / ISO 23599:2012

# Ramp Test: Suitable for all kind of surfaces (Plain, structural.etc)

# Slider (BOT -3000E Digital Tribometer) : suitable for plain / smooth surface and not working for structural / profiled surface

(Maxgrip)

S. No.	Test Description	I.S.- 4457:2007	IS - 15622:2017 Group B1b	Endura Maxgrip	Test Method
<b>A) Dimension Quality</b>					
1	Deviation in Length & Width	±0.6%	±0.1%	±0.1%	IS 4457:2007 Annex B / IS 13630-1
2	Deviation in Thickness	±5%	±5%	±4%	
3	Straightness of Sides	±0.2%	±0.1%	±0.1%	
4	Rectangularity	±0.2%	±0.1%	±0.1%	
5	Surface Flatness	±0.3%	±0.5%	±0.3%	
6	Surface Quality	Min 95%	Min 95%	Min 95%	
<b>B) Physical Properties</b>					
1	Water Absorption	<0.5%	0.08<E9	<0.5%	IS 4457:2007 Annex C / IS 13630-2
2	a) Scratch hardness of surface (Moh's scale) - Unglazed tile	-	≥5	>7	IS 13630 part 13
	b) Scratch hardness of surface (Moh's scale) - Glazed tile	-	≥5	≥6	
3	Flexural Strength (Average MOR)	>35N/mm <sup>2</sup>	>30N/mm <sup>2</sup>	>38N/mm <sup>2</sup>	IS 4457:2007 Annex D / IS 13630-6
4	Breaking Strength	≥1300N	≥1100N	≥1800 N	IS 4457:2007 Annex D / IS 13630-6
5	Impact Resistance	Manufacturer to declare	≥0.55	≥0.55	IS 13630 -14
6	Deep Abrasion resistance (Unglazed tile)	<175mm <sup>3</sup>	<175mm <sup>3</sup>	<120 mm <sup>3</sup>	IS 4457:2007 Annex E / IS 13630-12
7	Resistance to Surface Abrasion of Glazed Tiles for Floor Application	-	Class II, Min	Min PEI IV - V	IS 13630 - 11
<b># Anti-Slip Properties</b>					
8	a) Ramp Test <sup>®</sup> (Value)	-	-	R10/R11/R12	DIN 51130
	b) Barefeet on Wet Area (A/B/C) Scale	-	-	A/B/C	DIN 51097
9	Frost Resistance	-	Manufacture to declare	No damage	IS 13630-10
10	Density (gm/cc)	-	≥2	>2.2	IS 13630 part 2
11	Moisture Expansion	Manufacturer to declare	-	≤0.3 mm/m	IS 13630-part 3
12	Color Resistance to UV Light	-	-	No change in color	DIN 51094
<b>C) Chemical Properties</b>					
<b>Resistance to Chemicals</b>					
1	a) Resistance to Low Concentrations of Acids & Alkalies	Manufacturer to declare	Manufacturer to declare	ULB /GLB	ISO 10545-13
	b) Resistance to High Concentrations of Acids & Alkalies	Manufacturer to declare	Manufacturer to declare	UHB/GHB	
	c) Resistance to Household Chemicals and Swimming Pool Salts	Manufacturer to declare	UB/GB	UB /GB	
2	Stain Resistance	-	Resistant	Resistant	ISO 10545-14
<b>D) Thermal Properties</b>					
1	Linear Thermal Expansion	-	≤7 x10 <sup>-6</sup> K <sup>-1</sup>	≤7 x10 <sup>-6</sup> K <sup>-1</sup>	IS 13630 part 4 / ISO 10545-8
2	Thermal Shock Resistance	-	10 cycle, Min	No damage	IS 13630 part 5 / ISO 10545-9

# Ramp Test: Suitable for all kind of surfaces (Plain, structural, etc.)

# Slider (BOT-3000E Digital Tribometer): Suitable for plain / smooth surface and not working for structural / profiled surface

# TECHNICAL SPECIFICATION

## (Evoke Series)

Sr. No.	Test Description	ISO 13006:2018 Group B1b Requirement	IS - 15622:2017 Group B1b	Evoke series	Test Method
<b>A) Dimension Quality</b>					
		Rectified	Rectified	200x200-8 mm	
1	Deviation in Length & Width	±0.3%	±0.1%	±0.1%	ISO 10545-2 / IS 13630-1
2	Deviation in Thickness	±5%	±5%	±4%	
3	Straightness of Sides	±0.3%	±0.1%	±0.1%	
4	Rectangularity	±0.3%	±0.1%	±0.1%	
5	Surface Flatness	±0.4%	±0.5%	±0.3%	
6	Surface Quality	Min 95%	Min 95%	Min 95%	
<b>B) Physical Properties</b>					
1	Water Absorption	0.5%<E≤3	0.08%<E≤3, Individual 3.3 max	≤0.5%	ISO 10545-3 / IS 13630-2
2	Scratch Hardness of Surface (Moh's scale)	-	≥5	≥5	IS 13630 part 13
3	Flexural Strength (Average MOR)	Min 30 N	≥30N/mm <sup>2</sup> , Individual 27 min	≥30N/mm <sup>2</sup>	ISO 10545-4 / IS 13630-6
4	Breaking Strength	≥1100 N	≥1100 N	Min 1200 N	ISO 10545-4 / IS 13630-6
5	Impact Resistance	-	≥0.55	≥0.55	ISO 10545-5 / IS 13630 -14
6	Crazing Resistance	-	4 cycle	No damage	ISO 10545-11 / IS 13630- 9
7	Surface Abrasion Resistance (PEI Rating)	-	Class II, Min	Min PEI III - IV	ISO 10545-7 / IS 13630 - 11
8	Skid resistance (Coefficient of Friction)	-	Manufacturer to declare	0.3 to 0.5	ISO 10545 -17 /ANSI A 326.3
9	Bulk Density, in (g/cc)		≥2.0	>2.2	ASTM C373-16 / IS 13630-2
10	Moisture Expansion	-	Max 0.02 mm/m	≤0.02 mm/m	IS 13630-part 3 / ISO 10545-10
11	Frost Resistance	-	Manufacturer to declare	No damage	ISO 10545-12 / IS 13630-10
12	Color Resistance to UV Light		report result	No change in color	DIN 51094
<b>C) Chemical Properties</b>					
1	Resistance to Chemicals				ISO 10545-13 / IS 13630-8
	a) Resistance to Low concentrations of acids & alkalis		report resistance class	GLA	
	b) Resistance to High concentrations of acids & alkalis		report resistance class	GHA	
	c) Resistance to household chemicals and swimming pool salts	Min B	AA min	B(ISO)/AA(BIS)	
2	Stain Resistance	Min Class 3	Class 1 min	Class 3 (ISO) / Class 1 ( IS )	ISO 10545-14 / IS 13630-8
<b>D) Thermal Properties</b>					
1	Linear Thermal Expansion	-	≤7x10 <sup>-6</sup> K <sup>-1</sup>	≤7 x 10 <sup>-6</sup> K <sup>-1</sup>	ISO 10545-8 / IS 13630 -4
2	Thermal Shock Resistance	-	10 Cycle, Min	10 Cycle, Min	ISO 10545-9 / IS 13630 -5

# Ramp Test: Suitable for all kind of surfaces (Plain, structural...etc)

# Slider (BOT -3000E Digital Tribometer): Suitable for plain / smooth surface and not working for structural / profiled surface

# TECHNICAL SPECIFICATION

## (Clad Care)

S. No.	Test Description	IS 15622:2017 Group Blb	ISO 13006:2018 / EN 14411 Group Bla Requirement	Clad Care - Unrectified	Test Method
<b>A Dimensional Properties</b>					
		whichever is less applicable.			
1	Deviation in Length & Width	±0.4%	±0.6% , ± 2.0 mm	±0.4%	IS 4457:2007 Annex B / ISO 10545-2
2	Deviation in Thickness	±5%	±5% , ± 0.5 mm	±4%	IS 4457:2007 Annex B/ ISO 10545-2
3	Straightness of Sides	±0.3%	±0.5%, ±1.5mm	±0.3%	IS 4457:2007 Annex B / ISO 10545-2
4	Rectangularity	±0.3%	±0.5%, ± 2.0 mm	±0.3%	IS 4457:2007 Annex B / ISO 10545-2
5	Surface Flatness	±0.5%	±0.5%, ± 2.0 mm	±0.3%	IS 4457:2007 Annex B / ISO 10545-2
6	Surface Quality	Min 95%	Min 95%	Min 95%	IS 4457:2007 Annex B / ISO 10545-2
<b>B Physical Properties</b>					
1	Water Absorption	0.08% < E ≤3	< 0.5%, Individual Max 0.6%	< 0.5%	IS 4457:2007 Annex C / ISO 10545-3
2	Scratch hardness of surface (Moh's scale)	≥5	-	≥5	IS 13630 part 13
3	Flexural Strength (Average MOR)	Average 30 N, Individual 27 N/mm <sup>2</sup>	≥ 35 N/mm <sup>2</sup> , Individual 32N/mm <sup>2</sup> , Min	>38N/mm <sup>2</sup>	IS 4457:2007 Annex D / ISO 10545-4
4	Breaking Strength	≥700N	≥700N	≥700N	IS 4457:2007 Annex D / ISO 10545-4
5	Surface Abrasion Resistance (PEI Rating) Glazed	Class II, Min	Report abrasion class	Min PEI IV - V	ISO 10545-7 / IS 13630-11
6	Bulk Density, in (g/cc)	>2.0	report value	>2.2	ASTM C373-16 / IS 13630-2
7	Moisture Expansion	≤ 0.02 mm/m	Manufacturer to declare	≤ 0.02 mm/m	IS 13630-part 3 / ISO 10545-10
8	Frost resistance	Manufacturer to declare	Manufacturer to declare	No damage	ISO 10545-12 / IS 13630-10
<b>C Chemical Properties</b>					
1	Resistance to Chemicals				
	a) Resistance to household chemicals and swimming pool salts	AA	Minimum B	AA ( IS )/GB ( ISO )	ISO 10545 part 13
	b) Resistance to acids & alkalies		Manufacturer to declare	Class GLA/GHA	
2	Stain resistance	'Min Class 1	Min Class 3	Class 1( IS)/Class 3 ( ISO )	IS 13630 part 7 / ISO 10545-14
<b>D Thermal Properties</b>					
1	Linear Thermal Expansion	Max 7 x 10 <sup>-6</sup> K <sup>-1</sup>		≤ 7 x 10 <sup>-6</sup> K <sup>-1</sup>	ISO 10545-8/ IS 13630-4
2	Thermal shock resistance	No damage	No damage	No damage	ISO 10545-9 / IS 13630 -5

## Packing Details

Product	Nominal Size (cm)	No. of Tiles/Box	Approx Area/Box (sq.m)	Approx Weight/Box (kgs)	Approx Cartons/20' Container	Approx Area/20' Container (sq.m)
<b>Hi-Traffic</b>						
20x20 (1cm Thk)	20X20	20	0.8	18	1500	1200
60x60 (1cm Thk) (Sandex & Sandex Pl)	60X60	4	1.44	30	900	1296
60x60 (1.2cm Thk) (Sandex & Sandex Pl)	60X60	4	1.44	37.5	720	1037
60x120 (1cm Thk) (Sandex)	60X120	2	1.44	30	900	1296
60x120 (0.8cm Thk) (Sandex)	60X120	2	1.44	27	1000	1440
20x120 (1cm Thk) (Sandex Plus S&P)	20X120	4	0.96	21	1285	1234
<b>Cool Roof</b>						
30x30 (0.8cm Thk) Dewas	30x30	10	0.9	15.6	1730	1557
30x30 (1cm Thk) Dewas	30x30	10	0.9	20.2	1336	1202
30x30 (2cm Thk) Dewas	30x30	5	0.45	20.2	1336	601
30x30 (0.8cm Thk) Kunigal	30x30	10	0.9	16.1	1677	1509
30x30 (1cm Thk) Kunigal	30x30	8	0.72	15.6	1730	1246
<b>Meteor</b>						
60x60 (1.5cm Thk) Pen	60x60	3	1.08	35	771	833
60x60 (1.5cm Thk) Dewas	60x60	3	1.08	39	692	747
60x60 (2cm Thk) Dewas	60x60	2	0.72	34.4	784	564
<b>Industrial</b>						
20X10 (1.2cm Thk)	20x10	30	0.6	16.5	1636	982
30X30 R (1.2cm Thk)	30x30	8	0.72	20	1384	996
20X10 (1.5cm Thk)	20x10	20	0.4	13.7	1970	788
20X20 R (1.5cm Thk)	20x20	15	0.6	21.5	1255	753
30X30 R (1.5cm Thk)	30x30	6	0.54	18.5	1459	788
20X10 (2cm Thk)	20x10	20	0.4	18	1500	600
30X30 R (2cm Thk)	30x30	5	0.45	20	1350	608
30x30 (1.2 cm thk Tac Tile) Dewas	30x30	8	0.72	15.3	1764	1270
30x30 (1.5 cm thk Tac Tile) Dewas	30x30	6	0.54	14.8	1824	985
30x30 (2.5 cm thk Tac Tile) Dewas	30x30	4	0.36	17.5	1542	555
<b>Anti-Static Series</b>						
60X60R (1cm Thk)	60x60	4	1.44	29.2	924	1331
<b>Swimming Pool Tiles</b>						
24.7x12.2	24.7x12.2	30	0.90	16.5	1636	1479
<b>Stepping Stone Tile</b>						
30x120cm (1.5cm Thk)	30x120	4	1.44	50	540	778
60x120cm (1.5cm Thk)	60x120	2	1.44	50	540	778
30x120cm (1.2cm Thk)	30x120	4	1.44	40	675	972
60x120cm (1.2cm Thk)	60x120	2	1.44	40	675	972
30x95cm (1.2cm Thk)	30x95	4	1.14	31	870	992
60x95cm (1.2cm Thk)	60x95	2	1.14	31	870	992
31x152cm (1.2cm Thk)	31x152	4	1.88	52	519	978
62x152cm (1.2cm Thk)	62x152	2	1.88	52	519	978
<b>Maxgrip</b>						
30x30	30x30	10	0.9	18.55	1455	1310
60x60	60x60	4	1.44	31	870	1253
60x60 - 10 MM - R10	60x60	4	1.44	32	843	1214
60x60 - 15 MM - R11	60x60	3	1.08	36	750	810
<b>Clad Care</b>						
24X 7.5 - 5 MM	24X 7.5	50	0.9	10	2700	2430
<b>Evoke</b>						
20x20 - 8 MM	20x20	25	1.00	18	1500	1500

Many discerning buyers have chosen Johnson Endura products for Pavements, Exteriors, Swimming Pools or Industrial applications. Listed below are a few of them.

## Business House & Commercial Building :

- Fortune 2000, Bandra Kurla Complex, Mumbai - Terrace Garden
- Vodafone, Corporate Office, Ahmedabad - Driveway
- Indian Art Gallery, Bhadohi, U. P. - Warehouse
- Supreme Chambers, Andheri (W), Mumbai - Driveway
- Haldia City Centre, Haldia
- BITS Pilani, Hyderabad - Common & Passage Area
- Bengal Engineering College, Shibpur, Kolkata - Swimming Pool Deck
- Rabi Tirtha, Kolkata - Museum
- Regent Education and Research Foundation, Kolkata - Paving

## Educational Institute :

- VED Vigyan Mahavidyalaya, Baroda - Passages & Rooms
- Mehsana Education Trust, Mehsana - Class Room Flooring
- St. Aloysius College Mangalore - Common Area
- Vendroya Medical & Dental College, Mangalore - Hospital Floor
- Sri Guru Ramdas Medical College, Amritsar
- DPS Bathinda, Classroom Floors
- Gelndale Public School, Hyderabad - Classroom Floors
- Radha International Academy, Aligarh - Corridors
- DPS, Aligarh, Yamunanagar, Hyderabad, Vijayawada
- Doon School, Dehradun - Pathway
- Brilliant Public School, Patiala - Classrooms
- Poddar International School, Ahmedabad - Class rooms, Labs, Foyer
- Career Point, Kota - Parking
- KIIT University - Bhubaneswar - Bathroom
- Dr. Babasaheb Ambedkar University, Ahmedabad - Class Rooms
- Indian School of Business, Hyderabad - Class Rooms & Common Areas
- National Institute of technology, Warangal - Common & Passage Area

## Hospital :

- Laxmi Memorial Education Trust, Mangalore - Hospital Floor
- Indian Red Cross Society, Branch Location - Hall
- MIMS Hospital, Wayanad - Passages & Rooms
- Military Hospital, Jodhpur - Parking Area
- Ahmedabad Cancer Society, Asarva, Ahmedabad - Passages
- AKG Hospital, Kannur - Driveway
- Ambuja Neotia, Kolkata and Siliguri

## Hotel :

- Pola Paradise Hotel, Bellary - Pavement Flooring
- Hotel Green Park, Hyderabad
- Lake View Hotel, Mahabaleshwar - Pavement & Driveway
- Regal Hotel, Mahabaleshwar - Driveway
- Maurya Sheraton Towers, Delhi
- Crowne Plaza, New Delhi - Kitchen & Laundry Area
- J. W. Marriot, New Delhi - Kitchen Area
- Hilton Hotel, Gurgaon - Kitchen & Laundry Area
- Hotel Abha Regency, Aligarh - Kitchen, Staircase & Ramp
- Contel Hotel, Panchkula - Terrace
- Hotel Holiday Inn, Jaipur - Bathroom & Kitchen Area
- Hyatt Regency, Andheri (E), Mumbai - Kitchen Area
- Sinclairs Hotel, Siliguri - Swimming Pool Deck

### Dairy Industries :

- Hatsun Foods, Dharmapuri
- Vijaya Dairy, Hyderabad
- Amul Dairy, Dharuhera, Manesar, Virar
- NDDDB, Anand
- Gokul Dairy, Kolhapur, Vashi
- Mother Dairy, Anand
- Milma Dairy, Wayanad
- Gowardhan Dairy, Parag Milk Foods, Pune, Chittoor

### Textiles :

- Bombay Dyeing DMT Plant, Patalganga
- Reliance, Patalganga
- Lavino Kapur, Boisar
- Arvind Mills, Ahmedabad
- Alok Industries, Silvassa, Vapi
- Bombay Rayon, Boisar, Kolhapur & Bangalore
- Mandana Dyeing, Boisar
- Sheetal Fibre Ltd., Ludhiana

### Petroleum :

- Reliance Industries, Jamnagar, Patalganga
- GAIL Gas Pipe Line, Vizag, Vijayawada
- Guru Gobind Singh Refinery, Bathinda
- HPCL, Mahul
- BPCL, Mahul
- IOCL, Haldia, Mathura
- BPCL, Mumbai Manmad Pipe Line, Manmad Sawai Madhopur Extension

### Auto Mobiles :

- Ceat Shoppe, All India
- FIAT, All India
- Maruti, All India
- Mahindra & Mahindra, All India

- Volkswagen, All India
- Skoda India, All India
- BMW, All India
- Daimler India, All India
- Bharat Benz, All India
- Honda, All India
- Hyundai, All India
- Mahindra ( Scorpio Showroom), Secunderabad
- Bajaj Auto Showroom, Ahmedabad

### Corrosion Protection Application :

- RCF Thal Plant
- Exide Industries Limited, Hosur in Tamilnadu

### Breweries :

- Seagram, Nashik
- United Breweries, Aurangabad, Hyderabad, Orissa
- Arian Breweries, Jaipur
- SAB Miller, Aurangabad
- Varun Breweries, Noida
- Carlsberg India, Hyderabad

### Government Agencies :

- BARC
- MES
- Railways
- Airport Authority of India
- WBTD, Murti
- Ichapur Rifle Factory, Ichapur
- Chittaranjan Locomotive Works, Chittaranjan
- CPWD, Kolkata

## Housing :

- Himalaya Co-operative Housing Trust Ltd; Ahmedabad - Parking Passage
- Dynasty Developers, Bangalore - Terrace Floor
- Woods Well Apartments, Bangalore - Car Parking Area
- Shanti Ashram, Mumbai - Pathways around the Ashram
- Malbar Co-operative Housing Society, Mumbai - Car Garage and Driveway
- Mantri Developers, Hyderabad - Lift Lobby & Common Parking
- Splendid Group, Hyderabad - Open Terrace of Palm Meadow Villas
- Lodha Builders, Dombivli, Thane, Miraroad, Kanjurmarg, Mumbai - Utility & Balcony Area
- EMAAR MGF, Mohali - Balcony
- Bakeri Group - Ahmedabad - Driveway
- Safal Group, Ahmedabad - Driveway
- Oberoi Builders, Jogeshwari, Mumbai - Utility Area
- Pittie Group, BKC, Mumbai - Driveway & Parking
- Regency Group, Thane - Stilt Parking

## Swimming Pool :

- Talkatora Stadium, Delhi
- National Games Stadium, Hyderabad - Swimming Pool Deck
- Jaya Bheri Silicon Country, Hyderabad - Swimming Pool Deck
- Supreme Industries, Nagothane - Swimming Pool Deck
- Goel Promoters, Pune - Swimming Pool Deck
- Parmar Farm House, Pen - Swimming Pool
- Raheja willows – Lokhandwala ( Mumbai)
- National Institute of Water Sports, Panjim, Goa
- Leisure Pool project at Indapur, Maharashtra
- Birsa Munda Hockey Stadium, Rourkela
- IIM Calicut
- Yacht Club , Cochin, Kerala
- Green field Stadium , Trivandrum
- MGM School, Trivandrum

- Parli High School , Palakkad
- Namaha Home stay,Wayanad, Kerala
- Kumarakom Lake Resorts, Kerala
- Hotel Apollo Dimora, Trivandrum, Kerala
- GE army project Jaiselmer
- Kiara Residency Apartment, Gomti nagar, Lucknow
- IIT Kanpur Swimming Pool Tiles
- Blue World Theme Park, Kanpur
- The Heritage School, Kolkata
- Railway Colony Lower Parel & Andheri, Mumbai
- Hindalco Plant - Renukoot, UP
- Dyore Club, Civil Lines - Jaipur
- Palm exotica boutique resort, Shankarapally ,AP/TA
- Delhi public school Hyderabad, AP/TA
- IIT sangareddy, AP/TA
- Tourism plaza Hyderabad, AP/TA
- Sarovar villa project - washroom interior, AP/TA
- Tourism plaza Hyderabad, Telangana
- Aqua sports complex , R.K Beach, visakhapatnam
- My Home Group – Bopanapally Villa Project, Hyderabad

## Food Processing :

- Ruchi Soya Oil Extraction Unit, Indore
- Nestle, Baddi
- Hindustan Unilever Ltd; Rajpura, Mysore, Nashik & Kolkata
- Tricom Agrochem Ltd; Pune
- Nilons Enterprise, Jalgaon
- ITC Ltd; Ranjangaon, Pune
- SDC Agrofoods, Hyderabad
- Ravindranath Fruit Canning Industries, Hyderabad
- FIL Industries Ltd. Jammu
- Perfetti Van Melle Pvt. Ltd., Manesar
- Narmada Drinks Pvt. Ltd., Bilaspur
- Cargill Industries, Daund, Pune
- Tetrapack Industries, Chakan, Pune
- Hindustan Coca Cola Beverages, Kheda, Hyderabad & Guntur
- Pepsico Holdings, Kanpur
- Dharampal Satyapal Ltd., Kullu, H. P.

### Bulk Drugs :

- Alchem, Ankleshwar
- Sun Pharma, Ahmednagar
- Unichem, Roha
- Cadila, Ankleshwar
- Lupin Pharma, Boisar
- Nicholas Piramal, Mumbai
- Avantis, Ankleshwar
- Cipla Ltd., Patalganga, Kurkumbh & Bangalore
- Matrix Laboratories, Hyderabad & Vizag
- Dr. Reddy's Laboratories, Hyderabad & Vizag
- Covalent Labs, Hyderabad & Vizag
- Polydrug Pharma, Ambarnath

### Pharmaceuticals :

- Glaxo, Thane
- Johnson and Johnson, Mumbai
- Wockhardt Ltd., Aurangabad

### Chemical Plant :

- SD Finechem, Tarapur
- BASF, Mangalore
- Sarex Overseas, Tarapur
- Salvi Chemicals, Boisar
- Clariant Chemicals, Roha
- Jubilant Life Sciences, Bharuch
- Navin Chemical Enterprise, Dewas

### Public Sector Undertaking :

- ONGC
- HPCL
- BPCL

### Heavy Industries and Others :

- Hindalco, Sambalpur
- Adhunik Alloys and Power Ltd; Jamshedpur

### Leather Trade :

- Reflexions Narayani Impex Pvt. Ltd; Kolkata

### Johnson Endura Antistatic Tiles :

- Chemstroll Engineering, Goa
- Bilag Industries Ltd. (Bayer Group Company), Vapi
- MES, Vizag (Dolphin Nose Station Base)
- Department of Malaria Health Research Institute, Delhi
- Johnson Matthey India Pvt. Ltd., Taloja, Mumbai
- Alen Electronics Pvt. Ltd., Ambarnath, Mumbai
- Aurobindo Pharma, Hyderabad & Vizag
- Mylan Labs, Hyderabad & Vizag
- Defense Research & development organization, Santosh Nagar, Hyderabad
- Dr. Reddy Laboratories, Hyderabad
- UP Projects Corporation Ltd. : 200 Bedded Mother & Child Referral Hospital, Gomti Nagar, Lucknow

### Cool Roof SRI :

- Jagat Guru Krupaluji Maharaj Trust Hospital, Virndavan, U.P.
- Scientific Center UPRNN Uttar Pradesh Rashtriya Nirman Nigam, Lucknow, U.P.
- Creative Interior Archtect - Bunglow Project, Dapoli, Maharashtra
- Alen Electronics - Medical Equipment Manufacturing Unit, Ambarnath, Maharashtra
- Tripura University, Agartala, Tripura
- Pinnacle Infotech Solutions - IT Industry, Durgapur, West Bengal
- Jaye Bheri Temple Tree - Prm Apartment Project, Hyderabad, Telengana
- Naidu College, Bhubaneshwar, Orissa
- Dinbandhu Pahapatra Prm Building Project, Bhubaneshwar, Orissa
- Dr. Chitra - Green House Building Project for Platinum Certification, Tuticorin, Tamilnadu
- Vellore Institute of Technology, Vellore, Tamilnadu
- TCS Project, Chennai, Tamilnadu
- MIND Tree Ltd. - IT Company, Bangalore, Karnataka
- IIT - Gandhinagar,
- Zydus Cadila Corporate House - Ahmedabad
- Shree Sthanakvasi Jain Chhatralaya - Ahmedabad
- KMF - Karnataka
- Schreiber Dynamix - Baramati
- Orissa Milk Federation - Cuttack
- Ajmer Dairy
- NIF - Kanpur

## **1 Johnson Endura tiles in a Spice Manufacturing Unit**

A spice manufacturing unit in Andheri, Mumbai with IPS concrete flooring found the quality of the product hampered by the dust generated. After a warning from the Food and Drug Administration, an attempt was made with epoxy layers, which could not handle the stress well. Then their original flooring was replaced with Johnson Endura tiles. The result? A hygienic, safe spice production area - and a FDA approval.

## **2 Johnson Endura tiles in a Leather Stitching Factory**

A Mohali-based leather-stitching factory with kota-stone flooring was dissatisfied. This dull and ugly flooring had deteriorated badly because of stress and stains by machine and trolley movement. The situation turned into a positive one when their flooring was replaced with Johnson Endura Tiles. The tiles looked good, remained scratch-free and breakage free resulting in low maintenance. The enhanced aesthetics earned praise from corporate buyers.

## **3 Johnson Endura tiles in Places of Worship**

A Gurudwara in Lucknow had kota-stone kitchen flooring which used to get wet easily. Because of the high footfalls during the langar, the wet flooring caused concern for the safety of the devotees. After the Gurudwara got this flooring replaced with Johnson Endura tiles, their problems were resolved. The new tiles provided grip, were breakage-free and made worship much safer.

## **4 Johnson Endura tiles in Manufacturing Industry**

A shocker making unit in Gurgaon had problems with safety - oil spills made operations difficult. After considering other flooring options, Epoxy flooring was installed to combat this. The result was not satisfactory as the deterioration rate of Epoxy flooring was too high. The unit then decided on Johnson Endura tiles. The anti-skid and high-stress surface allowed for easier grip and unrestricted heavy-trolley movement. Resulting in high productivity and a shocker factory environment free of shocks.

## **5 Johnson Endura Tiles at a Fish Harbor**

A fish harbor in Kerala had a rapidly degenerating floor because of the constant movement of fish carts, trucks, tempos, and crates on their concrete and kota flooring. This caused the flooring to break leading to unhygienic conditions and waterborne diseases. This in turn worsened the quality of fish. They solved this long standing problem by replacing their flooring with heavy duty Johnson Endura Tiles which were cleaner, scratch-free and durable. The harbor was then successful in winning the confidence of consumers who visited the Cherai Harbor.

## **6 Johnson Endura Tiles in a Plastic Molding Unit**

A plastic molding unit used kota-stone & mandana-stone on the floors in their Mumbai and Delhi factories. This always led to problems like breakage, stains and scratches during trolley movement. So when the time came for the management to make a choice for their Baddi branch they chose to go with Johnson Endura Tiles. Now the company spends a lot less on maintenance and has happier employees with increased levels of productivity.

## **7 Johnson Endura Tiles in Railway Battery Rooms**

The battery rooms in the Railway used acid resistance bricks which were porous. They used to get stained easily and required high maintenance. The DE of Railways soon decided to put an end to this problem by replacing their flooring with Johnson Endura tiles. The results were there for everyone to see. The floors were finally easy to fix, stain free with low maintenance, making it more conducive for work.

## **8 Johnson Endura Tiles in Pulp Canning Units**

A mango pulp canning unit had been facing a maintenance issue with their kadappa floors constantly chipping off and breaking. The floor also used to catch a lot of stains due to long storage periods of the mangoes. The troubled management of the unit decided to replace their problematic flooring with Johnson Endura Tiles and Epoxy Sealant after they got notified by the local pollution control officials. With new flooring their regular maintenance issues were solved and they got the ISO 14001 certification. The flooring change also helped the unit win canning sub-contracts for big brands like Frooti, Pepsi and Hindustan Coca Cola Beverages.

## END-TO-END Solutions

### JOHNSON TILES

Johnson tiles is the flagship brand of H & R Johnson. It offers a wide range of ceramic wall and floor tiles. Some of the trend-setting innovations we have launched in Johnson Tiles include germ free tiles, anti-skid bathroom tiles, water-repellent Tiles, scratch resistant tiles, 3D digital tiles etc.

What makes this collection unique is its DNA of 3 bases- aesthetics, durability and functionality. It offers tiling solutions available in small and medium formats in multiple finishes and unlimited themes and designs for both walls and floors which can be applied in indoor residential and commercial areas.

### JOHNSON PORSELANO

Johnson Porselano offers Glazed Vitrified Tiles, Slabs and Splits with true to life look, feel and touch.

With the introduction of the patented germ free technology close to a decade ago, this germ free range\* of technically superior and aesthetically appealing tiles help you make hygiene the core of your lifestyle.

It offers tiling solutions available in medium and large formats in multiple finishes and unlimited designs for both walls and floors which can be applied in indoor residential and commercial areas.

### JOHNSON ENDURA

In tune with our legacy of introducing most of the innovations in the Indian tile industry, H & R Johnson (India) launched the Johnson Endura brand to offer highly specialized range of architectural and industrial tiling solutions. Today, Johnson Endura enjoys the position of being India's first brand to offer the widest range of specialised flooring solutions pertaining to residential outdoor, commercial and industrial use.

While the use of conventional or ordinary flooring solutions in highly demanding areas can lead to a multitude of problems like slippages, chipping and breakages, Johnson Endura not only offer heavy duty flooring solutions but can withstand the harsh elements of external climatic conditions, the tough requirements of all kinds of manufacturing and warehousing setups, cladding and high traffic areas. Some of the innovations from Johnson Endura include swimming pools, antistatic tiles, tactiles for visually impaired

### MARBONITE:

Johnson Marbonite offers a wide range of Stain free Polished Vitrified Tiles. From the past 2 decades, it has been ruling the polished vitrified tile segment because of its constant ability to innovate and present products which are aesthetically pleasing, functionally superior and far more durable.

The Stain Free technology makes the maintenance of tiles a lot more easier, it also enhances the reflectivity of the tile surface making your space shine bright. Every range under marbonite is finely crafted with its own purpose and uniqueness. Its wide variety of tiles makes it an ideal choice for residential and commercial use.

## **Manufacturing Excellence**

Johnson has the most modern manufacturing units across strategic locations in India; Madhya Pradesh, Maharashtra, Karnataka, Pondicherry, Gujarat, Andhra Pradesh and Himachal Pradesh. Our manufacturing facilities employ the best technology from world leaders in tile manufacturing equipment. In our pursuit for manufacturing excellence and obsession with quality we have invested in automating our manufacturing process and employ equipments such as non-contact digital printing machines, microprocessor-controlled kilns, laser guided vehicle (LGV), automatic sizing and planarity controls, automatic packing machines, etc. All our plants are ISO compliant with both 9001 and 14001 certifications as well as OHSAS 18001 certification.

## **Pioneering Innovations**

Johnson has pioneered innovation in the Indian tile industry.

- Anti-skid Bathroom Tiles, specially designed for Indian households
- Water-repellent tiles for a cleaner wall
- Joint-free wall, floor and vitrified tiles for minimum grout joints
- Scratch-free tiles for that extra durability under ambient dust conditions
- Germ-free tiles for protection against fungus and bacteria
- Stain-free vitrified tiles with enhanced stain resistance
- Anti-static tiles specially designed for use in areas such as computer server rooms and data centers
- Revolutionary digital printing to make designs come alive
- Tac-tiles to aid the visually challenged navigate
- Intellimate - intelligent toilet system for sanitarywares
- Germ-free sanitarywares

## Research & Development

At the heart of every innovation from Johnson, lies a state-of-the-art Research and Development facility. It's where ideas are birthed, given a heart and a mind to perform. It's where we harness the powers of cutting-edge technology to deliver something that enhances your life. Located at Pen, Maharashtra, it is approved by the Department of Scientific and Industrial Research, Government of India. Every new product developed here is stringently checked for its quality, right from the raw material stage itself. The clay, the pigments, the minerals, the chemicals, whether sourced locally or internationally, are not used until they meet our exacting standards. With geologists on site, examining the quality of material from the mine itself, we ensure that what you get is fit for today and ready for tomorrow.



## Green Initiative

As a socially responsible company, Johnson has initiated a number of measures to reduce energy consumption and to conserve and preserve precious natural resources. Our manufacturing operations are increasingly using greener fuels like biomass and wind energy. We leverage local resources and manufacture and distribute locally in order to cut down on fuel consumption wasted in transportation. We also use minimum water, mostly harvested rainwater, reuse energy diligently and recycle waste. We have also installed high grade pollution abatement devices that restrict the release of noxious gases such as SO<sub>x</sub>, NO<sub>x</sub> and SPM into the environment. The company has registered two projects under the Clean Development Mechanism which is generating certified emission reduction (CER). Additionally, we have two projects on the VER + scheme accruing VER + credits. These initiatives have been recognized by external and Government agencies such as Gas Authority of India Limited (GAIL) and the Bureau of Energy Efficiency (BEE), Ministry of Power, Government of India. The bigger reward, however, is the fact that we are leaving the planet behind for our children, like the way we found it. Pure and green.

Customers choosing to use our products can avail LEED or equivalent credits toward Green Building Certification under the following categories -

**Material Resource :** Use of local raw materials to reduce energy consumption during transportation - Available points 2.

**Recycle Content :** Use of recycled material in the manufacture of the product - Available points 2.

## Certifications



Johnson is India's largest tile manufacturer. Its commitment to quality, service and innovation is backed by certification from the world's leading accreditation bodies.

### **ISO 9001: 2015**

For implementing a Quality Management System for the Manufacture and Supply of Ceramic Tiles.

### **ISO 45001: 2018**

For implementing an Occupational Health & Safety Management System for the Manufacturing of Ceramic Tiles.

### **ISO 14001: 2015**

For implementing an Environmental Management system for the Manufacturing of Ceramic Tiles

Certificate of Merit for Energy Conservation, Bureau of Energy Efficiency, Ministry of Power A Recognition for the efficient use of energy and its conservation.

Plant has received Safety award by National Safety Council.



## Awards

H & R Johnson has won awards for its impeccable products and services. H & R Johnson always make sure it remain consistent in delivering top-notch wall tiles, floor tiles, and other products.



### GreenPro:

GreenPro is a product certification given by the Confederation of Indian Industry (CII) which signifies environmentally conscious lifecycle of the production; certification for eco-friendly products that helps customers make an informed choice towards sustainable products. Johnson is proud to announce that all our tile segments – Johnson Tiles, Porselano, Endura and Marbonite are certified as GreenPro



### Superbrand (consumer and industry validated):

Superbrand is an internationally recognised award and is regarded as the world's foremost authority on brand management practices. Johnson is proud to have been bestowed with the title of an Consumer & Industry validated Superbrand for Marble and Quartz, Endura and Smart tiles from Johnson.



### ET Iconic brand:

The Iconic Brand award was conceptualized with an objective of acknowledging and honouring the invaluable contributions made by indigenous brands to various sectors of the economy H & R Johnson has been awarded the 'The Economic Times Iconic brand of the year and The Economics Tiles Architecture & Designs Top 100 Brands' title.



### ET Best Brand:

The Economic Times initiated "ET BEST BRAND" recognising 200 best brands across select categories based on consumer survey methodology and conducted by AC Nielsen. The award reinstates our continued commitment towards consumers offering best products & experiences.



### Brand of the Decade:

Johnson has "Brand of the Decade" indicates the brands who have achieved consistency with brand equity from last 10 years based on consumer survey research and evaluation conducted by BARC Asia. The award is recognition of our continued commitment towards consumers offering best products & experiences.



### Trusted brand:

Consumer based research award

Johnson has been awarded the Reader's Digest Trusted Brand award. This is the 12th year that Johnson has received the Gold award in the tiles category, also received award for Bath fitting category.



### Golden peacock:

Golden Peacock Award for Product Innovation, instituted by the Institute of Directors (IOD) is now regarded as a benchmark of Corporate Excellence worldwide. We are glad to receive this award for our "Germfree" products.



### Greenguard Gold

Greenguard is a third-party chemical emissions standard, helping to reduce indoor air pollution and the risk of chemical exposure, while aiding in the creation of healthier indoor environments. Johnson is proud to announce that our Quartz range of products is awarded with Greenguard Gold award.



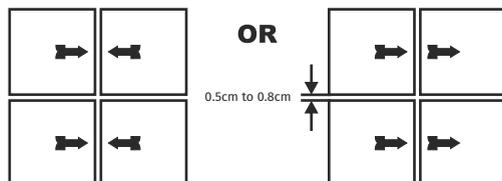
### Griha

Griha council is a joint initiative of Ministry of New and Renewable Energy, GOI and The Energy and Resources Insti-tute of implement Griha. India's national rating system for sustainable habitats.

## Johnson Endura Tile Fixing Instructions\*

1. Before fixing the tiles, lay them out in the desired pattern and make sure that they give an acceptable blend of shade, colour & design. Also make sure that the tiles are acceptable to your satisfaction. Please note that certain amount of shade and size variation is inherent in the manufacturing of ceramic products.
2. For fixing these tiles, we recommend the use of ARDEX ENDURA tile fixing adhesives. For best results, follow the tile fixing instruction provided along with the adhesives.
3. For fixing Johnson Endura tiles on the floor using sand and cement, follow the instruction given below :
  - a) Use cement and sand mortar in the ratio of 1 : 4. Add some water to create a consistent paste.
  - b) Do not add any further water to the mix once it is completed and use the same within one hour.
  - c) Apply a 2cm to 3cm layer of bedding material over an area of 1 square meter at a time on the surface of the area. Apply a fine slurry to the back of the tile to ensure proper and full bedding. Press gently for even adherence at back of the tile.  
**DO NOT USE AN IRON HAMMER OR SOME HEAVY MATERIAL TO PRESS THE TILE.**
4. For fixing Johnson Endura tiles on Dado, we recommend the use of ARDEX ENDURA. Please follow the manufacturer's instructions for the same. We do not recommend the use of sand and cement for fixing on Dado.
5. Mark and layout the tiles from the centre of the area to be tiled so that cut tiles if any will be on the outer edge towards the walls.
6. The nominal/ work size of the tile is as printed on the carton. It is advisable to maintain a gap of 0.5 cm to 0.8 cm between two tiles to allow for possible expansion as per ISO tolerance norms. This would give the coverage area as mentioned in the grouts.
7. Complete the tiles laying process by pressing the cut Johnson Endura tiles firmly into place along the wall / floors.
8. Allow 3 to 4 days for bed curing. After this period, fill the joints with cementitious or epoxy grouts from ARDEX ENDURA .
9. Fifteen minutes after finishing the grouting process, wipe off excess grout with a damp sponge and polish the tiles with a soft and dry cloth for a clean surface. The tiles can also be cleaned with a mild acid (However Hydrofluoric acid and its derivatives should not be used). You can also use tile & stone cleaners from ARDEX ENDURA.
10. Please note that the company does not accept any liability in case of problems arising out of non - adherence to these fixing instructions.
11. It is ideal to provide 0.5 cm to 0.8 cm gap between tiles with the help of spacers.
12. Kindly look for an arrow (➡) on the back of the tile and follow the laying pattern as shown below.
13. THE COMPANY WILL BEAR NO RESPONSIBILITY AFTER THE TILES ARE FIXED .

NOTHING IN THESE INSTRUCTIONS IS A SUBSTITUTE FOR GOOD WORKMANSHIP AND SUPERVISION.



\* Specific tile fixing instructions related to industrial tiles, swimming pool tiles, pavers, anti-static & special purpose acid/alkali/chemical resistance tiles, please visit the website [www.enduratiles.com](http://www.enduratiles.com) & contact company representative directly.

## You Can Also Reach Us At

Region	Branch	Tel.:
East	Kolkata	033-46021880
	Bhubaneshwar	0674 6539836/37/2430240
	Siliguri	9836065812
	Guwahati	8135846661/7575900492
	Ranchi	9576038118
West	Mumbai	022-40647500
	Thane	022-25867600 / 666
	Pune	020-41301164 / 31
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	Indore	0731-4007441
	Jalandhar	0182-4505038 / 39
North	Chandigarh	0172-4697100
	Delhi	011-49526600

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	Varanasi	0542-2222620
	Patna	9576038781
South	Bengalure	080-22234310/080-22234330
	Hyderabad	040-29802270 / 71 / 72
	Vijayawada	9666429666
	Vishakhapatnam	0891-2796376
	Tirupati	9121228960
	Kochi	0484-4871277
	Kozhikode	0422-4382698
	Thiruvananthapuram	0471-2720141
	Chennai	044-28544116 / 28541881
	Coimbatore	0422-4382698
	Madurai	0452-4355584 / 4355594
	Trichy	9486718544

## Experience Centers

Location	Address	Tel.:
Kolkatta	HOUSE OF JOHNSON - 83 JBS Haldane Avenue, TOPSIA Trinity towers Kolkata - 700046	033-46021880
Guwahati	HOUSE OF JOHNSON - 1st Floor, Above Royal Riders Honda, Near Rahul Kata, Pub Bragaon, Garchuk, Guwahati - 781035	7575900492
Bhubaneshwar	HOUSE OF JOHNSON - Ray Tower, 1st Floor, N4/237, Indradhanu market, IRC Village, Nayapalli, Bhubaneshwar, Orissa - 751015	0674 6539836/37/2430240
Patna	HOUSE OF JOHNSON - SK Builders and colonizer Pvt.Ltd.,1st Floor, SK Palace, Saguna more, Bihar - 801503.	9702651243
Chandigarh	HOUSE OF JOHNSON - SCO 214, sector14, Panchkula, Haryana - 134109	0172-4637724
Delhi	HOUSE OF JOHNSON - First & Mezzanine Floor, B-1/G-3, Mohan Industrial Estate, Mathura Road, New Delhi - 110094.	11-49526600
Lucknow	HOUSE OF JOHNSON - 1st Floor, Prithvi Ratan Height,Plot No CP-4, Vijayant khand - 3, Gomtinagar Yojna, Lucknow - 226028	0522-2721699
Varanasi	HOUSE OF JOHNSON - Ashakunj, 1st floor, D59/103 D4, Opp Siddharth Complex, Sigra Mehmoorganj Road, Varanasi - 221010	0542-2222620
Aurangabad	House Of Johnson Aurangabad - Gut No 16/44, NH-211, Near Balapur Phata, Near Ramkisan Lawns, Beed Bypass Road Aurangabad 431005	8669600748
Pune	HOUSE OF JOHNSON - Sable House, Poona Snuff Factory, Sr. No 11A, Plot 408/4/5, Satara Road, Gultekadi, Pune - 411037	7350009364
Thane	HOUSE OF JOHNSON - Shop No.5, Gr.Floor, Cosmos Jewels, Near Dmart, Anand Nagar, Ghodbunder Road, Thane West - 400615	8424003247
Mumbai - Andheri	HOUSE OF JOHNSON - 1st flr, Bonanza, Sahar Plaza, Nr Hotel Kohinoor continental, J B Nagar, Andheri Kurla Road, Andheri East, Mumbai - 400059	8108030975
Ahmedabad	HOUSE OF JOHNSON - F 106-107, Shivalik Plaza, IIM Road, Panjrapole Cross Road, Ahmedabad, Gujarat - 380015	079-48480010
Indore	HOUSE OF JOHNSON - Shop No 5, 6, 7 and 8, Upper Ground Floor, Exotica, Shalimar Township, Village Niranjapur, A. B. Road, Indore, Madhya Pradesh - 452001	0731-4007441
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Kochi	HOUSE OF JOHNSON - Door no. 11/300 f, Next to VTJ Hyundai, NH 47 Kundanoor, Maradu, Kochi, Ernakulam - 682304	0484-4871277
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Hyderabad	HOUSE OF JOHNSON - SP Jubilee Crown (3rd Floor) Plot - 1270, Road No.36, Jubilee Hills, Hyderabad - 500033	8897525143

For address and contact numbers of our Johnson Exclusive Showrooms and Authorized Retailers, please visit our website [www.hrjindia.com](http://www.hrjindia.com)



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