BELGARD® | PAVES THE WAY™

PORCELAIN PAVER & VENEER

RESOURCE GUIDE

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VENEER

Porcelain Veneer 60

**Roof Top and Commercial Raised Pedestal Installations require engineered design.*
For Engineered support in these applications, please contact your local Belgard® representative.

For additional technical information on the installation of porcelain pavers, please contact Customer Service at Porcelain@Oldcastle.com

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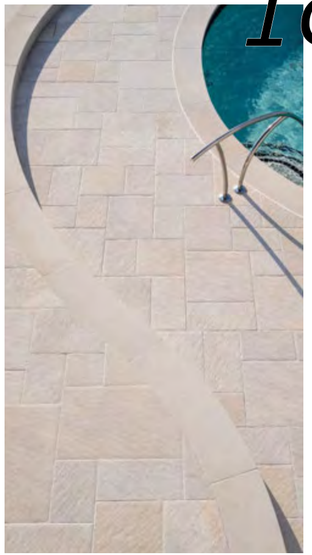
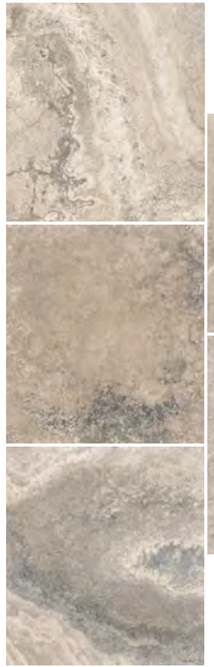


Quarziti 2.0 in Mountain

Verona in Platinum



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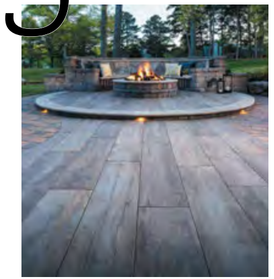


Noon in Daylight

28

Quarziti Unico & Porcelain Veneer in Waterfall

A NOTE ABOUT APPEARANCE

Within each style, and even within each production run, color shades can vary to differing degrees between each paver. While many of our products have little to no variation, there are options that display a moderate to high range of variation – each is a stylistic choice. Here's a breakdown of how our porcelain pavers are graded for color shade variation:

SHADE variation v1 UNIFORM

Uniform Appearance
Minimal to no differences among pieces.

SHADE variation v2 SLIGHT

Slight Variation
Distinguishable differences in texture and/or pattern within similar colors.

SHADE variation v3 MODERATE

Moderate Variation
Though the colors present in a single piece may indicate the color patterns to be expected on other tiles, the amount of colors on each piece might vary significantly.

SHADE variation v4 HIGH

Substantial Variation
Random color variation from piece to piece, so that one paver may have a totally different color from the other pavers. Thus, the final install will be unique.

60-80

Solar Reflectance Index (SRI): a measure of the constructed surface's ability to stay cool in the sun by reflecting solar radiation and emitting thermal radiation.

NAT Natural surface
STA Aged structure
PL Piallata surface
RD Radiale surface
ST Structured surface

A NOTE ABOUT SQUARE FOOTAGE

Square footage reflects the estimated area of coverage that the tile will provide once placed, after allowing for joint spacing of 5/32"

12 x 24
Actual size of tile is 1.9 sq/ft per tile.

24 x 24
Actual size of tile is 3.85 sq/ft per tile.

24 x 48
Actual size of tile is 7.70 sq/ft per tile.

18 x 36
Actual size of tile is 4.33 sq/ft per tile.

36 x 36
Actual size of tile is 8.66 sq/ft per tile.

8 x 48
Actual size of tile is 2.50 sq/ft per tile.

12 x 48
Actual size of tile is 3.85 sq/ft per tile.

16 x 48
Actual size of tile is 5.13 sq/ft per tile.

48 x 48
Actual size of tile is 15.45 sq/ft per tile.

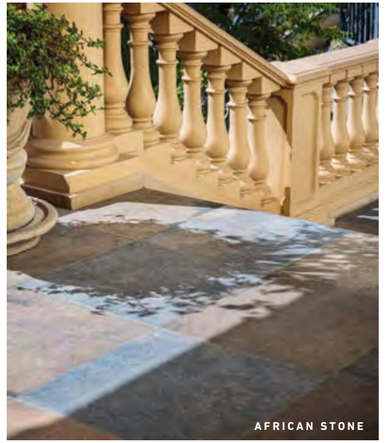
MODULAR
12 x 24
24 x 36
Actual size numbers are 1.92 sq/ft for the 12 x 24 and the 34 x 36 is 5.8

Coverage will vary depending on installation practices.

MIRAGE
Porcelain.Design.Sustainability

ARDESIE

CASUAL
VARIETY
NATURAL



24 X 24 | UNICO *Bullnose Coping* | VENEER

ESTIMATING CHART

See p 36 for additional sizing information	24 X 24 60 x 60 x 2 cm 23.54" x 23.54" x 3/4"	UNICO 33 x 60 x 2 cm 12.99" x 23.54" x 3/4"	VENEER 10.5 x 45 cm 4.13" x 17.72"
GROSS WEIGHT / BOX	33 kg / 72 lbs	24 kg / 52 lbs	16kg / 34.6 lbs
PIECES / BOX	2	3	14
SQ FT / BOX	7.75	6.37	7.10
BOXES / FULL PALLET	30	40	55
SQ FT / PALLET	232.5	254.82	390.73
PALLET GROSS WEIGHT	980 kg / 2160 lbs	943 kg / 2080 lbs	862 kg / 1900 lbs

SHORE
AD 01 NAT

ISLAND
AD 02 NAT

AFRICAN STONE
AD 03 NAT

BLACK REEF
AD 04 NAT

VULCAN*
AD 05 NAT

**Not available in Veneer*

MIRAGE
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BLUE.S

BALANCED
INTERNATIONAL
NEUTRAL

24 X 24 | 36 X 36 | 48 X 48

ESTIMATING CHART

See p 36 for additional sizing information	24 X 24 60 x 60 x 2 cm 23.54" x 23.54" x 3/4"	36 X 36 90 x 90 x 2 cm 35.35" x 35.35" x 3/4"	48 X 48 120 x 120 x 2 cm 47.17" x 47.17" x 3/4"
GROSS WEIGHT / BOX	33 kg / 72 lbs	37.6 kg / 82.89 lbs	16kg / 34.6 lbs
PIECES / BOX	2	1	14
SQ FT / BOX	7.75	8.72	7.10
BOXES / FULL PALLET	30	18	55
SQ FT / PALLET	232.5	156.94	390.73
PALLET GROSS WEIGHT	980 kg / 2160 lbs	692 kg / 1525 lb	862 kg / 1900 lbs

EGO
BL 01 NAT

CORE
BL 02 NAT

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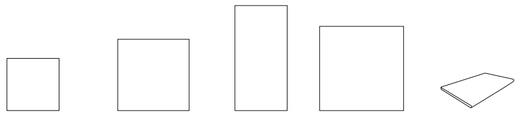
GLOCAL

GLOBAL
LOCAL
NUANCED

CLASSIC

IDEAL



24 X 24 | 36 X 36 | 24 X 48 | 48 X 48 | UNICO *Bullnose Coping*

ESTIMATING CHART

See p 36 for additional sizing information	24 X 24 60 x 60 x 2 cm 23.54" x 23.54" x 3/4"	36 X 36 90 x 90 x 2 cm 35.35" x 35.35" x 3/4"	24 X 48 60 x 120 x 2 cm 23.54" x 47.17" x 3/4"	48 X 48 120 x 120 x 2 cm 47.17" x 47.17" x 3/4"	UNICO 33 x 60 x 2 cm 12.99" x 23.54" x 3/4"
GROSS WEIGHT / BOX	33 kg / 72 lbs	37.6 kg / 82.89 lbs	34 kg / 74 lbs	67 kg / 148.5 lb	24 kg / 52 lbs
PIECES / BOX	2	1	1	1	3
SQ FT / BOX	7.75	8.72	7.75	15.5	6.37
BOXES / FULL PALLET	30	18	35	20	40
SQ FT / PALLET	232.5	156.94	271.25	310	254.82
PALLET GROSS WEIGHT	980 kg / 2160 lbs	692 kg / 1525 lb	1189 kg / 2621 lbs	1365 kg / 3009 lbs	943 kg / 2080 lbs

CLEAR*
GC 01

IDEAL
GC 03

TYPE
GC 04

CLASSIC
GC 05

ABSOLUTE
GC 06

CHAMOIS
GC 08

**Only offered in the 24 x 24 size*

CLASSIC & TYPE (BORDER)

MIRAGE
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LAGOON

STRUCTURAL
SOPHISTICATED
ECLECTIC

MOONBEAM

MOONBEAM

24 X 48

ESTIMATING CHART	
See p 36 for additional sizing information	**24 X 48** 60 x 120 x 2 cm 23.54" x 47.17" x 3/4"
GROSS WEIGHT / BOX	34 kg / 74 lbs
PIECES / BOX	1
SQ FT / BOX	7.75
BOXES / FULL PALLET	35
SQ FT / PALLET	271.25
PALLET GROSS WEIGHT	1189 kg / 2621lbs

MOONBEAM
LG 01 ST

SANDSHELL
LG 02 ST

ATMOSPHERE
LG 03 ST

SHARKSKIN
LG 04 ST

CLOUDBURST
LG 05 ST

MOONBEAM

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MASHUP

STRUCTURAL
SOPHISTICATED
ECLECTIC

BLOCK

BLOCK

24 X 24 | 36 X 36

SQUARE
MP 01 ST

WAY
MP 02 ST

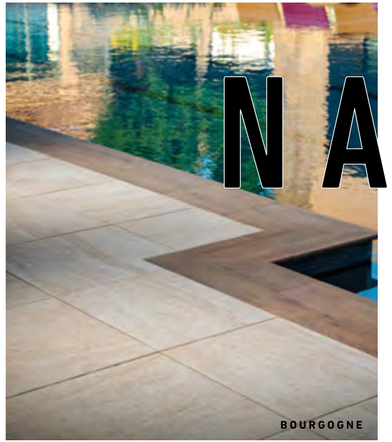
BLOCK
MP 03 ST

ROAD
MP 04 ST

ESTIMATING CHART

See p 36 for additional sizing information	**24 X 24** 60 x 60 x 2 cm 23.54" x 23.54" x 3/4"	**36 X 36** 90 x 90 x 2 cm 35.35" x 35.35" x 3/4"
GROSS WEIGHT / BOX	33 kg / 72 lbs	37.6 kg / 82.89 lbs
PIECES / BOX	2	1
SQ FT / BOX	7.75	8.72
BOXES / FULL PALLET	30	18
SQ FT / PALLET	232.5	156.94
PALLET GROSS WEIGHT	980 kg / 2160 lbs	692 kg / 1525 lb

JURA BEIGE


BOURGOGNE

MIRAGE
Porcelain.Design.Sustainability

NA.ME

NATURAL
TIMELESS
UNIQUE

18 X 36 | 24 X 24 | 24 X 48 | 48 X 48

ESTIMATING CHART

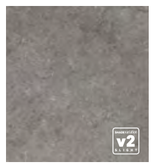
See p 36 for additional sizing information	**18 X 36** 45 x 90 x 2 cm 17.64" x 35.35" x 3/4"	**24 X 24** 60 x 60 x 2 cm 23.54" x 23.54" x 3/4"	**24 X 48** 60 x 120 x 2 cm 23.54" x 47.17" x 3/4"	**48 X 48** 120 x 120 x 2 cm 47.17" x 47.17" x 3/4"
GROSS WEIGHT / BOX	37 kg / 81.4 lbs	33 kg / 72 lbs	34 kg / 74 lbs	67 kg / 148.5 lb
PIECES / BOX	2	2	1	1
SQ FT / BOX	8.7	7.75	7.75	15.5
BOXES / FULL PALLET	27	30	35	20
SQ FT / PALLET	234.9	232.5	271.25	310
PALLET GROSS WEIGHT	1014 kg / 2235 lbs	980 kg / 2160 lbs	1189 kg / 2621 lbs	1365 kg / 3009 lbs

JURA BEIGE
NE 10 ST

BOURGOGNE
NE 12 ST

LUMNEZIA
NE 21 ST

OVERCAST
NE 22 ST

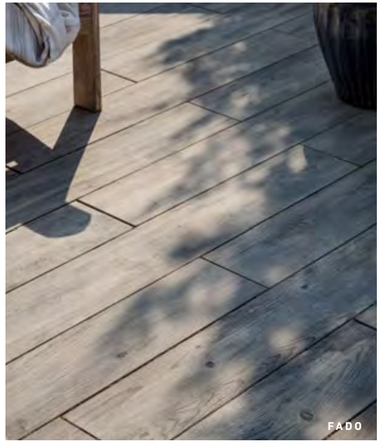

GRIS BELGE
NE 31 ST

MIRAGE
Porcelain.Design.Sustainability

NAU 2.0

URBAN
DETAILED
NATURAL

FADO


FADO

8 X 48

12 X 48

FADO
NA 01

INDIE
NA 02

ESTIMATING CHART

See p 36 for additional sizing information	**8 X 48** 20 x 120 x 2 cm 7.64" x 47.17" x 3/4"	**12 X 48** 30 x 120 x 2 cm 11.73" x 47.17" x 3/4"
GROSS WEIGHT / BOX	21 kg / 46 lbs	34 kg / 74 lbs
PIECES / BOX	2	2
SQ FT / BOX	5.06	7.75
BOXES / FULL PALLET	30	36
SQ FT / PALLET	151.8	279
PALLET GROSS WEIGHT	642 kg / 1415 lbs	1208 kg / 2664 lbs

NOTE: Best practice is to install product in 1/3's.

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NOON

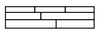
WARM
LIVELY
AGED

EMBER

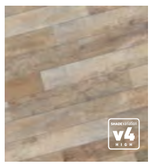
DAYLIGHT

8 X 48*

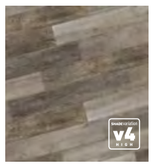
12 X 48*


VENEER

UNICO



DAYLIGHT
NN 01 ST



EMBER
NN 02 ST

HONEY
NN 03 ST

ESTIMATING CHART

See p 36 for additional sizing information	**8 X 48** 20 x 120 x 2 cm 7.64" x 47.17" x 3/4"	**12 X 48** 30 x 120 x 2 cm 11.73" x 47.17" x 3/4"	**VENEER** 10.5 x 45 cm 4.13" x 17.72"	**UNICO** 33 x 60 x 2 cm 12.99" x 23.54" x 3/4"
GROSS WEIGHT / BOX	21 kg / 46 lbs	34 kg / 74 lbs	16kg / 34.6 lbs	24 kg / 52 lbs
PIECES / BOX	2	2	14	3
SQ FT / BOX	5.06	7.75	7.10	6.37
BOXES / FULL PALLET	30	36	55	40
SQ FT / PALLET	151.8	279	390.73	254.82
PALLET GROSS WEIGHT	642 kg / 1415 lbs	1208 kg / 2664 lbs	862 kg / 1900 lbs	943 kg / 2080 lbs

** Best practice is to install product in 1/3's.*

MIRAGE
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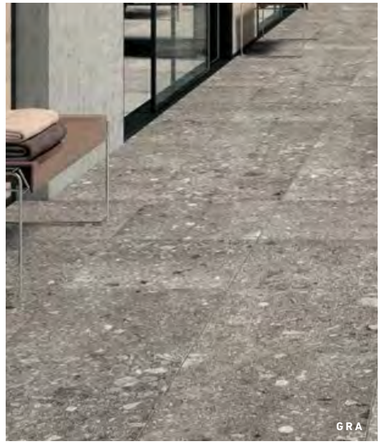
NORR

DIMENSIONAL
TACTILE
NATURAL



VIT
RR 01 ST - STA

GRA
RR 02 ST - STA

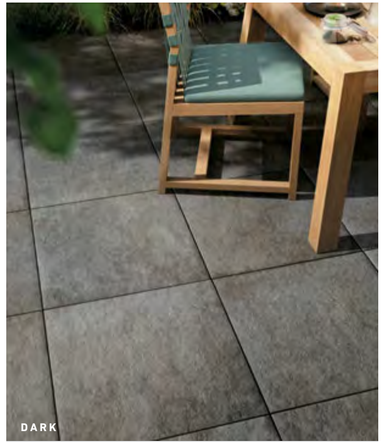
SVART
RR 03 ST - STA

24 X 24

36 X 36

ESTIMATING CHART

See p 36 for additional sizing information	**24 X 24** 60 x 60 x 2 cm 23.54" x 23.54" x 3/4"	**36 X 36** 90 x 90 x 2 cm 35.35" x 35.35" x 3/4"
GROSS WEIGHT / BOX	33 kg / 72 lbs	37.6 kg / 82.89 lbs
PIECES / BOX	2	1
SQ FT / BOX	7.75	8.72
BOXES / FULL PALLET	30	18
SQ FT / PALLET	232.5	156.94
PALLET GROSS WEIGHT	980 kg / 2160 lbs	692 kg / 1525 lb



MIRAGE
Porcelain.Design.Sustainability

OFFICINE

SHIFTING
MODERN
PURE

24 X 24

36 X 36

16 X 48

ESTIMATING CHART

See p 36 for additional sizing information	**24 X 24** 60 x 60 x 2 cm 23.54" x 23.54" x 3/4"	**36 X 36** 90 x 90 x 2 cm 35.35" x 35.35" x 3/4"	**16 X 48** 40.64 x 121.92 x 2 cm 15.67" x 47.17" x 3/4"
GROSS WEIGHT / BOX	33 kg / 72 lbs	37.6 kg / 82.89 lbs	42 kg / 91.3 lbs
PIECES / BOX	2	1	2
SQ FT / BOX	7.75	8.72	10.33
BOXES / FULL PALLET	30	18	24
SQ FT / PALLET	232.5	156.94	248
PALLET GROSS WEIGHT	980 kg / 2160 lbs	692 kg / 1525 lb	1184 kg / 2610 lbs

ACID
OF 01 ST

ROMANTIC
OF 02 ST

DARK
OF 03 ST

GOTHIC
OF 04 ST

SUNSET
OF 05 ST

MIRAGE
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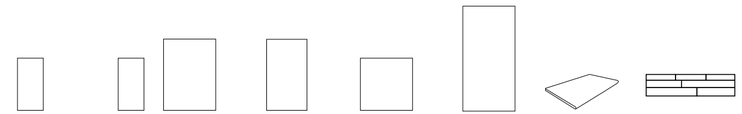
QUARZITI 2.0

AUTHENTIC
DIVERSE
NATURAL



12 X 24 | 12 X 24 24 X 36 | 18 X 36 | 24 X 24 | 24 X 48 | UNICO *Bullnose Coping* | VENEER

ESTIMATING CHART

See p 36 for additional sizing information	12 X 24 30 x 60 x 2 cm 11.73" x 23.54" x 3/4"	MODULAR 12 X 24 & 24 X 36 30 x 60 x 2 cm & 60 x 90 x 2 cm 11.73" x 23.54" & 23.54" x 35.35" x 3/4"	18 X 36 45 x 90 x 2 cm 17.64" x 35.35" x 3/4"	24 X 24 60 x 60 x 2 cm 23.54" x 23.54" x 3/4"	24 X 48 60 x 120 x 2 cm 23.54" x 47.17" x 3/4"	UNICO 33 x 60 x 2 cm 12.99" x 23.54" x 3/4"	VENEER 10.5 x 45 cm 4.13" x 17.72"
GROSS WEIGHT / BOX	24.58 kg / 54.19 lbs	33 kg / 72 lbs	37 kg / 81.4 lbs	33 kg / 72 lbs	34 kg / 74 lbs	24 kg / 52 lbs	16 kg / 34.6 lbs
PIECES / BOX	3	2	2	2	1	3	14
SQ FT / BOX	5.81	7.75	8.7	7.75	7.75	6.37	7.10
BOXES / FULL PALLET	40	36	27	30	35	40	55
SQ FT / PALLET	235.5	279	234.9	232.5	271.25	254.82	390.73
PALLET GROSS WEIGHT	998 kg / 2201 lbs	1197 kg / 2640 lbs	1014 kg / 2235 lbs	980 kg / 2160 lbs	1189 kg / 2621 lbs	943 kg / 2080 lbs	862 kg / 1900 lbs

GLACIER
QR 01 NAT

MOUNTAINS
QR 02 NAT

WATERFALL
QR 03 NAT

RIVER
QR 04 NAT

MANTLE
QR 05 NAT

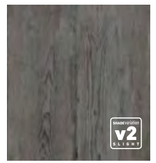
MIRAGE
Porcelain.Design.Sustainability

RAIL

SOUL
CONTEMPORARY
WOOD

16 X 48

ICEBERG
RL 01



GRAPHITE
RL 02

ESTIMATING CHART

See p 36 for additional sizing information	**16 X 48** 40.64 x 121.92 x 2 cm 15.67" x 47.17" x 3/4"
GROSS WEIGHT / BOX	42 kg / 91.3 lbs
PIECES / BOX	2
SQ FT / BOX	10.33
BOXES / FULL PALLET	24
SQ FT / PALLET	248
PALLET GROSS WEIGHT	1184 kg / 2610 lbs

MIRAGE
Porcelain.Design.Sustainability

SIGNATURE

CHROMATIC
WARM
STRIKING

12 X 48

ARTIC
SI 01 RD

HAVANA
SI 04 RD

DAKOTA
SI 05 RD

ESTIMATING CHART

See p 36 for additional sizing information	**12 X 48** 30 x 120 x 2 cm 11.73" x 47.17" x 3/4"
GROSS WEIGHT / BOX	34 kg / 74 lbs
PIECES / BOX	2
SQ FT / BOX	7.75
BOXES / FULL PALLET	36
SQ FT / PALLET	279
PALLET GROSS WEIGHT	1208 kg / 2664 lbs

MIRAGE
Porcelain.Design.Sustainability

SILVERLAKE

AUTHENTIC
DIVERSE
NATURAL

RESIA

24 X 24 | 24 X 48

ESTIMATING CHART

See p 36 for additional sizing information	**24 X 24** 60 x 60 x 2 cm 23.54" x 23.54" x 3/4"	**24 X 48** 60 x 120 x 2 cm 23.54" x 47.17" x 3/4"
GROSS WEIGHT / BOX	33 kg / 72 lbs	34 kg / 74 lbs
PIECES / BOX	2	1
SQ FT / BOX	7.75	7.75
BOXES / FULL PALLET	30	35
SQ FT / PALLET	232.5	271.25
PALLET GROSS WEIGHT	980 kg / 2160 lbs	1189 kg / 2621 lbs

BRAIES
SK 01 ST

RESIA
SK 02 ST

MORTIZ
SK 03 ST

NEMI
SK 04 ST

MORO
SK 05 ST

ORSI
SK 06 ST

ORSI

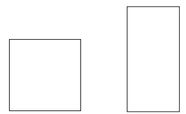
MIRAGE
Porcelain.Design.Sustainability

STONES 2.0

BALANCED
INTENSE
NATURAL

CHAMBROD

PIERRE BLEUE SABLEE


24 X 24 36 X 36 24 X 48

CHAMBROD
SO 05 ST

PIERRE BLEUE
SO 10 ST

PIERRE BLEUE SABLÉE
SO 11 ST

ESTIMATING CHART

See p 36 for additional sizing information	**24 X 24** 60 x 60 x 2 cm 23.54" x 23.54" x 3/4"	**36 X 36** 90 x 90 x 2 cm 35.35" x 35.35" x 3/4"	**24 X 48** 60 x 120 x 2 cm 23.54" x 47.17" x 3/4"
GROSS WEIGHT / BOX	33 kg / 72 lbs	37.6 kg / 82.89 lbs	34 kg / 74 lbs
PIECES / BOX	2	1	1
SQ FT / BOX	7.75	8.72	7.75
BOXES / FULL PALLET	30	18	35
SQ FT / PALLET	232.5	156.94	271.25
PALLET GROSS WEIGHT	980 kg / 2160 lbs	692 kg / 1525 lb	1189 kg / 2621 lbs

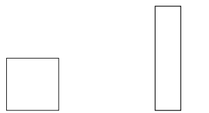
MIRAGE
Porcelain.Design.Sustainability

SUNDECK

DETAILED
SIMPLE
EARTHEN

SPIRT

ORIGINS


24 X 24 12 X 48*

ORIGIN
SD 01 RD

SPIRIT
SD 03 RD

ESTIMATING CHART

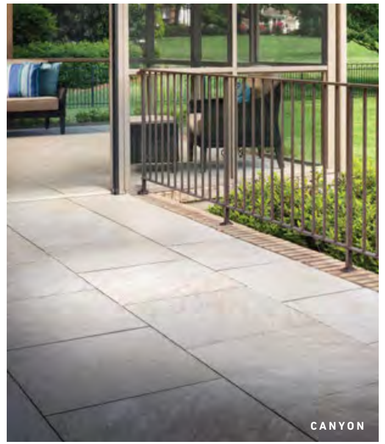
See p 36 for additional sizing information	**24 X 24** 60 x 60 x 2 cm 23.54" x 23.54" x 3/4"	**12 X 48** 30 x 120 x 2 cm 11.73" x 47.17" x 3/4"
GROSS WEIGHT / BOX	33 kg / 72 lbs	34 kg / 74 lbs
PIECES / BOX	2	2
SQ FT / BOX	7.75	7.75
BOXES / FULL PALLET	30	36
SQ FT / PALLET	232.5	279
PALLET GROSS WEIGHT	980 kg / 2160 lbs	1208 kg / 2664 lbs

**Best practice is to install product in 1/3's.*

BELGARD® | PAVES THE WAY™

TURIN™

LIGHT
STRUCTURE
NATURAL



24 X 24

FROST

CANYON

RAPIDS

STREAM

ESTIMATING CHART

See p 36 for additional sizing information	24 X 24 60 x 60 x 2 cm 23.54" x 23.54" x 3/4"
GROSS WEIGHT / BOX	33 kg / 72 lbs
PIECES / BOX	2
SQ FT / BOX	7.75
BOXES / FULL PALLET	30
SQ FT / PALLET	232.5
PALLET GROSS WEIGHT	980 kg / 2160 lbs

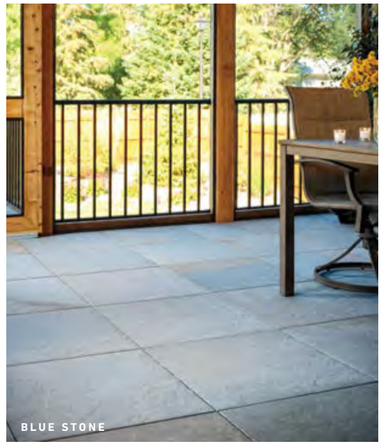
MADE IN THE USA

NOTE: Only available in select markets

MIRAGE®
Porcelain.Design.Sustainability

VERONA™

HARMONIOUS
NATURAL
STRIKING



24 X 24

UNICO
Bullnose Coping

BLUE STONE
VR 01 ST

TAOS
VR 02 ST

YUKON
VR 03 ST

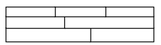
PLATINUM
VR 04 ST

ESTIMATING CHART

See p 36 for additional sizing information	24 X 24 60 x 60 x 2 cm 23.54" x 23.54" x 3/4"	UNICO 33 x 60 x 2 cm 12.99" x 23.54" x 3/4"
GROSS WEIGHT / BOX	33 kg / 72 lbs	24 kg / 52 lbs
PIECES / BOX	2	3
SQ FT / BOX	7.75	6.37
BOXES / FULL PALLET	30	40
SQ FT / PALLET	232.5	254.82
PALLET GROSS WEIGHT	980 kg / 2160 lbs	943 kg / 2080 lbs

PORCELAIN VENEER

MIRAGE
Porcelain.Design.Sustainability



VENEER

ESTIMATING CHART

See p 36 for additional sizing information	**VENEER** 10.5 x 45 cm 4.13" x 17.72"
GROSS WEIGHT / BOX	16kg / 34.6 lbs
PIECES / BOX	14
SQ FT / BOX	7.10
BOXES / FULL PALLET	55
SQ FT / PALLET	390.73
PALLET GROSS WEIGHT	862 kg / 1900 lbs

SHORE
AD 01

ISLAND
AD 02

AFRICAN STONE
AD 03

BLACK REEF
AD 04

DAYLIGHT
NN 01

EMBER
NN 02

HONEY
NN 03

GLACIER
QR 01

MOUNTAIN
QR 02

WATERFALL
QR 03

RIVER
QR 04

MANTLE
QR 05

BENEFITS OF PORCELAIN PAVERS

- **STYLISH -** Porcelain takes available style options to a new level
- **DURABLE -** Incredibly high breakage loads, up to 3,000 pounds
- **EASY TO CLEAN -** With a tight surface texture, these pavers clean quickly
- **MODULAR -** For faster installation, simply lay as you go

RESISTANT

TO FREEZE THAW
Freeze thaw resistant—100% frost-free and properties remain unaltered at temperatures ranging from -51.1° to + 60° C (-60°F to +140°F).

TO BREAKAGE
Because every slab can withstand loads of over 3000 lbs.

TO CHEMICAL AGGRESSION
Because our pavers are unaffected by alkalis, acids, chemical agents, salt and other de-icing materials.

TO STAINS
Because a high density and ultra-low absorption rate creates a tight paver surface, it fends off surface mold, moss, dirt and other types of stains.

EASIER

TO LAY
Because of superior accuracy in dimensional sizing and linear sides, the pavers allow for perfectly executed installations with tight and accurate lines.

TO CLEAN
Because it can be cleaned with normal household cleaners and even pressure washed with a **low pressure** washing device.*

TO REMOVE
Because a 24" x 24" slab weighs just 37 lbs., its light weight permits easy removal, serviceability and even reusability. (Excluding adhered installations).

FOR YOU
Because the structured top textures formed on the surface of our pavers create non-slip surfaces.

** It is important that all pressure washing of your porcelain pavers be done with a low pressure washer with a maximum of 1600 psi and nothing more powerful. When pressure washing your installation, care should be taken to prevent damage to the grout (adhesive and grout installations) and some re-sanding will be necessary when power washing an installation with sand or polymeric sand joints.*

INSTALLATION OPTIONS

PRELUDE:
This installation manual is designed to be used by professional hardscape contractors and assumes they are already familiar with the proper construction techniques; design considerations and have the required skills for the installation of paving stones. It further assumes that the contractor has access to the required tools for such construction.

INTRODUCTION:
Belgard® Porcelain Pavers are formed by pressing, followed by vitrification: this process involves the total fusion into a single material made from natural raw materials (sand, quartz, feldspars, kaolin, clays and inorganic pigments) which, fired at temperatures above 1226.67° C (2240° F), are transformed into a product with exceptional hardness, ultra-low absorption rate and unmatchable mechanical characteristics. Belgard porcelain pavers are eco-compatible and ecolabel-certified. Each unit is 20mm (0.7874") standard thickness or ¾" nominal thickness and is durable enough to withstand use in exterior applications.

SPECIALTY TOOLS FOR PORCELAIN PAVER CONSTRUCTION:

Wet cut tile saw equipped with a a smooth continuous porcelain blade manufactured for wet cutting porcelain. The saw should be designed to safely cut a 24 inch length porcelain paver. Minimum 1 HP engine recommended

A paver clamp for easy handling, which can be used to both install and remove pavers.

The use of gloves is highly recommended while handling and installing porcelain slabs.

Appropriate notched trowels and grout float tools for cementitious adhesive and grout Installation. The appropriate tool selection would be based on the adhesive and grout manufacturer's recommendations.

HANDLING:

Pallets of porcelain pavers are manufactured and shipped with a Heavy Duty plastic protective pallet cover and the individual porcelain pavers are packaged in protective cardboard boxes. To prevent damage to your pavers, do not remove the protective cardboard boxes until you are ready to install them.

CAUTION: Removing pavers from their protective packaging and handling multiple loose stones together creates the possibility for chipping.

Once the Heavy Duty plastic pallet covers have been removed from the pallet, the unused boxed pavers should be protected from the elements to ensure the integrity of the protective cardboard boxes.

INSTALLATION INFORMATION:

Each of the following option details will include specific information relative to the selected installation. Base thicknesses vary between different geographical and climatic locations and the contractor will be installing typical base thicknesses for paving installations in their location.

IMPORTANT: Installing porcelain pavers requires the bedding course sand to be pre-compacted and then struck off with a screed to the required thickness as shown in the detail drawings. The porcelain pavers are not compacted and therefore the sand layer beneath them requires pre-compaction. Do not compact dry sand, but ensure the sand has a 5 to 6% moisture content so that it will compact cohesively and allow for a smooth strike off finish.

INSTALLATION INFORMATION THAT MUST BE FOLLOWED:

NEVER compact porcelain pavers with a plate compactor.

ALWAYS pre-compact and strike off your sand leveling course before installing your porcelain pavers in sand set installations.

Porcelain pavers should be wet cut smooth continuous porcelain blade, minimum 1 HP engine recommended.

NEVER install porcelain pavers without the required 4mm spacing between them. The porcelain pavers should never be installed with a porcelain to porcelain contact. Plastic 4mm spacers should be used on Sand Set and Permeable installations. The spacer can be installed to support and space 4 paver corners or snapped apart (as designed) to form a T that supports 2 paver corners. This versatility will permit your porcelain pavers to be installed in a stack bond pattern, a running bond pattern as well as a flush installation against another structure.

For a 100 sf. project, approximately 34 spacers are needed; this allows for overages if needed.

PLANKS

When installing porcelain planks (16 x 48, 12 x 48 & 8 x 48), always lay the pattern of ⅓'s. These should not be placed next to each other at 50%.

JOINT INFILLING INFORMATION:

When porcelain pavers are installed as sand set installations, you may fill the 4mm paver joints with:

HIGH-PERFORMANCE POLYMERIC SAND

Polymeric sand is a manufactured sand that is blended with polymers which hardens when subjected to moisture. The sand is swept into the open joints until they are completely filled, but slightly below the surface of the paver.. Like cement blended sand, it is extremely important that all excess sand and dust be swept from the surface (blowers can be used for final dust removal), as any residual dust or sand can stain the surface. After joints are full and the surface is clean, the pavement is misted with water to activate the polymer and curing of the mixture.

Check with manufacturers recommended installation techniques when using High Performance Polymeric Sand on porcelain pavers.

IMPORTANT NOTES:

i. When using Polymeric Sand it is important to follow the manufacturer's instructions to ensure there is no surface staining.

ii. Polymeric Sand can contribute to a reduction in joint plant growth and insect infiltration within the joint infill material.

CLEANING & MAINTENANCE FOR MIRAGE PORCELAIN PRODUCTS

"POST-LAYING" CLEANING:

Post-laying cleaning is obligatory after on site works. Inadequate or late removal of the grouting used on the joints can leave marks difficult to remove and create, on the flooring, a cement film able to absorb all types of dirt, thus giving the impression that it is the material that has become dirty.

It is indispensable to dissolve and remove these residues completely using buffered acids diluted in water (follow the instructions on product packaging), which must then be removed completely and quickly, rinsing the floor with plenty of water to avoid residues or drops on the floor which could damage the tiles.

Allow the product to act on the wet floor, without letting it dry and rubbing it with colorless rags. Next, rinse it thoroughly with water to ensure that the floor is free of detergent residues. If necessary, repeat the operation.

We suggest performing a preliminary wash on a sample surface of a few square meters; if the test is successful, extend clearing over the entire surface. When you have done the above wash, carry out a basic or alkaline wash using degreasing detergents. This is because acid can leave grease on the floor, which could contribute to retaining dirt.

DAY TO DAY CLEANING:

For day to day cleaning we strongly advise against the use of waxes, oily soaps, impregnating products and various treatments such as water and oil repellent on porcelain stoneware products, as their application is unnecessary. Certain off the shelf detergents contain waxes and gloss inducing additives which, after various washes, can deposit a bright coat on the floor. For films left by soap, lime scale, dirt, use an acid detergent, suitably diluted in water (read the product instructions carefully). It is also important to point out that Hydrofluoric acid (HF) and its derivatives can irredeemably damage porcelain stoneware. For routine cleaning, Mirage recommends the use of bleach or ammonia, suitably diluted in water; for polished porcelain stoneware, dry the floor after washing to prevent unsightly smudges.

EXTRAORDINARY CLEANING:

In the case of particular and/or particularly stubborn stains, we advise you to use specific detergents, as better indicated in the table on the next page. Moreover, please remember that removing any type of stain is easier if it is removed while still fresh. It is important to always run a preventative test before using detergent products, especially lapped or smoothed porcelain stoneware.

RAISED FLOORS:

In the case of raised floors, using abundant water is forbidden; therefore, it is highly recommended to use an accurately wrung rag. For routine cleaning, use rags, tepid water and detergent, limiting as much as possible the quantity of water on the panel. For stains, however, concentrated products may be directly used.

SNOW REMOVAL:

The surface of the Belgard® porcelain paver is very hard and very resistant to scratching; normal shoveling is not a problem. Use a plastic or plastic edged shovel to ensure that an edge of the paver is not accidentally caught; like on any pavement, use of metal shovels can cause chips to corners or surface. If using a snow blower, ensure the impeller is adjusted to at least ¼ inch above the surface to prevent damage (¼ inch height is recommended with snow blower use on any pavement).

Belgard® approved deicing materials can be used on the porcelain pavers without concern of any damage. Approved deicing chemicals are sodium chloride (NaCl) and to the extent temperature falls below -10° C (14° F), Calcium Chloride (CaCl2)

SHADE VARIATION:

V1-Uniform Appearance: Minimal to no difference among pieces.

CLEANING PRODUCTS

TYPES OF DETERGENTS *Where sales are permitted*	SOLVENTS bleaching solution, oil of turpentine, acetone, trichloroethylene, nitrate based thinner	ACIDS muriatic acid, hydrochloric acid, phosphoric acid	ALKALI Alkaline based detergents
BEER			•
LIME		•	
TAR	•		
CEMENT		•	
CANDLE WAX	•		
GLUE	•		
CHEWING GUM	•		•
RUBBER TIRE, SHOES	•		
GREASE, OIL			•
INK	•		
NICOTINE	•		
FELT-TIP PEN	•		
RESINS	•		
RUST		•	
NAIL POLISH	•		
CIGARETTE		•	
WALL PAINT	•	•	

SHADE variation v1 UNIFORM

SHADE variation v2 SLIGHT

SHADE variation v3 MODERATE

SHADE variation v4 HIGH

V2-Slight Variation: Distinguishable differences in texture and/or pattern within similar colors.

V3-Moderate Variation: Though the colors present in a single piece may indicate the color patterns to be expected on other tiles, the amount of colors on each piece might vary significantly.

V4-High Variation: Random color variation from piece to piece, so that one paver may have a totally different color from the other pavers. Thus, the final installation will be unique.

To make sure that you get the look you are after, find out how much color shade variation the pavers have before you make your purchase. Reviewing physical samples along with the "Belgard Porcelain Swatch Book" is recommended to help you decide on the acceptable color shade variations.

As the color and details of our porcelain pavers may vary from piece to piece and from run to run it is recommended to work from multiple boxes/pallets of pavers to achieve a favorable mix with an even distribution of the inherent colors.

LEED CONTRIBUTING PRODUCTS:

All the slabs in this catalog can help contribute up to 10 LEED credits, depending on the material and how it is used.

Points that can be obtained by using Belgard® porcelain materials:

SUSTAINABLE SITES:
Belgard® porcelain products help reduce the "heat island" effect (the difference in the thermal gradient within and outside urban areas), in order to minimize the effects of the microclimate on the habitat. This is achieved by the low Solar Reflection Index (SRI) of Belgard® porcelain products, which makes them especially suitable for outdoor use.

SS_C_7.1 Heat Island Effect – Roofing Excluded (1 Point)

SS_C_7.2 Heat Island Effect – Roof (1 Point) Up to 75% of open space may be paved with recreation and pedestrian friendly surfaces.

SS_C_6.1 Stormwater Design-Quantity Control (1 Point

SS_C_6.2 Stormwater Design-Quality Control (1 Point)

WATER EFFICIENCY:
Installed as a permeable option, rainwater can be harvested and reused for non-potable irrigation.

WE_C_1 Water Efficient Landscaping (2-4 Points)

MATERIALS & RESOURCES: Numerous porcelain products can help improve a building's LEED rating in terms of "Materials & Resources"; in particular, the collections Stones 2.0, Lab_21, Tribeca, and Norr allow LEED points to be obtained due to containing a proportion of "pre-consumer" recycled material.

MR_C_4.1 Recycled Material Content (1 Point)
(20% pre-consumer)

MR_C_4.2 Recycled Material Content (1 Point)
(40% pre-consumer – in addition to the point above)

ENERGY AND ATMOSPHERE:
Belgard® porcelain products help to define the minimum energy efficiency level of the building.

EA_C_1 Optimization of Energy Performance (1 Point)

INNOVATION IN DESIGN: Mirage® and Belgard Porcelain materials are produced in compliance with the criteria set down for Ecolabel certification, the most important environmental standard in the world for the certification of ceramic tiles.

ID_1.1 Innovation In Design (1-4 Points)

INDOOR ENVIRONMENTAL QUALITY:
Belgard® porcelain material guarantees a very low amount of air pollutants.

Claims made refer to LEED 2009: NEW CONSTRUCTION AND MAJOR RENOVATIONS. To see how Mirage can help a LEED Project Team earn points on other LEED rating systems, please contact your Belgard® representative.

LEED INFORMATION*

Certificate No 13206-2018-PC-ITA-DNV

CREDIT: HEAT ISLAND REDUCTION:
Intent: to minimize effects on microclimates and human and wildlife habitats by reducing heat islands.

Requirement:

Option 1. Non roof and roof (2 points except Healthcare, 1 point Healthcare)

NON ROOF Use paving materials with a three-year aged solar reflectance (SR) value of at least 0.28. If three-year aged value information is not available, use materials with an initial SR of at least 0.33 at installation.

ROOF Use roofing materials that have an SRI equal to or greater than the values in Table 1. Meet the three-year aged SRI value. If three-year aged value information is not available, use materials that meet the initial SRI value

Products:

This credit is applicable for all ceramic products manufactured by the organization.

**Values based on LEED v4*

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.

DNV GL Business Assurance Italia S.r.l. Via Energy Park, 14, 20871 Vimercate (MB), Italy. Tel: 039 68 99 905. www.dnvgl.it/businessassurance

CREDIT: BUILDING PRODUCT DISCLOSURE AND OPTIMIZATION – EPD – ENVIRONMENTAL PRODUCT DECLARATION
Intent:

To encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically, and socially preferable life-cycle impacts. To reward project teams for selecting products from manufacturers who have verified improved environmental life-cycle impacts.

Requirement:

Option 1 – EPD – Environmental product declaration (1 point):

Use permanently installed products sourced that meet one of the disclosure criteria below.

- Environmental Product Declarations which conform to ISO 14025, 14040, 14044, and EN 15804 or ISO 21930 and have at least a cradle to gate scope. In particular:

Product-specific Type III EPD -- Products with third-party certification (Type III), including external verification in which the manufacturer is explicitly recognized as the participant by the program operator are valued as one whole product for purposes of credit achievement calculation.

Evaluation:

It was verified that the company has a certified and valid EPD declaration, in which the manufacturer is explicitly recognized by the Program Operator as a participant in the program and that the statements contained in this declaration are supported by evidences.

Products:

This credit is applicable for all ceramic products manufactured by the organization.

CREDIT: BUILDING PRODUCT DISCLOSURE AND OPTIMIZATION – EPD – ENVIRONMENTAL PRODUCT DECLARATION
Intent:

To encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically, and socially preferable life-cycle impacts. To reward project teams for selecting products from manufacturers who have verified improved environmental life-cycle impacts.

Requirement:

Option 2 – Multi-attribute optimization (1 point): Use products that comply with one of the criteria below for 50%, by cost, of the total value of permanently installed products in the project.

- Products will be valued as below: Third party certified products that demonstrate impact reduction below industry average in at least three of the following categories are valued at 100% of their cost for credit achievement calculations.
  - global warming potential (greenhouse gases), in CO2;
  - depletion of the stratospheric ozone layer, in kg CFC-11;
  - acidification of land and water sources, in moles H+ or kg SO2;
  - eutrophication, in kg nitrogen or kg phosphate;
  - formation of tropospheric ozone, in kg NOx or kg ethane
  - depletion of non-renewable energy resources, in MJ.
- For credit achievement calculation, products sourced (extracted, manufactured, purchased) within 100 miles (160 km) of the project site

Evaluation:

It has been verified that the company EPD shows for at least 3 indicators, a reduction of the impact below the average represented by the EPD "Confindustria Ceramica" EPD - COI-20160202-ICG1-EN of 26/09/2016

Products:

This credit is applicable for all ceramic products manufactured by the organization.

CREDIT: BUILDING PRODUCT DISCLOSURE AND OPTIMIZATION – SOURCE OF RAW MATERIALS
Intent:

To encourage the use of products and materials for which life cycle information is available and that have environmentally, economically, and socially preferable life cycle impacts. To reward project teams for selecting products verified to have been extracted or sourced in a responsible manner.

Requirement:

Option 1. Raw material source and extraction reporting (1 point)

Use permanently installed products from manufacturers that have publicly released a report from their raw material suppliers which include raw material supplier extraction locations, a commitment to long-term ecologically responsible land use, a commitment to reducing environmental harms from extraction and/or manufacturing processes, and a commitment to meeting applicable standards or programs voluntarily that address responsible sourcing criteria.

Evaluation:

The company has provided the organization with all of the information regarding the compliance with the requirement of suppliers of raw materials for mixture.

Products:

This credit is applicable for all ceramic products manufactured by the organization.

CREDIT: BUILDING PRODUCT DISCLOSURE AND OPTIMIZATION – MATERIAL INGREDIENTS
Intent:

To encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically, and socially preferable life-cycle impacts. To reward project teams for selecting products for which the chemical ingredients in the product are inventoried using an accepted methodology and for selecting products verified to minimize the use and generation of harmful substances. To reward raw material manufacturers who produce products verified to have improved life-cycle impacts.

Requirement:

Option 1 – Material ingredient reporting (1 point):

Use permanently installed products that use any of the following programs to demonstrate the chemical inventory of the product to at least 0.1% (1000 ppm).

• Health Product Declaration. The end use product has a published, complete Health Product Declaration with full disclosure of known hazards in compliance with the Health Product Declaration Open Standard.

Evaluation:

It was verified that the company has a Health product declaration (HPD) and that the statements contained in this declaration are supported by evidences.

Products:

This credit is applicable for all ceramic products manufactured by the organization.

CREDIT: BUILDING PRODUCT DISCLOSURE AND OPTIMIZATION – MATERIAL INGREDIENTS
Intent:

To encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically, and social preferable life-cycle impacts. To reward project teams for selecting products for which the chemical ingredients in the product are inventoried using an accepted methodology and for selecting products verified to minimize the use and generation of harmful substances. To reward raw material manufacturers who produce products verified to have improved life-cycle impacts.

Requirement:

Option 2. Material ingredient optimization (1 point) International Alternative Compliance Path – REACH Optimization. End use products and materials that do not contain substances that meet REACH criteria for substances of very high concern. If the product contains no ingredients listed on the REACH Authorization or Candidate list, value at 100% of cost.

Evaluation:

It was verified that the company does not use substances belonging to the Reach or Candidate list for the manufacturing of its products.

Results:

Satisfactory.

Products:

This credit is applicable for all ceramic products manufactured by the organization.

CREDIT: LOW-EMITTING MATERIALS
Intent:

To reduce concentrations of chemical contaminants that can damage air quality, human health, productivity, and the environment.

Requirement:

This credit includes requirements for product manufacturing as well as project teams. It covers volatile organic compound (VOC) emissions into indoor air and the VOC content of materials, as well as the testing methods by which indoor VOC emissions are determined. Different materials must meet different requirements to be considered compliant for this credit. The building interior and exterior are organized in seven categories, each with different thresholds of compliance. The building interior is defined as everything within the waterproofing membrane. The building exterior is defined as everything outside and inclusive of the primary and secondary weatherproofing system, such as waterproofing membranes and air- and water resistive barrier materials.

Option 1. Product Category Calculations (1-3 points)

Achieve the threshold level of compliance with emissions and content standards for the number of product categories listed in Table 2.

Evaluation:

The "low-emission materials" credit of the Leed V4 states that inert flooring materials, including ceramic tiles, automatically satisfy the credit without the need for additional testing.

Should special substances be applied (e.g. some types of dies, etc.) containing VOCs, then these must comply with the indicated limits.

Products:

This credit is applicable for all ceramic products manufactured by the organization.

CREDIT: BUILDING PRODUCT DISCLOSURE AND OPTIMIZATION – SOURCE OF RAW MATERIALS
Intent:

To encourage the use of products and materials for which life cycle information is available and that have environmentally, economically, and socially preferable life cycle impacts. To reward project teams for selecting products verified to have been extracted or sourced in a responsible manner.

Requirement:

Option 2. leadership extraction practices (1 point)

Use products that meet at least one of the responsible extraction criteria below for at least 25%, by cost, of the total value of permanently installed building products in the project.

- Recycled content. Recycled content is the sum of postconsumer recycled content plus one-half the preconsumer recycled content, based on cost. Products meeting recycled content criteria are valued at 100% of their cost for the purposes of credit achievement calculation

Evaluation:

The Certificating Authority has assessed the recycled content of the products listed in attachment 1. For the evaluation the guideline, issued by Confindustria Ceramica in March 2013 for calculating the content of recycled material in ceramic tiles has been adopted as a reference

Products:

This credit is applicable for the products listed in the appendix 1 of this certificate

Appendix 1 to Certificate: Products in compliance with credit "Building product disclosure and optimization – Source of raw materials"

CREDIT: MINIMUM RECYCLED CONTENT
(related to LEED Credit: Building Product Disclosure and Optimization – Sourcing of Raw Materials – option 2)

SERIES	PRODUCTS	MINIMUM RECYCLED CONTENT PRE-CONSUMER
ARDESIE	AD03	> 20%
	AD04	> 40%
	AD05	> 20%
GLOCAL	GC06	> 60%
MASH UP	MP04	> 20%
NAU	NA20	> 20%
NA.ME	NE21	> 10%
	NE23	> 60%
	NE30	> 60%
NOON	NN05	> 20%
NORR	RR03	> 50%
OFFICINE	OF04	> 30%
QUARZITI 2.0	QR03	> 20%
	QR04	> 50%
	QR05	> 50%
SUNDECK	SD02	> 10%
	SD03	> 30%
STONES	SO01	> 10%
	SO10	> 30%
TRIBECA	TB05	> 40%

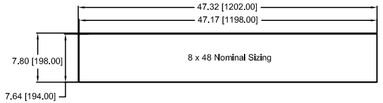
Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.
DNV GL Business Assurance Italia S.r.l. Via Energy Park, 14, 20871 Vimercate (MB), Italy. Tel: 039 68 99 905. www.dnvgl.it/businessassurance

SIZING

8"X 48" NOMINAL SIZING

Calibrated unit cut sizing without spacing = 194 x 1198mm or 7.64" x 47.17"

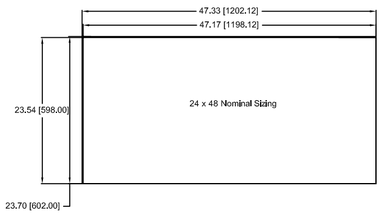
With 4mm spacing added to two planes = 198 x 1202mm or 7.80" x 47.32"



24"X 48" NOMINAL SIZING

Calibrated unit cut sizing without spacing = 598 x 1198mm or 23.54" x 47.17"

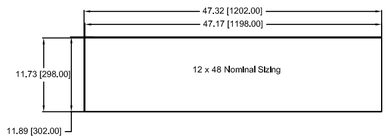
With 4mm spacing added to two planes = 602 x 1202mm or 23.70" x 47.32"



12"X 48" NOMINAL SIZING

Calibrated unit cut sizing without spacing = 298 x 1198mm or 11.73" x 47.17"

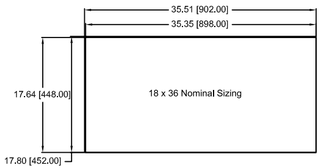
With 4mm spacing added to two planes = 302 x 1202mm or 11.89" x 47.32"



18"X 36" NOMINAL SIZING

Calibrated unit cut sizing without spacing = 298 x 598mm or 11.73" x 23.54"

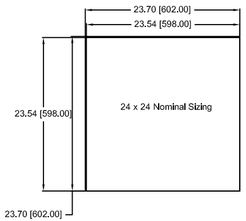
With 4mm spacing added to two planes = 300mm x 602mm or 11.81" x 23.70"



24"X 24" NOMINAL SIZING

Calibrated unit cut sizing without spacing = 598 x 598mm or 23.54" x 23.54"

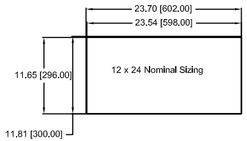
With 4mm spacing added to two planes = 602 x 602mm or 23.70" x 23.70"



UNICO 13"X 24" NOMINAL SIZING

Calibrated unit cut sizing without spacing = 330 x 598mm or 12.99" x 23.54"

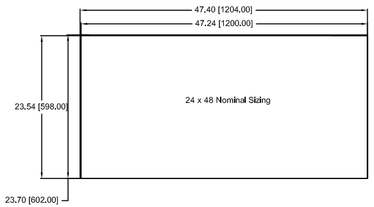
With 4mm spacing added to two planes = 330 x 602mm or 13.20" x 23.70"



24"X 48" NOMINAL SIZING

Calibrated unit cut sizing without spacing = 598 x1200mm or 23.54" x 47.24"

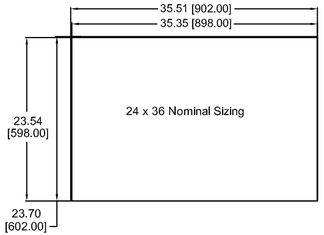
With 4mm spacing added to two planes = 602 x 1204mm or 23.70" x 47.40"



24"X 36" NOMINAL SIZING

Calibrated unit cut sizing without spacing = 598 x 898mm or 23.54" x 35.35"

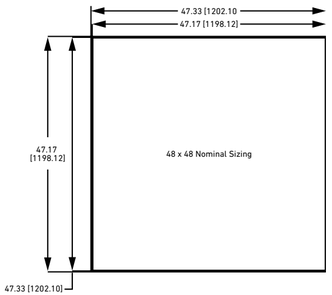
With 4mm spacing added to two planes = 602 x 902mm or 23.70" x 35.51"



48"X 48" NOMINAL SIZING

Calibrated unit cut sizing w/o spacing 1198x1198 mm – 47.17x47.17"

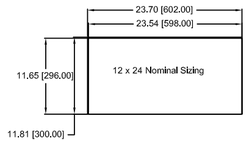
With 4mm spacing 1202x1202 mm – 47.32x47.32"



12"X 24" NOMINAL SIZING

Calibrated unit cut sizing without spacing = 296 x 598mm or 11.65" x 23.54"

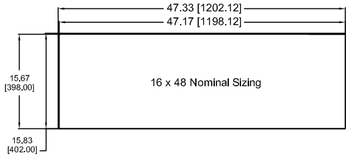
With 4mm spacing added to two planes = 300 x 602mm or 11.81" x 23.70"



16"X 48" NOMINAL SIZING

Calibrated unit cut sizing w/o spacing 398x1198 mm – 15.67x47.17"

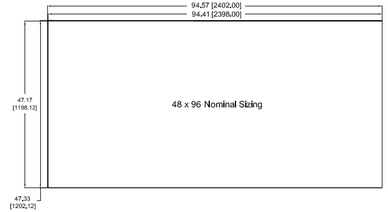
With 4mm spacing 402x1202 mm – 15.83x47.32"



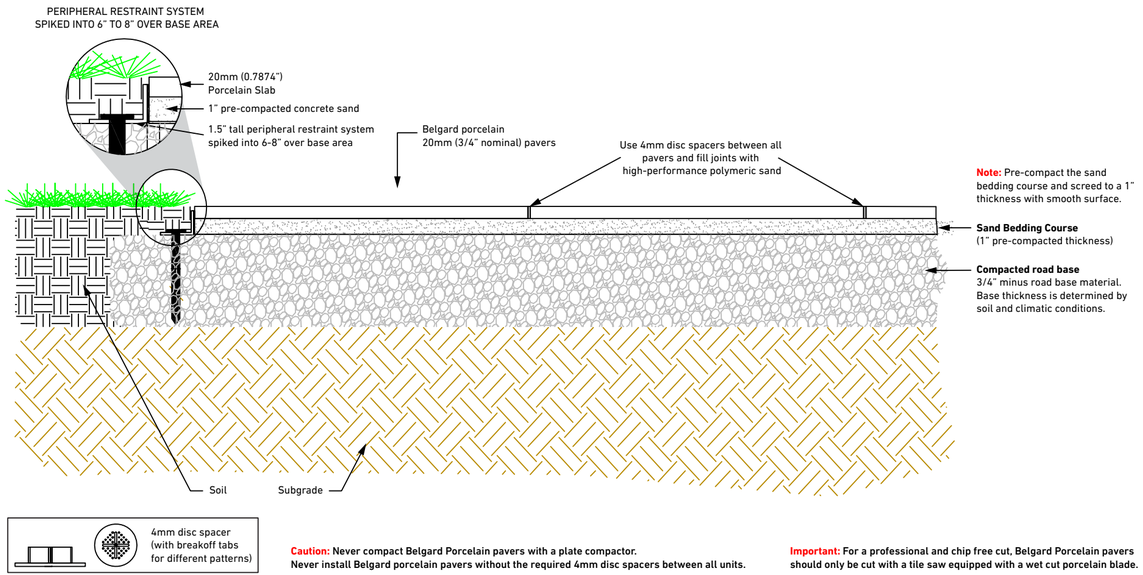
48"X 96" NOMINAL SIZING

Calibrated unit cut sizing w/o spacing 1198x2398 mm – 47.17x94.41"

With 4mm spacing 1202x2402 mm – 47.32x94.57"



SAND SET OVER COMPACTED ROAD BASE INSTALLATION



Caution: Never compact Belgard Porcelain pavers with a plate compactor.
Never install Belgard porcelain pavers without the required 4mm disc spacers between all units.

Important: For a professional and chip free cut, Belgard Porcelain pavers should only be cut with a tile saw equipped with a wet cut porcelain blade.

INSTALLATION NOTES:

Follow the detail drawing.

Base material is to be over based 6 to 8 inches beyond the edge of the pavement.

The required edge restraint system is a low profile edge restraint with a vertical height of 1½ inches as shown in the drawing.

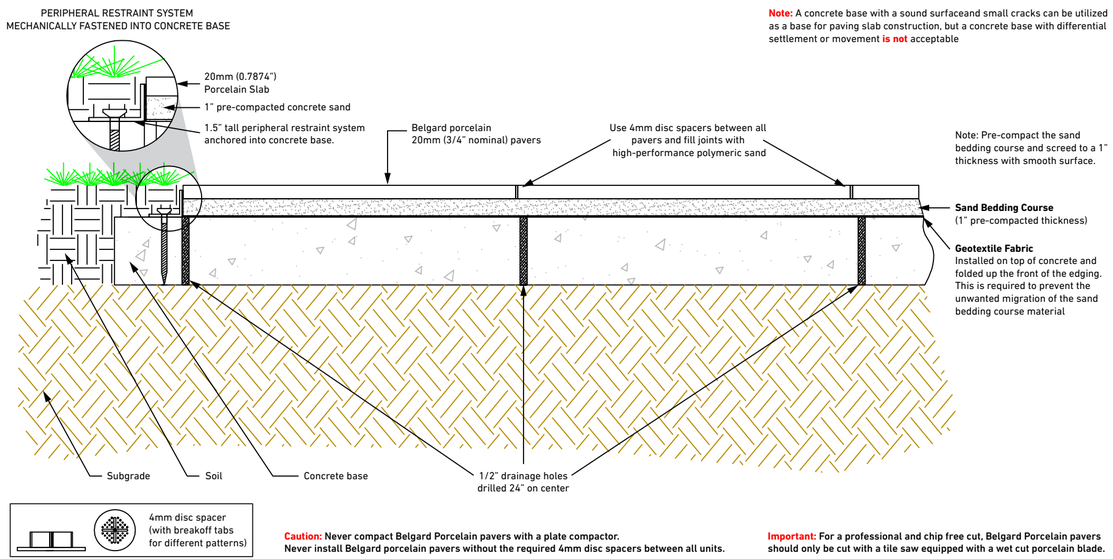
Ensure that pavement is constructed with a 2% slope that it is pitched away from any building.

Ensure the plastic 4mm spacers are installed at all corners of the installed pavers.

PLANKS

When installing porcelain planks (16 x 48, 12 x 48 & 8 x 48), always lay the pattern of ⅓'s. These should not be placed next to each other at 50%.

SAND SET OVER CONCRETE OVERLAY INSTALLATION



Caution: Never compact Belgard Porcelain pavers with a plate compactor.
Never install Belgard porcelain pavers without the required 4mm disc spacers between all units.

Important: For a professional and chip free cut, Belgard Porcelain pavers should only be cut with a tile saw equipped with a wet cut porcelain blade.

INSTALLATION NOTES:

Follow the detail drawing.

The required edge restraint system is a low profile edge restraint with a vertical height of 1½ inches as shown in the drawing.

Mechanically anchor edge restraint into the concrete base.

Ensure geotextile is installed directly on top of the concrete to contain the bedding sand.

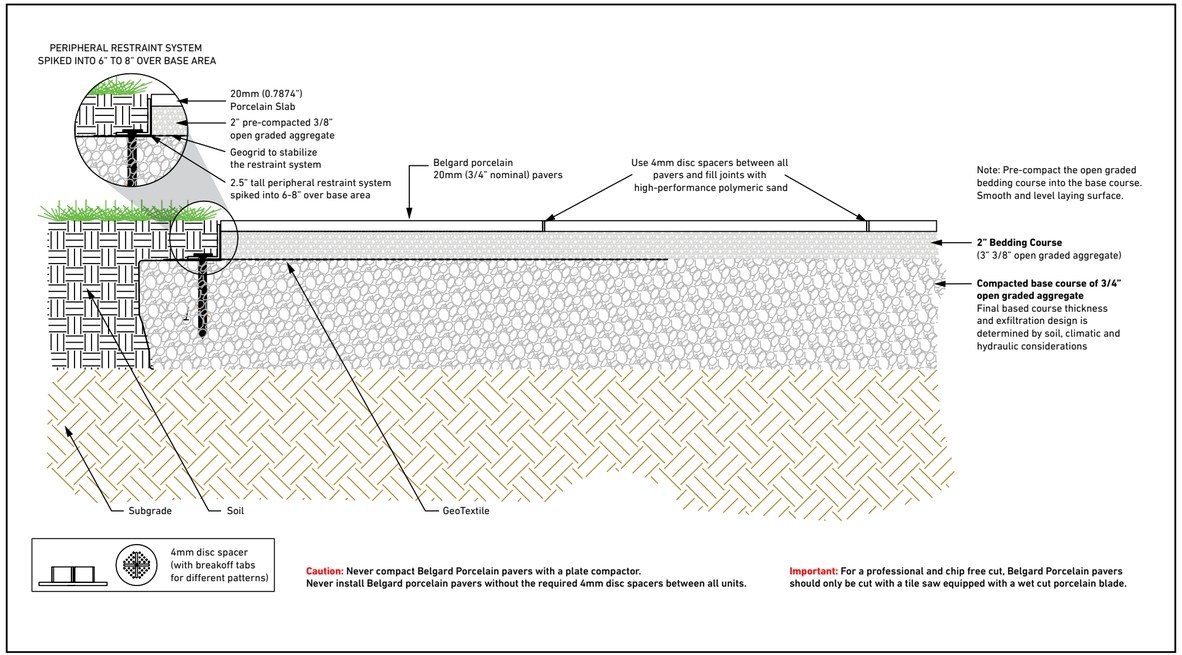
Ensure that pavement is constructed with a 2% slope and that it is pitched away from any building.

Ensure the plastic 4mm spacers are installed at all corners of the installed pavers.

PLANKS

When installing porcelain planks (16 x 48, 12 x 48 & 8 x 48), always lay the pattern of ⅓'s. These should not be placed next to each other at 50%.

GRAVEL SET OVER OPEN GRADED AGGREGATE INSTALLATION



INSTALLATION NOTES:
Follow the detail drawing.

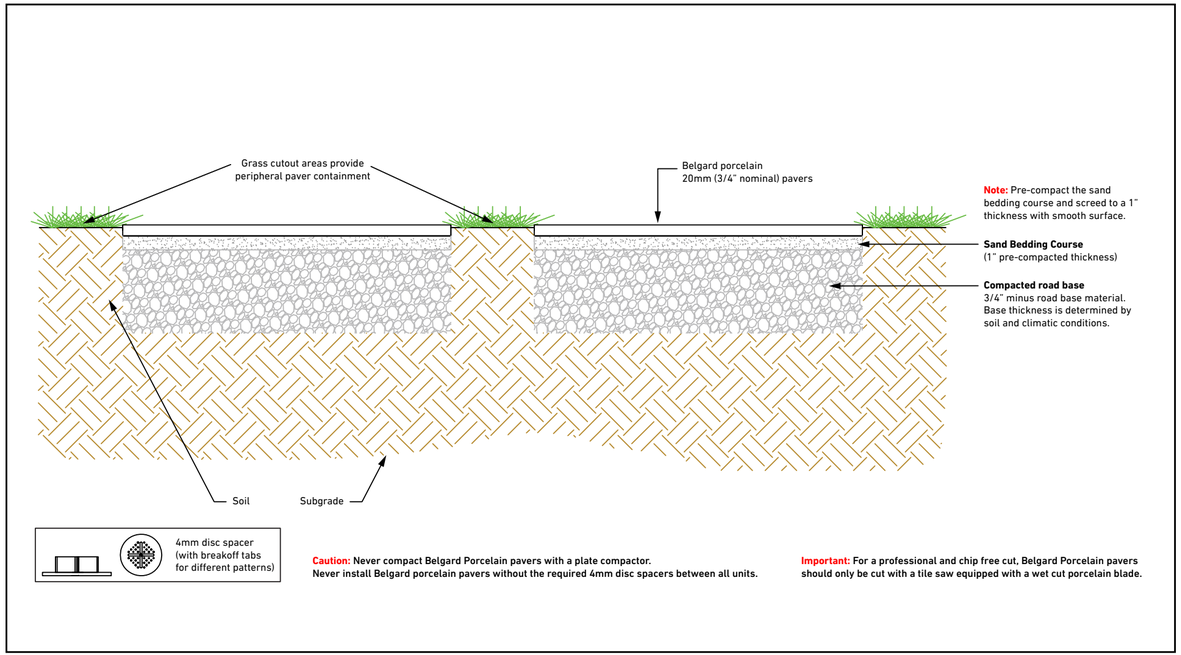
The required edge restraint system for this installation has a vertical height of 2½ inches as shown in the drawing. Follow the edge restraint manufacturer's recommendations for the use of their product in permeable applications regarding geogrid usage and placement to maintain the performance of there edging.

Ensure that pavement is constructed with a 2% slope and that it is pitched away from any building.

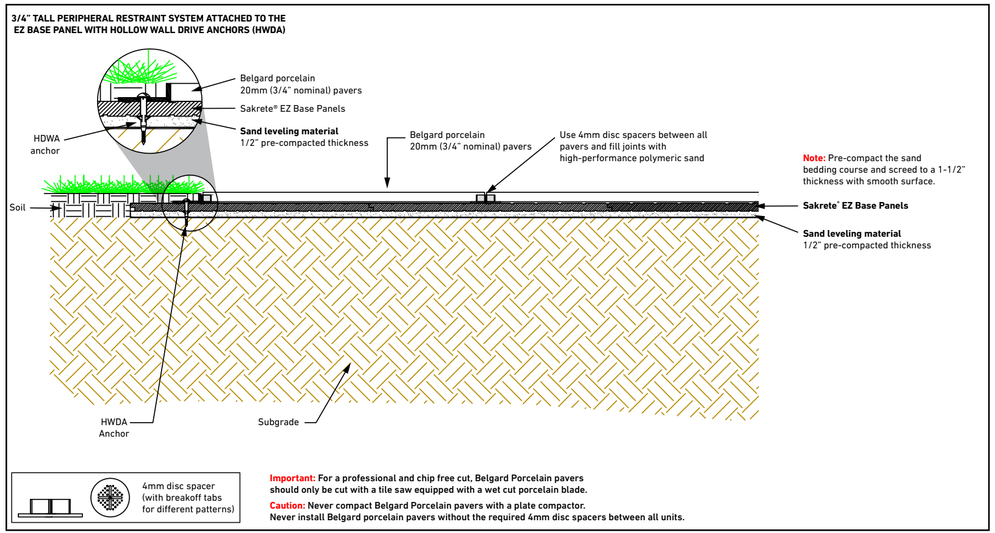
Ensure the 4mm spacers are installed between all pavers.

PLANKS
When installing porcelain planks (16 x 48, 12 x 48 & 8 x 48), always lay the pattern of ⅓'s. These should not be placed next to each other at 50%.

STEPPING STONE SAND SET ON COMPACTED ROAD BASE INSTALLATION



INSTALLATION WITH EZ BASE PANELS



STEP 1: EXCAVATION OF PATIO OR WALKWAY AREA

Remove all grass or plant material from the area of excavation. Excavate approximately 3 to 3½ inches below the finished grade and over excavate the installation area 6 inches beyond the edge of the Mirage Porcelain pavement. The excavated depth will accommodate the Geo-fabric, the pre-compacted 1/2" sand leveling layer, the Belgard® EZ Base and your Porcelain slabs.

** EZ Base installations are intended for foot traffic only.*

*** prior to excavation, check with local utility services to ensure digging will not damage any below grade utilities.*

STEP 2: LEVELING AND COMPACTING THE EXCAVATED AREA

Carefully excavate the area to create a level soil sub-grade that slightly slopes away from structures (i.e. a house). Using a hand tamper compact the sub-grade and ensure the excavated area is as smooth as possible, making sure that the sub-grade is within +/- 1/4" of the excavation depth. Use a string level to establish the desired slope for your area.

STEP 3: GEOTEXTILE AND PRE-COMPACTED BEDDING SAND INSTALLATION.

Install the geotextile barrier fabric (weed barrier) on top of the compacted sub-base. Spread a slightly hydrated layer of sand to a depth of 3/4" over the geotextile and compact the sand leveling layer. Screed and strike off the compacted sand leveling layer to a final thickness of 1/2" using a straight using a straight edge to screed which will create a smooth final sand leveling surface.

STEP 4: INSTALLATION OF EZ BASE

Install Belgard® EZ Base on the finished sand leveling layer so that it is fully covers the excavation area including the 6 inch over excavation. Start laying the EZ Base units according to a staggered pattern while ensuring locking of the tongue and groove system. Trim any visible curves or protruding angles that are beyond excavated area using a utility knife.

STEP 5: INSTALLATION OF EDGE RESTRAINT AND PORCELAIN SLABS

Lay porcelain slabs directly on the Belgard® EZ Base panels. Ensure your EZ Base panels extend the 6" beyond the edge of the porcelain pavers. To properly space the porcelain slabs, ensure that Spacer G pieces are installed throughout the entire installation. Install a low profile edge restraint on the EZ Base, making sure it rests firmly against the pavers. The edge restraint can be secured to the EZ Base panels with either HWDA Anchors (as shown in our detail drawing) or spikes.

STEP 6: INSTALL, SWEEP AND HYDRATE POLYMERIC SAND

Pour, spread and sweep the polymeric sand into all slab joints, insuring all joints are filled. Sweep the surface clean with a fine bristle broom or carefully utilize a blower to remove any excess sand or remaining dust. Gently mist the surface of the installation according to the polymeric sand's manufacturer directions which will hydrate the polymeric sand joint and initiate the curing of the joint.

**always follow the instructions from the polymeric sand manufacturer*

A COUPLE OF THINGS TO CONSIDER.

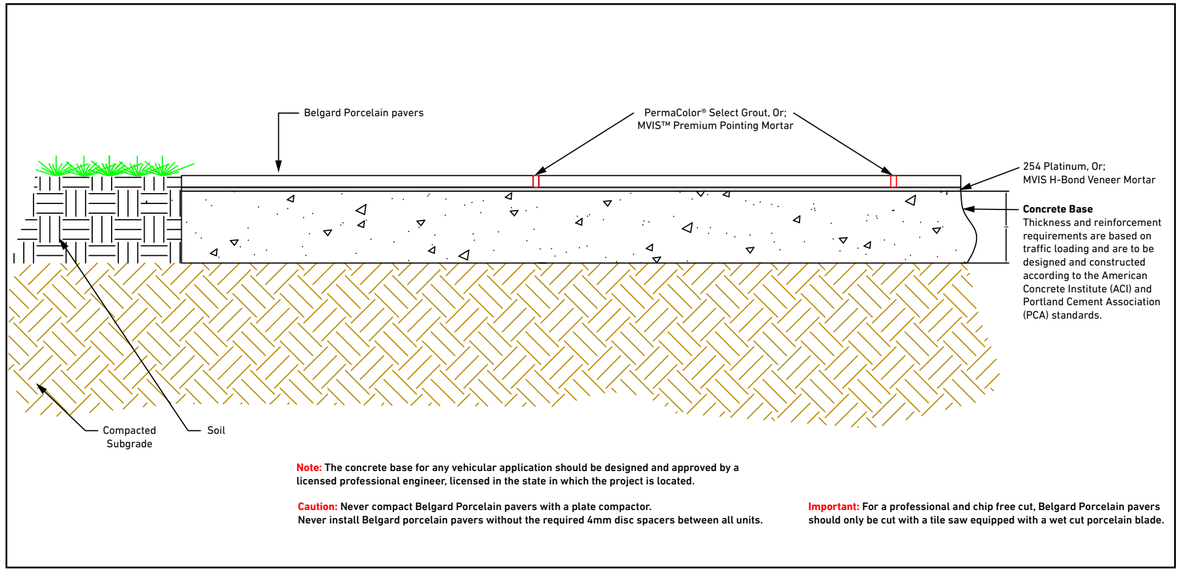
We never compact our porcelain slabs.

Saturating the surface with a hose will cause the polymer binder to wash out of the sand mixture and flow below the slabs as well as wash the sand out of the joints. Misting keeps the polymer suspended in the mixture so that it can bind everything together and it also keeps the sand from being washed out of the joints during the hydrating process.

PLANKS

When installing porcelain planks (16 x 48, 12 x 48 & 8 x 48), always lay the pattern of ⅓'s. These should not be placed next to each other at 50%.

CEMENTITIOUS ADHESIVE OVERLAY, CONCRETE BASE INSTALLATION



INSTALLATION NOTES:

Follow the detail drawing.

Ensure that pavement is constructed with a 2% slope and that it is pitched away from any building.

Referenced approved Cementitious Adhesives: Laticrete 254 Platinum or MVIS Hi-Bond Veneer Mortar

Referenced approved joint Cement Grout - Laticrete Permacolor, or Permacolor Select Grout or MVIS Premium Pointing Mortar

100% Silicone Caulk: Laticrete Latasil

For Cementitious adhesive and grout installation, refer to the manufacturer's technical instructions and specifically as they relate to outdoor installations.

For concrete foundation slabs that are not large enough to require contraction / control joints, a minimum 4mm (1/8" to 3/16") grout joint is acceptable, but for larger concrete foundation slabs that do require contraction / control joints, the joint width should be a 3/8". It is absolutely imperative that all contraction / control joints be located in the joint line of installed porcelain pavers and not beneath a paver.

Caution: If a Porcelain Paver is installed over a control joint, the paver will reflectively crack along the contraction / control joint beneath it.

PLANKS

When installing porcelain planks (16 x 48, 12 x 48 & 8 x 48), always lay the pattern of ⅓'s. These should not be placed next to each other at 50%.

STONEDEKS - SILCA SYSTEM FOR REMODLEING/RESURFACING

Remodeling & Resurfacing Deck Instructions

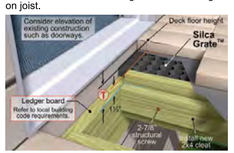
1. Remove all horizontal flooring (5/4 treated lumber, composite lumber, etc) from existing deck.

RECOMMENDATION: Framing and footing should be inspected by a qualified building official to make sure they are in line with all state and local codes.

2. If you have sufficient threshold height, you may screw the Silca Grate™ on top of your floor joists. Be sure to consider the stack height and desired finish floor height. (See second illustration in the New Deck Construction Instuctions.)

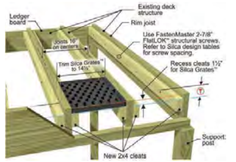
3. If you do not have ample threshold height, you must add a 2×4 cleat on each side of the floor joist.

NOTE: Maintain correct height while fastening on joist.

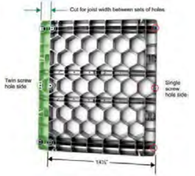


4. Trim 1 ½" off the Silca Grate™. Inlay Silca Grate™ on top of 2×4 cleat.

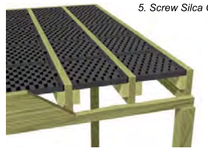
NOTE: Deck construction must be in compliance with your state and local codes. Refer to Table 2 at the end of this section, ICC-ES ESR# 3748 Verifies that Silca Grate™ Meets Code Requirements.



4. (Cont'd.) NOTE: Silca Grate™ has two sets of screw holes on one side of the Silca Grate™. Trim the side with two holes.



5. Screw Silca Grates™ in place.



6. Install Geotextile/landscape blanket. Same as *Step 4* in the New Construction section.

7. Treated Lumber Border. Same as *Step 5* in the New Construction section but do not include the height of the Silca Grate™.

8. Congratulations on finishing your new remodeled deck, complete with Silca®-supported outdoor paver flooring! To finish, you may cover the exterior fascia edging with aluminum, vinyl, cedar, composite, or treated lumber.

Silca Grate™ Support Ledger Attachment for Retro-Fit Application

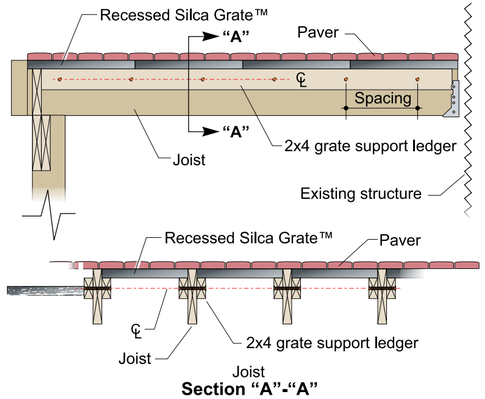
Table lists screw spacing in inches to attach 2x4 ledger to each face of existing joist.

Table 2

	Natural stone or manufactured concrete paver thickness				
	3/4"	1-1/4"	2"	2-1/2"	3"
Screw spacing	18"	16"	14"	13"	12"

1. Screws are FastenMaster HeadsLok or TrussLok-Z 2-7/8" long screws, single row,thru ledger centerline (℄).
2. Joists are 16" o/c spacing.
3. Joists and ledger are Southern Pine, No. 2 grade, wet service.
4. Pavers or stone over Silca Grate™ structural subfloor system, grate figured at 2psf dead load.
5. Live load = 40psf.
6. Paver or stone dead loads based on material weight of 150 pcf.
7. Deflection criteria: Live Load = L/360, Dead Load L/240.

Figure 2



Section "A"-"A"

INSTALLATION OF PORCELAIN PAVERS WITH SILCAMAT™

- Lay the SilcaMat™ over the SilcaGrate™.
- Place 2-dimensional spacers in place as you install pavers. Pavers should make direct contact with the mat to prevent movement and reduce sound.
- Apply polymeric sand to the joints and wet down. The sand will allow the pavers to interlock as a unit.

INSTALLATION OF PORCELAIN PAVERS WITH LANDSCAPE FABRIC

- Lay the landscape fabric over the SilcaGrate™.
- Glue flexible or rigid SilcaSpacers™ in place as you install pavers; use SB 190 adhesive. Flexible spacers will reduce sound and movement.
- Apply polymeric sand to the joints and wet down. The sand will allow the pavers to interlock as a unit.

INSTALLATION OF PORCELAIN PAVERS ON THE SILCAGRATE™ WITH NO SAND AND NO LANDSCAPE FABRIC

- Glue flexible SilcaSpacers™ in place as you install pavers; use SB 190 adhesive. Flexible spacers will reduce sound and movement.

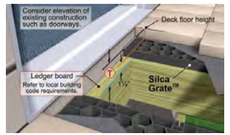
STONEDEKS - SILCA SYSTEM FOR NEW RESIDENTIAL CONSTRUCTION

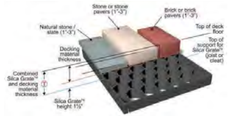
New Deck Construction Instructions

1. Determine the desired elevation of your finished deck floor.

There are several important factors to consider during this step, including doorway features and the thickness of your planned outdoor paver floor materials (i.e. natural stone or brick pavers).

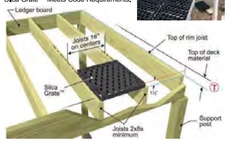
NOTE: The Silca Grate™ is 1-1/2 inches thick.





2. Build your substructure up to the necessary height with 16 inch on-center floor joists.

NOTE: Deck construction must be in compliance with your state and local codes. Refer to Table 1 at the end of this section, ICC-ES ESR# 3748 Verifies that Silca Grate™ Meets Code Requirements.



3. Screw down the Silca Grates™ to the floor joists using four #9 3" deck screws per grate.

It is recommended that the Silca Grates™ be staggered to achieve maximum strength and stability.To accomplish this start one row of Silca Grates™ with a full grate, and start the next with a half grate.

Be sure that the Silca Grate's™ reinforcement straps are on the bottom side, in contact with the floor joists.

4. Install Geotextile/landscape blanket (this step is only needed if plan to use Polymeric sand between the joints of your bricks or pavers).

5. Treated Lumber Border – Use a wider dimension lumber for your rim joist (i.e. Use 2×12 for rim joists if your standard joists are 2×8). Generally, you will want the width of the rim joist to be greater than the width of the standard joist by at least the same amount as the combined height of your pavers and Silca Grate™.

6. Install your new outdoor paver floor.

7. Congratulations on finishing your new deck, complete with Silca®-supported outdoor paver flooring! To finish, you may cover the exterior fascia/ edging with aluminum, vinyl, cedar, composite, or treated lumber.

Table to determine deck component sizes

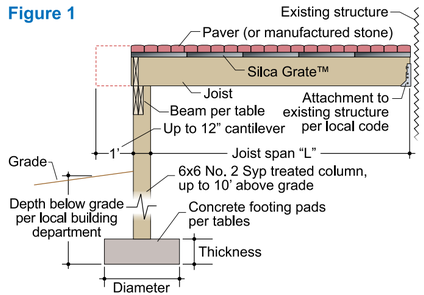
Use Table 1 directly below to determine the required joist size based on the chosen paver thickness and the span (or length "L") of your deck joists - see Figure 1 below the Table.

Table 1 — **Maximum Joist spans "L"** when using pavers 3/4" to 3" thickness

Joist size	Natural stone or manufactured concrete paver thickness				
	3/4"	1-1/4"	2"	2-1/2"	3"
2x6	8'-9"	8'-5"	7'-10"	7'-5"	7'-2"
2x8	11'-4"	10'-9"	10'-0"	9'-6"	9'-2"
2x10	13'-7"	12'-10"	11'-11"	11'-4"	10'-11"
2x12	16'-0"	15'-2"	14'-1"	13'-4"	12'-10"

1. Joists are 16" o/c spacing.
2. Joists are Southern Pine, No. 2 grade, wet service.
3. Pavers or stone over Silca Grate™ structural subfloor system, Grate figured at 2psf dead load.
4. Live load = 40psf.
5. Paver or stone dead loads based on material weight of 150 pcf.
6. Deflection criteria: Live Load = L/360, Dead Load = L/240.
7. Joists may be cantilevered up to 12".

Figure 1



SILCAMAT™

SilcaMat™ can be used between SilcaGrates™ and porcelain pavers, stone, or pavers:

- Deadens sound
- Reduces movement of pavers or stone
- Permeable
- Made from 94% recycled rubber

Available in 2 thicknesses:

- 1/16" Thick; Weight: 75 lbs.
- 1/8" Thick; Weight: 125 lbs.

SILCASPACERS™

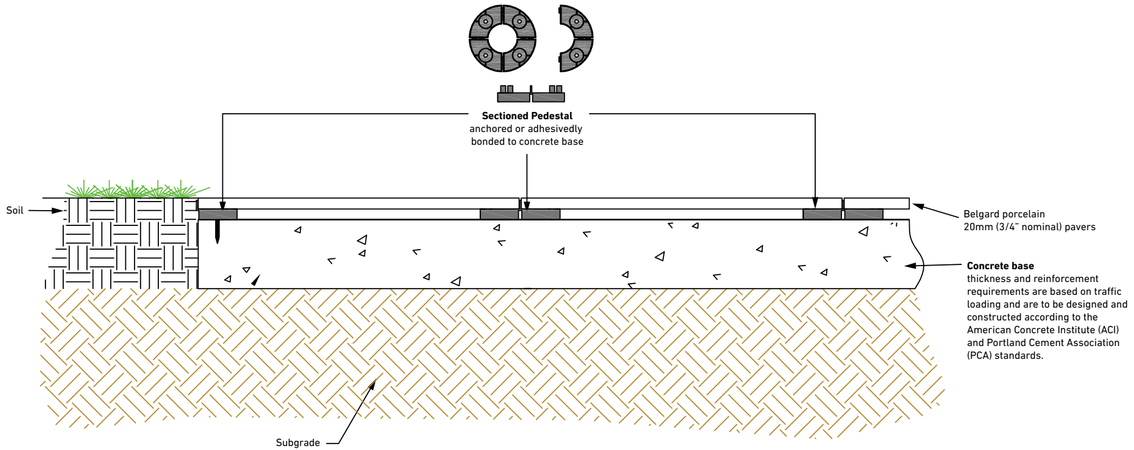
Available in three types:

Flexible - Excellent for Porcelain Installations
- Reduces Movement
- Reduces Noise

Rigid – Black PC/ABS
- Provides consistent joint spacing
- Reduces chipping of pavers

Rigid – Clear Acrylic
- Color doesn't show through polymeric sand

1" FIXED PEDESTAL INSTALLATION ON CONCRETE FLOOR



Important: Metal backing required on any install over 1". Cant use pedestals over 8" In height.

Caution: Never compact Belgard Porcelain pavers with a plate compactor. Never install Belgard porcelain pavers without the required 4mm disc spacers between all units.

Important: For a professional and chip free cut, Belgard Porcelain pavers should only be cut with a tile saw equipped with a wet cut porcelain blade.

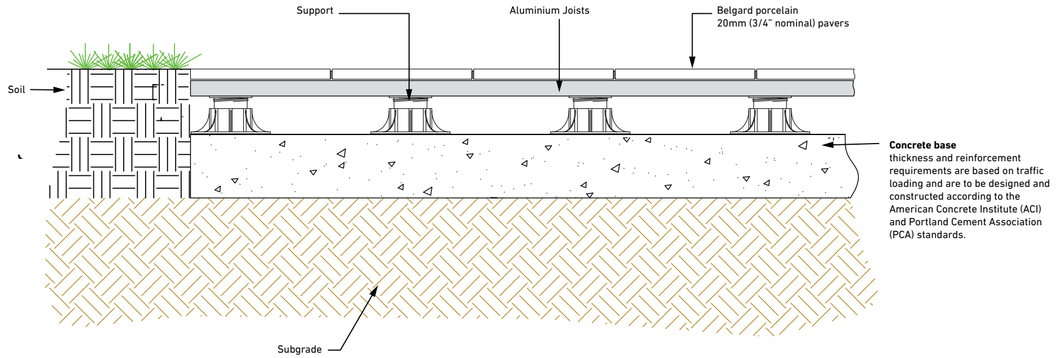
INSTALLATION NOTES:
Follow the detail drawing.

Ensure that concrete slab is smooth, even across the surface and is constructed with a 2% slope and that it is pitched away from any building.

Ensure the plastic 4" pedestal support are installed at all corners of the installed pavers.

NOTE: Pedestal installations can be done with Westile® and MRP (Eterno Ivica) Pedestals. Use Westile® pedestals for 24x24, 36x36 and 18x36. For plank and modular unit installations, use MRP (Eterno Ivica) Pedestals.

E_DECK - PEDESTAL SYSTEM FOR DECKING INSTALLATION, ON CONCRETE FLOOR



Caution: Never compact Belgard Porcelain pavers with a plate compactor. Never install Belgard porcelain pavers without the required 4mm disc spacers between all units.

Important: For a professional and chip free cut, Belgard Porcelain pavers should only be cut with a tile saw equipped with a wet cut porcelain blade.

INSTALLATION NOTES:
Follow the detail drawing.

Ensure that concrete slab is smooth, even across the surface and is constructed with a 2 degree pitch and that it is pitched away from any building.

Ensure the plastic pedestal support are installed at all corners and perimeter, to obtain the right stability of the floor.

8" is the Maximum height of the Pedestal Installation.

All slabs must have a factory applied **fiber mesh backing.**

The distance between joists has to be 16" for plank and 12" for other sizes.

The flooring surface must slope in order to achieve a optimum water run-off: for slopes of the concrete base of a maximum of 3%, the e-deck structure can level itself without needing any slope correctors.

E_DECK: SYSTEM COMPONENTS

EVO_2/E™ PORCELAIN STONEWARE WITH DOUBLE FIBER MESH

For further details and the technical specifications for Double Fiber Mesh, please contact your Belgard® dealer.

Belgard recommends the use of plus Double Fiber Mesh on all the slabs of the raised flooring surface.

Belgard is only responsible if it supplies a complete system, therefore including the slabs with Double Fiber Mesh attached.

MIRAGE® E_DECK KIT

ALUMINIUM JOISTS

Three cavity joists in strengthened aluminium with teeth and cavity, on the upper surface, specifically sized for the structure components.

ALUMINIUM JOISTS	LENGTH	WIDTH	HEIGHT
	3000 mm 120"	70 mm 2 3/4"	30 mm 1 1/4"

SEALS

Seals in black epdm with an asymmetrical "h" section in 3-meter lengths and a smooth surface.

The seals are supplied already fitted into the specific cavities on the aluminium joists of the E_DECK KIT.

SEALS	WIDTH	HEIGHT
	10 mm 1/2"	5 mm 1/4"

SPACERS

Specially designed polypropylene spacers to guarantee a 4mm gap between evo_2e™ slabs.

The spacers are supplied packed in bags in the E_DECK KIT

SPACERS	WIDTH	HEIGHT
	10 mm 1/2"	5 mm 1/4"

KIT CONTENTS		
	ALUMINIUM JOISTS	4 pcs
	SPACERS	40 pcs

KIT PACKING DATA		
	SURFACE / KIT	48.44 sqft/KIT
	WEIGHT/ KIT	41.88 lb
	KIT / PALLET	54 KIT
	sqft / PALLET	2615.6 sqft/ PALLET

SUPPORTS

Adjustable-height supports for raised flooring, complete with a head in bi-material and a rubber finish to prevent noise and slipping.

SUPPORTS	BASE DIAMETER	HEAD DIAMETER	HEIGHT
	205 mm 8 1/4"	70 mm 2 3/4"	MAX 300 mm MAX 8"
	SUPPORTS sqm E_DECK KIT		
	3,5 pcs		

ACCESSORIES

MUTE

Mat for supports providing acoustic insulation and protection for the moisture barrier, made in high density modified closed-cell insulation foam.

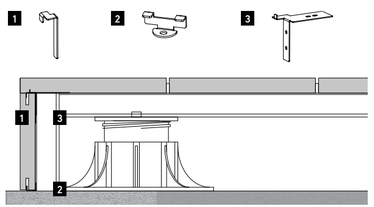
MUTE	BASE DIAMETER	HEIGHT
	205 mm 8 1/4"	3 mm 1/8"

LATERAL RESTRAINT

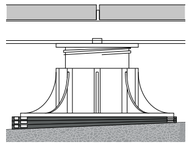
Restraint for the slabs to use around the perimeter.

LATERAL RESTRAINT	WIDTH	HEIGHT
	32 mm 1 1/4"	15 mm 5/8"

LATERAL CLOSURE WITH EVO_2/E™ SLAB



SLOPE CORRECTORS

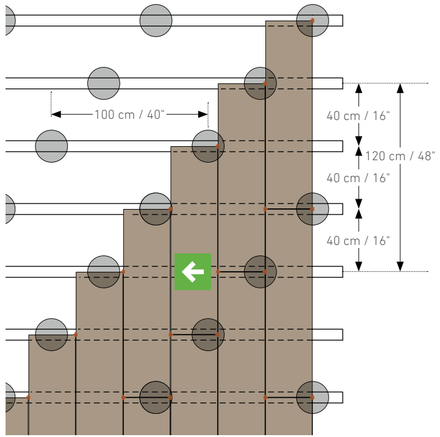


To correct the slope of the substrate.
For a better water downflow, mirage recommends a slope of the floor of 1-2%.

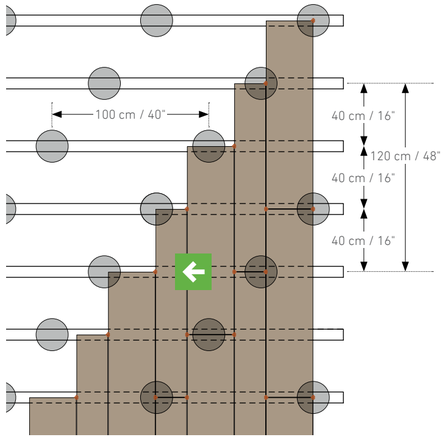
SLOPE CORRECTORS	SLOPE
	1% - 2% - 3% slope. Also usable combined.

E_DECK: APPLICATION

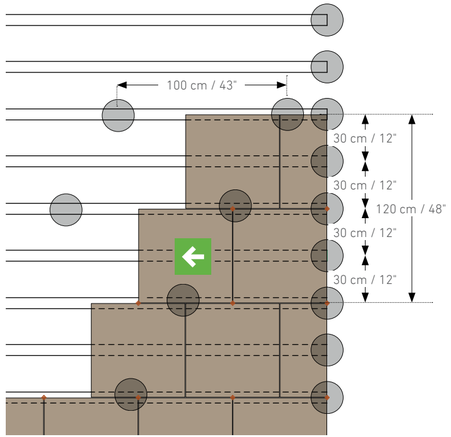
30x120 cm - 12"x48" size



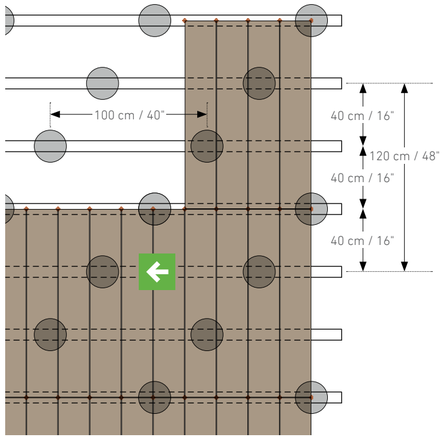
30x120 cm - 12"x48" / 20x120 cm - 8"x48" sizes



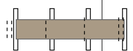
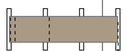
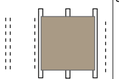
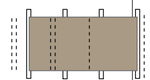
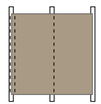
60x60 cm - 24"x24" size



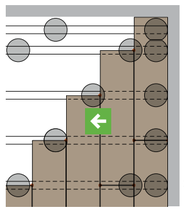
20x120 cm - 8"x48" size



E_DECK: STRUCTURE TAB

FROM 3" TO 12"				
20x120 cm - 8"x48" (rated)	30x120 cm - 12"x48" (rated)	60x60 cm - 24"x24" (rated)	45x90 cm - 18"x36" (rated) 60x120 cm - 24"x48" (rated)	90x90 cm - 36"x36" (rated)
				
e_deck structure + slab with galvanized steel sheet	e_deck structure + slab with galvanized steel sheet	e_deck structure + slab with galvanized steel sheet	e_deck structure + slab with galvanized steel sheet	e_deck structure + slab with galvanized steel sheet

Installation of **perimetral supports** and **aluminium joists**



Supports can be cut if necessary

The arrow indicates the side where the flooring surface should slope in order to achieve optimum water run-off. for slopes of the concrete base of a maximum of 3%, the e_deck structure can level itself without needing any slope correctors.

Supports must be placed on the perimeter, to obtain the right stability of the floor.

E_DECK: INSTALLATION PHASES

STEP 1
Put the mute mats and the supports into position on the floor (perimeter support must be cut).

STEP 2
Put the joists into position (12" in-between) and secure them by pressing them down gently.

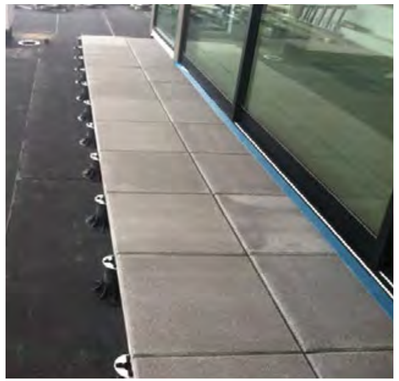
STEP 3
Start laying down tiles from the corner.

STEP 4
Use the spacers from the kit, in order to lay down the tiles properly.

STEP 5
Fix the lateral closure by using the special lateral restraint.

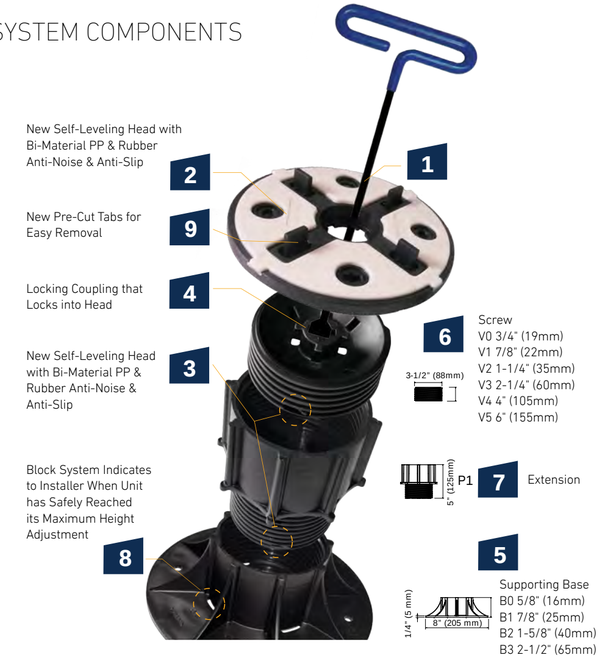
STEP 6
Cut on the edge of the slabs, in order to fit them into the lateral restraint.

ETERNO ADJUSTABLE PEDESTAL SUPPORT: SYSTEM COMPONENTS



MRP Support (Eterno) pedestals are designed to support Concrete Pavers, Natural stone, Porcelain Pavers, Wood Deck Tiles and Wood Decking. Our pedestal supports are set on any waterproofing membrane and any other surface to be paved. After an initial adjustment the leveling of the pedestal is completed with extreme precision by using our unique Adjustment Key even when all pavers are already placed. Each pedestal is supplied with a Base, Threaded Screw and Head. Our standard Self-Leveling Head automatically compensates any gradient up to 5%, which reduces time spent shimming to create a perfectly level surface. Our Self-Leveling Heads is also supplied with a bi-component soft rubber material that offers anti-noise and anti-slip. Optional add on components are available for Fixed Head and IPE Deck Tile applications. Our Wood Joist Head is also available for any wood joist applications. Our supports are 100% Recyclable (LEED Approved), resistance to temperature from -22°F to +248°F (-20°C - +120°C), resistance to acid and UV Stable. Loading capacity of each support is more than 2,205 lbs, and the supporting base is 49.6 s.q. inches (320 cm^2).

NOTE: *Self leveling head only available on the SE series.*



FEATURES	MRP ETERNO SUPPORTS	COMPETITORS
#1 Adjustment Key	Levels Support without Removing Paver	N/A
#2 Self-Leveling Head	Automatically Compensates up to a 5% Gradient & Bi-Material Head	N/A
#3 Block System	Safety Height Tab	N/A
#4 Locking Coupling	Coupling Locks Into Head	N/A
#5 Base	Pre-Cut Base for Corner Applications	N/A
#6 Screw	Different Screw Heights	Same
#7 Extension	Extension for Higher Requirements	Same
#8 Water Drainage Holes	No Ponding Water	N/A
#9 Pre-Cut Tabs	Easy removal of Tabs When Needed	Same

ETERNO ADJUSTABLE PEDESTAL SUPPORT: SYSTEM COMPONENTS

Star T	Star B	SE 0	SE 1	SE 2	SE 3	SE 4	SE 5
3/8" – 9/16" 10/15 mm	3/16" Extension for Star T (Max. Qty 3)	1.125"- 1.5" 28/38 mm	1.5" / 2" 37.5 / 50 mm	2" / 3" 50 / 75 mm	3" / 4.75" 75 / 120 mm	4.75" / 6.75" 120 / 170 mm	6.75" / 8.5" 170 / 215 mm

SE 6	SE 7	SE 8	SE 9	SE 10	SE 11	SE 12	SE 13	SE 14
5.5" / 9" 140 / 230 mm	7.25" / 10.75" 185 / 275 mm	9.25" / 12.75" 235 / 325 mm	8" / 13.5" 205 / 345 mm	9.875" / 15" 250 / 385 mm	11.75" / 15.75" 300 / 400 mm	10.5" / 18" 270 / 455 mm	12.4" / 19.75" 315 / 500 mm	14.25" / 21.75" 365 / 550 mm

Optional Locking Piece for Fixed Head - Light Tile Applications

Optional Pins for IPE Tile Applications

Wood Joist Head for Wood Joist Applications

LGH2 1/16" (2mm) Leveling Shim

LGH3 1/8" (3mm) Leveling Shim

LH3 1/8" (3mm) Leveling Shim

COMPONENTS TABLE - SE 6-SE 14

SE6 = SE3 + 1xP1	SE9 = SE3 + 2xP1	SE12 = SE3 + 3xP1
SE7 = SE4 + 1xP1	SE10 = SE4 + 2xP1	SE13 = SE4 + 3xP1
SE8 = SE5 + 1xP1	SE11 = SE5 + 2xP1	SE14 = SE5 + 3xP1

Note: It is recommended to place additional supports under pavers with heavy objects, such as Planters & Hot Tubs, for extra support!

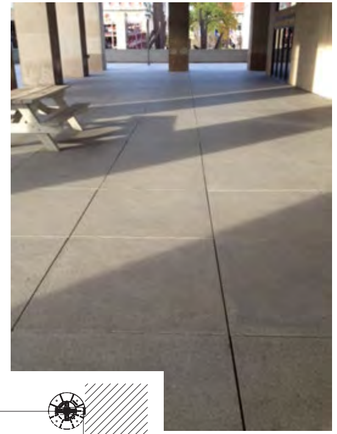
EH 12 EH 15 EH 20

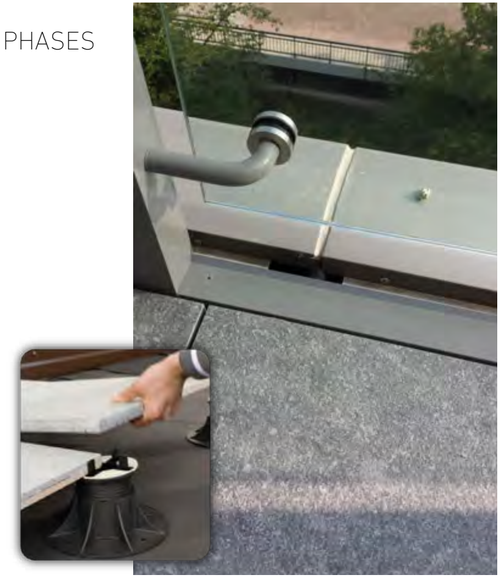
ETERNO ADJUSTABLE PEDESTAL SUPPORT: : INSTALLATION PHASES

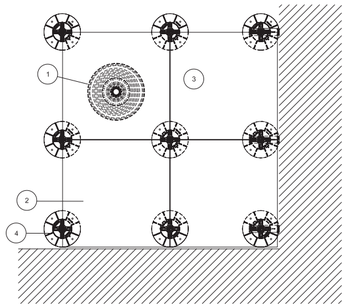
SE Series pedestals feature self-leveling, bi-component head that allows for automatic compensation of minor imperfections and slope (up to 5%) of the substrate. Our EH Series fixed height pedestals are also available for heights less than 1.125"

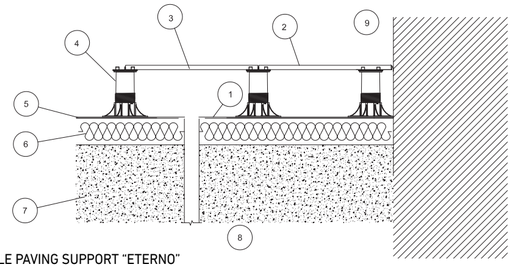
WARNING: *Verify with paver manufacturer that paver meets or exceeds local codes.*

NOTE: *The SE (self leveling head) is preferred for wood and porcelain. The NM is preferred for concrete and natural stone due to the higher load capacity.*





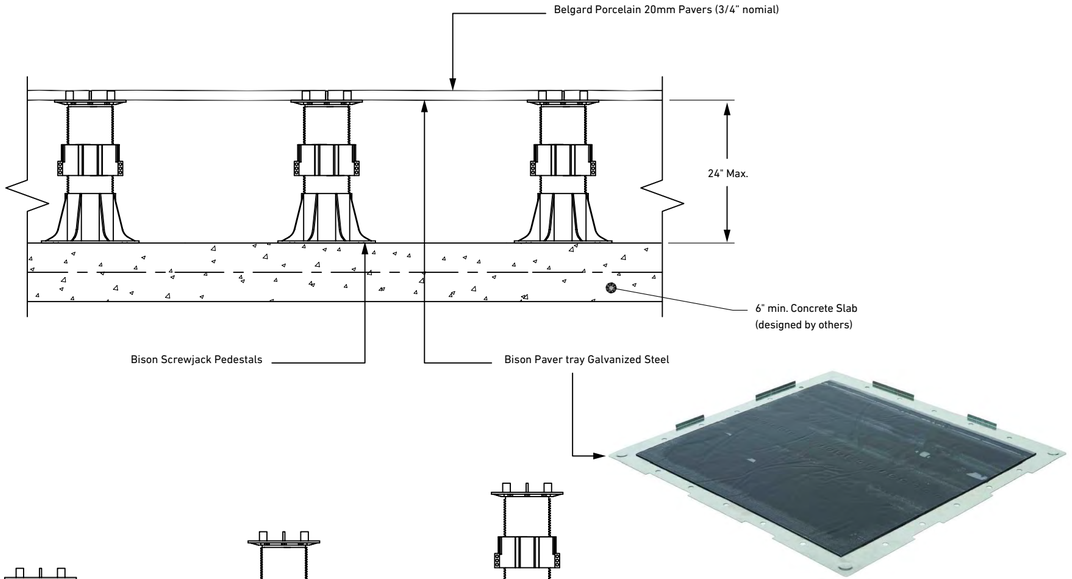


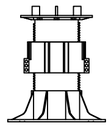


DESCRIPTION

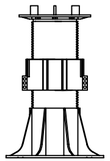
1 ROOF DRAIN • 2 SLAB • 3 LEAF-GUARD • 4 ADJUSTABLE PAVING SUPPORT "ETERNO"
5 WATERPROOFING MEMBRANE • 6 THERMAL ISOLATION • CONCRETE SLAB • 8 PIPES

BELGARD PORCELAIN PEDESTAL SECTION - 8" TO 24" (PAVER TRY REQUIRED)

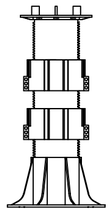




B3 + C4
7¾" - 9 VERTICAL RANGE

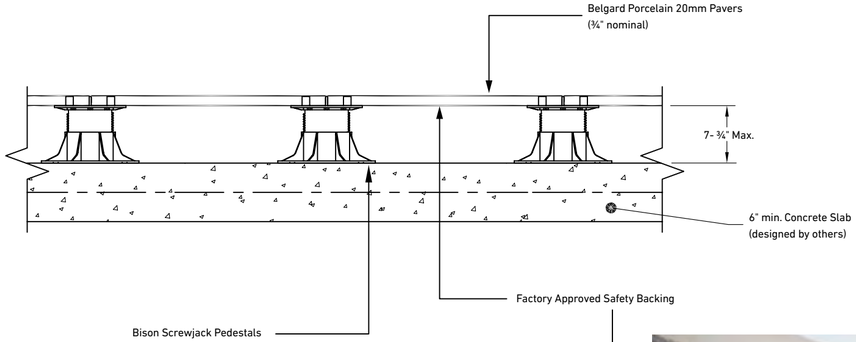


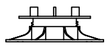
B4 + C4
9" - 12" VERTICAL RANGE



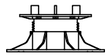
B4 + C4 + C4
12" - 16" VERTICAL RANGE

BELGARD PORCELAIN PEDESTAL SECTION - 3/4" TO 7-3/4" (SAFETY BACKING REQUIRED)





B1
1¼" - 2"
VERTICAL RANGE



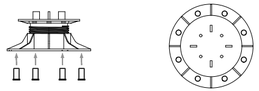
B2
2" - 3"
VERTICAL RANGE

B3
3" - 4¾"
VERTICAL RANGE

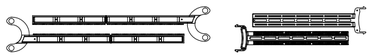
B4
4¾" - 7¾"
VERTICAL RANGE

BISON® BRACE DETAILS - ASSEMBLY INSTRUCTIONS

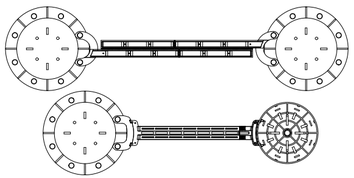
1) Insert a peg into each of the 8 holes in the bottom of each adjustable pedestal to receive bracing, and click them into place.



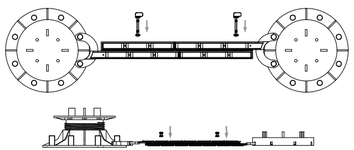
2) Determine how long the brace should be based on the size of the paver. Braces may need to be cut down for shorter distances.



3) Snap the Bison brace onto the pegs in each adjustable pedestal. For fixed height pedestals, snap the BB-fixed height into the side of an HD50 or HD75. Use a BB-connect to attach the BB-fixed height to an adjustable pedestal.



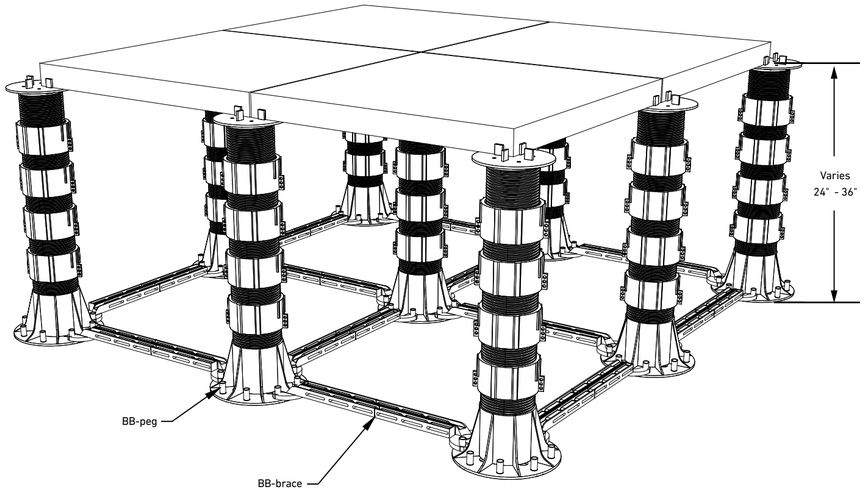
4) Lock the bracing arms together by inserting BB-latches into the side of each Bison brace or BB-screws into the top of each BB-fixed height, and twist 90 degrees.



BISON® EXTREME CAVITY HEIGHT BRACING DETAIL - 24" TO 36" BRACING REQUIREMENTS

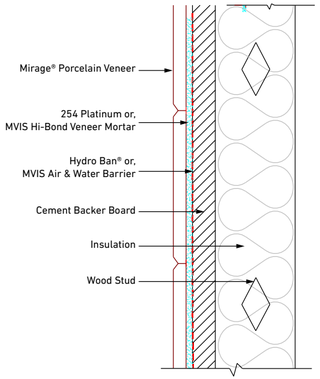
Bison Screwjack Pedestal must be braced for stability to accommodate heights in excess of 24" up to a maximum of 36". Structural perimeter containment, with no more than ⅛" width spacing , on all sides of the pedestal deck system is required.

Important: Refer to screwjack product specifications to ensure proper use and installation. Find screwjack specifications at www.bisonip.com



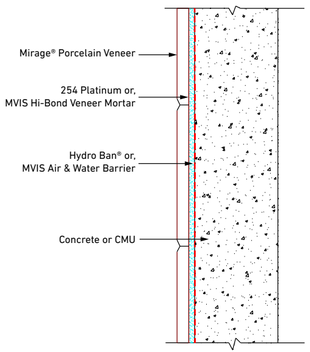
PORCELAIN VENEER INSTALLATION

CEMENT BACKER BOARD



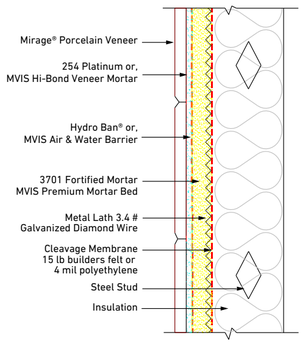
Note: Vapor Barrier, Weather Barrier, Separation Sheet, Insulation, Waterproofing, and Furring Type/Location to be determined by design professional. Maximum allowable deflection under all live, dead and impact loads, including concentrated loads. Must not exceed L/600 where L=Span Length. Design professional to ensure compliance with building code(s).

CONCRETE CMU



Note: Vapor barrier and insulation-type/location to be determined by design professional

FORTIFIED MORTAR BED (SCRATCH & BROWN)



Note: Vapor Barrier, Weather Barrier, Separation Sheet, Insulation, Waterproofing, and Furring Type/Location to be determined by design professional. Maximum allowable deflection under all live, dead and impact loads, including concentrated loads. Must not exceed L/600 where L=Span Length. Design professional to ensure compliance with building code(s).

PORCELAIN VENEER INSTALLATION

Prior to commencing the installation, the contractor must examine substrates and advise the General Contractor and Architect of any existing conditions or surface contamination which will require correction before the work commences. Before starting, substrates must be cleaned to remove curing compounds, sealers, soil, mortar, dirt, dust, etc. Curing compounds or sealers must be removed by beadblasting, grit / sand blasting, hydro blasting, diamond wheel grinder with dustless vacuum attachment, or equivalent methods of mechanical scarifying. After removal of the curing compounds and sealers, all rough, uneven or "out-of-plumb" surfaces must be made "plumb and true" to within 1/8" in 10' and 1/16" in 24"[3 mm in 3 m] / [1.5mm in 600mm] using 3701 Fortified Mortar Bed or MVIS Premium Mortar Bed.

Dry or dusty concrete or masonry surfaces must be water washed and excess water removed just prior to the application of LATICRETE® membranes and mortars.

EXPANSION AND CONTROL JOINTS

Existing joints in substrate must be carried through the porcelain veneer work and must conform to architectural details. Expansion joints must be installed where tiles/panels abut restraining surfaces, such as perimeter walls, curbs, columns, corners, etc. Expansion joints must be installed at all "changes of plane" in the tile work. Refer to Tile Council of North America (TCNA) Detail EJ-171 (Current Year) for industry recommendations.

Use LATASIL Sealant (and 9118 Primer as needed) for all such joints.

LIQUID-APPLIED WATERPROOFING MEMBRANE INSTALLATION (OPTIONAL)

Install HYDRO BAN or MVIS Air & Water Barrier membrane in compliance with current revisions of ANSI A108.1 (2.7 Waterproofing) and ANSI A108.13. Review the installation and plan the application sequence. Shake or stir HYDRO BAN MVIS Air & Water Barrier or before using.

PRE-TREAT CRACKS AND JOINTS

Fill all substrate cracks, cold joints and control joints to a smooth finish using a LATICRETE® latex-fortified thin-set. Alternatively, a liberal coat* of HYDRO BAN® or MVIS Air & Water Barrier applied with a paint brush or trowel may be used to fill in non-structural joints and cracks. Apply a liberal coat* of HYDRO BAN or MVIS Air & Water Barrier approximately 8" (200mm) wide over substrate cracks, cold joints, and control joints using a paint brush or heavy napped paint roller.

PRE-TREAT COVES AND FLOOR/WALL INTERSECTIONS

Fill all substrate coves and floor/wall transitions to a smooth finish and changes in plane using a LATICRETE® latex-fortified thin-set. Alternatively, a liberal coat* of HYDRO BAN or MVIS Air & Water Barrier applied with a paint brush or trowel may be used to fill in cove joints and floor/wall transitions <1/8" (3mm) in width. Apply a liberal coat* of HYDRO BAN or MVIS Air & Water Barrier approximately 8" (200mm) wide over substrate cracks, cold joints, and control joints using a paint brush or heavy napped paint roller.

PRE-TREAT PENETRATIONS

Allow for a minimum 1/8" (3mm) space between drains, pipes, lights, or other penetrations and surrounding porcelain veneer. Pack any gaps around pipes, lights or other penetrations with a LATICRETE latex-fortified thin-set. Apply a liberal coat* of HYDRO BAN or MVIS Air & Water Barrier around penetration opening. Cover the first coat with a second liberal coat* of HYDRO BAN or MVIS Air & Water Barrier. Bring HYDRO BAN or MVIS Air & Water Barrier up to level of tile or stone. When HYDRO BAN or MVIS Air & Water Barrier has dried to the touch seal with LATASIL.

MAIN APPLICATION

Allow any pre-treated areas to dry to the touch. Apply a liberal coat* of HYDRO BAN or MVIS Air & Water Barrier with a paint brush or heavy napped roller over substrate including pre-treated areas and allow to dry to the touch. Install another liberal coat* of HYDRO BAN or MVIS Air & Water Barrier over the first coat. Let the top coat of HYDRO BAN or MVIS Air & Water Barrier dry to the touch approximately 1 – 2 hours at 70°F (21°C) and 50% RH. When the top coat has dried to the touch inspect the surface for pinholes, voids, thin spots or other defects. HYDRO BAN will dry to an olive-green color when fully cured. Use additional HYDRO BAN or MVIS Air & Water Barrier to seal any defects.

Movement Joints - Apply a liberal coat* of HYDRO BAN or MVIS Air & Water Barrier, approximately 8" (200mm) wide over the areas.

Then embed and loop the 6" (150mm) wide LATICRETE Waterproofing/Anti-Fracture Fabric and allow the HYDRO BAN or MVIS Air & Water Barrier liquid to bleed through. Immediately apply a second coat of HYDRO BAN or MVIS Air & Water Barrier.

L/m2); coverage is approximately 100 ft2 /gal (approx. 2.5 m2/ L). LATICRETE Waterproofing/Anti-Fracture Fabric can be used to pre-treat cracks, joints, curves, corners, drains, and penetrations with HYDRO BAN or MVIS Air & Water Barrier.

Protection - Provide protection for newly installed membrane, even if covered with a thin-bed porcelain veneer installation against exposure to rain or other water for a minimum of 2 hours at 70°F (21°C) and 50% RH after final liquid coat has dried. For temperatures between 45°F and 69°F (7°C to 21°C) allow a minimum 24 hour cure period.

MIXING

Mix according to printed product instructions included with each LATICRETE product package.

WALL TILE INSTALLATION

Wall Renders (Scratch & Brown Method): No slurry bond coat is required prior to placing wall renders. Apply wall render with a steel trowel pressing mortar into good contact with the substrate. Apply "scratch coat" first – not to exceed 1/2" (12 mm) thickness. Scratch mortar before it hardens. After "scratch coat" hardens, apply the "brown or float coat" working the mortar into good contact with the scratch coat.

Do not exceed 5/8" (15 mm) thickness per lift. Scratch all lifts that will receive additional float coats. Float wall with steel trowel and straight edges to form a plumb and true mortar surface. Allow the completed render coats to cure for 72 hours at 70°F (21°C) prior to the installation of gauged porcelain tile/panels via thin-bed method.

PORCELAIN VEENER INSTALLATION

Thin Bed Method: Install LATICRETE 254 Platinum (must use for Exterior Applications), or LATICRETE MVIS Hi Bond Veneer Mortar or 257 Titanium in compliance with current revisions of ANSI A108.02 (3.11), A108.1B , ANSI A108.5 and ANSI A108.19. Select an appropriately-sized notched trowel that will provide full bedding and coverage to the panel backs. Use flat side of trowel to apply/key in the adhesive mortar into full contact with the substrate. Immediately following, apply mortar with notched side of trowel. Spread only as much mortar as can be covered while the mortar surface is still wet and tacky. Mortar is to be applied to the tile backs to key in the mortar with the flat side of the trowel then beat in/ bed the tiles with a rubber mallet to achieve a minimum 95% continues coverage. Periodically remove a freshly set tile to validate coverage Clean excess latex Portland-cement mortar from tile face and joints between pieces, immediately. Allow installation to cure for minimum 24 hours at 70°F (21° C), prior to grouting and exposure to light foot traffic.

PORCELAIN VENEER INSTALLATION

GROUT INSTALLATION

Polymer Fortified Cement Grouts (ANSI A118.7): (FOR INTERIOR & EXTERIOR APPLICATIONS) Specify PERMACOLOR® SELECT Grout, or MVIS Premium Pointing Mortar. Allow porcelain veneer installation to cure a minimum of 72 hours @ 70°F (21°C), prior to grouting. Verify grout joints are free of dirt, debris or tile spacers. Sponge or wipe dust/dirt off veneer face and remove any water standing in joints. Apply grout release as recommended. Surface temperature must be between 40-90°F (4-32°C).

PERMACOLOR SELECT Grout: Mixing - Use approximately 2 – 2.25 quarts (1.9 L – 2.1 L) of clean potable water for 2 PERMACOLOR Select Color Packs and 25 lbs. (11.3 kg) of PERMACOLOR Select Grout Base. Place water in a clean mixing container. Remove Color Packs from the cardboard container as well as the protective plastic sleeve. The internal bag is a water- dispersible pack – when using the 25 lbs. (11.3 kg) bag of PERMACOLOR Select, drop both color packs directly to water in clean mixing container. Mix with a drill mixer until pigment is dispersed evenly in container and the dispersible pack is no longer visible. Add PERMACOLOR Select Base.

Mix with a slow speed drill mixer (300 rpm) for 1 minute. Wait for 5 minutes and remix with drill for 1 minute. If using the 12.5 lbs. bag, drop only one color pack into 1 – 1.1 quarts (.8L – 1.0 L) of clean water. Install latex fortified cement grout in compliance with current revisions of ANSI A108.1A, ANSI A108.02 and ANSI A108.10.

Dampen dry surfaces with clean water. Spread using a sharp edged, hard rubber float and work grout into joints, packing joints full and free of voids/pits. Hold float face at a 90°angle to grouted surface and use float edge to "squeegee" off excess grout, stroking diagonally to reduce pulling grout out of filled joints.

NOTE: If the grout begins to stiffen during installation, remix with drill mixer for 10–15 seconds. DO NOT ADD MORE WATER.

For first cleaning wait approximately 35 – 40 minutes at 70°F (21°C). Wider joints or cooler temperatures may extend wait time. Begin initial cleaning by lightly wiping down entire area to be cleaned with a damp sponge. Wash with a damp sponge (not wet). Work diagonally to the joints. Allow to dry 3 hours at 70°F (21°C).

For second cleaning use a damp sponge or dry cloth to remove remaining grout haze. Rinse sponge frequently and change rinse water at least every 200 ft2 (19m2). Repeat this cleaning sequence again if grout haze is still present.

Allow grout joints to become firm. Buff surface of grout with clean coarse cloth. Inspect joint for pinholes/voids and repair them with freshly mixed grout. Within 24 hours, check for remaining haze and remove it with warm soapy water and a nylon scrubbing pad. Do not use acid cleaners on latex Portland cement grout less than 10 days old.

PROTECTION

A. Protect finished installation under provisions of section 01 50 00. To avoid damage to finished tile work, schedule installations to only after all structural work, building enclosure, and overhead finishing work are completed. Keep all traffic and trades off finished tile begin until they have fully cured.

B. Tent / shade and heat areas that will be subjected to the elements, or freezing temperatures, during installation and cure periods.

C. Protect newly installed exterior adhered veneer installations from direct exposure to rain for 7 days at 70°F (21°C). Protection and corrective action primarily requires temporary enclosures or tarpaulins prior to, during, and immediately after installation to shield from rain. If prolonged exposure occurs, surfaces that appear dry may be saturated internally and require testing to determine suitability of certain overlay substrates, membranes, and adhesives. Protection applies to the substrate, the installation of adhesives and joint grouts, post-installation (rain and temperature protection) until suitable cure, and also the storage and handling of the cladding material.

D. The minimum substrate temperature requirement for cement based thin set mortars and grouts is 40°F (4°C) and the maximum temperature is 90°F (32°C). Extend period of protection of tile work at lower temperatures, below 60°F (15°C), and at high relative humidity (>70% R.H.) due to retarded set times of mortar/adhesives. Replace or restore work of other trades damaged or soiled by work under this section.

COLD WEATHER NOTE

The curing of installation materials is retarded by low temperatures and finished work should be protected for an extended period of time. Typically, for every 18°F below 70°F (10°C below 21°C), installation materials take twice as long to cure. Refer to LATICRETE® TDS 175 for more detailed suggestions.

HOT WEATHER NOTE

The evaporation of moisture in Portland cement grouts is accelerated by hot, dry conditions. Apply installation materials to dampened surfaces and protect freshly installed materials and finished work from direct sunlight exposure, when installing in temperatures over 90°F (32°C). Typically, for every 18°F above 70°F (10°C above 21°C), installation materials cure twice as quickly. Refer to LATICRETE TDS 176 for more detailed suggestions.

NOTES:

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