CONTENTS

PRODUCT OPTIONS

<table>
<thead>
<tr>
<th>Product</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ardesie</td>
<td>6</td>
</tr>
<tr>
<td>Blue.s</td>
<td>7</td>
</tr>
<tr>
<td>Glocal</td>
<td>8</td>
</tr>
<tr>
<td>Haiku</td>
<td>9</td>
</tr>
<tr>
<td>Lagoon</td>
<td>10</td>
</tr>
<tr>
<td>Mashup</td>
<td>12</td>
</tr>
<tr>
<td>Na.me</td>
<td>13</td>
</tr>
<tr>
<td>Nau 2.0</td>
<td>14</td>
</tr>
<tr>
<td>Noon</td>
<td>15</td>
</tr>
<tr>
<td>Norr</td>
<td>16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Officine</td>
<td>17</td>
</tr>
<tr>
<td>Quarziti 2.0</td>
<td>18</td>
</tr>
<tr>
<td>Rail</td>
<td>20</td>
</tr>
<tr>
<td>Signature</td>
<td>21</td>
</tr>
<tr>
<td>Silverlake</td>
<td>22</td>
</tr>
<tr>
<td>Stones 2.0</td>
<td>24</td>
</tr>
<tr>
<td>Sundeck</td>
<td>25</td>
</tr>
<tr>
<td>Turin™</td>
<td>26</td>
</tr>
<tr>
<td>Verona™</td>
<td>27</td>
</tr>
<tr>
<td>Porcelain Veneer</td>
<td>28</td>
</tr>
</tbody>
</table>

INSTALLATION OPTIONS

INTRODUCTION 28

PEDESTRIAN FOOT TRAFFIC

- Sand Set Over Compacted Road Base 38
- Sand Set Over Concrete Overlay 39
- Gravel Set Over Open Graded Aggregate 40
- Stepping Stone Sand Set on Compacted Road Base 41

VEHICULAR TRAFFIC

- Cementitious Adhesive Overlay 42

ELEVATED DECKING*

- Installation with EZ Base Panels 43
- Installation with Stonedeks 44
- 1” Fixed Pedestal on Concrete Floor 46
- E_Deck Pedestal System 47

VENEEER

- Porcelain Veneer 53

*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
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:

**Uniform Appearance**
Minimal to no differences among pieces.

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

**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.

**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.

*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.*
Actual size of tile is
1.92 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.

48 x 96
Actual size of tile is
31 sq/ft per tile.

**MODULAR**
12 x 24
24 x 36
Actual size of tiles is
3.88 sq/ft per tile.

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”.

Coverage will vary depending on installation practices.
ARDESIE

CASUAL VARIETY NATURAL

ESTIMATING CHART

See p 36 for additional sizing information

<table>
<thead>
<tr>
<th></th>
<th>24 X 24</th>
<th>UNICO</th>
<th>VENEER</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 X 24</td>
<td>60 x 60 x 2 cm</td>
<td>33 x 60 x 2 cm</td>
<td>10.5 x 45 cm</td>
</tr>
<tr>
<td>24 X 24</td>
<td>23.54” x 23.54” x 3/4”</td>
<td>12.19” x 23.54” x 3/4”</td>
<td>4.13” x 17.72”</td>
</tr>
</tbody>
</table>

| GROSS WEIGHT / BOX | 33 kg / 72 lbs | 24 kg / 52 lbs | 16 kg / 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
### ESTIMATING CHART

See p 36 for additional sizing information

<table>
<thead>
<tr>
<th>Size</th>
<th>GROSS WEIGHT / BOX</th>
<th>PIECES / BOX</th>
<th>SQ FT / BOX</th>
<th>BOXES / FULL PALLET</th>
<th>SQ FT / PALLET</th>
<th>PALLET GROSS WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 X 24</td>
<td>33 kg / 72 lbs</td>
<td>2</td>
<td>7.75</td>
<td>30</td>
<td>232.5</td>
<td>980 kg / 2160 lbs</td>
</tr>
<tr>
<td>36 X 36</td>
<td>37.6 kg / 82.89 lbs</td>
<td>1</td>
<td>8.72</td>
<td>18</td>
<td>156.94</td>
<td>692 kg / 1525 lb</td>
</tr>
<tr>
<td>48 X 48</td>
<td>16 kg / 34.6 lbs</td>
<td>14</td>
<td>7.10</td>
<td>55</td>
<td>390.73</td>
<td>862 kg / 1900 lbs</td>
</tr>
</tbody>
</table>

**Note:**
- Sizes listed are in cm and inches.
- Sizing information is provided for different box configurations.
- Gross weight, pieces per box, square feet per box, boxes per full pallet, square feet per pallet, and pallet gross weight are detailed.

**Further Information:**
- Additional sizing information can be found on page 36.
- Sizes include 24 X 24, 36 X 36, and 48 X 48.
- Weights range from 980 kg / 2160 lbs for a 24 X 24 configuration to 862 kg / 1900 lbs for a 48 X 48 configuration.
- Pieces per box range from 2 for 24 X 24 to 14 for 48 X 48.
- Square feet per box range from 7.75 for 24 X 24 to 7.10 for 48 X 48.
- Boxes per full pallet range from 30 for 24 X 24 to 55 for 48 X 48.
- Total square feet per pallet range from 232.5 for 24 X 24 to 390.73 for 48 X 48.

**Additional Notes:**
- The estimating chart provides a comprehensive view of the product's dimensions and weights.
- It is essential to consult page 36 for any additional sizing information required.
See p 36 for additional sizing information

<table>
<thead>
<tr>
<th>SIZE</th>
<th>GROSS WEIGHT / BOX</th>
<th>PIECES / BOX</th>
<th>SQ FT / BOX</th>
<th>BOXES / FULL PALLET</th>
<th>SQ FT / PALLET</th>
<th>PALLET GROSS WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 X 24</td>
<td>33 kg / 72 lbs</td>
<td>2</td>
<td>7.75</td>
<td>30</td>
<td>232.5</td>
<td>980 kg / 2160 lbs</td>
</tr>
<tr>
<td>36 X 36</td>
<td>37.6 kg / 82.89 lbs</td>
<td>1</td>
<td>8.72</td>
<td>18</td>
<td>156.94</td>
<td>692 kg / 1525 lbs</td>
</tr>
<tr>
<td>24 X 48</td>
<td>34 kg / 74 lbs</td>
<td>1</td>
<td>7.75</td>
<td>35</td>
<td>271.25</td>
<td>1189 kg / 2621 lbs</td>
</tr>
<tr>
<td>48 X 48</td>
<td>67 kg / 148.5 lb</td>
<td>1</td>
<td>15.5</td>
<td>20</td>
<td>310</td>
<td>1365 kg / 3009 lbs</td>
</tr>
<tr>
<td>UNICO</td>
<td>24 kg / 52 lbs</td>
<td>3</td>
<td>6.37</td>
<td>40</td>
<td>254.82</td>
<td>943 kg / 2080 lbs</td>
</tr>
</tbody>
</table>

Estimating Chart

- **CLEAR**
  - GC 01
- **IDEAL**
  - GC 03
- **TYPE**
  - GC 04
- **CLASSIC**
  - GC 05
- **ABSOLUTE**
  - GC 06
- **CHAMOIS**
  - GC 08
ESTIMATING CHART

See p 36 for additional sizing information

<table>
<thead>
<tr>
<th>24 X 24</th>
<th>60 x 60 x 2 cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEPPERY</td>
<td>HM 03</td>
</tr>
<tr>
<td>TAN</td>
<td>HM 04</td>
</tr>
<tr>
<td>LICORICE</td>
<td>HM 06</td>
</tr>
</tbody>
</table>

| 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 |
**ESTIMATING CHART**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>See p 36 for additional sizing information</strong></td>
<td></td>
</tr>
<tr>
<td><strong>36 X 36</strong></td>
<td>36 x 36</td>
</tr>
<tr>
<td></td>
<td>90 x 90 x 2 cm</td>
</tr>
<tr>
<td></td>
<td>35.35” x 35.35” x 3/4”</td>
</tr>
<tr>
<td><strong>GROSS WEIGHT / BOX</strong></td>
<td>37.6 kg / 82.89 lbs</td>
</tr>
<tr>
<td><strong>PIECES / BOX</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>SQ FT / BOX</strong></td>
<td>8.72</td>
</tr>
<tr>
<td>** BOXES / FULL PALLET**</td>
<td>1</td>
</tr>
<tr>
<td><strong>SQ FT / PALLET</strong></td>
<td>156.94</td>
</tr>
<tr>
<td><strong>PALLET GROSS WEIGHT</strong></td>
<td>692 kg / 1525 lb</td>
</tr>
</tbody>
</table>

**L A G O O N**

**STRUCTURAL**

**SOPHISTICATED**

**ECLECTIC**

**MOONBEAM**
LG 01 ST

**SANDSHELL**
LG 02 ST

**ATMOSPHERE**
LG 03 ST

**SHARKSKIN**
LG 04 ST

**CLOUDBURST**
LG 04 ST

**36 X 36**
MASHUP

STRUCTURAL
SOPHISTICATED
ECLECTIC

ESTIMATING CHART

See p 36 for additional sizing information

<table>
<thead>
<tr>
<th></th>
<th>24 X 24</th>
<th>36 X 36</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROSS WEIGHT / BOX</td>
<td>33 kg / 72 lbs</td>
<td>37.6 kg / 82.89 lbs</td>
</tr>
<tr>
<td>PIECES / BOX</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>SQ FT / BOX</td>
<td>7.75</td>
<td>8.72</td>
</tr>
<tr>
<td>BOXES / FULL PALLET</td>
<td>30</td>
<td>18</td>
</tr>
<tr>
<td>SQ FT / PALLET</td>
<td>232.5</td>
<td>156.94</td>
</tr>
<tr>
<td>PALLET GROSS WEIGHT</td>
<td>980 kg / 2160 lbs</td>
<td>692 kg / 1525 lbs</td>
</tr>
</tbody>
</table>
ESTIMATING CHART

See p 36 for additional sizing information

<table>
<thead>
<tr>
<th>Size</th>
<th>Gross Weight / Box</th>
<th>Pieces / Box</th>
<th>Sq Ft / Box</th>
<th>Boxes / Full Pallet</th>
<th>Sq Ft / Pallet</th>
<th>Pallet Gross Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 X 36</td>
<td>37 kg / 81.4 lbs</td>
<td>2</td>
<td>8.7</td>
<td>27</td>
<td>234.9</td>
<td>1014 kg / 2235 lbs</td>
</tr>
<tr>
<td>24 X 24</td>
<td>33 kg / 72 lbs</td>
<td>2</td>
<td>7.75</td>
<td>30</td>
<td>232.5</td>
<td>980 kg / 2160 lbs</td>
</tr>
<tr>
<td>24 X 48</td>
<td>34 kg / 74 lbs</td>
<td>1</td>
<td>7.75</td>
<td>35</td>
<td>271.25</td>
<td>1189 kg / 2621 lbs</td>
</tr>
<tr>
<td>48 X 48</td>
<td>67 kg / 148.5 lb</td>
<td>1</td>
<td>15.5</td>
<td>20</td>
<td>310</td>
<td>1365 kg / 3009 lbs</td>
</tr>
<tr>
<td>48 X 96</td>
<td>135 kg / 296.12 lbs</td>
<td>1</td>
<td>31</td>
<td>18</td>
<td>558</td>
<td>5373 kg / 2437 lbs</td>
</tr>
</tbody>
</table>

GROSS WEIGHT / BOX
PIECES / BOX
SQ FT / BOX
BOXES / FULL PALLET
SQ FT / PALLET
PALLETS GROSS / PALLETS

"ESTIMATING CHART"

See p 36 for additional sizing information.
# Estimating Chart

See p 36 for additional sizing information.

<table>
<thead>
<tr>
<th>Size</th>
<th>Gross Weight / Box</th>
<th>Pieces / Box</th>
<th>Sq Ft / Box</th>
<th>Boxes / Full Pallet</th>
<th>Sq Ft / Pallet</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>24 x 24</strong></td>
<td>33 kg / 72 lbs</td>
<td>21 kg / 46 lbs</td>
<td>7.75</td>
<td>30</td>
<td>232.5</td>
</tr>
<tr>
<td><strong>8 x 48</strong></td>
<td>21 kg / 46 lbs</td>
<td>21 kg / 46 lbs</td>
<td>5.06</td>
<td>30</td>
<td>151.8</td>
</tr>
<tr>
<td><strong>12 x 48</strong></td>
<td>34 kg / 74 lbs</td>
<td>34 kg / 74 lbs</td>
<td>7.75</td>
<td>36</td>
<td>279</td>
</tr>
</tbody>
</table>

**Note:** Gross weight and boxes are based on sample translations and may vary. **Pallet Gross Weight:** 980 kg / 2160 lbs 642 kg / 1415 lbs 1208 kg / 2664 lbs
### ESTIMATING CHART

<table>
<thead>
<tr>
<th></th>
<th>8 X 48</th>
<th>12 X 48</th>
<th>VENEER</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 X 48</td>
<td>26 x 120 x 2 cm</td>
<td>30 x 120 x 2 cm</td>
<td>10.5 x 45 cm</td>
</tr>
<tr>
<td></td>
<td>7.44&quot; x 47.17&quot; x 3/4&quot;</td>
<td>11.73&quot; x 47.17&quot; x 3/4&quot;</td>
<td>4.13&quot; x 17.72&quot;</td>
</tr>
<tr>
<td>GROSS WEIGHT / BOX</td>
<td>21 kg / 46 lbs</td>
<td>34 kg / 74 lbs</td>
<td>16kg / 34.6 lbs</td>
</tr>
<tr>
<td>PIECES / BOX</td>
<td>2</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>SQ FT / BOX</td>
<td>5.06</td>
<td>7.75</td>
<td>7.10</td>
</tr>
<tr>
<td>BOXES / FULL PALLET</td>
<td>30</td>
<td>36</td>
<td>55</td>
</tr>
<tr>
<td>SQ FT / PALLET</td>
<td>151.8</td>
<td>279</td>
<td>390.73</td>
</tr>
<tr>
<td>PALLET GROSS WEIGHT</td>
<td>642 kg / 1415 lbs</td>
<td>1208 kg / 2664 lbs</td>
<td>862 kg / 1900 lbs</td>
</tr>
</tbody>
</table>
DIMENSIONAL TACTILE NATURAL

ESTIMATING CHART

See p 36 for additional sizing information

<table>
<thead>
<tr>
<th></th>
<th>24 X 24</th>
<th>36 X 36</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIMENSIONAL</td>
<td>40 x 40 x 2 cm</td>
<td>90 x 90 x 2 cm</td>
</tr>
<tr>
<td>TACTILE</td>
<td>23.54” x 23.54” x 3/4”</td>
<td>35.35” x 35.35” x 3/4”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>24 X 24</th>
<th>36 X 36</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROSS WEIGHT / BOX</td>
<td>33 kg / 72 lbs</td>
<td>37.6 kg / 82.89 lbs</td>
</tr>
<tr>
<td>PIECES / BOX</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>SQ FT / BOX</td>
<td>7.75</td>
<td>8.72</td>
</tr>
<tr>
<td>BOXES / FULL PALLET</td>
<td>30</td>
<td>18</td>
</tr>
<tr>
<td>SQ FT / PALLET</td>
<td>232.5</td>
<td>156.94</td>
</tr>
<tr>
<td>PALLET GROSS WEIGHT</td>
<td>980 kg / 2160 lbs</td>
<td>692 kg / 1525 lb</td>
</tr>
</tbody>
</table>
### Estimating Chart

See p 36 for additional sizing information.

<table>
<thead>
<tr>
<th>Size</th>
<th>Gross Weight / Box</th>
<th>Pieces / Box</th>
<th>Sq Ft / Box</th>
<th>Boxes / Full Pallet</th>
<th>Sq Ft / Pallet</th>
<th>Pallet Gross Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 X 24</td>
<td>33 kg / 72 lbs</td>
<td>2</td>
<td>2.25</td>
<td>30</td>
<td>23.25</td>
<td>980 kg / 2160 lbs</td>
</tr>
<tr>
<td>36 X 36</td>
<td>37.6 kg / 82.89 lbs</td>
<td>1</td>
<td>1.35</td>
<td>18</td>
<td>156.94</td>
<td>692 kg / 1525 lbs</td>
</tr>
<tr>
<td>16 X 48</td>
<td>42 kg / 91.3 lbs</td>
<td>2</td>
<td>2.67</td>
<td>24</td>
<td>248</td>
<td>1184 kg / 2610 lbs</td>
</tr>
</tbody>
</table>

### Dimensions

- **24 X 24**: 23.54" x 23.54" x 3/4"
- **36 X 36**: 35.35" x 35.35" x 3/4"
- **16 X 48**: 15.67" x 47.17" x 3/4"

### Weights

- **Gross Weight**: 33 kg / 72 lbs, 37.6 kg / 82.89 lbs, 42 kg / 91.3 lbs
- **Pallet Gross Weight**: 980 kg / 2160 lbs, 692 kg / 1525 lbs, 1184 kg / 2610 lbs

### Sizes

- **24 X 24**: ACID OF 01 ST
- **36 X 36**: ROMANTIC OF 02 ST
- **16 X 48**: DARK OF 03 ST, GOTHIC OF 04 ST, SUNSET OF 05 ST
QUARZITI 2.0

AUTHENTIC DIVERSE NATURAL

ESTIMATING CHART

<table>
<thead>
<tr>
<th>Size</th>
<th>Gross Weight / Box</th>
<th>Pieces / Box</th>
<th>Sq Ft / Box</th>
<th>Boxes / Full Pallet</th>
<th>Sq Ft / Pallet</th>
<th>Pallet Gross Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 X 24</td>
<td>24.58 kg / 54.19 lbs</td>
<td>3</td>
<td>5.81</td>
<td>40</td>
<td>235.5</td>
<td>998 kg / 2201 lbs</td>
</tr>
<tr>
<td>12 X 24 &amp; 24 X 36</td>
<td>30 x 60 &amp; 60 x 2 cm</td>
<td>2</td>
<td>7.75</td>
<td>20</td>
<td>155</td>
<td>708 kg / 1560 lbs</td>
</tr>
<tr>
<td>18 X 36</td>
<td>37 kg / 81.4 lbs</td>
<td>2</td>
<td>8.7</td>
<td>27</td>
<td>234.9</td>
<td>1014 kg / 2335 lbs</td>
</tr>
<tr>
<td>24 X 24 &amp; 24 X 48</td>
<td>45 x 90 &amp; 60 x 2 cm</td>
<td>2</td>
<td>7.75</td>
<td>30</td>
<td>232.5</td>
<td>980 kg / 2160 lbs</td>
</tr>
<tr>
<td>24 X 36</td>
<td>33 kg / 72 lbs</td>
<td>2</td>
<td>7.75</td>
<td>35</td>
<td>271.25</td>
<td>1189 kg / 2621 lbs</td>
</tr>
<tr>
<td>24 X 48</td>
<td>34 kg / 74 lbs</td>
<td>1</td>
<td>6.75</td>
<td>40</td>
<td>254.82</td>
<td>943 kg / 2080 lbs</td>
</tr>
<tr>
<td>UNICO</td>
<td>16 kg / 34.6 lbs</td>
<td>2</td>
<td>7.10</td>
<td>55</td>
<td>390.73</td>
<td>862 kg / 1900 lbs</td>
</tr>
</tbody>
</table>

See p 36 for additional sizing information.

GROSS WEIGHT / BOX | 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 | 16 kg / 34.6 lbs | 16 kg / 34.6 lbs | 16 kg / 34.6 lbs | 16 kg / 34.6 lbs | 16 kg / 34.6 lbs | 16 kg / 34.6 lbs

SQ FT / BOX | 5.81        | 7.75        | 8.7         | 7.75        | 7.75        | 6.75        |

BOXES / FULL Pallet | 40                  | 20                  | 27                  | 30                  | 35                  | 40                  |

SQ FT / Pallet | 235.5          | 155            | 234.9          | 232.5          | 271.25          | 254.82          |

PALLET GROSS WEIGHT | 998 kg / 2201 lbs | 708 kg / 1560 lbs | 1014 kg / 2335 lbs | 980 kg / 2160 lbs | 1189 kg / 2621 lbs | 943 kg / 2080 lbs | 862 kg / 1900 lbs

GLACIER
GR 01 NAT

MOUNTAIN
GR 02 NAT

WATERFALL
GR 03 NAT

RIVER
GR 04 NAT

MANTLE
GR 05 NAT
RAIL

SOUL CONTEMPORARY WOOD

ESTIMATING CHART

See p 36 for additional sizing information

16 X 48
40.64 x 121.92 x 2 cm
15.87" 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

ICEBERG
RL 01

GRAPHITE
RL 02
SIGNATURE

CHROMATIC WARM STRIKING

12 X 48

ESTIMATING CHART

<table>
<thead>
<tr>
<th></th>
<th>12 X 48</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30 x 120 x 2 cm</td>
</tr>
<tr>
<td></td>
<td>11.73&quot; x 47.17&quot; x 3/4&quot;</td>
</tr>
</tbody>
</table>

- **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

See p 36 for additional sizing information.

ARTIC
SI 01 RD

HAVANA
SI 04 RD

DAKOTA
SI 05 RD
SILVERLAKE

AUTHENTIC
DIVERSE
NATURAL

ESTIMATING CHART

<table>
<thead>
<tr>
<th>Size</th>
<th>Gross Weight / Box</th>
<th>Pieces / Box</th>
<th>Sq Ft / Box</th>
<th>Boxes / Full Pallet</th>
<th>Pallet Gross Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 x 24</td>
<td>33 kg / 72 lbs</td>
<td>2</td>
<td>7.75</td>
<td>30</td>
<td>232.5</td>
</tr>
<tr>
<td>24 x 48</td>
<td>34 kg / 74 lbs</td>
<td>1</td>
<td>7.75</td>
<td>35</td>
<td>271.25</td>
</tr>
</tbody>
</table>

See p. 36 for additional sizing information.

GROSS WEIGHT / BOX: 24 x 24 = 33 kg / 72 lbs, 24 x 48 = 34 kg / 74 lbs
PIECES / BOX: 24 x 24 = 2 pieces, 24 x 48 = 1 piece
SQ FT / BOX: 24 x 24 = 7.75 sq ft, 24 x 48 = 7.75 sq ft
BOXES / FULL PALLE: 24 x 24 = 30 boxes, 24 x 48 = 35 boxes
PALLE GROSS WEIGHT: 24 x 24 = 980 kg / 2160 lbs, 24 x 48 = 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
STONES 2.0

BALANCED
INTENSE
NATURAL

ESTIMATING CHART

See p 36 for additional sizing information

<table>
<thead>
<tr>
<th></th>
<th>24 X 24</th>
<th>36 X 36</th>
<th>24 X 48</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>60 x 60 x 2 cm</td>
<td>90 x 90 x 2 cm</td>
<td>60 x 120 x 2 cm</td>
</tr>
<tr>
<td></td>
<td>23.54&quot; x 23.54&quot; x 3/4&quot;</td>
<td>35.35&quot; x 35.35&quot; x 3/4&quot;</td>
<td>23.54&quot; x 47.17&quot; x 3/4&quot;</td>
</tr>
<tr>
<td>GROSS WEIGHT / BOX</td>
<td>33 kg / 72 lbs</td>
<td>37.6 kg / 82.89 lbs</td>
<td>34 kg / 74 lbs</td>
</tr>
<tr>
<td>PIECES / BOX</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>SQ FT / BOX</td>
<td>7.75</td>
<td>8.72</td>
<td>7.75</td>
</tr>
<tr>
<td>BOXES / FULL PALLET</td>
<td>30</td>
<td>18</td>
<td>35</td>
</tr>
<tr>
<td>SQ FT / PALLET</td>
<td>232.5</td>
<td>156.94</td>
<td>271.25</td>
</tr>
<tr>
<td>PALLET GROSS WEIGHT</td>
<td>980 kg / 2160 lbs</td>
<td>692 kg / 1525 lbs</td>
<td>1189 kg / 2621 lbs</td>
</tr>
</tbody>
</table>
### Estimating Chart

<table>
<thead>
<tr>
<th></th>
<th>Origin SD 01 RD</th>
<th>Spirit SD 03 RD</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 X 24</td>
<td>24 X 24</td>
<td></td>
</tr>
<tr>
<td>60 x 60 x 2 cm</td>
<td>23.54&quot; x 23.54&quot; x 3/4&quot;</td>
<td></td>
</tr>
<tr>
<td>30 x 120 x 2 cm</td>
<td>11.73&quot; x 47.17&quot; x 3/4&quot;</td>
<td></td>
</tr>
</tbody>
</table>

- **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

See p 36 for additional sizing information.
ESTIMATING CHART

<table>
<thead>
<tr>
<th>See p 36 for additional sizing information</th>
<th>24 X 24</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>60 x 60 x 2 cm</td>
</tr>
<tr>
<td></td>
<td>23.54&quot; x 23.54&quot; x 3/4&quot;</td>
</tr>
<tr>
<td>GROSS WEIGHT / BOX</td>
<td>33 kg / 72 lbs</td>
</tr>
<tr>
<td>PIECES / BOX</td>
<td>2</td>
</tr>
<tr>
<td>SQ FT / BOX</td>
<td>7.75</td>
</tr>
<tr>
<td>BOXES / FULL PALLET</td>
<td>30</td>
</tr>
<tr>
<td>SQ FT / PALLET</td>
<td>232.5</td>
</tr>
<tr>
<td>PALLET GROSS WEIGHT</td>
<td>980 kg / 2160 lbs</td>
</tr>
</tbody>
</table>
ESTIMATING CHART

See p 36 for additional sizing information

<table>
<thead>
<tr>
<th></th>
<th>24 x 24</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIZE</td>
<td>60 x 60 x 2 cm</td>
</tr>
<tr>
<td></td>
<td>23.6&quot; x 23.6&quot; x 3/4&quot;</td>
</tr>
<tr>
<td>GROSS WEIGHT / BOX</td>
<td>33 kg / 72 lbs</td>
</tr>
<tr>
<td>PIECES / BOX</td>
<td>2</td>
</tr>
<tr>
<td>SQ FT / BOX</td>
<td>7.75</td>
</tr>
<tr>
<td>BOXES / FULL PALLET</td>
<td>30</td>
</tr>
<tr>
<td>SQ FT / PALLET</td>
<td>232.5</td>
</tr>
<tr>
<td>PALLET GROSS WEIGHT</td>
<td>980 kg / 2160 lbs</td>
</tr>
</tbody>
</table>

HARMONIOUS NATURAL STRIKING

VERONA™

BLUE STONE
VR 01 ST

TAOS
VR 02 ST

YUKON
VR 03 ST

PLATINUM
VR 04 ST

24 X 24
## Porcelain Veneer

### Estimating Chart

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veneer</td>
<td>10.5 x 45 cm / 4.13&quot; x 17.72&quot;</td>
</tr>
<tr>
<td>Gross Weight / Box</td>
<td>16kg / 34.6 lbs</td>
</tr>
<tr>
<td>Pieces / Box</td>
<td>14</td>
</tr>
<tr>
<td>SQ FT / Box</td>
<td>7.10</td>
</tr>
<tr>
<td>Boxes / Full Pallet</td>
<td>55</td>
</tr>
<tr>
<td>SQ FT / Pallet</td>
<td>390.73</td>
</tr>
<tr>
<td>Pallet Gross Weight</td>
<td>862 kg / 1900 lbs</td>
</tr>
</tbody>
</table>

See p 36 for additional sizing information.
BENEFITS OF PORCELAIN PAVERS

• **STYLISH** - Porcelain takes available style options to a new level

• **DURABLE** - Incredibly high breakage loads, up to 2,200 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 $-51.1^\circ\text{F}$ to $+60^\circ\text{C}$ ($-60^\circ\text{F}$ to $+140^\circ\text{F}$).

**TO BREAKAGE**
Because every slab can withstand loads of over 2200 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.
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 1226.67º C (2240º 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 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 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.

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-bonded 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 cleaning 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)

CLEANING PRODUCTS

<table>
<thead>
<tr>
<th>TYPES OF DETERGENTS</th>
<th>SOLVENTS</th>
<th>ACIDS</th>
<th>ALKALI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where sales are permitted</td>
<td>bleeding solution, oil of turpentine, acetic, trichloroethylene, nitrate based thinner</td>
<td>muriatic acid, hydrochloric acid, phosphoric acid</td>
<td>Alkaline based detergents</td>
</tr>
<tr>
<td>BEER</td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIME</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
</tbody>
</table>
| 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 Appearance: Minimal to no difference among pieces.

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 COMPLIANT PRODUCTS:

All the slabs in this catalog can help obtain 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_5.2 Site Development-Maximize Open Space (1 Point)
By not filling the joints and using an open graded aggregate base, Belgard® porcelain products can be installed as a permeable option.

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_C_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:

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 fulfillment of conditions as set out in the Certification Agreement may render this Certificate invalid.
**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 contain 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.

**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 released 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:**
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 – 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 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 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.

**SERIES** | **PRODUCTS** | **MINIMUM RECYCLED CONTENT PRE-CONSUMER**
--- | --- | ---
ARDESIE | AD03 | > 20%
 | AD04 | > 40%
 | AD05 | > 20%
ESPRIT | EP03 | > 20%
GLOCAL | GC06 | > 60%
MASH UP | MP04 | > 20%
NAU | NA20 | > 20%
NA.ME | NE21 | > 10%
 | NE23 | > 60%
 | NE30 | > 60%
NODR | 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%
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"

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 x 598mm or 23.54" x 23.54"
With 4mm spacing added to two planes = 602 x 602mm or 23.70" x 23.70"

24" 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 1200mm 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 898 mm or 23.54" x 35.35"
With 4mm spacing added to two planes = 602 x 902 mm or 23.70" x 35.51"

12" X 24" NOMINAL SIZING
Calibrated unit cut sizing without spacing = 296 x 598 mm or 11.65" x 23.54"
With 4mm spacing added to two planes = 300 x 602 mm or 11.81" x 23.70"

16" X 48" NOMINAL SIZING
Calibrated unit cut sizing w/o spacing 398 x 1198 mm – 15.67 x 47.17"
With 4mm spacing 402 x 1202 mm – 15.83 x 47.32"

48" X 96" NOMINAL SIZING
Calibrated unit cut sizing w/o spacing 1198 x 2398 mm – 47.17 x 94.41"
With 4mm spacing 1202 x 2402 mm – 47.32 x 94.57"
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 1½ to 2% slope that it is pitched away from any building.
Ensure the plastic 4mm spacers are installed at all corners of the installed pavers.

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.

Note: Pre-compact the sand bedding course and screed to a 1" thickness with smooth surface.

Sand Bedding Course
(1" pre-compact thickness)

Compacted road base
3/4" minus road base material.
Base thickness is determined by soil and climatic conditions.
PERIPHERAL RESTRAINT SYSTEM MECHANICALLY FASTENED INTO CONCRETE BASE

Use 4mm disc spacers between all pavers and fill joints with high-performance polymeric sand.

Belgard porcelain 20mm (3/4” nominal) pavers Note: Pre-compact the sand bedding course and screed to a 1” thickness with smooth surface.

Sand Bedding Course
(1” pre-compacted thickness)

Geotextile Fabric
Installed on top of concrete and folded up the front of the edging. This is required to prevent the unwanted migration of the sand bedding course material.

Note: A concrete base with a sound surface and small cracks can be utilized as a base for paving slab construction, but a concrete base with differential settlement or movement is not acceptable.

Note: A concrete base with a sound surface and small cracks can be utilized as a base for paving slab construction, but a concrete base with differential settlement or movement is not acceptable.

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 1½ to 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.

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 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 the 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.

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.
Grass cutout areas provide peripheral paver containment.

Note: Pre-compact the sand bedding course and screed to a 1” thickness with smooth surface.

Sand Bedding Course
(1” pre-compacted thickness)

Compacted road base
3/4” minus road base material.
Base thickness is determined by soil and climatic conditions.

Belgard porcelain 20mm (3/4” nominal) pavers

Soil
Subgrade

4mm disc spacer
(with breakoff tabs for different patterns)

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.
VEHICULAR TRAFFIC

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.

Note: The concrete base for any vehicular application should be designed and approved by a licensed professional engineer, licensed in the state in which the project is located.

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.

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

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

RECOMMENDATION: Framing and flooring 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 SilcaGrate™ 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 Instructions.)

3. If you do not have ample threshold height, you must add a 2x4 cleat on each side of the floor joist.

NOTE: Maintain correct height whilefastening on joist.

4. Trim 1 ½” off the SilcaGrate™. Inlay Silca Grate™ on top of 2x4 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 ESFR 54 FR Verifies that SilcaGrate™ Meets Code Requirements.

5. Screw Silca Grate™ in place.

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

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 SILICAGRATE™ 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.

SilcaGrate™ Support Ledger Attachment for Retro-Fit Application

<table>
<thead>
<tr>
<th>Screw spacing</th>
<th>18”</th>
<th>18”</th>
<th>14”</th>
<th>13”</th>
<th>12”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screw number</td>
<td>1/8”</td>
<td>5/32”</td>
<td>3/32”</td>
<td>1/16”</td>
<td>1/16”</td>
</tr>
</tbody>
</table>
| Notes                      | 1. Screws are Fastener interfered with:
|                           | 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, steel tee, or other metal object. 2. Screws are Drilled into a ¾” thick beam, ste
PEDESTRIAN FOOT TRAFFIC
STONEDEKS - SILCA SYSTEM FOR NEW 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 SilcaGrate™ 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 building code regulations. Consult with a local building authority to ensure compliance with all applicable regulations.

It is recommended that the SilcaGrates™ 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.

3. Screw down the Silca Grates™ to the floor joists using four #8 3" deck screws per grate.

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

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

5. Treated Lumber Border – Use a wider dimension lumber for your rim joist (i.e. Use 2x12 for rim joists if your standard joists are 2x6). 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.

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

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

Maximum Joint spans "L"

<table>
<thead>
<tr>
<th>Joint size</th>
<th>3/4&quot;</th>
<th>1-1/4&quot;</th>
<th>1-1/2&quot;</th>
<th>2&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>2x6</td>
<td>6'-0&quot;</td>
<td>6'-0&quot;</td>
<td>7'-0&quot;</td>
<td>7'-0&quot;</td>
</tr>
<tr>
<td>2x8</td>
<td>11'-0&quot;</td>
<td>10'-6&quot;</td>
<td>10'-6&quot;</td>
<td>9'-0&quot;</td>
</tr>
<tr>
<td>2x10</td>
<td>13'-7&quot;</td>
<td>12'-6&quot;</td>
<td>11'-11&quot;</td>
<td>11'-4&quot;</td>
</tr>
<tr>
<td>2x12</td>
<td>16'-3&quot;</td>
<td>15'-0&quot;</td>
<td>14'-11&quot;</td>
<td>13'-4&quot;</td>
</tr>
</tbody>
</table>

SILCA SYSTEM FOR NEW CONSTRUCTION
PEDESTRIAN FOOT TRAFFIC

1" FIXED PEDESTAL INSTALLATION ON CONCRETE FLOOR

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 e_Deck pedestals. Use Westile® pedestals for 24x24, 36x36 and 18x36. For plank and modular unit installations, use e_Deck pedestals.

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

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.

Concrete base thickness and reinforcement requirements are based on traffic loading and are to be designed and constructed according to the American Concrete Institute (ACI) and Portland Cement Association (PCA) standards.

Important: Pedestal installations can be done with Westile® and e_Deck pedestals. Use Westile® pedestals for 24x24, 36x36 and 18x36. For plank and modular unit installations, use e_Deck pedestals.
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 galvanized steel back.

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.
EVO_2™ 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.

<table>
<thead>
<tr>
<th>ALUMINIUM JOISTS</th>
<th>LENGTH</th>
<th>WIDTH</th>
<th>HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3000 mm</td>
<td>70 mm</td>
<td>30 mm</td>
</tr>
<tr>
<td></td>
<td>120&quot;</td>
<td>27/4&quot;</td>
<td>11/4&quot;</td>
</tr>
</tbody>
</table>

SEALS

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

<table>
<thead>
<tr>
<th>SEALS</th>
<th>WIDTH</th>
<th>HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10 mm</td>
<td>5 mm</td>
</tr>
<tr>
<td></td>
<td>1/2&quot;</td>
<td>1/4&quot;</td>
</tr>
</tbody>
</table>

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

SPACERS

Specially designed polypropylene spacers to guarantee a 4mm gap between evo_2™ slabs.

<table>
<thead>
<tr>
<th>SPACERS</th>
<th>WIDTH</th>
<th>HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10 mm</td>
<td>5 mm</td>
</tr>
<tr>
<td></td>
<td>1/2&quot;</td>
<td>1/4&quot;</td>
</tr>
</tbody>
</table>

The spacers are supplied packed in bags in the E_DECK KIT.

KIT CONTENTS

<table>
<thead>
<tr>
<th>KIT CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALUMINIUM JOISTS</td>
</tr>
<tr>
<td>SPACERS</td>
</tr>
</tbody>
</table>

KIT PACKING DATA

<table>
<thead>
<tr>
<th>KIT PACKING DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>SURFACE / KIT</td>
</tr>
<tr>
<td>WEIGHT / KIT</td>
</tr>
<tr>
<td>KIT / PALLET</td>
</tr>
<tr>
<td>sqft / PALLET</td>
</tr>
</tbody>
</table>
**SUPPORTS**

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

<table>
<thead>
<tr>
<th>SUPPORTS</th>
<th>BASE DIAMETER</th>
<th>HEAD DIAMETER</th>
<th>HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>205 mm</td>
<td>70 mm</td>
<td>MAX 300 mm</td>
</tr>
<tr>
<td></td>
<td>8 1/4”</td>
<td>2 7/8”</td>
<td>MAX 8”</td>
</tr>
</tbody>
</table>

**ACCESSORIES**

**MUTE**

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

<table>
<thead>
<tr>
<th>MUTE</th>
<th>BASE DIAMETER</th>
<th>HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>205 mm</td>
<td>3 mm</td>
</tr>
<tr>
<td></td>
<td>8 1/4”</td>
<td>1/8”</td>
</tr>
</tbody>
</table>

**SLOPE CORRECTORS**

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

**LATERAL RERAINT**

Restraint for the slabs to use around the perimeter.

<table>
<thead>
<tr>
<th>LATERAL RESTRAINT</th>
<th>WIDTH</th>
<th>HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>32 mm</td>
<td>15 mm</td>
</tr>
<tr>
<td></td>
<td>1 1/4”</td>
<td>1/4”</td>
</tr>
</tbody>
</table>

**SLOPE CORRECTORS**

<table>
<thead>
<tr>
<th>SLOPE CORRECTORS</th>
<th>SLOPE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1% - 2% - 3% slope. Also usable combined.</td>
</tr>
</tbody>
</table>
PEDESTRIAN FOOT TRAFFIC

E_DECK: APPLICATION

30x120 cm - 12’x48” size

30x120 cm - 12’x48” / 20x120 cm - 8’x48” sizes

E_DECK: STRUCTURE TAB

<table>
<thead>
<tr>
<th>FROM 3” TO 12”</th>
<th>20x120 cm - 8’x48” (rated)</th>
<th>30x120 cm - 12’x48” (rated)</th>
<th>60x60 cm - 24’x24’ (rated)</th>
<th>45x90 cm - 18’x36’ (rated)</th>
<th>90x90 cm - 36’x36’ (rated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>e_deck structure + slab with galvanized steel sheet</td>
<td>e_deck structure + slab with galvanized steel sheet</td>
<td>e_deck structure + slab with galvanized steel sheet</td>
<td>e_deck structure + slab with galvanized steel sheet</td>
<td>e_deck structure + slab with galvanized steel sheet</td>
<td>e_deck structure + slab with galvanized steel sheet</td>
</tr>
</tbody>
</table>

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

1. 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.

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

3. Supports can be cut if necessary.
PEDESTRIAN FOOT TRAFFIC

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.
PORCELAIN VENEER INSTALLATION

CEMENT BACKER BOARD

- Mirage® Porcelain Veneer
- 254 Platinum or, MVIS Hi-Bond Veneer Mortar
- Hydro Ban® or, MVIS Air & Water Barrier
- Cement Backer Board
- Insulation
- Wood Stud

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

- Mirage® Porcelain Veneer
- 254 Platinum or, MVIS Hi-Bond Veneer Mortar
- Hydro Ban® or, MVIS Air & Water Barrier
- Concrete or CMU

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

FORTIFIED MORTAR BED (SCRATCH & BROWN)

- Mirage® Porcelain Veneer
- 254 Platinum or, MVIS Hi-Bond Veneer Mortar
- Hydro Ban® or, MVIS Air & Water Barrier
- 3701 Fortified Mortar
- MVIS Premium Mortar Bed
- Metal Lath 3.4 # Galvanized Diamond Wire
- Cleavage Membrane
- 15 lb builders felt or 4 mil polyethylene
- Steel Stud
- Insulation

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).
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 headbeading, 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] / [1.5 mm in 600 mm]) 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 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” (3 mm) 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” (3 mm) 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.

The use of the LATICRETE® Waterproofing/Anti-Fracture Fabric is recommended to pre-treat cracks, joints, curves, corners, drains, and penetrations.

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 TILES 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 VENEER 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.
VE NEER

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, of filled joints.

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.

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 (21°C). Wider joints or cooler temperatures may extend wait time. Begin initial cleaning by lightly wiping down entire area.