



**TCNA TEST REPORT NUMBER:**

**TCNA-0895-18 (Rev. 2)**

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**TEST REQUESTED BY:**

**Betsan Mosaix**

**TEST METHOD:**

**ASTM C648-04 (2014): "Standard Test Method for Breaking Strength of Ceramic Tile"**

**Informal Test Method Description:** This test method covers the determination of the breaking strength of glazed ceramic wall tile, ceramic mosaic tile, quarry tile, and paver tile. The test method consists of supporting the tile on the ends of three cylindrical rods, or on three ball bearings arranged in an equilateral triangle, and applying force at a definite rate to the center of the tile, until the specimen breaks.

**This summary is provided for the reader's convenience and is not a complete description of the method. See ASTM C648 for all method details and information.**

**TEST SUBJECT MATERIAL:**

**Identified by client as: "Betsan Mosaix"**

**Approximate Size as Received: 1" x 1" x 0.19" on mosaic sheet**

**TEST DATE:**

**10/15/2018**

**TEST PROCEDURE NOTES:**

**Sample prep: None**

**Ten (10) glazed samples were tested**

**Testing was performed on an Instron Universal Tester, model #3385-H**

**A ball bearing triangular support was used to hold the tiles during loading The tiles were loaded at a rate of 1000 pounds per minute**

**TEST RESULTS:**

|                   | Breaking Strength (lbf) |                    | Breaking Strength (lbf) |
|-------------------|-------------------------|--------------------|-------------------------|
| <b>Specimen 1</b> | <b>255 lbf</b>          | <b>Specimen 6</b>  | <b>317 lbf</b>          |
| <b>Specimen 2</b> | <b>249 lbf</b>          | <b>Specimen 7</b>  | <b>356 lbf</b>          |
| <b>Specimen 3</b> | <b>314 lbf</b>          | <b>Specimen 8</b>  | <b>277 lbf</b>          |
| <b>Specimen 4</b> | <b>278 lbf</b>          | <b>Specimen 9</b>  | <b>302 lbf</b>          |
| <b>Specimen 5</b> | <b>262 lbf</b>          | <b>Specimen 10</b> | <b>299 lbf</b>          |
|                   |                         | <b>Average</b>     | <b>291 lbf</b>          |

**COMMENTS: None**



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**TEST METHOD:** ASTM C648-04 (2014): "Standard Test Method for Breaking Strength of Ceramic Tile"

**ANSI SPECIFICATIONS\*:**

| ANSI standard                  | Tile Type                                  | Specification   |
|--------------------------------|--|---|
| ANSI A 137.1<br>(Ceramic Tile) | Mosaic Tile                                | The average breaking strength shall be 250 lbf or greater with no individual specimen below 225 lbf |
| ANSI A 137.1<br>(Ceramic Tile) | Quarry Tile                                | The average breaking strength shall be 275 lbf or greater with no individual specimen below 250 lbf |
| ANSI A 137.1<br>(Ceramic Tile) | Pressed Floor Tile                         | The average breaking strength shall be 250 lbf or greater with no individual specimen below 225 lbf |
| ANSI A 137.1<br>(Ceramic Tile) | Porcelain Tile                             | The average breaking strength shall be 275 lbf or greater with no individual specimen below 250 lbf |
| ANSI A 137.1<br>(Ceramic Tile) | Glazed Wall Tile                           | The average breaking strength shall be 125 lbf or greater with no individual specimen below 100 lbf |
| ANSI A 137.2<br>(Glass Tile)   | Fused or Low Temperature Mosaic Glass Tile | The minimum average breaking strength shall be 250 lbf  |
| ANSI A 137.2<br>(Glass Tile)   | Cast Mosaic Glass Tile                     | The minimum average breaking strength shall be 350 lbf  |

\*For more detailed information, refer to ANSI A137.1 Specifications for Ceramic Tile and ANSI A137.2 Specifications for Glass Tile

**IMAGE OF PRODUCT TESTED:**



**Report Revision Log:**

| Revision # | Date Issued | Pages | Revision                         |
|------------|-------------|-------|----------------------------------|
| 0          | 11/13/18    | 3     | Original Report Issue            |
| 1          | 7/16/20     | 3     | Revision to add the company name |
| 1          | 7/17/20     | 3     | Revision to the company name     |





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7/17/2020

