



European  
Ceramics

## TUNDRA STONE RANGE

Product Name: **TUNDRA - VARIOUS FINISHES – CROSS OR VEIN CUT**

Product Identifier: Refer to tile name and product code on paperwork/packaging

Product Description: Natural Stone Marble

Country Of Origin: Turkey

### *Building Code Obligations*

Code Clauses:

B2 – Durability

B2.3.1

C3 – Fire affecting areas beyond the  
source

D1 – Access routes

D1.3.3

E3 – Internal moisture

E3.3.2, 3.3.3, 3.3.4

G3 – Food preparation and prevention of  
contamination

G3.3.2

G6 – Airborne and Impact sound

G6.3.1



Note – this building product is not subject to a warning/ban under section 26 of the Building Act 2004

Manufacturer Details:

European Ceramics Approved

BPIR COMPLIANT

Importer Details:

European Ceramic Tiles Ltd

Address: 7A Cowley Place, Rosedale, AKL 0632

NZBN: 9429037294571

Website: [euroceramics.co.nz](http://euroceramics.co.nz)

| Scope   | Use  |
|---|--|
| B2 Durability   | See below Suitability table.   |
| C3 Fire   | The Building Code relating to fire ratings regulation and standards become mandatory from April 2013, establishing the list of products belonging to Classes A 'No Contribution to Fire' provided for in Decision 94/611/EC implementing Article 20 of Council Directive 89/106/EEC. |
| D1 Access Routes                                      | Not acceptable for use under D1/AS1  |
| E3 Internal Moisture                                  | Under E3 Tiles installed over a waterproof membrane using a nonporous Grouting system, are an acceptable solution.   |
| G3 Food Preparation and Prevention from Contamination | As an Impervious and easy to clean Surface this range complies   |
| G6 Airborne and Impact Sound                          | If required Tiles can form part of an acoustic system to comply with IIC and STC in conjunction with an approved third-party system.   |

| <b><i>Suitability *</i></b>                  | <b><i>Residential</i></b> | <b><i>Light Commercial</i></b> | <b><i>Commercial</i></b> |
|--|---------------------------|--------------------------------|--------------------------|
| Indoor Floor                                 | *                         | *                              | *                        |
| Indoor Walls                                 | *                         | *                              | *                        |
| Outdoor Cladding                             | *                         | *                              | *                        |
| Frost Resistant                              | *                         | *                              | *                        |
| Swimming Pool Submerged                      | *                         | *                              | *                        |
| Swimming Pool Surround                       | *                         | *                              | *                        |
| Paving/External                              | *                         | *                              | *                        |
| Over Underfloor Heating                      | *                         | *                              | *                        |
| Kitchen wall                                 | *                         | *                              | *                        |
| Within 1.5m of a Plumbing Fixture or Fitting | *                         | *                              | *                        |

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# Building Code References

## ***B2 – Durability***

Compliance with B2 Durability is about providing evidence that the product will meet the relevant durability life in the context of the environment in which it will be located.

The building code sets out the framework for establishing the relevant durability life of building elements based on a number of criteria. B2/AS1 provides a decision tree to establish the relevant durability for common building materials in different circumstances.

Having determined the durability life of the product, the next step is to determine if the product, when exposed to the environment, will continue to perform for the relevant period. A key tool which a product supplier can consider in claiming compliance is limiting the environment in which the product will be exposed to (e.g. a ferrous material used in an indoor environment will last longer than it would when exposed to salt spray — in this example it would be appropriate for the supplier to condition the compliance information to use only in indoor environments).

## ***C3 – Fire affecting areas beyond the source***

C3 Fire affecting areas beyond the fire source is primarily about ensuring that fire does not spread from a fire in the building (in both vertically and horizontally) and from an adjacent building.

The prime product attribute used is the fire resistance rating (FRR) methodology. In most cases a product is combined with other products to achieve a FRR (e.g. an external wall fire rating may be formed by the combination of the external cladding, thermal insulation and the internal lining).

C/AS1 and C/AS2 set out performance criteria for buildings and in particular the FRR requirements for various types of buildings and parts of buildings. Appendix C of C/AS2 sets out test methods for the building elements involved in spread of fire. Appendix B of C/AS2 sets out performance criteria for sprinkler systems while Appendix A sets out criteria for fire safety systems such as alarms and hydrants.

## ***D1 – Access routes***

For D1 access routes, in most cases product-related compliance for access routes is slip resistance for floors and the shapes/locations etc of handrails. The Acceptable Solution for access D1/AS1 and NZS 4121:2001 provide good information on compliance for products on access routes.

## ***E3 – Internal Moisture***

E3 Internal Moisture is about ensuring that moisture created within the building does not lead to mould or create damage to adjacent buildings or structural elements in the building in which it is installed.

Prevention of the creation of mould is a combination of temperature, insulation and ventilation. Prevention of water damaging other building elements is mainly about installation details (i.e. sealing joints) as well as impervious products. E3/AS1 provides some useful design details, albeit without much product material information.

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### G3 – Food preparation and prevention of contamination

G3 Food preparation and prevention from contamination for a product (such as a kitchen bench) is mainly associated with being easily cleaned and impervious. G3/AS1 provides some general design details for food preparation areas but has no referenced product standards, although the document does state some acceptable materials used for surfaces. Compliance with G3/AS1 is not mandatory but provides a good benchmark for compliance.

### G6 – Airborne and Impact Sound

For a product, G6 Airborne and impact sound is generally about systems which are designed to work together to achieve the necessary sound attenuation.

The code itself at G6.3.2 sets a quantifiable performance level: “The Sound Transmission Class of walls, floors and ceilings, shall be no less than 55” and G6.3.2 sets the impact insulation class of floors shall be no less than 55. The Acceptable Solution G6/AS1 sets out the transmission and impact insulation class of common wall systems. G6/VM1 sets out test methodologies where the details do not match those of G6/AS1.

## Technical Information

Please contact European Ceramics in regards to specific technical information in regards to this product for your specific project.

| PHYSICAL AND MECHANICAL PROPERTIES          |               |                                    |               |                                     |              |
|---|---------------|------------------------------------|---------------|-------------------------------------|--------------|
|   | Metric System |                                    | SI System     |                                     | Standard     |
| Hardness                                    | Mohs          | 3.5 – 4                            | Mohs          | 3.5 – 4                             | TS 6809      |
| Bulk Specific Gravity                       |               |                                    |               |                                     |              |
|   | Dry           | g/cm <sup>3</sup>                  | 2.699 ± 0.015 | kg/m <sup>3</sup>                   | 2699 ± 15    |
|   | Saturated     | g/cm <sup>3</sup>                  | 2.746 ± 0.012 | kg/m <sup>3</sup>                   | 2746 ± 12    |
| Density                                     |               | g/cm <sup>3</sup>                  | 2.843 ± 0.012 | kg/m <sup>3</sup>                   | 2843 ± 12    |
| Water Abs. at Atm. Press.                   |               |                                    |               |                                     |              |
|   | by Volume     | %                                  | 4.734 ± 0.39  | %                                   | 4.734 ± 0.39 |
|   | by Weight     | %                                  | 1.755 ± 0.15  | %                                   | 1.755 ± 0.15 |
| Effective Porosity                          |               | %                                  | 4.734         | %                                   | 4.734        |
| Real Porosity                               |               | %                                  | 5.07          | %                                   | 5.07         |
| Fullness Ratio                              |               | %                                  | 94.93         | %                                   | 94.93        |
| Water absorption coefficient by capillarity |               | g/m <sup>2</sup> .s <sup>0.5</sup> | 29.17 ± 6.59  | g/m <sup>2</sup> .s <sup>0.5</sup>  | 29.17 ± 6.59 |
| Compressive Strength                        |               | kg/cm <sup>2</sup>                 | 925 ± 40      | MPa                                 | 90.7 ± 3.9   |
| Flexural Strength Under Concentrated Load   |               | kg/cm <sup>2</sup>                 | 58 ± 5        | MPa                                 | 5.7 ± 0.5    |
| Abrasion Strength (Method-B/Bohme)          |               | cm <sup>3</sup> /50cm <sup>2</sup> | 18.4 ± 0.9    | cm <sup>3</sup> /50 cm <sup>2</sup> | 18.4 ± 0.9   |
| P-Wave Velocity                             |               | m/s                                | 2366 ± 199    | m/s                                 | 2366 ± 199   |

| CHEMICAL ANALYSIS (TS EN 15309) |   |       |
|---------------------------------|---|-------|
| CaO                             | % | 42.58 |
| MgO                             | % | 14.55 |
| Fe <sub>2</sub> O <sub>3</sub>  | % | 0.05  |
| SiO <sub>2</sub>                | % | 0.22  |
| Al <sub>2</sub> O <sub>3</sub>  | % | 0.05  |
| Na <sub>2</sub> O               | % | 0.14  |
| K <sub>2</sub> O                | % | 0.001 |



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## Fire Resistance

The building code relating to fire rating regulations and standards requires specifiers to provide documentation such as fire certificates for materials used in construction.

Ceramics are in itself a fire-resistant material, mostly being manufactured at over 1200 degrees Celsius. Testing and providing such certification are therefore not relevant to the Ceramics industry.

Ceramic and Porcelain tiles are an inert material, and therefore non-combustible. They do not release fumes or toxic gases in the event of a fire. Porcelain tiles contain no sealants, waxes or other chemicals that could release VOC's into the environment. Ceramics do not pose a risk of spreading or intensifying a fire therefore there is no testing required as they do not contribute to a fire.

### **EXTRAORDINARY EFFECTS DURING USE PHASE:**

**Fire:** According to /EN 13501-1:2007+A1:2009/, ceramic tiles can be classified as A1 class of fire resistance rating, because they do not contribute to fire.

It has been demonstrated that the coating of the ceramic tiles, in case of fire, reduces heat on them and thus the risk of collapse.

**Water:** Ceramic tiles cannot react with water because they are an insoluble material.

**For further information on the physio-characteristics of fire resistance for tiles please refer to the Technical Documents section on [euroceramics.co.nz](http://euroceramics.co.nz)**

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