



Donegal  
Quartzite

## Technical Data Sheet

### Donegal Quartzite

Larcybrack Quarry, Ireland

Larcybrack Quarry, Glencolumbkille, Co. Donegal, Eire

Contact : McMonicle & Sons

Tel. 00353 073 35061 Fax. 00353 073 35408

Grid reference : -- --

Compiled May 2000

This data sheet was compiled by the Building Research Establishment (BRE). It is based on data from current tests at BRE (2000). The data sheet was compiled in May 2000. The work was carried out by BRE as part of a Partners in Technology Programme funded by the Department of the Environment, Transport and the Regions and McMonicle & Sons and does not represent an endorsement of the stone by BRE.

### General

The Donegal quartzite is highly laminated and extracted from outcrops approximately 5 m high. Occasional blocks are encountered 1 x 3 x 1 m (1m on bed). The material is mainly worked for paving and decorative cladding panels up to 1.5 m<sup>2</sup> and 0.15 m thick. There are good reserves of material.

### Petrography

Donegal Quartzite is of Carboniferous Age and is a pale buff/grey with iron staining on the natural faces.

### Expected Durability and Performance

It is important that the results from the individual tests are not viewed in isolation. They should be considered together and compared to the performance of the stone in existing buildings and other uses. Quartzite is traditionally acknowledged as generally being a very durable building and paving stone and has been used extensively in many towns and cities in the UK and abroad. Donegal Quartzite appears to be a very durable stone that will have excellent resistance to acid rain or air pollution. In addition, the negligible weight loss in the sodium sulphate crystallisation test and the saturated sodium sulphate crystallisation test indicates high resistance to salt damage (for example in coastal locations or from de-icing salts). From the frost test the stone should also have good frost resistance. The flexural strength of the stone is high in comparison with many sandstones. The density and flexural strength indicate that the stone should be suitable for use in heavily trafficked areas. The slip value is lower than many sandstones.

Overall, Donegal Quartzite should be suitable for use in many aspects of construction including flooring, paving, load bearing masonry and cladding. The stone is suitable for areas where a long service life is needed. The stone is hard to work and is generally used for paving. In this context special consideration is required for areas where there is a risk of the stone becoming polished and thus lowering the slip value.

### Test Results – Donegal Quartzite

<b>Safety in Use</b>		
Slip Resistance <sup>(Note 1)</sup>	55	Wet. Values > 40 are considered safe.
Abrasion Resistance <sup>(Note 1)</sup>	Not Tested	Values <23.0 are considered suitable for use in heavily trafficked areas
<b>Strength under load</b>		
1) Compression <sup>(Note 2)</sup>	Not Tested	Loaded perpendicular to the bedding plane ambient humidity
2) Bending <sup>(Note 1)</sup>	16.3 MPa	Loaded perpendicular to the bedding

		plane ambient humidity
	Not Tested	Loaded parallel to the bedding plane ambient humidity
<b>Porosity and Water Absorption</b>		
1) Porosity <sup>(Note 3)</sup>	1.4%	
2) Saturation Coefficient <sup>(Note 3)</sup>	0.79	
3) Water Absorption	0.4 % (by wt)	
4) Bulk specific gravity	2625kg/m <sup>3</sup>	
<b>Resistance to Frost</b>		
Flexural strength after Freeze/Thaw Test <sup>(Note 1)</sup>	Not Tested	Loaded perpendicular to the bedding plane ambient humidity

<b>Resistance to Salt</b>		
Sodium Sulphate Crystallisation Test (Note 3)	-0.08% Mean wt loss	
Sodium Sulphate Crystallisation Test (Note 3) (Saturated)	0.0% Mean wt loss	
<b>Resistance to Acidity</b>		
Acid Immersion (Note 4)	Pass	

(Test methods Note 1 = EN1341, Note 2 = EN 1342, Note 3 = EN 1341 /BRE 141, Note 4 = BRE 141)

Tests were carried out at BRE in 1997. N.D. = not determined