Green Purbeck Marble

Technical Data Sheet
Green Purbeck Marble
Quarr Farm Quarry
Corfe Castle, Dorset
Contact : St.Aldhelm's Quarry
Tel. 01929 439 217 Fax. 01929 439 215
email: haysom@purbeckstone.co.uk
website : www.purbeckstone.co.uk
Grid Reference: SY9798 6796
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This data sheet was compiled by the Building Research Establishment (BRE). Where possible, data collected in earlier surveys has been used to help interpret the test results. The data sheet was compiled in March 2000 using the results of tests carried out to the proposed European Standards. 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 W.J.Haysom and Son and does not represent an endorsement of the stone by BRE.

General

The mine at Quarr farm was worked some years ago and the extracted marble was then stored. The stone is used for architectural details, paving, flooring and sculpture. The depth on bed of the Green marble is around 250mm. The maximum size quarried is 2000 x 1000 x 2500mm. It is believed that the quarry is now virtually exhausted and so the stock is the main source of the stone.

Petrography

The stone worked at the mine was taken from the top 'freshwater limestone' beds of the Jurassic age. The stone is very dense and takes a polish and as a result it is known as a 'marble'. Signifiacnt amounts of clay can be found within the stone. The stone is a greenish colour with many paladina and unio shells.

Expected Durability and Performance

It is important that the results from the sodium sulphate crystallisation tests are not viewed in isolation. They should be considered with the results from the porosity and water absorption tests and the performance of the stone in existing buildings. Stone from this area is traditionally used as architectural details (for example columns) and paving. The crystallisation test results show the stone to be Class A which BRE Report 141 suggest is suitable for most uses and that it should have good resistance to both salt and frost. Records show that over very long periods some deterioration can occur as a result of the expansion of the clay minerals. Based on current research it seems likely that the stone would

weather at a rate of between 1 and 2 mm per 100 years but it could be greater in severe exposures or on the edges of stonework. The strength is at the top end of the range for limestones.

Test Results – Green Purbeck Marble (Quarr Farm)

Safety in Use		
Slip Resistance (Note 1)	N.D.	Values > 40 are considered safe. Note: Polished surfaces are usually around 15-20 when wet.
Abrasion Resistance (Note 1)	20.9	Values <23.0 are considered suitable for use in heavily trafficked areas
Strength under load		
1) Compression(Note 2)	145.7 MPa	Loaded perpendicular to the bedding plane ambient humidity
2) Bending (Note 1)	18.7 MPa	Loaded perpendicular to the bedding plane ambient humidity

	N.D.	Loaded parallel to the bedding plane ambient humidity
Porosity and Water Absorption		
1) Porosity (Note 3)	1.12%	
2) Saturation Coefficient (Note 3)	1.13	Values greater than 1.0 can be recorded due to the measurement errors when the porosity is very low
3) Water Absorption	0.46% (by wt)	
4) Bulk specific gravity	2705kg/m^3	
Resistance to Frost		
Freeze/Thaw Test (Note 1)	N.D.	
Resistance to Salt		

Sodium Sulphate Crystallisation Test (Note 3)	-0.03% Mean wt loss	

(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