



— Purbeck Cap
Limestone

Technical Data Sheet

Purbeck Cap Limestone

Belle Vue Quarry

Swanage, Dorset

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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

Belle Vue Quarry is closer to Swanage than the St.Aldhelm's Quarry. The stone is used for walling, door and window surrounds, paving and many other uses. The depth on bed of the Cap is around 600mm but it is usually around 600mm. The maximum size quarried is 2000 x 1000 x 600mm. There are very good reserves.

Petrography

The stone worked at the quarry is Purbeck-Portland Limestone from the Portland Beds of Jurassic age. The stone varies in colour with the Cap being a fine grained grey/buff stone with black chert nodules.

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 walling, door and window surrounds, flooring, paving and many other uses. The crystallisation test results show the stone to be Class A which BRE Report 141 suggest is suitable for all uses and that it should have good resistance to both salt and frost. 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 very top end of the range for limestones.

Test Results – Purbeck Cap Limestone (Belle Vue Quarry)

Safety in Use		
Slip Resistance ^(Note 1)	35	Values > 40 are considered safe
Abrasion Resistance ^(Note 1)	22.5	Values <23.0 are considered suitable for use in heavily trafficked areas
Strength under load		
1) Compression ^(Note 2)	207.5 MPa	Loaded perpendicular to the bedding plane ambient humidity
2) Bending ^(Note 1)	23.1 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)	3.8%	
2) Saturation Coefficient ^(Note 3)	0.92	
3) Water Absorption	1.34% (by wt)	
4) Bulk specific gravity	2590g/m ³	
Resistance to Frost		
Freeze/Thaw Test ^(Note 1)	N.D.	
Resistance to Salt		
Sodium Sulphate Crystallisation Test ^(Note 3)	-0.28% 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