



— Doddington
Sandstone

Technical Data Sheet

Doddington Sandstone

Doddington Quarry, near Wooler, Northumberland

Stainton Quarry, Barnard Castle, Durham, DL12 8RB

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Grid Reference : - - - -

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This data sheet was compiled by the Building Research Establishment (BRE)., The data sheet was compiled in November 1997 and updated in June 2000 using BRE test results and data collected in earlier surveys. 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 Natural Stone Products Ltd and does not represent an endorsement of the stone by BRE.

General

The quarry is near the golf course in the village of Doddington between Wooler and Berwick-upon-Tweed. It has been worked regularly since at least 1950 and probably for more than 150 years before this. There are also old workings nearby. It has good reserves of stone.

Petrography

Doddington sandstone is from the Fell Sandstone Group of the Carboniferous Limestone. It is a fine- to medium-grained stone, speckled, light to deep purplish pink in colour with occasional rust coloured markings. Stone can be obtained from three or four different faces each 9 – 12m deep with about 6m of overburden. It is generally supplied at depths of 1.2m on bed.

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. Sandstones from the Carboniferous series are traditionally acknowledged as generally being a very durable building and paving stone and have been used extensively in many towns and cities in the UK. Doddington sandstone appears to be a durable stone that is not effected by acid rain or air pollution. The very low weight lost in the harsh saturated sodium sulphate crystallisation test indicates good resistance to salt damage in very severe environments (for example in coastal locations or from de-icing salts) but the most recent tests showed a large weight loss perhaps indicating variability in the stone; the results suggest that the stone would have good frost resistance. The compressive strength of the stone is typical of the range for sandstone. The

flexural strength is towards the lower end of the range for sandstones and if used for paving then the units may need to be thicker than those for some other sandstones. The abrasion resistance is comparable with many paving stones and should be suitable for use in heavily trafficked areas.

Overall, should be suitable for use in most aspects of construction including flooring, paving, load bearing masonry and cladding.

Test Results – Doddington Sandstone

Safety in Use		
Slip Resistance ^(Note 1)	wet: 78	Values > 40 are considered safe.
Abrasion Resistance ^(Note 1)	23.2	Values <23.0 are considered suitable for use in heavily trafficked areas
Strength under load		
1) Compression ^(Note 2)	51.3 – 58.2 MPa	Loaded perpendicular to the bedding plane ambient humidity
2) Bending ^(Note 1)	3.4 MPa	Loaded perpendicular to the bedding plane ambient humidity

Porosity and Water Absorption		
1) Porosity ^(Note 3)	14.8%	(1996 data)
	21.1%	(1986 data)
2) Saturation Coefficient ^(Note 3)	0.62 – 0.65	
3) Water Absorption (at atmospheric pressure)	4.3 – 5.2% (by wt)	
4) Bulk specific gravity	2201 – 2135kg/m ³	
Resistance to Frost		
Freeze/Thaw Test ^(Note 1)	Not determined	
Resistance to Salt		
Sodium Sulphate Crystallisation Test ^(Note 14) (saturated test)	90% Mean wt loss	(1996 data)

	2% Mean wt loss	(1986 data)
Resistance to Acidity		
Acid Immersion Test ^(Note 4)	Pass	All samples passed the test with no splitting or delamination

(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