Baxtonlaw Sandstone

Technical Data Sheet
Baxtonlaw Sandstone
Baxtonlaw Quarry, Co. Durham
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Compiled September 1997, updated June 2000

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 September 1997 and updated in June 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 Dunhouse Quarry Co. Ltd and does not represent an endorsement of the stone by BRE.

General
The quarry located at Hunstandworth, Weardale.

Petrography
The stone is a pale-cream yellow sandstone from the Millstone Grit Series (Carboniferous). The stone is formed from fine quartz grains of even texture. The grain size is consistently less than 0.2mm and no large grain, pores or flaws were seen in the sample. The bedding planes are closely spaced (<15mm) and delineated by darker minerals of the same grain size. The mineralogy is dominanted by quartz and white mica. There is some secondary orange-brown iron staining that cross-cuts the bedding.

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 Millstone Grit 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. Baxtonlaw sandstone appears to be a very durable stone that is not effected by acid rain or air pollution. The low weight lost in the harsh saturated sodium

sulphate crystallisation test indicates good resistance to salt damage (for example in coastal locations or from de-icing salts) and the stone seems to have good frost resistance. The strength of the stone is comparable with other sandstones. The abrasion resistance is comparable with hard wearing limestones and with some York paving stones and should be suitable for use in heavily trafficked areas.

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

Test Results – Test Results – Baxtonlaw Sandstone

Safety in Use		
Slip Resistance (Note 1)	Wet 73	Values > 40 are considered safe.
Abrasion Resistance (Note 1)	22.0	Values <23.0 are considered suitable for use in heavily trafficked areas
Strength under load		
1) Compression(Note 2)	123 MPa	Loaded perpendicular to the bedding plane ambient humidity
2) Bending (Note 1)	21.1-24.9 MPa	Loaded perpendicular to the

		bedding plane ambient humidity
Porosity and Water Absorption		
1) Porosity (Note 3)	14.8%	
2) Saturation Coefficient (Note 3)	0.65	
3) Water Absorption	4.3 % (by wt)	
4) Bulk specific gravity	2268kg/m^3	
Resistance to Frost		
Freeze/Thaw Test (Note 1)		The samples showed no evidence of damage after 120 test cycles
Resistance to Salt		
Sodium Sulphate Crystallisation Test (Note 14) (Saturated)	10.0% Mean wt loss	

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, Note 5 = Based on earlier BRE data)

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