



Dukes Gritstone

Technical Data Sheet

Dukes Gritstone

Dukes Quarry, Whatstandwell, Derbyshire

Bolehill Quarry, Wingerworth, Derbyshire, S42 6RG

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Grid reference : -- --

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General

The quarry is near the town of Whatstandwell in Derbyshire. The quarry has been producing stone since the early part of the 19th century and it has been used in buildings since at least 1825

Petrography

Dukes Gritstone is a Millstone Grit of Carboniferous age. It is a medium-grained stone, pink/lilac in colour with iron, black and buff markings. The average block size is 1400mm x 900mm 700mm.

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. Carboniferous Sandstones 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. Dukes Gritstone appears to be a durable stone that is not effected by acid rain or air pollution and like most sandstones it is expected have good frost resistance. The compressive strength of the stone is typical of the range for sandstones and is comparable with the stronger UK limestones.

Overall, Dukes Gritstone should be suitable for use in most aspects of load bearing masonry and cladding.

Test Results – Dukes Gritstone

<p>Safety in Use</p>		
<p>Slip Resistance ^(Note 1)</p>	<p>Not determined</p>	<p>Values > 40 are considered safe.</p>
<p>Abrasion Resistance ^(Note 1)</p>	<p>Not determined</p>	<p>Values <23.0 are considered suitable for use in heavily trafficked areas</p>
<p>Strength under load</p>		
<p>1) Compression^(Note 2)</p>	<p>74.9 MPa</p>	<p>Loaded perpendicular to the bedding plane ambient humidity</p>
<p>1) Compression^(Note 5)</p>	<p>39 – 50 MPa</p>	<p>Dry. Loaded perpendicular to the bedding</p>
<p>2) Bending ^(Note 1)</p>	<p>8.7 MPa</p>	<p>Loaded perpendicular to the bedding plane ambient humidity</p>

	4.8 MPa	Loaded parallel to the bedding plane ambient humidity
Porosity and Water Absorption		
1) Porosity ^(Note 3)	14.11%	
2) Saturation Coefficient ^(Note 3)	0.67	
3) Water Absorption	4.18 % (by wt)	
4) Bulk specific gravity	2269kg/m ³	
Resistance to Frost		
Freeze/Thaw Test ^(Note 1)	Not determined	
Resistance to Salt		
Sodium Sulphate Crystallisation Test ^(Note 3)	3.13% 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)

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