



Hillhouse Edge Sandstone

Technical Data Sheet

Hillhouse Edge Sandstone

Hill House Edge Quarry

George Grahams Sons & Co, Hillhouse Edge Quarries

Cartworth Moor, Holmfirth, Nr Huddesfield, W Yorkshire, HD7 1RL.

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General

The quarry was first worked in 1897 and there are good reserves of stone. There is 4.5 m of overburden above a 1.2 face yielding 0.1 – 0.125 m thick material with beds giving 0.6 – 0.9 m of material below this. The maximum block size is about 3 x 1.5 x 0.9 m, 0.9m on bed.

Petrography

Hillhouse edge is a hard york stone from the Millstone Grit of the Carboniferous age. It is fine to medium grained and fawn in colour with some brown speckling.

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. Sandstone is traditionally acknowledged as generally being a very durable building and paving stone and has been used extensively in many towns and cities in the UK. Hillhouse Edge sandstone appears to be a durable stone that will have good resistance to acid rain or air pollution. In addition, the negligible weight loss in the sodium sulphate crystallisation test indicates good resistance to salt damage under normal conditions. The higher weight loss in the harsher saturated sodium sulphate crystallisation test indicates that some care is required in more aggressive conditions (for example in coastal locations or from de-icing salts). From the frost test the stone should also have good frost resistance. The compressive and flexural strength of the stone is mid-range for a sandstone and is comparable

with many sandstones. The density and compressive strength indicate that the stone should be suitable for use in moderate to heavily trafficked areas.

Overall, Hillhouse Edge should be suitable for use in most aspects of construction including flooring, paving, load bearing masonry and cladding. Special consideration is required for areas where a long service life is needed in harsh salty environments.

Test Results – Hillhouse Edge

Safety in Use		
Slip Resistance ^(Note 1)	73	Wet. Values > 40 are considered safe.
Abrasion Resistance ^(Note 1)	Not tested	Values <23.0 are considered suitable for use in heavily trafficked areas
Strength under load		
1) Compression ^(Note 2)	124.7 MPa	Loaded perpendicular to the bedding plane ambient humidity
2) Bending ^(Note 1)	13.7 MPa	Loaded perpendicular to the bedding plane ambient humidity

	12.6 MPa	Loaded parallel to the bedding plane ambient humidity
Porosity and Water Absorption		
1) Porosity ^(Note 3)	11.5%	
2) Saturation Coefficient ^(Note 3)	0.66	
3) Water Absorption	3.2% (by wt)	
4) Bulk specific gravity	2371kg/m ³	
Resistance to Frost		
Flexural strength after Freeze/Thaw Test ^(Note 1)	13.0 MPa	Loaded perpendicular to the bedding plane ambient humidity
Resistance to Salt		
Sodium Sulphate Crystallisation Test ^(Note 3)	-1.13% Mean wt loss	

Sodium Sulphate Crystallisation Test (Note 3) (saturated)	51% Mean wt loss	
Resistance to Acidity		
Acid Immersion Test ^(Note 4)	Pass	

(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