Grinshill Sandstone

Technical Data Sheet
Grinshill Sandstone
Grinshill Stone Quarry
Clive, Near Shrewsbury, Shropshire, SY4 3LF
Contact : Grinshill Quarries
Tel: 01939 220522 Fax: 01939 220285
Grid reference : —- —-
Compiled October 1997, updated June 2000

This data sheet was compiled by the Building Research Establishment (BRE)., The data sheet was compiled in October 1997and updated in June 2000 using 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 Grinshill Stone Quarries and does not represent an endorsement of the stone by BRE.

General

The quarry is between Clive and Preston Brocklehurst in Shropshire. Stone has been quarried in the area since Roman times. This particular quarry has been worked since 1923 and there is a plentiful supply of stone.

Petrography

Grinshill is from the New Red Sandstone of Triassic age. It is a fine-grained stone, cream and buff in colour. Below about 1m of overburden there are 6m of a hard white flagstone used for crazy paving. There are then 27m of building stone. This is generally supplied in depths of about 1m on bed although the total depth of each bed can be up to 3m. Large blocks are obtainable.

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 New Red Sandstone 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. Grinshill sandstone appears to be a durable stone that is not effected by acid rain or air pollution. The high weight lost in the harsh saturated sodium sulphate crystallisation test indicates some susceptibility to salt damage (for example in coastal locations or from de-icing salts); the stone is expected to have good frost resistance. The compressive strength of the stone is towards the lower end of the range but is comparable with limestone.

Overall, Grinshill should be suitable for use in most aspects of load bearing masonry and cladding but should not be used in areas where a long service life is needed in locations with a high salt concentrations.

Test Results – Grinshill Sandstone

Safety in Use		
Slip Resistance (Note 1)	Not determined	Values > 40 are considered safe.
Abrasion Resistance (Note 1)	Not determined	Values <23.0 are considered suitable for use in heavily trafficked areas
Strength under load		
1) Compression(Note 2)	38 MPa	– test conditions not given
2) Bending (Note 1)	Not determined	Loaded perpendicular to the bedding plane ambient humidity
Porosity and Water Absorption		

1) Porosity (Note 3)	21.5 – 25.8%	
2) Saturation Coefficient (Note 3)	0.65 – 0.70	
3) Water Absorption	Not determined	
4) Bulk specific gravity	2055 – 2086kg/m^3	
Resistance to Frost		
Freeze/Thaw Test (Note 1)	Not determined	
Resistance to Salt		
Sodium Sulphate Crystallisation Test (Note 14) (saturated)	Mean: 55-90% (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