



Wroxton
Limestone

Technical Data Sheet

Wroxton Limestone

Horton Grounds Quarry

Alkerton, Nr Banbury, Oxon

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Grid Reference: SP 385 428

Compiled January 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 January 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 the Peter Bennie Ltd and does not represent an endorsement of the stone by BRE.

General

The quarry is at Alkerton which is north-west of Banbury. The entrance to the quarry is 90metres off the A422 close to the Oxfordshire County Council Amenities Site. The quarry has been worked since 1918 mainly for iron ore and roadstone. There are plenty of reserves. The stone is used mainly as random walling for housing and is usually processed by axing or by guillotining. The depth of the face is 10m. The average depth of the stone on bed is 600mm although blocks of nearly 1m are available .

Petrography

Wroxton Stone is from the Middle Lias division of Jurassic age. The stone is greenish-blue or brown or can be a combination of all of these colours.

Expected Durability and Performance

It is important that the results from the sodium sulphate crystallisation tests are not viewed in isolation. They should be considered with the results from the porosity and water absorption tests and the performance of the stone in existing buildings. Stone from this area is traditionally used in random walling and in riven or guillotined blocks. The crystallisation test results show the stone to be Class A which BRE Report 141 suggest is suitable for all uses and that it should have good resistance to both salt and frost. Based on current research it seems likely that the stone would weather at a rate of between 1 and 2 mm per 100 years but it could be greater in severe exposures or on the edges of stonework or in areas where spalling of the riven face occurs. The strength is towards the lower end of

the range for limestones but the performance should be satisfactory if the relevant British Standards are followed.

The abrasion resistance is moderate and so the stone should not be used in heavily trafficked areas.

Test Results – Wroxton Limestone

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|---|----------|--|
| Safety in Use | | |
| Slip Resistance ^(Note 1) | N.D. | Values > 40 are considered safe. |
| Abrasion Resistance ^(Note 1) | N.D. | Values <23.0 are considered suitable for use in heavily trafficked areas |
| Strength under load | | |
| 1) Compression ^(Note 2) | 36.0 MPa | Loaded perpendicular to the bedding plane ambient humidity |
| 2) Bending ^(Note 1) | N.D. | Loaded perpendicular to the bedding plane ambient humidity |

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|--|-----------------------|---|
| | N.D. | Loaded parallel to the bedding plane ambient humidity |
| Porosity and Water Absorption | | |
| 1) Porosity ^(Note 3) | 28.2% | |
| 2) Saturation Coefficient ^(Note 3) | 0.71 | |
| 3) Water Absorption | 9.29 % (by wt) | |
| 4) Bulk specific gravity | 2173kg/m ³ | |
| Resistance to Frost | | |
| Freeze/Thaw Test ^(Note 1) | N.D. | |
| Resistance to Salt | | |
| Sodium Sulphate Crystallisation Test ^(Note 3) | -1.95% Mean wt loss | |

(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