



Ancaster
Limestone
Weatherbed

Technical Data Sheet

Ancaster Limestone Weatherbed

Blockstone Ltd

Near Quarry Farm, Ancaster, Lincs

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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 1999 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 Blockstone Ltd and does not represent an endorsement of the stone by BRE.

General

The quarry is south of the village of Ancaster off the B6403 on the road to Wilsford and Barkston Heath Airfield (GR SK 991 409). The stone was worked by both the Romans and the Saxons. The present quarry is surrounded by old workings.

Petrography

Ancaster Stone is an oolitic limestone from the Lincolnshire Limestone formation of middle Jurassic age. Traditionally, three beds of stone have been worked from beneath around 5-10m of overburden the Weather Bed, Hard White and Freestone. The Freestone was not included in the current project.

The Weatherbed is a warm-brown coloured shelly stone. The depth of this bed is around 2m with individual quarry blocks around 2000mm x 1200mm x 600mm on bed. The stone from the bottom of the bed can be very shelly and takes an excellent polish.

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 Ancaster has been used for many years in a wide range of

locations but there always seems to have been a careful selection of stone from different beds for individual projects.

The porosity indicates a quite dense stone that will have good resistance to weathering. The sodium sulphate crystallisation result also indicates that the stone will have some resistance to salt damage and that it will perform well in all but the most exposed locations where it may require some extra protection or careful design and detailing to shed water. The strength is towards the upper end of the range for limestones and so the performance should be good.

The abrasion resistance is medium and so the stone should be suitable for all areas except those that will be heavily trafficked, for example railway stations.

Test Results Ancaster limestone-Weatherbed

Safety in Use		
Slip Resistance ^(Note 1)	23-52	(Depending on the colour and finish) Values > 40 are considered safe
Abrasion Resistance ^(Note 1)	24.2 25.6	Values <23.0 are considered suitable for use in heavily trafficked areas
Strength under load		
1) Compression ^(Note 2)	65.6 MPa	Loaded perpendicular to the

		bedding plane ambient humidity
2) Bending ^(Note 1)	9.5MPa	Loaded perpendicular to the bedding plane ambient humidity
	5.0 MPa	Loaded parallel to the bedding plane ambient humidity
Porosity and Water Absorption		
1) Porosity ^(Note 3 and 5)	10.0%	
2) Saturation Coefficient ^(Note 3)	0.84	
3) Water Absorption	N.D. % (by wt)	
4) Bulk specific gravity	N.D.g/m ³	
Resistance to Frost		

Freeze/Thaw Test ^(Note 1)	N.D.	
Resistance to Salt		
Sodium Sulphate Crystallisation Test ^(Note 3)	20.90% Mean wt loss	

(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