



# Salterwath Limestone

## Technical Data Sheet

### Salterwath Limestone

Pickering Quarry, Crosby Ravensworth near Penrith

Compiled September 1997

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 1997 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 and Cumbria Stone Quarries Ltd and does not represent an endorsement of the stone by BRE.

### General

The quarry is about 3 miles north-west of Orton off the B6261. There are old quarries nearby and also areas for future expansion.

### Petrography

Salterwath Stone is fine grained limestone of early Carboniferous age. Dark blue when newly quarried, it weathers to a pale grey when used externally. It is dense and easily takes a polish which gives a rich chocolate brown shade. There are six beds of stone under approximately 3.5m of overburden in a long working face. Blocks over 2m long can be obtained with the average depth of stone on bed around 350mm.

### 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. Dense Carboniferous limestones 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. Salterwath limestone appears to be a durable stone that will have good resistance to acid rain or air pollution. In addition, the low weight loss in the sodium sulphate crystallisation test indicates good resistance to salt damage (for example in coastal locations or from de-icing salts); the stone should also have good frost resistance. The compressive strength of the stone is high for a limestone and is comparable with many sandstones. The high density and compressive strength indicate that the stone should be suitable for use in heavily trafficked areas.

Overall, should be suitable for use in most aspects of construction including flooring, paving, load bearing masonry and cladding including areas where a long service life is needed.

## Test Results- Salterwath Limestone

<b>Safety in Use</b>		
Slip Resistance <sup>(Note 1)</sup>	Not Determined	Values > 40 are considered safe
Abrasion Resistance <sup>(Note 1)</sup>	Not Determined	Values <23.0 are considered suitable for use in heavily trafficked areas
<b>Strength under load</b>		
1) Compression <sup>(Note 2)</sup>	102 MPa	Conditions of testing not known
2) Bending <sup>(Note 1)</sup>	Not Determined	Loaded perpendicular to the bedding – ambient humidity
<b>Porosity and Water Absorption</b>		
1) Porosity <sup>(Note 3)</sup>	0.4 – 4.7%	
2) Saturation Coefficient <sup>(Note 3)</sup>	0.85 – 1.00	

3) Water Absorption	0.2% (by wt)	
4) Bulk specific gravity	2687 kg/m <sup>3</sup>	
<b>Resistance to Frost</b>		
Freeze/Thaw Test <sup>(Note 1)</sup>	Not Determined	
<b>Resistance to Salt</b>		
Sodium Sulphate Crystallisation Test <sup>(Note 14)</sup>	Mean: 0%	

(Test methods Note 1 = prEn1341, Note 2 = prEN 1342, Note 3 = prEn 1341 /BRE 141, Note 4 = BRE 141)

Tests were carried out at BRE in 1997, data from earlier surveys has also been included)