

Technical Data Sheet

Dunhouse Sandstone (Buff)

General

This quarry, near Darlington, has been worked since the early 1900s and has been in the hands of the present owners since 1933. There are good reserves of stone as the quarry has been extended into adjoining fields. Stone is extracted from a single face of 9 to 15m in depth beneath overburden of about 6.5m. The maximum depth of stone on bed is 1.8m, the average being 1.4m.

Petrography

Dunhouse is from the Millstone Grit of Carboniferous age. It is a fine-grained non-clacareous, slightly micaceous, generally buff coloured sandstone. Geologically it is classified as a meso-micro crystalline arenite.

Expected Durability and Performance

It is important that the results from the from 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 from the Millstone Grit 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. Dunhouse Buff sandstone appears to be a durable stone that is not effected by acid rain or air pollution. The weight loss in the sodium sulphate crystallisation test indicates modest resistance to salt damage but the high weight loss in the harsher saturated sodium sulphate test indicates susceptibility to salt damage in harsh environments (for example in coastal locations or from de-icing salts. The stone seems to have moderate frost resistance. The strength of the stone is towards the lower third of the range for sandstone but is similar to the stronger limestones. The abrasion resistance for Buff is quite low and the stone may wear if used in heavily trafficked areas.

Overall, Dunhouse Buff should be suitable for use in most aspects of construction including flooring, load bearing masonry and cladding. It should not be used in areas when a long service life is needed in a location where high salt concentrations are expected, or for flooring in heavily trafficked areas. It is not used for paving, sets or veneers.

Test Results - Dunhouse - Buff

Safety in Use		
Slip Resistance ^(Note 1)	82 (79 - 82 range)	Wet Values > 40 are considered safe.
Abrasion Resistance ^(Note 1)	26.9	Values <23.0 are considered suitable for use in heavily trafficked areas
Strength under load		
1) Compression ^(Note 2)	84.1 MPa	Loaded perpendicular to the bedding plane ambient humidity
2) Bending ^(Note 1)	6.8 MPa	Loaded perpendicular to the bedding plane ambient humidity
	Not Tested	Loaded perpendicular to the bedding plane ambient humidity
Porosity and Water Absorption		
1) Porosity ^(Note 3)	17.0% (16 - 18 range)	

2) Saturation Coefficient (Note 3)	0.61 (0.61 - 0.68 range)	
3) Water Absorption	4.7 % (by wt) (4.4 - 5.2 range)	
4) Bulk specific gravity	2202kg/m ³ (2180 - 2202 range)	
Resistance to Frost		
Flexural strength after Freeze/Thaw Test (Note 1)	6.0 MPa	
Resistance to Salt		
Sodium Sulphate Crystallisation Test (Note 3)	1.89% Mean wt loss	
Sodium Sulphate Crystallisation Test (Note 14)	84 - 89% 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)