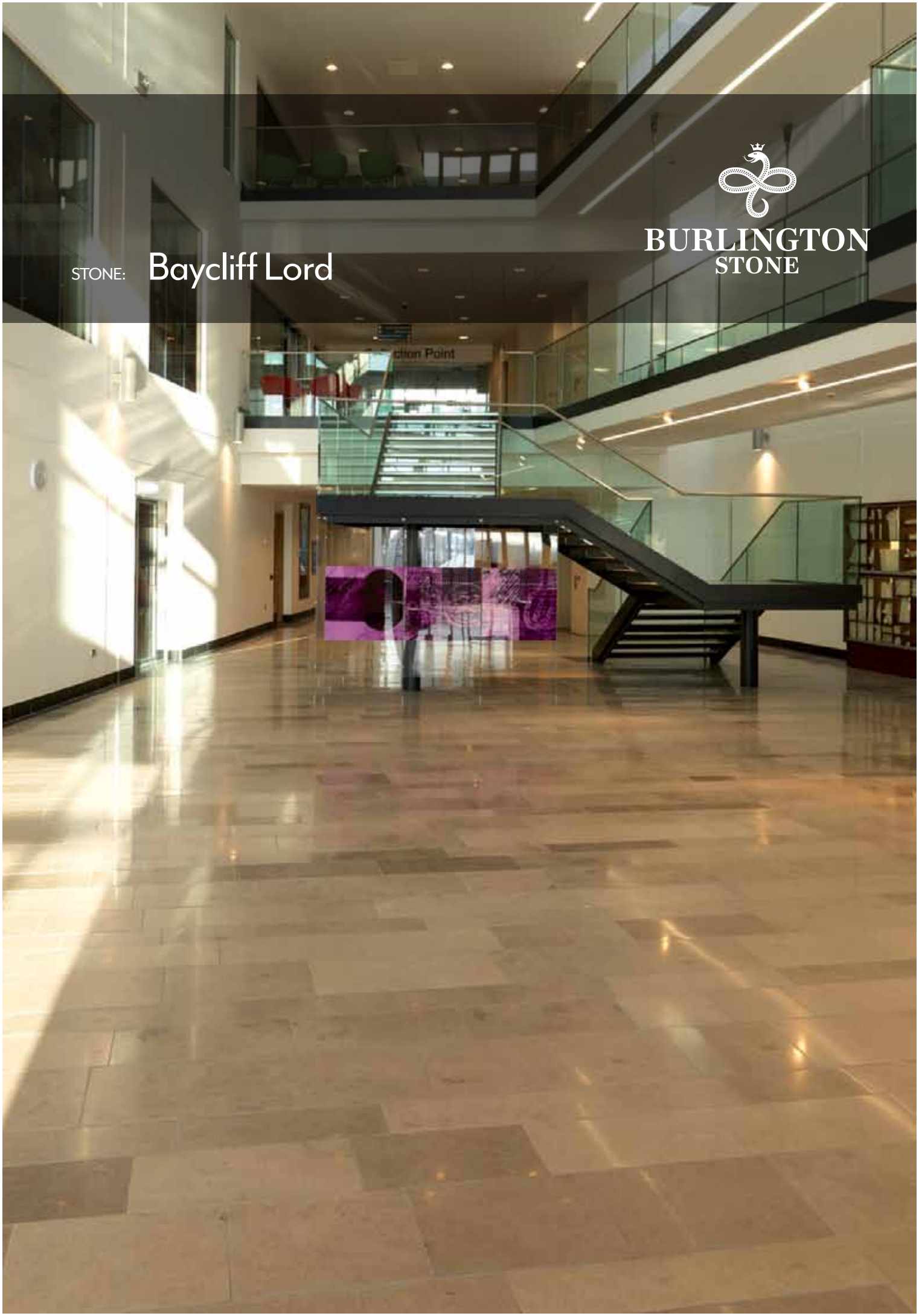


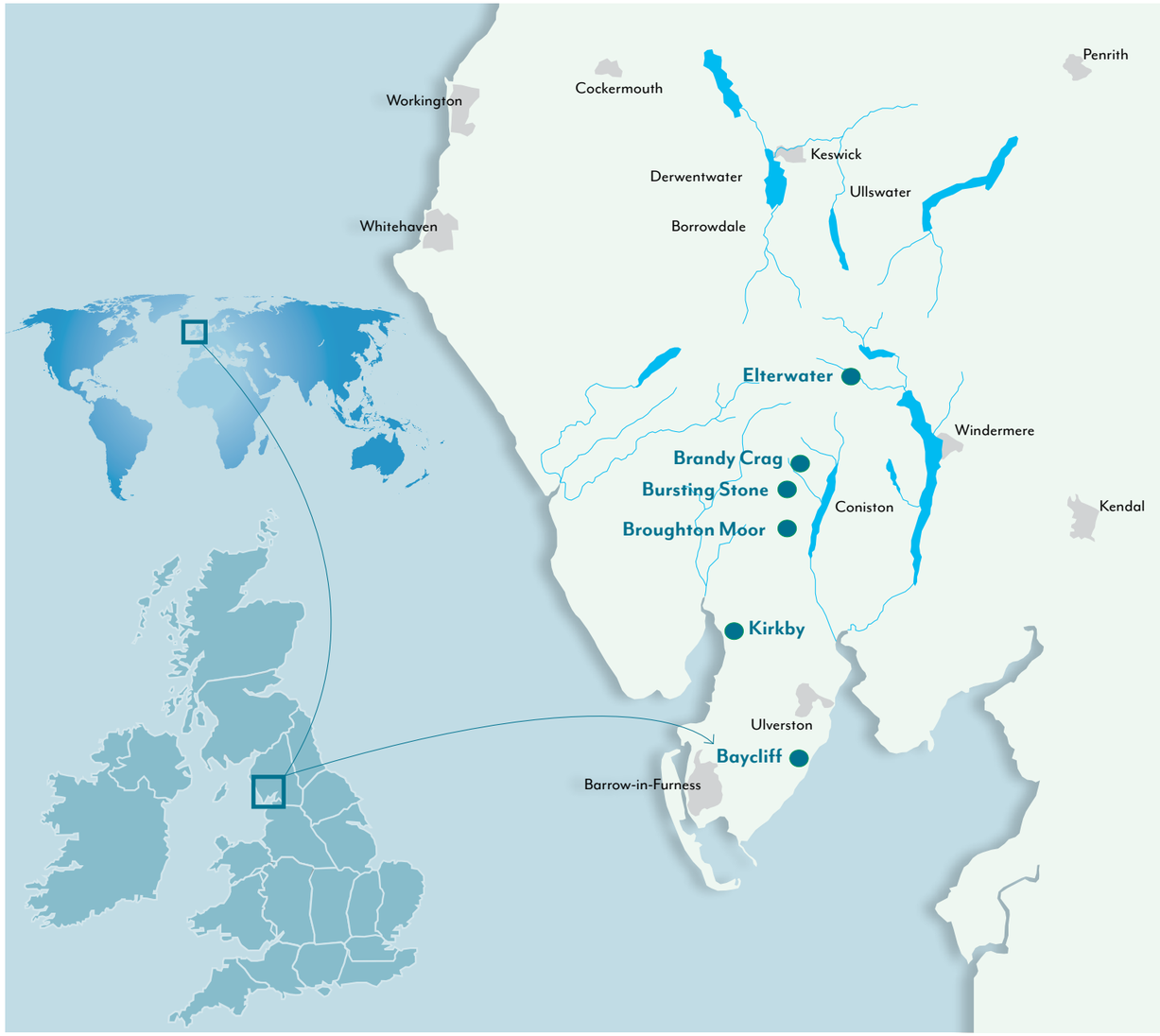
BURLINGTON
STONE

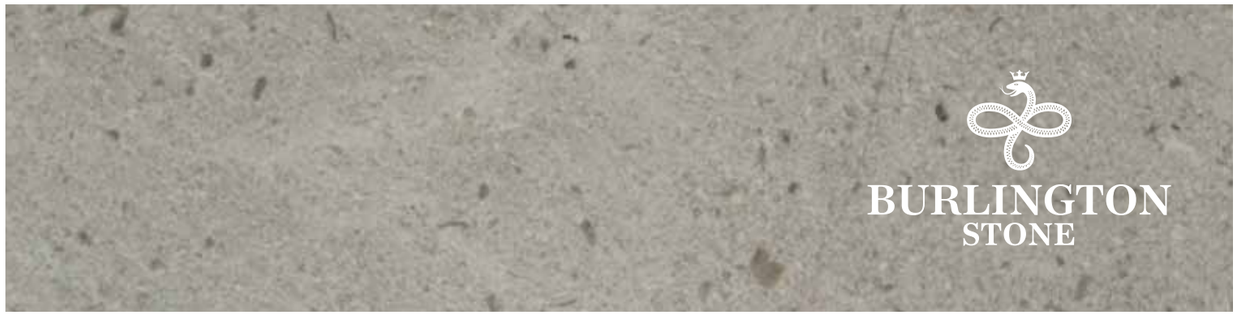
STONE: Baycliff Lord

Baycliff Lord

The Baycliff quarry is situated on the outskirts of the historic market town of Ulverston and was formed in the Carboniferous period over 250 million years ago. Baycliff is one of the hardest and most durable limestones available for use in construction.

Baycliff Lord is an oatmeal coloured limestone with dark cream markings, well suited for specification in attractive paving and flooring schemes, and for use in landscaping designs.





The benefits of Burlington Natural Stone

Burlington Stone is one of the finest most durable stones in the world. Due to the outstanding technical properties of the natural stone, it is a material that is extremely practical, hard wearing and easy to clean and maintain. The character and natural beauty inherent within Burlington's stone allows it to be used for both internal and external applications, for example, flooring, external and decorative wall cladding and swimming pools.

Dense and durable
Colour-fast
Chemically inert
Stain resistant
Non combustible

Reasons to use Burlington Stone

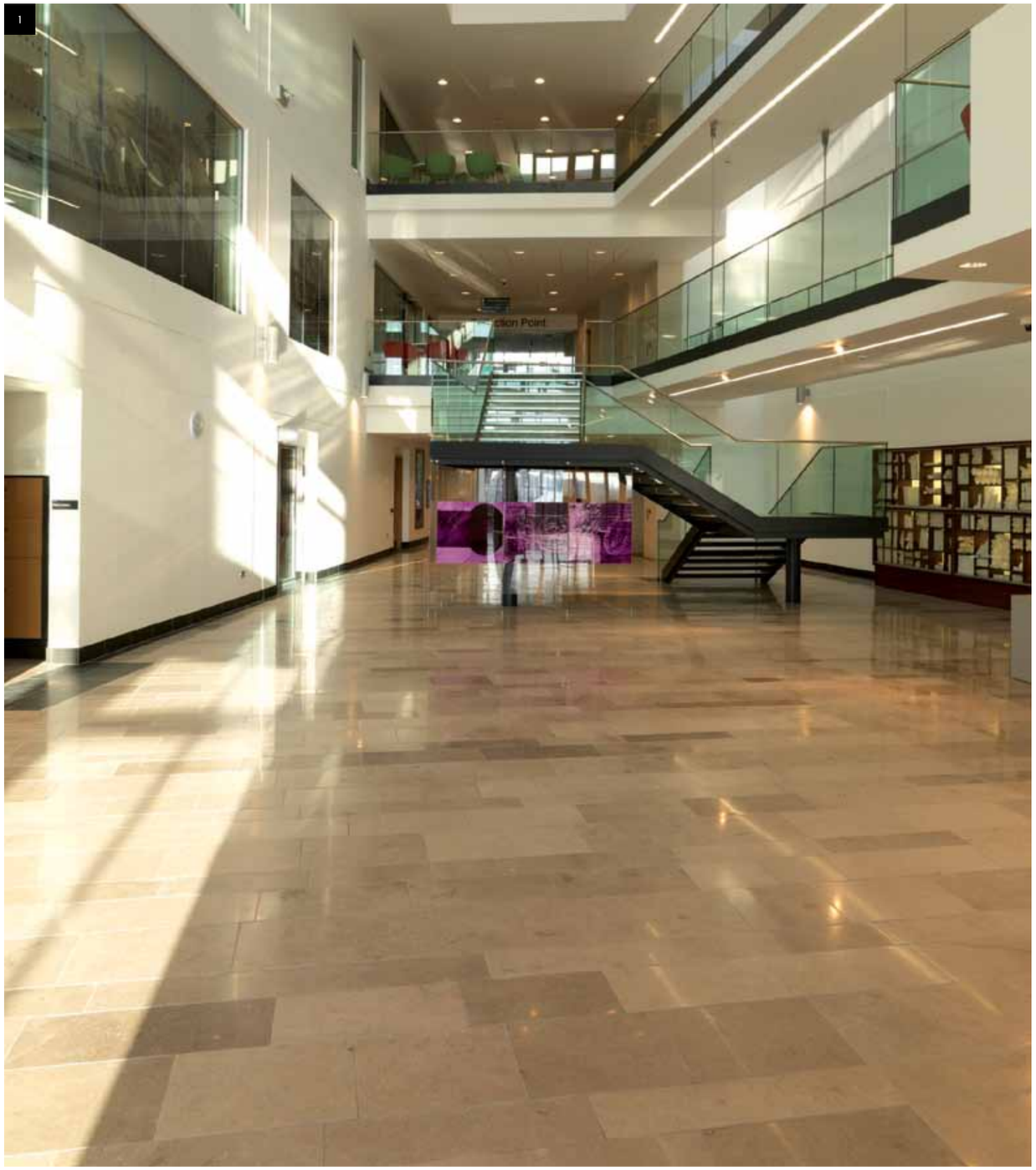
- Low maintenance costs
- Low water absorption
- Tried and Tested - Established 1843
- A British family owned business with long traditions and values
- Certified to ISO14001 and aiming to utilise 100% of the rock extracted
- Harvested rain water used in the production
- Aesthetic beauty of the stone
- Work closely with the BRE and The National Parks Authority
- International pedigree of landmark bespoke projects
- High performance characteristics, suitable for both internal and external use in construction projects.

Baycliff Lord

Cover image: Public Records Office - Belfast.

1. Baycliff Lord limestone flooring.
2. Baycliff Caulfeild and Lord mixed random length bands.
3. Floor using Baycliff Lord polished limestone with Caulfeild flame finish. Bath panels built using Baycliff Lord honed finish.

1



2

3

4. Cube house in Baycliff Lord honed finish tiles to internal floor with terrace in Baycliff Lord.
5. Baycliff limestone cropped walling and honed coping.
6. Baycliff Caulfeild and Baycliff Lord limestone flooring.
7. Vanity unit in Baycliff Lord.

Inside Back Cover: Cube house in Baycliff Lord honed finish tiles to internal floor with terrace in Baycliff Lord.

Baycliff Lord


BayL 02


BayL 03


BayL 04


BayL 07


BayL 08


BayL 09


BayL 12


BayL 13


BayL 14


BayL 17


BayL 18


BayL 19

NOTE: The colours shown are indicative only and would encompass the colour variations available from our stocked range of products. For any bespoke requirements, the customer can determine their specific needs for the project and product choices can be made after reference to detailed samples. The uniqueness of Burlington natural stone means colour tone and markings can change as a consequence of its extraction from different stone seams and the finish carried out to its surface.

GRITBLASTED: A high-pressure airline projects coarse-grained abrasives, giving a regular non slip finish.

HONED: A smooth finish with a slight sheen, produced by using a polishing head.

POLISHED: A smooth high gloss finish, produced by using a polishing head. For limestone only.

SANDED: The top surfaces of sawn slabs are coarsely diamond sanded to produce a non slip finish.

Echoing the depth and diversity of Burlington's natural stone colour palette and product offering is the range of smooth and textured finishes that can be specified. Indeed it is the combination of such USPs that makes Burlington a unique proposition on the global stage. With each finish having its own place subject to its applied environment, specifiers and homeowners can choose from:

NOTE: The colours shown are indicative only and would encompass the colour variations available from our stocked range of products. For any bespoke requirements, the customer can determine their specific needs for the project and product choices can be made after reference to detailed samples. The uniqueness of Burlington natural stone means colour tone and markings can change as a consequence of its extraction from different stone seams and the finish carried out to its surface.

Delivering Environmental Sustainability

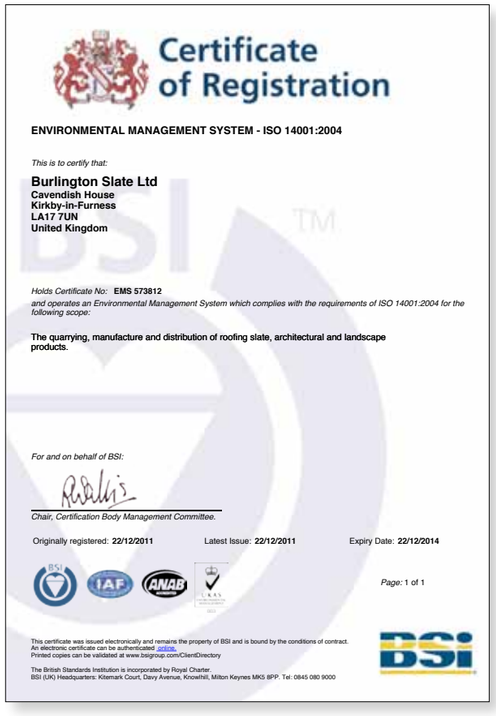
Burlington is certified to
ISO 14001 Management Systems

BS EN 12326-1
KM 10333

ISO 14001
EMS 573812

003

Burlington Stone seeks to encourage and implement a range of practises that actively minimise the impact on the surrounding environment from its quarrying operations, and endeavours to extend its waste management techniques to maintain a sustainable industry for the future.



Certificate of Registration

ENVIRONMENTAL MANAGEMENT SYSTEM - ISO 14001:2004

This is to certify that:

Burlington Slate Ltd
Cavendish House
Kirkby-in-Furness
LA17 7UN
United Kingdom

Holds Certificate No: **EMS 573812**
and operates an Environmental Management System which complies with the requirements of ISO 14001:2004 for the following scope:

The quarrying, manufacture and distribution of roofing slate, architectural and landscape products.

For and on behalf of BSI:

Chair, Certification Body Management Committee.

Originally registered: **22/12/2011** Latest Issue: **22/12/2011** Expiry Date: **22/12/2014**

Page: 1 of 1

This certificate was issued electronically and remains the property of BSI and is bound by the conditions of contract.
An electronic certificate can be authenticated online.
Printed copies can be validated at www.bsigroup.com/ClientDirectory

The British Standards Institution is incorporated by Royal Charter.
BSI (UK) Headquarters: Kitemark Court, Davy Avenue, Knowlhill, Milton Keynes MK5 8PP. Tel: 0845 080 9000

- Do not pollute environment
- No harmful chemicals
- Simple processes
- Recycle
- Friendly extraction techniques
- Active by-products from the production process itself
- Quarry restoration
- Low impact on nature

breeam

Delivering Environmental Sustainability

BURLINGTON STONE

SUSTAINABILITY

In recent years more and more of the waste slate has been used to produce Burlington's secondary products. These include slate mulch for paths and gardens, water features, paving, lintels etc. and even the material from years ago is recycled to produce 'weathered' walling stone - a product which is very popular when repairing or matching of old walls is required. These initiatives have led to all the waste from one particular quarry being used.

The production processes use water from private reservoirs; this water is then recycled using a filter press and the clean water returned to the machines.

Two quarries have Waste Exemption licences enabling the importation of soils and sub-soils for landscaping work. This also involves the use of leaves obtained from the local authorities that sweep the Lakeland roads each year between October and January. This material is allowed to compost for two to three years before being used for landscaping.

LANDSCAPE IMPACT & RESTORATION

At Baycliff Lord quarry an 80 hectare tree planting scheme has been carried out under the Woodland Challenge Fund. This incorporates several species of native woodland including alder, juniper, sessile oak, rowan and birch. A new footpath linked to a small car park by wooden walkways is open to the public and not only will this scheme mature with time, it will also serve as a screen for the quarrying operations.

Two of Burlington's quarries are bounded by Sites of Special Scientific Interest; the one at Kirkby because of the heather moorland and at Elterwater for the oak woodland and its associated lichens and mosses. In the case of Elterwater quarry a program of rhododendron eradication is under way to prevent this invasive plant from spreading into the SSSI. Other potential problems identified by Natural England such as Himalayan Balsam and Japanese Knotweed are regularly treated each year wherever they occur.

CARBON REDUCTION

Producing any kind of dimensional stone has high energy requirements. At Burlington's main production plant the large stone-working machinery is regulated by modern control-gear designed to reduce start-up loads and consequently cut down the overall electrical usage.

Quarry and road-going vehicles are replaced on a regular basis (wherever possible to Tier III standard) to ensure that emission levels are kept to a minimum. Because personnel are drawn from a wide area (mainly within the National Park), transport is provided for the majority of the workforce. This, in turn, reduces the number of vehicles visiting the site each day. By providing a source of aggregate material in the central area of the Park, the 'mineral miles' and therefore carbon emissions associated with importing other stone are reduced.

ROCK EXTRACTION

All of Burlington's quarries use the same method of extraction which involves the use of diamond wire saws. This technique was originally pioneered in the Italian marble industry and ensures that the rock is 'released' from the face in as gentle a way as possible by undercutting the entire section of rock prior to splitting it into manageable sizes. Gunpowder is used for this because of its low velocity of detonation and therefore minimal effect on the rock.

If you require any further detailed information, please contact us on:
+44 (0)1229 889 665 in the UK or (972) 985 9182 in the USA.

This data sheet describes Baycliff limestone which is quarried in Cumbria. Baycliff limestone is an attractive stone with rich natural markings. It is a versatile material, used by architects and designers to create distinctive, durable floors and interior fittings of great character. Baycliff limestone is well suited for specification in attractive paving schemes and for use in landscaping designs.

SUMMARY OF KEY TECHNICAL DATA:

PETROGRAFIC ANALYSIS	Limestone, Bioclastic. Early Cambrian age.
FLEXURAL STRENGTH*	9-13 mPa
HONED SLIP RESISTANCE	50 SRV
ABSORPTION	0.45%
ABRASION RESISTANCE	22.5 MAV

* NOTE: Flexural strength is dependant on a suitable bed.

DESCRIPTION

SHA PE AN D SI ZE: Baycliff limestone is extracted using modern diamond wire cutting technology, then cut to the specified size and shape using a combination of computer controlled machinery and traditional craftsmanship. Waste material from the extraction process is crushed and supplied as aggregate.

SURFAC E CHARACT ERISTICS :

The quarry beds produce two distinct stones: Lord, an oatmeal coloured stone with dark cream markings which is available in a honed finish, and Caulfield, a buff stone with light coffee mottling which is available in honed and flame textured finishes.

DENSITY : 2647 kg/m3.

Performance characteristics

STR UCT URAL AN D MECHANICAL : Baycliff limestone has high abrasion resistance, compressive strength and modulus of elasticity (see Table 1). Baycliff limestone also has good slip resistance (see Table 2), making it suitable for flooring and exterior paving.

FIR E: Baycliff limestone is non-combustible.

GAS ES AN D LI QUIDS:

Baycliff limestone has goodweather resistance (see Table 3): it is has a low porosity, a good resistance to salt and is unaffected by common chemicals, making it suitable for all except the most exposed conditions.

BIOLO GICAL : Baycliff limestone will not rot, does not encourage growth of mosses or lichens and is not liable to insect or vermin attack; it is compatible with most other building materials.

TH ERMAL : The thermal conductivity of the material is approximately 2.0 W/mK; it is dimensionally stable, with a thermal coefficient of expansion of approximately 10 x 10-6.

Handling & Storage

Baycliff limestone is a dense, heavy material; vehicular access should be provided to a storage area close to the point of installation.

Take care on site to prevent damage to the material: when not crated it should be stacked on edge on timber bearers and protected with building paper or plastic sheeting.

Baycliff limestone is an inert material and inherently safe if handled with due caution:

- Safe lifting techniques should always be used.
- Protective clothing should be worn to avoid cuts from sharp edges.
- Wear eye protection when machining, drilling or cutting.
- Dust arising from dry machining contains silica, which can be a long-term health hazard if inhaled in significant quantities for extended periods: use a suitable dust mask.

MAINTENANCE

When correctly detailed and fixed, Baycliff limestone is a naturally durable material which requires very little maintenance. Guidance on the maintenance of natural stone is given in BS 8221-1:2000: 'Code of practice for cleaning and surface repair of buildings. Cleaning of natural stones, brick, terracotta and concrete'.

Remove marks and spills with a damp cloth; use white spirit for stubborn residues. Smooth finishes can be buffed with a nylon scrubbing pad to restore shine.

Textured surfaces tend to retain more dust: vacuum clean if necessary; remove all traces of dirty water after cleaning and buff with a medium-stiff brush.

Baycliff limestone can be treated with surface impregnation to repel grease: contact Burlington for advice if this technique is being considered.

REFERENCES

Visitors are welcome to view completed applications of Burlington stone at our Cumbria offices.

For up-to-date news and information on the worldwide use of Burlington stone and Burlington slate for commercial, domestic and landscaping applications, visit our web site: www.burlingtonstone.com

Table 1 Structural properties

Property		Test method	Typical value
Abrasion resistance (mm)*		BS EN 14157:2004	22.5 (intensive)
Compressive strength perpendicular (MPa)		BS EN 1926:1999	
Mean	Dry		121.44
	Wet		106.40
Lowest expected	Dry		106.35
	Wet		98.87
Flexural strength 3-point perpendicular (MPa)		BS EN 12372:1999	
Mean	Dry		11.61
	Wet		11.50
Lowest expected	Dry		8.86
	Wet		9.90
Flexural strength 4-point perpendicular (MPa)		BS EN 131361:2001	
Mean	Dry		9.83
	Wet		8.85
Lowest expected	Dry		6.61
	Wet		6.63

*BRE 1P10/00 proposes guidance on the interpretation of wide wheel abrasion results. The guidance values presented are as follows:

Abrasion resistance value	Suggested usage
< 23	Intensive (e.g. shopping malls)
23 - 30	Moderate (e.g. office buildings)
> 30	Individual (e.g. houses)

Table 2 Potential for slip

Finish	Orientation	Surface roughness R_z µm	Average slip resistance value* Dry	Wet
Honed	A	5.2	51	26
	180° to A		50	26

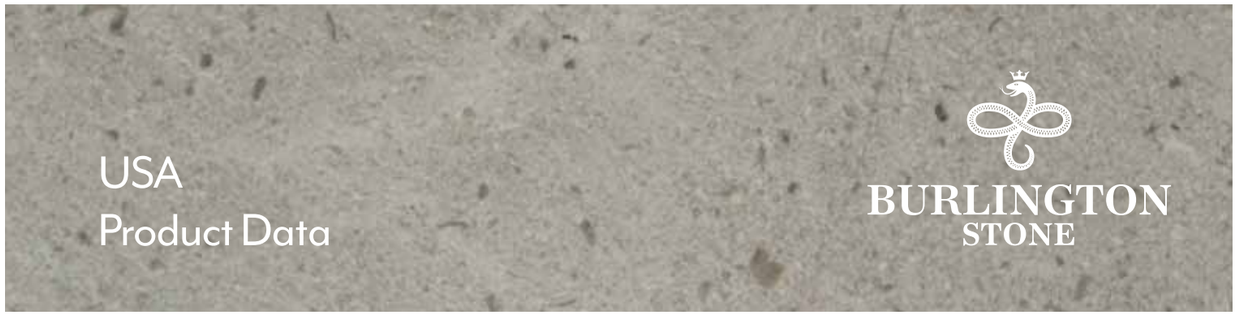
*Test carried out to BS EN 14231: 2003 using a pendulum tester and Four S rubber slider developed by RAPRA Technology Ltd.

Potential for slip	Pendulum value
high	≤ 25
moderate	25 - 35
low	35 - 65
extremely low	> 65

Table 3 Gases and liquids

Property		Test method	Typical value
Water absorption (%)		BS EN 13755:2002	0.45
Open porosity (%)		BS EN 1936:1999	1.69
Porosity (%)		BR 141:1989	1.82
Saturation coefficient		BR 141:1989	0.67
Freeze-thaw (MPa) Flexural strength after 50 cycles		BS EN 12371:2001 (conditioning) BS EN 12372:1999 (testing)	
Mean	Dry		7.04
	Wet		6.76
Lowest expected	Dry		2.33
	Wet		1.20
Salt crystallisation (%) Average weight loss 15 cycles		BS EN 12370:1999	1.68

Tests carried out by Sandberg Consulting Engineers. Report reference: 28556/G/6.



GENERAL REQUIREMENTS:
The stone should have characteristics equal to or better than the following:

Absorption (C97)	0.70%
Density (C97)	2,625kg/m^3 (164lb/ft^3)
Compressive Strength (C170)	137MPa (19,984psi)
Modulus of Rupture (C120)	10MPa (1,501psi)
Abrasion Resistance (C241)	10.90

Samples, prices and conditions of sale will be supplied on request. We will gladly provide you with current details of availability and lead times and will be happy to provide firm quotations for individual projects on the basis of drawings and/or Bills of Quantities.

TECHNICAL SUPPORT
We are always happy to provide technical advice on the specification of Burlington stone for new build or refurbishment projects.

We offer in-depth project consultation and a wide range of support services including:

- a technical advice line: call (972) 985 9182.
- estimating;
- computer-aided detailing;
- copies of relevant test results;
- a range of printed technical support material;
- product samples;
- help and advice on meeting national building regulations.

REFERENCES
For up-to-date news and information on the worldwide use of Burlington stone and Burlington slate for commercial, domestic and landscaping applications, visit our web site: www.burlingtonstone.com

INFORMATION
The information on this sheet is for guide purposes only: please contact your local representative for current information. The sizes shown are preferred maximum sizes and are not available in large quantities. Thicker section material is available. This stone is suitable for paving and interior applications such as flooring, cladding, sills, benches and counters. It is only suitable for exterior cladding where it is not going to be subjected to continuous freeze/thaw cycling or many continuous days below freezing.

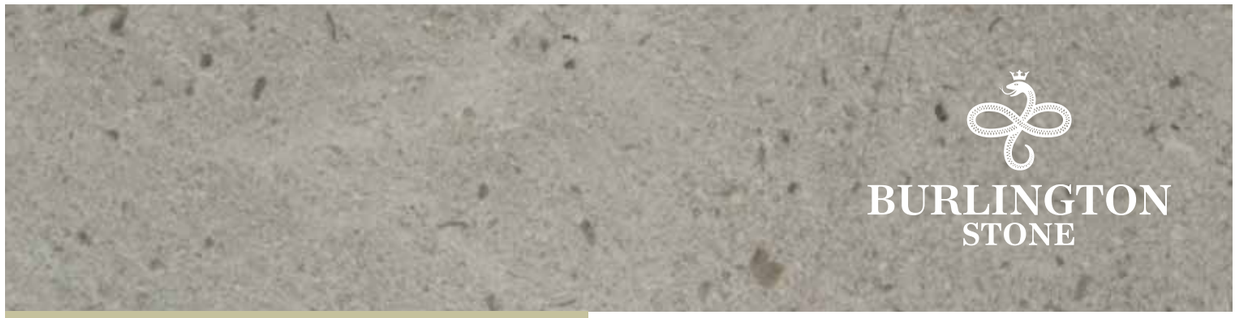
The Baycliff Limestone is extracted from two distinct beds (Caulfeild and Lord) and comparison of the density and water absorption results shows that the index parameters of the stones are very similar. The stone is suitable for reception desks, credenzas and the like but not for kitchen worktops.

HONED / SANDED

	19/32"	3/4"	1"	1 1/4"
Flooring	24" x 16"	36" x 24"	48" x 26"	48" x 26"
Cladding etc	24" x 16"	36" x 24"	48" x 26"	48" x 26"
Counters*	NA	60" x 24"	60" x 24"	60" x 26"

GRITBLASTED

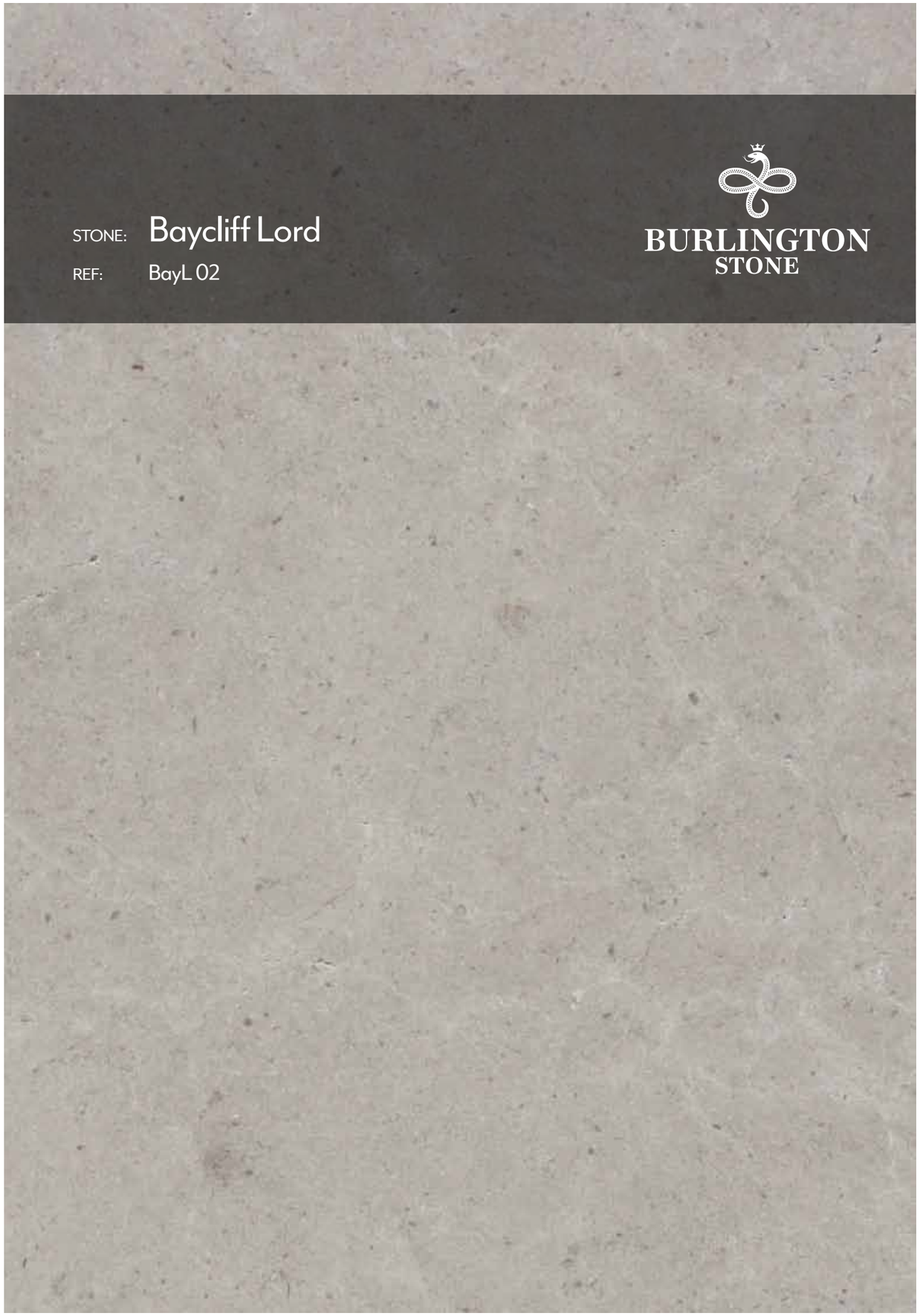
	19/32"	3/4"	1"	1 1/4"
Flooring	24" x 16"	36" x 24"	48" x 26"	48" x 26"
Cladding etc	24" x 16"	36" x 24"	48" x 26"	48" x 26"
Counters*	NA	60" x 24"	60" x 24"	60" x 26"



Baycliff Lord

The following pages show the colour variations available from our stocked range of products. For any bespoke requirements, the customer can determine their specific needs for the project and product choices can be made after reference to detailed samples. The uniqueness of Burlington natural stone means colour tone and markings can change as a consequence of its extraction from different stone seams and the finish carried out to its surface.

The colours shown are indicative only. Tile, cladding, worktops or any specific product choices should be made after reference to specific samples.



STONE: Baycliff Lord

REF: BayL 03

BURLINGTON STONE

STONE: Baycliff Lord

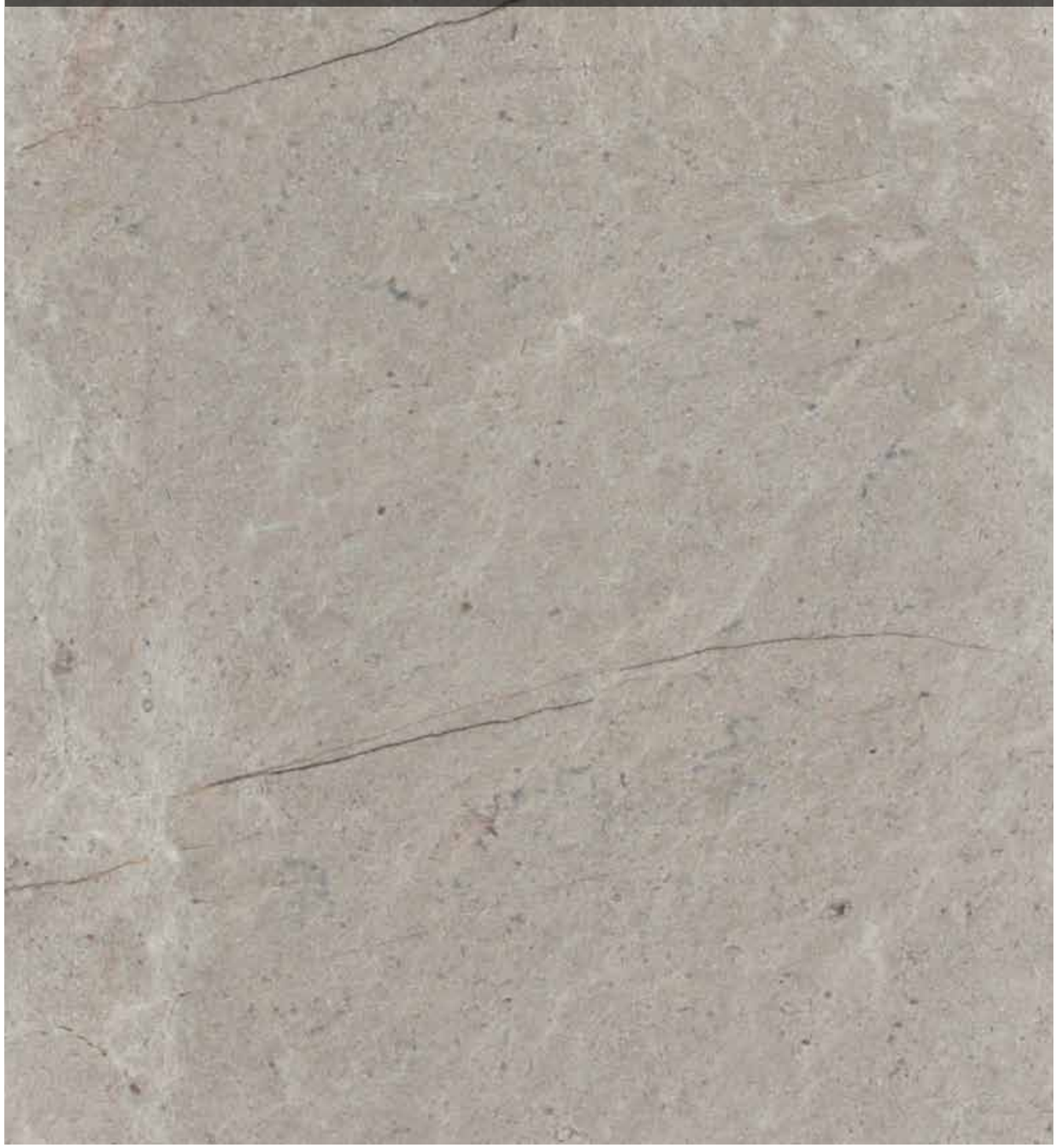
REF: BayL 04

BURLINGTON STONE

STONE: Baycliff Lord

REF: BayL 07

BURLINGTON STONE



STONE: Baycliff Lord

REF: BayL 08

BURLINGTON STONE

STONE: Baycliff Lord

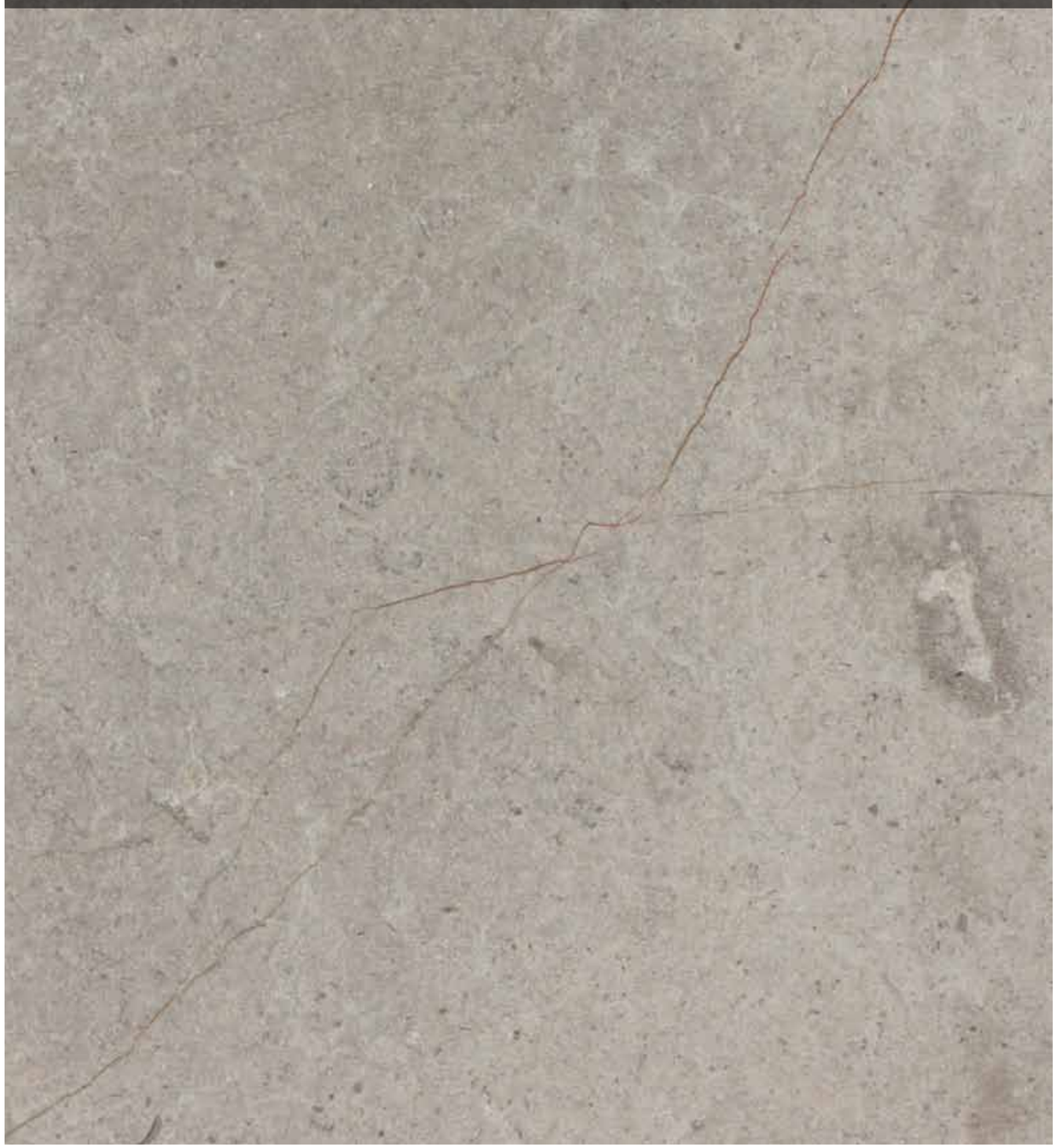
REF: BayL 09

BURLINGTON STONE

STONE: Baycliff Lord

REF: BayL 12

BURLINGTON STONE



STONE: Baycliff Lord

REF: BayL 13

BURLINGTON STONE

STONE: Baycliff Lord

REF: BayL 14

BURLINGTON STONE

STONE: Baycliff Lord

REF: BayL 17

BURLINGTON STONE

STONE: Baycliff Lord

REF: BayL 18

BURLINGTON STONE

STONE: Baycliff Lord

REF: BayL19

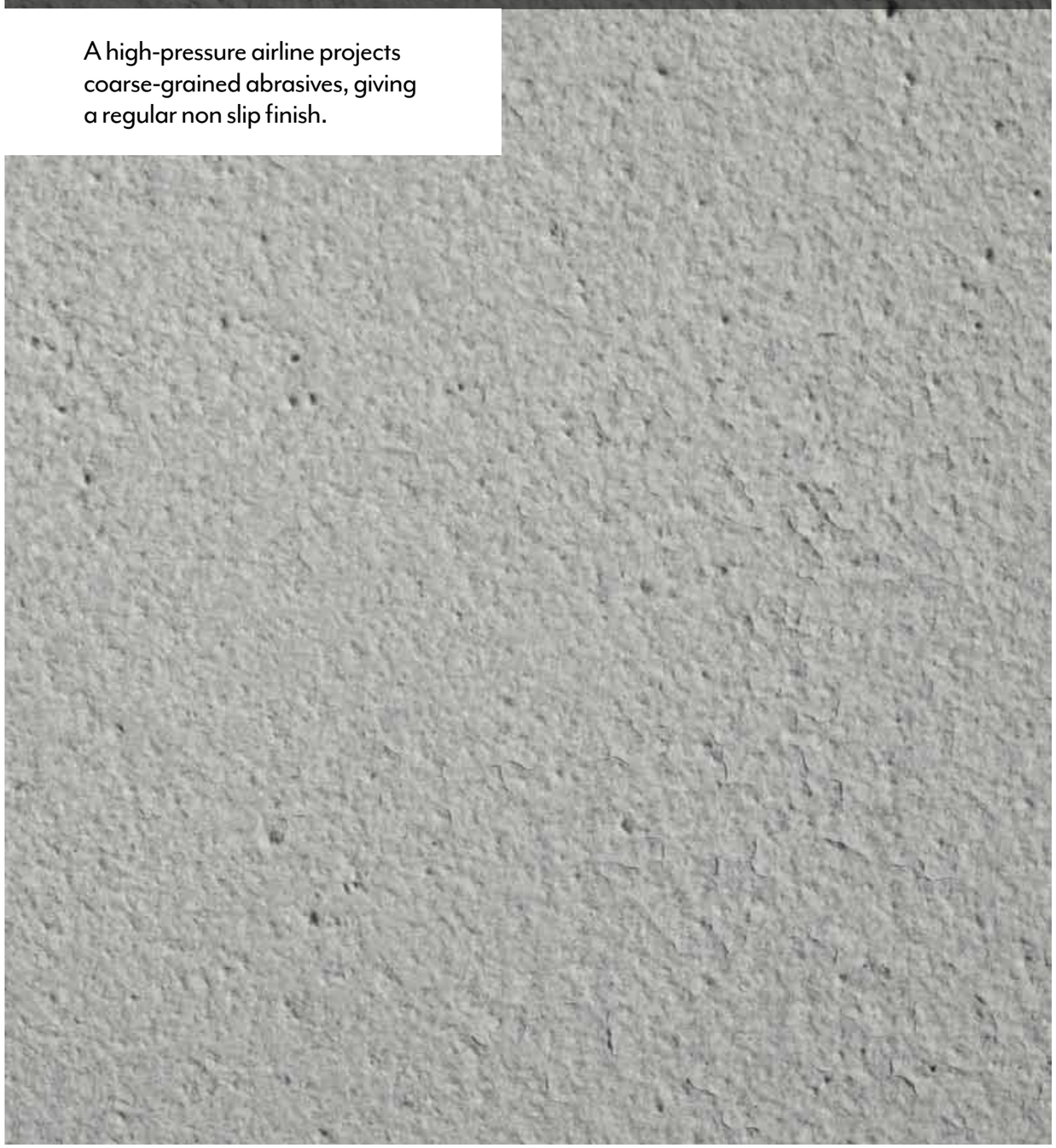
BURLINGTON STONE

STONE: Baycliff Lord

FINISH: Gritblasted

BURLINGTON STONE

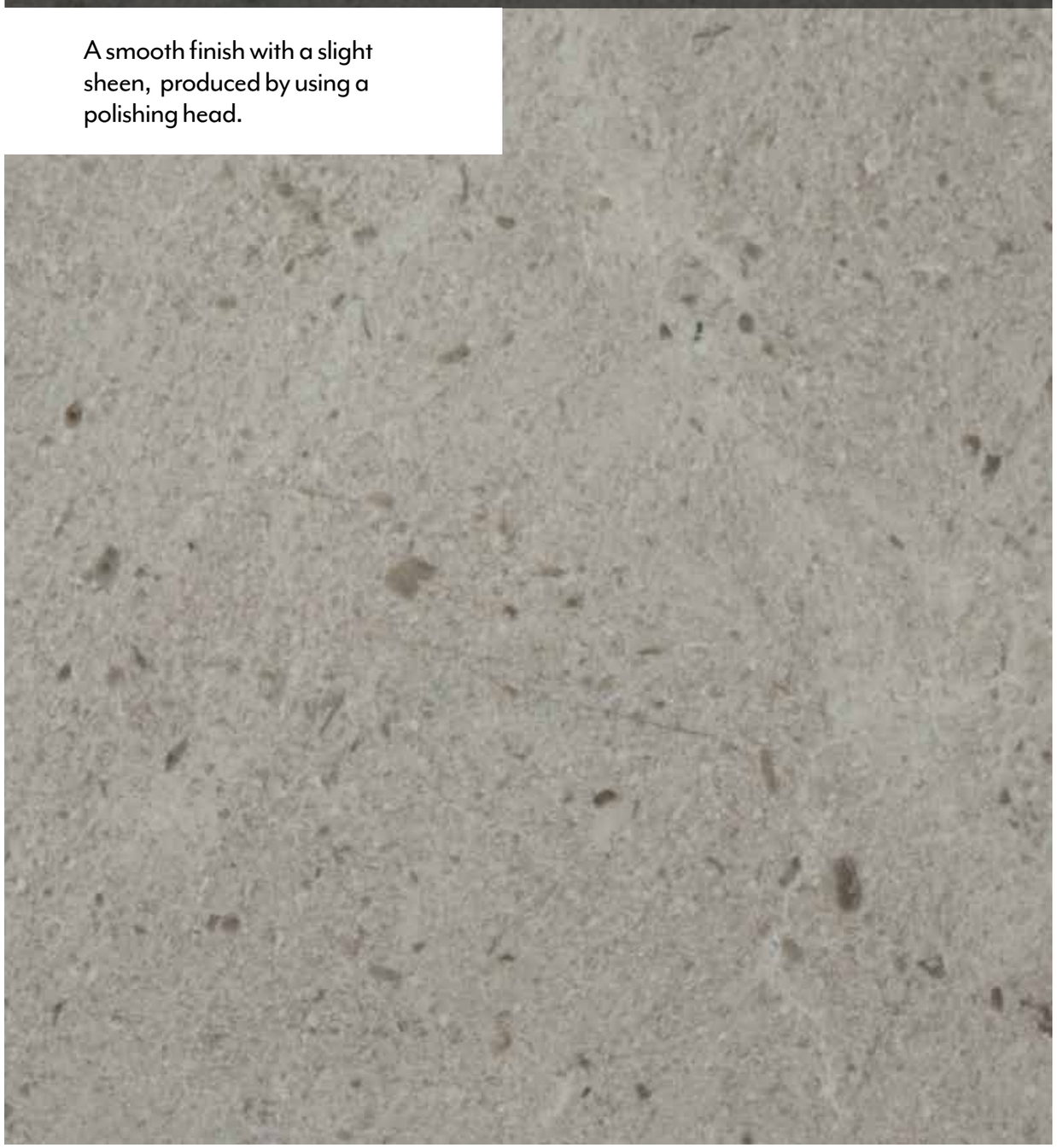
A high-pressure airline projects coarse-grained abrasives, giving a regular non slip finish.



STONE: Baycliff Lord
FINISH: Honed

BURLINGTON STONE

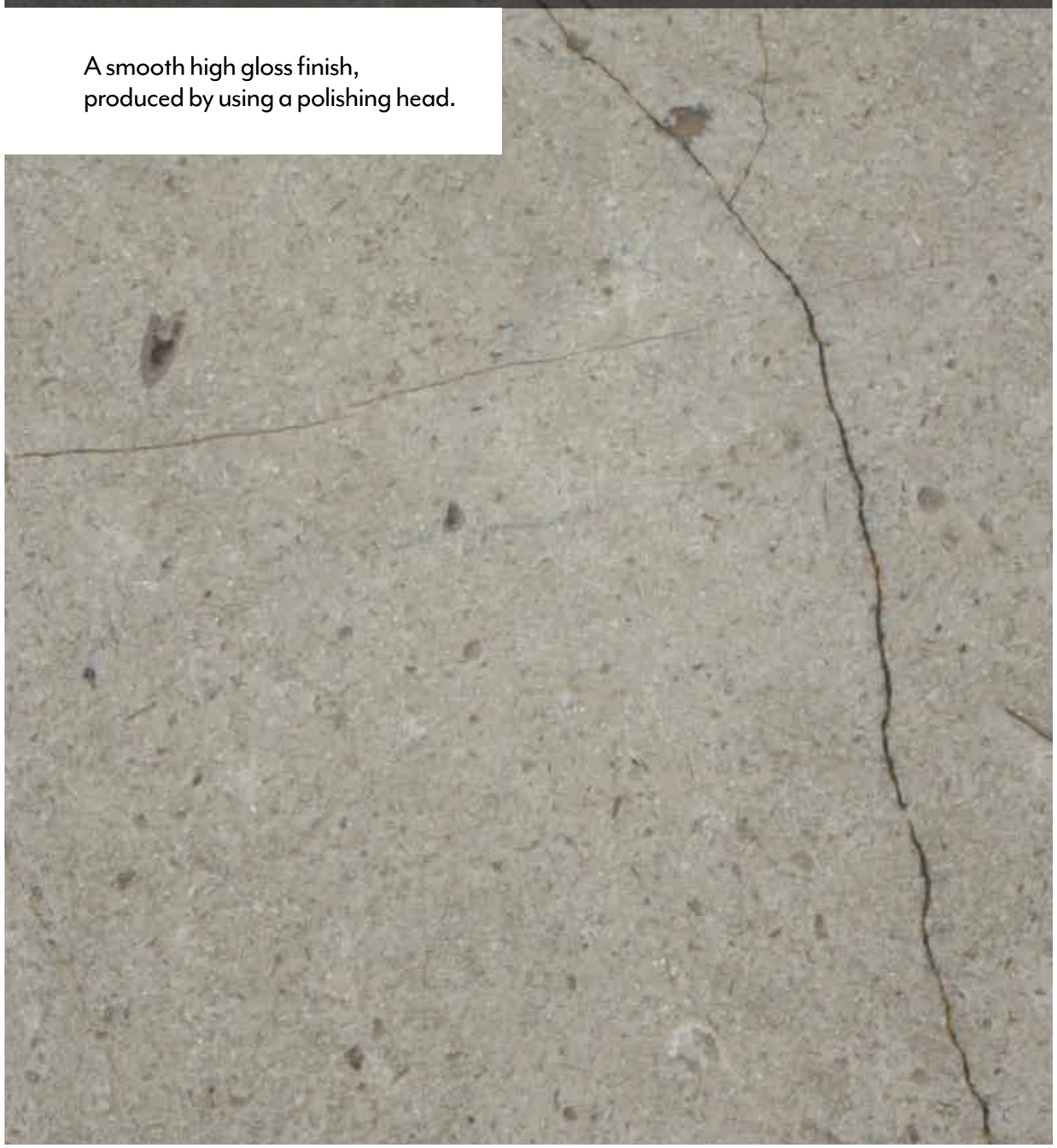
A smooth finish with a slight sheen, produced by using a polishing head.



STONE: Baycliff Lord
FINISH: Polished

BURLINGTON STONE

A smooth high gloss finish, produced by using a polishing head.



STONE: Baycliff Lord

FINISH: Sanded

BURLINGTON STONE

The top surfaces of sawn slabs are coarsely diamond sanded to produce a non slip finish.

BURLINGTON STONE

EST 1843

BS EN 12326-1
KM 10333

ISO 14001
EMS 573812

003

1969 THE QUEEN'S AWARD FOR EXPORT ACHIEVEMENT

1984 THE QUEEN'S AWARD FOR EXPORT ACHIEVEMENT

1991 THE QUEEN'S AWARD FOR EXPORT ACHIEVEMENT

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