

**SANDBERG**

**REPORT 61808/G/1**  
**TESTING OF**  
**IRISH BLUE LIMESTONE**  
**THREecastLES QUARRY**

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McKeon Stone Ltd.  
Brockley Park  
Stradbally  
Co. Laois  
Ireland

This report comprises  
3 pages of text  
Table 1 of 1 sheet

For the attention of Mr Niall Kavanagh

13 March 2018

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### REPORT 61808/G/1

#### TESTING OF

#### IRISH BLUE LIMESTONE

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**Reference :** Instructions from Mr Niall Kavanagh of McKeon Stone Ltd.

#### 1. INTRODUCTION

We were instructed to undertake testing of natural stone, advised to be Irish Blue limestone, Threecastles Quarry, in order to establish slip resistance characteristics.

#### 2. SAMPLES

Samples were received from McKeon Stone Ltd. in our laboratory on 12 February 2018 as follows;

Sandberg Reference	Specimen Size	Test
G46951	<b>Irish Blue limestone Threecastles Quarry</b> 6 no. 200 x 200 x 30mm	Slip resistance - flamed

**3. TEST METHOD AND RESULTS**

**3.1 Slip Resistance**

Specimens with a flamed surface finish were tested for slip resistance in accordance with BS EN 1341 : 2012 using a portable skid resistance tester (pendulum tester).

Testing was carried out with a '55' rubber slider in dry and wet conditions.

Surface roughness measurements were also carried out using a Surtronic Duo roughness meter whilst the slip resistance measurements were being made.

Detailed results of the slip resistance test are given in Table 8 and are summarised below.

Sandberg Reference	Average Slip Resistance Value (SRV) (55 rubber)	
	Dry	Wet
G46951 - flamed	92	83

The TRL pendulum tester has a range of readings from 0 to 150, high values indicate good slip resistance. Guidance on the interpretation of results is suggested by the UK Slip Resistance Group<sup>1</sup>. These are generally accepted limits and are given below.

<u>Pendulum Test Value</u>	<u>Slip Potential</u>
0 - 24	High
25 - 35	Moderate
36+	Low

The surface roughness measurements are a guide to slip resistance particularly in borderline regions. It is recognised that the roughness of the floor surface can give an improvement in slip resistance in wet conditions.

Surfaces contaminated with pure water generally require a surface roughness of at least 10µm R<sub>z</sub> to provide a moderate level of slip resistance and at least 20µm R<sub>z</sub> to indicate low slip potential. More viscous contaminants require higher surface roughness<sup>2</sup>.

The slip resistance results relate to the samples in their as-received condition. It should be noted that the slip resistance of surfaces in service can be altered by various factors such as abrasion, polishing and contamination. Overall assessment of the potential for slip should take into account conditions of use and the environment, in addition to test results.

<sup>1</sup> The assessment of Floor Slip Resistance. The UK Slip Resistance Group, Issue 3, 2005.

<sup>2</sup> Roughness measurements should not be solely relied upon to evaluate the potential slip resistance of a floor.

**4. REMARKS**

These results conclude the requested programme of testing. Please do not hesitate to contact us if we can be of any further assistance in this matter.

McKeon Stone Ltd.  
Brockley Park  
Stradbally  
Co. Laois  
Ireland

for Sandberg LLP

For the attention of Mr Niall Kavanagh

David Ellis

DJE/Geoman/pd

Partner

File:61808g1.rep

13 March 2018

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Materials, samples and test specimens are retained for a period of 2 months from the issue of the final report.

Tests reported on sheets not bearing the UKAS logo in this report/certificate are not included in the UKAS accreditation schedule for this laboratory.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Sandberg Reference	Material	Surface Finish	Orientation [along vein]	Surface Roughness R <sub>z</sub> , μm	Ambient Temperature °C		Slip Resistance Value (SRV)			
							Dry		Wet	
					Dry	Wet	Mean [5 readings]	Mean	Mean [5 readings]	Mean
G46951 a	Irish Blue limestone	Flamed	A	-	22	19	87	89	81	82
			180° to A	-	-	-	90		82	
G46951 b	Irish Blue limestone	Flamed	A	-	22	19	93	95	83	83
			180° to A	-	-	-	97		83	
G46951 c	Irish Blue limestone	Flamed	A	-	22	19	100+	100+	80	80
			180° to A	-	-	-	100+		80	
G46951 d	Irish Blue limestone	Flamed	A	-	22	19	89	90	83	83
			180° to A	-	-	-	90		82	
G46951 e	Irish Blue limestone	Flamed	A	-	22	19	90	90	85	84
			180° to A	-	-	-	89		83	
G46951 f	Irish Blue limestone	Flamed	A	-	22	19	86	88	85	84
			180° to A	-	-	-	89		83	

SRV dry (6 no. specimens) : 92  
SRV wet (6 no. specimens) : 83

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Where our involvement consists exclusively of testing samples, the results and our conclusions relate only to the samples tested.

