

ENSURTEC**Report ref: 06/07/03**

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Report

Report ref 06/07/03	
Title Slip Resistance Testing of Limestone Floor Tiles	
Client: Stone Management 27 – 29 Carysfort Avenue, Blackrock Co Dublin	Client ref. Killeen Castle
Date Received 6 June & 13 June 2007	Order no. Ref. Fax 18/06/07
Report by Paul Quinn	Issue date 20 June 2007

ENSURTEC

Report ref: 06/07/03

INTRODUCTION

- 1.1. The client submitted six limestone floor tile samples with a request that material be tested for slip resistance. It was understood that the samples were representative of material proposed for outdoor use in a project at Killeen Castle, Dunshaughlin Co Meath.
- 1.2 The stone was identified as Irish Blue limestone ex McKeown Stone.

2. SAMPLES RECEIVED

The following sample was received on 6th June 2007.

Ensurttec reference	Description
SM/1/07	450mm x 450mm x 30mm limestone floor tile. The sample was not labelled but had a sanded finish.

Additional samples were received on 13th June 2007.

Ensurttec reference	Description
SM/2/07	450mm x 450mm x 40mm honed limestone floor tile. The sample was labelled "dark honed."
SM/3/07	450mm x 450mm x 40mm honed limestone floor tile. The sample was labelled "blue honed."
SM/4/07	450mm x 450mm x 40mm roughened limestone floor tile. The sample was labelled "flamed."
SM/5/07	450mm x 450mm x 40mm roughened limestone floor tile. The sample was labelled "dark honed."
SM/5/07	450mm x 450mm x 40mm roughened limestone floor tile. The sample was labelled "sanded."

3. EXPERIMENTAL

- 3.1 Samples were tested for wet and dry slip resistance using the UK Slip Resistance Group Guidelines (UKSRG)-Issue 2, June 2000 in relation to slider preparation and procedure. Samples were tested under both dry and wet conditions using a TRL rubber slider. The test instrument used was a Stanley Portable Skid Resistance Tester; Ser. No. 8635 with British Standards Institute Calibration Certificate No. 3370 dated 01/08/2006.
- 3.2 Measurements of surface roughness were taken on three samples using the Surtronic Duo roughness gauge.

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Pendulum test values corrected for a test temperature of 18°C were as follows:

	TRL (DRY)	TRL (WET)
Sanded SM/1/07	68	51
Dark honed SM/2/07	54	10
Blue honed SM/3/07	57	19
Flamed SM/4/07	82	79
Bush hammered SM/5/07	77	78
Sanded SM/6/07	58	49

4.2 Surface Roughness measurement.

Sample	Mean Rz (µm)
Sanded SM/1/07	27.6
Dark honed SM/2/07	4.2
Blue honed SM/3/07	7.2
Flamed SM/4/07	56.7
Bush hammered SM/5/07	67.5
Sanded SM/6/07	21.8

ENSURTEC

Report ref: 06/07/03

5. COMMENT

5.1 The TRL is the normal slider for use on rougher flooring materials used outdoors. The limits established by the GLC¹ relating TRL pendulum test value to slip risk are set out in table 1 below.

Table 1

Pendulum test value	Potential for slip
Less than 19	High
20 - 39	Moderate
40 - 74	Low
Above 75	Extremely low

5.2 The low surface roughness values obtained on the honed samples are consistent with high risk of slip under wet conditions. All of the other roughness values are consistent with a low to extremely low risk of slip.

6. CONCLUSION

6.1 All samples tested present a low to extremely low risk of slip under dry conditions.

6.2 The honed samples present a high to borderline high risk of slip under wet conditions with the blue honed samples performing better in this regard.

6.3 The sanded samples present a low risk of slip under wet conditions.

6.4 The bush hammered and flamed samples present an extremely low risk of slip under wet conditions.

¹ GLC Bulletin No. 43 (second series): Item No. 5: March 1971 : Slip resistance of floors, stairs and pavings.