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29<sup>th</sup> April 2010

Mr. Jason Cole

**Slipperiness Assessment  
Timbertech Products  
Contract No. PE05290  
HSL Letter Report No. PED/LET/10/084**

Dear Mr. Cole,

Further to your request for the laboratory-based slipperiness assessment of five decking samples (HSL sample numbers PED/10/073, 074, 076, 077 & 078), testing was undertaken by Mr Rick Houlihan (Pedestrian Safety Team, HSL) on the 28<sup>th</sup> of April 2010.

Slipperiness assessments were undertaken using standard HSL / HSE techniques in accordance with BS:7976-2 (2002) and 'The UK Slip Resistance Group Guidelines' (Issue 3, 2005) where appropriate. Data generated during the assessments are reproduced in Appendix 1, along with tables allowing easy interpretation in Appendix 2.

Measurements of the floor surface Pendulum Test Value (PTV), closely related to coefficient of dynamic friction, were made using a calibrated Stanley Pendulum instrument. The test slider material used was Slider 96 Rubber, developed to represent a footwear material of moderate performance. Data was generated in both the dry and wet conditions. Further tests were undertaken using a calibrated Surtronic Duo surface microroughness transducer set to the Rz parameter.

Where reasonably practicable, the hierarchy of control measures outlined in current HSE Guidance should be used to control slip risk. Therefore, attention should be paid to the minimisation of contamination before action is taken to replace or modify the installed floor surface material. However, the level of contamination required to increase the slipperiness of flooring materials to dangerous levels is known to be very small; it must therefore be stressed that flooring known to be slippery when contaminated must be kept thoroughly clean and dry to maintain satisfactory slip resistance. Where this is not possible, consideration should be given to floor surface modification or replacement.

The test results presented relate only to the samples under study at the time of testing. The performance of materials may change significantly during installation and throughout their lifetime; slip resistance is critically dependent on the level and

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type of contamination, treatment, maintenance and effective cleaning subsequent to installation.

Please don't hesitate to contact me if you would like to discuss the results.

Yours sincerely,

A handwritten signature in black ink, appearing to read "R Houlihan", written over a horizontal line.

Mr Rick Houlihan BSc(Hons) Tech IOSH  
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Health & Safety Laboratory  
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Issue authorised:

Rob Shaw

Issue authorised:

R Shaw

Date:

29.4.10

**RESTRICTED: COMMERCIAL**

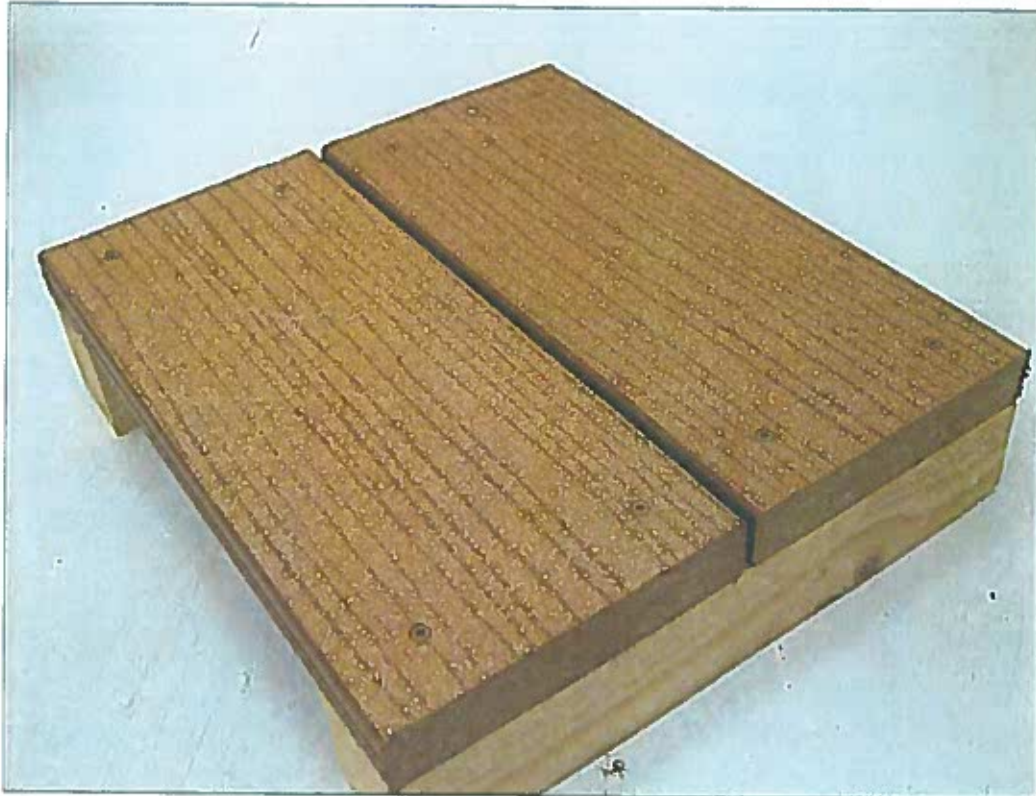
This report and the work it describes were undertaken by the Health and Safety Laboratory under contract to TimberTech Products Limited. Its contents, including any opinions and/or conclusions expressed or recommendations made, do not necessarily reflect policy or views of the Health and Safety Executive.

## Appendix 1

## Test Results

Sample Identification:  
Sample Type:

PED/10/073 – VertiGrain Solid  
Composite decking, wood grain texture



Mean Rz Surface Roughness: 40.7µm  
Pendulum Test Values:

Slider	Condition	Contamination	Test Direction	PTV	Slip Potential
96	As Found	Dry	1 (~0°)	41	Low
96	As Found	Dry	2 (~20°)	42	Low
96	As Found	Dry	3 (~45°)	49	Low
96	As Found	Water-wet	1	26	Moderate
96	As Found	Water-wet	2	28	Moderate
96	As Found	Water-wet	3	31	Moderate

Note: Testing was conducted in three directions across the surface, test direction 1 is along the grain, test direction 2 is at approximately 20° and test direction 3 at approximately 45° rotation relative to test direction 1.

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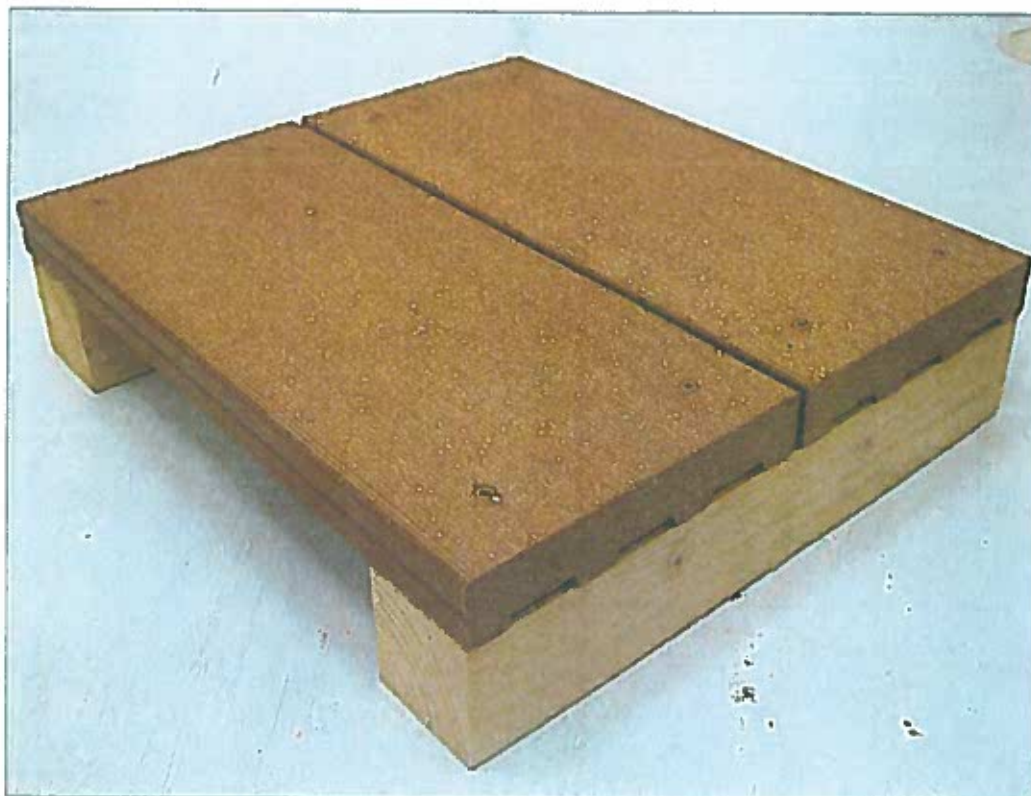
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**Sample Identification:**

PED/10/074 – Edeck

**Sample Type:**

Composite decking, fine grooved texture



**Mean Rz Surface Roughness:** 31.0 $\mu$ m

**Pendulum Test Values:**

Slider	Condition	Contamination	Test Direction	PTV	Slip Potential
96	As Found	Dry	1	38	Low
96	As Found	Dry	2	40	Low
96	As Found	Dry	3	47	Low
96	As Found	Water-wet	1	25	Moderate
96	As Found	Water-wet	2	25	Moderate
96	As Found	Water-wet	3	31	Moderate



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**Sample Identification:**

PED/10/076 – IPE

**Sample Type:**

Wooden decking, grooved profile



**Mean Rz Surface Roughness:** 15.9µm

**Pendulum Test Values:**

Slider	Condition	Contamination	Test Direction	PTV	Slip Potential
96	As Found	Dry	1	67	Low
96	As Found	Dry	2	64	Low
96	As Found	Dry	3	65	Low
96	As Found	Water-wet	1	20	High
96	As Found	Water-wet	2	22	High
96	As Found	Water-wet	3	25	Moderate

## Appendix 2: Guidance

Note: The information presented below is intended as a guide. Other factors, such as level and type of pedestrian activity and user demographic (such as age and physical ability) should be considered. A risk assessment should be conducted in all situations.

Guidance from the United Kingdom Slip Resistance Group for interpretation of PTV and Rz surface microroughness (adapted from 'The Assessment of Floor Slip Resistance: The UK Slip Resistance Group Guidelines', Issue 3, 2005):

Pendulum Test Value	Slip Potential
0 – 24	High Slip Potential
25 – 35	Moderate Slip Potential
36 +	Low Slip Potential

Rz Surface Roughness ( $\mu\text{m}$ )	Water-Wet Slip Potential
Below 10 $\mu\text{m}$	High Slip Potential
10 - 20 $\mu\text{m}$	Moderate Slip Potential
20 + $\mu\text{m}$	Low Slip Potential

Predictions of friction requirements for pedestrians for level walking made by BRE (P.W. Pye, H.W. Harrison, 2003):

Risk. 1 in:	Minimum PTV	Slip Potential
1,000,000	36	Low
100,000	34	Moderate
10,000	29	Moderate
200	27	Moderate
20	24	High
2	19	High