

# PHYSICAL TESTING REPORT

# LUCIDEON

insight creating advantage



0013

**H G Matthews & Co.**  
Bellingdon Brickworks  
Bellingdon  
Nr Chesham  
Buckinghamshire  
HP5 2UR

FAO: Ms. Stephanie Pritchard

Report of Tests on: Clay Brick

Your Reference: Machine Made Multi

Lucideon Reference: (193353)-27185

Date Reported: 26-Jun-2019

Order Number: SJP11619

Date Logged: 13-Jun-2019

Date(s) of Test(s): 25-Jun-2019 to 25-Jun-2019

## Determination of Compressive Strength

BS EN 772-1: 2011 (By Surface Grinding)

	Brick Length	Brick Width	Frog Length	Frog Width	Load	Compressive Strength
No.	mm	mm	mm	mm	kN	N/mm <sup>2</sup>
1	210.6	100.1	161	52	411	32.4
2	213.2	101.0	163	52	252	19.3
3	215.5	98.9	160	48	494	36.3
4	213.1	99.9	160	50	360	27.1
5	215.0	100.3	160	53	405	30.9
6	214.7	100.1	160	49	226.3	16.6
7	215.2	98.4	159	48	465	34.3
8	214.0	100.3	160	52	329	25.0
9	213.2	100.1	160	50	429	32.2
10	215.1	100.4	163	49	404	29.7
Mean	214.0	100.0	161	50	377.5	28.4

Name of organisation carrying out sampling: H G MATTHEWS

Method of Sampling: Not Supplied

Method of Conditioning: Dryer at 105 deg C

Method of Preparation: Surface Ground

Orientation of Loading: Bed Face

Coefficient of Variation: 22.6 %

Crushing Machine: 1000KN

Machine Number: 89033

Serial Number: 815

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

**End of Test Report**

Mr Richard Oliver  
Manager

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Date(s) of Test(s): 19-Jun-2019 to 20-Jun-2019

## Determination of Net & Gross Dry Density of Masonry Units (Except for Natural Stone)

BS EN 772-13:2000

No.	Net Dry Density kg/m <sup>3</sup>	Gross Dry Density kg/m <sup>3</sup>
1	1660	1440
2	1670	1460
3	1670	1490
4	1670	1450
5	1670	1450
6	1670	1480
7	1680	1460
8	1660	1460
9	1670	1440
10	1670	1420
Mean	1670	1460

Name of organisation carrying out sampling: H G MATTHEWS

Method of Sampling: Not Supplied

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Manager

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Date(s) of Test(s): 17-Jun-2019 to 17-Jun-2019

## Determination of Dimensions

BS EN 772-16: 2011

	Length	Width	Height
No.	mm	mm	mm
1	210.6	100.1	67.5
2	213.2	101.0	67.6
3	215.5	98.9	68.1
4	213.1	99.9	66.7
5	215.0	100.3	67.0
6	214.7	100.1	66.5
7	215.2	98.4	68.7
8	214.0	100.3	66.6
9	213.2	100.1	66.9
10	215.1	100.4	67.3
Mean	214.0	100.0	67.0

Work Size: 215 x 103 x 65 mm

Name of organisation carrying out sampling: H G MATTHEWS

Method of Sampling: Not Supplied

Tolerance Mean: T2

Tolerance Range: R1

Digital calipers were used as the measuring device (precision 2 decimal places) using Method of Measurement B.

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Date(s) of Test(s): 18-Jun-2019 to 18-Jun-2019

### Determination of Initial Rate of Water Absorption

BS EN 772-11: 2011 (Clay masonry units)

No.	Initial Rate of Water Absorption kg/(m <sup>2</sup> .min)
1	4.4
2	4.2
3	3.8
4	4.2
5	4.0
6	4.0
7	3.6
8	4.2
9	4.2
10	4.1
Mean	4.1

Name of organisation carrying out sampling: H G MATTHEWS

Method of Sampling: Not Supplied

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Manager

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## Determination of Thermal Conductivity & Water Vapour Permeability

EN1745:2012 Annex A, Masonry & Masonry Products, Methods for Determining Design Thermal Values

No.	Thermal Conductivity P = 50%	Thermal Conductivity P = 90%	Water Vapour Diffusion Coefficient
	W/mK	W/mK	$\mu$
1	0.45	0.51	5/10

Results taken from tabulated values based on values determined from EN772-13:2000. Thermal conductivity determined in a dry state at an average temperature of 10 deg C.

End of Test Report

  
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Manager

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## Determination of Net Volume & Percentage of Voids of Clay Masonry Units by Hydrostatic Weighing

BS EN 772-3: 1998

	Net Volume	Voids
No.	100 <sup>2</sup> mm <sup>3</sup>	%
1	122	13
2	126	13
3	126	11
4	124	13
5	125	13
6	124	11
7	127	13
8	124	13
9	125	13
10	125	15
Mean	125	13

Name of organisation carrying out sampling: H G MATTHEWS

Method of Sampling: Not Supplied

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Manager

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### Determination of Water Absorption

BS EN 772-21: 2011

	Dry Weight	Saturated Weight After 24 Hr Soak	Water Absorption
No.	g	g	%
1	2032	2258	11
2	2117	2388	13
3	2114	2310	9
4	2065	2293	11
5	2080	2296	10
6	2072	2348	13
7	2132	2333	9
8	2065	2299	11
9	2079	2291	10
10	2088	2304	10
Mean	2084	2312	11

Name of organisation carrying out sampling: H G MATTHEWS

Method of Sampling: Not Supplied

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**End of Test Report**

Mr Richard Oliver  
Manager

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# INORGANIC ANALYSIS REPORT

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Order Number: SJP11619

Date Logged: 13-Jun-2019

Date(s) of Test(s): 24-Jun-2019 to 25-Jun-2019

### Determination of Soluble Salts

BSEN772-5: 2016 with ICP Finish

Result(s)		Units	
Active Magnesium	Mg <sup>2+</sup>	%	<0.005
Active Sodium	Na <sup>+</sup>	%	<0.005
Active Potassium	K <sup>+</sup>	%	<0.005
Sodium + Potassium	Na <sup>+</sup> + K <sup>+</sup>	%	<0.01
Water Soluble Magnesium	Mg <sup>2+</sup>	%	<0.01
Classification Category			S2
Sulphate, Water Soluble	SO <sub>4</sub>	%	<0.01
Mean of Duplicate Determinations			No
Sample Basis			As Received
UKAS Accredited			Yes

Sulphate has been measured on the same BSEN772-5 prepared extract solution, but it is outside the scope of the standard.

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**End of Test Report**

  
Mrs Julie Thornett  
Technician

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