



Tel: +44 (0) 1244 794 104
Fax: +44 (0) 1244 794 204
Email: info@sts-group.co.uk
Web: <http://www.sts-group.co.uk>

COMPOSITE DECKING BOARD



DOCUMENT REFERENCE: DR-5114
PROJECT FILE REFERENCE: S10147

Prepared for: Cladco Profiles Limited
North Industrial Estate, North Road, Okehampton, Devon, EX20 1BQ

Revision	Date	Reason for Issue:
Rev0	22/02/2018	Draft For Internal Review
Rev1	22/02/2018	First Issue for Comment



Contents

1. Introduction.....	3
2. Methodology	4
2.0 INITIAL SURVEY.....	4
3. Findings.....	5
4. Conclusion.....	6

APPENDIX:

A Test Certificates.....	7
B Photographic Records.....	8

1. Introduction

STS (U.K) Group were commissioned by Cladco Profiles Limited to undertake a series of load tests and nail penetration tests on two types of wood-plastic decking. All testing was carried out by STS (U.K). The purpose of the testing was to attain results and findings that could be analysed to see the difference between the solid decking and the hollow decking. Each component was inspected for damage before and after testing was carried out.

The testing was carried out on two different specimens. This was done to achieve an average in results and definitive plastic limit of the two types of wood-plastic decking tested, along with the force required for a nail to fully penetrate the decking. The results of these tests can be found in section 3 of this report.

The components tested and the tests carried out were as follows:

- 3No Load Tests, 3No Failure Tests and 3No Nail Penetration – 595mm x 150mm x 25mm Specimens of the Hollow Decking load tested to 4.5Kn as per Table 1 – Minimum Imposed Floor Loads within BS 6399-Part 1-1996, the concentrated load required for an area of which people may congregate is 4.5kN applied centrally over a span of 400mm. After this test, each panel was tested to failure. Three nail penetration tests were carried out to determine the force required to push a nail into the decking and tested in accordance with EN 13446:2002. Three tests were conducted in order to gain an average in results.
- 3No Load Tests, 3No Failure Tests and 3No Nail Penetration Tests – 595mm x 150mm x 25mm Specimens of the Hollow Decking load tested to 4.5Kn as per Table 1 – Minimum Imposed Floor Loads within BS 6399-Part 1-1996, the concentrated load required for an area of which people may congregate is 4.5kN applied centrally over a span of 400mm. After this test, each panel was tested to failure. Three nail penetration tests were carried out to determine the force required to push a nail into the decking and tested in accordance with EN 13446:2002. Three tests were conducted in order to gain an average in results.



Pictures 1 & 2 – (Left) Solid decking. (Right) Hollow decking with 4 hollow centers (27mm x 13mm).

The testing took place at the following address:

Site Address: Unit 4, Poole Hall Business Park, Poole Hall Road, Ellesmere Port, Cheshire, CH66 1ST

2. Methodology

To accurately determine the conformity of the Wood-Plastic Hollow and Solid Decking, a series of load tests were undertaken.

During the tests, the load was applied using a hydraulic cylinder attached to a pressure sensor. This allowed us to monitor the load during each test. The displacement was monitored continuously throughout each test. This was measured using a 100mm Spring Loaded Potentiometer situated outside the zone of influence on a freestanding tripod and recorded using a bespoke logging system. Displacements will be plotted to a screen such that any non-elastic displacement will be instantly identified. After applying the load the test will be complete and the load removed.

The first set of testing carried out was on the 595mm x 150mm x 25mm Specimens of the Hollow Decking and the 595mm x 150mm x 25mm Solid Decking. As per BS 6399-Part 1-1996. The required concentrated loading for an area which people may congregate is 4.5kN. Three tests were carried out on three different samples of the hollow decking (Results for these tests can be found in Section 3 and Appendix A of this report). Conducting three of these tests allowed us to gain an average in results. The load was applied via a hydraulic cylinder situated directly central and above the wood-plastic decking. The load was applied by way of a hand pump in a steady manner and displacement was recorded prior to load, during the test and after all load had been removed.

The next set of testing carried out was to failure. Three samples of both the Hollow and Solid decking were tested to failure in order to gain an average in the maximum loading the wood-plastic decking could take before failing (Results for these tests can be found in Section 3 and Appendix A of this report). The load was applied continuously via a hand pump connected to a hydraulic cylinder. The load was steadily increased until the wood-plastic decking sample failed and split into two pieces. This allowed us to find the ultimate strength of the decking.

The final set of testing carried out was a nail penetration test. A total of 3 tests were carried out on both the Hollow and Solid Decking. This test was conducted to determine the actual force required to penetrate the decking with a 3.3mm nail. The nail was steadily pushed into the wood-plastic decking via a hydraulic cylinder connected to a hand pump.

2.1 Initial Survey

Prior to any load testing, all specimens were examined for any signs of damage to the surface and any signs of cracks or stress to the specimen. Any defects encountered were noted down and photographic records taken.

3. Findings

All certificates can be found in Appendix A of this report.

Below are three tables. Table 1 contains the maximum load and displacement achieved over three samples of the Hollow Decking and Solid Decking tested to 4.5kN over a concentrated area.

Table 2 contains the maximum recorded displacement and load at the moment of failure over 3 samples of both the Hollow and Solid wood-plastic decking.

Table 3 shows us the maximum recorded load required to penetrate the wood-plastic decking with a 3.3mm Galvanized Round Head nail. Three nail penetration tests were carried out on the Hollow decking and three tests carried out on the Solid decking.

	Test 1		Test 2		Test 3	
	Load (kN)	Displacement (mm)	Load (kN)	Displacement (mm)	Load (kN)	Displacement (mm)
Solid	4.5	6.09	4.5	4.87	4.5	5.69
Hollow	4.5	5.41	4.5	5.47	4.5	5.68

Table 1 – Test Results from the Load Testing on the Hollow and Solid Wood-Plastic Decking.

	Test 1		Test 2		Test 3	
	Load (kN)	Displacement (mm)	Load (kN)	Displacement (mm)	Load (kN)	Displacement (mm)
Solid	6.43	8.20	6.81	8.57	6.04	6.59
Hollow	8.06	11.32	8.09	11.46	8.05	13.99

Table 2 – Test Results from the Failure Load Testing on the Hollow and Solid Wood-Plastic Decking.

	Test 1	Test 2	Test 3
	Load (kN)	Load (kN)	Load (kN)
Solid	1.63	2.06	1.95
Hollow	1.23	1.13	0.87

Table 3 – Test Results from the Nail Penetration Testing on the Hollow and Solid Wood-Plastic Decking.

4. Conclusion

Following the results found in section 3 of this report, it can be said that the readings attained during the load testing proved that the average maximum deflection for a 595mm x 150mm x 25mm with four 27mm x 13mm hollow centres under a concentrated loading of 4.5kN is 5.52mm. This shows us that the 595mm x 150mm x 25mm with four 27mm x 13mm hollow centres is compliant with BS 6399-Part 1-1996.

The average recorded deflection for the 595mm x 150mm x 25mm Solid wood-plastic decking under a concentrated loading of 4.5kN is 5.55mm. Both the Hollow and Solid Average Maximum deflection results were taken from Section 3 and Appendix A of this report. These results show us that the 595mm x 150mm x 25mm Solid wood-plastic decking is compliant with BS 6399-Part 1-1996.

The average loading a 595mm x 150mm x 25mm with four 27mm x 13mm hollow centres wood-plastic decking can take before reaching its failure limit is 8.06kN with an average deflection of 12.25mm. The average loading a 595mm x 150mm x 25mm solid wood-plastic decking can take before reaching its failure limit is 6.42kN with an average deflection of 7.78mm.

The nail penetration testing did not require a deflection to be monitored during the test and so the following averages are based only on loadings in (kN). The average force required to penetrate the 595mm x 150mm x 25mm with four 27mm x 13mm hollow centres wood-plastic decking with a 3.3mm Galvanized round head nail is 1.07kN. The 595mm x 150mm x 25mm solid wood-plastic decking requires an average force of 1.88kN.

All the results found in this report were acquired using a custom-built logging system along with all relevant information gathered on the dates of testing, when testing in the method that is described in this report in Section 2.

	Name	Signature	Date
Created By: Snr Technician	Andrew Mercer		22.02.2018
Checked By: Technical Director	Andrew Gore		22.02.2018

For and on behalf of Specialist Technical Services (U.K) Limited

APPENDIX A

TEST CERTIFICATES



TEST CERTIFICATE

WOOD-PLASTIC DECKING LOAD TEST

On behalf of Cladco Profiles Limited
Beardown Road, Exeter Road Industrial Estate
Okehampton, Devon, EX20 1UA

LOAD TEST – HOLLOW DECKING

IN ACCORDANCE TO BS 6399-PART 1-1996

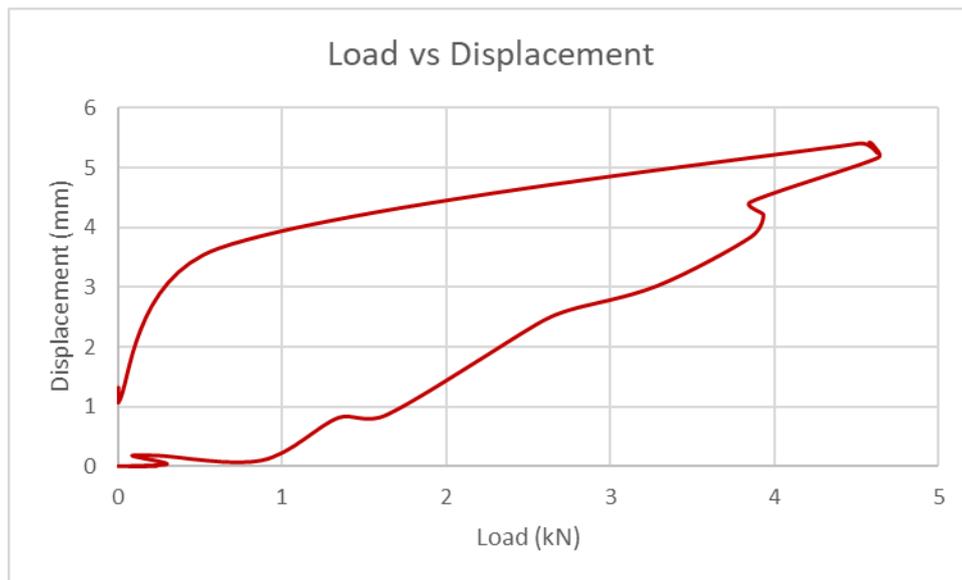
TEST DESCRIPTION: A load test was carried out to determine the flexural strength of the wood-plastic decking. As per Table 1 – Minimum Imposed Floor Loads within BS 6399-Part 1-1996, the concentrated load required for an area of which people may congregate is 4.5kN applied centrally over a span of 400mm and displacement was monitored throughout the test. A total of 3 hollow samples were tested.

REF NO.: DR-5124 **DATE TESTED:** 16th February 2018
JOB NO.: S10161 **DATE REPORTED:** N / A
CERTIFICATE NO.: IC6629 **CERTIFICATE DATE:** 19th February 2018

TEST DETAILS: Test 1 – Hollow Decking – 595mm x 150mm x 25mm. Hollow centres – 27mm x 13mm

TEST RESULTS:

Load (kN)	Maximum Displacement (mm)	Permanent Displacement (mm)	Pass/Fail
4.5	5.41	1.09	Pass



ANALYSIS:

The Hollow Decking when assembled and tested in the manor indicated within this certificate conforms to BS 6399-Part 1-1996. The system achieved a load of 4.5kN with a maximum recorded displacement of 5.41mm.

NAME: Andrew Mercer
POSITION: Senior Technician



TEST CERTIFICATE

WOOD-PLASTIC DECKING LOAD TEST

On behalf of Cladco Profiles Limited
Beardown Road, Exeter Road Industrial Estate
Okehampton, Devon, EX20 1UA

LOAD TEST – HOLLOW DECKING

IN ACCORDANCE TO BS 6399-PART 1-1996

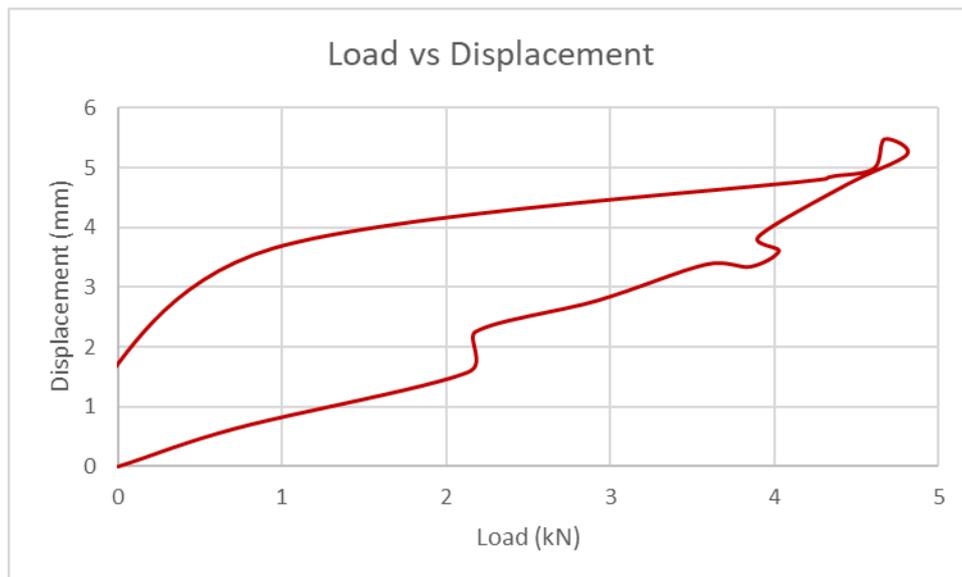
TEST DESCRIPTION: A load test was carried out to determine the flexural strength of the wood-plastic decking. As per Table 1 – Minimum Imposed Floor Loads within BS 6399-Part 1-1996, the concentrated load required for an area of which people may congregate is 4.5kN applied centrally over a span of 400mm and displacement was monitored throughout the test. A total of 3 hollow samples were tested.

REF NO.: DR-5124 **DATE TESTED:** 16th February 2018
JOB NO.: S10161 **DATE REPORTED:** N / A
CERTIFICATE NO.: IC6630 **CERTIFICATE DATE:** 19th February 2018

TEST DETAILS: Test 2 – Hollow Decking – 595mm x 150mm x 25mm. Hollow Centres – 27mm x 13mm

TEST RESULTS:

Load (kN)	Maximum Displacement (mm)	Permanent Displacement (mm)	Pass/Fail
4.5	5.47	0.56	Pass



ANALYSIS:

The Hollow Decking when assembled and tested in the manor indicated within this certificate conforms to BS 6399-Part 1-1996. The system achieved a load of 4.5kN with a maximum recorded displacement of 5.47mm.

NAME: Andrew Mercer
POSITION: Senior Technician



TEST CERTIFICATE

WOOD-PLASTIC DECKING LOAD TEST

On behalf of Cladco Profiles Limited
Beardown Road, Exeter Road Industrial Estate
Okehampton, Devon, EX20 1UA

LOAD TEST – HOLLOW DECKING

IN ACCORDANCE TO BS 6399-PART 1-1996

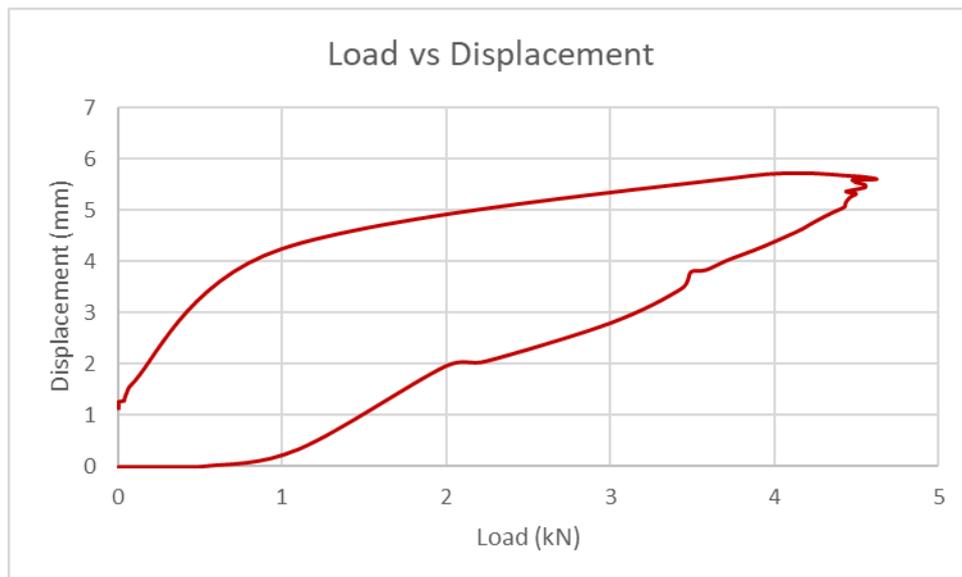
TEST DESCRIPTION: A load test was carried out to determine the flexural strength of the wood-plastic decking. As per Table 1 – Minimum Imposed Floor Loads within BS 6399-Part 1-1996, the concentrated load required for an area of which people may congregate is 4.5kN applied centrally over a span of 400mm and displacement was monitored throughout the test. A total of 3 hollow samples were tested.

REF NO.: DR-5124 **DATE TESTED:** 16th February 2018
JOB NO.: S10161 **DATE REPORTED:** N / A
CERTIFICATE NO.: IC6631 **CERTIFICATE DATE:** 19th February 2018

TEST DETAILS: Test 3 – Hollow Decking – 595mm x 150mm x 25mm. Hollow Centres – 27mm x 13mm

TEST RESULTS:

Load (kN)	Maximum Displacement (mm)	Permanent Displacement (mm)	Pass/Fail
4.5	5.68	1.14	Pass



ANALYSIS:

The Hollow Decking when assembled and tested in the manor indicated within this certificate conforms to BS 6399-Part 1-1996. The system achieved a load of 4.5kN with a maximum recorded displacement of 5.68mm.

NAME: Andrew Mercer
POSITION: Senior Technician



TEST CERTIFICATE

WOOD-PLASTIC DECKING LOAD TEST

On behalf of Cladco Profiles Limited
Beardown Road, Exeter Road Industrial Estate
Okehampton, Devon, EX20 1UA

LOAD TEST – HOLLOW DECKING

IN ACCORDANCE TO BS 6399-PART 1-1996

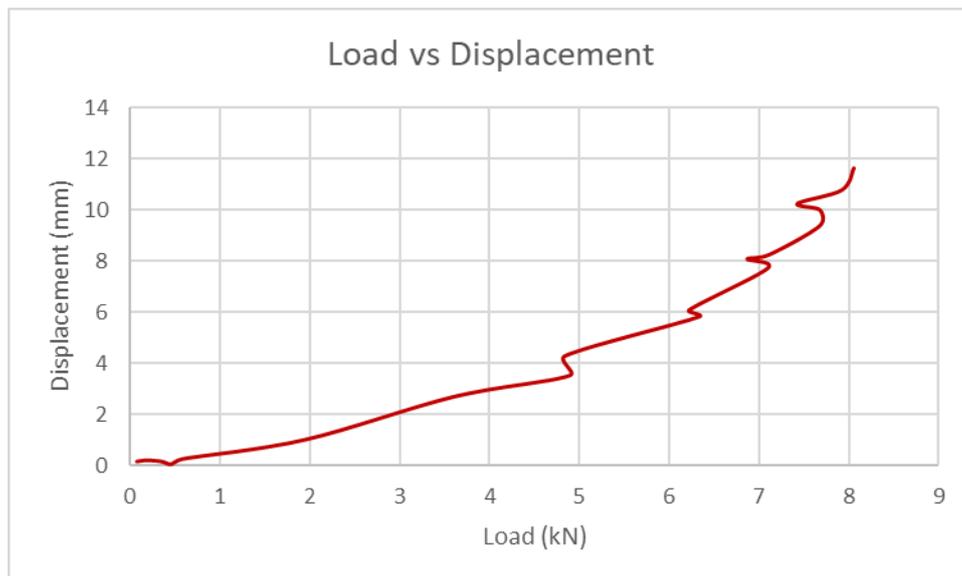
TEST DESCRIPTION: A load test was carried out to determine the maximum load required to fail the wood-plastic decking. The concentrated load was applied centrally over a span of 400mm and displacement was monitored throughout the test. A total of 3 hollow samples were tested to failure.

REF NO.: DR-5124 **DATE TESTED:** 16th February 2018
JOB NO.: S10161 **DATE REPORTED:** N / A
CERTIFICATE NO.: IC6632 **CERTIFICATE DATE:** 19th February 2018

TEST DETAILS: Test 4 – Hollow Decking – 595mm x 150mm x 25mm. Hollow Centres – 27mm x 13mm

TEST RESULTS:

Load Achieved (kN)	Maximum Displacement (mm)
8.06	11.62



ANALYSIS:

The Hollow Decking when assembled and tested in the manor indicated within this certificate achieved a load of 8.06kN with a maximum recorded displacement of 11.62mm before the panel failed.

NAME: Andrew Mercer
POSITION: Senior Technician



TEST CERTIFICATE

WOOD-PLASTIC DECKING LOAD TEST

On behalf of Cladco Profiles Limited
Beardown Road, Exeter Road Industrial Estate
Okehampton, Devon, EX20 1UA

LOAD TEST – HOLLOW DECKING

IN ACCORDANCE TO BS 6399-PART 1-1996

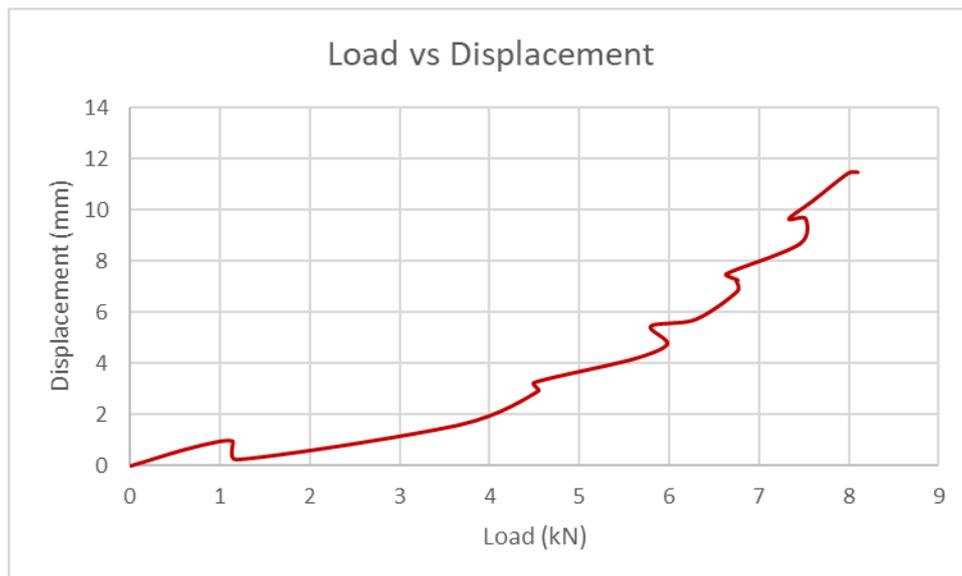
TEST DESCRIPTION: A load test was carried out to determine the maximum load required to fail the wood-plastic decking. The concentrated load was applied centrally over a span of 400mm and displacement was monitored throughout the test. A total of 3 hollow samples were tested to failure.

REF NO.: DR-5124 **DATE TESTED:** 16th February 2018
JOB NO.: S10161 **DATE REPORTED:** N / A
CERTIFICATE NO.: IC6633 **CERTIFICATE DATE:** 19th February 2018

TEST DETAILS: Test 5 – Hollow Decking – 595mm x 150mm x 25mm. Hollow Centres – 27mm x 13mm

TEST RESULTS:

Load Achieved (kN)	Maximum Displacement (mm)
8.09	11.46



ANALYSIS:

The Hollow Decking when assembled and tested in the manor indicated within this certificate achieved a load of 8.09kN with a maximum recorded displacement of 11.46mm before the panel failed.

NAME: Andrew Mercer
POSITION: Senior Technician



TEST CERTIFICATE

WOOD-PLASTIC DECKING LOAD TEST

On behalf of Cladco Profiles Limited
Beardown Road, Exeter Road Industrial Estate
Okehampton, Devon, EX20 1UA

LOAD TEST – HOLLOW DECKING

IN ACCORDANCE TO BS 6399-PART 1-1996

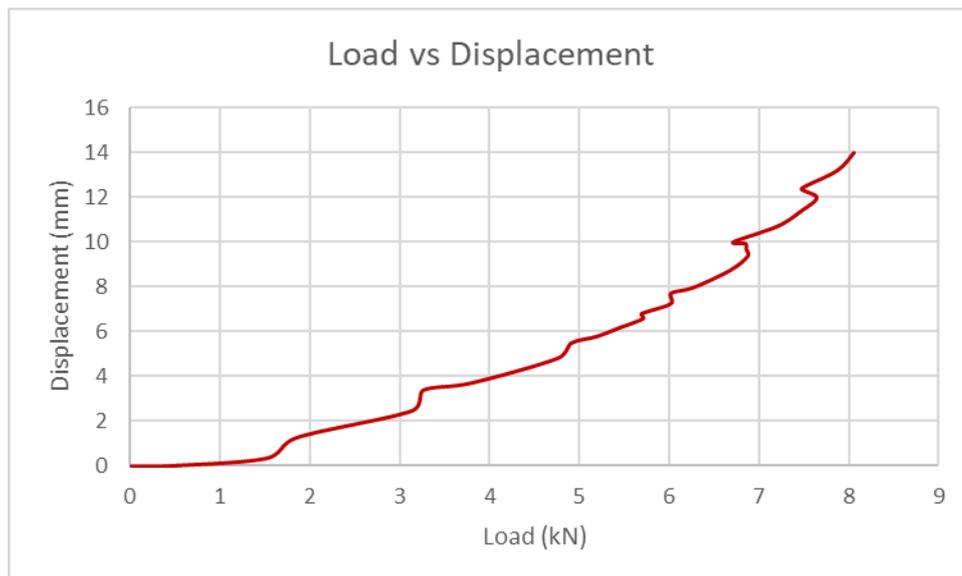
TEST DESCRIPTION: A load test was carried out to determine the maximum load required to fail the wood-plastic decking. The concentrated load was applied centrally over a span of 400mm and displacement was monitored throughout the test. A total of 3 hollow samples were tested to failure.

REF NO.: DR-5124 **DATE TESTED:** 16th February 2018
JOB NO.: S10161 **DATE REPORTED:** N / A
CERTIFICATE NO.: IC6634 **CERTIFICATE DATE:** 19th February 2018

TEST DETAILS: Test 6 – Hollow Decking – 595mm x 150mm x 25mm. Hollow Centres – 27mm x 13mm

TEST RESULTS:

Load Achieved (kN)	Maximum Displacement (mm)
8.05	13.99



ANALYSIS:

The Hollow Decking when assembled and tested in the manor indicated within this certificate achieved a load of 8.05kN with a maximum recorded displacement of 13.99mm before the panel failed.

NAME: Andrew Mercer
POSITION: Senior Technician



TEST CERTIFICATE

WOOD-PLASTIC DECKING LOAD TEST

On behalf of Cladco Profiles Limited
Beardown Road, Exeter Road Industrial Estate
Okehampton, Devon, EX20 1UA

LOAD TEST – SOLID DECKING

IN ACCORDANCE TO BS 6399-PART 1-1996

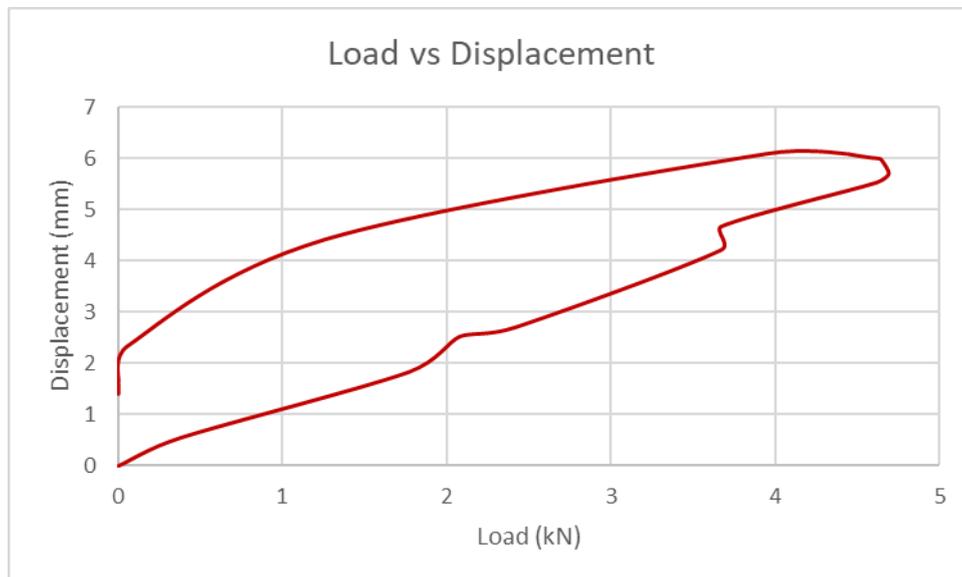
TEST DESCRIPTION: A load test was carried out to determine the flexural strength of the wood-plastic decking. As per Table 1 – Minimum Imposed Floor Loads within BS 6399-Part 1-1996, the concentrated load required for an area of which people may congregate is 4.5kN applied centrally over a span of 400mm and displacement was monitored throughout the test. A total of 3 chambered samples were tested.

REF NO.: DR-5124 **DATE TESTED:** 16th February 2018
JOB NO.: S10161 **DATE REPORTED:** N / A
CERTIFICATE NO.: IC6635 **CERTIFICATE DATE:** 19th February 2018

TEST DETAILS: Test 7 – Solid Decking – 595mm x 150mm x 25mm

TEST RESULTS:

Load (kN)	Maximum Displacement (mm)	Permanent Displacement (mm)	Pass/Fail
4.5	6.09	1.40	Pass



ANALYSIS:

The Solid Decking when assembled and tested in the manor indicated within this certificate conforms to BS 6399-Part 1-1996. The system achieved a load of 4.5kN with a maximum recorded displacement of 6.09mm.

NAME: Andrew Mercer
POSITION: Senior Technician



TEST CERTIFICATE

WOOD-PLASTIC DECKING LOAD TEST

On behalf of Cladco Profiles Limited
Beardown Road, Exeter Road Industrial Estate
Okehampton, Devon, EX20 1UA

LOAD TEST – SOLID DECKING

IN ACCORDANCE TO BS 6399-PART 1-1996

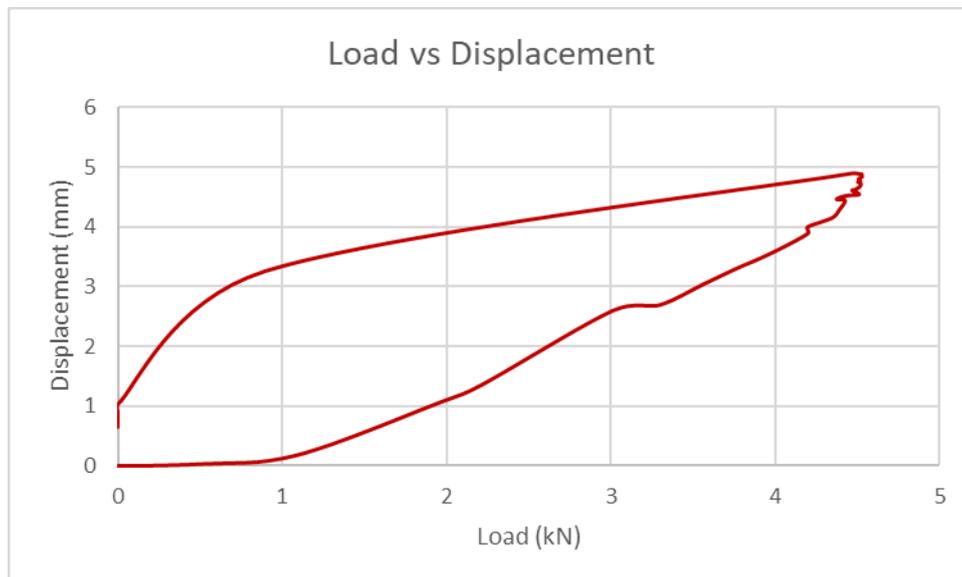
TEST DESCRIPTION: A load test was carried out to determine the flexural strength of the wood-plastic decking. As per Table 1 – Minimum Imposed Floor Loads within BS 6399-Part 1-1996, the concentrated load required for an area of which people may congregate is 4.5kN applied centrally over a span of 400mm and displacement was monitored throughout the test. A total of 3 chambered samples were tested.

REF NO.: DR-5124 **DATE TESTED:** 16th February 2018
JOB NO.: S10161 **DATE REPORTED:** N / A
CERTIFICATE NO.: IC6636 **CERTIFICATE DATE:** 19th February 2018

TEST DETAILS: Test 8 – Solid Decking – 595mm x 150mm x 25mm

TEST RESULTS:

Load (kN)	Maximum Displacement (mm)	Permanent Displacement (mm)	Pass/Fail
4.5	4.87	0.64	Pass



ANALYSIS:

The Solid Decking when assembled and tested in the manor indicated within this certificate conforms to BS 6399-Part 1-1996. The system achieved a load of 4.5kN with a maximum recorded displacement of 4.87mm.

NAME: Andrew Mercer
POSITION: Senior Technician



TEST CERTIFICATE

WOOD-PLASTIC DECKING LOAD TEST

On behalf of Cladco Profiles Limited
Beardown Road, Exeter Road Industrial Estate
Okehampton, Devon, EX20 1UA

LOAD TEST – SOLID DECKING

IN ACCORDANCE TO BS 6399-PART 1-1996

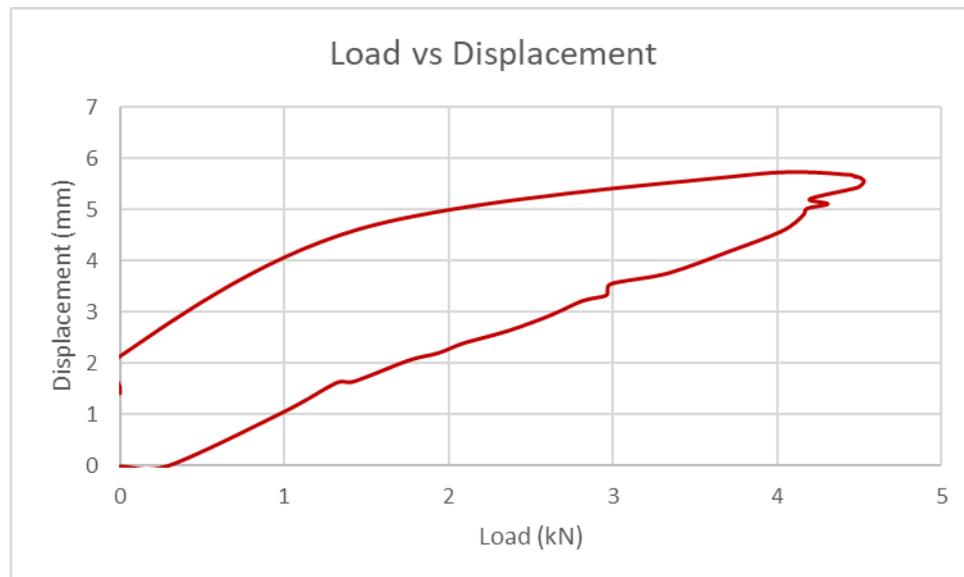
TEST DESCRIPTION: A load test was carried out to determine the flexural strength of the wood-plastic decking. As per Table 1 – Minimum Imposed Floor Loads within BS 6399-Part 1-1996, the concentrated load required for an area of which people may congregate is 4.5kN applied centrally over a span of 400mm and displacement was monitored throughout the test. A total of 3 chambered samples were tested.

REF NO.: DR-5124 **DATE TESTED:** 16th February 2018
JOB NO.: S10161 **DATE REPORTED:** N / A
CERTIFICATE NO.: IC6637 **CERTIFICATE DATE:** 19th February 2018

TEST DETAILS: Test 9 – Solid Decking – 595mm x 150mm x 25mm

TEST RESULTS:

Load (kN)	Maximum Displacement (mm)	Permanent Displacement (mm)	Pass/Fail
4.5	5.69	1.42	Pass



ANALYSIS:

The Solid Decking when assembled and tested in the manor indicated within this certificate conforms to BS 6399-Part 1-1996. The system achieved a load of 4.5kN with a maximum recorded displacement of 5.69mm.

NAME: Andrew Mercer
POSITION: Senior Technician



TEST CERTIFICATE

WOOD-PLASTIC DECKING LOAD TEST

On behalf of Cladco Profiles Limited
Beardown Road, Exeter Road Industrial Estate
Okehampton, Devon, EX20 1UA

LOAD TEST – SOLID DECKING

IN ACCORDANCE TO BS 6399-PART 1-1996

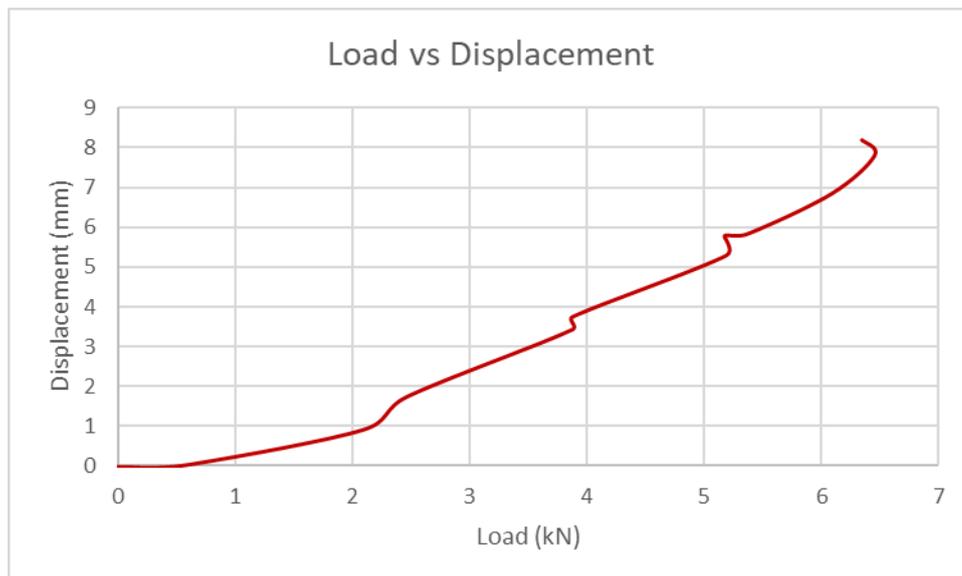
TEST DESCRIPTION: A load test was carried out to determine the maximum load required to fail the wood-plastic decking. The concentrated load was applied centrally over a span of 400mm and displacement was monitored throughout the test. A total of 3 solid samples were tested to failure.

REF NO.: DR-5124 **DATE TESTED:** 16th February 2018
JOB NO.: S10161 **DATE REPORTED:** N / A
CERTIFICATE NO.: IC6638 **CERTIFICATE DATE:** 19th February 2018

TEST DETAILS: Test 10 – Solid Decking – 595mm x 150mm x 25mm

TEST RESULTS:

Load Achieved (kN)	Maximum Displacement (mm)
6.34	8.20



ANALYSIS:

The Solid Decking when assembled and tested in the manor indicated within this certificate achieved a load of 6.34kN with a maximum recorded displacement of 8.20mm before the panel failed.

NAME: Andrew Mercer
POSITION: Senior Technician



TEST CERTIFICATE

WOOD-PLASTIC DECKING LOAD TEST

On behalf of Cladco Profiles Limited
Beardown Road, Exeter Road Industrial Estate
Okehampton, Devon, EX20 1UA

LOAD TEST – SOLID DECKING

IN ACCORDANCE TO BS 6399-PART 1-1996

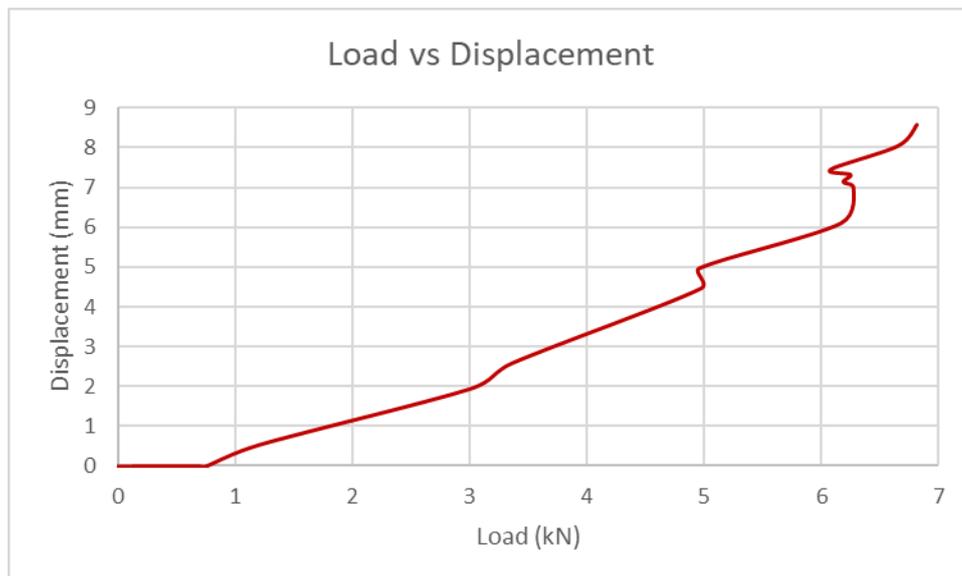
TEST DESCRIPTION: A load test was carried out to determine the maximum load required to fail the wood-plastic decking. The concentrated load was applied centrally over a span of 400mm and displacement was monitored throughout the test. A total of 3 solid samples were tested to failure.

REF NO.: DR-5124 **DATE TESTED:** 16th February 2018
JOB NO.: S10161 **DATE REPORTED:** N / A
CERTIFICATE NO.: IC6639 **CERTIFICATE DATE:** 19th February 2018

TEST DETAILS: Test 11 – Solid Decking – 595mm x 150mm x 25mm

TEST RESULTS:

Load Achieved (kN)	Maximum Displacement (mm)
6.81	8.57



ANALYSIS:

The Solid Decking when assembled and tested in the manor indicated within this certificate achieved a load of 6.81kN with a maximum recorded displacement of 8.57mm before the panel failed.

NAME: Andrew Mercer
POSITION: Senior Technician



TEST CERTIFICATE

WOOD-PLASTIC DECKING LOAD TEST

On behalf of Cladco Profiles Limited
Beardown Road, Exeter Road Industrial Estate
Okehampton, Devon, EX20 1UA

LOAD TEST – SOLID DECKING

IN ACCORDANCE TO BS 6399-PART 1-1996

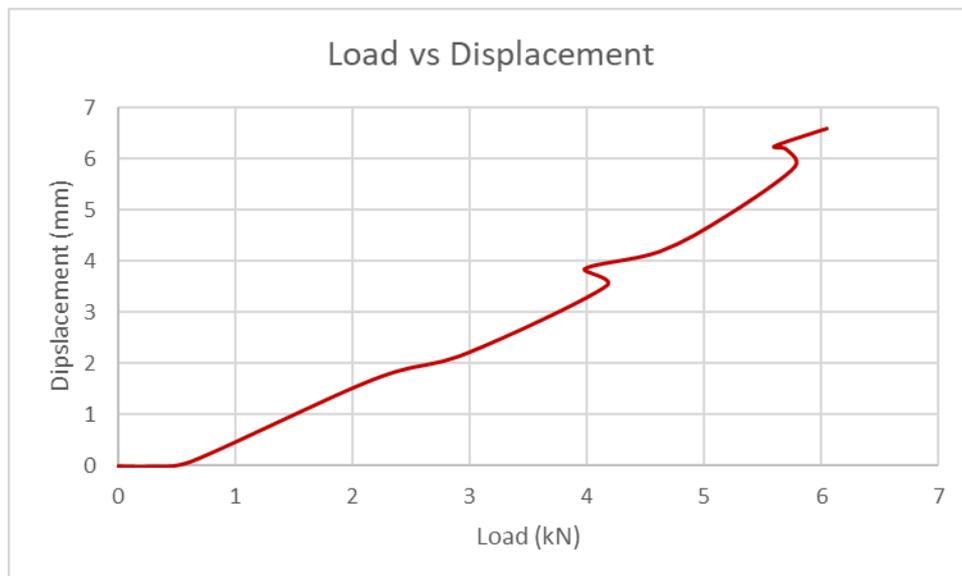
TEST DESCRIPTION: A load test was carried out to determine the maximum load required to fail the wood-plastic decking. The concentrated load was applied centrally over a span of 400mm and displacement was monitored throughout the test. A total of 3 solid samples were tested to failure.

REF NO.: DR-5124 **DATE TESTED:** 16th February 2018
JOB NO.: S10161 **DATE REPORTED:** N / A
CERTIFICATE NO.: IC6640 **CERTIFICATE DATE:** 19th February 2018

TEST DETAILS: Test 12 – Solid Decking – 595mm x 150mm x 25mm

TEST RESULTS:

Load Achieved (kN)	Maximum Displacement (mm)
6.04	6.59



ANALYSIS:

The Solid Decking when assembled and tested in the manor indicated within this certificate achieved a load of 6.04kN with a maximum recorded displacement of 6.59mm before the panel failed.

NAME: Andrew Mercer
POSITION: Senior Technician



TEST CERTIFICATE

WOOD-PLASTIC DECKING - NAIL PENETRATION TEST

On behalf of Cladco Profiles Limited
Beardown Road, Exeter Road Industrial Estate
Okehampton, Devon, EX20 1UA

NAIL PENETRATION TEST – SOLID DECKING

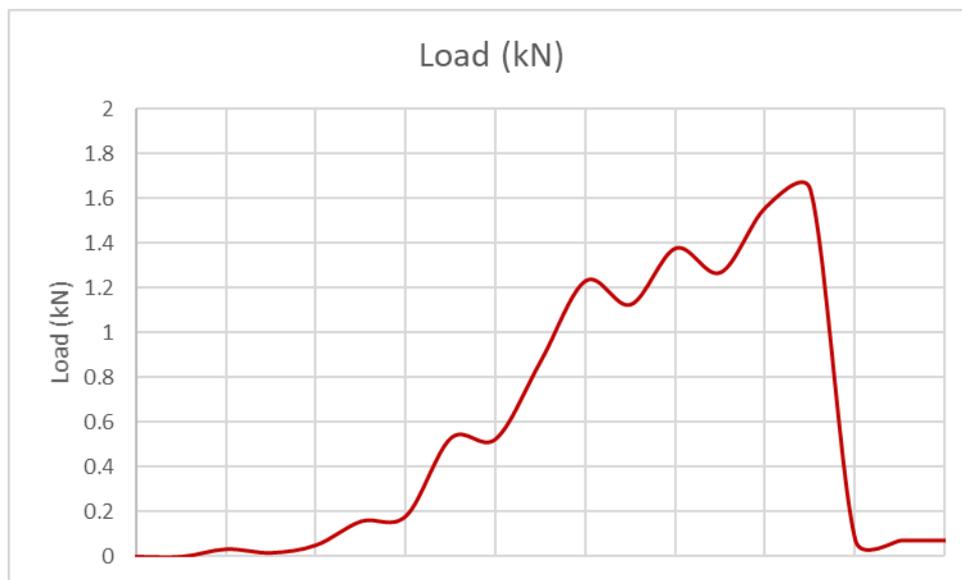
TEST DESCRIPTION: A Nail test was carried out to determine the maximum load required to penetrate the wood-plastic decking with a 3.3mm x 30mm nail.

REF NO.: DR-5124 **DATE TESTED:** 16th February 2018
JOB NO.: S10161 **DATE REPORTED:** N / A
CERTIFICATE NO.: IC6641 **CERTIFICATE DATE:** 19th February 2018

TEST DETAILS: Test 13 – Solid Decking – 595mm x 150mm x 25mm.
TEST SPECIFICATION: 3.3mm x 30mm - Round Head - Galvanised Clout Nail.

TEST RESULTS:

Load Required (kN)	Depth of Nail Penetration (mm)
1.63	25



ANALYSIS:

The Solid Decking when assembled and tested in the manor indicated within this certificate required a load of 1.63Kn to penetrate the solid decking with a 3.3mm galvanised nail.

NAME: Andrew Mercer
POSITION: Senior Technician



TEST CERTIFICATE

WOOD-PLASTIC DECKING - NAIL PENETRATION TEST

On behalf of Cladco Profiles Limited
Beardown Road, Exeter Road Industrial Estate
Okehampton, Devon, EX20 1UA

NAIL PENETRATION TEST – SOLID DECKING

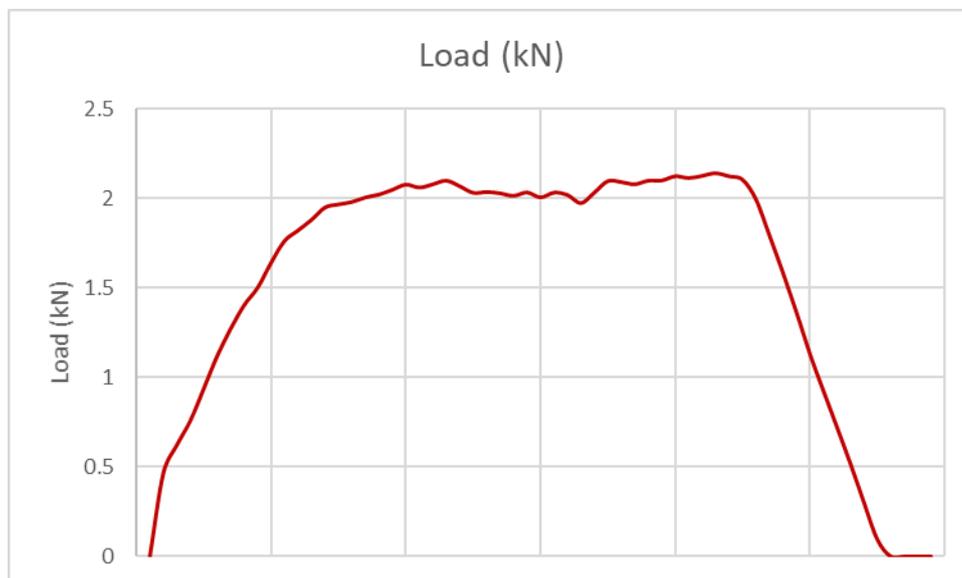
TEST DESCRIPTION: A Nail test was carried out to determine the maximum load required to penetrate the wood-plastic decking with a 3.3mm x 30mm nail.

REF NO.: DR-5124 **DATE TESTED:** 16th February 2018
JOB NO.: S10161 **DATE REPORTED:** N / A
CERTIFICATE NO.: IC6642 **CERTIFICATE DATE:** 19th February 2018

TEST DETAILS: Test 14 – Solid Decking – 595mm x 150mm x 25mm.
TEST SPECIFICATION: 3.3mm x 30mm - Round Head - Galvanised Clout Nail.

TEST RESULTS:

Load Required (kN)	Depth of Nail Penetration (mm)
2.06	25



ANALYSIS:

The Solid Decking when assembled and tested in the manor indicated within this certificate required a load of 2.06Kn to penetrate the solid decking with a 3.3mm galvanised nail.

NAME: Andrew Mercer
POSITION: Senior Technician



TEST CERTIFICATE

WOOD-PLASTIC DECKING - NAIL PENETRATION TEST

On behalf of Cladco Profiles Limited
Beardown Road, Exeter Road Industrial Estate
Okehampton, Devon, EX20 1UA

NAIL PENETRATION TEST – SOLID DECKING

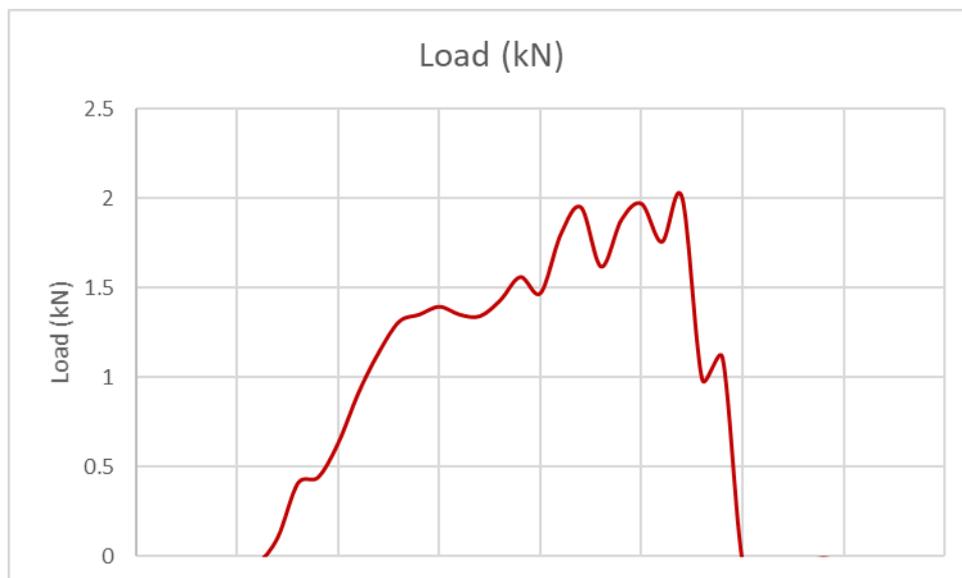
TEST DESCRIPTION: A Nail test was carried out to determine the maximum load required to penetrate the wood-plastic decking with a 3.3mm x 30mm nail.

REF NO.: DR-5124 **DATE TESTED:** 16th February 2018
JOB NO.: S10161 **DATE REPORTED:** N / A
CERTIFICATE NO.: IC6643 **CERTIFICATE DATE:** 19th February 2018

TEST DETAILS: Test 15 – Solid Decking – 595mm x 150mm x 25mm.
TEST SPECIFICATION: 3.3mm x 30mm - Round Head - Galvanised Clout Nail.

TEST RESULTS:

Load Required (kN)	Depth of Nail Penetration (mm)
1.95	25



ANALYSIS:

The Solid Decking when assembled and tested in the manor indicated within this certificate required a load of 1.95Kn to penetrate the solid decking with a 3.3mm galvanised nail.

NAME: Andrew Mercer
POSITION: Senior Technician



TEST CERTIFICATE

WOOD-PLASTIC DECKING - NAIL PENETRATION TEST

On behalf of Cladco Profiles Limited
Beardown Road, Exeter Road Industrial Estate
Okehampton, Devon, EX20 1UA

NAIL PENETRATION TEST – HOLLOW DECKING

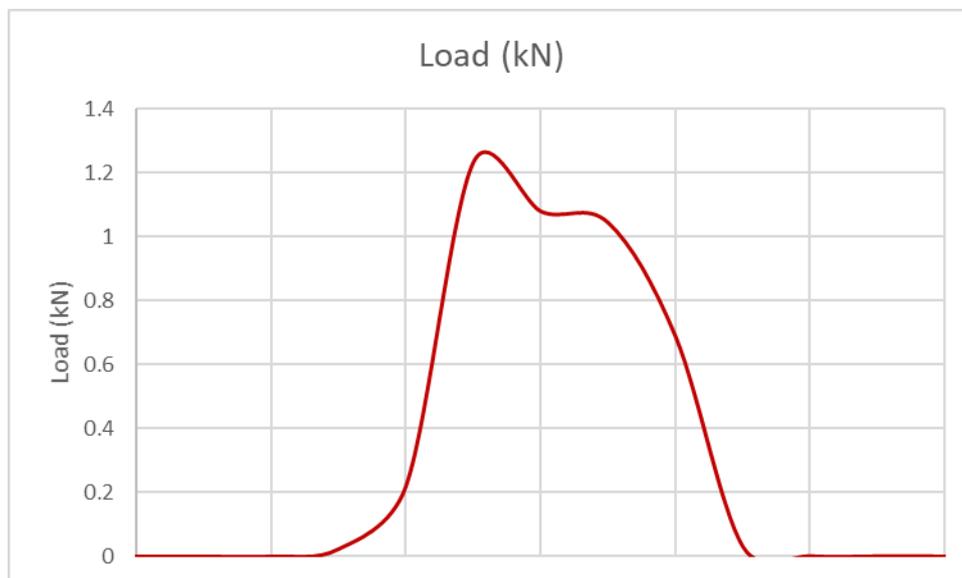
TEST DESCRIPTION: A Nail test was carried out to determine the maximum load required to penetrate the wood-plastic decking with a 3.3mm x 30mm nail.

REF NO.: DR-5124 **DATE TESTED:** 16th February 2018
JOB NO.: S10161 **DATE REPORTED:** N / A
CERTIFICATE NO.: IC6644 **CERTIFICATE DATE:** 19th February 2018

TEST DETAILS: Test 16 – Hollow Decking – 595mm x 150mm x 25mm. Hollow Centres – 27mm x 13mm
TEST SPECIFICATION: 3.3mm x 30mm - Round Head - Galvanised Clout Nail.

TEST RESULTS:

Load Required (kN)	Depth of Nail Penetration (mm)
1.23	25



ANALYSIS:

The Chambered Decking when assembled and tested in the manor indicated within this certificate required a load of 1.23Kn to penetrate the solid decking with a 3.3mm galvanised nail.

NAME: Andrew Mercer
POSITION: Senior Technician



TEST CERTIFICATE

WOOD-PLASTIC DECKING - NAIL PENETRATION TEST

On behalf of Cladco Profiles Limited
Beardown Road, Exeter Road Industrial Estate
Okehampton, Devon, EX20 1UA

NAIL PENETRATION TEST – HOLLOW DECKING

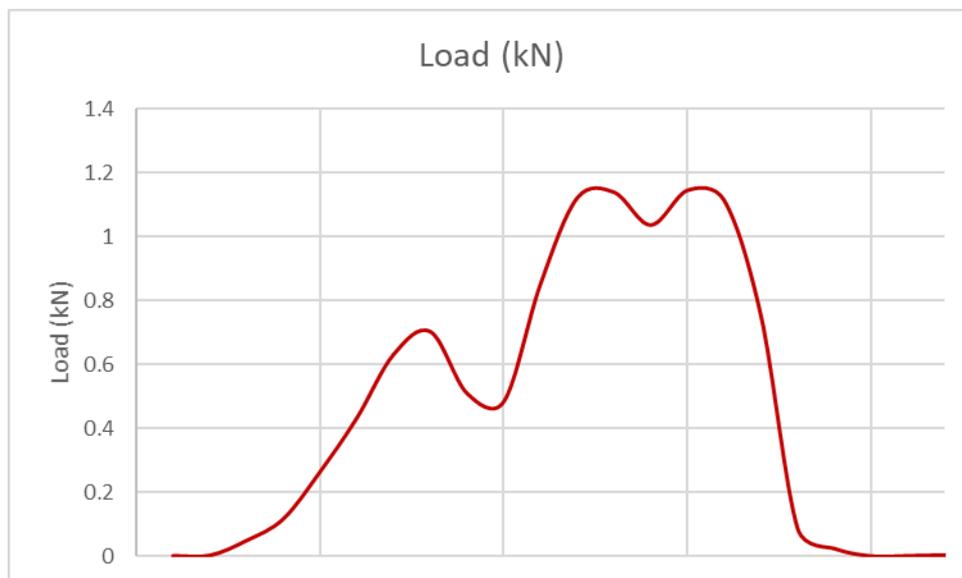
TEST DESCRIPTION: A Nail test was carried out to determine the maximum load required to penetrate the wood-plastic decking with a 3.3mm x 30mm nail.

REF NO.: DR-5124 **DATE TESTED:** 16th February 2018
JOB NO.: S10161 **DATE REPORTED:** N / A
CERTIFICATE NO.: IC6645 **CERTIFICATE DATE:** 19th February 2018

TEST DETAILS: Test 17 – Hollow Decking – 595mm x 150mm x 25mm. Hollow Centres – 27mm x 13mm
TEST SPECIFICATION: 3.3mm x 30mm - Round Head - Galvanised Clout Nail.

TEST RESULTS:

Load Required (kN)	Depth of Nail Penetration (mm)
1.13	25



ANALYSIS:

The Hollow Decking when assembled and tested in the manor indicated within this certificate required a load of 1.13Kn to penetrate the solid decking with a 3.3mm galvanised nail.

NAME: Andrew Mercer
POSITION: Senior Technician



TEST CERTIFICATE

WOOD-PLASTIC DECKING - NAIL PENETRATION TEST

On behalf of Cladco Profiles Limited
Beardown Road, Exeter Road Industrial Estate
Okehampton, Devon, EX20 1UA

NAIL PENETRATION TEST – HOLLOW DECKING

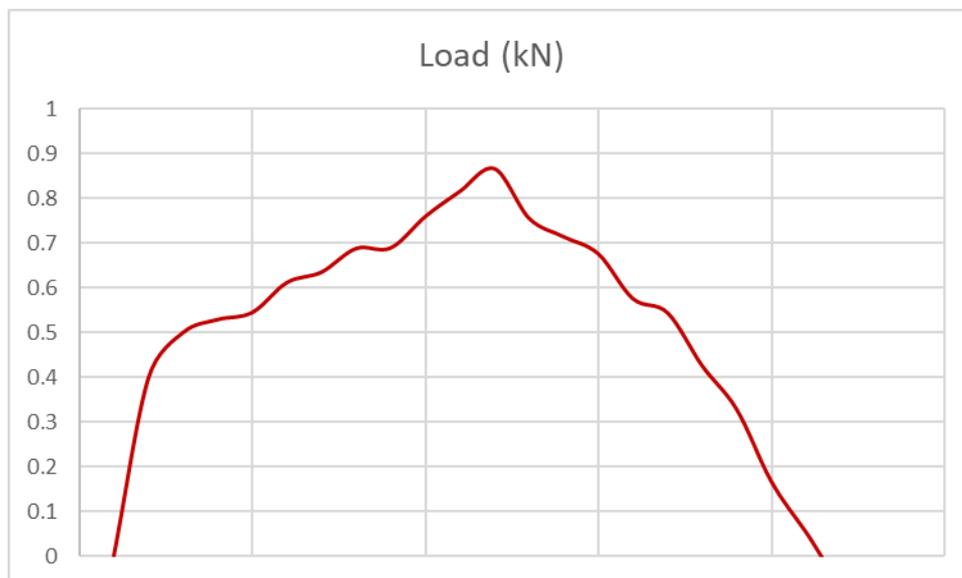
TEST DESCRIPTION: A Nail test was carried out to determine the maximum load required to penetrate the wood-plastic decking with a 3.3mm x 30mm nail.

REF NO.: DR-5124 **DATE TESTED:** 16th February 2018
JOB NO.: S10161 **DATE REPORTED:** N / A
CERTIFICATE NO.: IC6646 **CERTIFICATE DATE:** 19th February 2018

TEST DETAILS: Test 18 – Hollow Decking – 595mm x 150mm x 25mm. Hollow Centres – 27mm x 13mm
TEST SPECIFICATION: 3.3mm x 30mm - Round Head - Galvanised Clout Nail.

TEST RESULTS:

Load Required (kN)	Depth of Nail Penetration (mm)
0.87	25



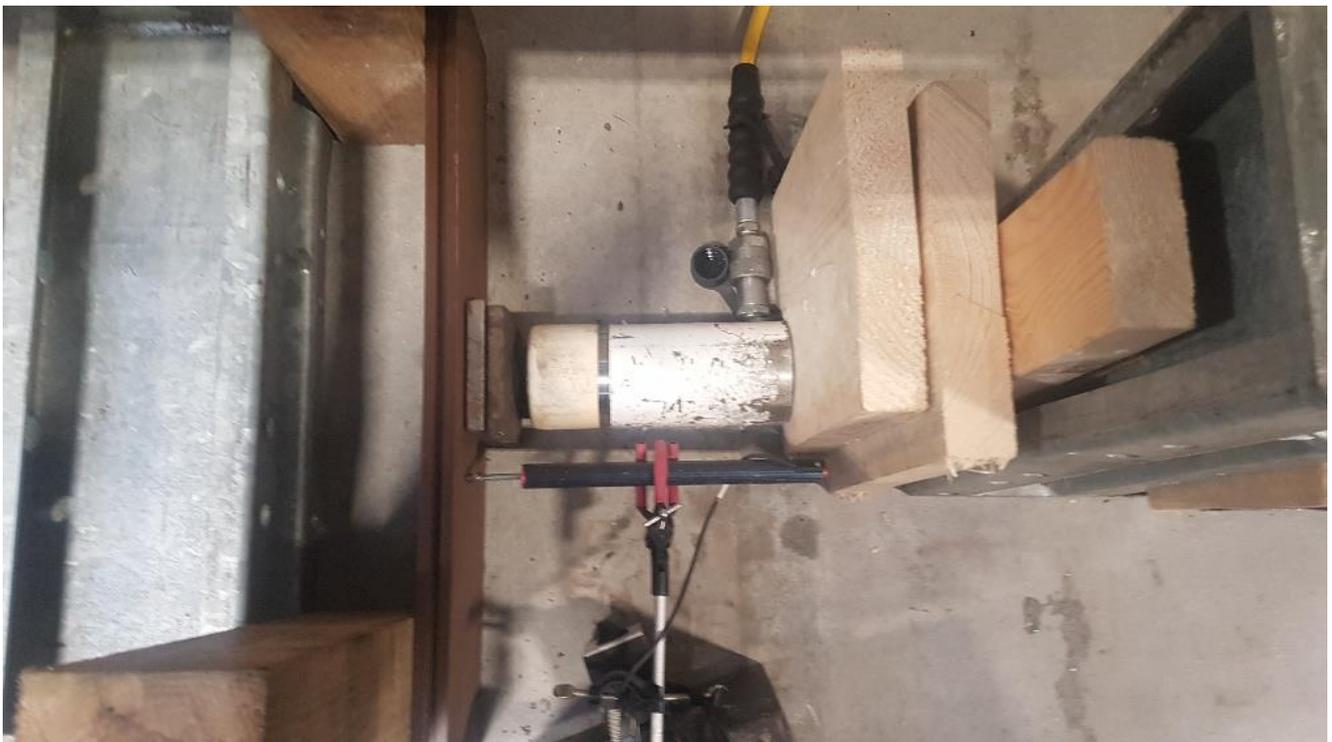
ANALYSIS:

The Hollow Decking when assembled and tested in the manor indicated within this certificate required a load of 1.13Kn to penetrate the solid decking with a 3.3mm galvanised nail.

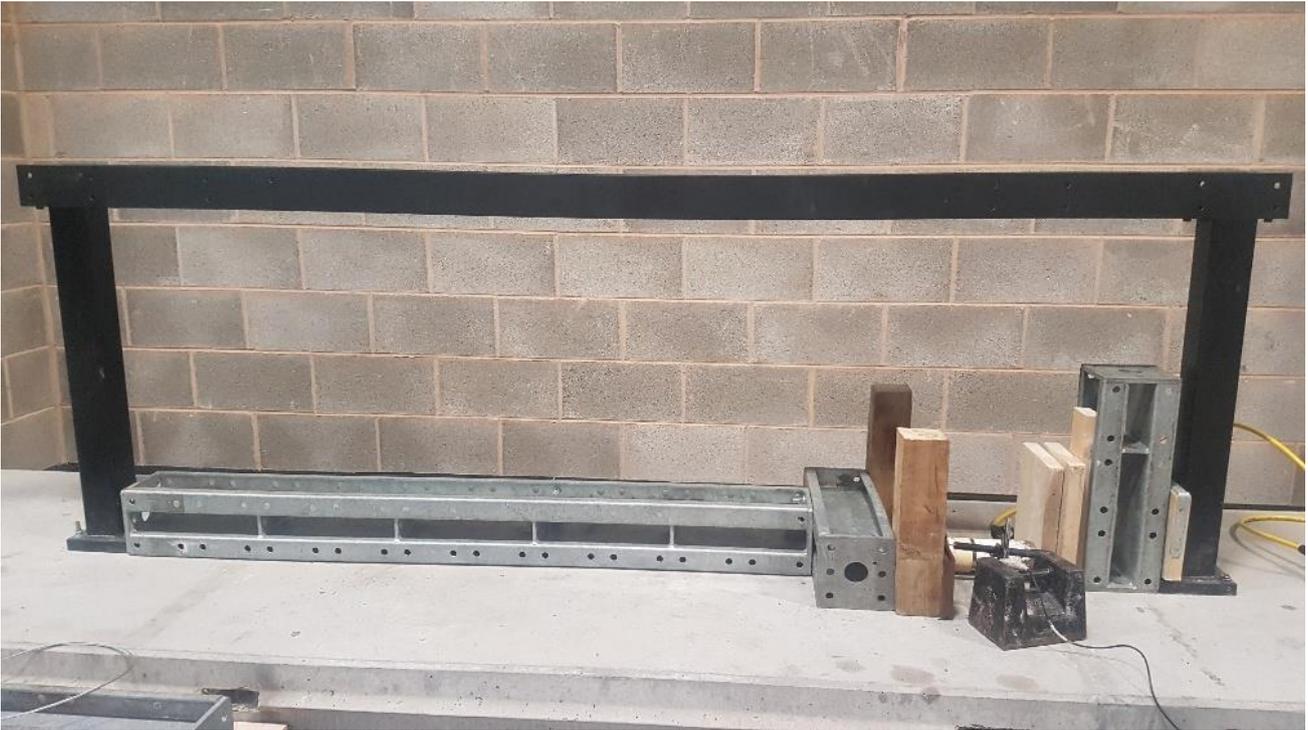
NAME: Andrew Mercer
POSITION: Senior Technician

APPENDIX B

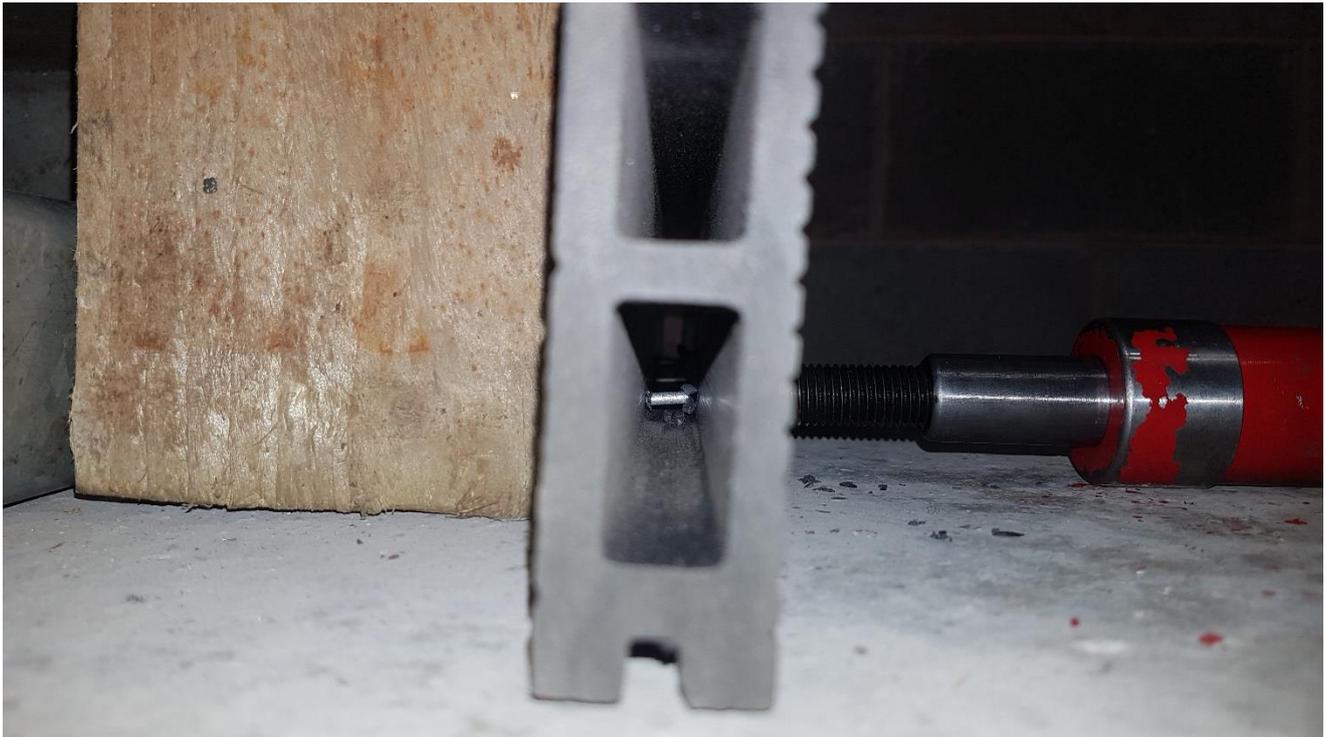
PHOTOGRAPHIC RECORDS



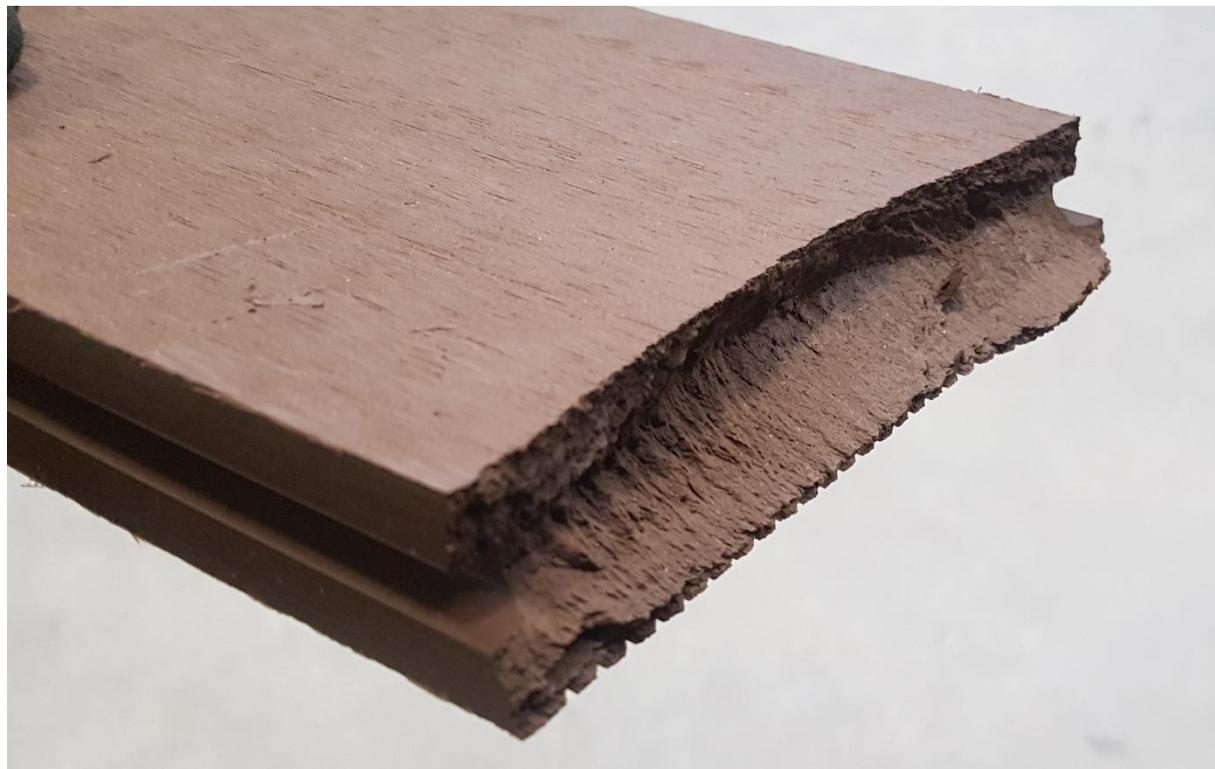
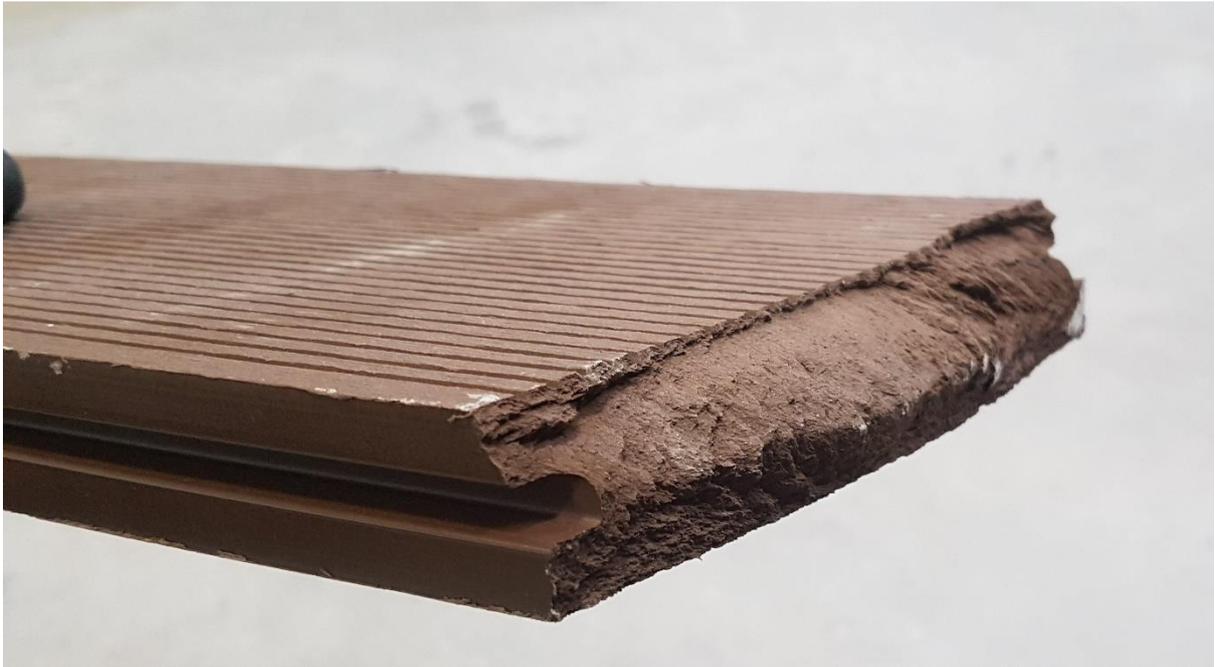
Pictures 3 & 4 – Test Setup to test the Solid and Hollow decking up to a concentrated load of 4.5kN and the testing to failure for both the Hollow and Solid Decking.



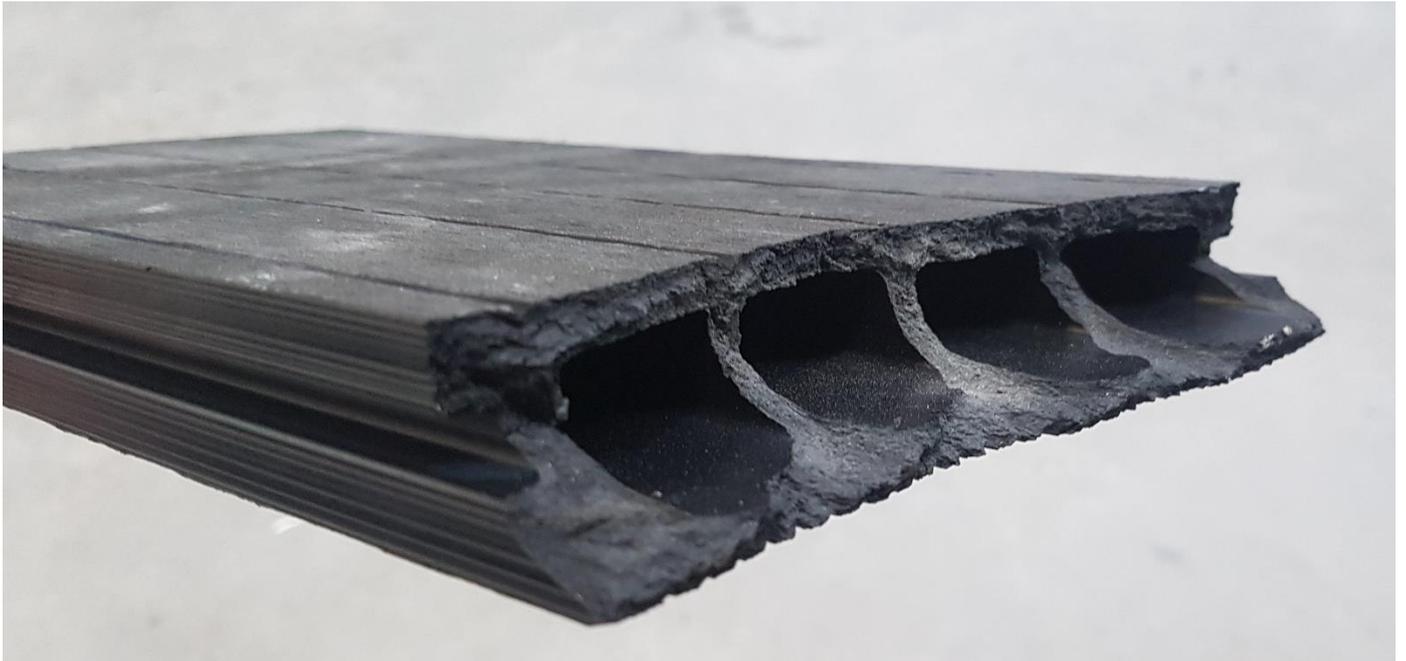
Pictures 5 & 6 – Test Setup to test the Solid and Hollow decking up to a concentrated load of 4.5kN and the Nail Penetration Testing.



Pictures 7 & 8 – Picture of the nail fully penetrating the Hollow Decking and a picture of the type of nails used for the penetration testing.



Pictures 9 & 10 – Picture of failed solid decking (both halves).



Pictures 11 & 12 – Picture of the failed hollow decking (both halves).

