



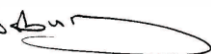
TEST REPORT

LPF 36-60 Stepped Composite Trench Panel
BS EN124 A15 Test
Span - 800mm (31.5ins.)

Document reference number - FIB-LPF-36-60-27-06-17

Report by:

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Date test carried out:

26th June 2017

Customer name:

Fibrelite Composites Ltd.
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Clarifying Statements:

1. The results reported have been performed in accordance with the test requirements agreed by the customer (Fibrelite Ltd.) and laid down in the new draft FprEN 124-1 2014 standard along with the composite section FprEN 124-5.
2. This report does not include or imply any expert opinions as to the serviceability of the sample tested or their suitability for a specific purpose.
3. The submitter disclaims any liability of any kind for any damage whatsoever resulting from the use of either data in the files or the attached values of the test results reported.
4. The report may not be reproduced other than in full, except with the prior written consent of the Engineering Dept., Lancaster University.
5. All testing has been carried out in within the Engineering Department, Gillow Ave., Lancaster University, Bailrigg, Lancaster LA1 4YW.
6. This report applies only to those items and/or materials that have been tested and reported on herein. No inference shall be made to similar test items or materials/ samples.

Panel

The composite trench panel supplied is an LMF- 36-60 stepped (Photo.1)

This is a 1520mm (59.8in) long x 915mm (36") wide x 59mm (2.32") deep panel with two 57mm x 13mm (2.24" x 0.5") deep rebates running down the longest sides of the panel.

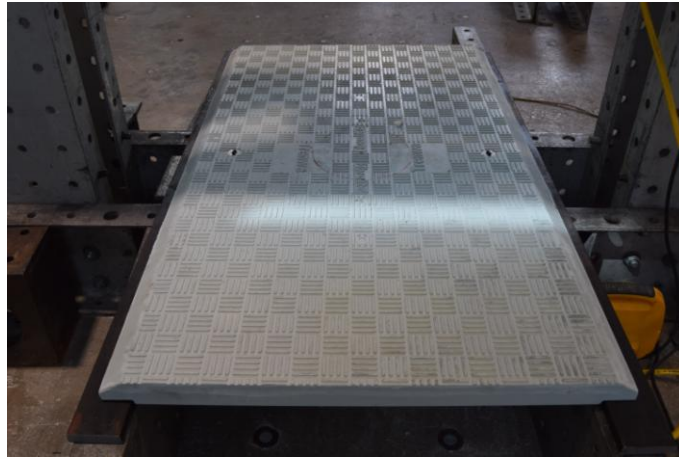


Photo.1

Test Rig

The test rig consists of a 'giant mecano' frame bolted to the floor and supporting the Enerpac 50 ton hydraulic cylinder.

The panel was supported along its longest sides on two sets of steel I sections with 100mm x 20mm steel bars on top giving a clear span of 800mm (31.5"). (Photo.2)

Test Rig ID: EG100TF

Load Cell ID: N.C.B./M.R.E.-400/2932N



Photo.2

Test

The tests were carried out in accordance with the Draft FprEN 124:2014 standard for:

- Permanent Set – Clause 8.2
- Load Bearing Capacity – Clause 8.3

The load was applied to the panel through a 250mm diameter by 45mm thick steel block with a 250mm diameter by 10mm rubber pad between the block and panel.

Permanent Set Test

Measurement of permanent set shall be made on the upper-side of the panel in the same place as the applied load at the longest dimension which can be inscribed within the panel through the centre point of the load application. The measurement device shall be positioned as close as possible to the centre point of the load application and the seating of the measuring device support as close as possible to the edge of the panel but not exceeding 10mm from the edge.

An initial reading is to be taken at the geometric centre of the panel before the first load or any preloading has taken place.

The load is then to be applied at a rate of 1kN/s to 5kN/s up to 2/3 of the test load. This procedure is to be carried out five times without significant disruption.

A final deflection reading shall then be taken and the permanent set determined as the difference of the measured readings between the first and fifth readings.

Load Bearing Capacity

Immediately after the permanent set test the panel shall be loaded up to the test load at a rate of 1kN/s to 5kN/s.

The test load shall then be maintained for $30\frac{+2}{-0}$ seconds.

Results

Permanent set test

Photograph 3 below shows the initial reading being taken for the permanent set test.

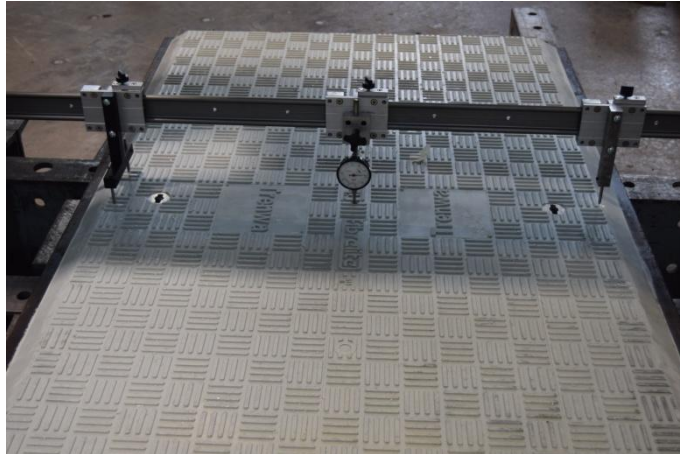


Photo.3

Initial Reading	0.00mm (0.00in.)
Reading after 5 cycles	0.05mm (.002in.)
Permanent Set	0.05mm (.002in.)

Permissible permanent set for a A15 test is $\frac{CO}{100} = \frac{800}{100} = 8.00\text{mm} (.315\text{in.})$

The panel therefore passes the Permanent Set test.

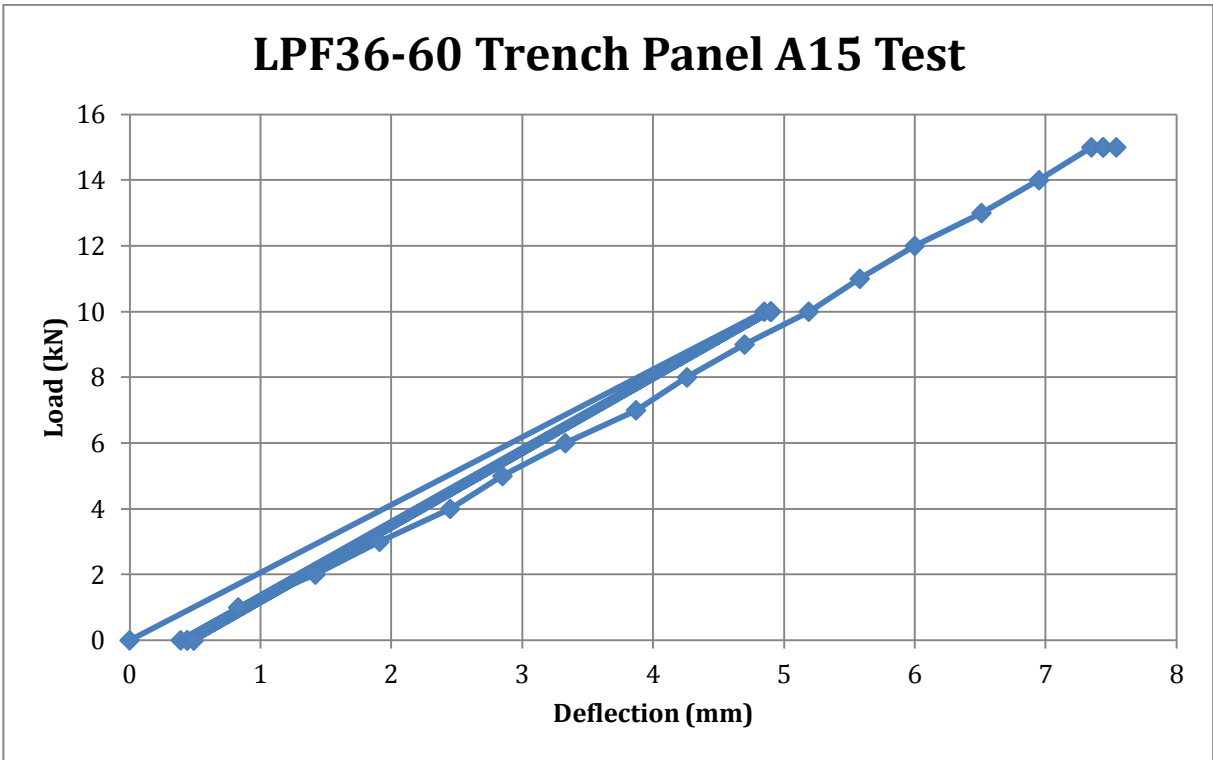
Load Bearing Capacity Test

Load applied immediately after the permanent set test.

Although the standard does not require it for the load bearing test, a measuring device (linear potentiometer) was placed on the underside of the panel directly under the loading point and deflection readings taken every 10kN for the five cycles and 1kN intervals after that.

	LOAD		DEFLECTION		REMARKS
	(kN)	(lbs)	(mm)	(ins.)	
	0	0	0.00	0.00	
	10	2248	4.85	.191	
	0	0	0.39	.015	
	10	2248	4.90	.193	
	0	0	0.44	.017	
	10	2248	4.90	.193	
	0	0	0.44	.017	
	10	2248	4.90	.193	
	0	0	0.49	.019	
	10	2248	4.90	.193	
	0	0	0.49	.019	
	1	225	0.83	.033	
	2	450	1.42	.056	
	3	675	1.91	.075	
	4	900	2.45	.096	
	5	1124	2.85	.112	
	6	1349	3.33	.131	
	7	1609	3.87	.152	
	8	1798	4.26	.168	
	9	2023	4.70	.185	
	10	2248	5.19	.204	
	11	2473	5.58	.220	
	12	2698	6.00	.236	
	13	2922	6.51	.256	
	14	3147	6.95	.273	
	15	3372	7.35	.289	
	15 (10 seconds)	3372 (10 secs.)	7.44	.293	
	15 (20 seconds)	3372 (20 secs.)	7.44	.293	
	15 (30 seconds)	3372 (30 secs.)	7.54	.297	PASS
	0	0	0.58	.023	
	64.0	14,388	Gauge removed		Ultimate failure

The panel held the test load of 15kN for the required 30 seconds so therefore passed the Load Bearing test.



After the panel had passed the EN124 A15 test it was loaded further until ultimate failure occurred at 64kN (14,388 lbs)