

**Test Report No. 54S070466/2/NLH
dated 23/02/2007**



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SUBJECT:

Determination of Fibre Cement Board (Shera Flexy Board) submitted by Mahaphant Fiber-Cement Public Company Limited.

TESTED FOR:

Mahaphant Fiber-Cement Public Company Limited
59 Moo 12 Saraburi-Lomsak Rd., KM 16 , Chongsarika DIST.,
Pattananikhom , Lopuri 15220, Thailand
Attn: Mr Soontorn Tansungnoen

TEST METHOD:

As requested by the Client, the test was conducted in accordance with BS EN 12467: 2000 Fibre-cement flat sheets - Product Specifications and test methods

1. Geometric Measurements (Length, Width and Thickness)
2. Straightness and squareness of edges
3. Apparent Density
4. Water impermeability
5. Bending strength
6. Warm water
7. Soak Dry
8. Freeze & Thaw

DESCRIPTION OF SAMPLE:

One lot of Fibre Cement Board said to be "SHERA Flexy" Brand was received.

Brand: SHERA Flexy
Type : NT (Non-Asbestos Technology)
Date of manufacture: 24 Oct 2006
Category A

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TEST RESULTS:

1. Measurement of Length, Width and Thickness

Sample Reference	1	2	3	Tolerance on nominal dimensions (mm) Level I
Average size (Length) mm	2440	2440	2440	± 5
Average size (Width) mm	1221	1221	1221	± 3.7
Average size (Thickness) mm	6.0	6.0	6.1	± 10% (non-textured)

Note: Sample size 2440 x 1220 x 6.0 mm

2. Straightness and squareness of edges

Sample Reference	1		2		3		Tolerance for Level I
Straightness of edges, mm	0.5		0.6		0.6		0.1%
Squareness of edges, mm	2725	2730	2724	2729	2729	2725	-
Average Squareness of edges, mm	5		5		4		2mm/m

Note: Sample size 2440 x 1220 x 6.0 mm



TEST RESULTS:

3. Density (Apparent density)

Sample Reference	1	2	3	4	5
Weight (g)	466.8	467.5	482.2	468.1	479.9
Length(mm)	250.0	250.1	250.2	250.2	250.6
Width (mm)	248.4	248.3	248.7	248.0	248.0
Thickness (mm)	6.1	6.2	6.0	6.2	6.2
Density (g/cm ³)	1.23	1.21	1.29	1.22	1.25
Average Density (g/cm ³)	1.24				

Note: Sample size 250 x 250 x 6.0 mm

4. Water impermeability

Sample Reference	1	2	3
Water Permeability	Water was absorbed by the samples and hence, moisture was observed on the underside of the sample. However, no there were no drops of water forming on the underside.		

Note: Sample size 500 x 150 x 6.0 mm

Criteria: Traces of moisture may appear on the under surface of the sheet, but in no instance shall there be any formation of drops of water.



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TEST RESULTS:

5. Wet Bending Strength

Sample Reference	1		2		3		4		5	
Direction of test	T	L	T	L	T	L	T	L	T	L
Maximum load (N)	214.06	373.36	209.59	328.48	215.16	313.63	226.97	311.17	219.29	324.93
Flexural strength (N/mm ²)	7.18	12.52	6.75	10.58	6.93	10.10	7.31	10.02	7.06	10.47

Sample Reference	6		7		8		9		10	
Direction of test	T	L	T	L	T	L	T	L	T	L
Maximum load (N)	202.58	331.59	191.95	293.62	207.56	331.25	222.41	328.30	202.92	343.07
Flexural strength (N/mm ²)	6.58	10.77	6.43	9.84	6.71	10.71	7.46	11.01	6.79	11.49

Note: Sample size 250 x 250 x 6.0 mm

Remark: T = transverse direction as marked by client

L = longitudinal direction as marked by client

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TEST RESULTS:

6. Warm Water (after conditioning)

Sample Reference	1		2		3		4		5	
Direction of test	T	L	T	L	T	L	T	L	T	L
Maximum load (N)	300.38	481.37	323.33	460.27	338.01	492.67	346.45	510.31	306.45	468.96
Flexural strength (N/mm ²)	9.71	15.55	10.75	15.31	10.88	15.86	10.85	15.99	10.22	15.63
Individual ratio, MR_i	1.35	1.24	1.59	1.45	1.57	1.57	1.48	1.60	1.45	1.49

Sample Reference	6		7		8		9		10	
Direction of test	T	L	T	L	T	L	T	L	T	L
Maximum load (N)	313.29	504.99	310.84	464.58	344.25	472.59	316.92	509.13	325.44	475.29
Flexural strength (N/mm ²)	10.42	16.80	10.76	16.09	11.08	15.20	10.23	16.43	10.93	15.96
Individual ratio, MR_i	1.58	1.56	1.67	1.63	1.65	1.42	1.37	1.49	1.60	1.39
Average ratio, MR_i (samples 1 to 10 inclusive)	1.51									
Standard deviation (samples 1 to 10 inclusive)	0.11									
95% Lower confidence limit, R_L	1.44									

Note: Sample size 250 x 250 x 6.0 mm

Criteria: The ratio, R_L shall not be less than 0.75.

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TEST RESULTS:

7. Soak Dry (after conditioning)

Sample Reference	1		2		3		4		5	
Direction of test	T	L	T	L	T	L	T	L	T	L
Maximum load (N)	317.51	489.13	315.57	478.16	324.34	483.39	284.60	453.52	293.54	479.76
Flexural strength (N/mm ²)	10.26	15.81	10.58	16.03	10.50	15.65	9.51	15.15	9.45	15.44
Individual ratio, MR_i	1.43	1.26	1.57	1.52	1.52	1.55	1.30	1.51	1.34	1.48

Sample Reference	6		7		8		9		10	
Direction of test	T	L	T	L	T	L	T	L	T	L
Maximum load (N)	301.73	480.02	296.41	444.07	327.89	474.19	332.70	479.93	342.57	479.68
Flexural strength (N/mm ²)	9.77	15.54	9.60	14.38	10.29	14.87	10.77	15.54	10.76	15.06
Individual ratio, MR_i	1.48	1.44	1.49	1.46	1.53	1.39	1.44	1.41	1.58	1.31
Average ratio, MR_i (samples 1 to 10 inclusive)	1.45									
Standard deviation (samples 1 to 10 inclusive)	0.09									
95% Lower confidence limit, R_L	1.40									

Note: Sample size 250 x 150 x 6.0 mm

Criteria: The ratio, R_L shall not be less than 0.75.

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TEST RESULTS:

8. Freeze & Thaw (after conditioning)

Sample Reference	1		2		3		4		5	
Direction of test	T	L	T	L	T	L	T	L	T	L
Maximum load (N)	359.52	581.85	353.53	589.78	341.47	482.20	299.87	609.52	348.81	590.20
Flexural strength (N/mm ²)	11.75	19.46	11.55	19.59	11.08	15.30	10.51	18.78	11.32	19.87
Individual ratio, MR_i	1.64	1.55	1.71	1.85	1.60	1.51	1.44	1.87	1.60	1.90

Sample Reference	6		7		8		9		10	
Direction of test	T	L	T	L	T	L	T	L	T	L
Maximum load (N)	256.50	530.72	341.13	576.53	343.24	509.54	360.62	543.88	319.87	503.55
Flexural strength (N/mm ²)	8.14	16.57	11.37	19.28	11.40	15.91	12.02	18.75	10.66	15.98
Individual ratio, MR_i	1.24	1.54	1.77	1.96	1.70	1.49	1.61	1.70	1.57	1.39
Average ratio, MR_i (samples 1 to 10 inclusive)	1.63									
Standard deviation (samples 1 to 10 inclusive)	0.18									
95% Lower confidence limit, R_L	1.53									

Note: Sample size 250 x 150 x 6.0 mm

Criteria: The ratio, R_L shall not be less than 0.75.

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This test report/results are for "SHERA Flexy Board" fibre cement board samples.

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Ng Lai Huat
Associate Engineer

A handwritten signature in black ink, appearing to be 'R. Tan', written in a cursive style.

Raymond Tan
Senior Engineer
Building & Industrial Products
Testing Group



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October 2006