

TEST REPORT
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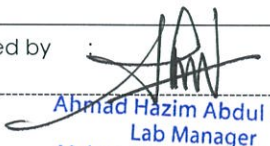
Product : **GEG ECO Lightweight Panel System (Floor slab and wall panel)**
Test Method : As per agreed by Client
Date of Issue : 21st June 2019
Name of Client : GE Tech Industry Sdn Bhd
Address (Office) : Wisma HCK, Level 2, No. 6,
 Jalan 19/1B, Seksyen 19,
 46300 Petaling Jaya,
 Selangor Darul Ehsan
Job Ref. No. : ATS/19134/GE/01
No. of Sample : 2 units of GEG ECO Lightweight Floor Slab and 1 unit of GEG ECO
 Lightweight Wall Panel
Date of Delivery : 14th May 2019
Date of Test : Refer attachment
Tested By : Refer attachment
Witnessed By : Refer attachment

Prepared by :


 Wan Norhasiah Wan Bidin
 Engineer

 Name : Construction Research Institute
 of Malaysia (CREAM)

Approved by :


 Ahmad Hazim Abdul Rahim
 Lab Manager
 Makmal Kerja Raya Malaysia
 Construction Research Institute
 of Malaysia (CREAM)

Name :

Report Ref. No. : TR/19172/GE/01/AMD01

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Type of Test : Flexural Test on GEG ECO Lightweight Floor Slab
Sample : 1. Slab 1 (L: 3000mm x W: 1200mm x T:150mm (50mm concrete,100mm lightweight))
 2. Slab 2 (L: 3000mm x W: 1200mm x T:150mm (50mm concrete,50mm lightweight, 50mm concrete))
Test Method : As per agreed by Client
Date of test : 27th May 2019
Tested by : Mohd Azizi, Hairuddin Sukimin, Mohd Fikri and Mohd Termidzi
Witnessed by : Mr Tey Chee Leong, Mr Tey Chee Keong & Ms Jess Wong

Procedure :

1. The slab shall be supported on equally span rollers support at 2600 mm. (Refer Figure 1)
2. Linear Variable Displacement Transducer (LVDT) shall be placed underneath the slab at mid span. One (1) unit of 200mm LVDT shall be used (accuracy of ± 0.5 mm).
3. The static load shall be applied at mid span using displacement control condition.
4. The slab shall be loaded with an increment of 10 kN until failure. A 500kN actuator shall be used (accuracy of $\pm 2\%$ or 0.5 kN).
5. The slab shall be loaded until failure. Maximum load and maximum deflection of the slab shall be recorded.

Test Setup :

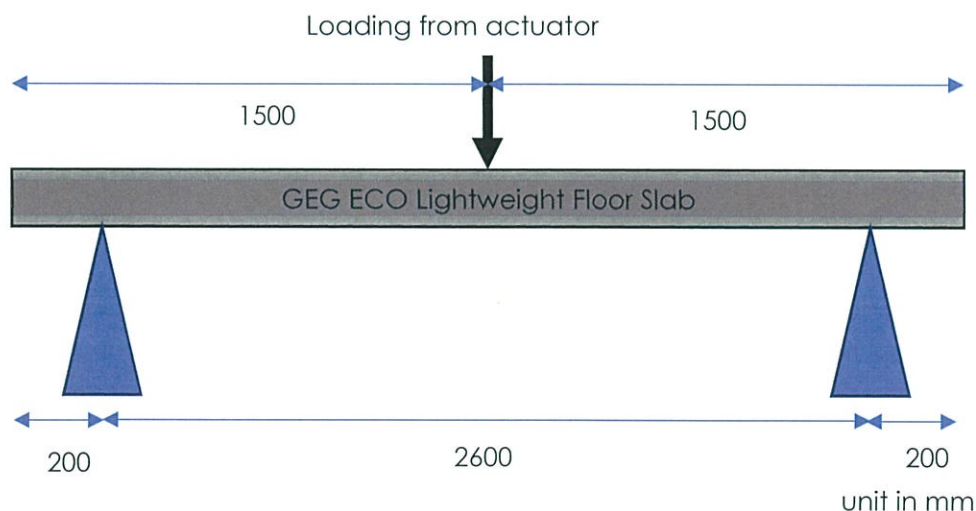

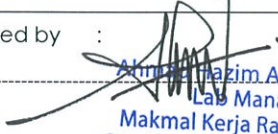


Figure 1: Test setup for flexural test on GEG ECO lightweight floor slab

Prepared by :  Name : Wan Norhasiah Wan Bidin Engineer Construction Research Institute of Malaysia (CREAM)	Approved by :  Name : Ahmad Nazim Abdul Rahim Lab Manager Makmal Kerja Raya Malaysia Construction Research Institute of Malaysia (CREAM)
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1) Slab 1 (L: 3000mm x W: 1200mm x T:150mm (50mm concrete,100mm lightweight))
Test Results:

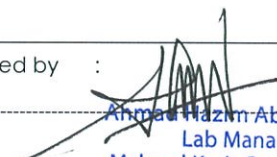
Load (kN)	Deflection (mm)	Remarks
0.00	0.00	
9.69	1.99	
19.68	4.13	
30.41	6.43	
39.82	8.67	
49.90	11.30	
60.03	14.43	
69.95	18.94	Maximum load and maximum deflection

Prepared by :


Wan Norhasiah Wan Bidin
 Engineer

 Name : **Construction Research Institute
of Malaysia (CREAM)**

Approved by :


Ahmad Hazim Abdul Rahim
 Lab Manager
 Makmal Kerja Raya Malaysia
 Construction Research Institute
 of Malaysia (CREAM)

Name :

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Test Photos:

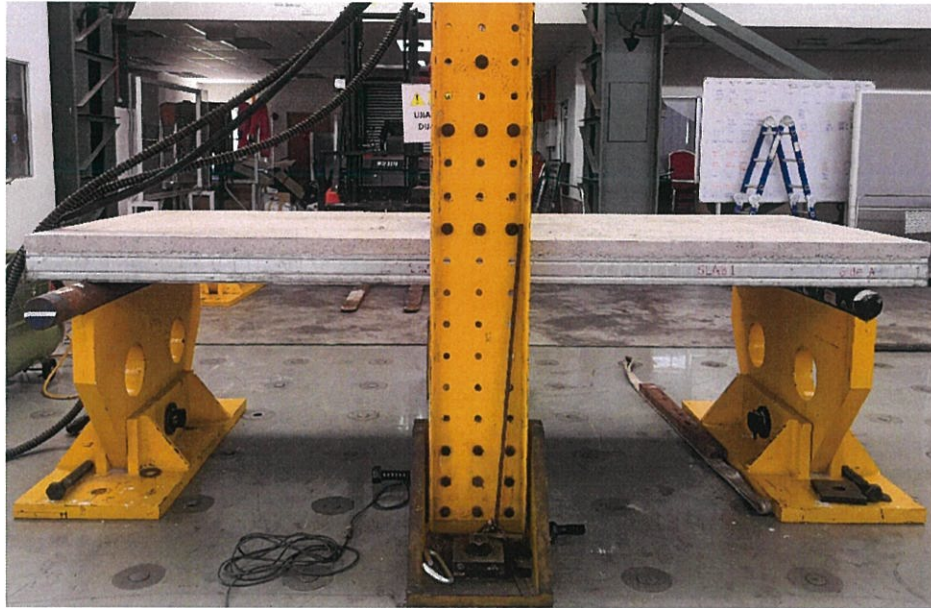

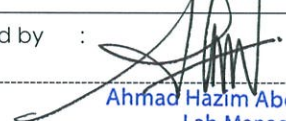


Figure 2: Before test and at unloading condition



Figure 3: At maximum load

Prepared by :  Wan Norhasiah Wan Bidin Engineer Construction Research Institute of Malaysia (CREAM) Name :	Approved by :  Ahmad Hazim Abdul Rahim Lab Manager Makmal Kerja Raya Malaysia Construction Research Institute of Malaysia (CREAM) Name :
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(a) Side A




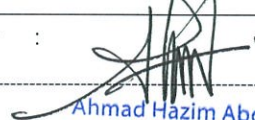
(b) Side B

Figure 4 (a) and (b) : At maximum load

- 2) Slab 2 (L: 3000mm x W: 1200mm x T:150mm (50mm concrete, 50mm lightweight, 50mm concrete))

Test Results :

Load (kN)	Deflection (mm)	Remarks
0.00	0.00	
9.80	1.29	
20.39	3.31	
29.74	5.29	
41.16	7.92	
51.19	10.68	
60.71	14.64	
70.70	20.10	
72.42	30.62	Maximum load and maximum deflection

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Report Ref. No. : TR/19172/GE/01/AMD01	Page No. : Page 5 of 13

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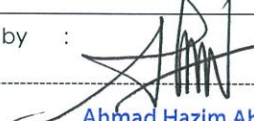
Test Photos:



Figure 5: Before test and at unloading condition



Figure 6: At maximum load

Prepared by :  Wan Norhasiah Wan Bidin Engineer Name : Construction Research Institute of Malaysia (CREAM)	Approved by :  Ahmad Hazim Abdul Rahim Lab Manager Name : Makmal Kerja Raya Malaysia Construction Research Institute of Malaysia (CREAM)
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Figure 7 : At maximum load





(a) Side A



(b) Side B

Figure 8 (a) and (b): At maximum load

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Name : Wan Norhasiah Wan Bidin Construction Research Institute of Malaysia (CREAM)	Name : Ahmad Hazim Abdul Rahim Lab Manager Makmal Kerja Raya Malaysia Construction Research Institute of Malaysia (CREAM)
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Type of Test : Axial Load Test on GEG ECO Lightweight Wall Panel
Sample : Wall 1 (3000mm x 1200mm x 100mm)
Test Method : As per agreed by Client
Date of test : 27th May 2019
Tested by : Mohd Azizi, Hairuddin Sukimin, Mohd Fikri and Mohd Termidzi
Witnessed by : Mr Tey Chee Leong, Mr Tey Chee Keong & Ms Jess Wong

Procedure :

1. The wall shall be erected on the floor. (Refer Figure 9)
2. Linear Variable Displacement Transducer (LVDT) shall be placed at both side of the wall at the mid span. Four (4) unit of 50mm LVDT shall be used (accuracy of ± 0.5 mm).
3. The static load shall be applied at the top of wall panel using displacement control condition.
4. The wall shall be loaded with the increment of 10 kN until failure. A 2000kN actuator shall be used (accuracy of $\pm 2\%$ or 0.5 kN)
5. The wall shall be loaded until failure. Maximum load and maximum deflection of the wall shall be recorded.

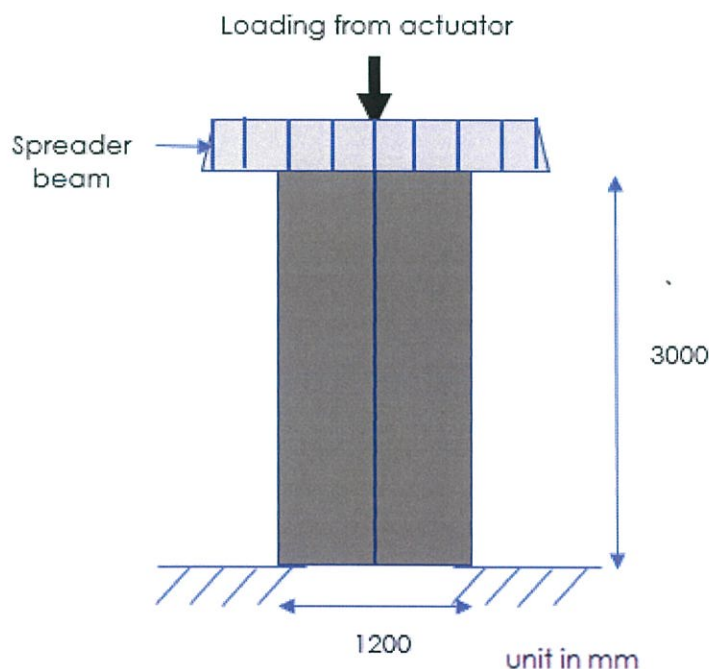


Test Setup :


Figure 9 : Test setup for axial load test on GEG ECO lightweight wall panel

Prepared by :  Name : Wan Norhasiah Wan Bidin Engineer Construction Research Institute of Malaysia (CREAM)	Approved by :  Name : Ahmad Hazim Abdul Rahim Lab Manager Makmal Kerja Raya Malaysia Construction Research Institute of Malaysia (CREAM)
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Test Results :

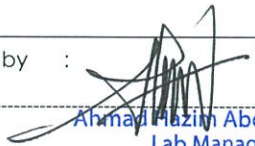
Load (kN)	LVDT 1 (mm)	LVDT 2 (mm)	LVDT 3 (mm)	LVDT 4 (mm)	Remarks
0.00	0.00	0.00	0.00	0.00	
10.45	-0.35	-0.45	0.56	-0.38	
19.59	-0.25	-0.45	0.57	-0.40	
29.01	-0.44	-0.71	0.73	-0.55	
39.77	-1.23	-1.56	1.53	-1.36	
49.49	-1.50	-1.95	1.81	-1.73	
60.05	-1.59	-2.14	1.91	-1.89	
70.93	-1.69	-2.35	2.03	-2.08	
79.61	-1.77	-2.47	2.12	-2.19	
92.34	-1.92	-2.69	2.27	-2.37	
104.30	-2.18	-3.03	2.46	-2.61	
113.16	-2.37	-3.25	2.72	-2.85	
122.64	-2.54	-3.46	2.92	-3.05	
130.53	-2.70	-3.65	3.06	-3.20	
141.91	-2.79	-3.78	3.15	-3.31	
151.21	-2.82	-3.85	3.21	-3.37	
162.64	-2.88	-3.94	3.28	-3.40	
171.17	-2.83	-3.94	3.28	-3.37	
187.89	-1.72	-2.85	2.39	-2.43	Maximum load and maximum deflection

Prepared by :


Wan Norhasiah Wan Bidin
 Engineer

 Name : **Construction Research Institute of Malaysia (CREAM)**

Approved by :


Ahmad Mazlin Abdul Rahim
 Lab Manager
Makmal Kerja Raya Malaysia
Construction Research Institute of Malaysia (CREAM)

Name :

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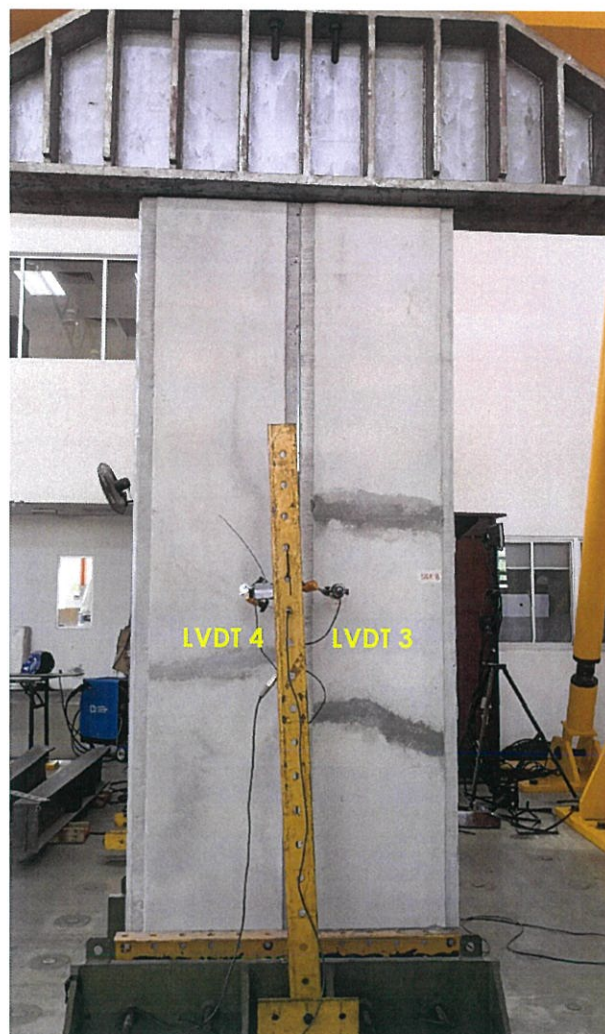
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Test Photos :


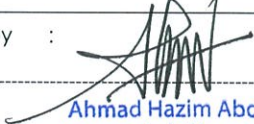


(a) Side A



(b) Side B

Figure 10(a) and (b): Before test and at unloading condition

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Name : Wan Norhasiah Wan Bidin Construction Research Institute of Malaysia (CREAM)	Name : Ahmad Hazim Abdul Rahim Lab Manager Makmal Kerja Raya Malaysia Construction Research Institute of Malaysia (CREAM)
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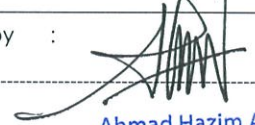
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Figure 11(a) and (b): At maximum load

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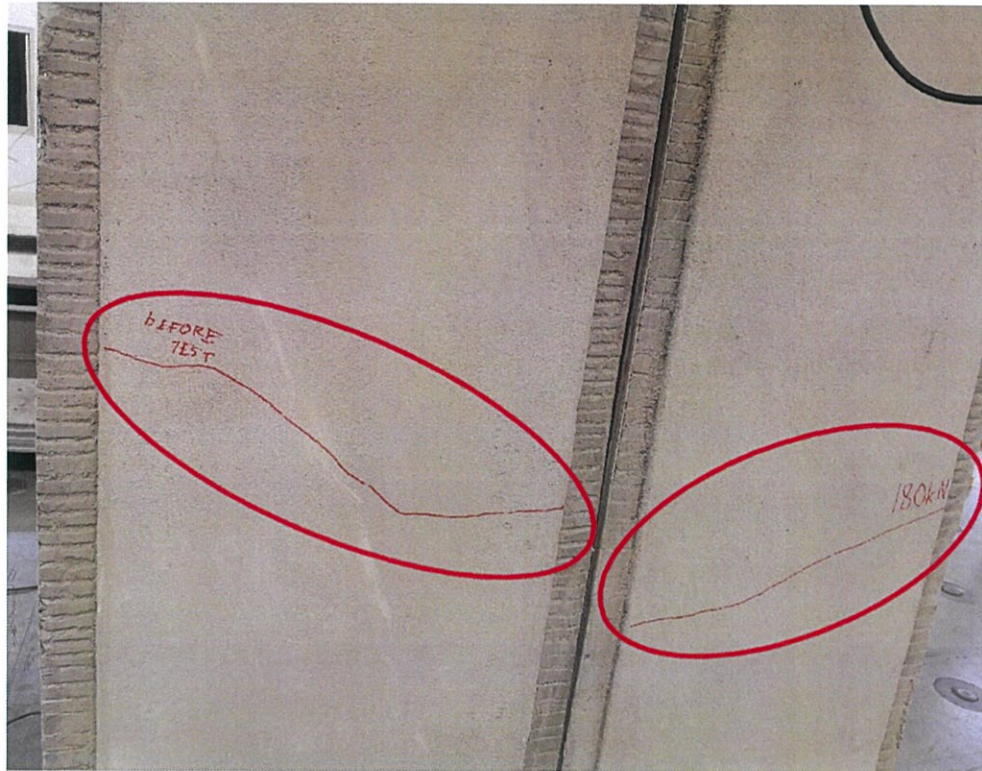

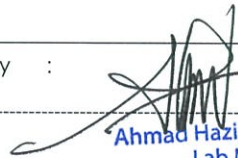




Figure 12 : At maximum load

Prepared by :  Name : Wan Norhasiah Wan Bidin Engineer Construction Research Institute of Malaysia (CREAM)	Approved by :  Name : Ahmad Hazim Abdul Rahim Lab Manager Makmal Kerja Raya Malaysia Construction Research Institute of Malaysia (CREAM)
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- 1.1 The test report/data produced is solely for the client business operation and not for advertising purposes.
- 1.2 Test report/data will be issued in respect of Term of Services and shall be related only to the actual sample tested. The test result represents the actual sample only not its duplication or mass productions.
- 1.3 The test report/data shall not be amended, changed, verified or modified in any manner by client or otherwise.
- 1.4 The test report/data is not a quality assurance certification and NEITHER an endorsement certificate.
- 1.5 Should the client intend to reveal the test report/data the client shall present such report in full and in entirety.
- 1.6 Should the client intend to publish any articles, journals or related publications derived from the test report/data, the client may acknowledge CREAM, in appropriate circumstances where CREAM has contributed in providing data for the intended articles, journals or related publications.
- 1.7 Either Party has the right to take any necessary action should the other party has breached any provision of terms of services in this agreement.
- 1.8 CREAM has the right not to submit the test report/data to the Client until full payment and/or any additional payment (deemed necessary) has been received from the Client.
- 1.9 CREAM has the right not to submit the test report/data to the Client until all tested samples are disposed /collected and returned to the Client's premises by the Client.

Prepared by :  Wan Norhasiah Wan Bidin Engineer Name : Construction Research Institute of Malaysia (CREAM)	Approved by :  Ahmad Hazim Abdul Rahim Lab Manager Name : Makmal Kerja Raya Malaysia Construction Research Institute of Malaysia (CREAM)
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