SUBJECT

Performance Test of Partition Wall System using "GEG-ECO Light Weight Panel 105mm (Thickness)" submitted by GE Tech Industry Sdn. Bhd.

CLIENT

GE Tech Industry Sdn. Bhd,
Wisma HCK, No.6 Jalan 19/1B,
Seksyen 19,
46300 Petaling Jaya,
Selangor.

SAMPLE RECEIVING DATE / TEST DATE

12 – 21 April 2019 / 22 - 23 April 2019

DESCRIPTION OF SAMPLE / CONDITION OF SAMPLE RECEIVED

Product Description	:	GEG-ECO Light Weight Panel 105mm (Thickness)
Sample Condition	:	The samples were received in good condition; no scratch or damage was observed.

METHOD OF TEST

The sample was tested in accordance with BS 5234: Part 2: 1992 "Partitions (including matching linings) Part 2. Specification for performance requirements for strength and robustness including methods of test"

TEST FACILITY

TÜV SÜD (Malaysia) Sdn Bhd
No 18, Jalan Astaka U8/82, Bukit Jelutong,
40150 Shah Alam, Selangor, Malaysia.

TESTED/PREPARED BY

Tan Quan He
Associate Engineer (RI)

SIGNATORY

Ir. Terry Lee WS
Manager (RI)

SUMMARY

Test for grade compliance:

Severe Duty (SD) – Prone to vandalism and abnormally rough use.

a. Stiffness	Severe Duty - Load of 500N applied through an area of 150 mm diameter plate perpendicular to the partition surface. 10 mm maximum deflection allowable and 1 mm maximum residual deformation
b. Small hard body impact	Impact by a 50 mm diameter steel ball with a swinging arm of 600 mm long (Total weight, 3 kg) swing perpendicularly against the wall. Test on 11 positions (includes a corner). Criteria: no significant damage.
i. Surface damage	Severe Duty - Impact energy of 10 Nm (swing angle of 63.6 degree)
ii. Perforation	Severe Duty - Impact energy of 30 Nm (swing angle of 131.8 degree)
c. Large soft body impact	Impact by a 50 kg spheroconical bag of 600 mm X 400 mm diameter filled with hardened glass beads. Test on 2 to 3 positions (includes a corner). Criteria: no significant damage.
i. Resistance to damage	Severe Duty - Impact energy of 100 Nm (drop height of 204 mm). Single impact at two selected positions and one on corner.
ii. Resistance to structural damage	Severe Duty - Impact energy of 120 Nm (drop height of 245 mm). Three impacts at two selected positions.
d. Door slam	Severe Duty - Partition wall is being slammed 100 times with a 60 kg door leaf by a force of 15 kg. Door frame shall not be permanently displaced by 1mm.
e. Crowd pressure	A load of 3.0 kN/m is applied through a 2.5 m (± 10 mm) wooden beam at a height of 1.2 m. No damage or collapse that would render the partition dangerous be allowed.
f. Light weight anchorage	A static load is applied on the steel bracket fixed onto the partition wall by a specified type of anchorage. A shim plate supporting a 20 N weight is inserted in between the bracket and wall.
i. Pull out	The anchorage is to sustain a pull-out load of 100 N (± 3 N) without releasing the shim plate.
ii. Pull down	The anchorage is to sustain a pull-down load of 250 N (± 7.5 N) without releasing the shim plate. The bracket shall not move by more than 2 mm.
g. Heavy weight anchorage	An eccentric cyclic load is applied onto steel brackets fixed onto the partition by a specified type of anchorage. Shim plates supporting a 20 N (± 1N) weight are inserted in between the bracket and wall.
i. Wash basin	A load of 1500N is applied onto the wash basin steel bracket, without releasing either the shim plates, exceeding the deflection of 20 mm or residual deformation of 1 mm.
ii. Wall cupboard	Incremental load step of 500N up to 4000N is applied onto the wall cupboard steel bracket, without releasing either the shim plates, exceeding the deflection of 5 mm or residual deformation of 1 mm.

SUMMARY OF TEST RESULTS

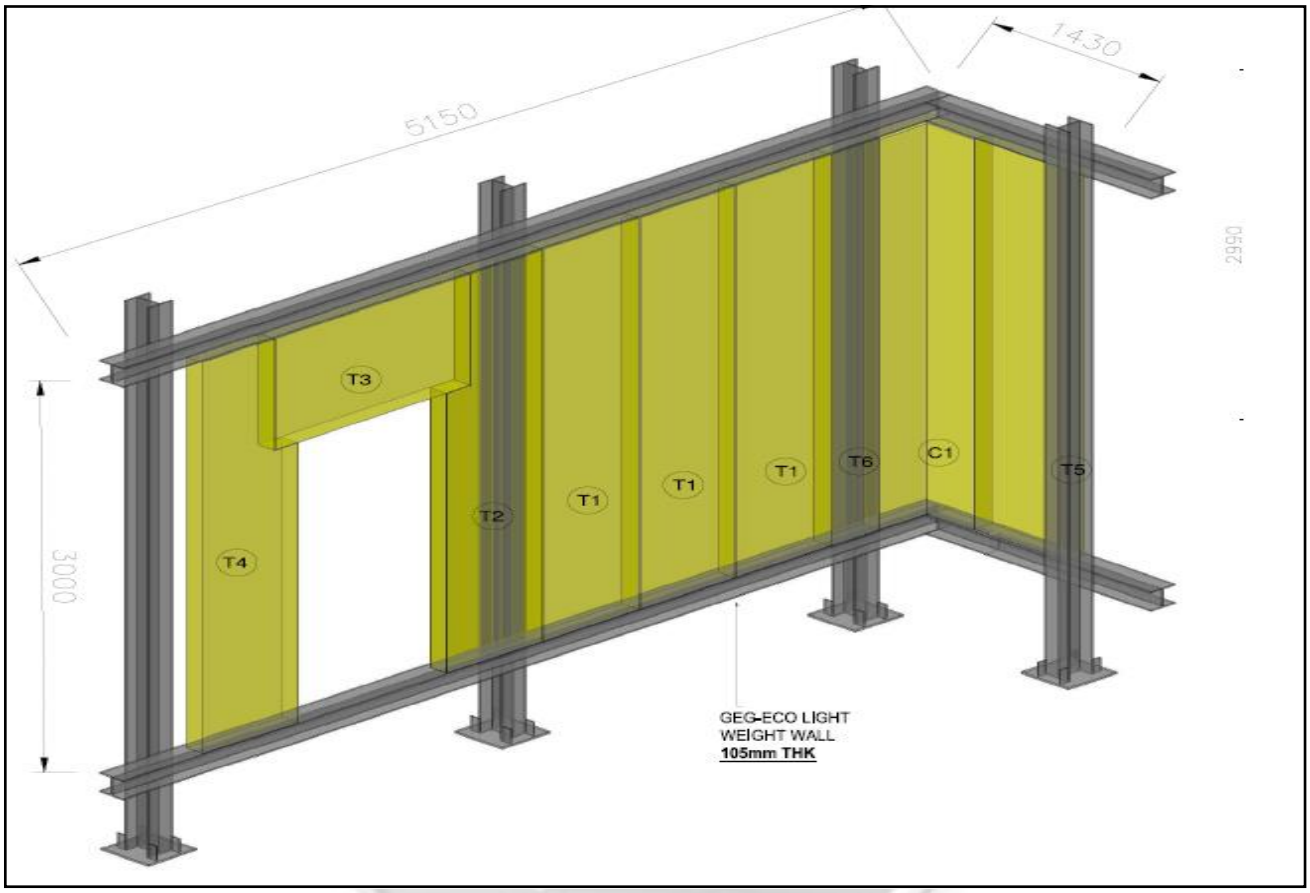
Summary of strength and robustness tests reference to BS 5234: Part 2: 1992 (Details of partition specimen and test report are attached)	
Tests for grade compliance	
Requirements tested	Grade performance achieved
	Severe Duty (SD)
Stiffness	Passed
Surface damage by small hard body impact : [1]	Tested
Surface damage by large soft body impact:	Passed
Perforation by small hard body impact:	Passed
Resistance to structural damage by large soft body impact	Passed
Door slamming [2]	Passed
Note: [1] - Indicates no specific criterion for acceptance is given because the impact damage will vary with different materials and forms of construction; some surface damage may be acceptable because it can be repaired. See test results photographs on page 12. Note: [2] – Hair line crack is observed at the plastering area at the top right edge of door during the door slamming test due to workmanship and it is repairable.	

Summary of other tests on partition specimen	
Requirement tested	Performance achieved
Crowd pressure	3.0kN/m
Light weight anchorage – Pull out	100 N
Light weight anchorage – Pull down	250 N
Heavy weight anchorage – (Wash basin)	1500 N
Heavy weight anchorage – (Wall cupboard)[3]	4000 N
Note: [3] – Maximum load applied in 500N increments up to 4000N	

DESCRIPTION OF SAMPLE

Components used are as follow:

1. Panel Dimensions: -



No.	Width (mm)	Height (mm)	Quantity
T1	600	2990	3 nos
T2	590	2990	1 nos
T3	1220	850	1 nos
T4	600	2990	1 nos
T5	600	2990	1 nos
T6	300	2990	1 nos
C1	405 + 405	2990	1 nos

Figure 1: Detail sizes of GEG-ECO Light Weight Panels arrangement installed on the testing's frame.

Figure 2: Test mock-up of GEG-ECO Light Weight Panel installed.

	
Figure 3a: Size M10 (with washer and M10 nut) for Pull Out Light Anchorage Test, Wash Basin and Wall Cupboard Heavy Anchorage Test	Figure 3b: Size M8 (with washer M8 nut) for Pull Down Light Anchorage Test

2. Components used for this system are: - PLEASE REFER TO PARTITION WALL DRAWINGS (Pg. 26)

TEST SETUP

A mock-up test specimen 4615mm width X 3000mm height and a partition junction assembly of a right-angle corner with a return of 1005mm was installed onto the test rig for the performance test. Total, 2 sheets of company's drawings contain the details of the mock-up specimen.

The test specimen includes a door set 900mm width X 2100mm height and a 600mm run of partition flanking at one side of the doorset.

It was installed on 12 - 16/4/2019 and tested on 22 - 23/4/2019. Conditioning of the specimen with reference to BS 5234: Part 2: 1992 was agreed to be 7 days after installation was completed in the lab's condition.

Figure 4: Test mock-up of GEG-ECO Light Weight Panel installed and right corner junction.

DESCRIPTION OF TESTS

The following tests were conducted with reference to BS 5234: Part 2: 1992

a. Partition stiffness

This test is to establish the ability of the partition to withstand people or ladder leaning against the partition wall without causing unacceptable cracking or movement.

A static horizontal load of 500 N (±15 N) was applied through a 150 mm (±1 mm) diameter steel plate with a contact rubber pad of 6 mm (±2 mm) thick. The load was applied to the partition at a height of 1500 mm (±10 mm) from the bottom of the setup. Deflection was taken on the load side at 125 mm above the centre point of load application. A pretest load of 100 N was applied and stabilized for 1 min before unloading. The load was then applied in steps of 100 N until 500 N before unloading. Each loading was maintained for about 2 minutes for stabilization.

Deflection was taken at the end of the 2 minutes' interval. The residual deflection was taken when it had fully stabilized or 1 hour after unloading whichever occurs first.

b. Small hard body impact

The test is to simulate impact caused by sharp or pointed objects such as trolleys and wheelchairs. A 3 kg / 50 mm diameter steel sphere impactor was used to simulate a hard body object. It was attached to a 600 mm (±1.0 mm) long swinging arm.

i. Surface damage

This test is to determine the resistance of the partition to damage from impacts by small, hard body objects.

10 positions on the main wall of the test setup were chosen for the test. Each position was subject to a 10 Nm impact energy. The swinging arm was raised by 0.33 m or an angle of 63.6 degree and released. The rebounce of the steel arm was withheld to prevent it from making a second impact.

The depth of indentation was taken after each impact for a position.

The test was repeated at a corner position 75 mm away from the corner edge.

ii. Perforation

This test is to determine the resistance of the partition to perforation from impacts by small, hard objects.

10 positions on the main wall of the test setup were chosen for the test. Each position was subject to a 30 Nm impact energy. The swinging arm was raised by 1.0 m or 131.8 degree and released. The re-bounce of the steel arm was withheld to prevent it from making a second impact. The partition was inspected for any damage or perforation.

The test was repeated at a corner position 75 mm away from the corner edge.

c. Large soft body impact

The test is to simulate impact caused by people falling against or any large soft body object such as a ball hitting the partition wall. The impactor is a spheroconical bag of 600 mm X 400 mm filled with hardened glass beads. It has a total weight of 50 kg (±5 kg).

i. Resistance to surface damage

Two positions on the partition wall were selected for the test. Each location was subject to a single swinging impact. A linear gauge was placed behind the impacted panel to measure the permanent deformation.

The impact energy was 100 Nm. The impactor was raised by 204 mm before releasing. Permanent deformation was taken after 5 minutes from the impact.

The test was repeated at a corner position 200 mm away from the corner edge.

ii. Resistance to structural damage

Two positions on the partition wall were selected for the test. Each location was subject to three swinging impacts.

The impact energy was 120 Nm. The impactor was raised by 245 mm before releasing. The partition was inspected for any surface or structural damage.

d. Door slam

The test simulates a door being forcefully slammed by a person, wind or tensioned door closer.

A 60 kg (±0.5 kg) door leaf was slammed through an opening angle of 60 degrees (±1 degree) with a force of 15 kg (±50 g) for 100 times. Residual deflection was taken on the door frame at 1 m above the bottom of the door leaf after 5 minutes from the last slamming.

e. Crowd pressure

This test simulates a uniform band load such as a crowd leaning against the wall.

A test load of 3.0 kN/m was applied through a 2.5 m long wooden beam placed at a height of 1.2 m above the bottom of the wall. Deflection was taken at 125 mm above the beam. Residual deflection was taken after 5 minutes upon released of the load.

f. Light weight anchorage

The test determines whether the partition wall can withstand light weight fixtures such as those for wall picture, clothing hook and basic wall shelving. A U-shaped steel bracket was secured by the specified anchorage. A shim plate was placed in between the steel bracket and the wall. A load of 20 N (±1 N) was applied on the shim plate.

A pull-out load of 100 N (±3 N) perpendicular to the wall was applied on the bracket. The load was held for 1 minute before releasing.

i. Pull out

A pull-out load of 100 N (±3 N) perpendicular to the wall was applied on the bracket. The load was held for 1 minute before releasing.

ii. Pull down

A pull-down load of 250 N (±7.5 N) parallel to the wall was applied on the bracket. The load was held for 1 minute before releasing.

g. Heavy weight anchorage

The test simulates loading on the partition wall arising from heavy weight fittings such as wash basin and wall cupboard.

i. Wash basin

A steel bracket identical to a standard wash basin was mounted at a height of 0.8 m (±10 mm). Four deflections were taken, two on each side of the wall, at a height of 1.2 m and 1.75 m from the base of the wall. Shim plates were inserted in between the bracket and wall and loaded with a force of 20 N.

Cyclic load of the following sequence was applied: 500, 750, 500,750, 500,1000, 500, 1000, 500, 1250, 500, 1250, 500, 1500, 500, 1500 & 500 N. Residual deflections were taken after 5 minutes from unloading.

ii. Wall cupboard

A steel bracket identical to a standard wall cupboard was mounted at a height of 1.5 m (±10 mm). Four deflections were taken, two on each side of the wall, at a height of 1.2 m and 1.75 m from the base of the wall. Shim plates were inserted in between the bracket and wall and loaded with a force of 20 N (±1 N).

Incremental load of the following sequence was applied: 500, 1000, 1500, 2000, 2500, 3000, 3500, 4000 N. Residual deflections were taken after 5 minutes from unloading.

RESULT

a. Partition stiffness

Date of test: 23/4/2019
Lab temperature / Humidity: 31.2°C / 72%
Grade tested / load applied: Severe Duty / 500N ± 15 N

Load (N)	Duration (min)	Deflection (mm)	Residual Deflection (mm)	Condition of the specimen tested	BS 5234: Part 2: 1992 Requirements
Pretest load of 100 N	1	0.00	0.00		1) There shall be no damage or detachment, loosening or dislodgement of partition wall's parts or fixing
100	2	0.00	-	Passed (No damage occurred)	2) The Maximum deflection and residual deformation shall not exceed 10 & 1 mm respectively.
200	2	0.00	-		
300	2	0.00	-		
400	2	0.00	-		
500	2	0.00	0.00		

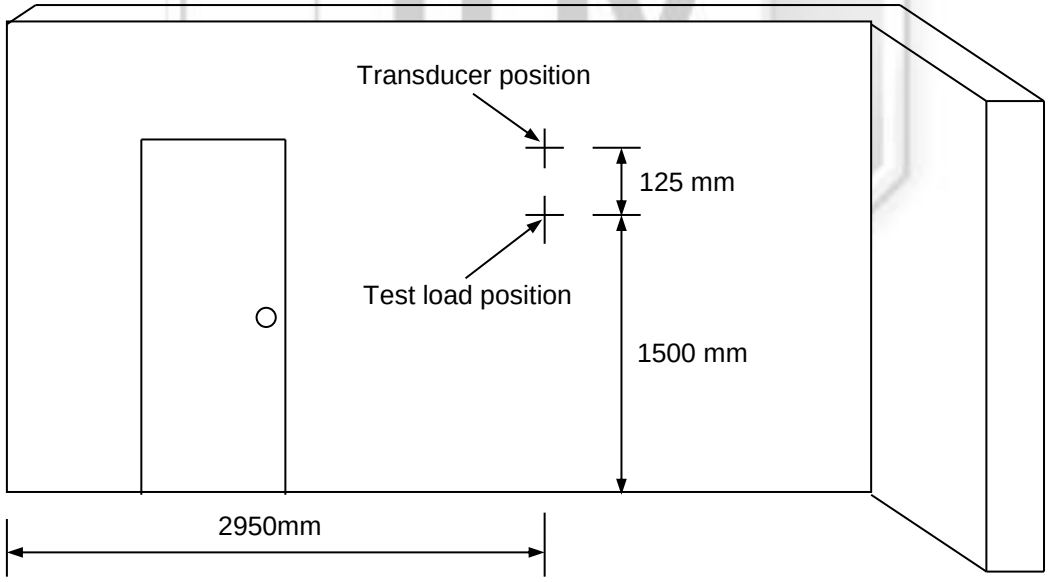


Figure 5: Location of applied load for partition stiffness test

b. Small hard body impact

i. **Surface damage**

Date of Test: 22/4/2019
Lab temperature / Humidity: 32.1°C / 68%
Grade tested / Impact Energy: Severe Duty / 10 Nm

Impact Position	X (mm)	Y (mm)	Depth of indentation (mm)	Condition of the specimen tested	BS 5234: Pt 2: 1992 Requirements
1	1775	760	1.61	Tested 1) No detachment, loosening or dislodgement of its parts or fixings occurred. 2) See Fig. 6 photos for over view of surface damage.	1) No specific criterion for acceptance 2) Attached photographs of surface damages for the authority judgement to be made whether can be easily repaired for acceptance
2	1875	760	1.08		
3	1975	760	0.71		
4	2075	760	0.46		
5	2175	760	0.80		
6	2275	760	0.83		
7	2375	760	0.66		
8	2475	760	0.56		
9	2575	760	0.59		
10	2675	760	0.75		
**11	75	1100	1.11		

****Note: Corner junction

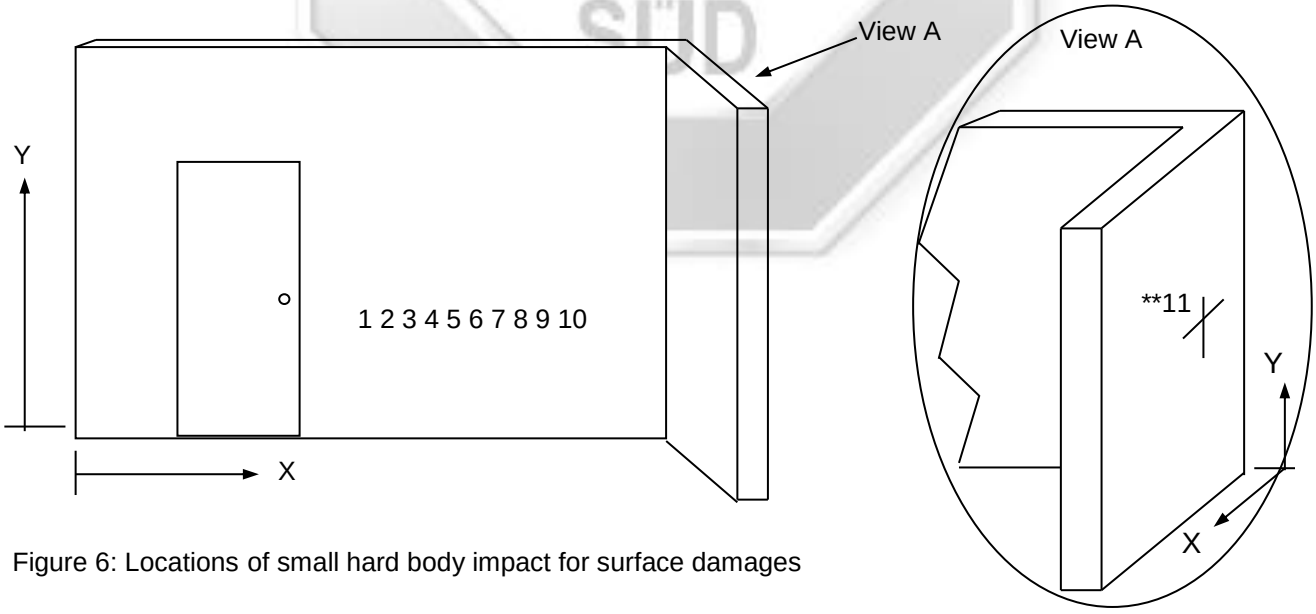


Figure 6: Locations of small hard body impact for surface damages

			
Impact Position 1	Impact Position 2	Impact Position 3	Impact Position 4
			
Impact Position 5	Impact Position 6	Impact Position 7	Impact Position 8
			
Impact Position 9	Impact Position 10	Impact Position 11	

Figure 7: Surface damage by small hard body impact - overview of indentations

ii. Perforation

Date of test: 22/4/2019
Lab temperature / Humidity: 33.3°C / 64%
Grade tested / Impact energy: Severe Duty / 30 Nm

Impact Position	X (mm)	Y (mm)	Depth of indentation (mm)	Condition of the specimen tested	BS 5234: Pt 2: 1992 Requirements
1	3030	760	2.35	Tested 1) No detachment, loosening or dislodgement of its parts or fixings occurred. 2) See Fig. photos for over view of surface damage.	1) No specific criterion for acceptance 2) Attached photographs of surface damages for the authority judgement to be made whether can be easily repaired for acceptance
2	3130	760	2.91		
3	3230	760	2.52		
4	3330	760	2.62		
5	3430	760	2.51		
6	3530	760	2.70		
7	3630	760	1.97		
8	3730	760	1.78		
9	3830	760	1.95		
10	3930	760	2.00		
**11	75	1200	1.63		

**Note: Corner junction

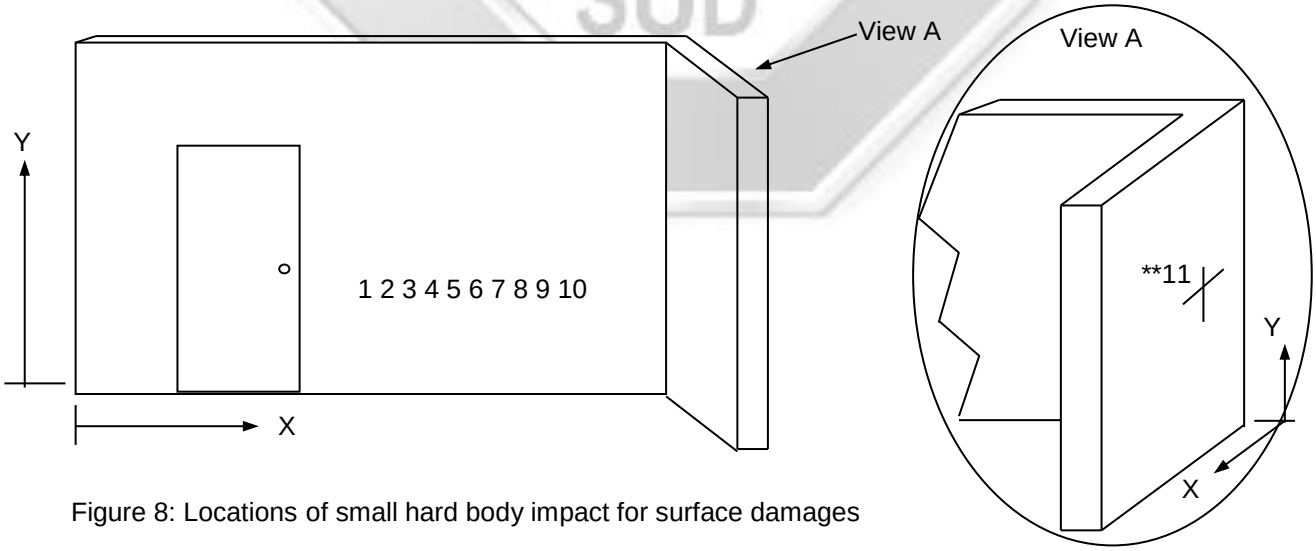


Figure 8: Locations of small hard body impact for surface damages

			
Impact Position 1	Impact Position 2	Impact Position 3	Impact Position 4
			
Impact Position 5	Impact Position 6	Impact Position 7	Impact Position 8
			
Impact Position 9	Impact Position 10	Impact Position 11	

Figure 9: Perforation by small hard body impact – overview of indentations

c. Large soft body impact

i. Resistance to damage

Date of test: 22/4/2019
Lab temperature / Humidity: 34.2°C / 61%
Grade tested / Impact Energy: Severe Duty / 100 Nm

Impact Position	X (mm)	Y (mm)	Residual deflection (mm)	Condition of the specimen tested	BS 5234: Pt 2: 1992 Requirements
1	2500	1480	0.82	Passed (No damage occurred)	The partition wall and a right angle junction shall be capable of withstanding the impact energies without sustaining either permanent deformation in excess of 2 mm or any damage.
2	3070	1480	0.06		
**3	200	1480	0.03		

**Note: Corner junction

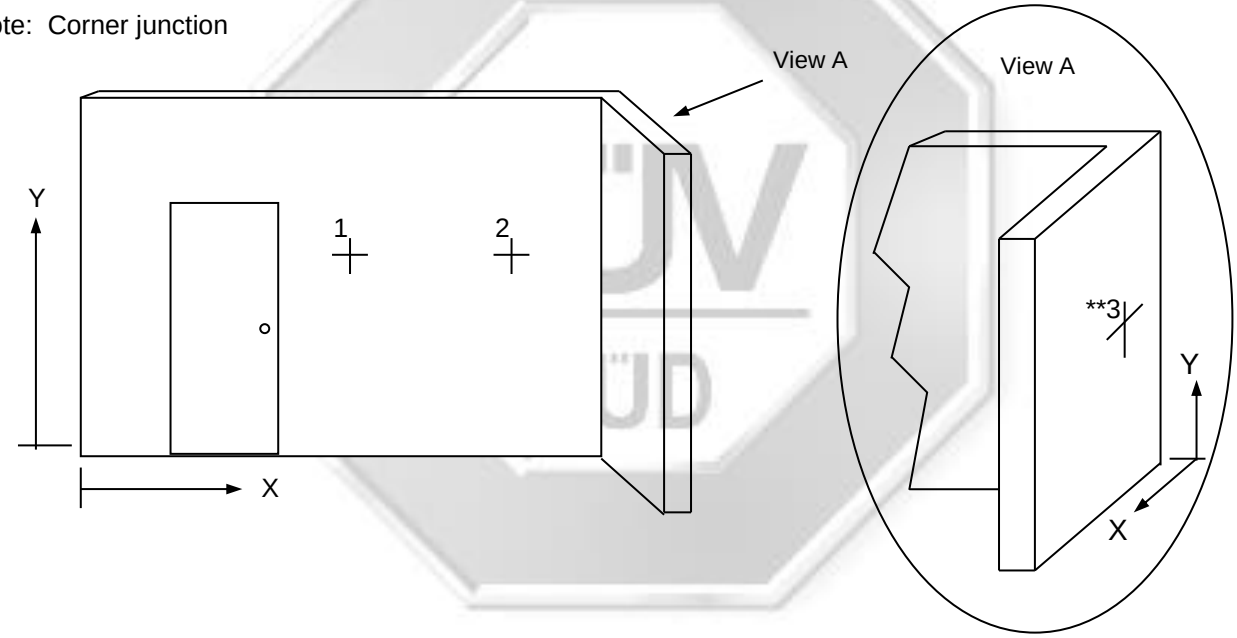


Figure 10: Locations of large soft body impact for resistance to damage

ii. Resistance to structural damage by multiple impacts

Date of test: 22/4/2019
Lab temperature / Humidity: 35.7°C / 54%
Grade tested / Impact Energy: Severe Duty / 120 Nm

Impact Position	X (mm)	Y (mm)	Condition of the specimen tested	BS 5234: Pt 2: 1992 Requirements
1	2750	1480	Passed (No damage occurred)	The partition wall shall be capable of withstanding the impact energies, without collapsing or dislocating the partition wall or its fixings.
2	3050	1480		

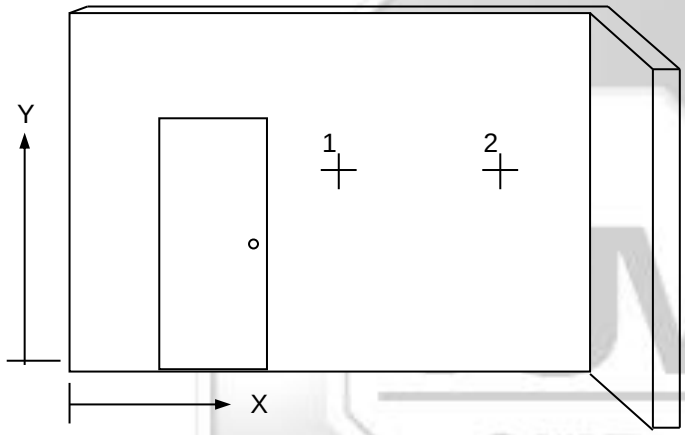


Figure 11: Locations of large soft body impact for resistance to structural damage

d. Door Slamming

Date of test: 22/4/2019
Lab temperature / Humidity: 36°C / 53%
Grade tested: Severe Duty
Door weight: 60 kg

Number of slam (Open door to 60 ±10°)	Residual deflection (mm)	Condition of the specimen tested	BS 5234: Pt 2: 1992 Requirements
Pretest of 3	0.73	Hair line crack is observed at plastering area on top right edge of the door. (Refer to Figure 12)	1) The partition shall not be damaged, nor shall door frame fittings and architraves become detached or loose after the door leaf has been slammed.
20	0.08		2) The closing jamb of the door frame shall not be permanently displaced by more than 3mm as a result of the pre-slam test and by more than 1 mm as a result of the main slam test, from its position at the start of the test, measured at 1.0m above the bottom of the door leaf.
100	0.38		

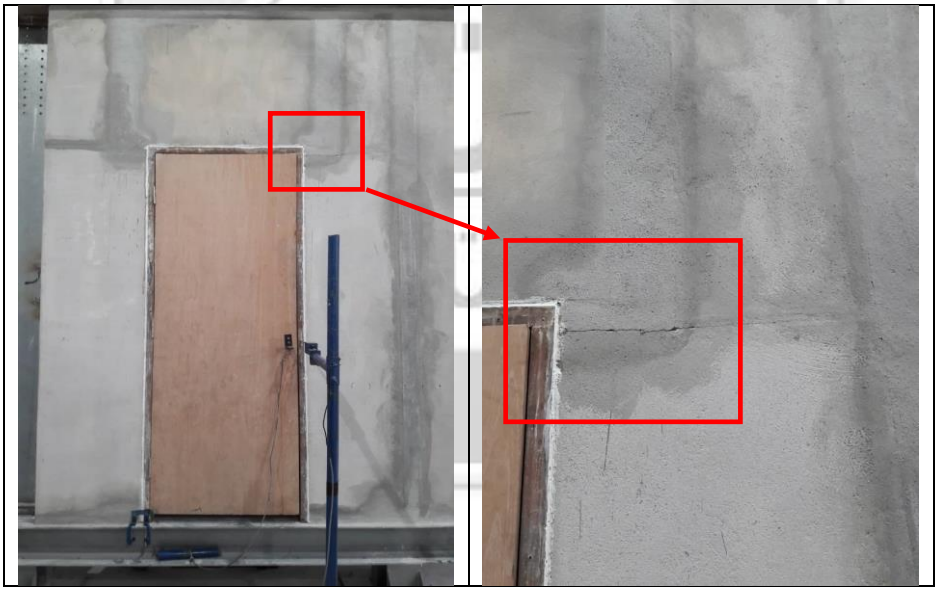


Figure 12: Hair line crack observed at plastering area on top right edge of the door during door slamming test

e. Crowd Pressure

Date of test: 23/4/2019
Lab temperature / Humidity: 33.5°C / 62%
Load applied: 3.0 kN/m

Load	Duration (min)	Deflection (mm)	Residual Deflection (mm)	Condition of the specimen tested	BS 5234: Pt 2: 1992 Requirements
Pretest load of 200 (N)	1	0	0	Hair line crack is observed at the back.	There shall be no collapse or damage that would render the partition wall dangerous, due to any of its parts becoming dislodged or shattered, in a manner that could cause injury.
0.75 kN/m	2	0.10	-		
1.5 kN/m	2	0.41	-		
3.0 kN/m	2	0.79	0.58		

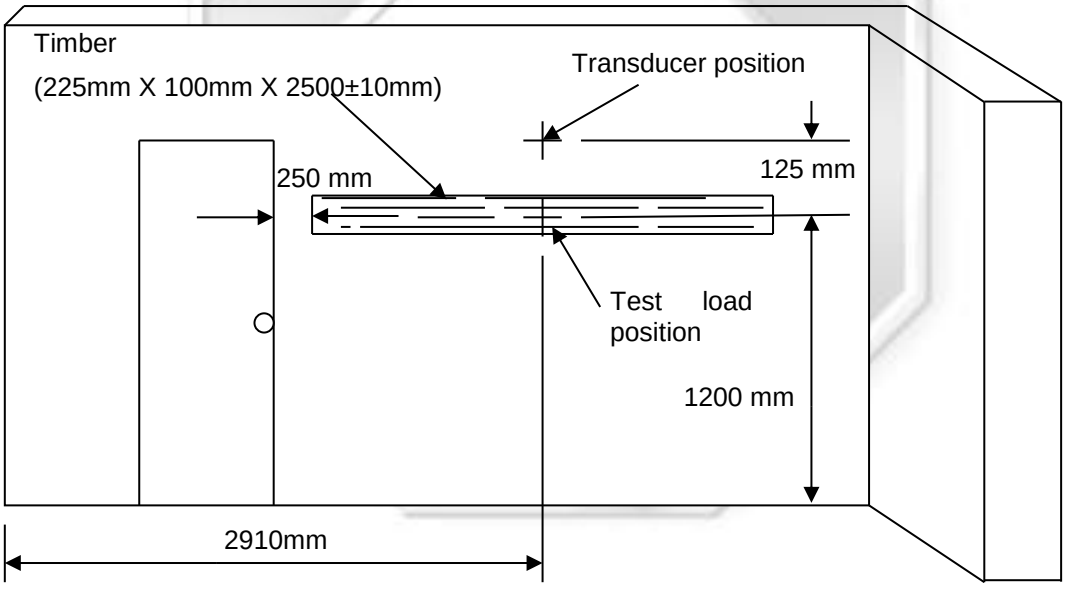


Figure 13: Locations of applied load for crowd pressure

f. Light weight anchorage

i. Pull-out test

Date of test: 22/4/2019
Lab temperature / Humidity: 34.6°C / 57%
Load applied: 100 N ± 3 N

Load (N)	Duration (min)	Condition of the specimen tested	BS 5234: Pt 2: 1992 Requirements
100	1	Passed	The partition wall shall withstand the axial load without releasing the pull-up shim plate or damaging the partition other than superficial cracking

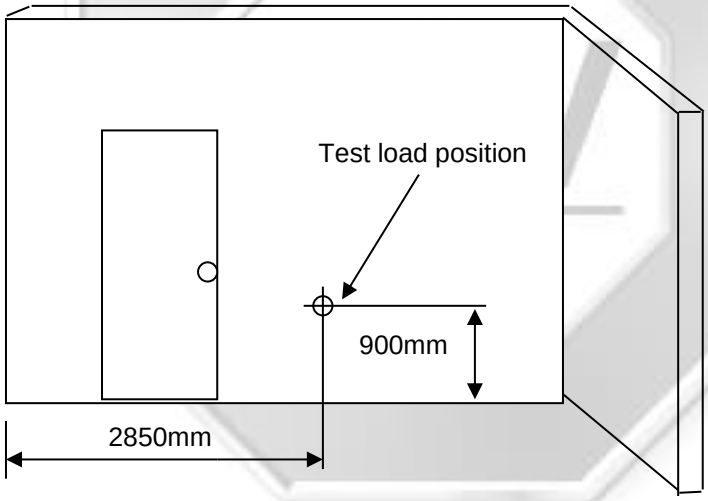


Figure 14: Locations of applied load for lightweight anchorage Pull-out test

ii. Pull-Down Test

Date of test: 22/4/2019
Lab temperature / Humidity: 34.1°C / 60%
Load applied: 250 N ± 7.5 N

Load (N)	Duration (min)	Deflection (mm)	Condition of the specimen tested	BS 5234: Pt 2: 1992 Requirements
250	1	0.00	Passed (No damage occurred)	1) The partition wall shall withstand the tranverse load without releasing the pull-up shim plate or damaging the partition other than superficial cracking. 2) The maximum movement of the pull-down bracket shall not exceed 2mm.

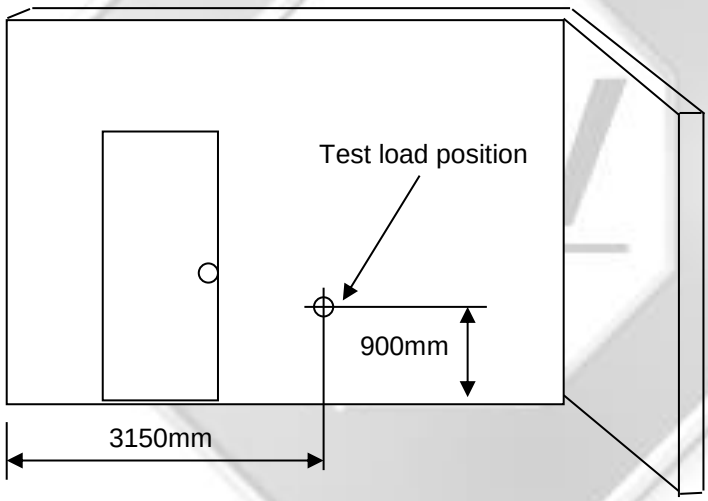


Figure 15: Locations of applied load for lightweight anchorage Pull-down test

g. Heavyweight Anchorage

i. Wash basin

Date of test: 22/4/2019
Lab temperature / Humidity: 29.6°C / 74%
Load applied: 1500 N

Load (N)	Time (min)	Deflection (mm)				Residual deflection (mm)				Condition of the specimen tested
		1	2	3	4	1	2	3	4	
Pretest load of 200	1	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	No releasing of shim plate No loosening, detaching, or damage to the partition
500	1	0.01	0.00	0.00	0.00	-	-	-	-	
750	1	0.01	0.00	0.00	0.00	-	-	-	-	
500	1	0.00	0.02	0.00	0.04	-	-	-	-	
750	1	0.00	0.00	0.00	0.00	-	-	-	-	
500	1	0.01	0.01	0.00	0.01	-	-	-	-	
`1000	1	0.00	0.00	0.00	0.00	-	-	-	-	
500	1	0.00	0.02	0.00	0.02	-	-	-	-	
1000	1	0.01	0.00	0.00	0.00	-	-	-	-	
500	1	0.00	0.01	0.00	0.00	-	-	-	-	
1250	1	0.00	0.00	0.00	0.01	-	-	-	-	
500	1	0.00	0.03	0.00	0.00	-	-	-	-	
1250	1	0.01	0.00	0.00	0.00	-	-	-	-	
500	1	0.01	0.04	0.00	0.02	-	-	-	-	
1500	1	0.00	0.00	0.00	0.00	-	-	-	-	
500	1	0.00	0.07	0.00	0.01	-	-	-	-	
1500	1	0.00	0.00	0.00	0.00	-	-	-	-	
500	1	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	

BS 5234: Pt 2: 1992 Requirements	The anchorages shall be capable of withstanding the load selected applied to the 2 linked brackets without releasing either pull-up shim plate, exceeding 20 mm deflection or 1 mm residual deformation limits and without loosening, detaching or damaging the partition wall.

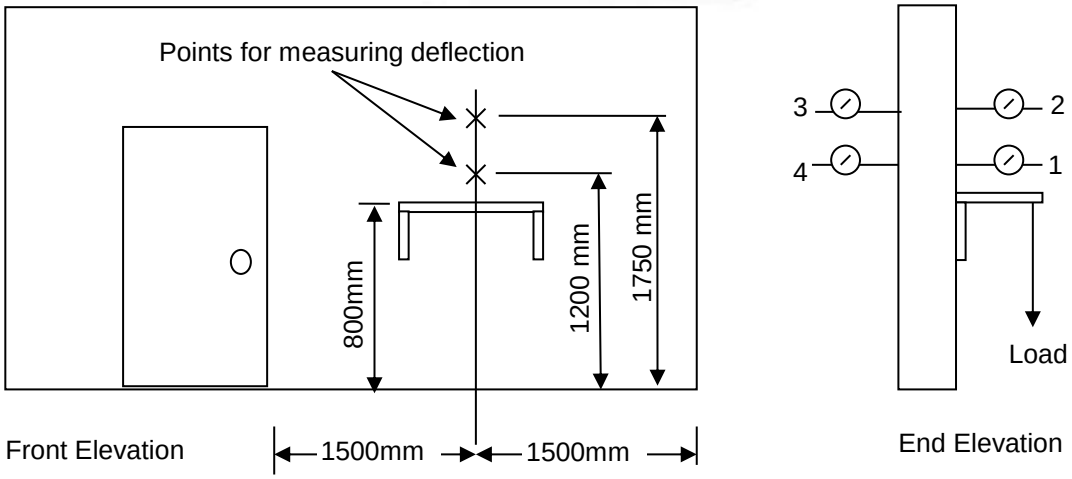


Figure 16: Locations of applied load for heavyweight anchorage (Wash Basin) eccentric downward loading test

ii. Wall cupboard

Date of test: 22/4/2019
Lab temperature / Humidity: 30.4°C / 75%
Load applied: 4000N

Load (N)	Time (Min)	Deflection (mm)				Residual deflection (mm)				Condition of the specimen tested
		1	2	3	4	1	2	3	4	
Pretest load of 200	1	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	No releasing of shim plate No loosening, detaching, or damage to the partition
500	1	0.00	0.00	0.00	0.00	-	-	-	-	
1000	1	0.00	0.00	0.00	0.00	-	-	-	-	
1500	1	0.00	0.08	0.00	0.00	-	-	-	-	
2000	1	0.00	0.00	0.00	0.00	-	-	-	-	
2500	1	0.00	0.05	0.01	0.11	-	-	-	-	
3000	1	0.00	0.00	0.00	0.00	-	-	-	-	
3500	1	0.01	0.05	0.00	0.00	-	-	-	-	
4000	1	0.00	0.01	0.00	0.00	0.00	0.04	0.00	0.05	

BS 5234: Pt 2: 1992 Requirements	The anchorages shall be capable of withstanding the load selected applied to the 2 linked brackets without releasing either pull-up shim plate, exceeding 5 mm deflection or 1 mm residual deformation limits and without loosening, detaching or damaging the partition wall.

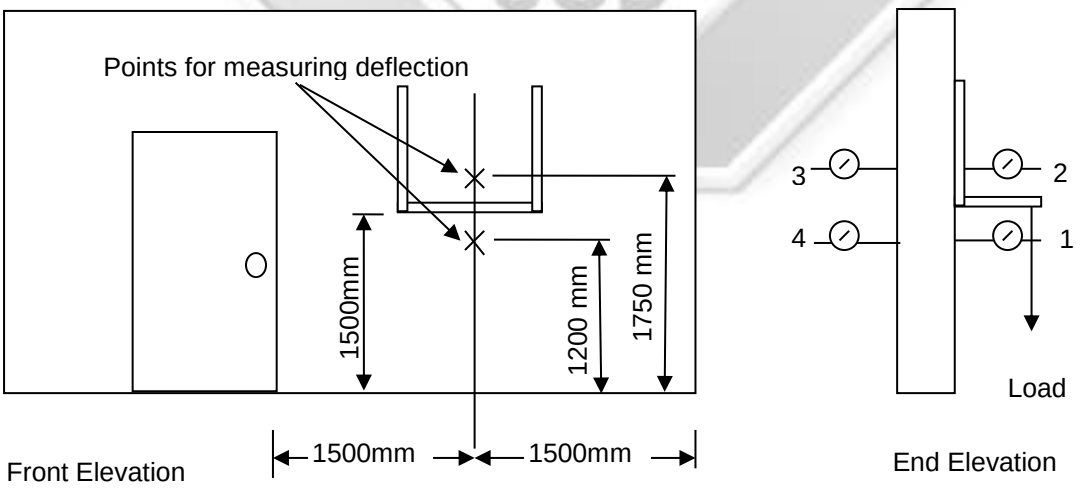


Figure 17: Locations of applied load for heavyweight anchorage (High level wall cupboard) eccentric downward loading test

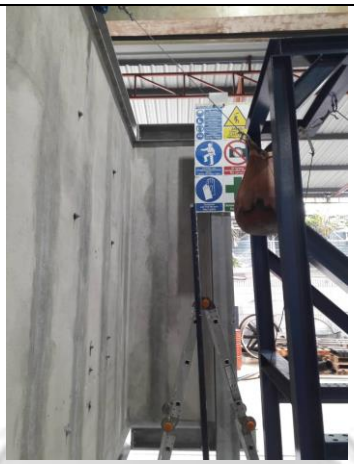
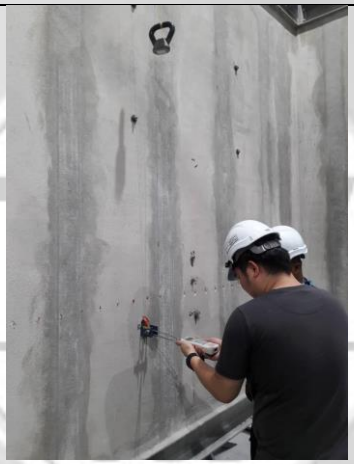
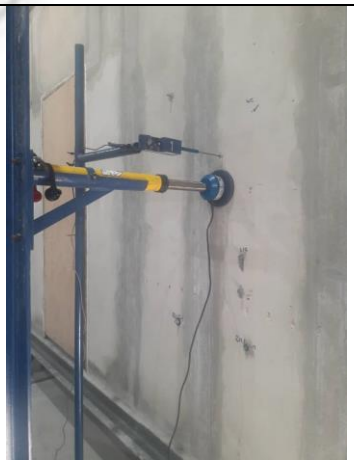
FINDINGS

Stiffness test, small hard body test by surface damage/ perforation, large soft body test by resistance to damage/multiple impacts, door slam test meets the **SEVERE DUTY** grade requirements of BS 5234 Part 2: 1992. has also achieved the following performance;

Crowd pressure	:	3.0 kN/m
Light weight anchorage – pull out	:	100 N
Light weight anchorage – pull down	:	250 N
Heavy weight anchorage – wash basin	:	1500 N
Heavy weight anchorage – wall cupboard	:	4000 N

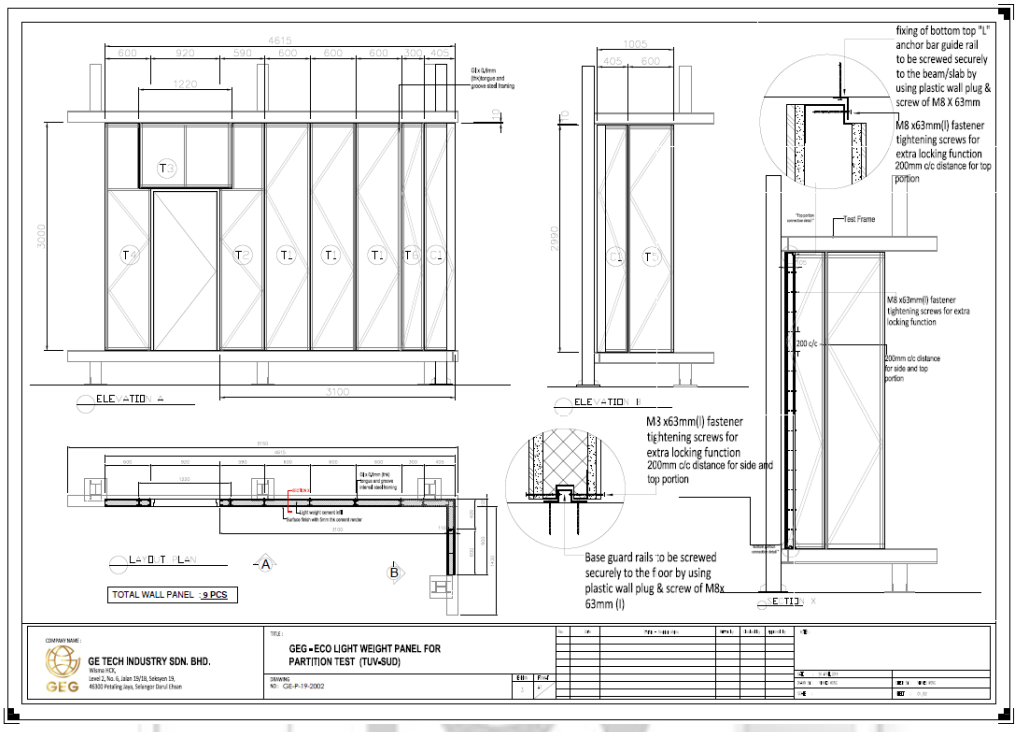
However, hair line crack was observed at plastering area on top right edge of door during the door slamming test.

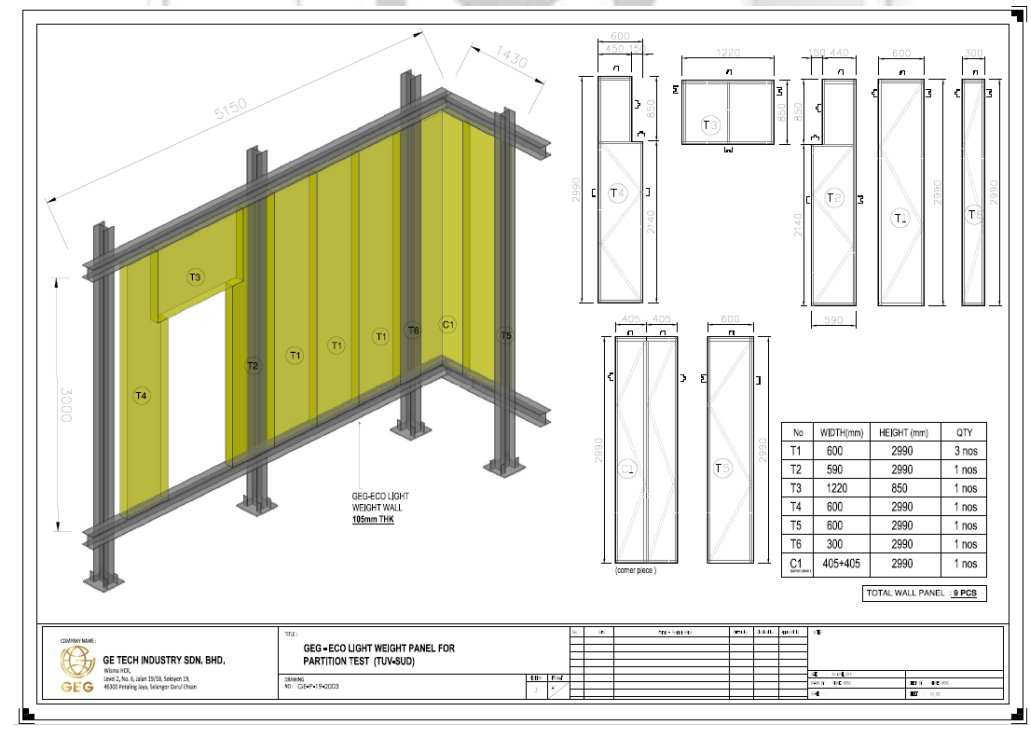
PARTITION TEST PHOTOGRAPHS

		
Figure 18: Small hard body test	Figure 19: Large soft body test	Figure 20: Door slam test
		
Figure 21: Pull down test	Figure 22: Pull out test	Figure 23: Heavy anchorage wall cupboard test
		
Figure 24: Heavy anchorage wash basin test	Figure 25: Crowd pressure test	Figure 26: Stiffness test

PARTITION WALL DRAWINGS

FRONT, RIGHT and ISOMETRIC VIEW





No	WIDTH(mm)	HEIGHT (mm)	QTY
T1	600	2990	3 nos
T2	590	2990	1 nos
T3	1220	850	1 nos
T4	600	2990	1 nos
T5	600	2990	1 nos
T6	300	2990	1 nos
C1	405+405	2990	1 nos

Components used for this system are:

		
Blue Lion Cement	1) Sika Anchorfix S 2) Hardex RS200 Acrylic Sealant	Base guard rails welded to testing's frame.

Please note that this Report is issued under the following terms:

1. This report applies to the sample of the specific product/equipment given at the time of its testing/calibration. The results are not used to indicate or imply that they are applicable to other similar items. In addition, such results must not be used to indicate or imply that TÜV SÜD Malaysia Sdn Bhd approves, recommends or endorses the manufacturer, supplier or user of such product/equipment, or that TÜV SÜD Malaysia Sdn Bhd in any way "guarantees" the later performance of the product/equipment. Unless otherwise stated in this report, no tests were conducted to determine long term effects of using the specific product/equipment.

2. The sample/s mentioned in this report is/are submitted/supplied/manufactured by the Client. TÜV SÜD Malaysia Sdn Bhd therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture, consignment or any information supplied.

3. Nothing in this report shall be interpreted to mean that TÜV SÜD Malaysia Sdn Bhd has verified or ascertained any endorsement or marks from any other testing authority or bodies that may be found on that sample.

4. This report shall not be reproduced wholly or in parts and no reference shall be made by the Client to TÜV SÜD Malaysia Sdn Bhd or to the report or results furnished by TÜV SÜD Malaysia Sdn Bhd in any advertisements or sales promotion.

February 2017