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Ref :11437-report 1 Dec-11 1

CAPCO

FULL SCALE LOAD TESTING OF PROPOSED 8m HIGH CAPCO DIVIDING WALL

These notes document the findings of the full scale load testing performed at the Capco offices on the 14 October 2011

The purpose of the test was to determine the performance on a 1.2m wide strip of the proposed Capco 8m high division wall in resisting a 0.8 kN/m2 wind load

Capco constructed a full size panel for the tests.



The panel as tested comprised :

Capco studs - 152 x 35 x 6.5 x 0.8mm at 400cc vertical
Capco Nogs - 38 x 12 x 1.0mm at 1.8m cc
Capco tracks - 154 x 50 x 0.8mm
Capco angle stiffeners 25 x 25 x 0.8 mm
Wafertec screws - 4.2 x 13 mm
Boarding - 15mm Fireguard Gypsum board drywall screwed at 230mm cc

The SANS 517 design code allows check by actual test. Thus it was decided to perform this full scale load test.

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One 8m long panel was constructed and set up horizontally on trestles. Vertical deflection readings were taken at the centre point of the panel. A distributed load was simulated by the addition of bags 20kg of gypsum. Deflections were measured at intervals as the load increased.

Once full load had been achieved the load was reduced in increments and the deflections recorded. After this load was reapplied in increments to destruction of the panel.





Deflections were recorded in increments during the application and removal of the load. These are recorded in the accompanying tables



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SUMMARY

The proposed internal division walls will be installed vertically, to simulate a horizontal uniform wind pressure an imposed load was added to a test panel placed in the horizontal plane. The load added caused a deflection which was measured, this deflection was compared with calculated theoretical deflections.

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In our opinion the 8m high capco division wall can safely resist an applied wind load of up to 0.8 kN/m2. The wall should be adequately secured top and bottom. The securing structure must be able to resist the additional applied horizontal forces. It is recommended that each individual installation should be checked and signed off by a licensed structural Engineer.



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FULL SCALE LOAD TESTING OF OF 8m PANEL

1.2m BAY SIZE, STUDS AT 400cc					
No of bags applied	**Weight of bags on panel kN**	**Weight of bags on panel kN/m2**	**Straight edge reading (mm)**	**Deflection (mm)**	**Cumalative Deflection (mm)**
0	0	0.00	894	0	0
4	0.8	0.08	883	11	11
8	1.6	0.17	870	13	24
16	3.1	0.32	858	12	36
	10 Min wait				
16	3.1	0.32	857	1	37
20	3.9	0.41	839	18	55
24	4.7	0.49	827	12	67
32	6.3	0.66	823	4	71

1.2m BAY SIZE, STUDS AT 400cc					
No of bags applied	**Weight of bags on panel kN**	**Weight of bags on panel kN/m2**	**Straight edge reading (mm)**	**Deflection (mm)**	**Cumalative Deflection (mm)**
32	6.3	0.66	824	0	0
28	5.5	0.57	832	-8	-8
20	3.9	0.41	847	-15	-23
12	2.4	0.25	858	-11	-34
	3 Min wait				
8	1.6	0.17	848	10	-24
4	0.8	0.08	875	-27	-51
2	0.4	0.04	888	-13	-64
0	0	0.00	888	0	-64

Bag Mass in kg
Three bags sampled 20+20+20
Ave = 20 kg

An initial deflection of 19mm was recorded, this being from the self weight of the panel as constructed.

1.2m BAY SIZE, STUDS AT 400cc					
No of bags applied	**Weight of bags on panel kN**	**Weight of bags on panel kN/m2**	**Straight edge reading (mm)**	**Deflection (mm)**	**Cumalative Deflection (mm)**
0	0	0.00	888	0	0
4	0.8	0.08	874	14	14
12	2.4	0.25	849	25	39
20	3.9	0.41	833	16	55
24	4.7	0.49	827	6	61
28	5.5	0.57	824	3	64
32	6.3	0.66	823	1	65
36	7.1	0.74	822	1	66
42	8.2	0.85	810	12	78
46	9	0.94	798	12	90
52	10.2	1.06	fail		

