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Page: 1 of 6
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FIRE RESISTANCE TEST ON "Rhino Wall HiStrength" PANEL SYSTEM

NOTES:

- SABS's Conditions of Test on overside of p.1
- "Exposed" in the context of this report means exposed to the heat of the furnace
- Terminology between quotation marks are as given by the sponsor
- All dimensions given under section 1 of this report are nominal
- Photographs referred to are under section 2 of this report

0 SIGNIFICANCE OF TEST RESULTS CONTAINED IN THIS REPORT.

0.1 Refer to text on overleaf of this report

0.2 The sample described was tested to SANS 10177 Part 2 and had a fire resistance of 61min.

1 DESCRIPTION OF SAMPLE

The composite dry wall panel consisted of steel studs clad with a single layer of plaster boards on each side. The panel was installed by the sponsor into a test frame at the Fire Protection Engineering Laboratory on 11 October 2005 [1].

1.1 MATERIALS

Boards

Marking	:	"15mm FireStop RhinoBoard TE "
Dimensions	:	2700 mm in height x 1200 mm in width x 15 mm in thickness
Mass	:	14,7 kg/m^2
Materials	:	Gypsum plaster board clad with kraft paper and reinforced with glass fibre strands.

Studs

Marking	:	"Donn UltraSteel Studs"
Dimensions	:	2700 mm x 51 mm x 34 mm
Material	:	0,45 mm Galvanised steel sheeting (profiled and knurled)

Tracks

Marking	:	"Donn UltraSteel Tracks"
Dimensions	:	2700 mm x 52 mm x 25 mm
Material	:	0,45 mm galvanised steel sheeting (profiled and knurled)

Miscellaneous Items

Plaster	:	"RhinoGlide"
Adhesive mesh	:	Self-adhesive fibre mesh marked "RhinoTape"
Screws	:	3,5 mm diam x 20 mm drywall screw

1.2 WALL PANEL CONSTRUCTION

The wall panel substructure consisted of a floor track supported on the brickwork base of a test frame and a roof track against the concrete lintel that constituted the top of the test frame. Between the tracks vertical studs were placed at 600 mm centres.

A single layer of boards was fastened to the substructure by means of drywall screws at 220 mm centres, such that a 10 mm thermal expansion gap was formed between the top of the studs and the roof track. The opposing vertical joints of the boards were staggered. The joints were sealed with self-adhesive mesh and plastered with "RhinoGlide".

Panel dimensions : 2700 mm in height x 2700 mm in width x 81 mm in thickness.

2 NATURE AND METHOD OF TEST

The fire resistance of the wall was determined in accordance with SANS 10177: Part 2-1981 "Fire Resistance Test for Building Elements" as specified for non-load bearing wall elements. The panel was tested from one side only.

3 DATE OF TEST

12 October 2005

4 OBSERVATIONS

4.1 The following observations were made during the test:

Time, min	Observation	E-Exposed U-Unexposed	Photograph No
0	Panel at onset of test	U	2
3	Kraft paper darkened and charred	E	-
13	Board cracked over entire surface	E	-
18	Smoke and steam was released	U	-
24	Boards shrunk, exposing studs partially	E	-
30	No visual changes to boards	U	3
56	Plaster darkened over screw heads	U	-
60	No stability, integrity or insulation failure occurred	U	4
61	Thermocouple No5 exceeded 205 °C	U	-
62	Test was terminated at the request of the sponsor	U	-

NOTE:- "Exposed" in the context of this report means exposed to the heat of the furnace.

4.2 The following temperatures were recorded during the test: -

Time, min	Temperature °C			
	Unexposed face			Furnace target*
	Joint	Average	Maximum	
0	26	26	26	26
10	43	44	48	681
20	59	60	63	784
30	80	72	80	844
40	89	90	100	887
50	132	94	132	921
60	193	112	190	948

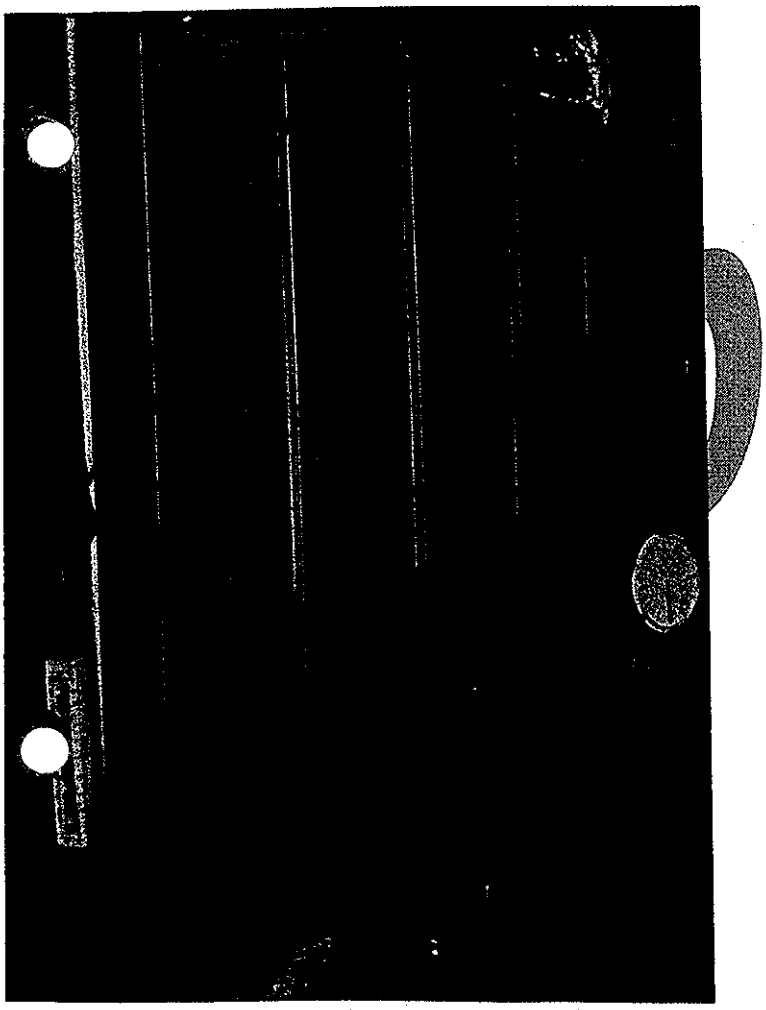
4.3 The evaluation of the wall panel during the test was as follows: -

Criteria	Time of Failure min	Failure
Stability	61 +	No failure occurred
Integrity	61 +	No failure occurred
Insulation	61	Thermocouple on joint exceeded 205 °C

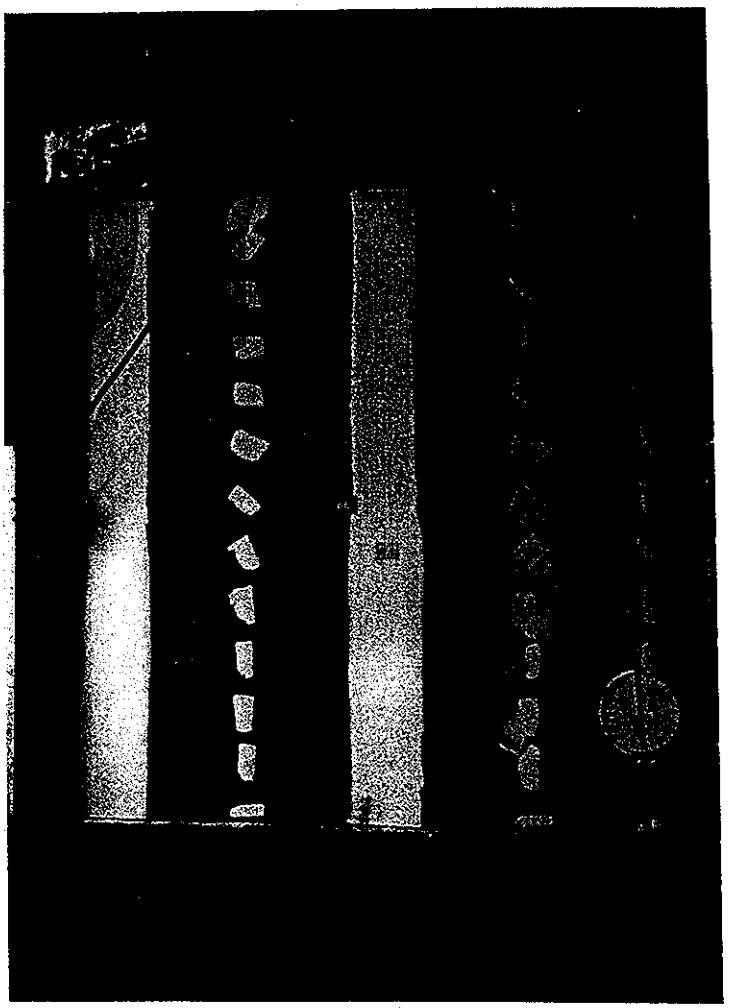
5 RESULTS

The composite wall panel as described under section 1 of this report had a fire resistance of 61 min when tested in accordance with SANS 10177: Part 2-1981 "Fire resistance test for building elements" as specified for non-load bearing elements.

6. PHOTOGRAPHS

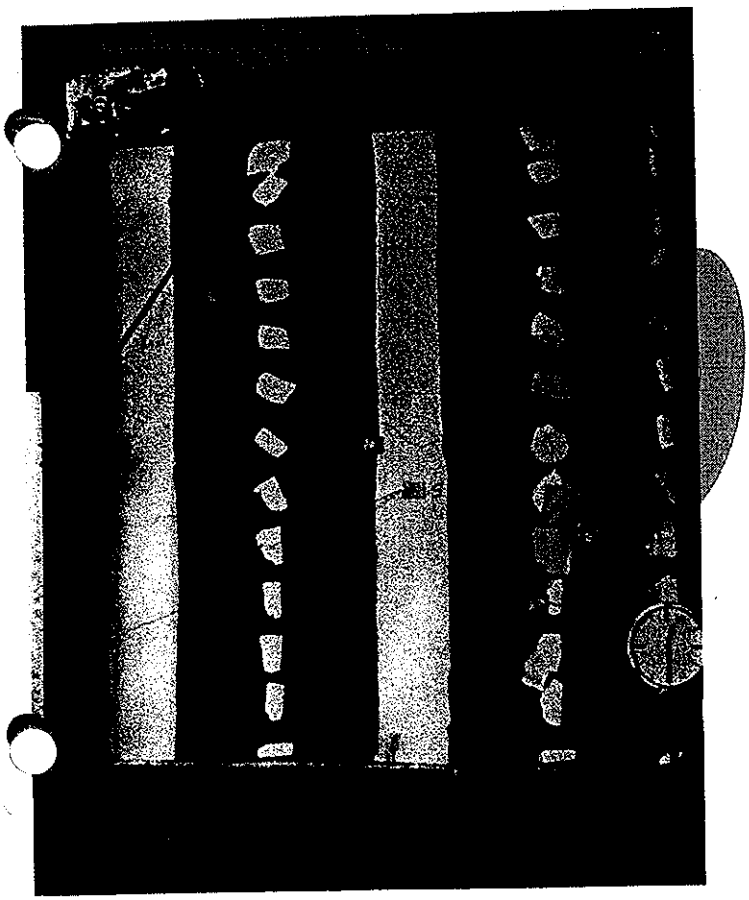


No:1 Exposed side before test

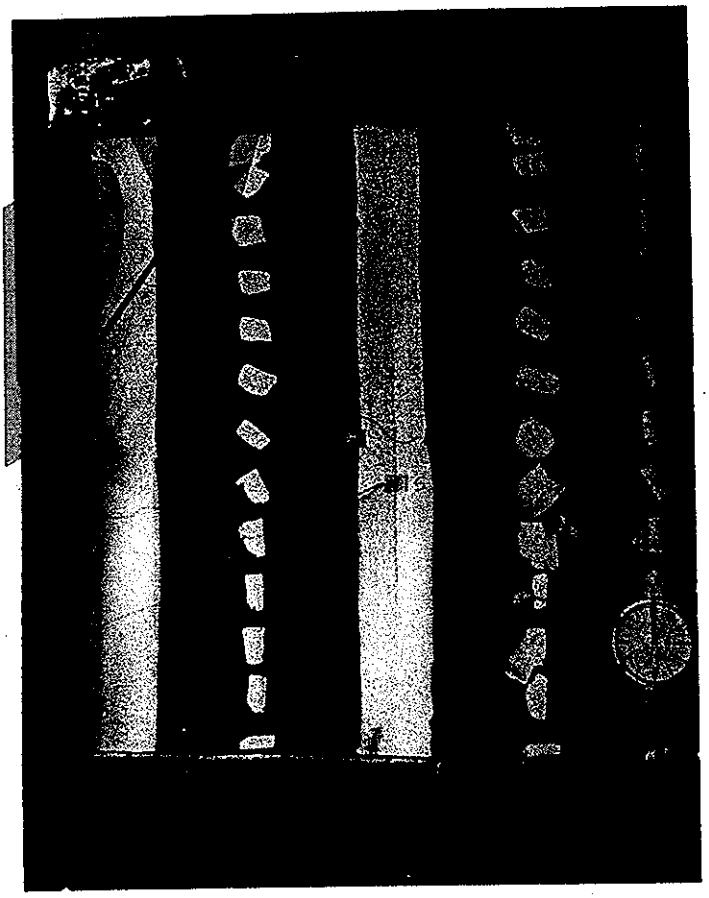


No: 2 Unexposed side at onset of test: 0 min

6. PHOTOGRAPHS CONTINUED



No: 3 Panel: 30 min



No: 4 No visual changes: 60 min

ASW van Rensburg: TEST OFFICER
FIRE PROTECTION ENGINEERING

WA van der Hoogt:
TEST OFFICER