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Page: 1 of 6
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FIRE RESISTANCE TEST ON COMPOSITE WALL PANEL

NOTE:

- "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 6 of this report

0 SIGNIFICANCE OF TEST RESULTS CONTAINED IN THIS REPORT

- 0.1 Refer to the standard test conditions on the overside of this page.
- 0.2 A fire resistance test to SANS 10177 Part 2 was conducted on the wall panel.
- 0.3 The wall panel obtained a fire resistance of 90 min.

1 DESCRIPTION OF SAMPLE

The composite wall panel consisted of three identical insulated steel clad, wall panels installed by the sponsor into a test frame at the Fire Protection Engineering Laboratory on 17 November 2005. [1].

1.1 PANEL CONSTRUCTION

The panels were constructed from a 100 mm "Rockwool" core, clad with a 0,5 mm steel sheeting. Each panel had double tongue and groove joints on the vertical sides. All joints were sealed with a mastic intumescent sealant.

An angle steel section was fitted to the brickwork and to the underside of the brick wall by means of rawlbolts. The top and underside of each module was positioned against the two retaining angle sections but not secured with fasteners.

The sponsor submitted one A4 drawing detailing the wall panel. The drawing was verified by the personnel of the Fire Protection Engineering Laboratory during installation of the panel and a copy is attached to this report.

Overall Panel dimensions : 2700 mm in height x 2 650 mm in width x 102 mm in thickness

The acceptance of an item for test and the issue of a test report are subjected to the SABS's CONDITIONS OF TEST*, from which the following have been extracted:

1. If published or reproduced by the client, a test report shall be reproduced **in full**, i.e. the reproduction shall contain the printed as well as the typed parts of the report, nothing excepted. In special circumstances an abridged form of the report or certain parts of the report may be published or reproduced, provided that the abridged form or partial version of the report is approved in writing by the President and CEO of the SABS before publication or issue.
2. A test report relates only to an item submitted for the actual test. It furnishes or implies no guarantee whatsoever in respect of a similar item that has not been tested.
3. The performance of a test and the issue of a test report do not imply approval by the SABS of the quality and/or performance of the item that has been tested. This does not authorize the use of a certification mark.

NOTE - An unlawful statement implying that an item has been approved by the SABS constitutes a punishable offence in terms of section 21(1) of the Standards Act.

4. While every endeavour will be made to ensure that a test is representative and accurately performed, and that a report is accurate in the quoted results and conclusions drawn from the test, the SABS or its officers shall in no way be liable for any error made in carrying out the test or for any erroneous statement, whether in fact or in opinion, contained in a report issued pursuant to a test.

*Obtainable upon request from the President and CEO, SABS, Private Bag X191, Pretoria, 0001.

1.2 MATERIALS

Insulation Boards

Marking : "100 mm Rockwool".
Dimensions : 2 700 mm in height x 905 mm in width x 100 mm in thickness.

Steel Sheeting

Marking : "Chromadek"
Dimensions : 2 700 mm in height x 905 mm in width x 0,5 mm in thickness
Material : Steel sheeting with coating

Retaining Angles

Marking : "Retaining angle"
Dimensions : 2 700 mm in length
Material : 40 mm x 40 mm x 0,8 mm chromadek angle section

Sealant

Marking : "Hilti CP 611A"
Type : Intumescent mastic sealant

Fixing Anchors

Dimensions : 6 mm diam steel rawl bolts
Material : Steel

2 NATURE AND METHOD OF TEST

The fire resistance of the wall panel was determined in accordance with SANS 10177: Part 2-1981 "Fire resistance test for building elements" as specified for non-load bearing wall elements. Since the panel was symmetrical in construction in respect of both faces, it was tested from one side only

3 DATE OF TEST

21 November 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	"Chromadek" coating darkened and cracked on steel sheeting	E	-
15	Joint opened between the right sections but no flaming was visible	E	-
42	Steel sheeting bulged extensively	E	3
60	No visual changes or darkening were observed on panel	U	-
68	One of the joints of the panel opened on the unexposed side	U	4
85	Thermocouple no 2 on the joint exceeded 203 °C	U	-
90	Condition of panel at the termination of the test	U	5
-	Unexposed side of panel after the test	U	6

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	23	23	23	23
10	27	25	27	681
20	36	34	36	784
30	43	40	43	841
40	59	55	59	887
50	83	80	89	921
60	118	106	118	948
70	158	127	158	971
80	189	141	189	991
90	199	148	199	1009

* During the course of the test the temperature of the furnace was controlled within the applicable tolerances.

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

Criteria	Time of Failure, min	Failure
Stability	90 +	No failure occurred
Integrity	90 +	No failure occurred
Insulation, Maximum Average	90 90 +	Thermocouple No 2 exceeded 203 °C Avg Temp. was 148 °C at end of test -no failure

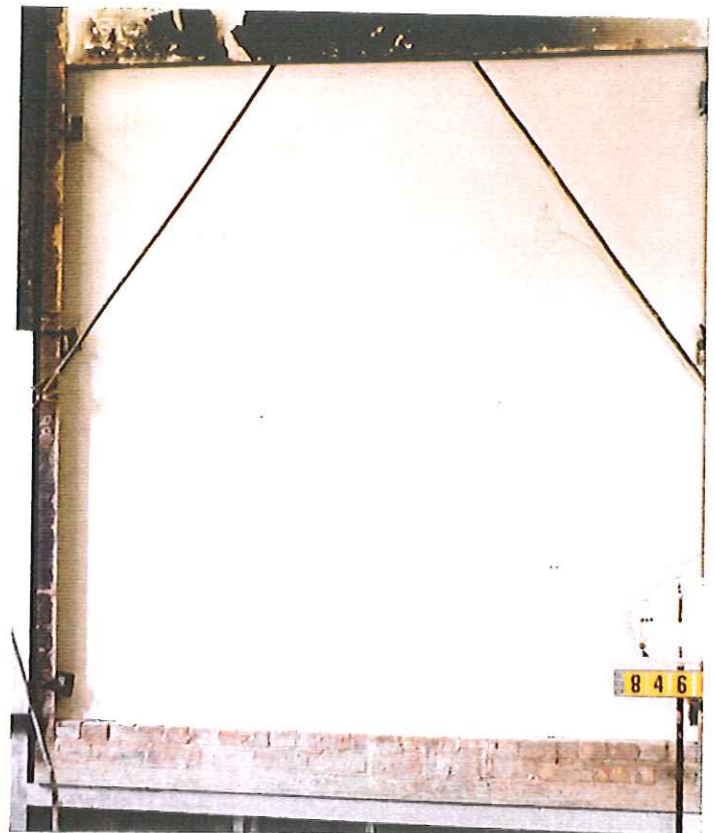
5 RESULTS

The composite wall panel as described under section 1 of this report had a fire resistance of 90 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



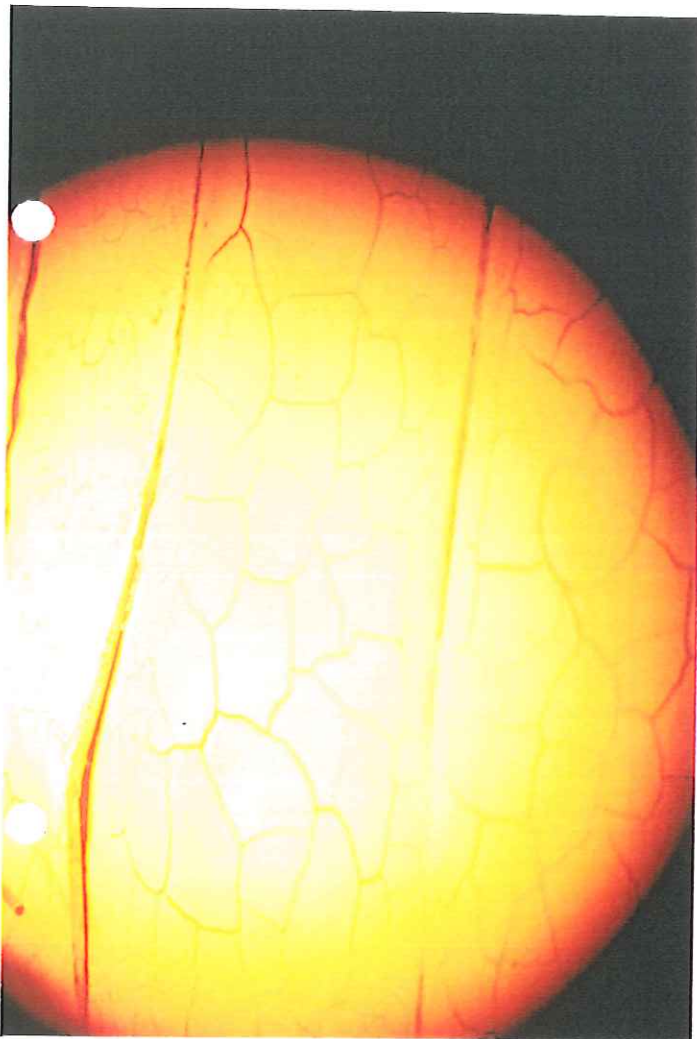
No 1 Panel during assembly



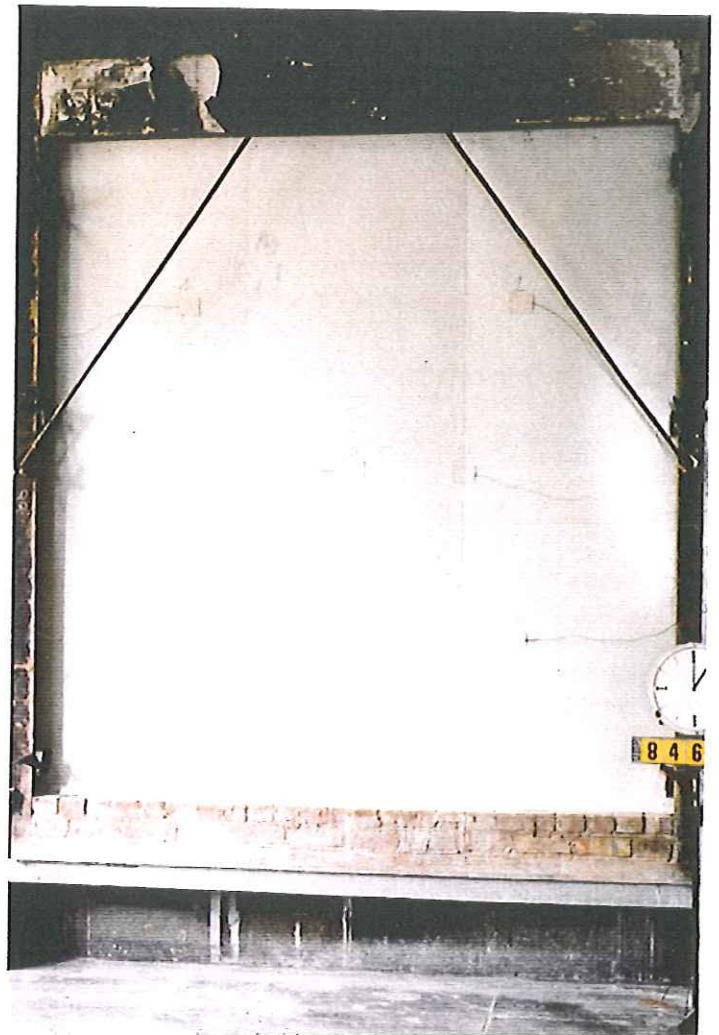
No 2 Panel at onset of test: 0 min

This report relates only to the specific sample(s) tested as identified herein. It does not imply SABS approval of the quality and/or performance of the item(s) in question and the test results do not apply to any similar item that has not been tested. (Refer also to the complete conditions printed on the back of official test reports.)

6. PHOTOGRAPHS (continued)



No 3 Panel: Sheeting bulged : 40 min



No 4 Panel: 60 min

6 PHOTOGRAPHS (continued)



No 5 Panel at termination of test: 90 min



No 6 Panel after test

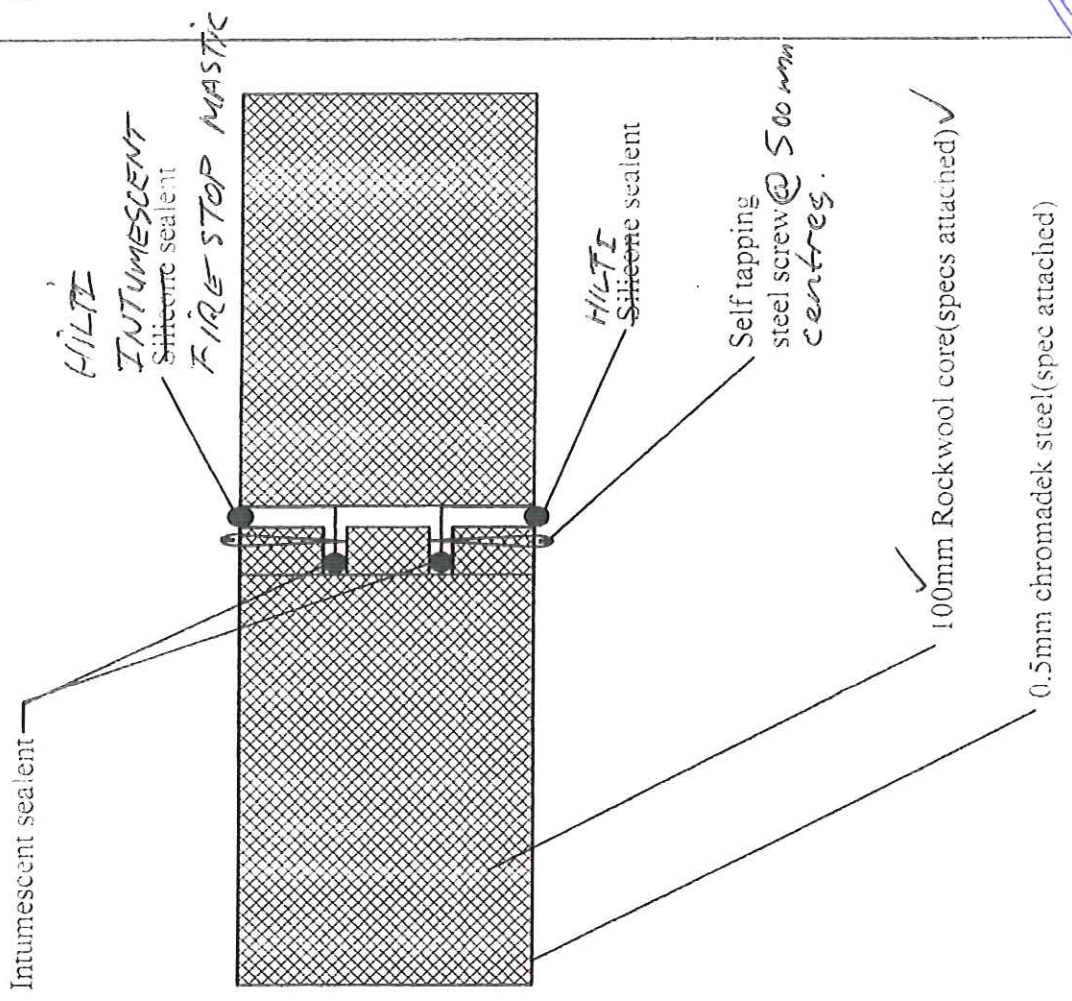
ASW van Rensburg TEST OFFICER
FIRE PROTECTION ENGINEERING

WA van der Hoogt
TEST OFFICER

FPE 84602

Panel jointing system

17/11/2005



Section through test wall

