D.U.L. LABORATORIES LTD

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Dover, Kent, CT15 7JG
Phone: 01304 821474
Fax: 01304 841788
Email: sales@dul-laboratories.com

**Test carried out for**
**Oxford Fire Door Company Ltd**
**23A Vicount Industrial Estate**
**Station Road**
**Brize**
**Norton**
**Carterton**
**Oxfordshire**
**OX18 3QQ**

# Confidential Report

# Our Ref: DUL/29/07/20

**Tested panelled door**
**To EN 1634-1:2000**
**EN 13501-2:2007**

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**Oxford Fire Door Company Ltd – Door Manufacture.**

| | |
|---|---|
| **1a** | 45mm thick stiles & rails Sapele hardwood 1301mm high, 795mm wide. |
| **2a** | With 4 panels:<br>2 250mm x 250mm<br>2 250mm x 680mm |
| **3a** | Each panel consisted of 2 MDF panels, 9mm thick each side of 6mm cement board, adhered with D4PVA Adhesive, total thickness 24mm. |
| **4a** | The panels were rebated into the stiles & rails and Mullion by 15mm adhered with D4PVA. |
| **5a** | An Envirograf® 15x4 IS seal was rebated to sides & head of door. |
| **6a** | 1 coat of Envirograf® HW01 white Intumescent coating @ 8m² per litre to the risk side only. The wall was constructed from 75mm x 50mm timbers with 2 layers of 15mm Fireline plasterboard and round edges. 125mm door frame 32mm thick head & sides with two steel hinge with Envirograf® HP hinge paper 15mm softwood door stops 25mm wide. |

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## OBSERVATIONS FOR TEST

**Start of Test**

| **Time Mins/Sec** | |
|---|---|
| **1 min** | All started. |
| **16 mins** | All as started. |
| **22 mins** | Still as before. |
| **26 mins** | Slight scorch mark top corner of outer frame. |
| **30 mins** | No difference. |
| **40 mins** | Slight scorch marks on two panels. |
| **50 mins** | Panels all going black. |
| **59 mins** | All panels blackening, but no cracks in panels. |
| **59.5 mins** | Slight crack in one lower panel left hand. |
| **61 mins** | Crack larger, but no flaming. |
| **62 mins** | Stopped test. |

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**Date of issue: 5th August 2020**

**Signed**

Grzegorz Kubiak

G. Kubiak
Project Leader Fire Testing

**Signed**

Natalie Holness
Project Test Procedure Leader

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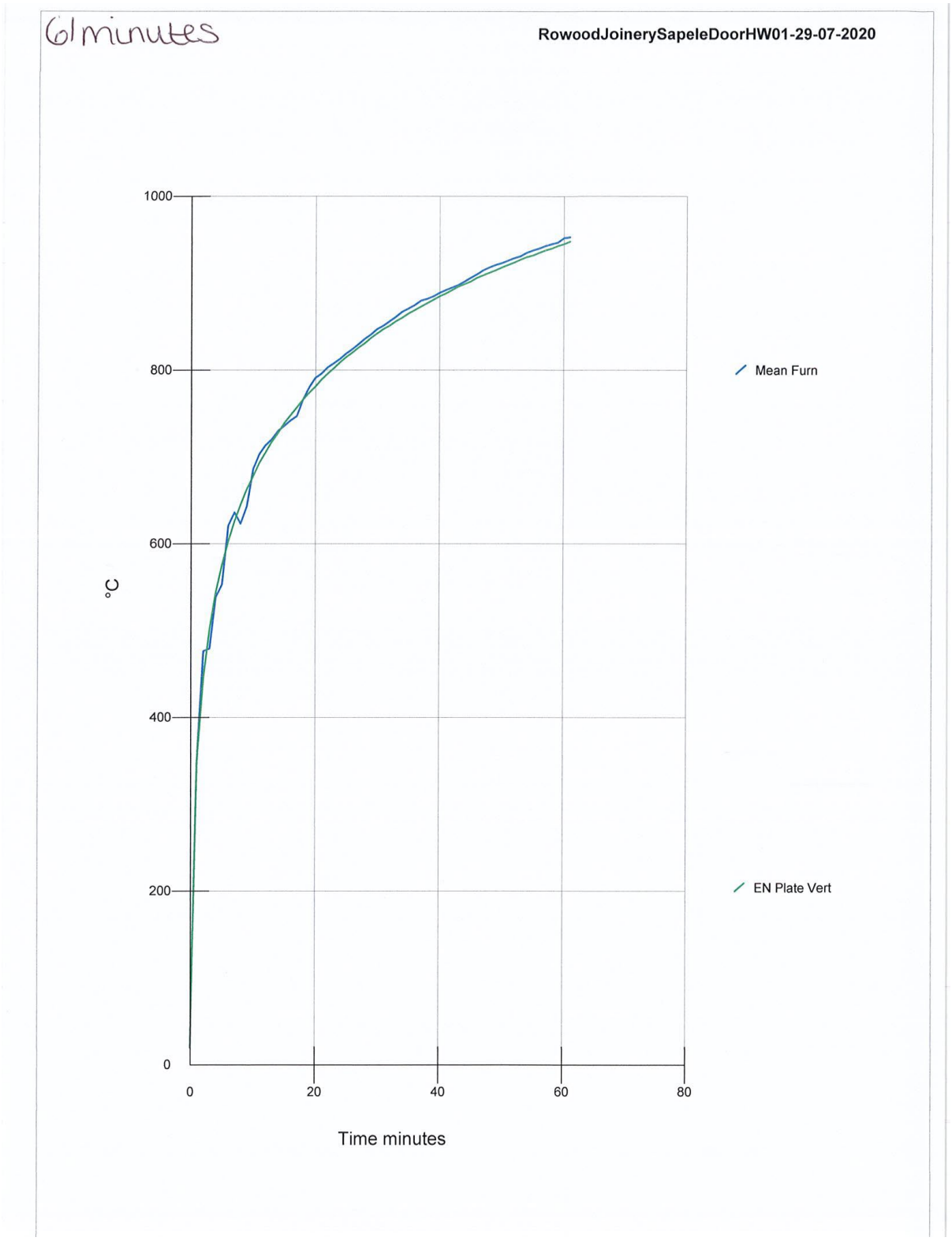
## APPENDIX A



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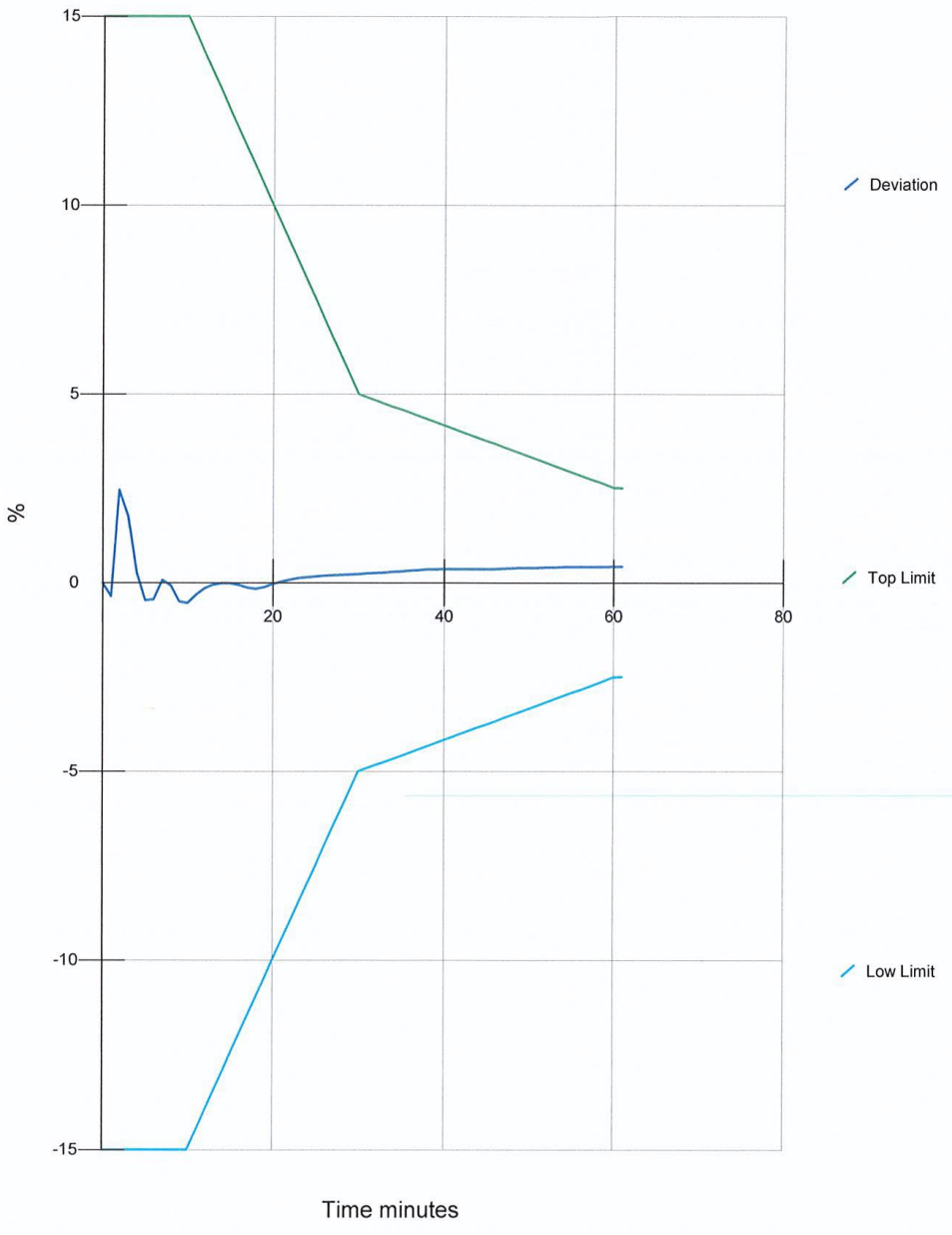
61 minutes

RowoodJoinerySapeleDoorHW01-29-07-2020



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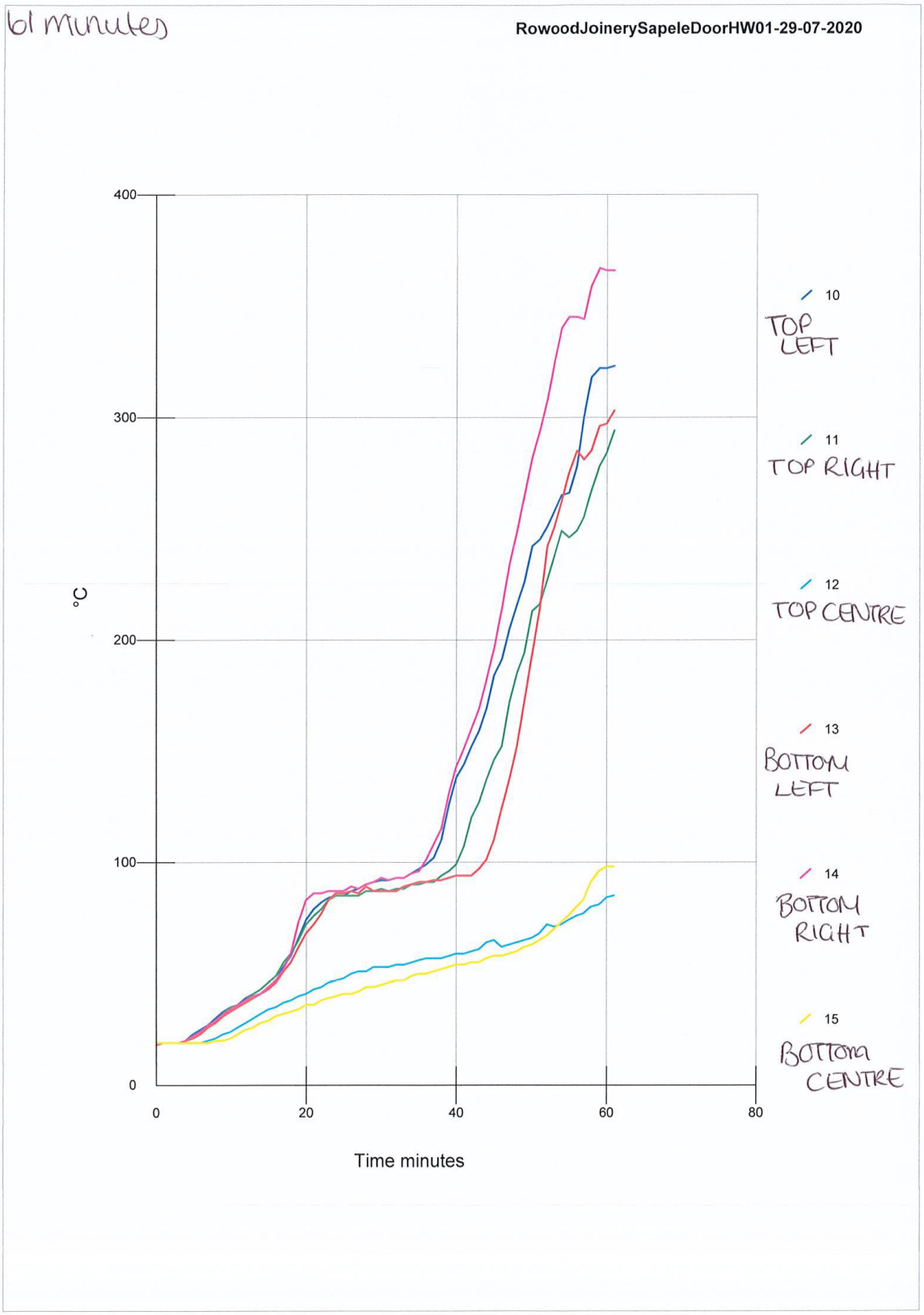

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## APPENDIX B

*Image 1 – Before test, inside furnace*


*Image 2 – Before test, outside furnace*

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*Image 3 – 2 mins into test*

*Image 4 – 2 mins into test on inside of furnace*

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*Image 5 – 10 mins into test*

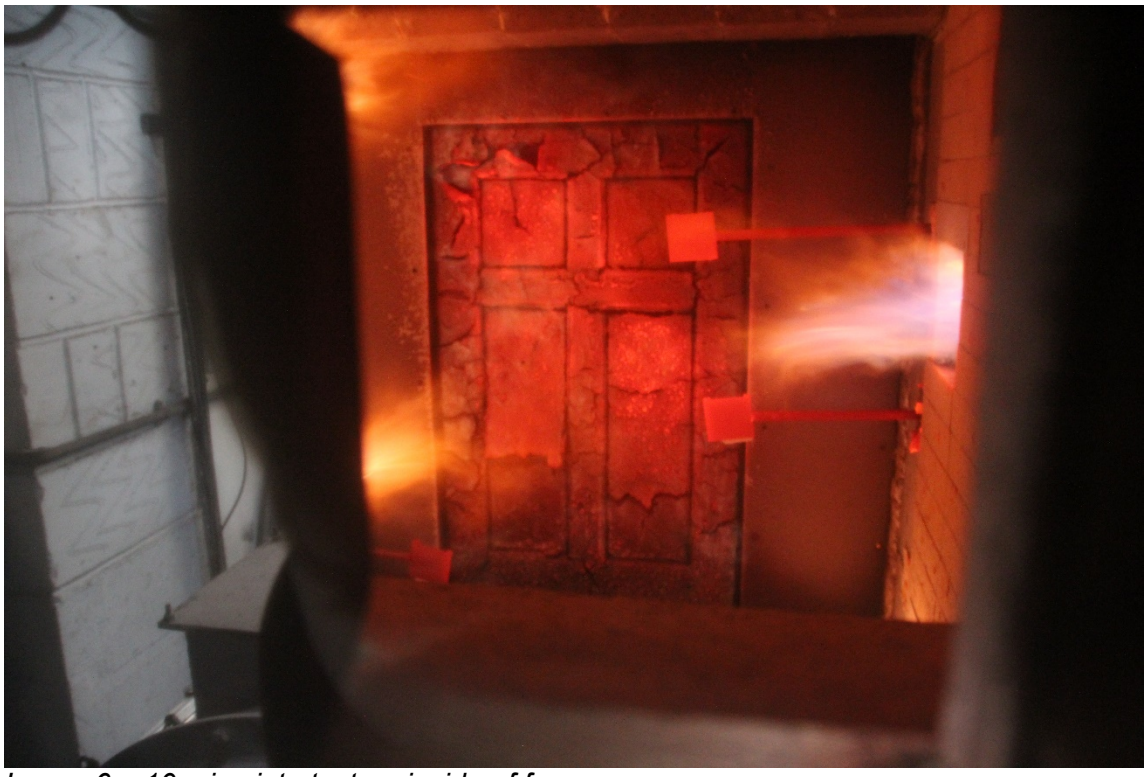

*Image 6 – 10 mins into test on inside of furnace*

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*Image 7 – 21 mins into test*

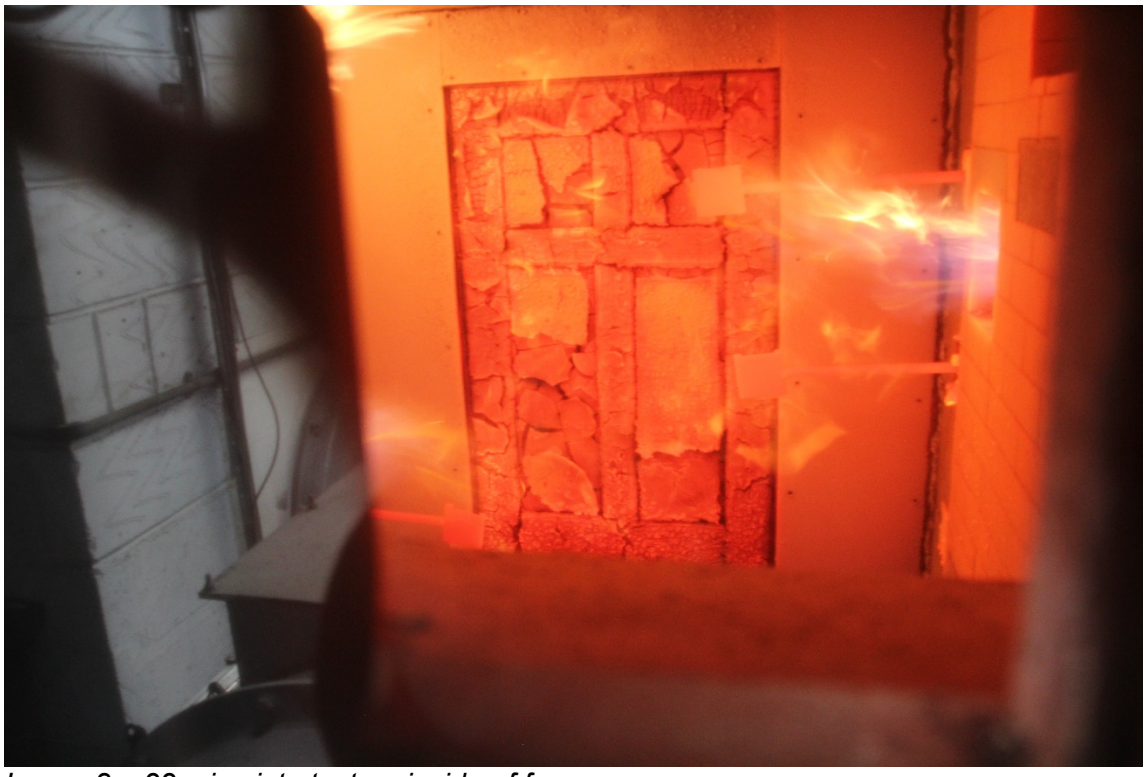

*Image 8 – 22 mins into test on inside of furnace*

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*Image 9 – 26 mins into test*


*Image 10 – 30 mins into test*

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*Image 11 – 40 mins into test*

*Image 12 – 40 mins into test on inside of furnace*

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*Image 13 – 50 mins into test*

*Image 14 – 51 mins into test on inside of furnace*

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*Image 15 – 59 mins into test*

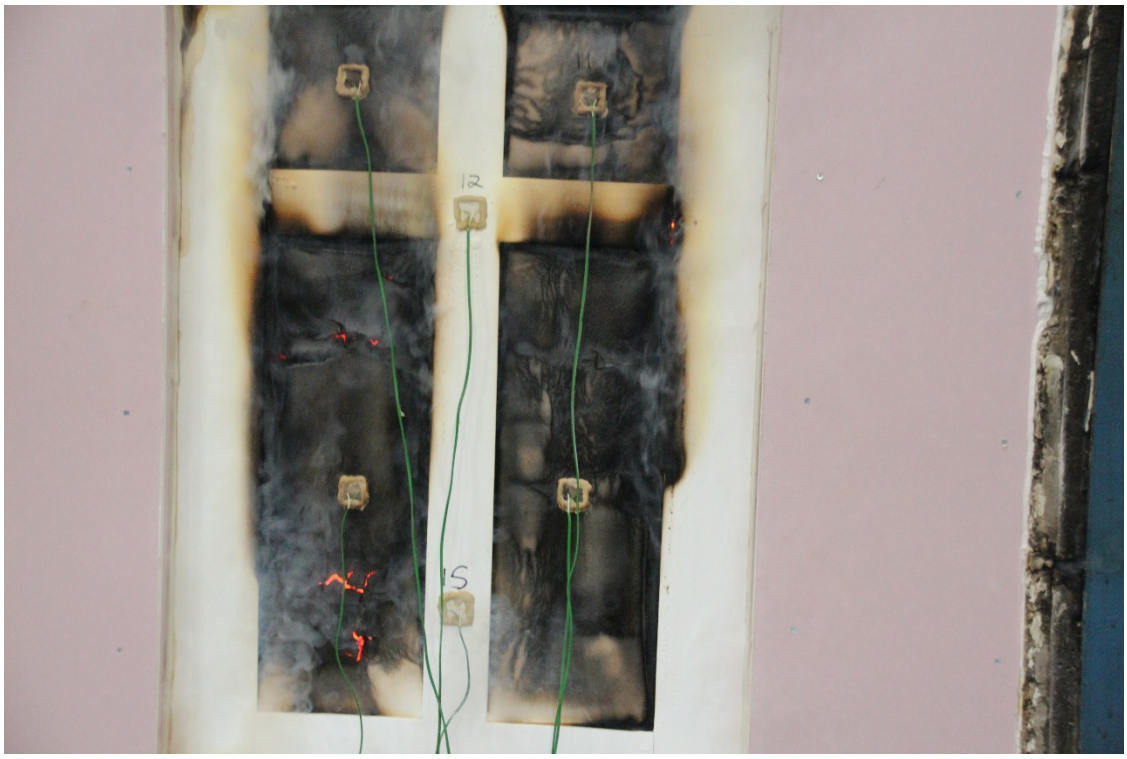


*Image 16 – 61 mins into test*

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*Image 17 – After test ended at 62 minutes*


*Image 18 – After test ended*

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# This report is made out for 3 doors, tested over a 2 day period the 25th & the 26th February 2020

## All 3 tests were conducted to the principles of BS EN1634-1:2014

## Doors manufactured by:
## Rowood Handmade Kitchen & Joinery
## 23A Vicount Industrial Estate
## Station Road
## Brize
## Norton
## Carterton
## Oxfordshire
## OX18 3QQ

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## DOOR NO.1

The door and frame were made from Tulip wood. The door frame made 36mm wide with 15x25mm door stops.

The door was 58mm thick stiles & rails with 4 panels. Top panels each 250mm x 250mm, bottom two panels 250mm wide 680mm high. The panels consisted of a 3.2mm thick Zintec panel with 6mm cement board adhered to each side of the steel panels, adhered with D4PVA.

Moulded MDF panels are adhered each side of the cement boards using D4PVA. The panels are rebated into stiles, rails and munchen by 15mm.

The panels are also held in by 15x13mm quadrant beads pinned with 32mm panels pins, 200mm apart. Rebated into the head & both sides of the door were Envirograf ES15x4/S Intumescent fire & smoke seals.

The risk side of the door & frame were coated with 2 coats of Envirograf HW01 white Intumescent coating at 8m² per litre per coat.
The external face of the door was coated with Zinzzer Bulls Eye 123 coating.

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## OBSERVATIONS FOR TEST FOR DOOR NO.1

Ambient temperature 17 degrees.
5 thermocouples were fitted. One to each door panel and one on the centre of the door.

**Start of furnace**

| **Time Mins/Sec** | |
|---|---|
| **01.00** | Discolouration and blackening around the top of the door. |
| **03.00** | Discolouration around the end of the door. |
| **24.00** | Slightly more darkening around edge. |
| **30.00** | No change. |
| **40.00** | Slight discolouration around the edge of one of the panels. |
| **42.00** | Glowing red at the top of the door. |
| **43.00** | Flames appear at the top of the door. Termination of test. |

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**DOORS NO. 2 & 3 were conducted to the same EN EN1634-1:2014**

Door 2 & 3 did not have door frames supplied with the doors. Which meant the timber frame wall with 2 12.5mm plasterboard on both sides. The opening were made to suit the size of the doors which were 1301mm high x 795mm wide for doors No. 2 & 3. Thickness of doors 58mm thick.

Door No.2 was made from Tulip wood 58mm thick, 1301mm high x 795mm wide.
With top panels 250mm x 250mm
bottom panels 250mm x 680mm
Manufactured exactly the same as door No.1 & rebated in by 15mm with 3.2mm Zintec thick metal.

6mm cement board were adhered to both faces of the metal with D4PVA adhesive. The risk side face coated with 2 coats of Envirograf HW01 white Intumescent coating at 8m² per litre per coat. Envirograf ES/25/HS seals were adhered to the head & both stiles of the door.

As door No.2 was being tested there was an electricity failure, so unfortunately test graphs could not be printed from the test rig computerised system. But filming of door No.2 test was still carried out to be transferred onto a USB stick & photos.

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Door No.3 was made from Sapele 58mm thick stiles, rails & munchen. 1301mm high, 795mm wide. Panel sizes as before.

Top 2 1 50mm x 250mm
Bottom 2 250mm x 680mm
Manufacture as panels in doors one & two.

This door again was mounted into the timber plasterboard frame, as no door frame supplied. This door was coated on the risk side with Envirograf HW01 white Intumescent coating, 2 coats at 8m² per litre per coat. Across the head & down both sides were fitted Envirograf ES/25/HS fire & smoke seals.

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## OBSERVATIONS FOR TEST FOR DOOR NO. 2

Ambient temperature 17 degrees.
5 thermocouples were fitted. One to each door panel and one on the centre of the door.

**Start of furnace**

| **Time Mins/Sec** | |
|---|---|
| **10.00** | Slight amount of light smoke. |
| **20.00** | No change |
| **30.00** | No change |
| **40.00** | No change |
| **47.00** | Slight discolouration on top corner of door |
| **50.00** | Slight discolouration around edge of panels |
| **59.00** | Blackening around the edge of the panels and bottom corner |
| **63.00** | Glowing red at the bottom corner of the door and the panels start bowing outwards |
| **66.00** | Flames appear at the bottom corner of the door. Termination of test. |

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## OBSERVATIONS FOR TEST FOR DOOR NO.3

Ambient temperature 18 degrees.
5 thermocouples were fitted. One to each door panel and one on the centre of the door.

**Start of furnace**

| **Time Mins/Sec** | |
|---|---|
| **10.00** | Remained the same as the start of the test |
| **20.00** | No change |
| **30.00** | No change |
| **40.00** | No change |
| **50.00** | Slight amount of light smoke |
| **60.00** | No change |
| **65.00** | Slight discolouration around edge of panels |
| **71.00** | Blackening around the edge of the panels |
| **78.00** | More blackening and the panels start bowing outwards |
| **80.00** | Glowing red on the edge of one of the panels |
| **82.00** | Flames appear around the edge of one panel. Termination of test. |

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**Date of issue: 13th March 2020**

**Signed**

Grzegorz Kubiak

G. Kubiak
Project Leader Fire Testing

**Signed**

Natalie Holness
Project Test Procedure Leader

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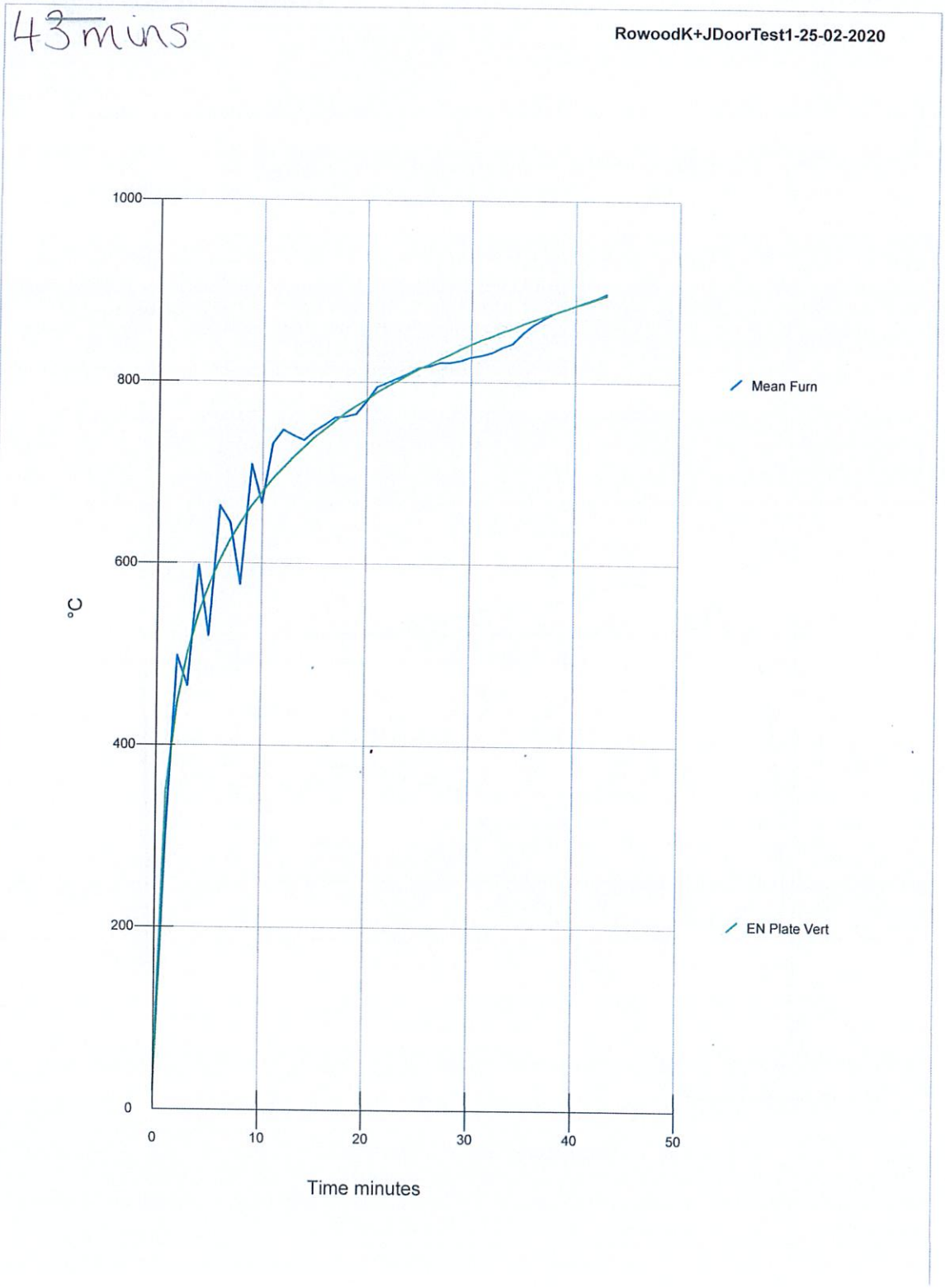
## APPENDIX A – DOOR NO.1



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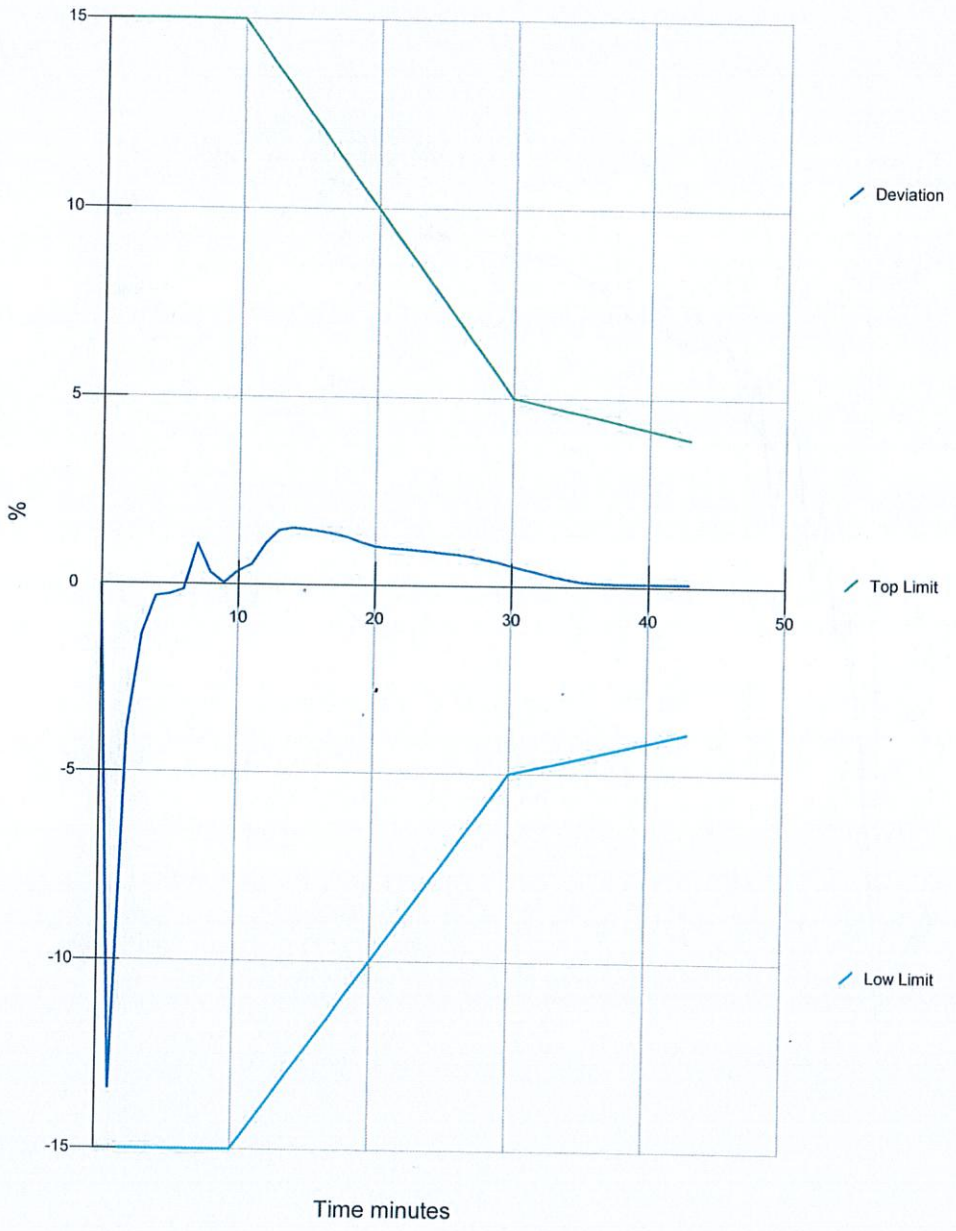
43 mins

RowoodK+JDoorTest1-25-02-2020



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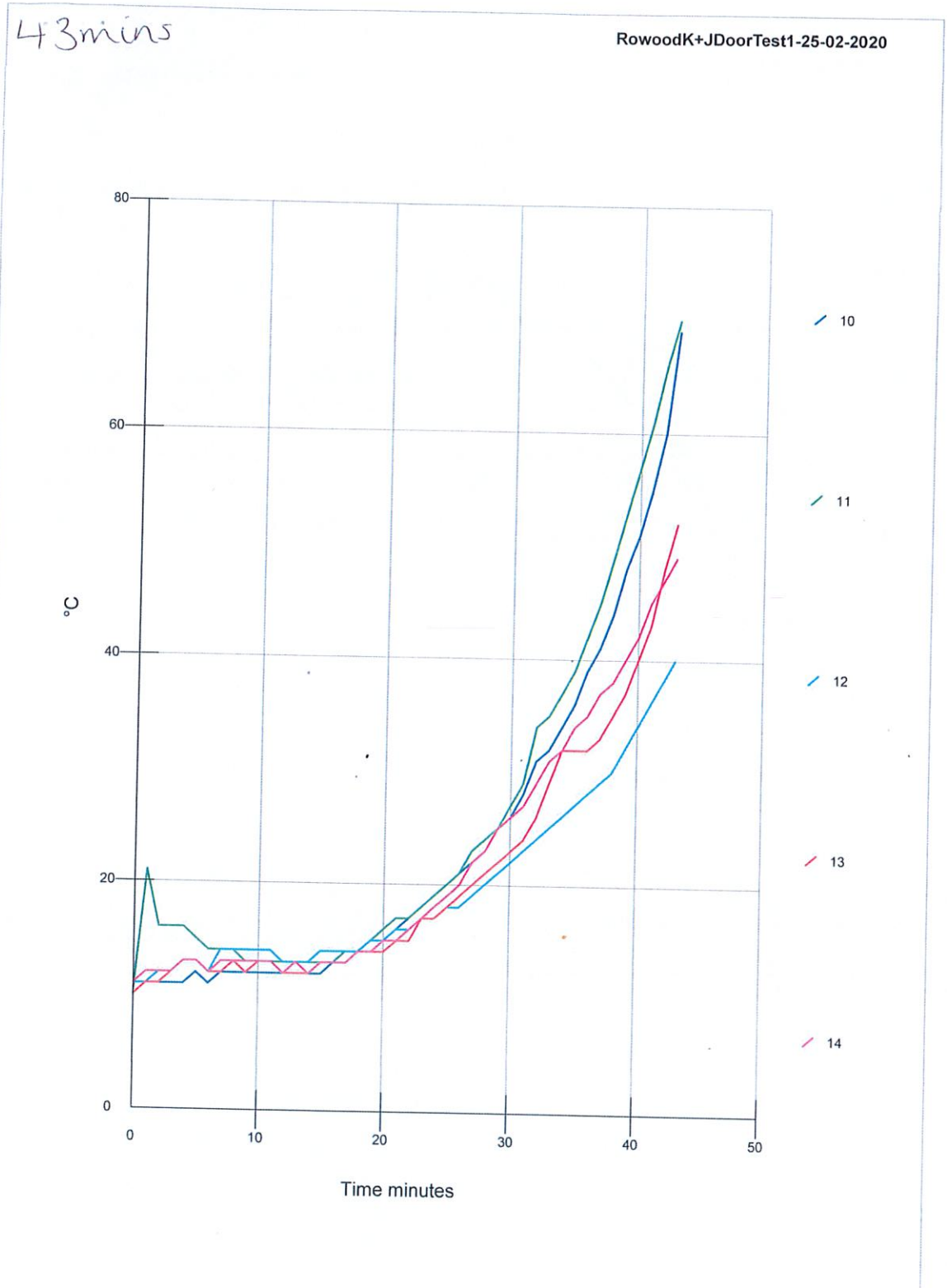
43mins



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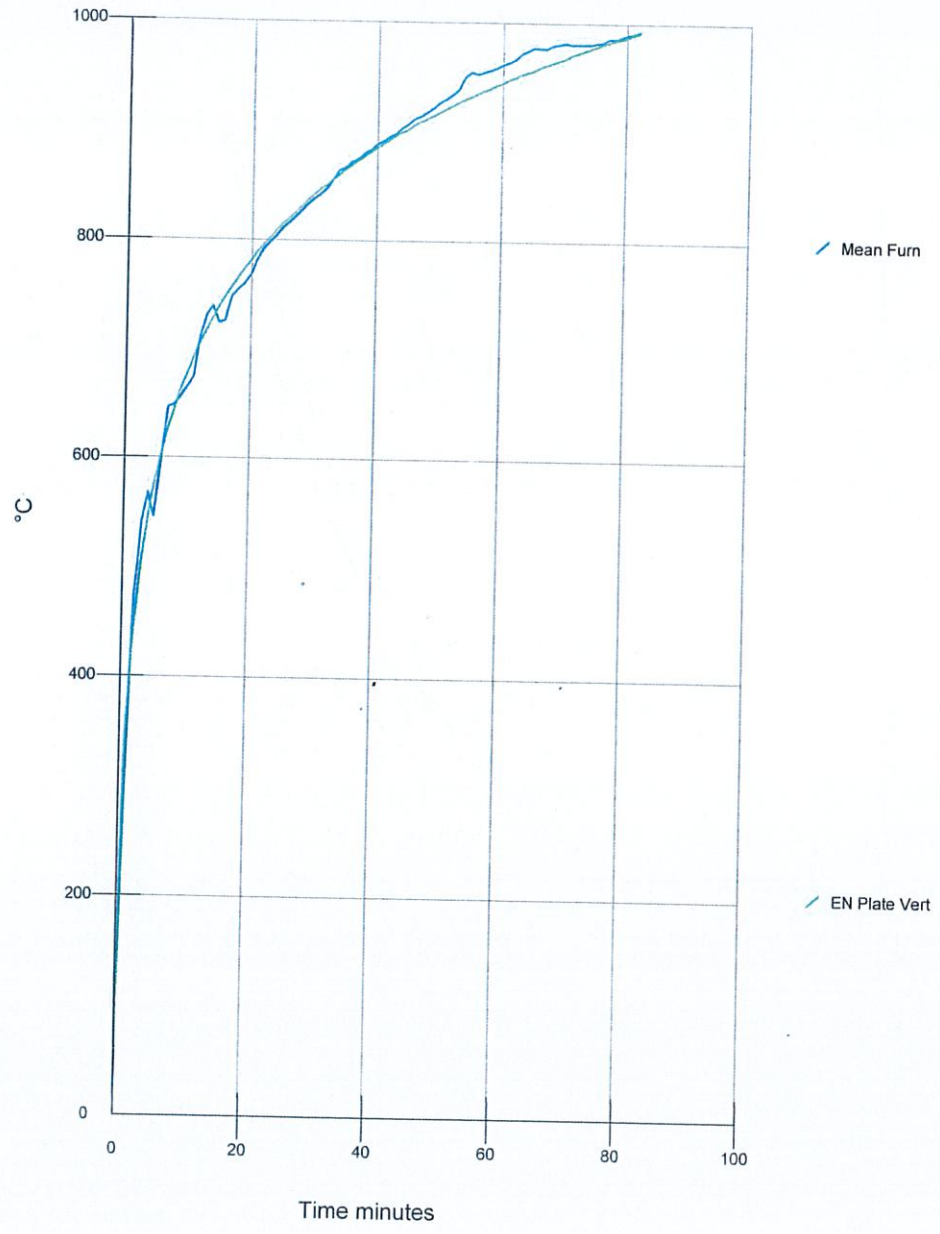
## APPENDIX B – DOOR NO.3

82 minutes

RowoodK+JDoorTest3-26-02-2020



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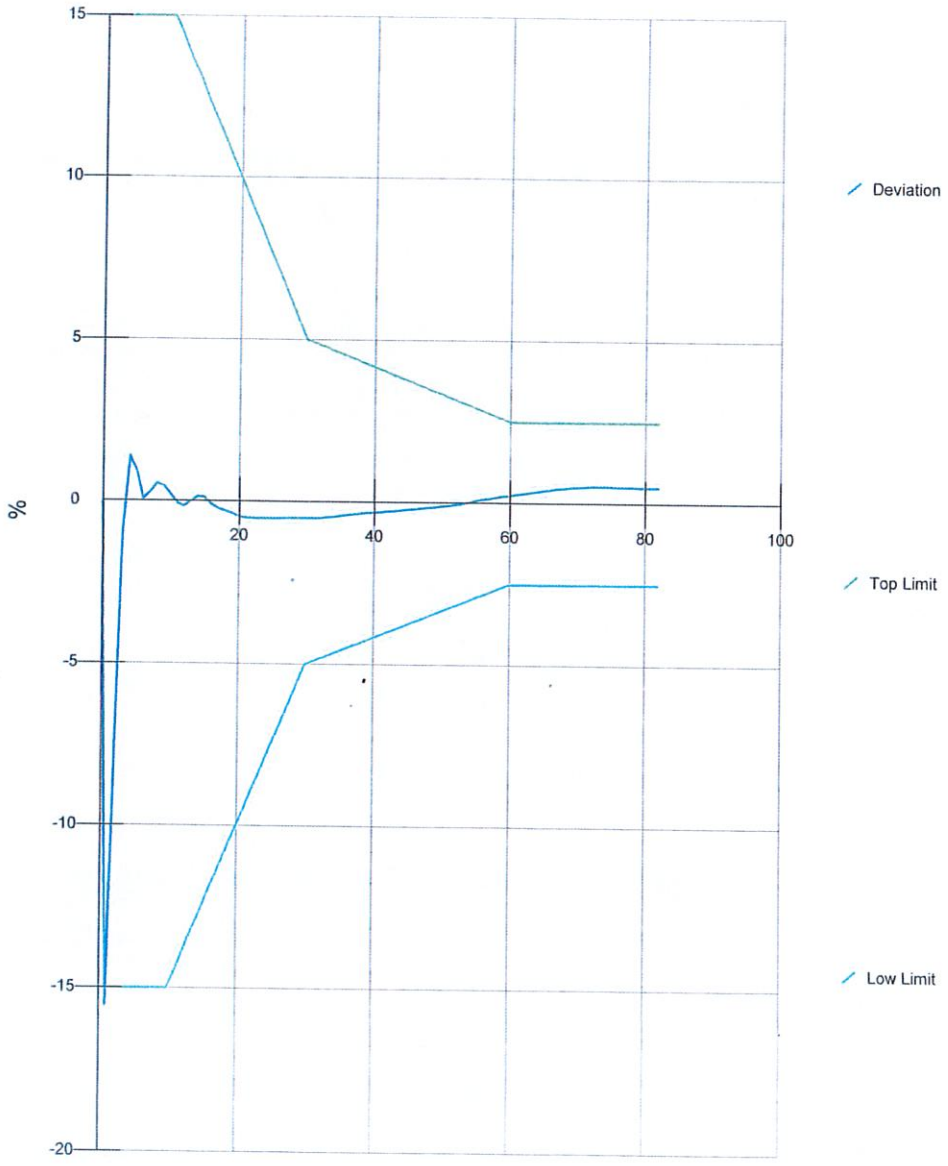
82 minutes

RowoodK+JDoorTest3-26-02-2020



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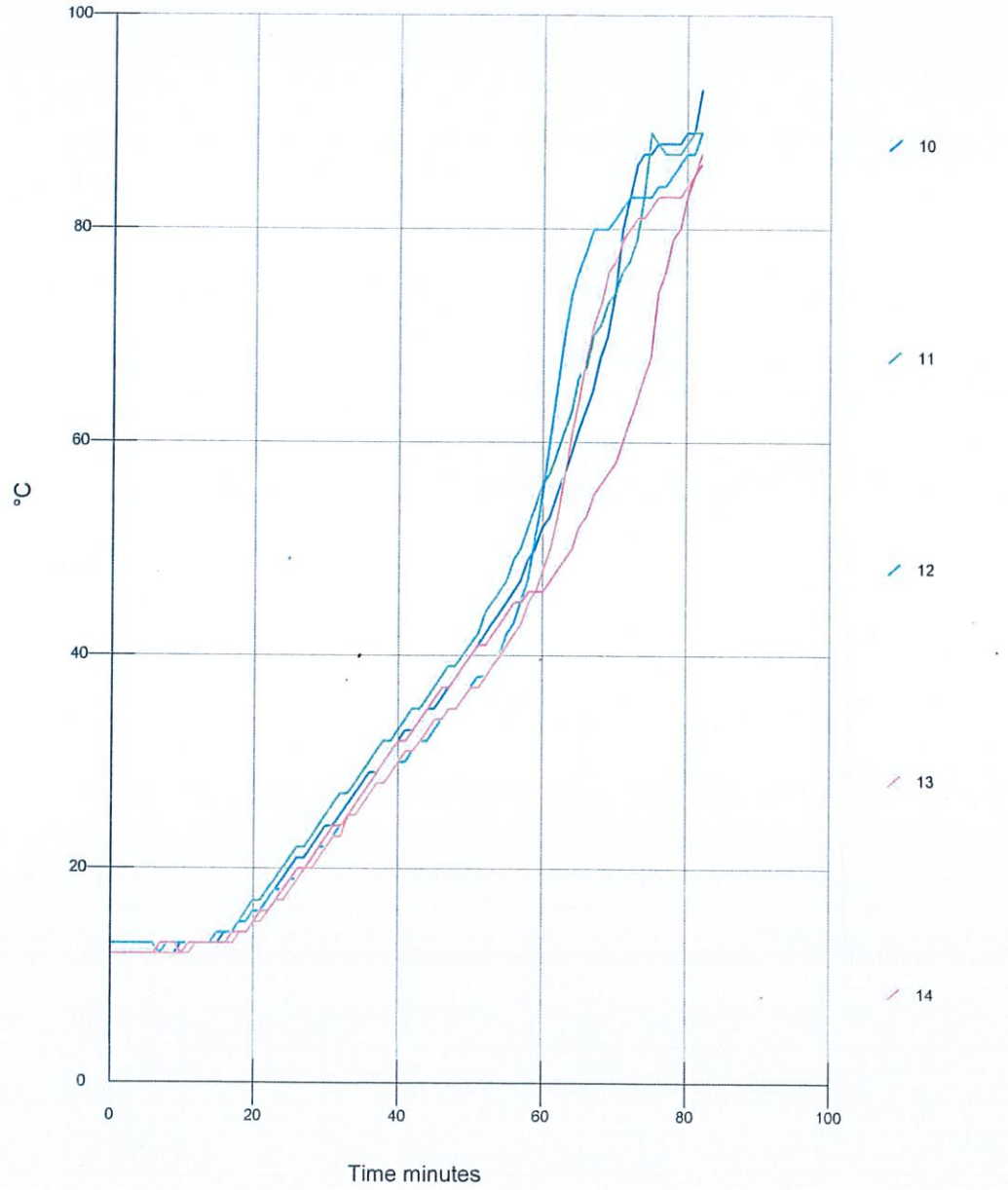
82 minutes

RowoodK+JDoorTest3-26-02-2020



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## APPENDIX C – DOOR NO.1

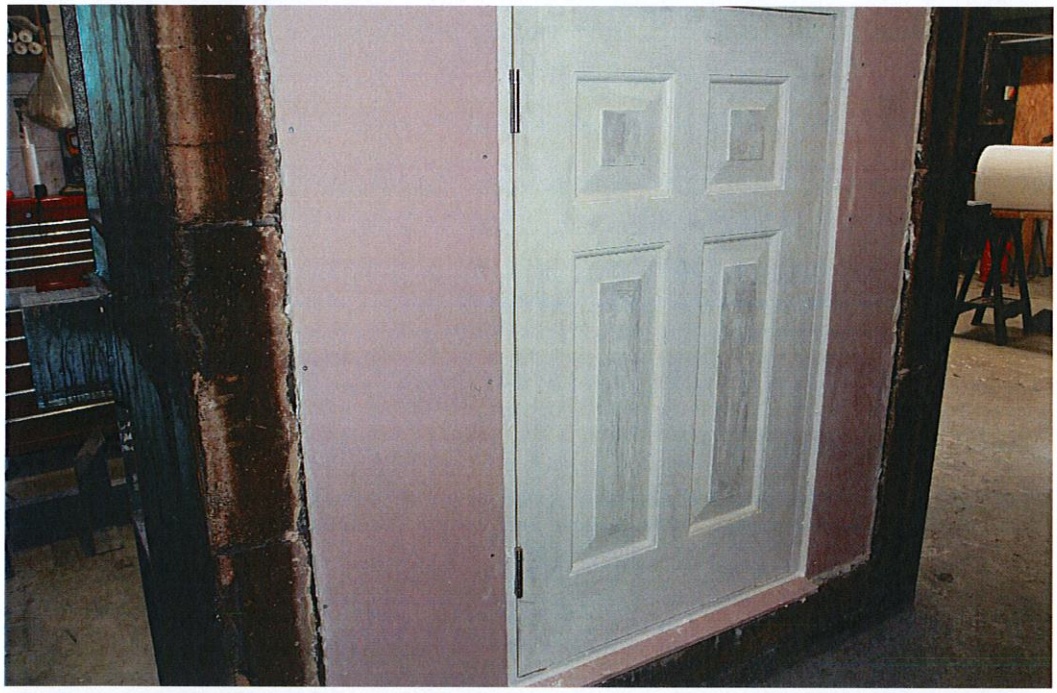

*Image 1 – Before test on the inside of the furnace*

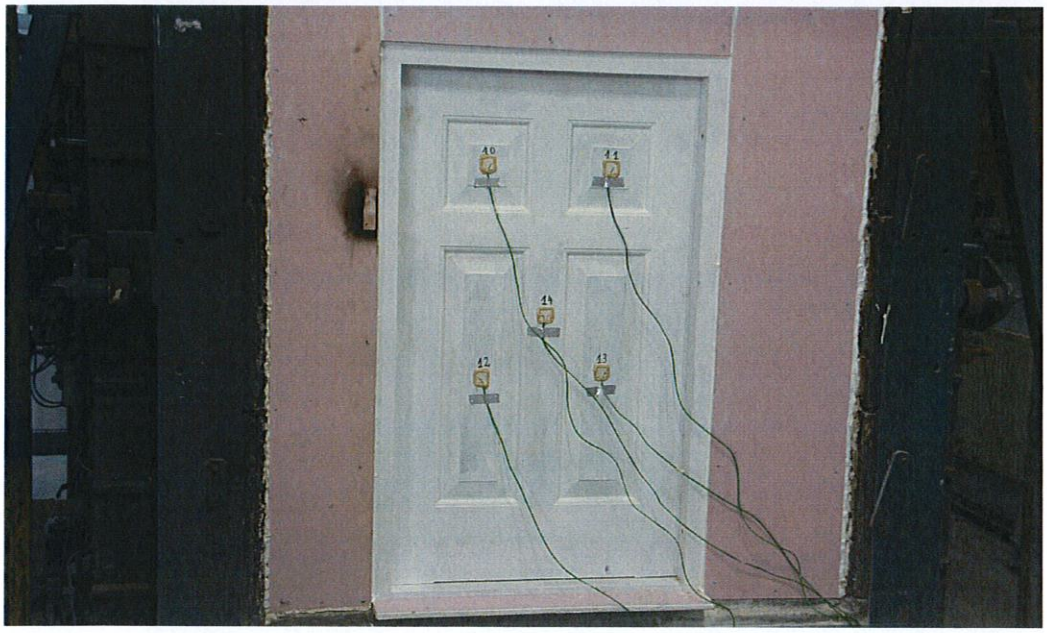


*Image 2 – Start of test outside of the furnace*

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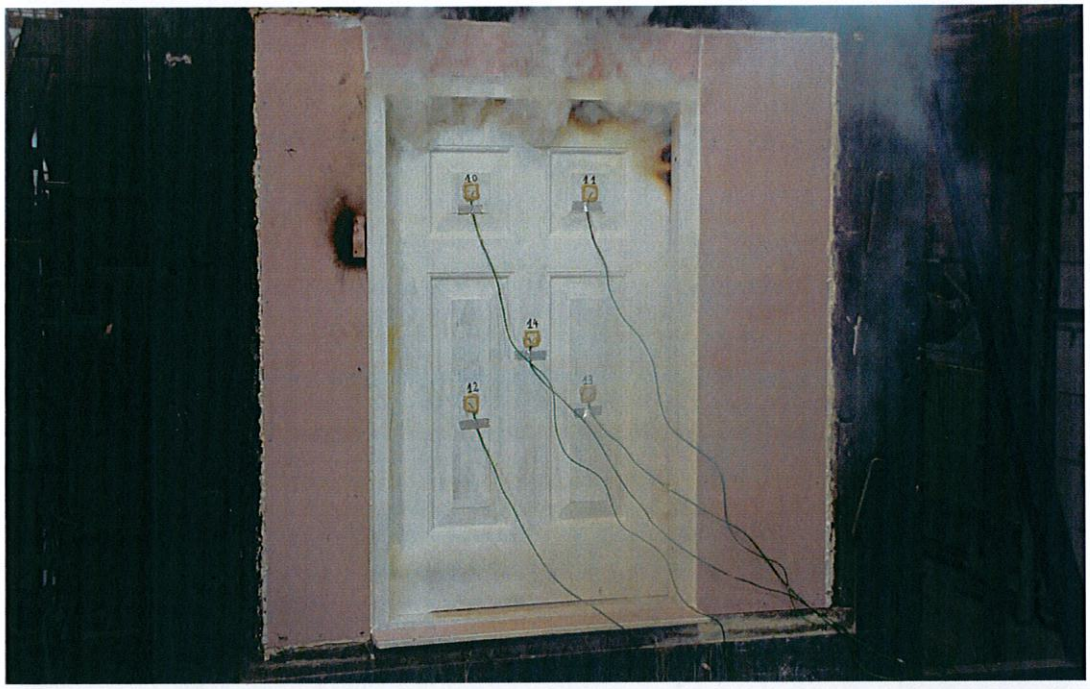


*Image 3 – 1 minute into the fire test*

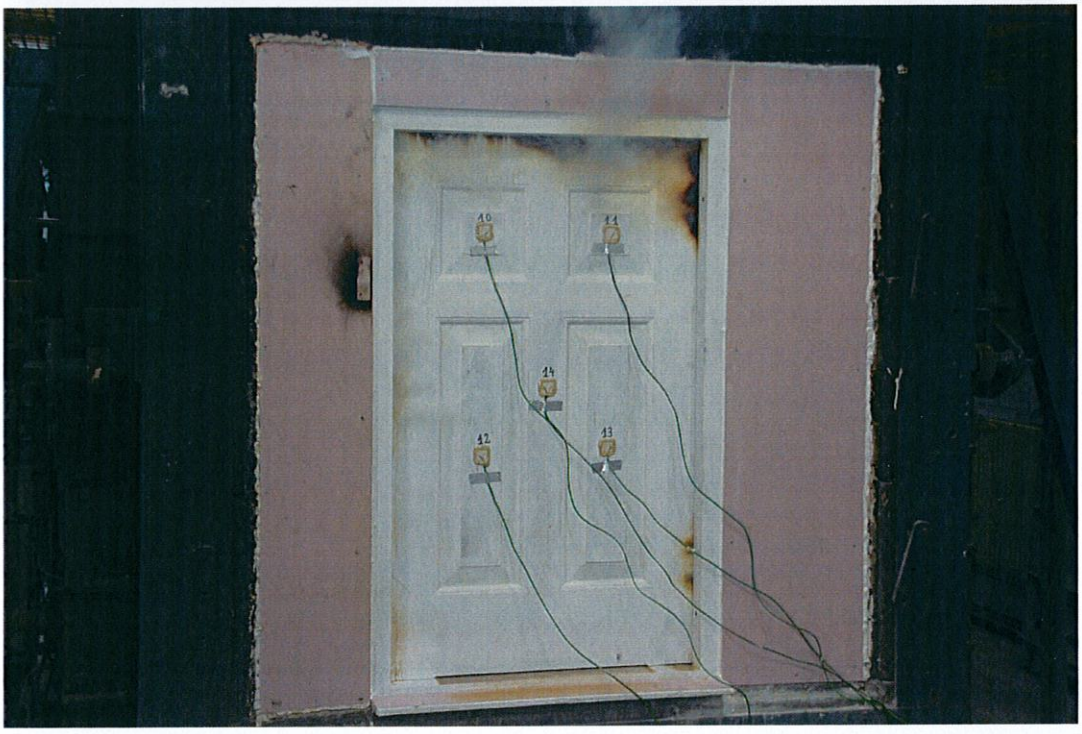


*Image 4 – 3 minutes into the fire test. Discolouration around the edge of the door.*

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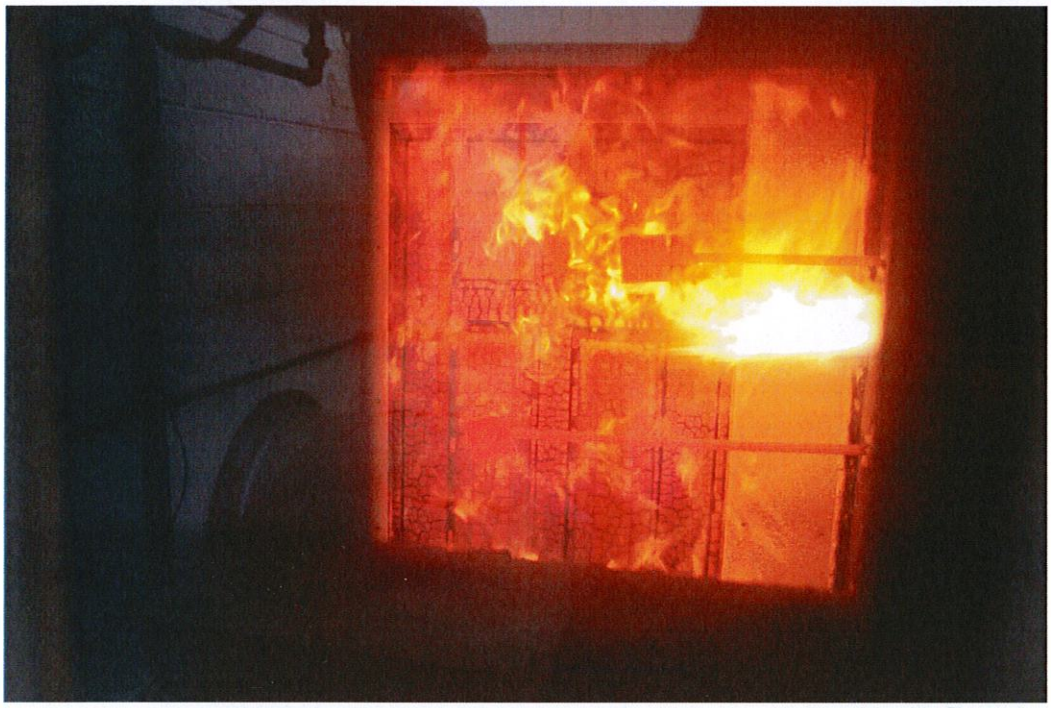

*Image 5 – 20 minutes into the fire test of the inside of the furnace*

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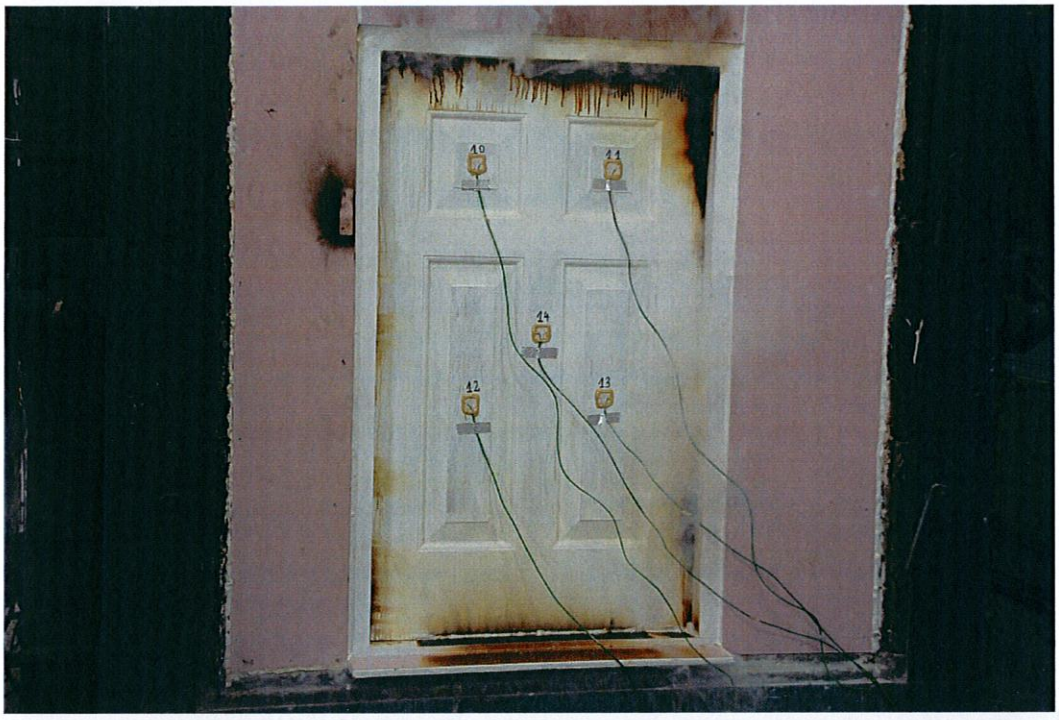


*Image 6 – 24 minutes into the fire test*


*Image 7 – 30 minutes into the fire test*

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*Image 8 – 42 minutes into the fire test*

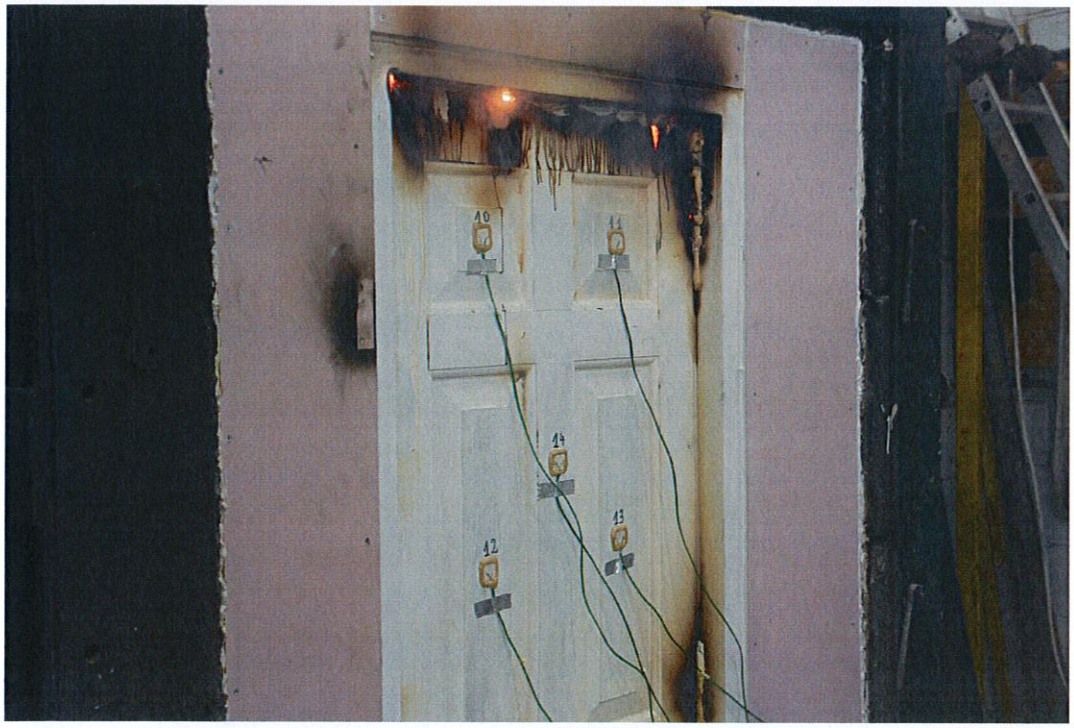


*Image 9 – 43 minutes into the test. Test is terminated*

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## APPENDIX D – DOOR NO.2

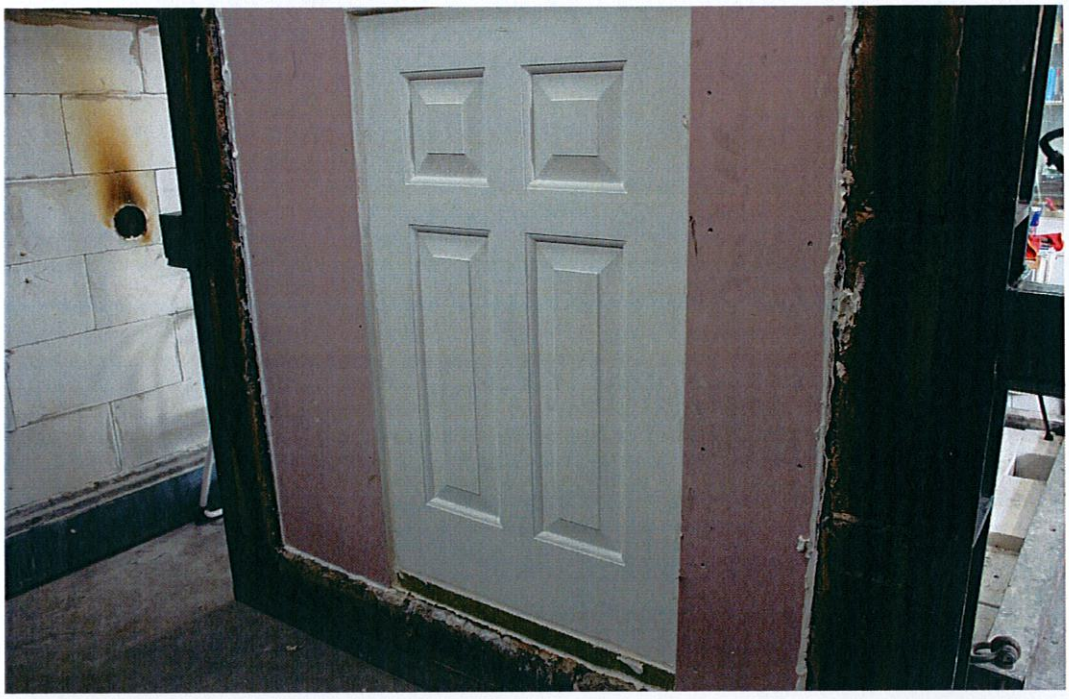

*Image 1 - Before test on the inside of the furnace*

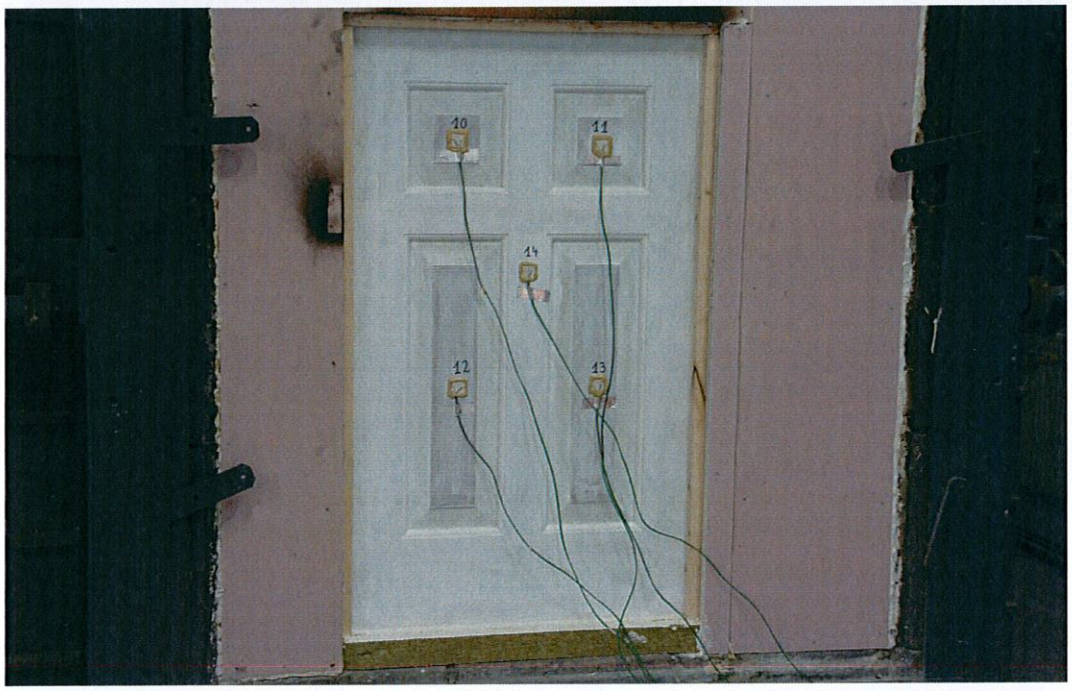


*Image 2 - Start of test outside of the furnace*

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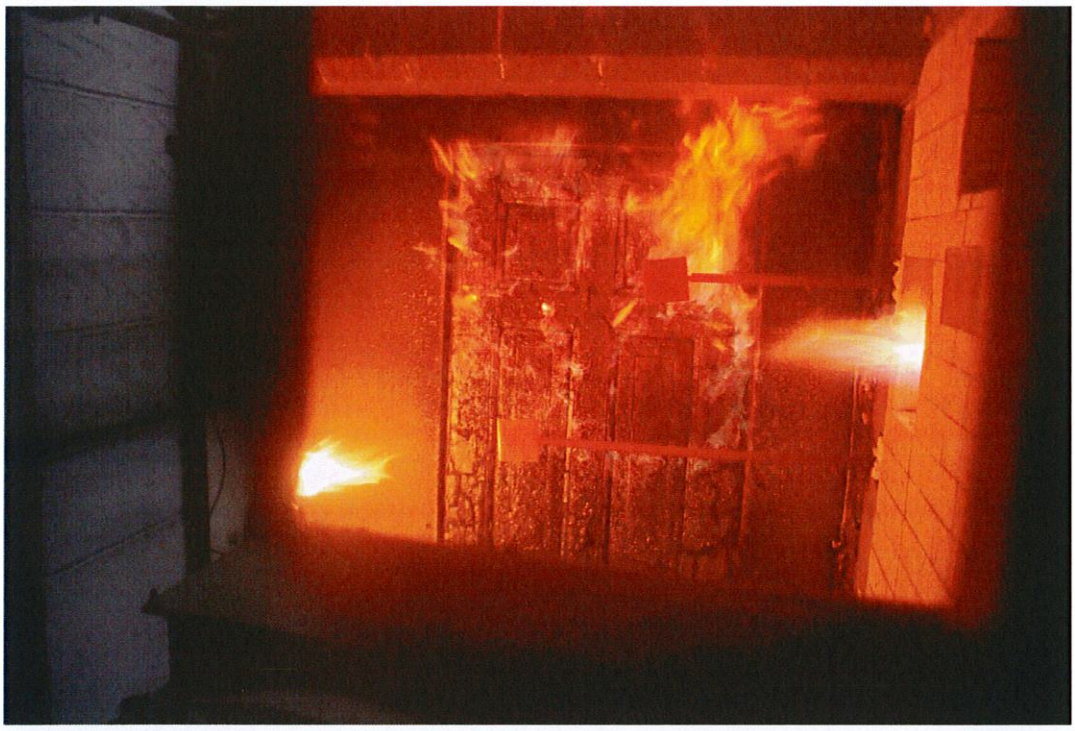

*Image 3 – 3 minutes into the test on the inside of the furnace*

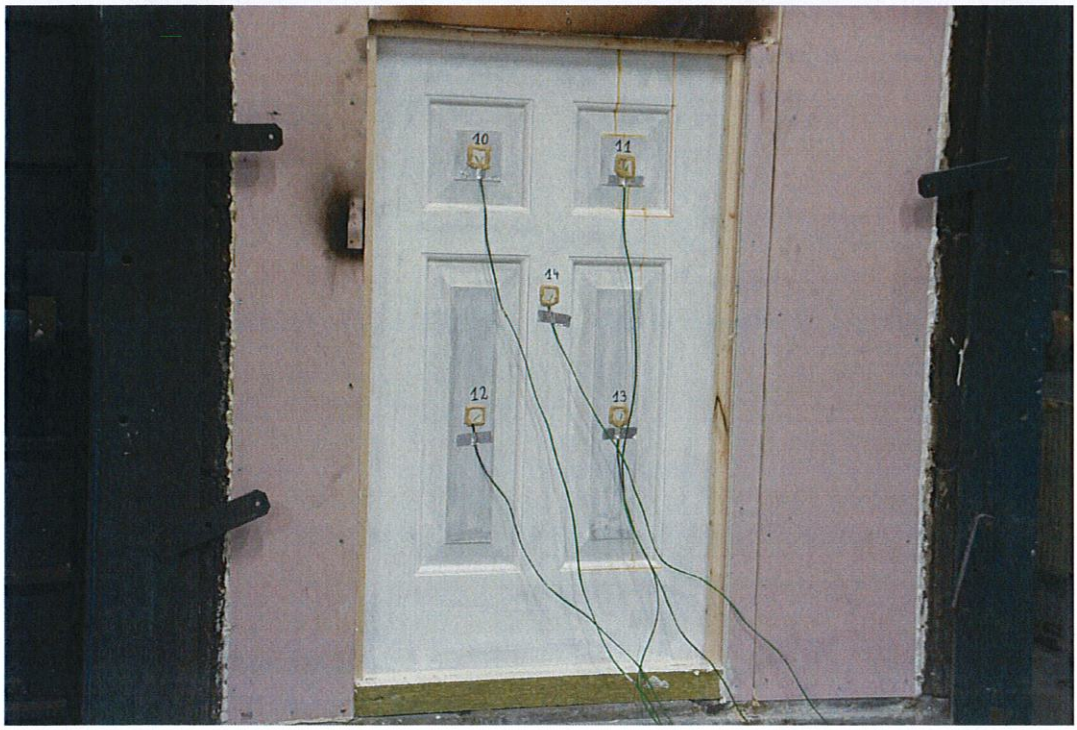


*Image 4 – 30 minutes into the test*

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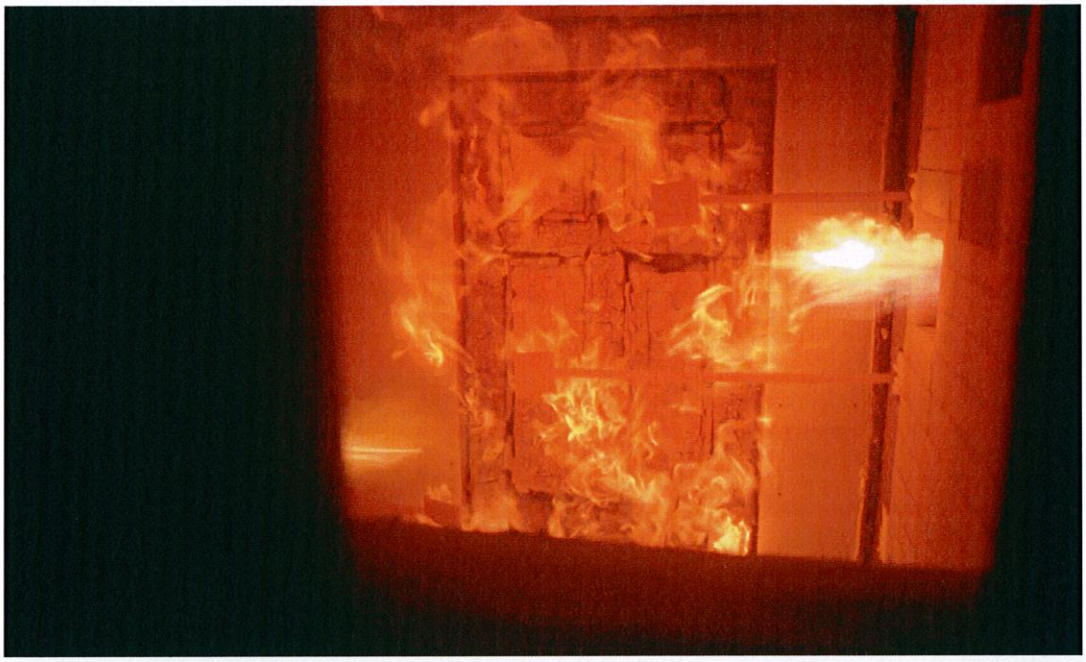

*Image 5 – 35 minutes into the test on the inside of the furnace*

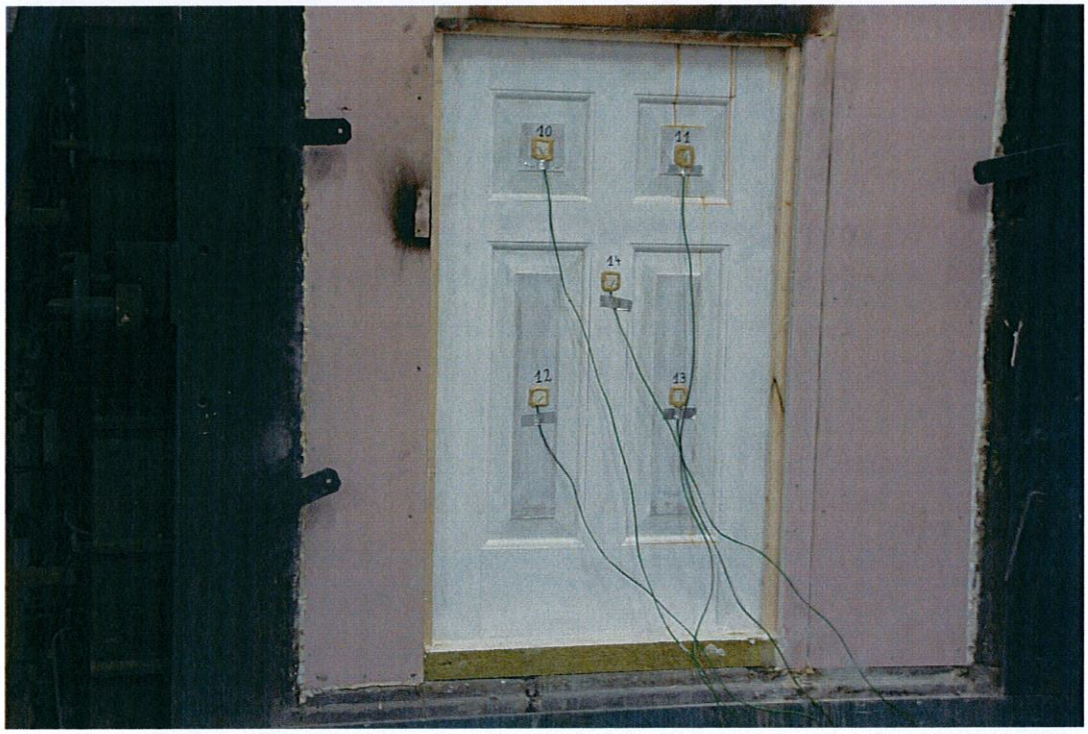


*Image 6 – 47 minutes into the test*

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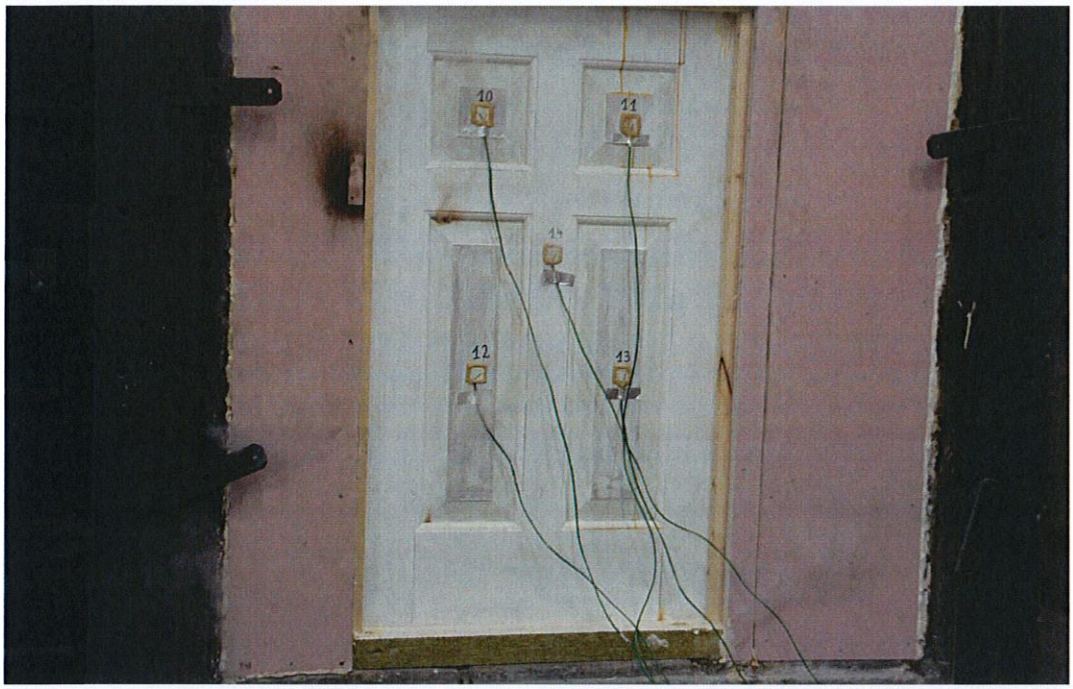


*Image 7 – 50 minutes into the test*

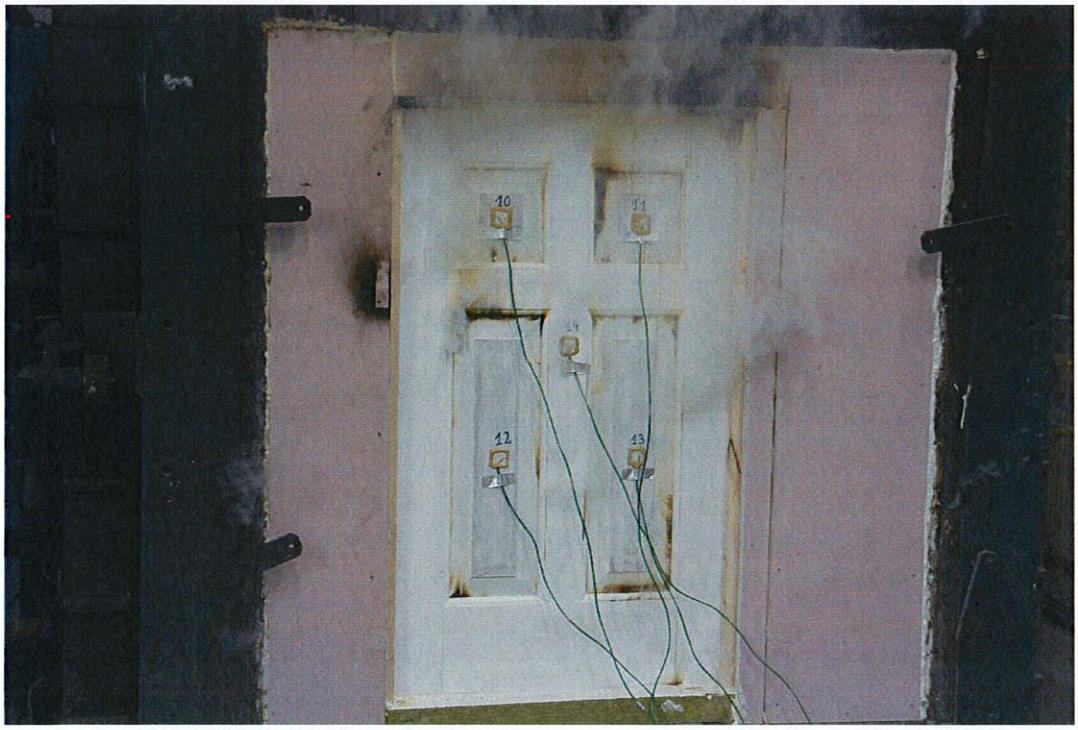


*Image 8 – 59 minutes into the test*

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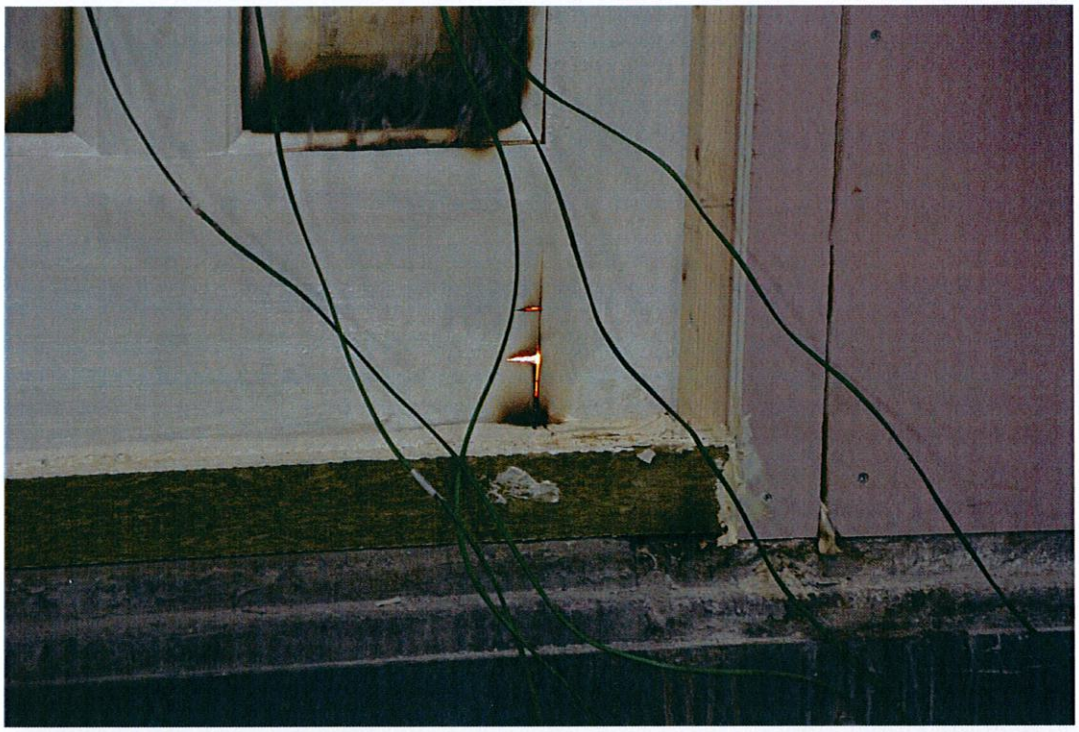

*Image 9 – 66 minutes into the test*


*Image 10 –66 minutes into the test. Test is terminated*

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## *APPENDIX E – DOOR NO.3*

*Image 1 - Before test on the inside of the furnace*

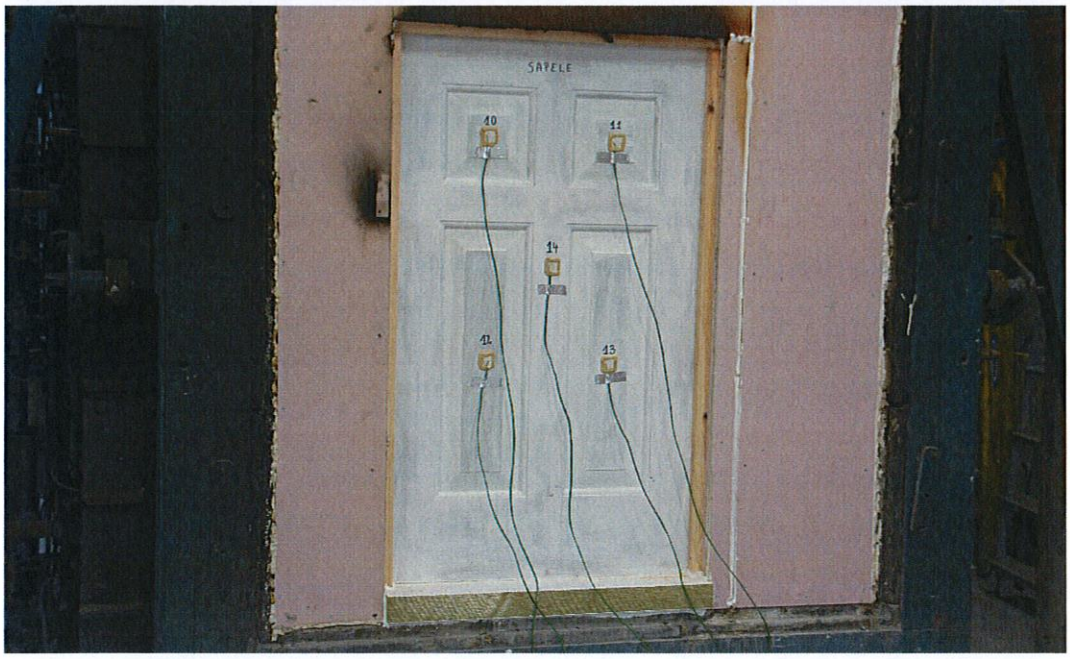


*Image 2 - Start of test outside of the furnace*

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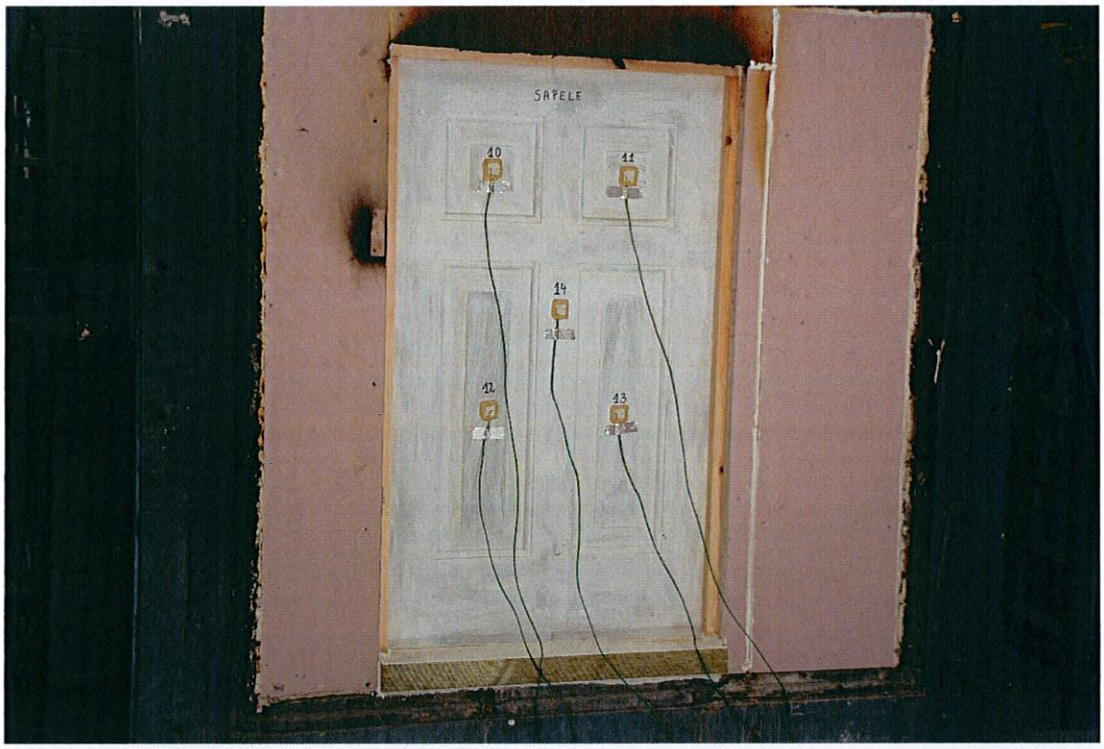


*Image 3 – 10 minutes into the fire test*

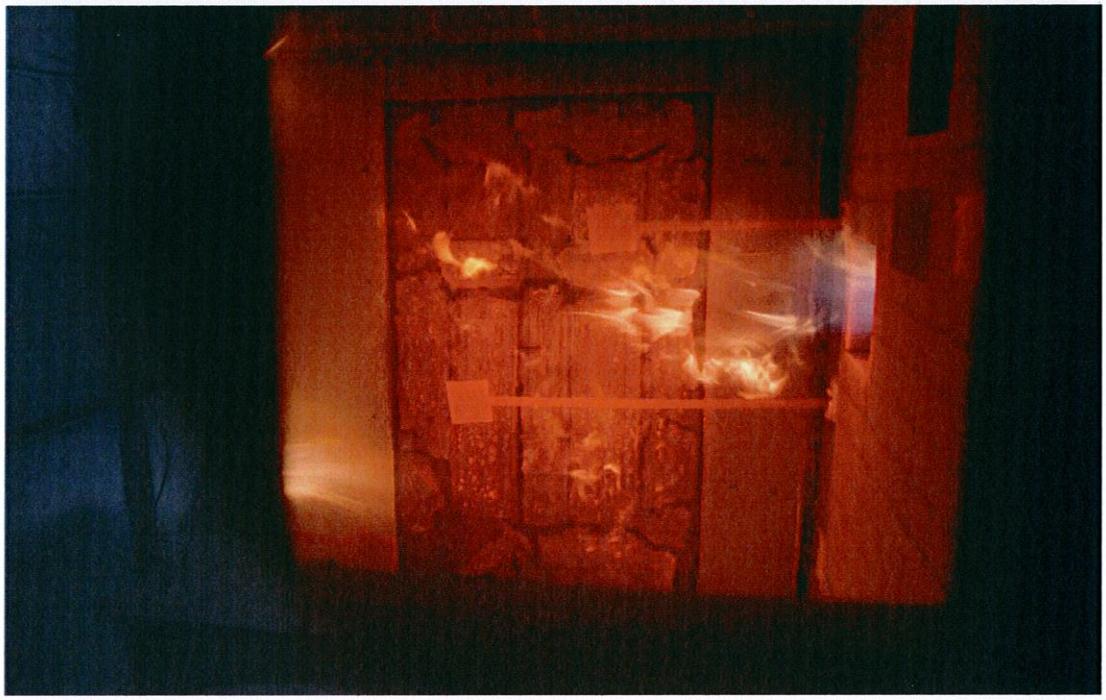

*Image 4 – 20 minutes into the fire test on the inside of the furnace*

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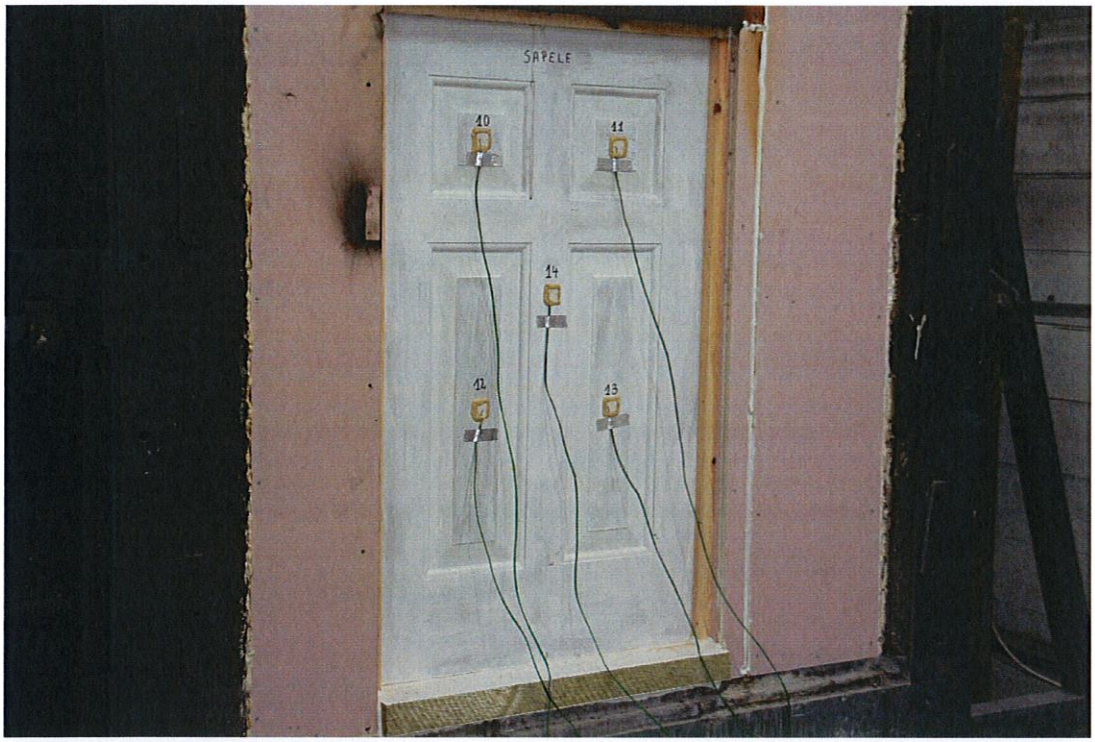


*Image 5 – 30 minutes into the fire test*

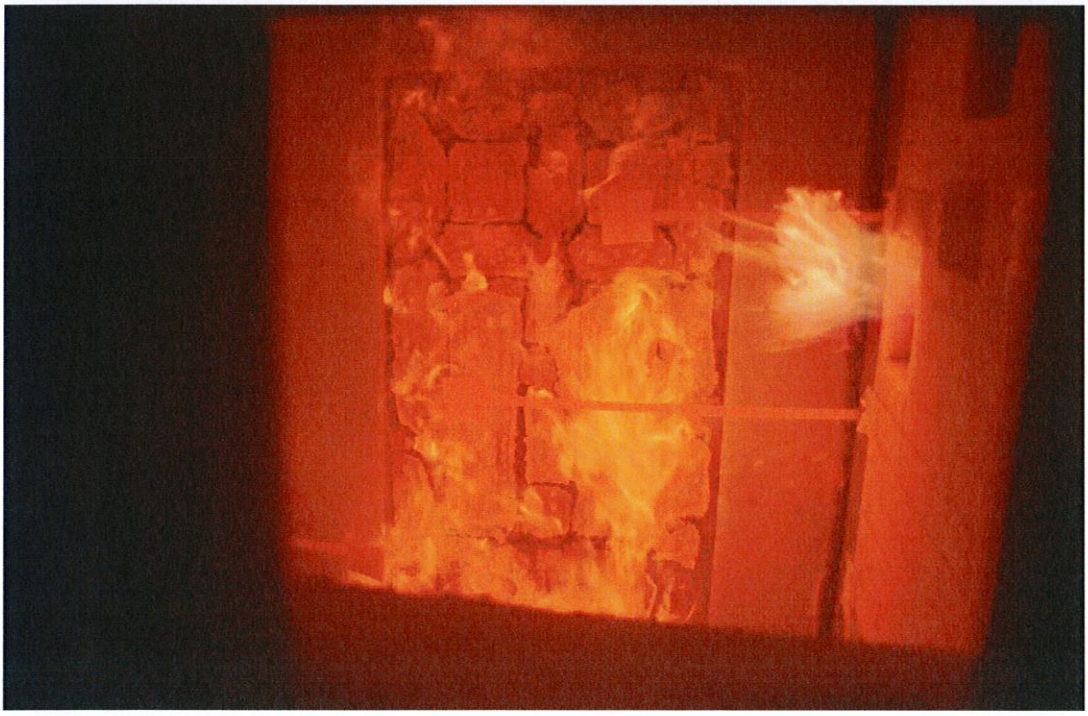

*Image 6 – 40 minutes into the fire test on the inside the furnace*

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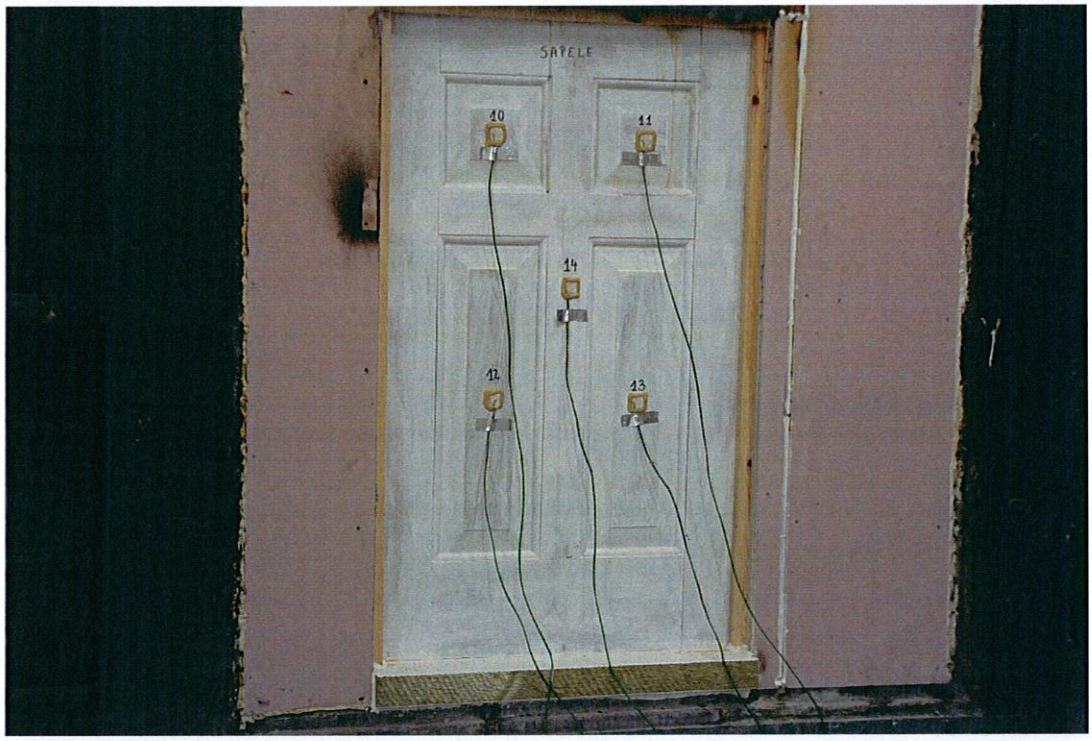


*Image 7 – 60 minutes into the fire test*

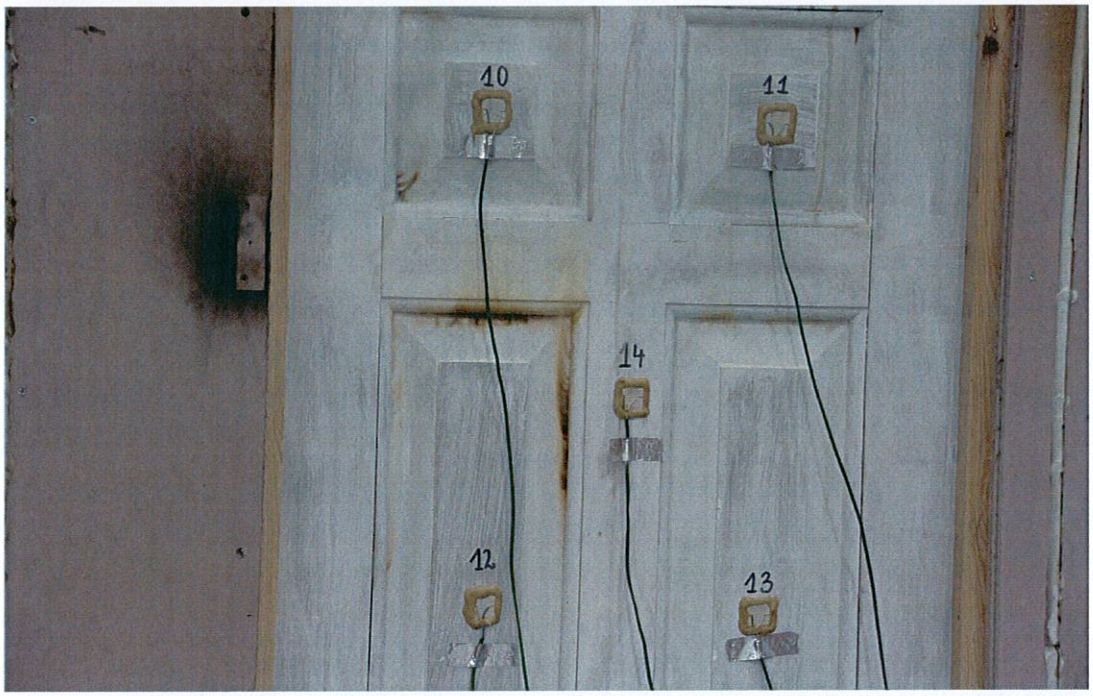


*Image 8 – 65 minutes into the fire test*

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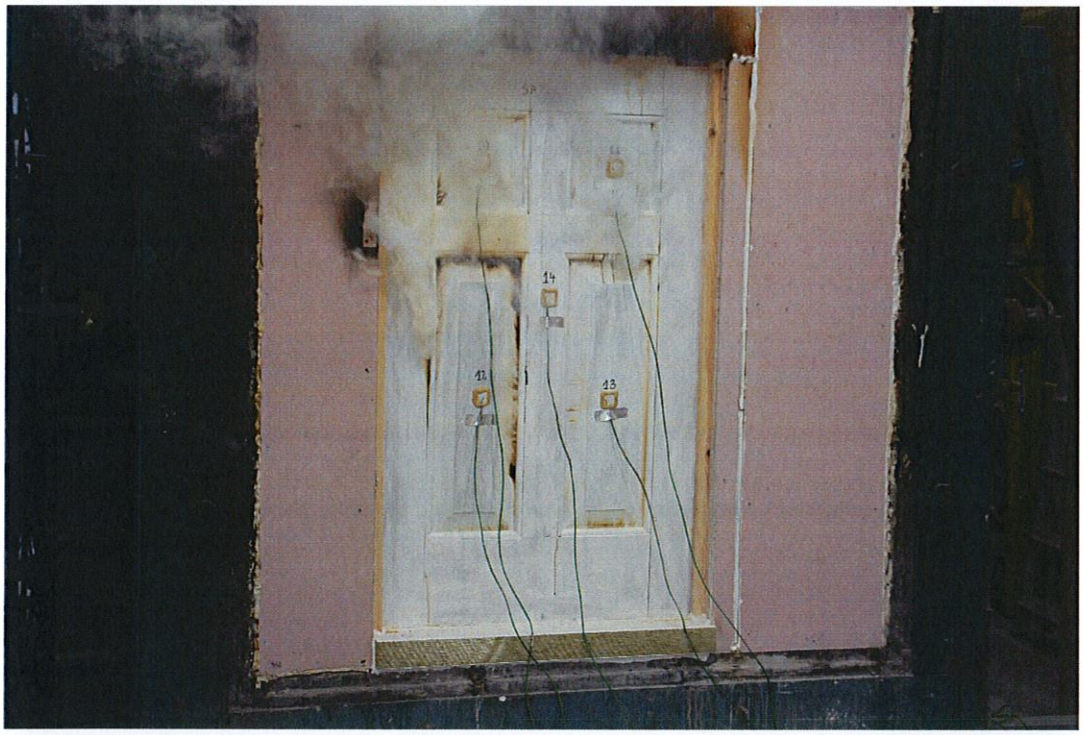


*Image 9 – 71 minutes into the fire test*


*Image 10 – 78 minutes into the fire test. The panels start bowing outwards.*

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*Image 11 – 80 minutes into the test. Glowing red on the edge of one panel.*


*Image 12 – 82 minutes into the test. Test is terminated*