



NATIONAL RESEARCH CENTRE
TAHRIR St. DOKKI, CAIRO, EGYPT
Central Unit For Analysis And
Scientific Services (CUASS)
Material Test Lab.

المركز القومي للبحوث
الدقى . القاهرة . جمهورية مصر العربية
وحدة التحليل والخدمات العلمية المركزية
معمل اختبار المواد



Test Report

MO1 3759 08 2020

Report No.
Client

MATRIX for Metal Industries

Authority & date

Request Orders 25/8/2020

Items Tested
Results

Steel Door, according to NFPA252, ASTM E119
The detailed test results are given on the following
pages of this report (7 pages).

Report Typist
Test carried
and supervised by

* Mis. Naglaa Mohamed-Sara Abdel Reham
* Mis. Famaa El - Zahraa Fikry
* H.Eng. Ahmed Said
* Chem. Amr El Shafey
* Dr. Abou El Frouh Abd El Hakem

Authorized by

Prof. Dr. Mostafa Zaki Mostafa
* The Supervisor of ceramics, Polymer and
Solid Matter Department.
* Management Representative and Quality
Assurance Manager.

Issue date
Condition of Test
& Issue

3/9/2020
The test specimen was conditioned at 23 °C
with a humidity of 60 % and the needed
calibrations as well as balancing of the all
used machines were always done.

(1/7-3759)

شارع التحرير - الدقى - القاهرة

مباشرة ٣٣٢٨٧٨٠٣
وفاكس ١٤٢٤

داخلى ١٨١٠

E-mail: nrc1302a@yahoo.com

٣٣٢٧١٦١٥ - ٣٣٢٧١٣٦٢
٣٣٣٥٥١٩٢ - ٣٣٦٠٧٥٤١



To / MATRIX for Metal Industries

Dear Sir ;

According to your request dated 25/8/2020 for carrying out the Fire Rate test for 150 min on a Steel Door , according to NFP A252 , ASTM E119 , we would like to inform you that the needed test was carried out on the Door samples taking into consideration the following points :-

- 1) The test was carried out using direct Flame method (gas/air) .
- 2) the Flame temperature 700°C , the Length between the tested Sample and flame was 50cm at the center of the Sample.
- 3) Heating was conducted with burners that are fired using liquified gases with uniform heating rate according to standard time – temperature curve.
- 4) The temperatures were measured by means of insulated sheeted Nickel / Nickel – Chrome and Platinum / Platinum – Rh thermocouples giving the temperature with an accuracy of + 2 ° C . The Thermocouples positions on the back surfaces of the tested door were shown in figures (1) (3) .
- 5) The all used Machinery and the apparatus were calibrated periodically.

The following resulted observation were obtained which represent only the tested 150 minutes rated metal door delivered from your company .



(2/7-3759)

Recorded thermocouple temperature value according to their position
On a Sample of Steel Door

Delivered from MATRIX for Metal Industries

| Wall Side | Time Testing (min) | Measure Temperature | | | | |
|-----------|--------------------|---------------------|-----|--------|-----|-----|
| | | (1) | (2) | (3) | (4) | |
| Front | Zero | 23 | 23 | 23 | 23 | |
| | 10 | 23 | 24 | 24 | 24 | |
| | 20 | 25 | 25 | 25 | 25 | |
| | 30 | 26 | 25 | 25 | 25 | |
| | 40 | 28 | 26 | 26 | 26 | |
| | 50 | 29 | 26 | 26 | 28 | |
| | 60 | 30 | 26 | 26 | 31 | |
| | 70 | 33 | 28 | 28 | 34 | |
| | 80 | 36 | 28 | 28 | 35 | |
| | 90 | 38 | 29 | 29 | 36 | |
| Back | 100 | 38 | 31 | 31 | 36 | |
| | 110 | 39 | 31 | 31 | 36 | |
| | 120 | 39 | 32 | 32 | 36 | |
| | 130 | 39 | 35 | 35 | 38 | |
| | 140 | 39 | 35 | 35 | 38 | |
| | 150 | 39 | 35 | 35 | 38 | |
| | Time Testing (min) | (5) | (6) | Center | (7) | (8) |
| | | Zero | 23 | 24 | 23 | 23 |
| | | 10 | 24 | 26 | 25 | 24 |
| | | 20 | 24 | 28 | 25 | 24 |
| 30 | | 25 | 31 | 26 | 25 | |
| 40 | | 26 | 36 | 26 | 25 | |
| 50 | | 28 | 39 | 26 | 26 | |
| 60 | | 30 | 27 | 27 | 27 | |
| 70 | | 33 | 27 | 27 | 29 | |
| 80 | | 34 | 28 | 28 | 30 | |
| 90 | 35 | 28 | 28 | 30 | | |
| 100 | 35 | 29 | 29 | 33 | | |
| 110 | 35 | 30 | 30 | 34 | | |
| 120 | 36 | 30 | 30 | 34 | | |
| 130 | 36 | 30 | 30 | 35 | | |
| 140 | 37 | 30 | 75 | 30 | 35 | |
| 150 | 37 | 30 | 78 | 30 | 39 | |

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وحدة التحليل والخدمات العلمية المركزية
معمل اختبار المواد

شارع التحرير - الدقي - القاهرة

٢٢٣٨٧٨٠٣

مباشر وفاكس

١٨١٠ داخلي ١٤٢٤

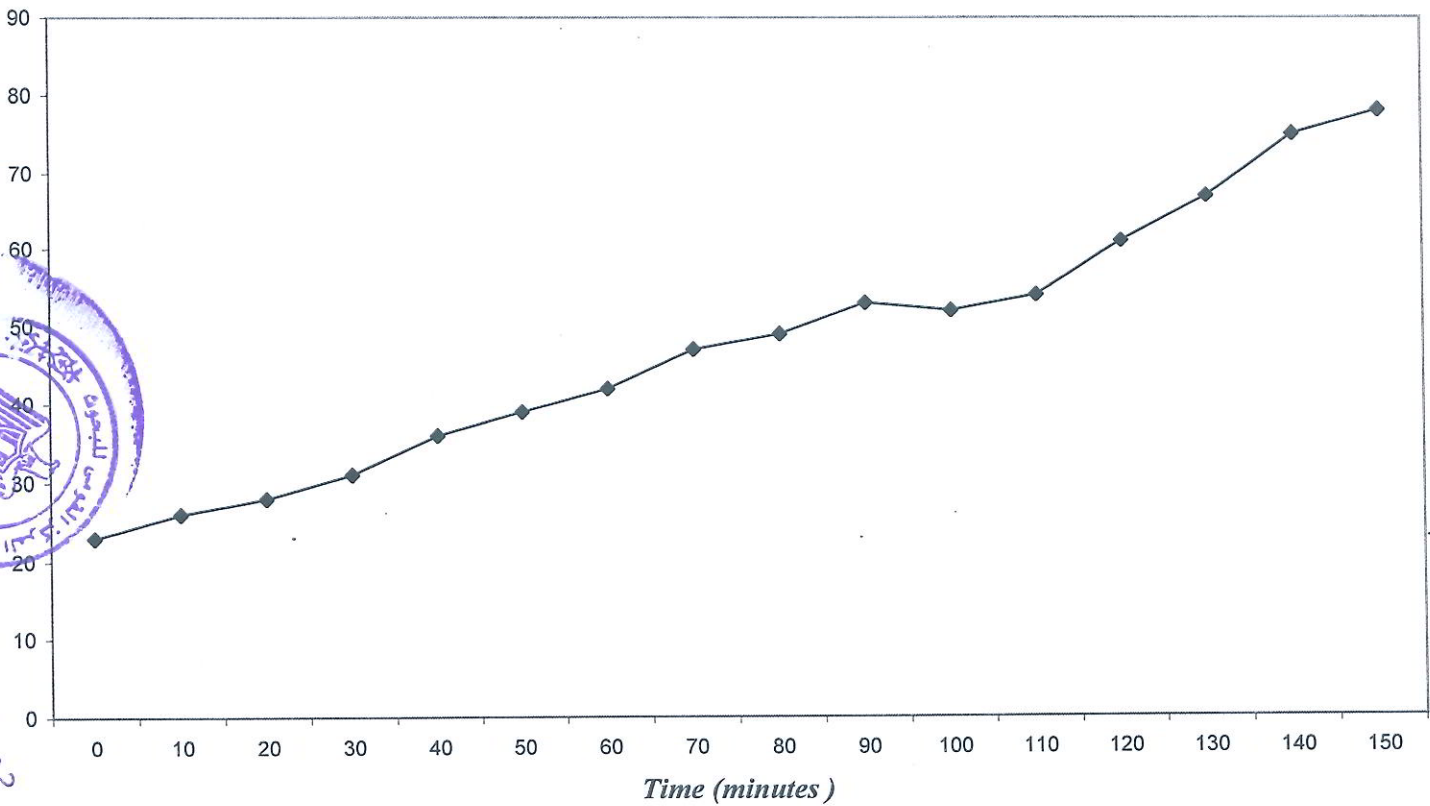
E-mail: nrc1302a@yahoo.com

٢٢٣٧١٦١٥ - ٢٢٣٧١٣٦٢
٢٧٦٠٧٥٤١ - ٢٢٣٥٥١٩٢



Temperature (c)

Recorded thermocouple temperature value according to their position
On a Sample of Steel Door ,
Delivered from MATRIX for Metal Industries



(4/7-3759)

معمل اختبار المواد
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القاهرة . جمهورية مصر العربية
المركز القومي للبحوث

شارع التحرير - الدقي - القاهرة

٣٣٣٨٧٨٠٣

مباشر
وفاكس

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داخلي

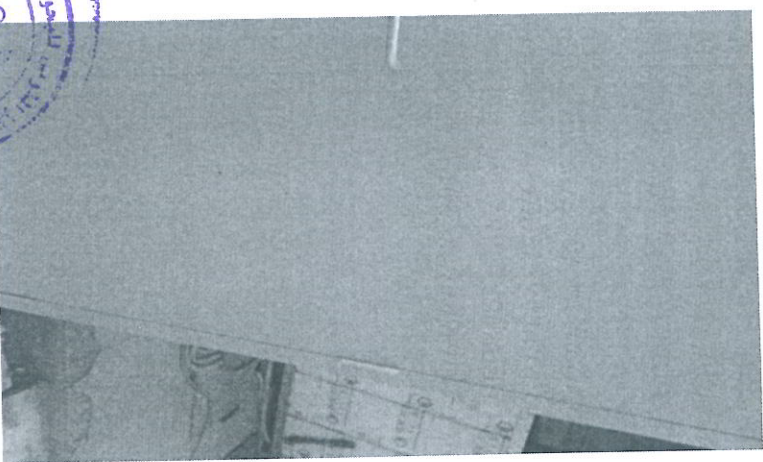
E-mail: mrc1302a@yahoo.com

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Results and Observations:-

- 1) The temperatures before starting the test for the 4 corners of the front surface as well as that of the back one were recorded in table
- 2) After 150 minutes of the test at 700°C with the spreading of the heat from the burners all over the front surface, the temperatures of the 4 corners of the front surface were found to increase by slow rate to reach 78°C, which prove the good firing rate and heat insulation as well as on the conformity of the homogeneity of the production, So the door Sample and accessories conform with 150 min standard.
- 3) No any gases, fumes or vapors emission occur in any point on the unexposed surface of the door.

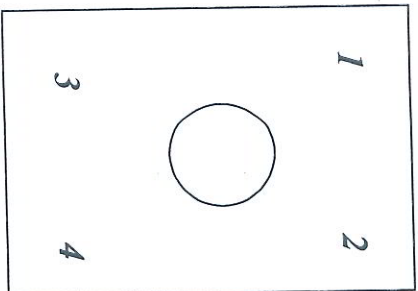
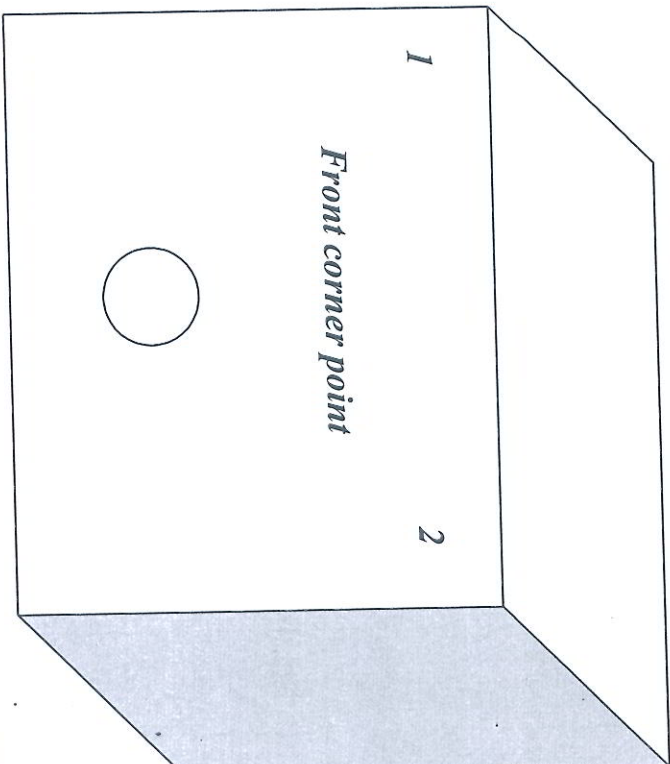


(5/7-3759)

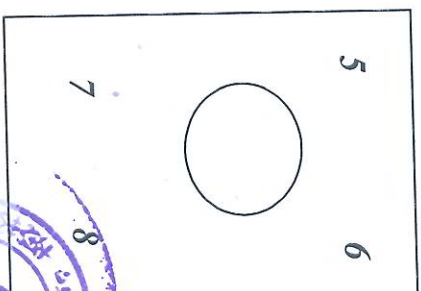
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2020

Thermocouples positions diagram

Back corner point (2)

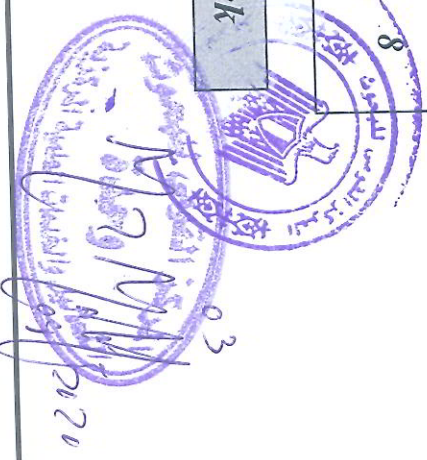


Front



Back

(6/7-3759)



شارع التحرير - الدقي - القاهرة

مباشرة ٣٣٣٨٧٨٠٣

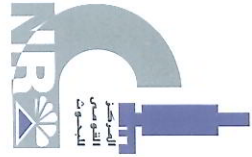
مفاكس ١٨١٠١٤٢٤

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معمل اختبار المواد



This report was given to you representing only the sample of Steel Door , according to NFPA252 , ASTM E119 , These results and conclusions were given to you without any responsibility on THE CERAMICS, POLYMERS AND SOLID MATTER DEP. of THE MATERIAL TEST LAB in THE NATIONAL RESEARCH CENTRE . for pick up to be tested samples .

*Head of Director of the Board of Central Department
For Scientific Analysis and Tests*

& 03

SUPERVISOR OF Material Test Lab

PROF.DR. MOSTAFA ZAKI MOSTAFA



(7/7-3759)

القاهرة - الدقى - التحرير - شارع

٣٣٢٨٧٨٠٣

مباشرة
وفاكس

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داخلى

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٣٣٣٧١٢٦٢ - ٣٣٣٧١٦١٥
٣٣٣٥٥١٩٢ - ٣٧٦٠٧٥٤١

