



EFFECTIS ERA AVRASYA TEST VE BELGELENDİRME A.Ş.

Dilovası Organize San. Böl. 5.Kısım Fırat Cad. No:18 41455

Dilovası, Kocaeli / TÜRKİYE

DENEY RAPORU

TEST REPORT



AB-0556-T

RFTR23076

07-23

Müşterinin adı/adresi
Customer name/address

: RAWAND GAHITLY FACTORY
Kerkuk Road, Erbil / IRAQ

İstek numarası
Order No.

: EEA-23-000144-REV1

Numunenin adı ve tarifi
Name and identity of test sample

: Non-loadbearing Fire Resistant Wall Consisted of "Pumice Blocks"

Numunenin kabul tarihi
The date of receipt of sample

: 15.03.2023

Açıklamalar
Remarks

:

Deneyin yapıldığı tarih
Date of test

: 19.06.2023

Raporun sayfa sayısı
Number of pages of the Report

: 11 (Totally 21 pages including appendixes)

Deney laboratuvarı olarak faaliyet gösteren Efectis Era Avrasya Test ve Belgelendirme A.Ş., TÜRKAK'tan AB-0556-T ile TS EN ISO/IEC 17025:2017 standardına göre akredite edilmiştir.

Efectis Era Avrasya Test ve Belgelendirme A.Ş. accredited by TÜRKAK under registration number AB-0556-T for EN ISO/IEC 17025:2017 as test laboratory"

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Deney ve /veya ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri (olması halinde) ve deney metodları bu sertifikanın tamamlayıcı kısmı olan takip eden sayfalarda verilmiştir .

The test and/or measurement results, the uncertainties (if applicable) with confidence probability and test methods are given on the following pages which are part of this report.

Mühür
Seal

Tarih
Date

Deney Sorumlusu
Person in charge of test

Onaylayan
Approval



24.07.2023

e-signed
Osman AYYILDIZ

e-signed
Ali BAYRAKTAR

Bu rapor, laboratuvarın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

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1. SCOPE

Fire resistance test, in conformity with the general requirements of standards EN 1363-1:2020, with substitute or additional methods of standard EN 1363-2:1999 and with the particular requirements of standard EN 1364-1:2015 **"Fire resistance tests for non-loadbearing elements - Part 1: Walls"**

2. TEST LABORATORY

Name : EFFECTIS ERA AVRASYA TEST VE BELGELENDİRME A.Ş.

Address : Dilovası OSB 5. Kısım Fırat Cad. No: 18, 41455 Dilovası, Kocaeli / TÜRKİYE

3. DESCRIPTION OF THE TEST SPECIMEN

3.1. General

Product identification : Non-loadbearing Fire Resistant Wall Consisted of **"Pumice Blocks"**

Manufacturer : RAWAND GAHITLY FACTORY
Kerkuk Road, Erbil / IRAQ

Sponsor of test : RAWAND GAHITLY FACTORY
Kerkuk Road, Erbil / IRAQ

3.2. Construction

Symmetrical, non-loadbearing wall system was comprised 8 lines pumice blocks at horizontal axis and 15 lines solid pumice blocks at vertical axis. Cement based mortar was used to connect the blocks. The total thickness of the wall was 150 mm.

One vertical edge was mounted as in practice and the other vertical edge was constructed as a free edge to simulate a wider wall construction.

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3.3. Components**3.3.1. Blocks**

- Type : Solid Pumice Blocks – RAWAND GAHITLY
- Type of cement used : Pumice stone
- Fire class : A1
- Nominal dimensions : 39 x 15 x 18,5 cm (w x d x h)
- Measured dry weight : 7,5 Kg
- Compressive strength : 1,8 N/mm²
- Measured dry density : 1506 kg/m³
- Measured humidity : %3,84

3.3.2. Mortar

- Type : Cement based mortar
 - Mixing ratio : for 1 cm bed
 - Sand : 18 kg
 - Cement : 3,75 kg – CEM I Portland Cement
 - Water : 2,85 kg
 - Location : Used between horizontal joints of blocks
 - Cement density : 2200 kg/m³
 - Measured density : 2014 kg/m³
 - Thickness : 10 mm

See figure 1 – figure 4 for detailed information.

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4. PRE-TEST PROCESSES

4.1 Verification of specimen

Efectis Era Avrasya Test ve Belgelendirme A.Ş. verified the used materials and parts against the supplied data and drawings during installation of the test specimen and not involved in the selection of test specimen.

Brand, type, quantity and dimension information of the components, when it is not possible to be verified by the laboratory, are given according to the sponsor's declaration. Drawings included in this report are provided by the test sponsor.

The test specimen was assembled by the customer.

4.2 Conditioning

The construction was stored in the laboratory of Efectis Era Avrasya A.Ş. under the following conditions:

- Ambient temperature : $21 \pm 3,3$ °C.
- Relative humidity : $60,8 \pm 8,2$ %.
- Conditioning time : 28 days

5 TEST PROCESS

5.1 Method

The fire test was conducted according to the standard EN 1364-1:2015.

The heating of the furnace followed the standard fire curve, as specified in the standard EN 1363-1:2020.

The target overpressure in the furnace was 19 Pa at 2,9 m above the furnace floor level and 0 Pa at 500 mm above the furnace floor level.

5.2 Measurements

Following test data were measured during the test:

- Ambient temperatures inside the furnace with six plate thermocouples (Furnace TC1 to TC6), evenly distributed over the directly heated surface (**See figure A1**).
- Deviations of furnace temperatures (**See figure A2**).
- The pressure in the furnace, measured at a height of 2,9 meter above the furnace floor level (**See figure A3**).
- Ambient temperature in the laboratory (**See figure A4**).
- The surface temperatures on the unexposed side of the test specimen (TC3 up to TC13 and Average Temperature), (**See figure B2 and figure B3**).
- Deflection measurement of the test specimen (**See figure B4**).
- There was no need to use roving thermocouple.
- The positions of the thermocouple and displacement measurements are given in **figure B1**.

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6 OBSERVATIONS

Table 1: Observations during heating

0	Heating started.
11	Smoke release between test specimen and the supporting construction.
22	Smoke release between blocks.
60	There is no considerable changes.
90	There is no considerable changes.
120	Test was terminated after consulted with sponsor.

7 TEST RESULTS**7.1 Results**

The results are given in Table 2 and appendixes B.

During the heating the temperature in the laboratory complied with the standard EN 1363-1:2020.

7.2 Uncertainty of measurements

Due to the nature of fire resistance testing, in which several non-linear effects are present in both the test configuration and the test specimen, which influence each other, it is at this moment not yet possible to give a stated degree of uncertainty of measurement.

8 SUMMARY

The most important results of the examination are given in table 2.

Table 2: Summary of test results of the test specimen

	Results
Integrity, [E] – Cotton pad – Gap gauges Ø 6 mm Ø 25 mm – Flames longer than 10 s	No failure (not applied). No failure (not applied). No failure (not applied). Not observed.
Insulation, [I] – Average temperature – Maximum temperature	No failure. No failure.
Test was terminated at the 120 th minute after consulted with sponsor.	

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9

FIELD OF DIRECT APPLICATION OF TEST RESULTS

9.1 General

This report details the method of construction, the test conditions and the results obtained when the specific elements of construction described herein was tested following the procedure outlined in EN 1363-1:2020, and when appropriate EN 1363-2:1999. Any significant deviation with respect to size, constructional details, load stresses, edge or end conditions other than those allowed under the field of direct application in the relevant test method is not covered by this report.

9.2 Specific conditions for dimensions and fixing

Test results are directly applicable to similar constructions where one or more of the changes listed below are made and the construction continues to comply with the appropriate design code for its stiffness and stability.

- decrease in height
- increase in the thickness of the wall
- increase in the thickness of component materials

9.3 Extension of height

The height of the construction may be increased up to 1 meter for a fire resistance of **120 minutes** for the criteria of thermal insulation and integrity, because the lateral deflection of the construction is less than 100 mm.

9.4 Extension of width

The width of an identical construction may be increased, because the construction is tested with a width of 3 meters with one vertical free edge.

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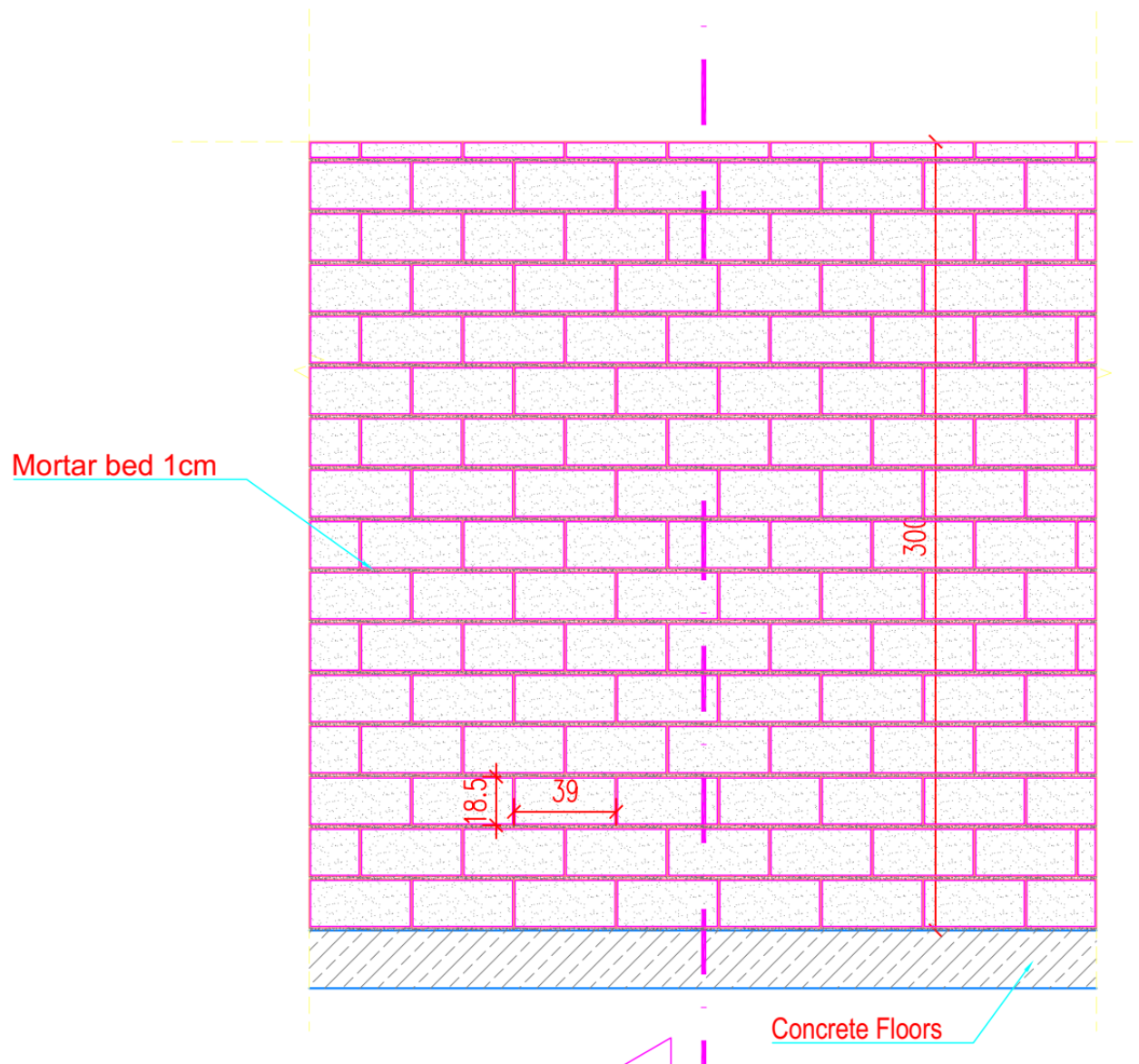


Figure 1: General view of the test specimen

Bu rapor, laboratuvarın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

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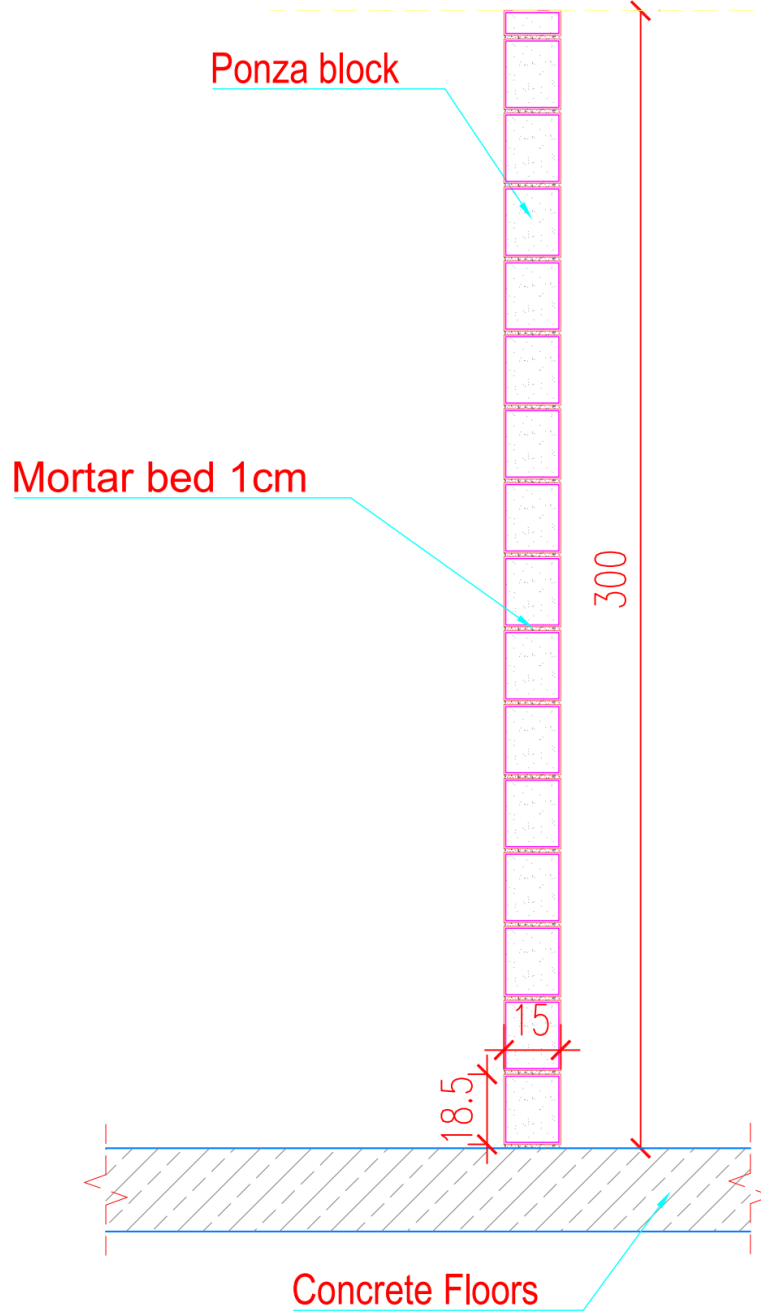


Figure 2: Longitudinal view of the test specimen

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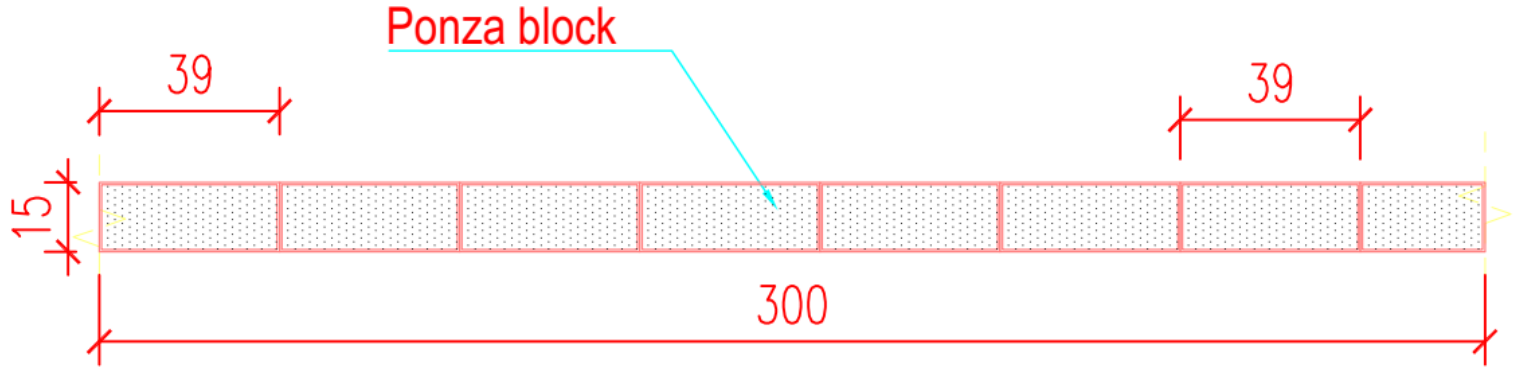


Figure 3: Cross section view of the test specimen

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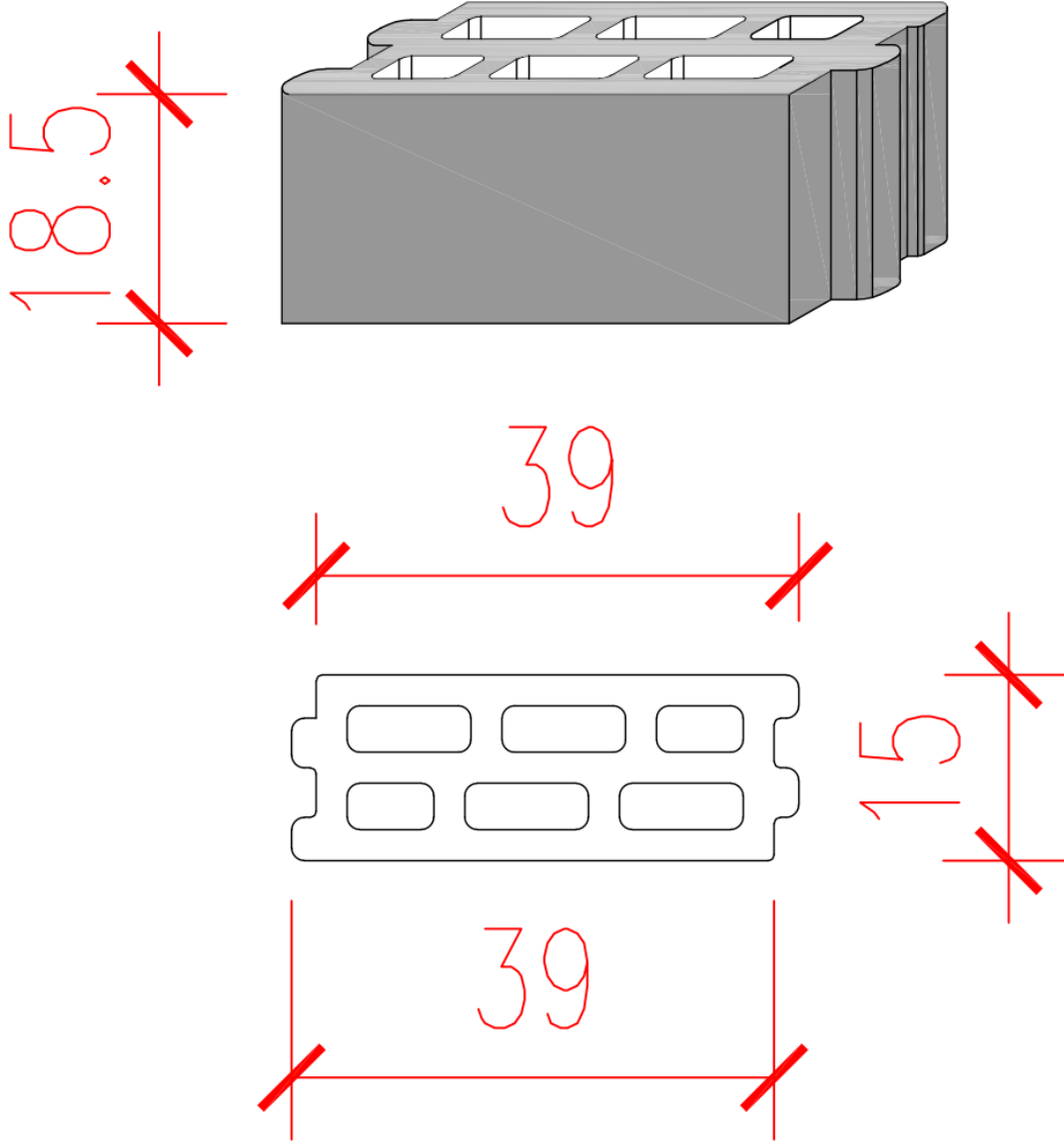


Figure 4: Pumice block details

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APPENDIXES:

Appendix A: Furnace and laboratory conditions

Appendix B: Test results

Appendix C: Photos

Bu rapor, laboratuvarın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

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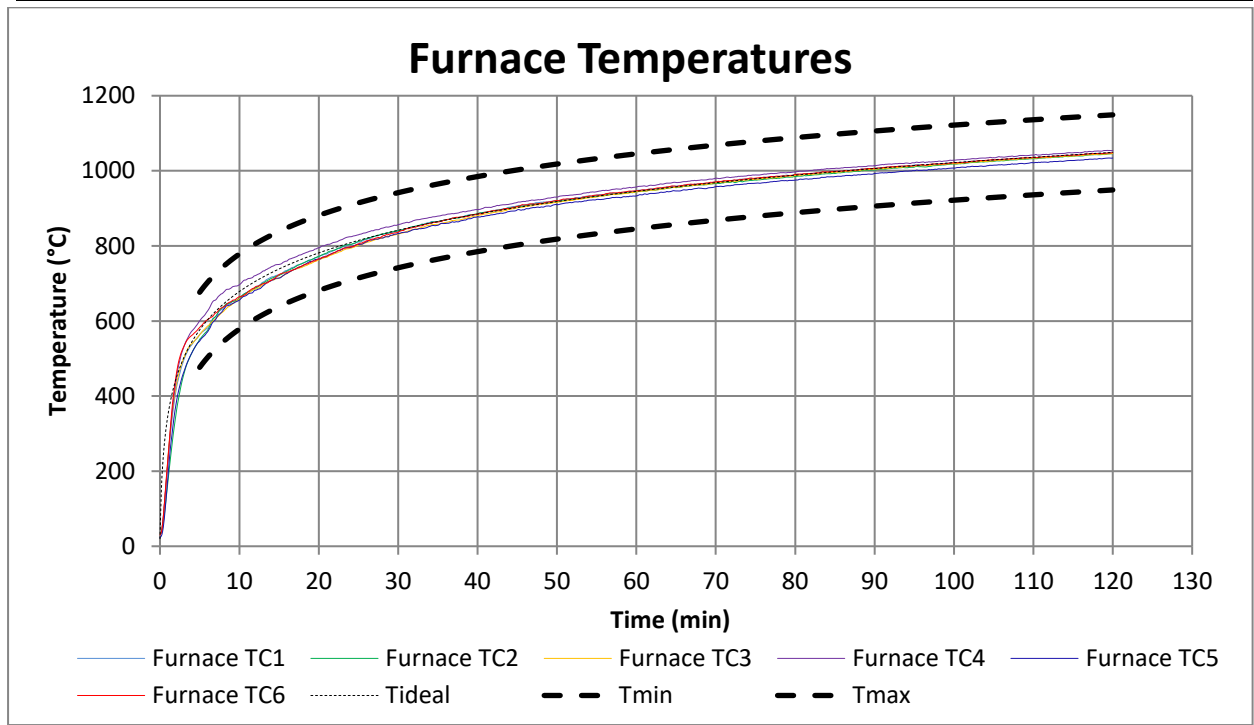


Figure A1: Furnace temperatures

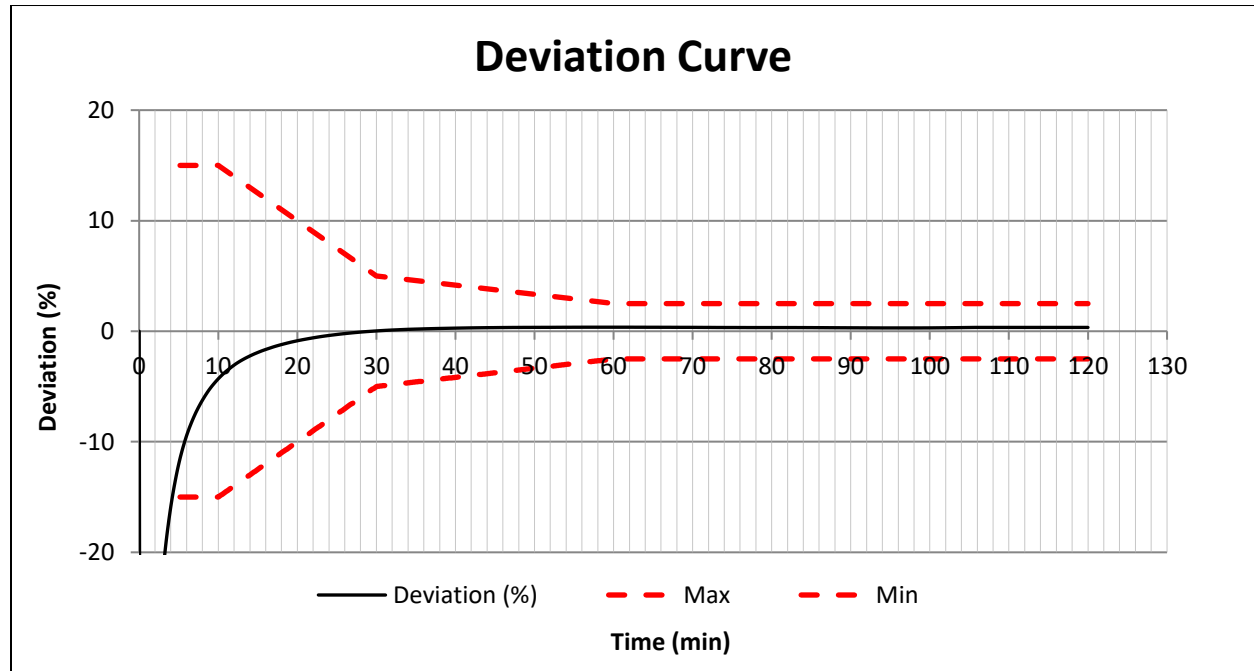


Figure A2: Deviation of furnace temperatures

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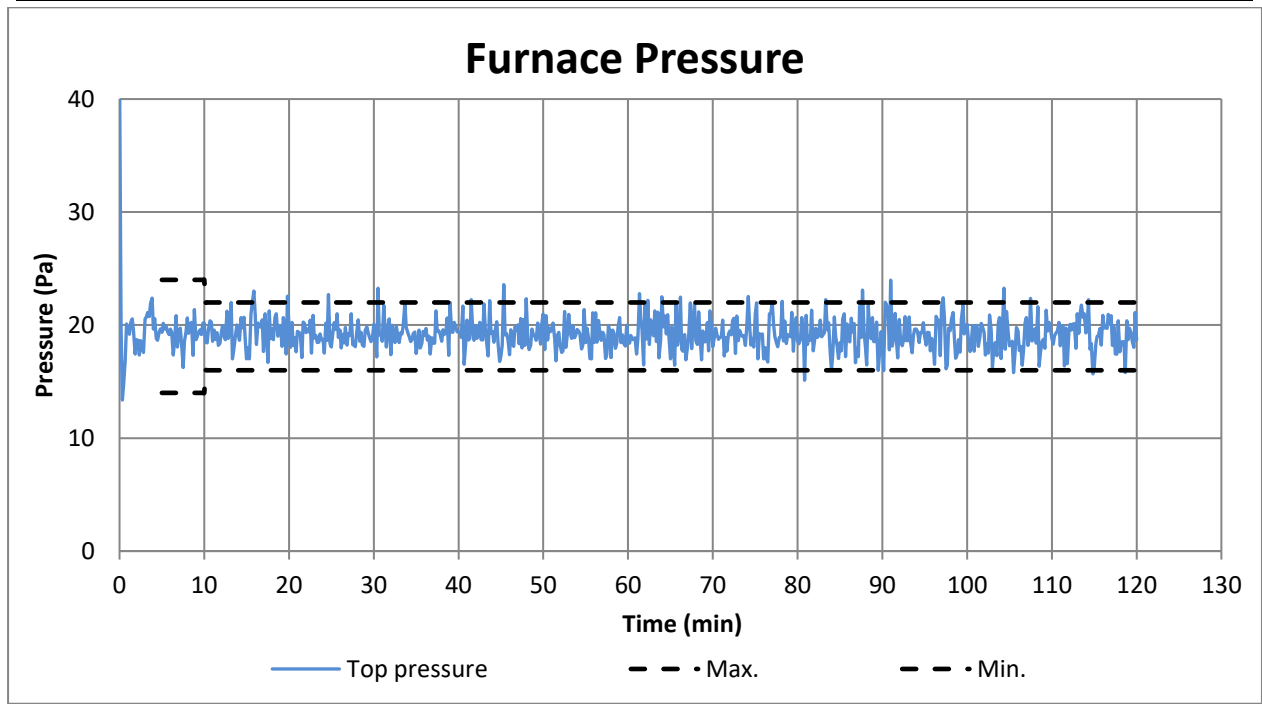


Figure A3: Pressure in the furnace

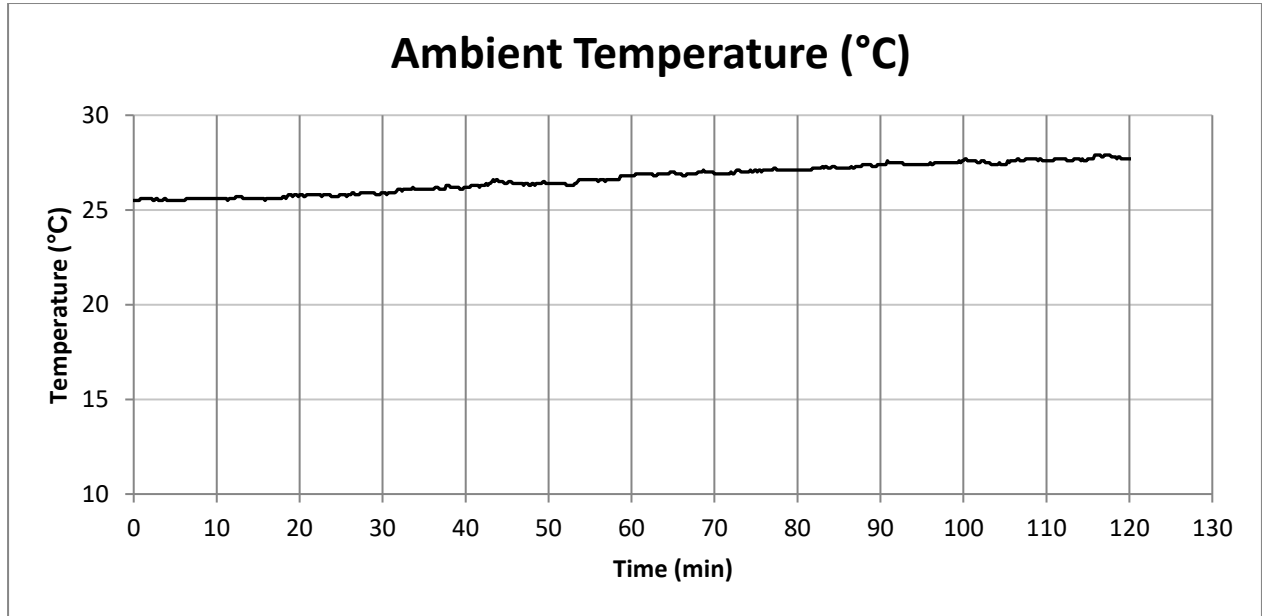


Figure A4: Ambient temperature at laboratory

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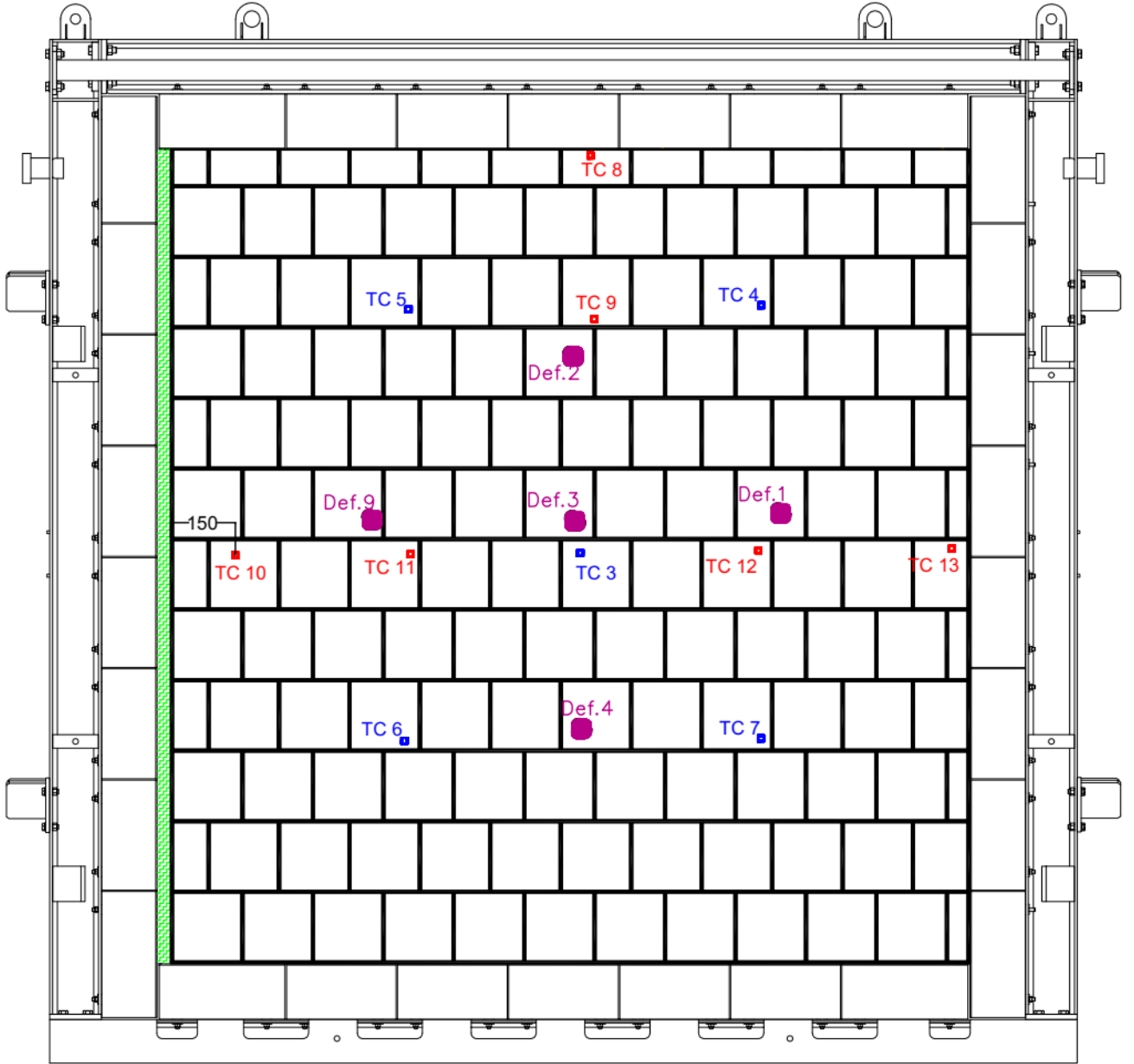


Figure B1: Locations of thermocouples and deflection sensors

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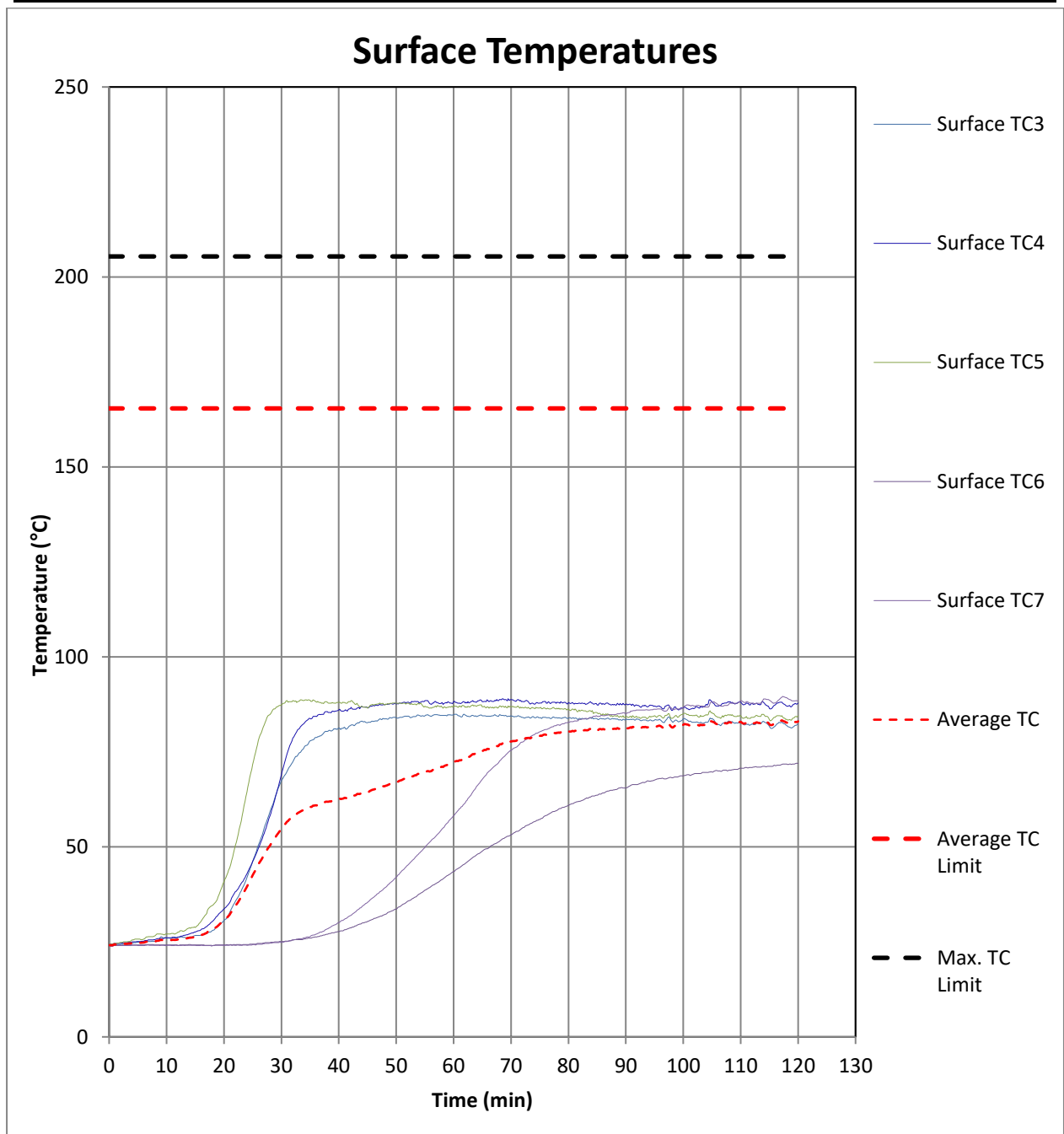


Figure B2: Surface temperatures (Surface TC3 – Surface TC7, average temperature, surface temperature limit and average temperature limit)

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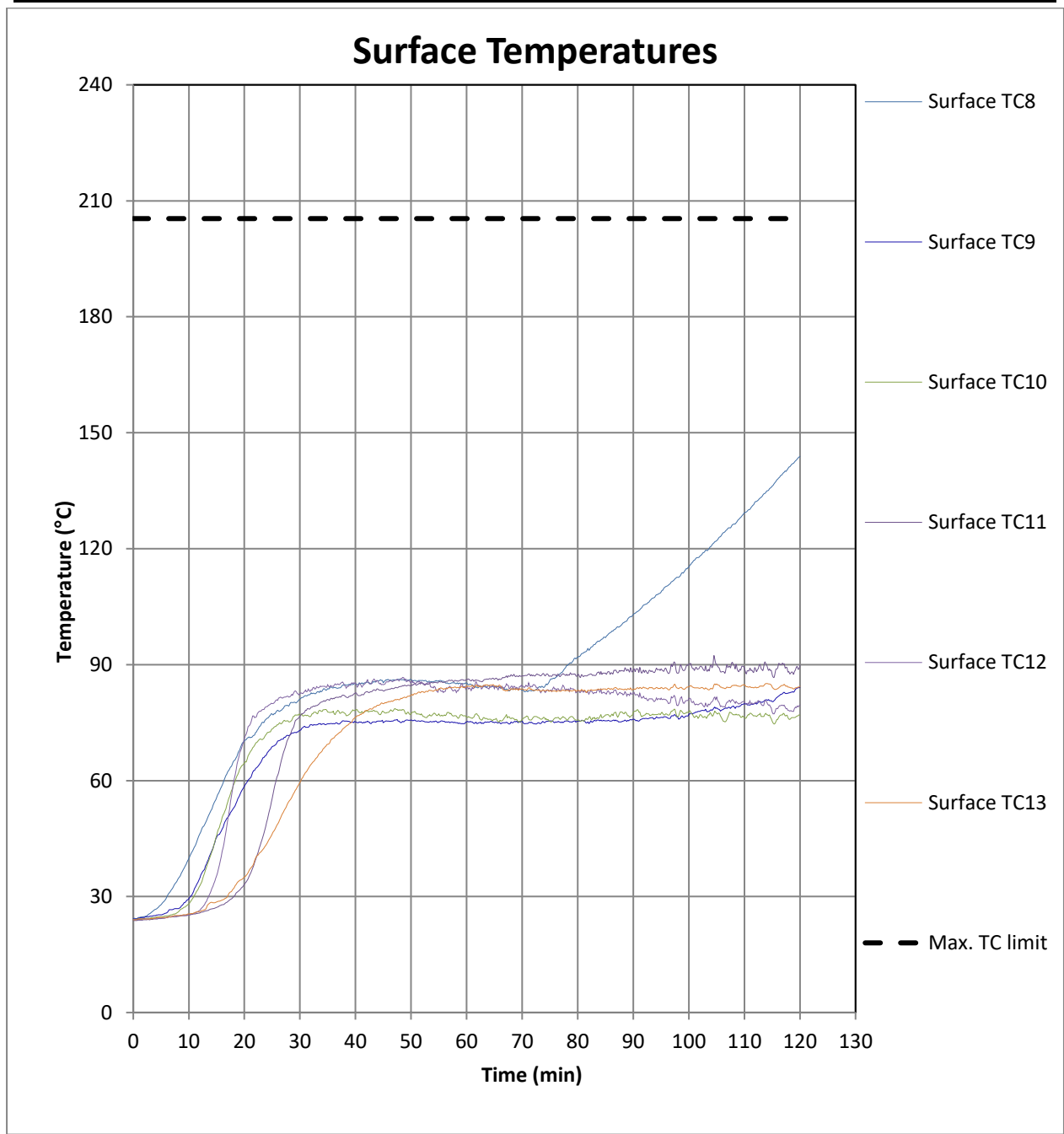


Figure B3: Surface temperatures (Surface TC8 – Surface TC13 and surface temperature limit)

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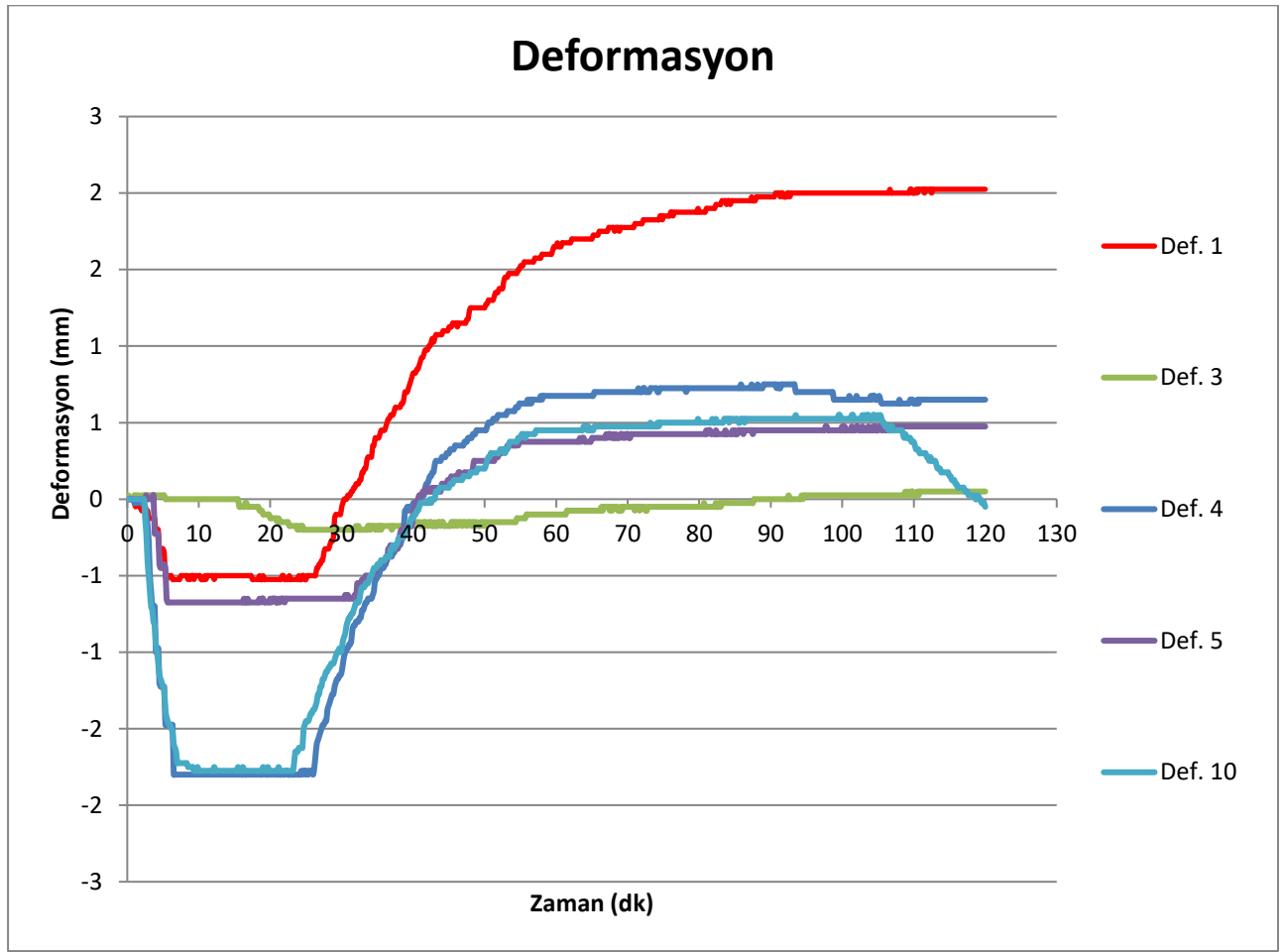


Figure B4: Deformation of the test specimen

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Photo C2: Exposed side of the test specimen before the test

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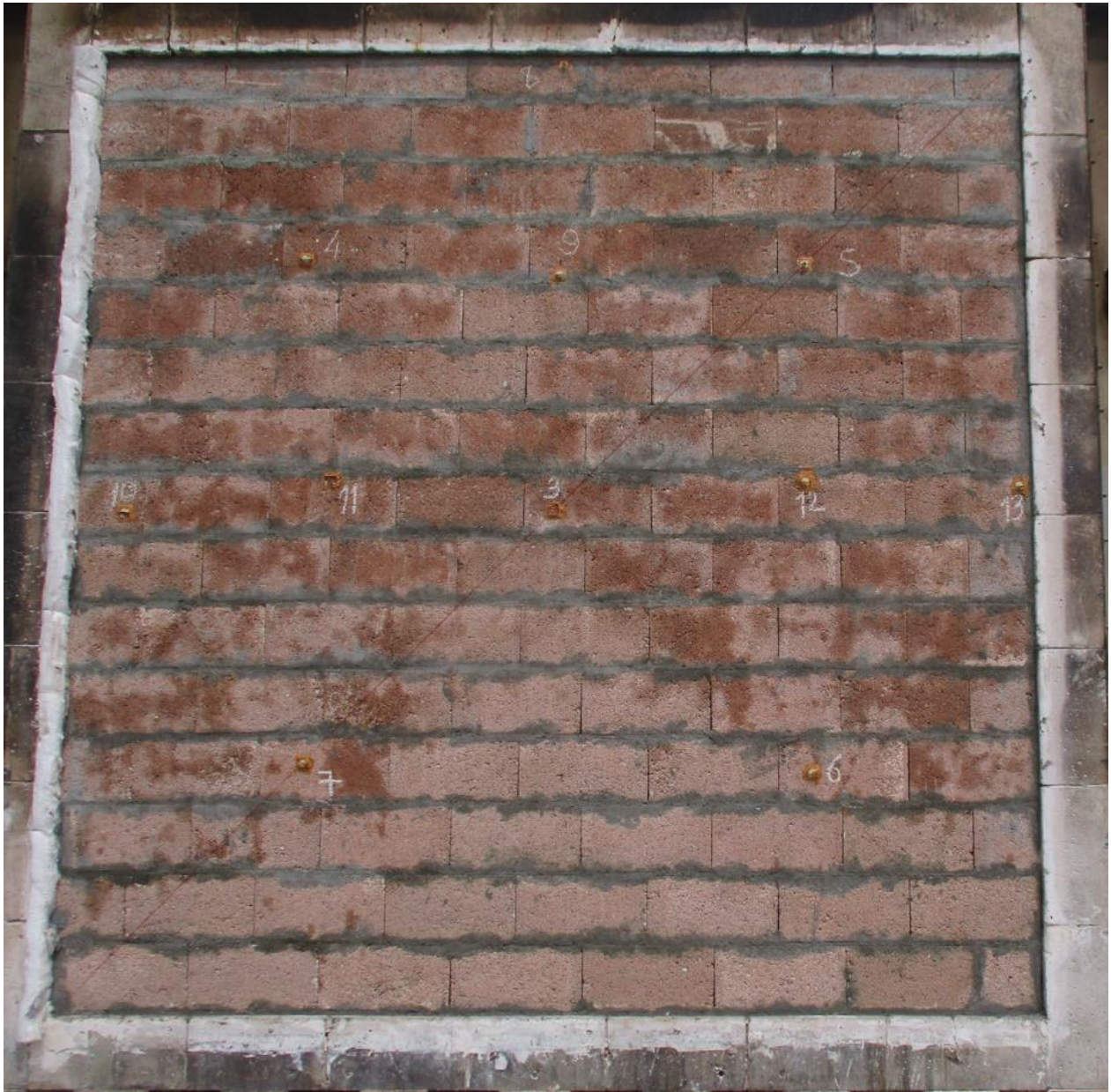


Photo C3: Unexposed side of the test specimen after the test

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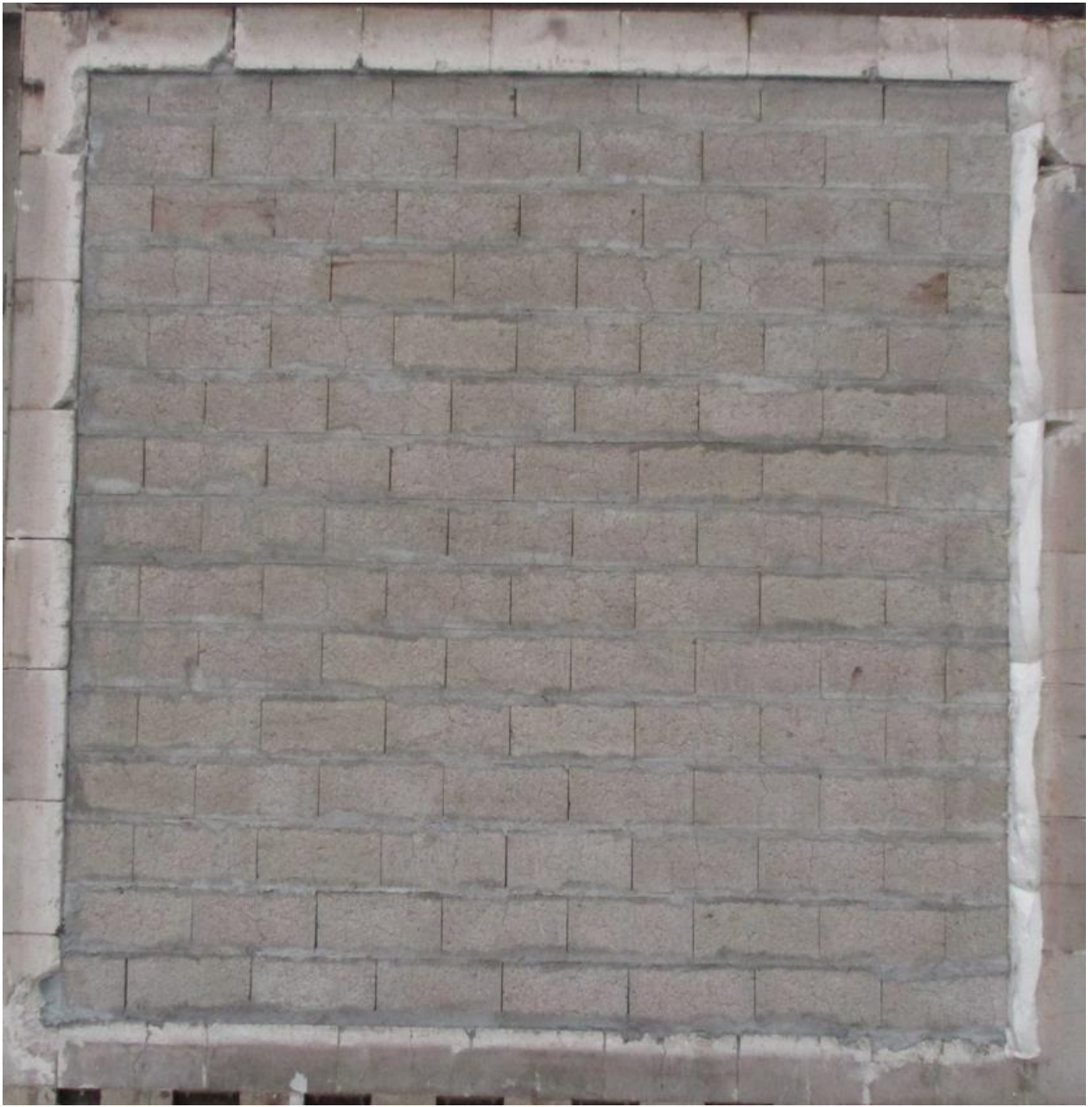


Photo C4: Exposed side of the test specimen after the test

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