

# TEST REPORT EU FACADE TEST 3

<b>Name of sponsor:</b>	CPH Village Holding ApS		
<b>Product name:</b>	EU facade test draft 6		
<b>File no.:</b>	PGC10027A	<b>Revision no.:</b>	0
<b>Test date:</b>	27-10-2023	<b>Date:</b>	07-12-2023
<b>Pages:</b>	13	<b>Encl.:</b>	92
<b>Ref:</b>	CHD	/	CHB

## Client information

---

Client: CPH Village Holding ApS

Address: C/O CPH Village

Refshalevej 161F

1432 København K

Denmark

The results relate only to the items tested. The report should only be reproduced in extenso - in extracts only with a written agreement with this institute.

## Content

<b>Client information .....</b>	<b>2</b>
<b>Content .....</b>	<b>3</b>
<b>Date of test.....</b>	<b>4</b>
<b>Purpose of test .....</b>	<b>4</b>
<b>Test specimen.....</b>	<b>4</b>
<b>Drawings and description .....</b>	<b>4</b>
<b>Description.....</b>	<b>5</b>
<b>Measured by DBI.....</b>	<b>7</b>
<b>Test conditions .....</b>	<b>8</b>
<b>Conditioning .....</b>	<b>8</b>
<b>Mounting .....</b>	<b>8</b>
<b>Fire test.....</b>	<b>8</b>
<b>Test results .....</b>	<b>9</b>
<b>Measurements.....</b>	<b>9</b>
<b>Visual observations:.....</b>	<b>11</b>
<b>Conclusion .....</b>	<b>13</b>
<b>Remarks .....</b>	<b>13</b>

## Date of test

The test was conducted on 31-08-2023.

## Purpose of test

Examination of the fire performance of a façade using the large fire exposure.

The test specimen has been subjected to a fire test in accordance with the following draft standards:

ASSESSMENT OF FIRE PERFORMANCE OF FACADES USING LARGE FIRE EXPOSURE

Draft revision 6

Draft Date: 2022 – 11 – 18

**The test was not performed accredited.**

## Test specimen

The trade name and sponsors identification mark are stated below:

Trade name: None

Identification mark: None

The components for the test specimen were delivered and mounted by the sponsor.

## Drawings and description

Details of the construction are shown in the enclosed documentation as stated below:

Type	Drawing No.	Dated	Subject
Drawing	TU_ST2_N01	25-10-2023	Mock Up BFUH 3 CPH-Village
Drawing	TU_ST2_N02	25-10-2023	BFUH 3 CPH Village Konstruktion
Drawing	TU_ST2_N03	25-10-2023	BFUH 3 CPH Village Første lag 12 mm Vindtett
Drawing	TU_ST2_N04	25-10-2023	BFUH 3 CPH Village Andet lag 12 mm Vindtett
Drawing	TU_ST2_N05	25-10-2023	BFUH 3 CPH Village Inddækning+ Flammeafbøjer
Drawing	TU_ST2_N06	25-10-2023	BFUH 3 CPH Village afstandslistre+stolper+membran
Drawing	TU_ST2_N07	25-10-2023	BFUH 3 CPH Village Beklædning
Drawing	TU_ST1_N01	25-10-2023	Detalje plan brandkammer
Drawing	TU_ST1_N02	25-10-2023	Detalje plan vindue over flammeafbøjer
Drawing	TU_ST1_N03	25-10-2023	Detalje sålbænk under vindue
Drawing	TU_ST1_N04	25-10-2023	Detalje flammeafbøjer
Drawing	TU_ST1_N05	25-10-2023	Detalje sålbænk over vindue

Drawing	GKB-116644	11-10-2023	Topprofil, Lg. 2400
Drawing	GKB-116645	11-10-2023	Bundprofil, 2 mm plade
Drawing	GKB-116646-indv	13-10-2023	Indv. Hj. Top, 2 mm plade, 1 of 2
Drawing	GKB-116646-indv	13-10-2023	Indv. Hj. Top, 2 mm plade, 2 of 2
Drawing	GKB-116647-indv	13-10-2023	Indv. Hj. Bund, 2 mm plade, 1 of 2
Drawing	GKB-116647-indv	13-10-2023	Indv. Hj. Bund, 2 mm plade, 2 of 2

The documentation is supplied and stamped by DBI - Danish Institute of Fire and Security Technology

## Description

The test specimen consisted of the components described in the following. DBI inspected the components during mounting, the test and after the test.

The sponsor carried out the selection of the products for the test specimen as well as the mounting.

External measures:	Height: 9197 mm	Width: 3504 mm	Thickness: 315mm With flame deflector: 639 mm
--------------------	-----------------	----------------	--

The test specimen was a ventilated façade made of horizontal wood boards, mounted on vertical formwork. Flame deflector profiles were installed above fire chamber and windows on the main facade. On the wing the flame deflector profiles were mounted on 100 mm aerated concrete.

The build-up of the façade system is shown on the attached drawings, supplied by the sponsor. The construction of the wall is described from the first layer on the aerated concrete frame.

**First Layer:** The first layer consisted of prefabricated cassettes which were built from untreated construction wood C24 with dimensions 45 x 245 mm with a nominal density of 480 kg/m<sup>3</sup>. They were mounted vertically with a distance of 600 mm. The construction wood C24 cassettes protruded approximately 1627 mm above the aerated concrete façade rig. There were 4 cassettes in total, and they were mounted with 550 mm in between the horizontal gaps. See drawing No. TU\_ST1\_N04.

**Fixing of first layer:** The construction woods C24 were fixed to each other with steel angles designated Paslode 90 x 90 x 65 with screws designated Paslode DS413 4.0 x 40 mm at 4 corners of the cassette. The T-conjunctions of the construction woods were fixed with nails designated TJEP GR 3.1 x 90 mm with a c/c distance of 20 mm.

The prefabricated cassettes were fixed to the aerated concrete frame with steel angles designated Paslode 90 x 90 x 65 with screws designated Paslode 4.0 x 40 mm with four screws in each angle connected to the wood. The Paslode angles were fixed to the aerated concrete with one screw designated Spit ACS ø10 x 160 mm. The angles were used on all 4 edges and on the window of the cassette with a c/c distance of approx. 600 mm in horizontal and 900 mm in vertical. The gap between the cassettes and the concrete was approx. 25 mm.

The bottom of the cassette was placed on 2 ACW 155 Simpson strong-tie console bracket which were fixed to the aerated concrete frame with 4 screws designated Spit ACS CSK ø 10 x 160 mm. One screw designated Paslode 4.0 x 40 mm was used to connect the cassette and console bracket.

**Gaps in the first layer:** The gaps between 2 cassettes were filled with wood and insulation. On the top of the gap, construction wood C24 with dimensions of 45 x 245 mm and 45 x 145 mm were mounted on the upper prefabricated cassette. On the bottom, the construction wood with dimensions of 45 x 195 mm, 45 x 100 mm and 45 x 70 mm were mounted on the lower prefabricated cassette. The

insulation designated Rockwool flexibatts 37 with the thickness of 95 mm and 70 mm and with the nominal density of 32 kg/m<sup>3</sup> were placed in the gap. One layer of 95 mm mineral wool was placed in between the 2 layers of 70 mm mineral wool. See drawing No. TU\_ST1\_N04.

The plywood designated Radiata Pine TG2 15 mm with a width of 250 mm and a nominal density of approx. 500 kg/m<sup>3</sup> were mounted on the construction wood to close the back side of the gap, plywood width 595 mm were used to close the front side of the gap. See drawing No TU\_ST2\_N02.

**Fixing of gaps:**

The construction wood C24 45 x 245 mm and 45 x 145 mm were fixed to the prefabricated cassette with screws designated NKT Spun+ 5.0 x 120 mm, the c/c distance between screws was 600 mm. The construction wood C24 45 x 100 mm and 45 x 70 mm were fixed to the prefabricated cassette with screws designated NKT Spun+ 4.5 x 70 mm, the c/c distance between screws was 600 mm. The plywood was fixed to the construction wood C24 with screws designated NKT Spun+ 4.5 x 70 mm, the c/c distance between screws was 600 mm.

**Insulation in first layer:**

2 layers of insulation designated Hunton Nativo wood fiber board with a size of 1220 x 565 x 120 mm and a nominal density of 50 kg/m<sup>3</sup> were placed between the construction wood of all three prefabricated cassettes.

**Second layer:**

Two layers of Hunton wood fiber-based windbreaker boards 12 mm with a nominal density of 235 kg/m<sup>3</sup>, were mounted on the construction wood C24 of all three cassettes. See photo No. 7.

The fiber cement wind panel designated Cembrit Windstopper Basic with a thickness of 9 mm and a nominal density of 1450 kg/m<sup>3</sup> were mounted on the plywood of the gap as the second layer.

See drawing No. TU\_ST2\_N04.

**Fixing of second layer:** The wood fiber windbreaker boards were fixed with staples designated Tjep PZ-16 64 mm with a distance of 100 mm along the edges and 250 mm along the center of the boards.

The fiber cement wind panel were fixed with nails designated Tjep ZE 2.5 x 50 mm with a c/c distance of 100 mm.

**Third layer:**

A layer of Traspir alu 430 with a width of 1180mm was mounted on the top of the windbreaker with a horizontal overlap of 200 mm.

**Fixing of third layer:**

The Traspir alu 430 was fixed on the windbreaker with staples designated Tacwise 140 / 10 mm with a c/c distance of 200 mm.

The top and bottom edges were taped on the fiber cement wind panel with tape designated Hunton Tescon Vana with a width of 60 mm.

See photo No. 10.

**Flame deflector:**

The flame deflectors were made with 2 mm steel profile with a 4-degree slope top page. Fixed on the main façade with screws designated RedHorse CORONA™ RXB 4.8 X 60 EPDM-9.5B, the c/c distance between screws was 200 mm. Fixed on the wing per max. 200 mm with screws designated fischer TX 30 8/30-90. Top and bottom profile fasten with RF rivets designated Gesipa 4.0 x 8.0 mm. Joint in fire deflectors between top and bottom profile is offset according to drawings. Longitudinal holes were minimum 20 mm long and the screws were placed in the middle of elongated hole during assembly so that expansion could take place. The flame deflectors protruded 324 mm out from the outer side of the cladding and 100 mm out from the edge of the façade cladding. The top Flame deflector protruded approx. 1000 mm out from the edge of the façade cladding on both sides. They air gap inside the Flame deflectors was filled with insulation and the ends to prevent a horizontal air flow.

All details about the flame deflectors are shown on the following drawings: GKB-116644, GKB-116645, GKB-116646-indv, GKB-116647-indv and drawing No. TU\_ST1\_N02.

**Formwork:** The impregnated wood formworks with a dimension of 25 x 50 mm with a nominal density of 450 kg/m<sup>3</sup> were mounted horizontally of the main façade. The distance between the formwork as shown on drawing No. TU\_ST2\_N06.

**Fixing of formwork:** The formworks were fixed with nails designated Tjep GF 3.1 x 98 ring with a c/c distance of 300 mm. The min. distance between the formwork ends and the nail was 50 mm.

**Finishing layer (cladding):** Wooden boards designated Frøslev profile 2685 with a dimension of 21 x 120 mm and nominal density of 400 kg/m<sup>3</sup> with groove and tongue were mounted horizontally on the top of the formworks as the cladding.

**Fixing of cladding:** The cladding was fixed on the formwork horizontally with nails designated Tjep MX 2.1 x 40 mm ring.

**Window and fire chamber details:** The 0.5 mm Alu-Zink profiles were mounted on the top of the window and fire chamber with Tjep ZE 2.5 x 50 mm Ring nails with a distance of 300 mm. They were protruding 30 mm from the cladding. The profile has a 7-degree slope top page.  
The profiles on top of the window are shown on drawing No. TU\_ST1\_N05.

#### **Bottom of window:**

The 0.5 mm Alu-Zink profiles were mounted on the bottom of the window with Tjep ZE 2.5 x 50 mm Ring nails with a distance of 300 mm. They were protruding 50 mm from the cladding. The profile has a 7-degree slope top page.

The profiles on bottom of the window are shown on drawing No. TU\_ST1\_N03.

#### **Window and Fire chamber sides:**

The 0.5 mm Alu-Zink profiles were mounted on window and fire chamber sides with Tjep ZE 2.5 x 50 mm Ring nails with a distance of 300 mm. They were protruding 30 mm from the cladding.  
The profiles on top of the side of window are shown on drawing No. TU\_ST1\_N02.

**Insulation and sealant:** Between the prefabricated cassette and the aerated concrete of the façade the mineral wool was used to close the gap.

The side of the main façade was covered by mineral wool insulation.

Between the prefabricated cassette and the aerated concrete around the fire chamber and the ceramic wool was used to close the gap and on top of that a fire sealant was used to close of the airgap.

#### Measured by DBI

Product		Rockwool Flexibatt 37 70 mm	Rockwool Flexibatt 37 95 mm	Hunton Native wood fiber board	Formwork	Construction wood C24 95 mm	Construction wood C24 70 mm
Density	kg/m <sup>3</sup>	29	29	52	409	467	492
Thickness	mm	70	95	117	24.7	45	45
Moisture content %		0.9	0.7	11	12.8	12.6	12.9

Organic content %	2.1	2.1					
Sampling method	Extra material						
Drying temperature °C	105	105	105	105	105	105	105

Product		Construction wood C24 145 mm	Construction wood C24 195 mm	Plywood board	Construction wood C24 245 mm	Cladding	Fiber cement board
Density	kg/m³	460	433	453	455	470	1555
Thickness	mm	45	45	14.8	45	21	8.8
Moisture content %		13.5	13	8.8	13.3	12.6	4.3
Sampling method	Extra material	Extra material	Extra material	Extra material	Extra material	Extra material	Extra material
Drying temperature °C	105	105	105	105	105	105	105

\*The density of the cladding measured by DBI is more than 10% higher than the nominal density.

## Test conditions

### Conditioning

The materials for the test specimen were delivered on the 23-10-2023 to the DBI laboratory and stored under room temperature. On the day of the fire testing the condition of the test specimen was similar with respect to its moisture content as the test specimen would be in normal service.

The installation of the test specimen on the test rig was completed on the 26-10-2023.

### Mounting

The test specimen was mounted on the test rig that had a size of 7990 mm in height and with main surface of 3620 mm and wing 1900 mm wide. The surface of the test rig was built with 150 mm aerated concrete blocks, with a nominal density of 575 kg/m³.

The design and location of the combustion chamber opening in the main face was in accordance with the design details specified in the standard ASSESSMENT OF FIRE PERFORMANCE OF FACADES USING LARGE FIRE EXPOSURE Draft revision 6, Draft Date: 2022 – 11 – 18.

Each of the two vertical sides was closed off with stone wool before the fire test.

### Fire test

The fire test was conducted in the following conditions:

- Ambient temperature: approx. 11 °C at the start of the test (see Enclosures 3.0 and 3.1)
- Ambient air velocity: Not measured (test undertaken indoor where ambient air speed and/or wind did not affect the test)
- Mechanical exhaust: 80.000 m³/h (at ambient temperature) even distributed in the ceiling of the test hall with a combined exhaust duct to the air filter cleaning system.

Observations were made during the test on the general behaviour of the test specimen.

Temperature observations were taken continually during the entire testing time.

The temperatures were measured on the external and internal layers of the test specimen as indicated on DBI drawing enclosure no. 1.0 - 1.1. All thermocouples that were used according to the standard ASSESSMENT OF FIRE PERFORMANCE OF FACADES USING LARGE FIRE EXPOSURE are named I.1.1-1.9, I.2.1-I.2.4 and I.3.6- I.3.9. All other thermocouples are for informative uses.

The temperature was determined by means of type-K sheathed thermocouples specified in, ASSESSMENT OF FIRE PERFORMANCE OF FACADES USING LARGE FIRE EXPOSURE.

The thermocouples named I.1.1-1.9, I.2.1-I.2.4 and I.3.6- I.3.9 were constructed of junctions of nickel chromium/nickel aluminium (type K) wire as defined in EN 60584-1 contained within mineral insulation in a heat resisting alloy sheath of nominal diameter 2.0 mm. Designated as a sheathed thermocouple.

The furnace plate thermocouples were constructed according to EN 1363-1, and all other thermocouples were made from type-k thermocouples wire with 0.5mm in diameter twisted together in the end.

The wood crib was constructed flowing the principles in ASSESSMENT OF FIRE PERFORMANCE OF FACADES USING LARGE FIRE EXPOSURE. The dimensions of the spruce sticks were approx. 45x45 mm and the external dimension of the 24-layer wood crib was 1.5m x 1m x 1.08m (width x depth x height). The wood crib was stored at approx. 20°C in dry conditions and was at the time of the fire test in equilibrium with the surroundings. The spruce sticks were nailed together to construct the crib and was installed on a closed bottom surface made of a 20 mm thick calcium silicate board with dimensions of 1300 mm x 1900 mm. The crib was placed 100 mm from the back wall and centred from the sidewalls of the combustion chamber. The average density of the wood was approx. 500 kg/m<sup>3</sup>.

In front of the combustion chamber, a platform was placed which had a size of 1850 x 3200 mm. It was placed with the upper edge 100 mm below the floor of the combustion chamber. This was done to simulate a comparable air flow and buoyancy that will occur if the weight for fallings parts was used. which should have been placed in front of the facade according to ASSESSMENT OF FIRE PERFORMANCE OF FACADES USING LARGE FIRE EXPOSURE section 4.7.4.

Here we state if something special happened during the fire test. Like thermocouples malfunctioned and in what minute etc. So please insert the information about that here.

## Test results

Duration of the test was 60 minutes.

### Measurements

The enclosed graphs and tables show:

Enclosures 2.0 and 2.1	The temperature in the fire chamber during the test  A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23
Enclosures 3.0 and 3.1	Ambient temperature The ambient temperature in the laboratory during the test
Enclosures 4.0 and 4.1	Flux in Location 1
Enclosures 5.0 and 5.1	Temperature measured in the ventilated cavity

Enclosures 6.0 and 6.1	Temperature measured in the ventilated cavity
Enclosures 7.0 and 7.1	Temperature measured in the ventilated cavity
Enclosures 8.0 and 8.1	Plate thermocouple Plate TC.1 Location 1 Plate TC.2 Location 2
Enclosures 9.0 and 9.1	Location 1 - TC on PlateTC
Enclosures 10.0 and 10.1	Location 2. 5 m from facade 4.5 m height.
Enclosures 11.0 and 11.1	Thermocouple TC.1 Location 1 TC.2 Location 2
Enclosures 12.0 and 12.1	Flux TC Flux.TC.2 located 3 m from fire chamber
Enclosures 13.0 and 13.1	Temperature rise measured 50mm from the facade
Enclosures 14.0 and 14.1	Temperature rise measured in ventilation layer
Enclosures 15.0 and 15.1	Temperature rise measured in middle of insulation
Enclosures 16.0 and 16.1	Temperature rise measured according to the standard - 50 mm from facade. Minimum of 30 sec
Enclosures 17.0 and 17.1	Temperature rise measured according to the standard - ventilation layer. Minimum of 30 sec
Enclosures 18.0 and 18.1	Temperature rise measured according to the standard - in the middle of the insulation. Minimum of 30 sec
Enclosures 19.0 and 19.1	Temperature measured behind windbreaker
Enclosures 20.0 and 20.1	Temperature measured back side of insulation
Enclosures 21.0 and 21.1	Temperature measured middle of insulation

Enclosures 22.0 and 22.1	Vertical measurements on main facade
Enclosures 23.0 and 23.1	Vertical measurements on main facade
Enclosures 24.0 and 24.1	Vertical measurements on the wing
Enclosures 25.0 and 25.1	Vertical measurements on the wing
Enclosures 26.0 and 26.1	Horizontal measurements
Enclosures 27.0 and 27.1	Horizontal measurements
Enclosures 28.0 and 28.1	Plate thermocouple on facade Plate thermocouple on facade A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

#### Visual observations:

---

Time / Minutes	Visual observations:
0	Test start
0:30	Fire came out of the fire chamber reach to 2 m above the first flame deflector
1	Flame reach to 1 m above the bottom of the first window
2	Flame reach to 2 m above the bottom of the first window
3	Façade below the first flame deflector start burning
4	Flame reach to the top of the first window
5	Flame reach to second flame deflector
10	Cladding above the first flame deflector discoloured
13	Cladding above the first flame deflector start burning
15	The right side of the first window start burning
18	Pieces approx. 10 cm x 10 cm drop on the floor
19	Cladding between second flame deflector and first window discoloured
21	More pieces dropped on the floor
24	The left side of the first window start burning
26	More pieces

- 31 A lot of smoke coming out up to second flame deflector
- 34 Smoke coming from the top left edge of the façade
- 36 More pieces dropped on the floor
- 40 Smoke coming from the right up corner of the first window
- 43 More pieces dropped on the floor
- 45 A lot of smoke coming out from the top of the façade
- 46 Smoke from the bottom of the first window
- 51 The profile on the top of the fire chamber dropped
- 52 More pieces dropped on the floor
- 54 Lower plate thermocouple dopped off from the cladding
- 57 Pieces dropped on the floor
- 58 Right side if the first window is still burning
- 59 A lot of smoke above the first window
- 60 Test stop

The thermocouples lost connection between 19-22 minutes of the test.

The photographs on the attached photo sheets show the test specimen during the mounting, testing and after the test.  
See the description at each photo.

# Conclusion

Fire testing according to daft version of: ASSESSMENT OF FIRE PERFORMANCE OF FACADES USING LARGE FIRE EXPOSURE, the construction described in this test report showed that failure according to the performance criteria stated in the test method occurred at the following time:

Performance	Criterion	Test result
<b>Fire spread</b>		
	Vertical fire spread	60 minutes
	Horizontal fire spread	56 minutes
	Burning parts	60 minutes
<b>Falling parts – Level 0</b>		
	Falling parts – (Level 0)	18 minutes
<b>Falling parts – Level 1</b>		
	Falling parts – (Level 1)	No failure
<b>Falling parts – Level 2</b>		
	Falling parts – (Level 2)	No failure

The test was terminated after 60 minutes.

## Remarks

The test was an Ad-Hoc test, there is no field of application.

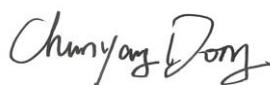
This report details the method of construction, the test conditions and the results obtained when the specific element of construction described herein was tested following the procedure outlined in ASSESSMENT OF FIRE PERFORMANCE OF FACADES USING LARGE FIRE EXPOSURE.

Because of the nature of fire resistance testing and the consequent difficulty in quantifying the uncertainty of measurement of fire resistance, it is not possible to provide a stated degree of accuracy of the result.

This report has only been printed in a pdf-version. DBI has not issued a hard copy version.  
All values mentioned in this report are nominal values, production tolerances are not considered.

**The test was not performed accredited.**

Danish Institute of Fire and Security Technology



**Chunyang Dong**  
Resistance to Fire Engineer



**Christian Basbøll**  
Resistance to Fire Engineer

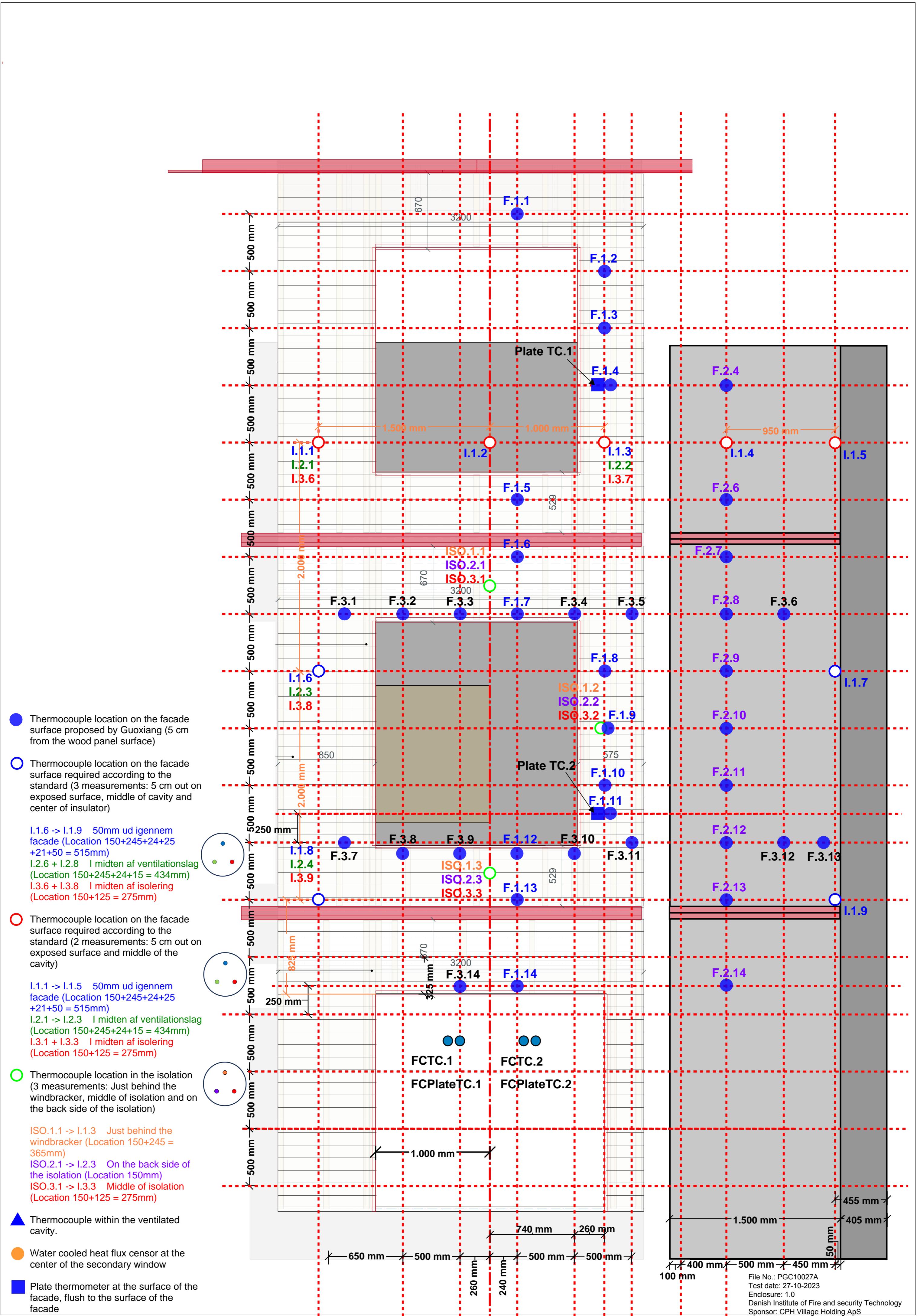
**CPH Village Holding ApS**

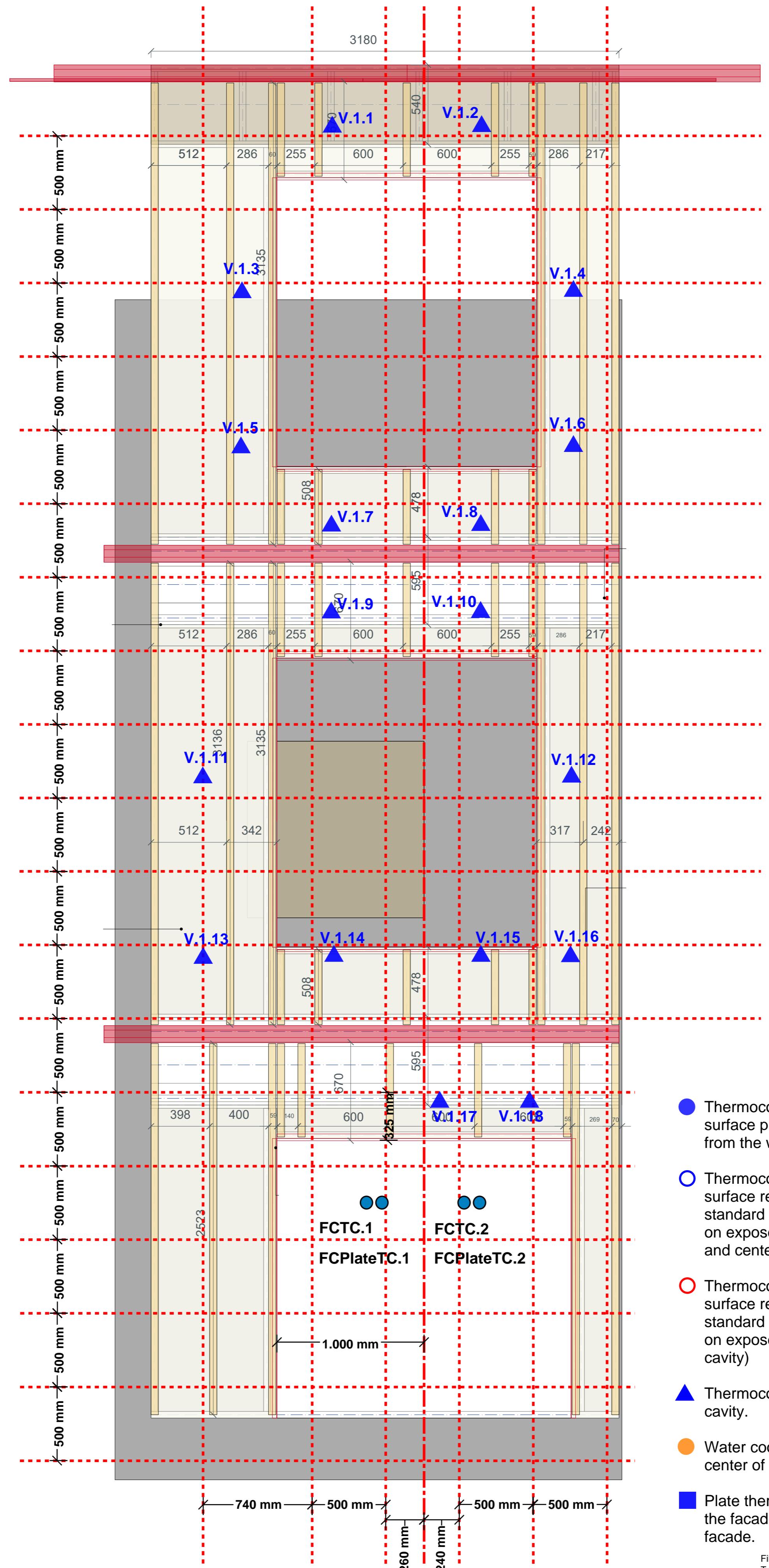
C/O CPH Village  
Refshalevej 161F  
1432 København K  
Denmark

**Enclosures:**

**92**

DBI drawings:	2
DBI graphs and tables:	54
Photo sheets:	18
Sponsors drawings:	18

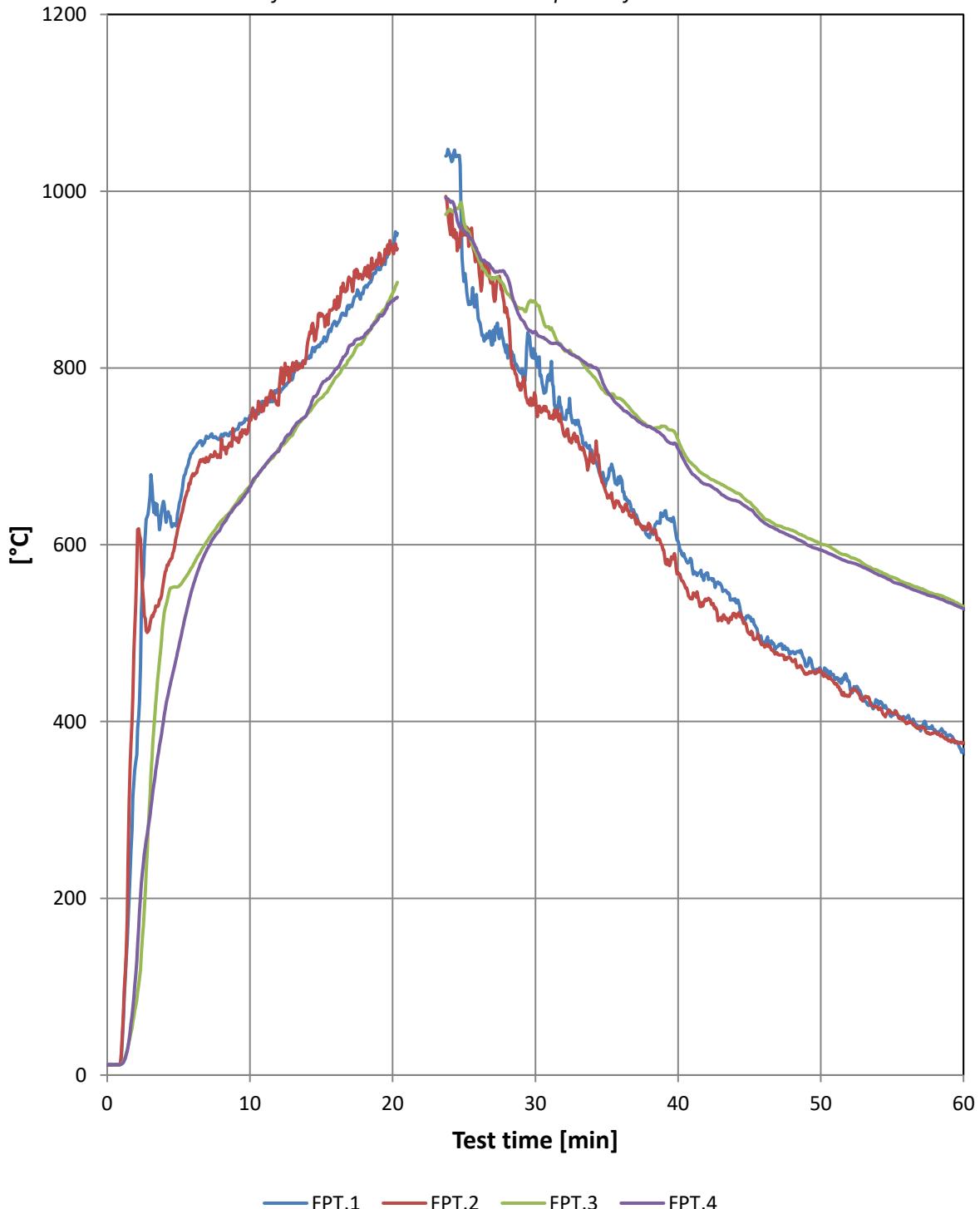




- Thermocouple location on the facade surface proposed by Guoxiang (5 cm from the wood panel surface).
- Thermocouple location on the facade surface required according to the standard (3 measurements: 5 cm out on exposed surface, middle of cavity and center of insulator).
- Thermocouple location on the facade surface required according to the standard (2 measurements: 5 cm out on exposed surface and middle of the cavity)
- ▲ Thermocouple within the ventilated cavity.
- Water cooled heat flux censor at the center of the secondary window.
- Plate thermometer at the surface of the facade, flush to the surface of the facade.

## The temperature in the fire chamber during the test

*A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23*



*FireChamberPlateTC.1 FireChamberPlateTC.2  
FireChamberTC.1 FirechamberTC.2*

## The temperature in the fire chamber during the test

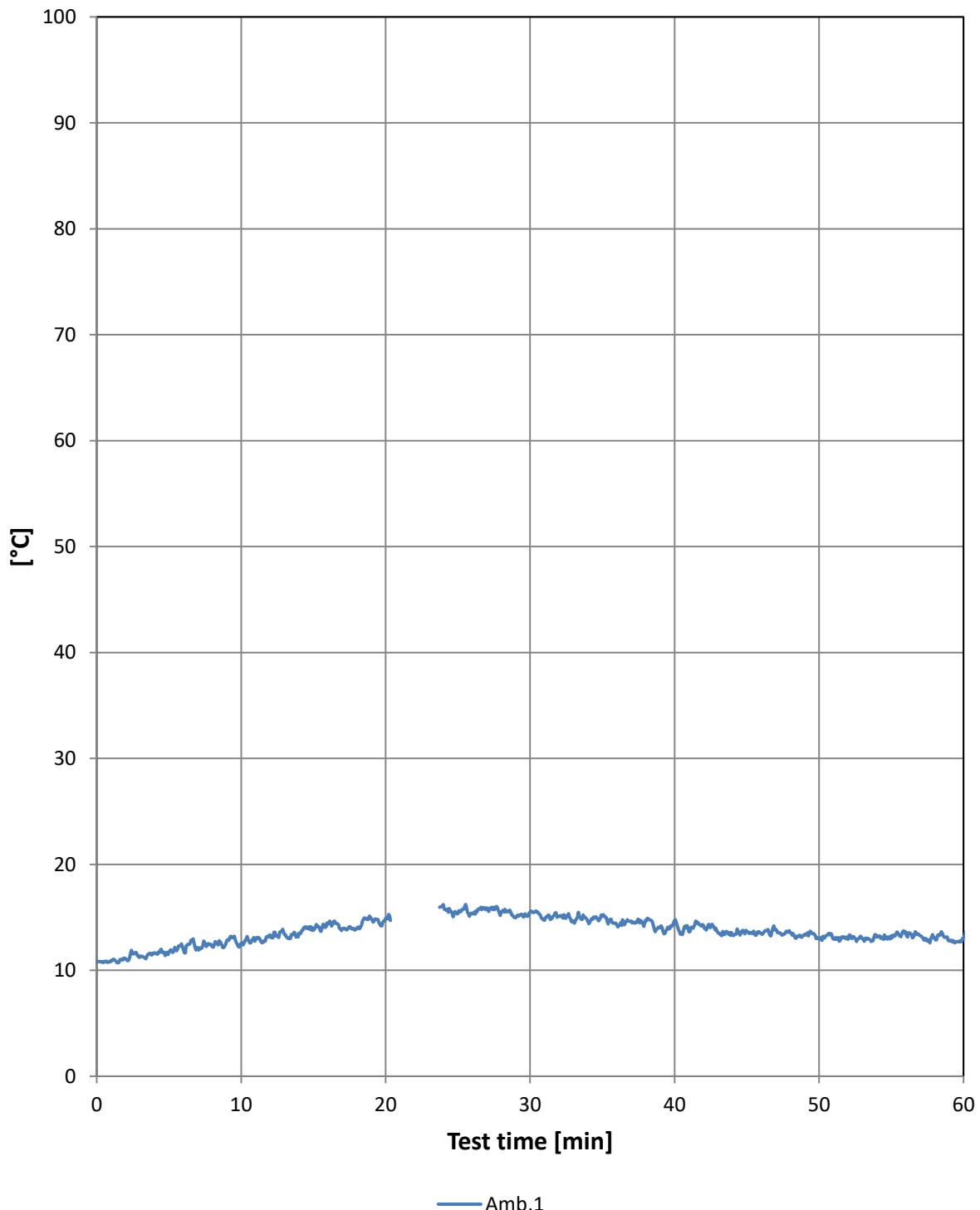
A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

Min. / °C	FPT.1	FPT.2	FPT.3	FPT.4
0	11	12	12	12
2	355	533	79	113
4	645	563	523	407
6	706	680	577	553
8	725	720	627	620
10	746	743	667	665
12	775	758	709	705
14	811	825	748	749
15	829	861	766	781
16	852	872	789	799
18	891	909	832	836
20	940	931	885	876
22	0	0	0	0
24	1041	957	980	989
26	856	924	924	930
28	826	867	885	904
30	816	768	875	841
32	743	725	820	822
34	700	694	792	802
36	675	643	765	755
38	608	623	733	734
40	604	569	719	708
42	568	537	678	668
44	539	520	659	650
46	488	487	630	625
48	479	468	616	609
50	457	456	601	594
52	445	428	587	580
54	423	415	571	566
56	404	397	556	552
58	391	388	544	541
60	368	376	530	528

FireChamberPlateTC.1 FireChamberPlateTC.2  
FireChamberTC.1 FirechamberTC.2

## Ambient temperature

*The ambient temperature in the laboratory during the test*



*A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23*

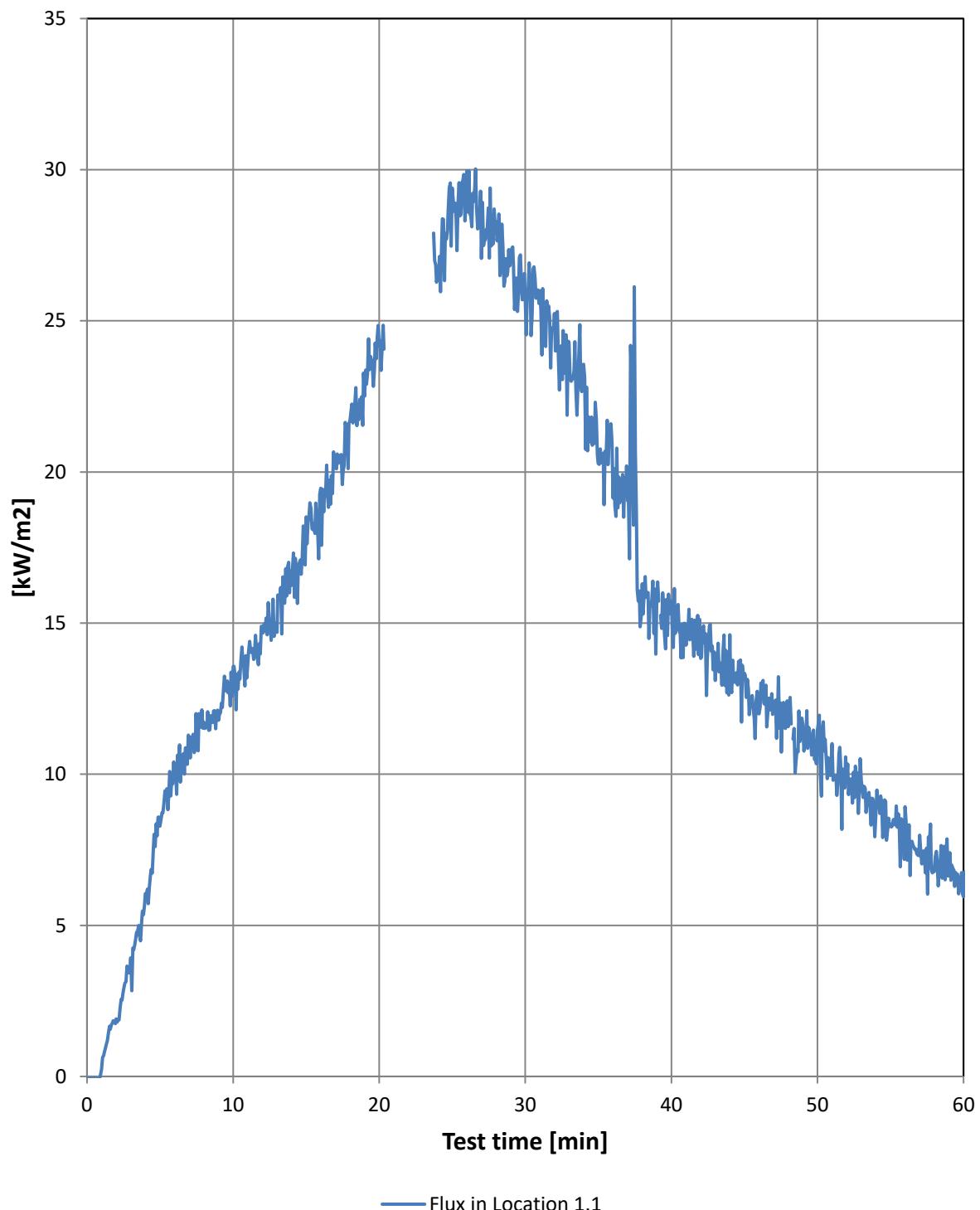
## Ambient temperature

*The ambient temperature in the laboratory during the test*

Min. / °C	Amb.1
0	11
2	11
4	12
6	12
8	12
10	13
12	13
14	14
15	14
16	14
18	14
20	15
22	0
24	16
26	15
28	16
30	15
32	15
34	15
36	14
38	15
40	15
42	14
44	13
46	13
48	14
50	13
52	13
54	13
56	14
58	13
60	13

*A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23*

## Flux in Location 1



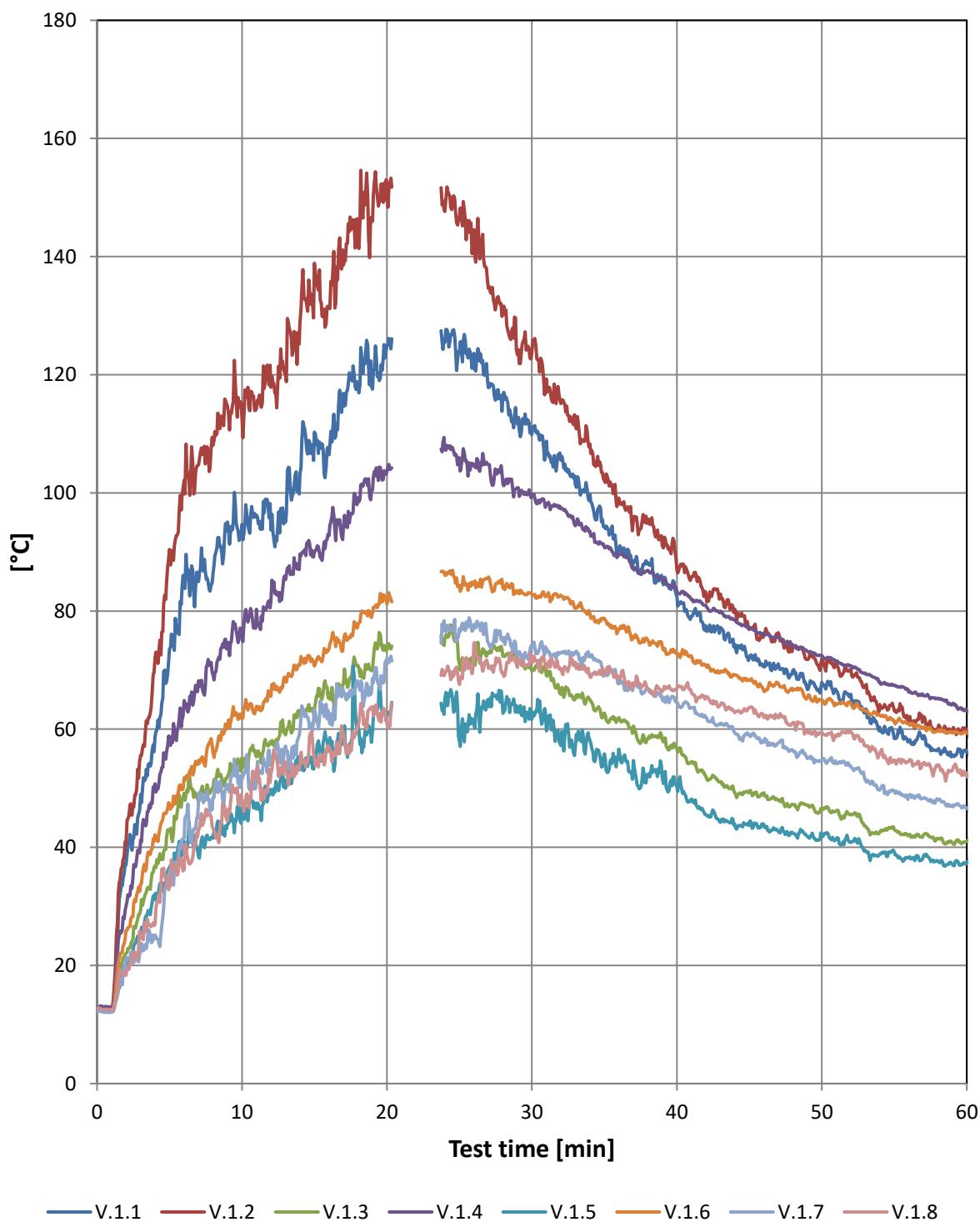
A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

## Flux in Location 1

Min. / kW/m <sup>2</sup>	Flux in Location 1.1
0	0
2	2
4	6
6	10
8	12
10	14
12	15
14	16
15	19
16	19
18	22
20	24
22	0
24	26
26	30
28	28
30	26
32	25
34	24
36	19
38	16
40	16
42	14
44	15
46	12
48	12
50	11
52	10
54	9
56	9
58	7
60	6

A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

## Temperature measured in the ventilated cavity



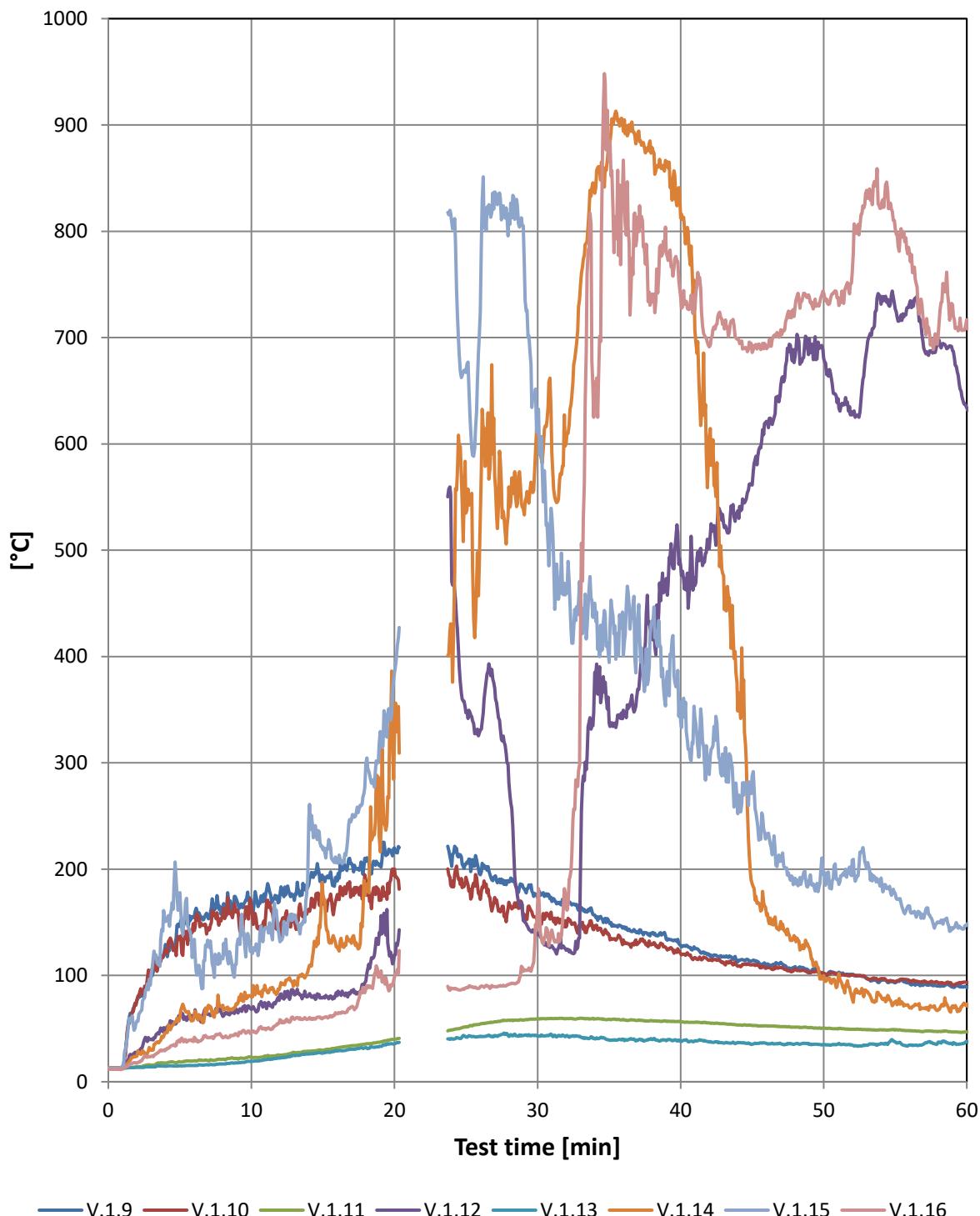
A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

## Temperature measured in the ventilated cavity

Min. / °C	V.1.1	V.1.2	V.1.3	V.1.4	V.1.5	V.1.6	V.1.7	V.1.8
0	13	13	13	13	13	12	12	13
2	37	41	22	30	20	26	21	18
4	59	72	37	51	32	42	25	27
6	85	102	49	65	41	52	42	36
8	86	108	50	69	42	56	48	43
10	95	112	55	76	47	62	52	48
12	94	118	57	82	50	66	54	53
14	103	129	62	90	53	71	60	54
15	110	139	63	90	54	71	63	55
16	106	131	65	93	56	74	62	57
18	118	142	71	99	61	78	68	61
20	125	152	74	104	63	81	72	61
22	0	0	0	0	0	0	0	0
24	125	148	75	107	65	86	77	69
26	124	145	71	105	61	85	78	75
28	116	130	72	101	63	84	75	70
30	110	124	70	100	62	83	74	72
32	106	115	66	97	57	83	73	70
34	100	108	65	93	58	80	72	69
36	90	99	62	90	57	77	68	69
38	88	95	58	87	52	75	67	67
40	82	87	57	83	50	73	65	67
42	77	83	52	81	46	71	62	65
44	74	80	49	78	44	69	59	63
46	71	76	49	76	44	66	58	62
48	70	74	47	74	42	67	56	61
50	68	72	47	73	42	65	55	59
52	66	70	45	71	41	64	54	60
54	60	64	43	68	39	62	50	56
56	58	62	42	66	38	61	49	55
58	57	60	41	65	38	60	48	54
60	56	59	41	63	37	59	47	53

A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

## Temperature measured in the ventilated cavity

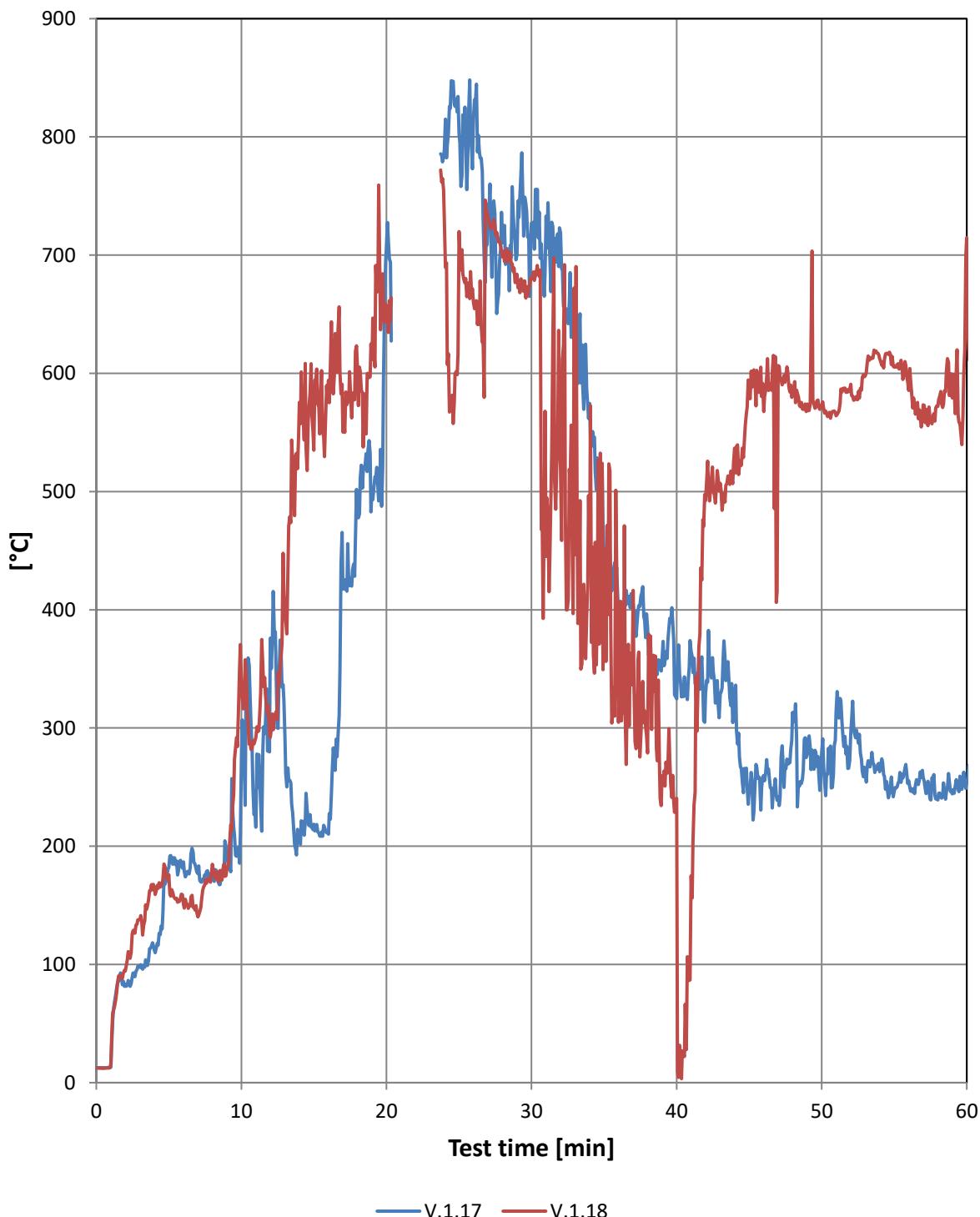


*A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23*

## Temperature measured in the ventilated cavity

Min. / °C	V.1.9	V.1.10	V.1.11	V.1.12	V.1.13	V.1.14	V.1.15	V.1.16
0	13	13	13	13	13	13	13	12
2	77	77	14	27	13	24	57	18
4	129	125	18	51	15	46	151	31
6	156	142	20	62	15	62	134	42
8	161	157	21	61	17	72	116	41
10	167	164	23	68	19	80	122	47
12	176	137	25	82	22	89	132	58
14	185	162	29	82	26	107	246	59
15	191	169	30	79	27	177	218	60
16	189	176	32	81	29	127	206	64
18	207	189	36	95	32	183	299	87
20	220	200	40	120	36	323	384	98
22	0	0	0	0	0	0	0	0
24	203	183	49	470	41	414	808	88
26	195	172	55	331	43	532	725	89
28	188	169	58	281	43	560	816	92
30	173	148	59	139	43	613	633	169
32	168	146	59	124	43	602	466	166
34	157	147	59	385	40	836	450	658
36	146	133	59	350	40	894	400	867
38	140	130	58	420	40	879	434	741
40	128	121	56	485	38	813	339	738
42	120	114	55	502	37	606	289	691
44	113	109	53	537	37	349	252	699
46	110	107	53	621	36	157	233	690
48	108	106	51	682	36	136	191	730
50	102	101	50	680	35	100	198	742
52	101	100	49	627	34	78	208	761
54	96	97	49	731	36	80	192	822
56	93	95	48	732	35	69	165	779
58	91	93	47	696	37	68	150	702
60	89	93	47	634	38	73	147	717

A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

**Temperature measured in the ventilated cavity**

A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

## Temperature measured in the ventilated cavity

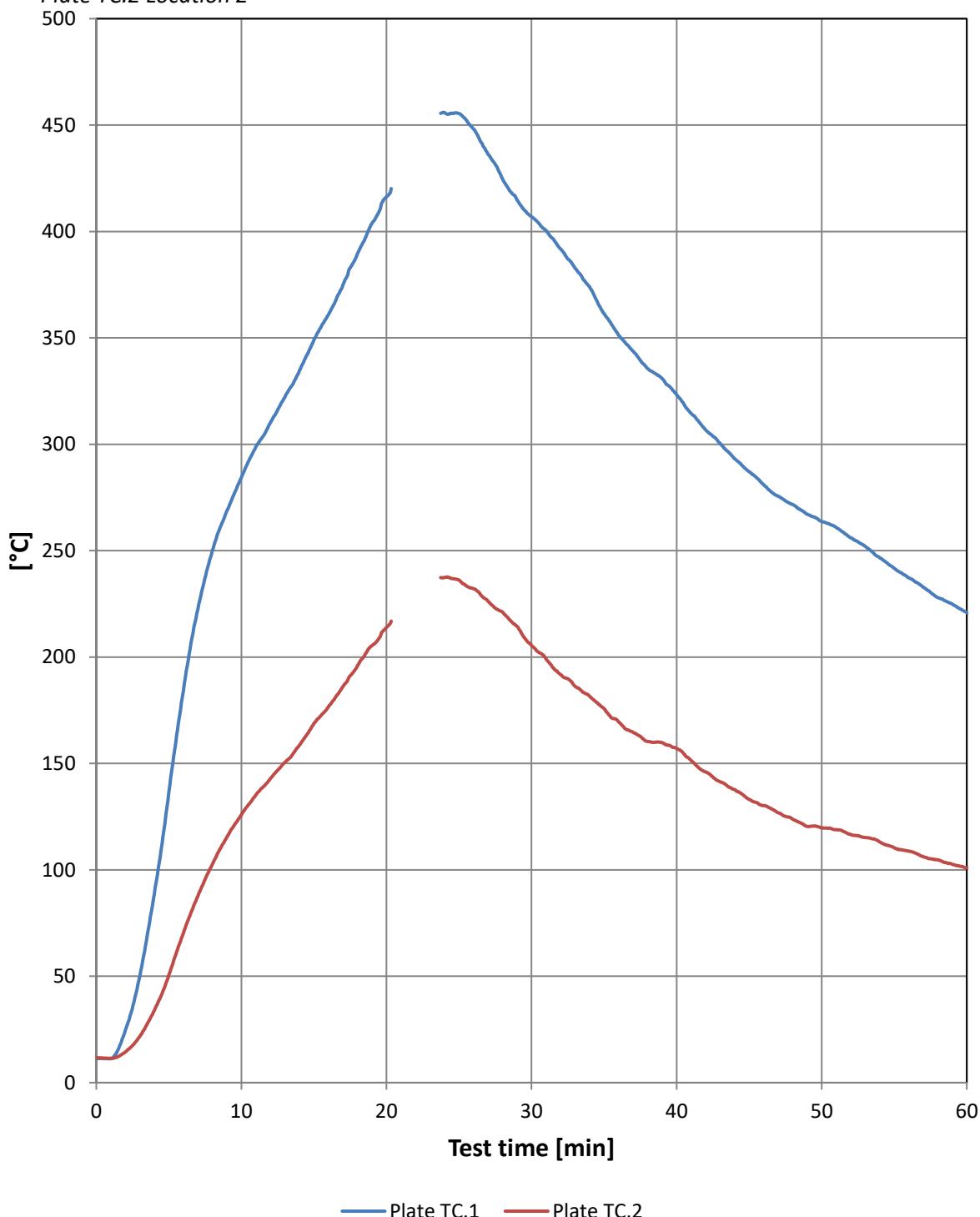
Min. / °C	V.1.17	V.1.18
0	12	12
2	83	94
4	112	164
6	187	151
8	174	185
10	275	336
12	376	292
14	205	575
15	219	535
16	210	594
18	480	607
20	707	651
22	0	0
24	790	729
26	816	660
28	710	699
30	727	680
32	719	519
34	575	432
36	401	305
38	385	279
40	325	241
42	329	492
44	330	537
46	260	568
48	313	582
50	279	573
52	296	591
54	263	612
56	255	585
58	239	572
60	254	715

A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

## Plate thermocouple

Plate TC.1 Location 1

Plate TC.2 Location 2



A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

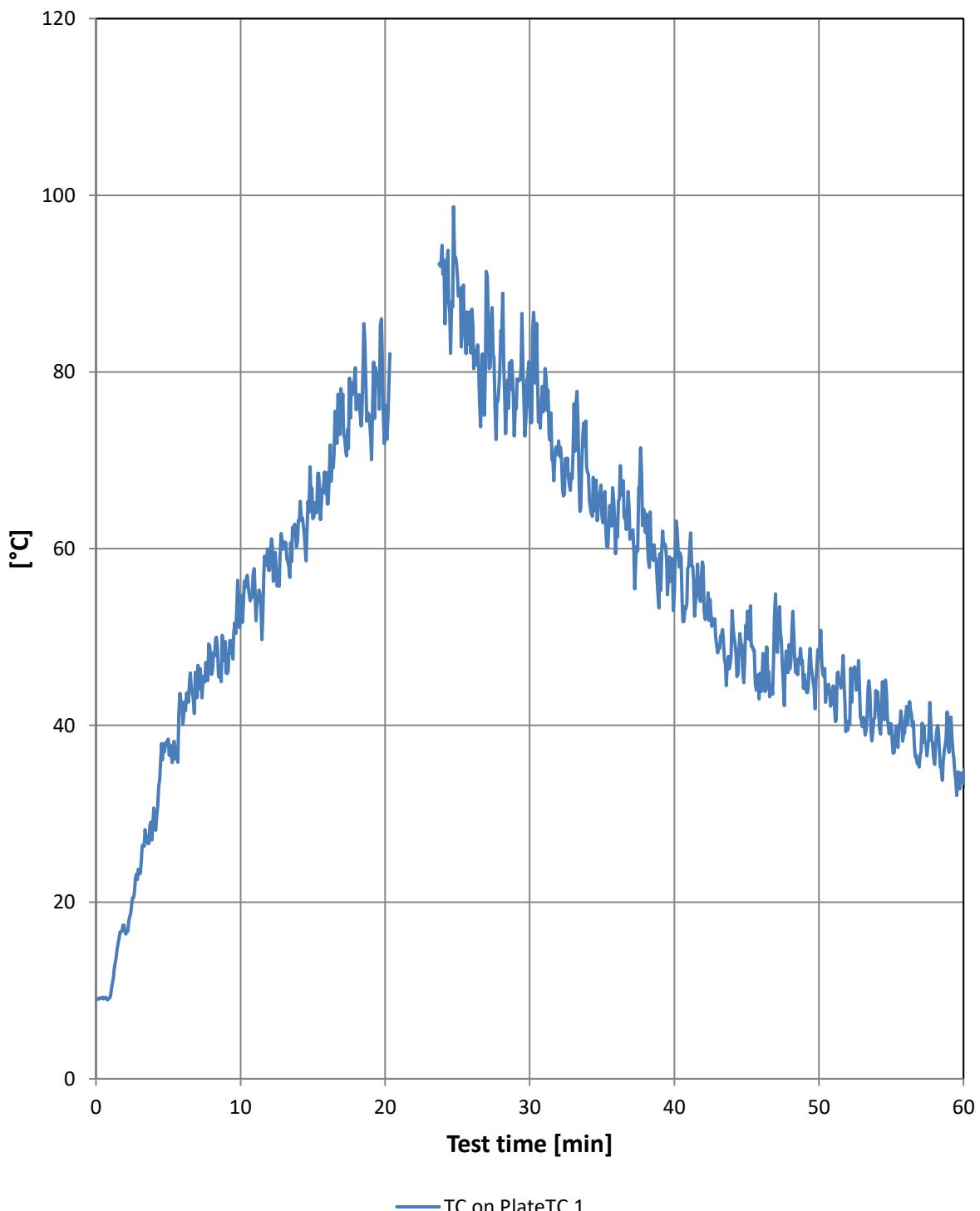
## Plate thermocouple

*Plate TC.1 Location 1*

*Plate TC.2 Location 2*

Min. / °C	Plate TC.1	Plate TC.2
0	11	12
2	25	14
4	89	34
6	184	70
8	250	103
10	284	126
12	310	143
14	335	159
15	349	169
16	361	177
18	389	196
20	416	214
22	0	0
24	456	237
26	448	232
28	425	221
30	407	206
32	392	192
34	374	182
36	351	170
38	336	160
40	323	157
42	307	146
44	293	138
46	281	130
48	272	124
50	264	120
52	256	117
54	247	113
56	237	109
58	228	105
60	221	101

*A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23*

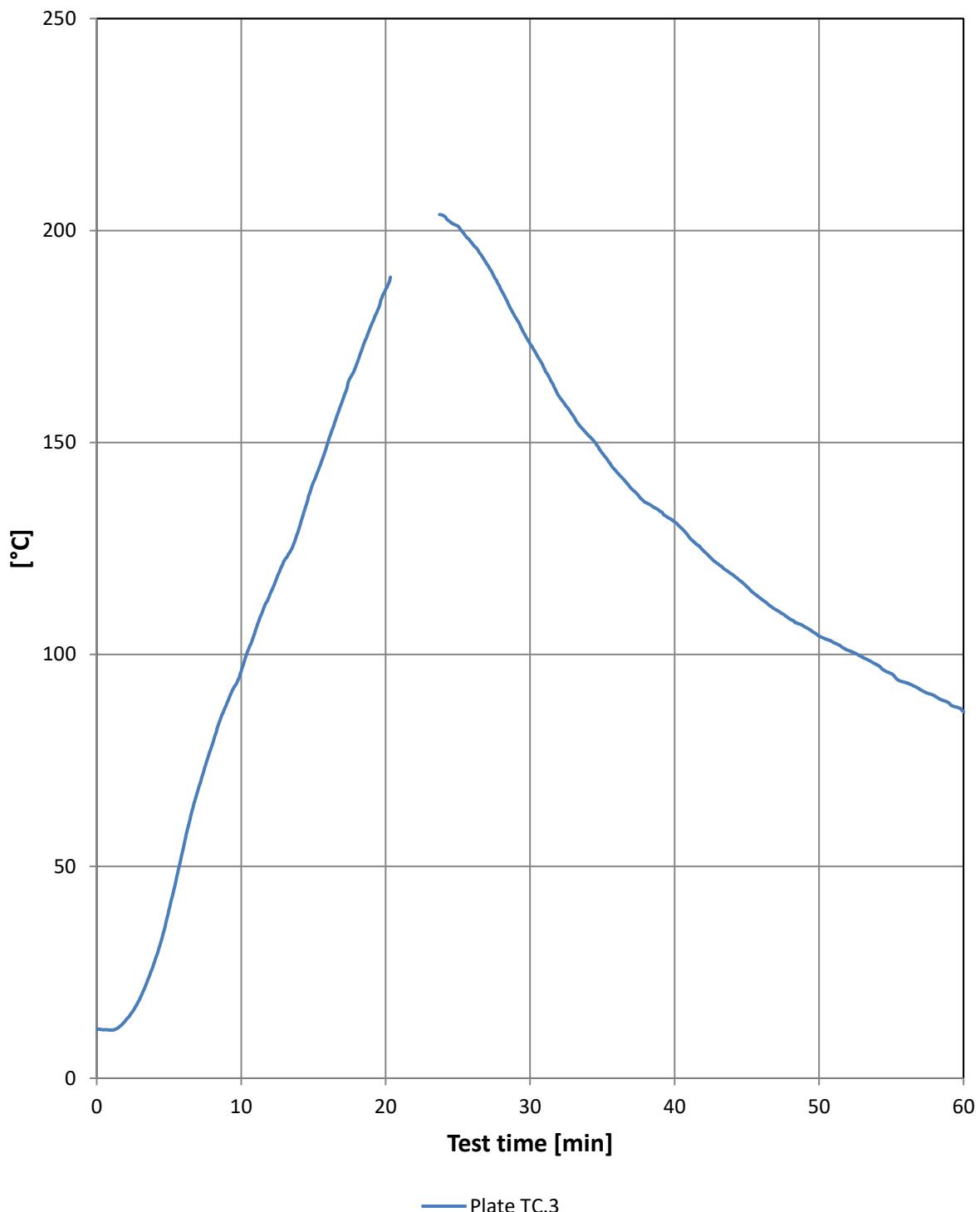
**Location 1 - TC on PlateTC**

*A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23*

## Location 1 - TC on PlateTC

Min. / °C	TC on PlateTC.1
0	9
2	17
4	31
6	40
8	46
10	55
12	58
14	63
15	63
16	65
18	76
20	76
22	0
24	91
26	87
28	85
30	76
32	72
34	69
36	62
38	62
40	55
42	58
44	53
46	44
48	46
50	48
52	39
54	42
56	41
58	36
60	33

A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

**Location 2. 5 m from facade 4.5 m height.**

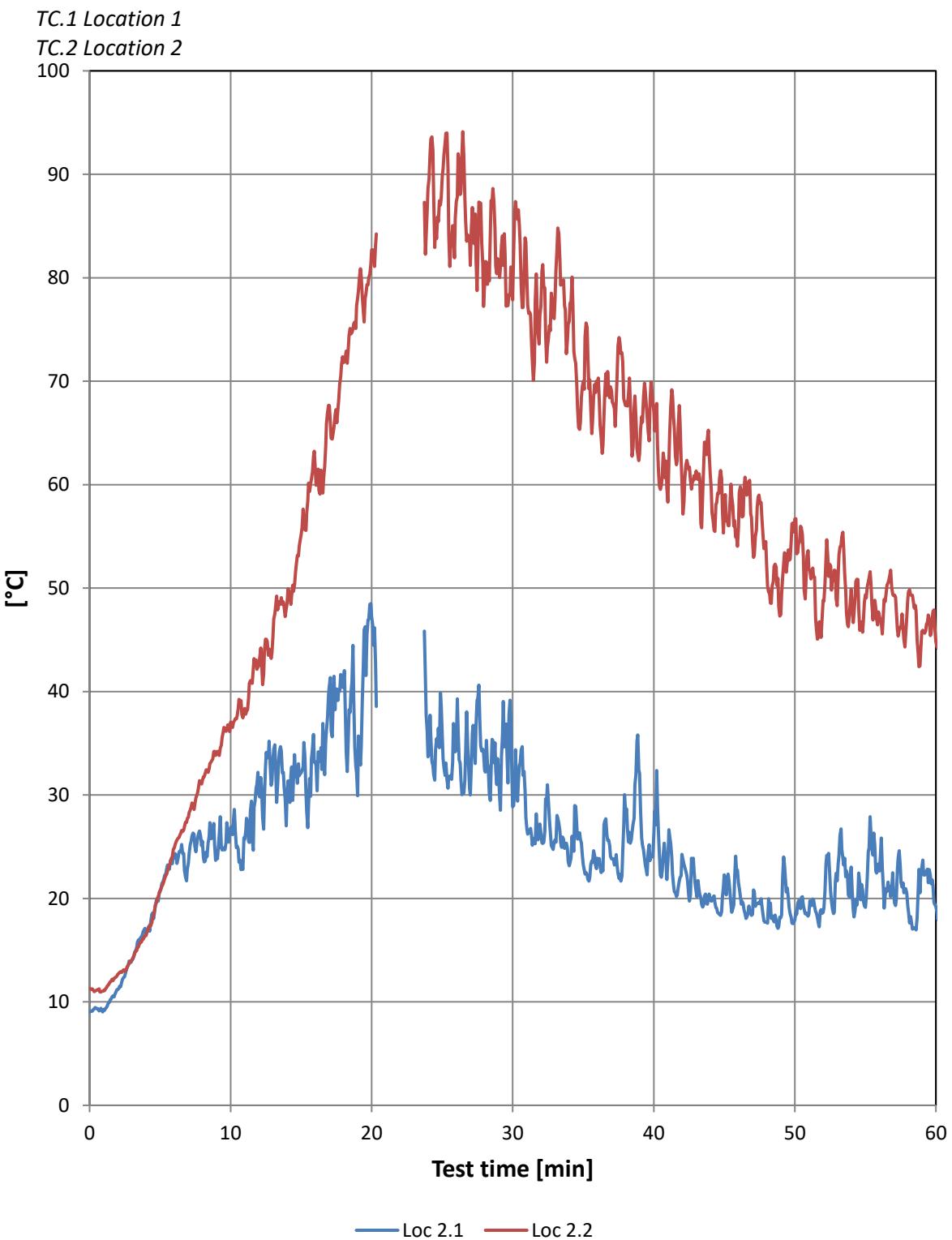
*A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23*

## Location 2. 5 m from facade 4.5 m height.

Min. / °C	Plate TC.3
0	12
2	14
4	27
6	54
8	79
10	96
12	114
14	130
15	141
16	150
18	169
20	186
22	0
24	204
26	197
28	186
30	173
32	161
34	152
36	143
38	136
40	131
42	124
44	119
46	113
48	108
50	104
52	101
54	98
56	93
58	90
60	86

A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

## Thermocouple



A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

## Thermocouple

*TC.1 Location 1*

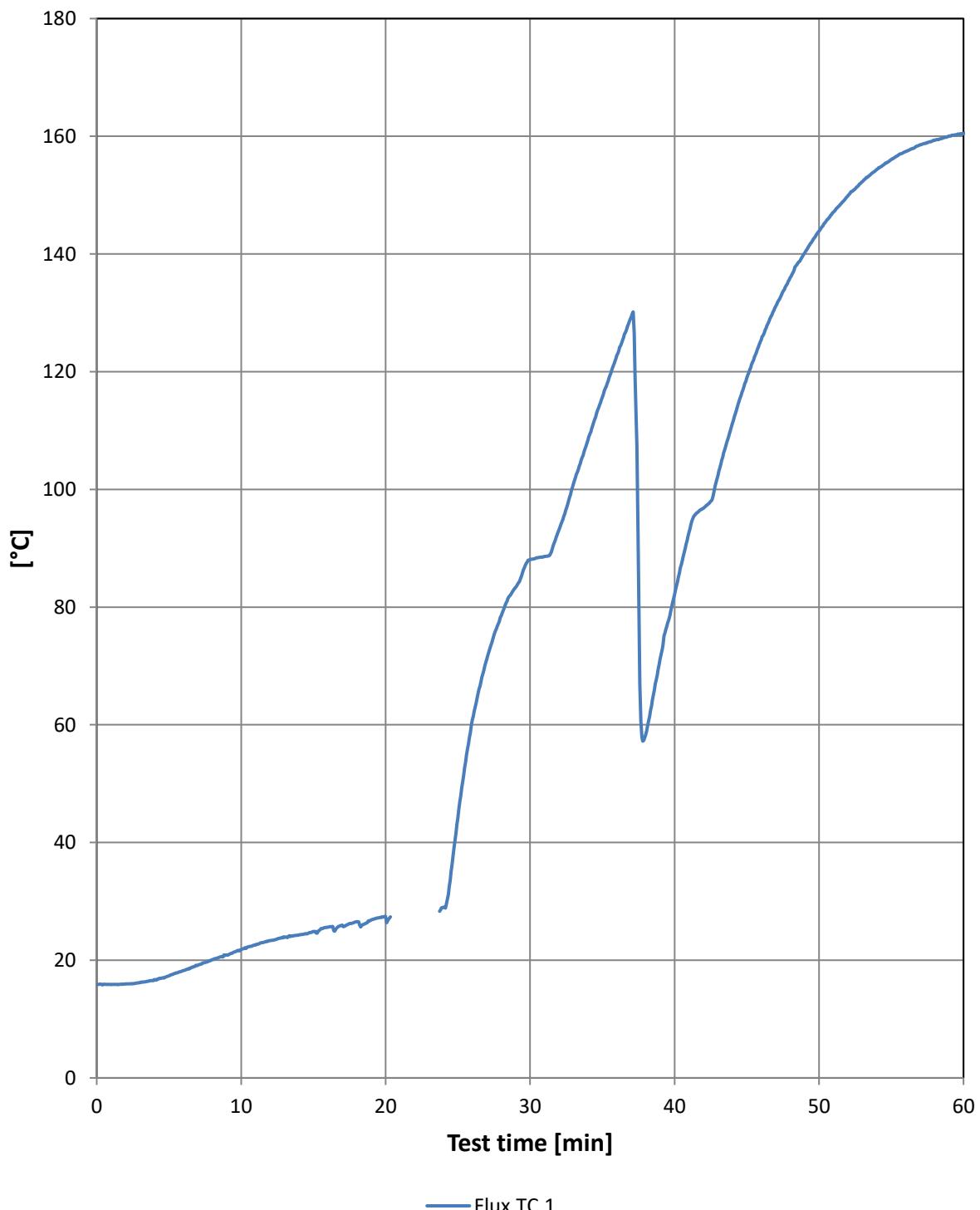
*TC.2 Location 2*

Min. / °C	Loc 2.1	Loc 2.2
0	9	11
2	11	13
4	17	16
6	24	25
8	26	31
10	27	37
12	30	42
14	30	48
15	32	55
16	33	61
18	41	72
20	47	83
22	0	0
24	34	89
26	34	87
28	32	79
30	29	78
32	26	77
34	23	76
36	24	70
38	28	68
40	26	67
42	24	60
44	20	61
46	21	56
48	18	52
50	18	57
52	19	49
54	23	50
56	23	47
58	19	49
60	19	45

*A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23*

## Flux TC

*Flux.TC.2 located 3 m from fire chamber*



*A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23*

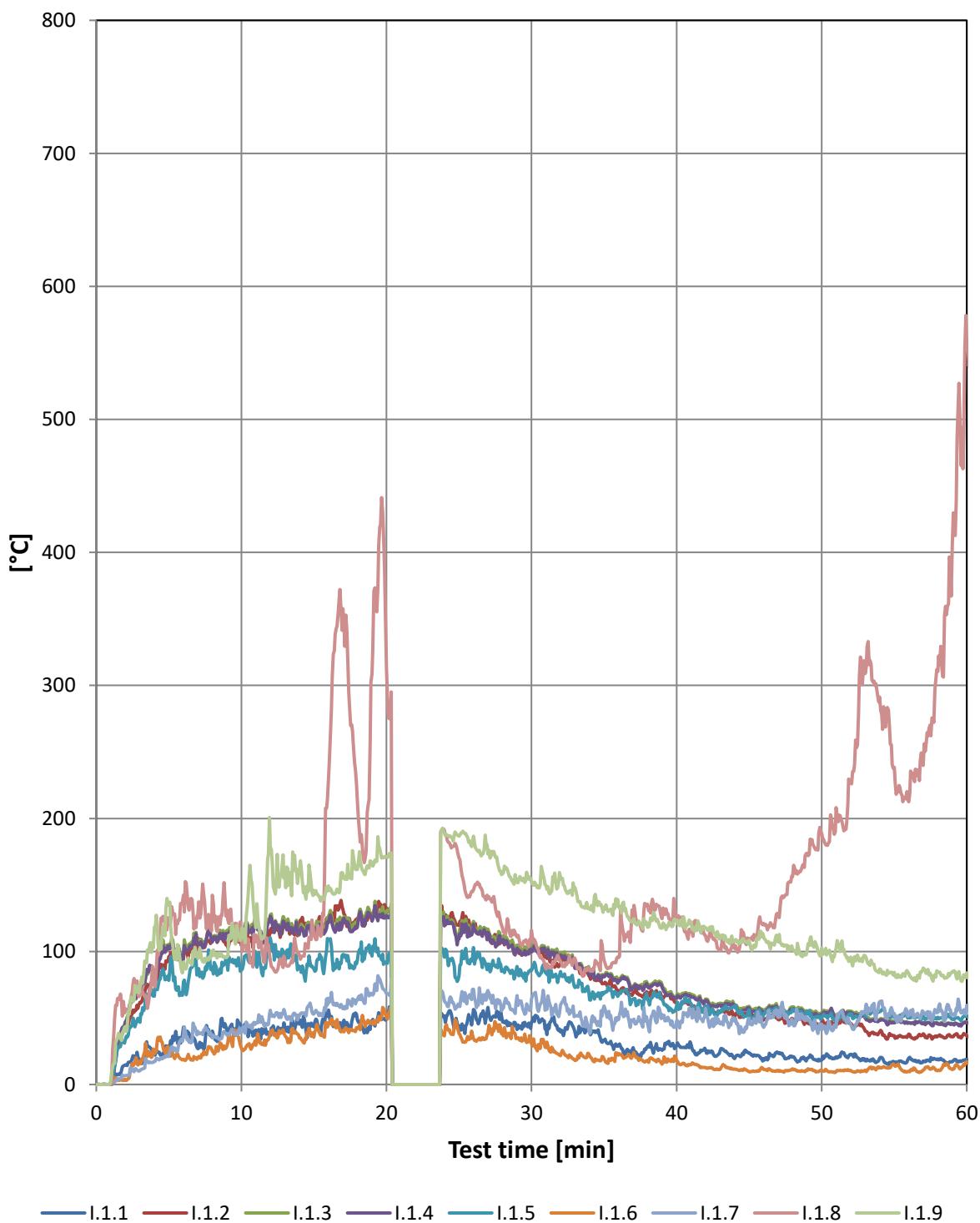
## Flux TC

*Flux.TC.2 located 3 m from fire chamber*

Min. / °C	Flux.TC.1
0	16
2	16
4	17
6	18
8	20
10	22
12	23
14	24
15	25
16	26
18	27
20	27
22	0
24	29
26	61
28	79
30	88
32	93
34	108
36	123
38	58
40	82
42	97
44	111
46	125
48	136
50	144
52	150
54	154
56	157
58	159
60	160

*A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23*

## Temperature rise measured 50mm from the facade



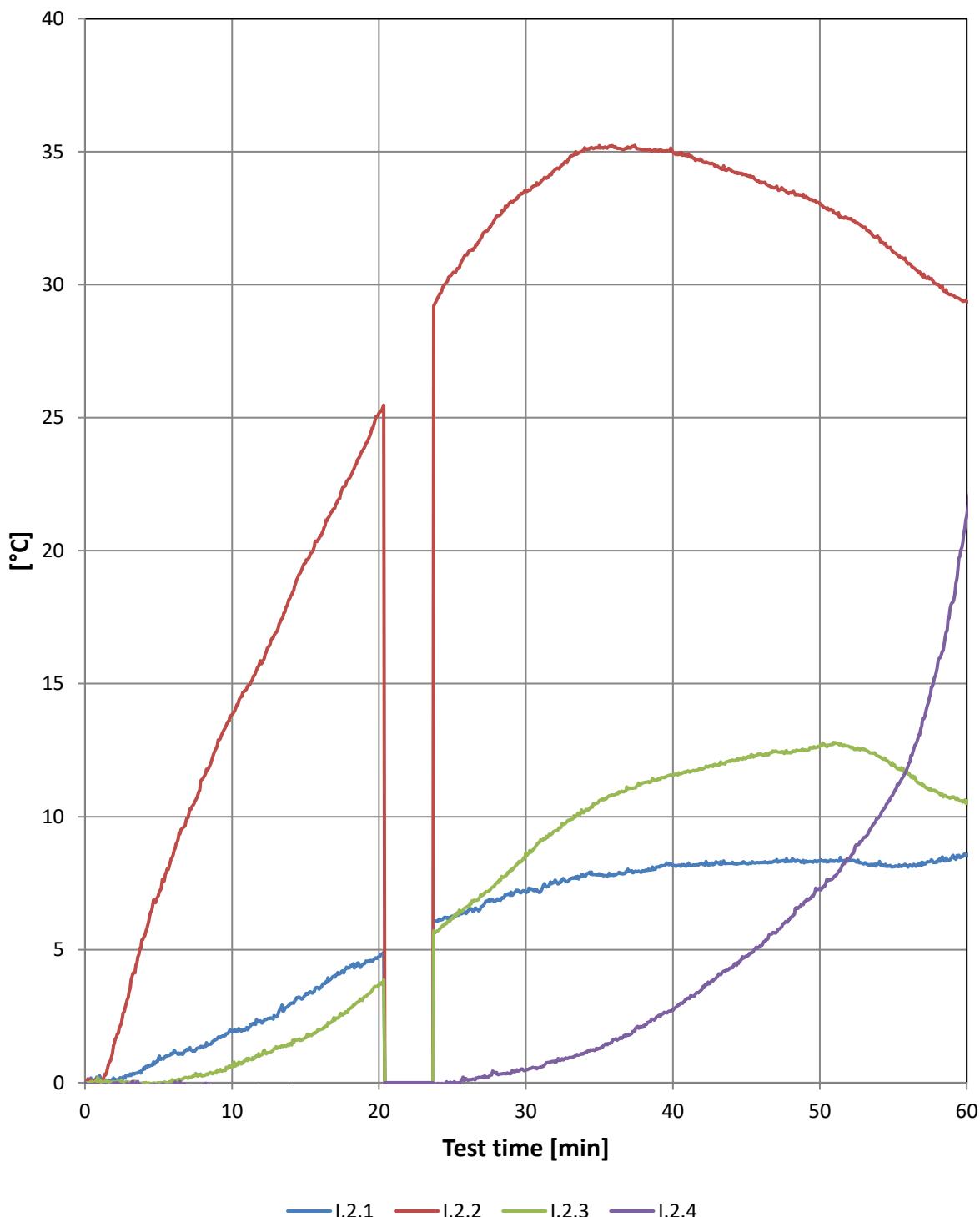
A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

## Temperature rise measured 50mm from the facade

Min. / °C	I.1.1	I.1.2	I.1.3	I.1.4	I.1.5	I.1.6	I.1.7	I.1.8	I.1.9
0	0	0	0	0	0	0	0	0	0
2	15	42	47	47	34	3	7	55	44
4	24	81	84	84	66	23	17	74	118
6	43	95	99	97	77	19	36	142	92
8	40	108	108	107	89	25	35	142	97
10	42	104	110	109	86	27	39	109	112
12	37	115	128	127	110	39	56	93	179
14	45	120	112	113	88	35	52	97	161
15	43	116	115	113	87	35	53	114	146
16	56	124	126	122	109	45	65	230	149
18	49	120	121	118	93	42	63	214	162
20	51	133	130	127	92	51	68	314	171
22	0	0	0	0	0	0	0	0	0
24	51	122	122	119	96	37	63	191	189
26	56	122	123	120	103	34	72	146	187
28	47	108	109	107	85	40	58	118	158
30	47	102	102	99	86	31	64	116	152
32	40	91	99	97	85	22	60	93	156
34	40	81	84	82	64	22	38	87	132
36	29	71	80	78	67	22	49	95	134
38	29	69	76	74	64	18	45	135	118
40	29	61	67	65	59	18	48	125	124
42	26	57	64	63	59	13	57	112	118
44	19	51	60	58	58	12	48	102	108
46	20	49	56	54	53	11	43	121	111
48	21	49	58	57	57	12	48	156	102
50	19	47	53	52	50	11	45	189	103
52	23	46	55	54	52	11	45	227	96
54	20	39	49	48	55	13	62	291	87
56	20	38	47	46	50	10	53	212	84
58	19	36	46	45	51	10	54	310	85
60	19	36	47	46	52	17	59	558	84

A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

## Temperature rise measured in ventilation layer

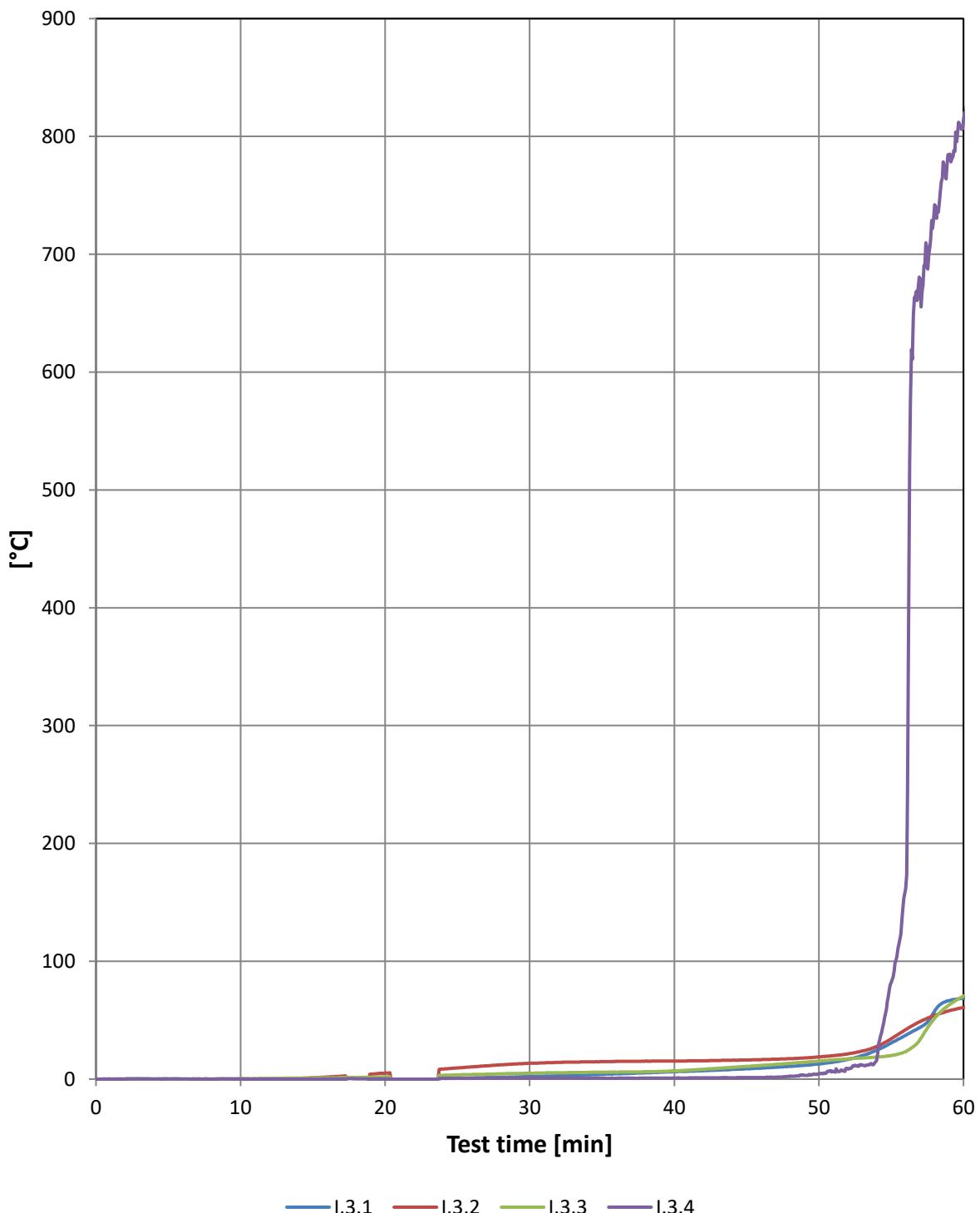


A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

## Temperature rise measured in ventilation layer

Min. / °C	I.2.1	I.2.2	I.2.3	I.2.4
0	0	0	0	0
2	0	1	0	0
4	1	5	0	0
6	1	9	0	0
8	1	11	0	0
10	2	14	1	0
12	2	16	1	0
14	3	18	1	0
15	3	20	2	0
16	4	21	2	0
18	4	23	3	0
20	5	25	4	0
22	0	0	0	0
24	6	30	6	0
26	6	31	7	0
28	7	33	7	0
30	7	34	9	0
32	8	34	9	1
34	8	35	10	1
36	8	35	11	2
38	8	35	11	2
40	8	35	12	3
42	8	35	12	4
44	8	34	12	4
46	8	34	12	5
48	8	33	12	6
50	8	33	13	7
52	8	32	13	8
54	8	32	12	10
56	8	31	12	12
58	8	30	11	16
60	9	29	11	21

A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

**Temperature rise measured in middle of insulation**

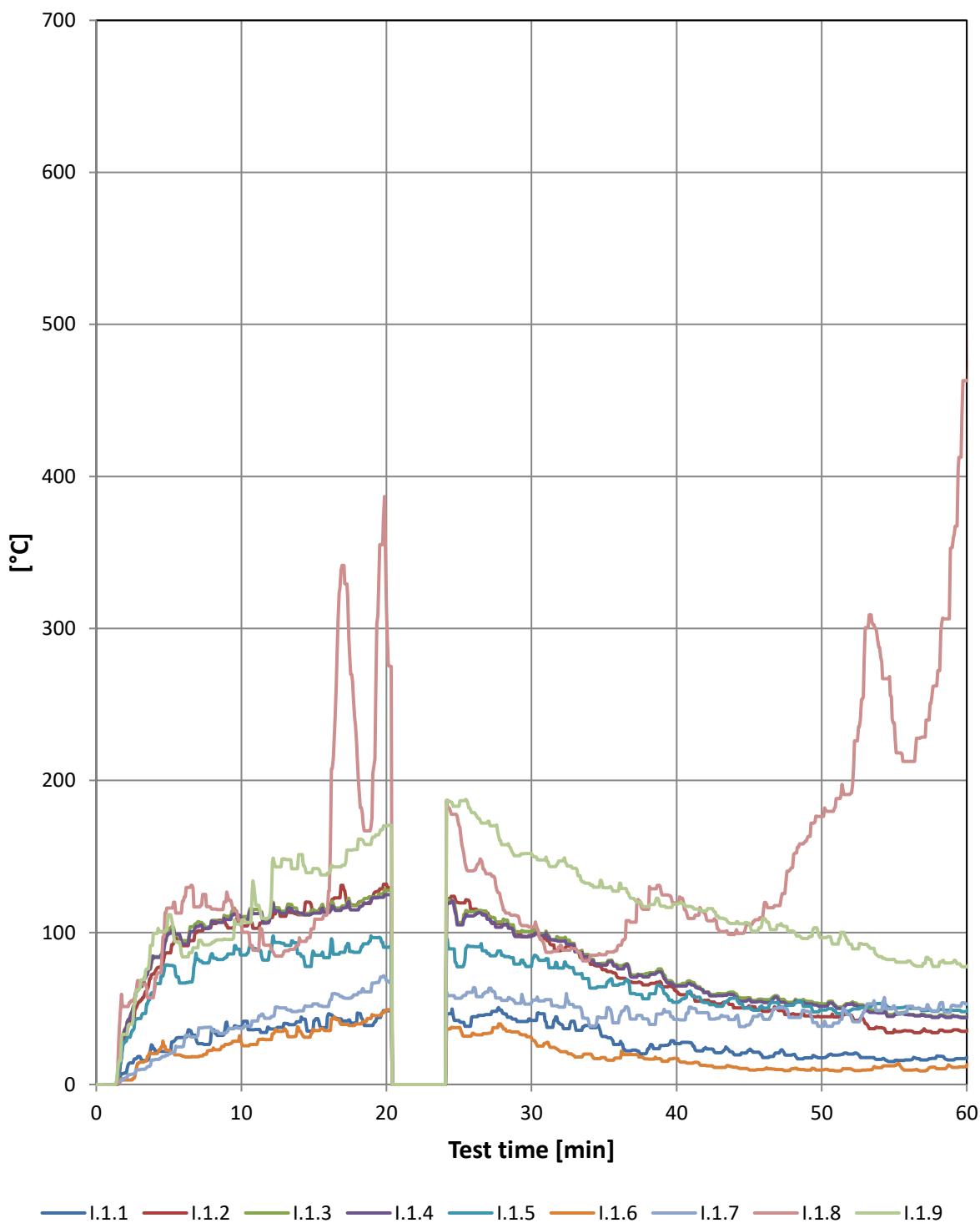
A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

## Temperature rise measured in middle of insulation

Min. / °C	I.3.1	I.3.2	I.3.3	I.3.4
0	0	0	0	0
2	0	0	0	0
4	0	0	0	0
6	0	0	0	0
8	0	0	0	0
10	0	0	0	0
12	0	0	1	0
14	0	1	1	0
15	0	1	1	0
16	0	2	1	0
18	-16	-15	1	0
20	0	5	2	0
22	0	0	0	0
24	1	9	3	1
26	1	10	4	1
28	2	12	4	1
30	2	13	5	1
32	3	14	5	1
34	4	15	6	1
36	4	15	6	1
38	5	15	6	1
40	6	15	7	1
42	7	16	8	1
44	8	16	10	1
46	9	17	12	1
48	11	17	13	3
50	13	19	15	4
52	17	21	17	9
54	24	28	19	16
56	37	42	23	161
58	58	54	52	742
60	69	61	70	813

A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

**Temperature rise measured according to the standard - 50 mm from facade. Minimum of 30 sec**



A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

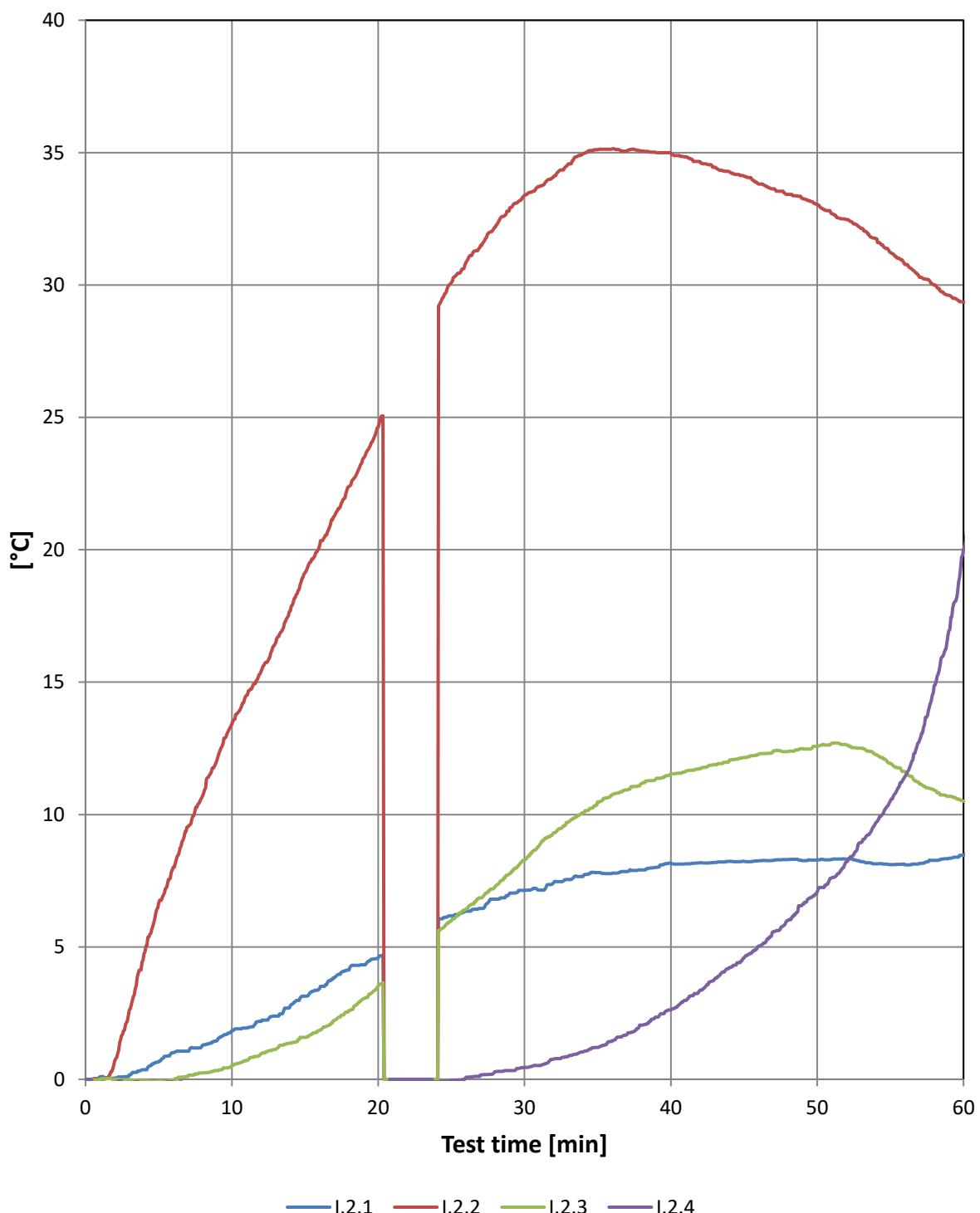
**Temperature rise measured according to the standard - 50 mm from facade. Minimum of 30 sec**

Min. / °C	I.1.1	I.1.2	I.1.3	I.1.4	I.1.5	I.1.6	I.1.7	I.1.8	I.1.9	I.1.Max
0	0	0	0	0	0	0	0	0	0	0
2	8	33	37	36	28	3	4	51	33	51
4	23	73	84	84	62	20	16	62	99	99
6	31	91	95	93	67	19	25	121	84	121
8	36	106	108	107	86	22	35	115	94	115
10	38	104	110	109	85	27	37	108	106	110
12	36	110	112	113	87	30	44	92	113	113
14	41	112	112	113	86	35	49	97	151	151
15	42	114	115	113	87	35	53	102	142	142
16	47	114	115	113	83	36	51	127	139	139
18	47	118	118	115	87	40	59	214	155	214
20	48	132	128	125	90	48	68	314	170	314
22	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0
26	45	115	114	111	91	34	64	140	179	179
28	47	106	107	105	85	38	55	118	158	158
30	42	98	101	97	78	31	54	104	152	152
32	40	88	96	94	77	22	51	92	147	147
34	39	81	84	82	64	20	38	83	132	132
36	26	70	78	76	65	17	41	92	127	127
38	23	66	73	71	56	17	43	115	117	117
40	27	61	65	65	54	17	43	119	119	119
42	24	55	61	60	54	13	47	112	114	114
44	19	50	60	58	57	11	43	99	106	106
46	18	48	56	54	50	10	43	116	109	116
48	20	47	54	53	52	10	44	143	101	143
50	18	45	53	51	49	9	38	176	97	176
52	20	46	54	53	49	10	45	192	92	192
54	16	37	49	47	53	11	49	287	84	287
56	16	35	46	46	50	9	51	212	81	212
58	19	34	45	44	48	10	48	272	78	272
60	17	35	45	44	48	13	53	463	77	463

Failure [min]	-	-	-	-	-	-	-	60.20	-	60.20
Failure°C	500	500	500	500	500	500	500	500	500	500

A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

**Temperature rise measured according to the standard - ventilation layer.  
Minimum of 30 sec**



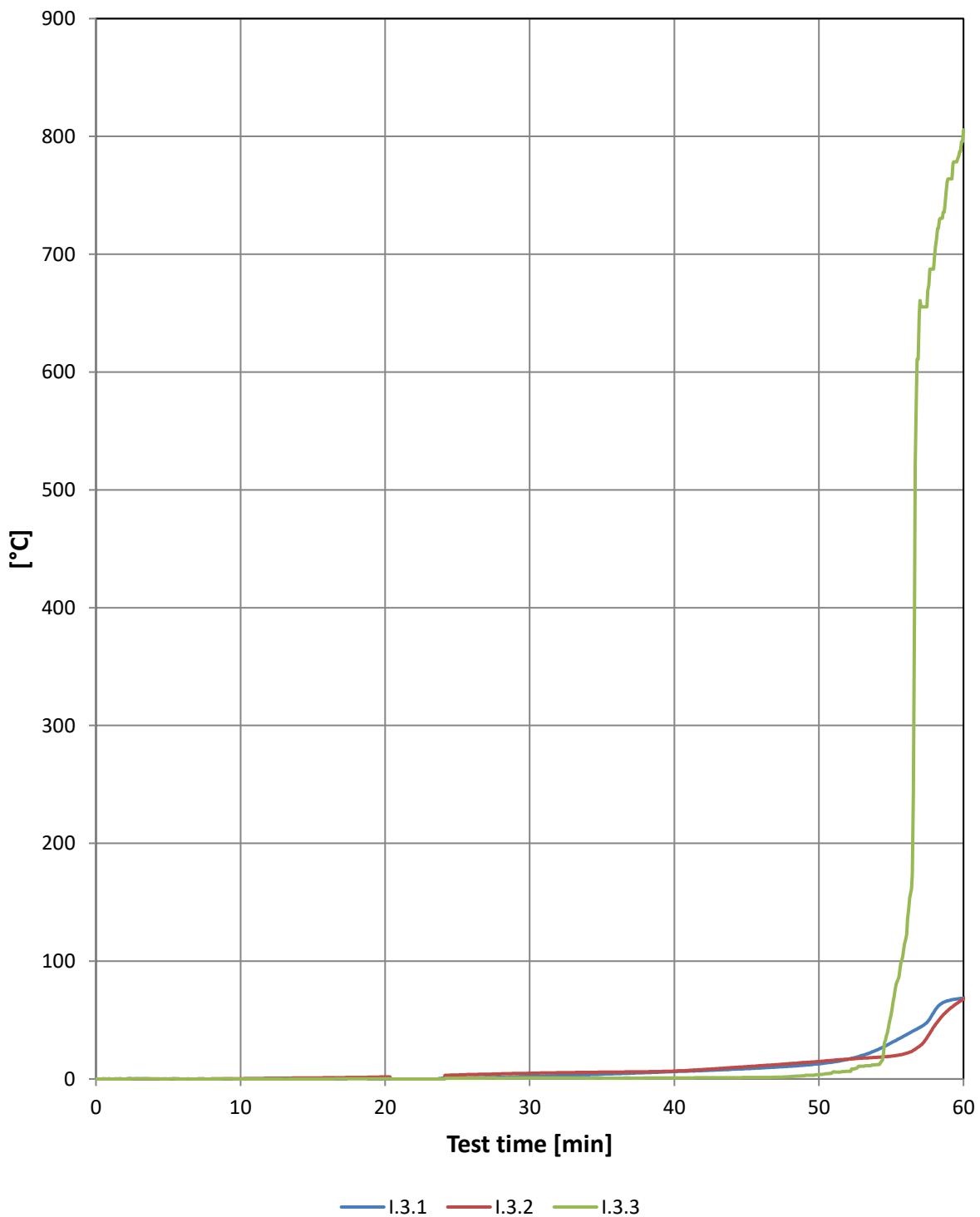
*A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23*

**Temperature rise measured according to the standard - ventilation layer.  
Minimum of 30 sec**

Min. / °C	I.2.1	I.2.2	I.2.3	I.2.4	I.2.Max
0	0	0	0	0	0
2	0	1	0	0	1
4	0	5	0	0	5
6	1	8	0	0	8
8	1	11	0	0	11
10	2	13	1	0	13
12	2	15	1	0	15
14	3	18	1	0	18
15	3	19	2	0	19
16	3	20	2	0	20
18	4	22	3	0	22
20	5	25	4	0	25
22	0	0	0	0	0
24	0	0	0	0	0
26	6	31	6	0	31
28	7	32	7	0	32
30	7	33	8	0	33
32	7	34	9	1	34
34	8	35	10	1	35
36	8	35	11	1	35
38	8	35	11	2	35
40	8	35	12	3	35
42	8	35	12	3	35
44	8	34	12	4	34
46	8	34	12	5	34
48	8	33	12	6	33
50	8	33	13	7	33
52	8	32	13	8	32
54	8	32	12	10	32
56	8	31	12	11	31
58	8	30	11	15	30
60	8	29	11	20	29

Failure [min]	-	-	-	-	-
Failure°C	500	500	500	500	500

A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

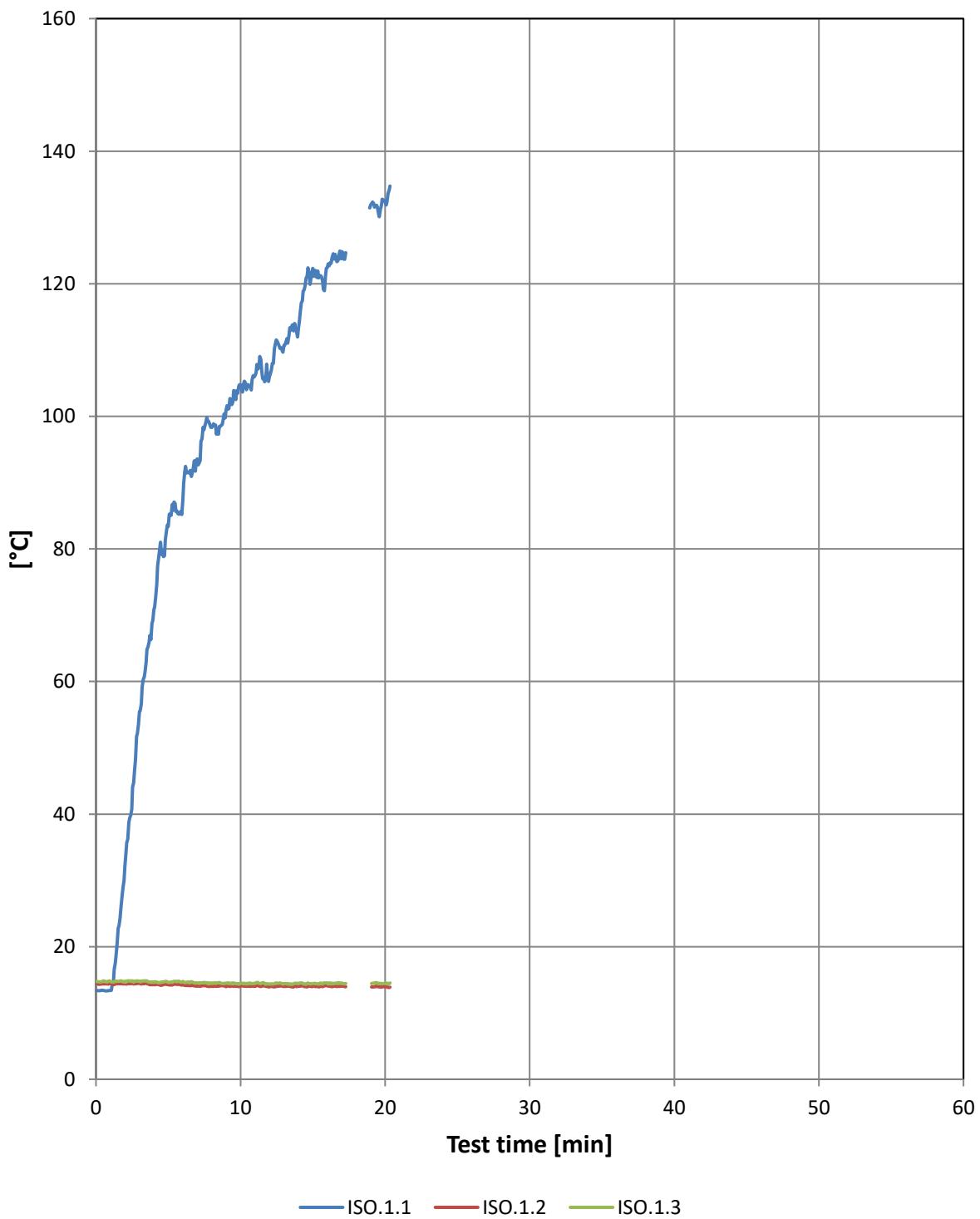
**Temperature rise measured according to the standard - in the middle of the insulation. Minimum of 30 sec***A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23*

**Temperature rise measured according to the standard - in the middle of the insulation. Minimum of 30 sec**

Min. / °C	I.3.1	I.3.2	I.3.3	I.3.Max
0	0	0	0	0
2	0	0	0	0
4	0	0	0	0
6	0	0	0	0
8	0	0	0	0
10	0	0	0	0
12	0	1	0	1
14	0	1	0	1
15	0	1	0	1
16	0	1	0	1
18	-16	1	0	1
20	0	2	0	5
22	0	0	0	0
24	1	0	0	8
26	1	4	1	10
28	2	4	1	12
30	2	5	1	13
32	3	5	1	14
34	4	6	1	15
36	4	6	1	15
38	5	6	1	15
40	6	7	1	15
42	7	8	1	16
44	8	10	1	16
46	9	11	1	16
48	11	13	2	17
50	13	15	4	19
52	17	17	7	21
54	24	18	12	26
56	37	22	118	118
58	58	45	700	700
60	69	68	805	805

Failure [min]	-	-	56.60	56.60
Failure°C	500	500	500	500

A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

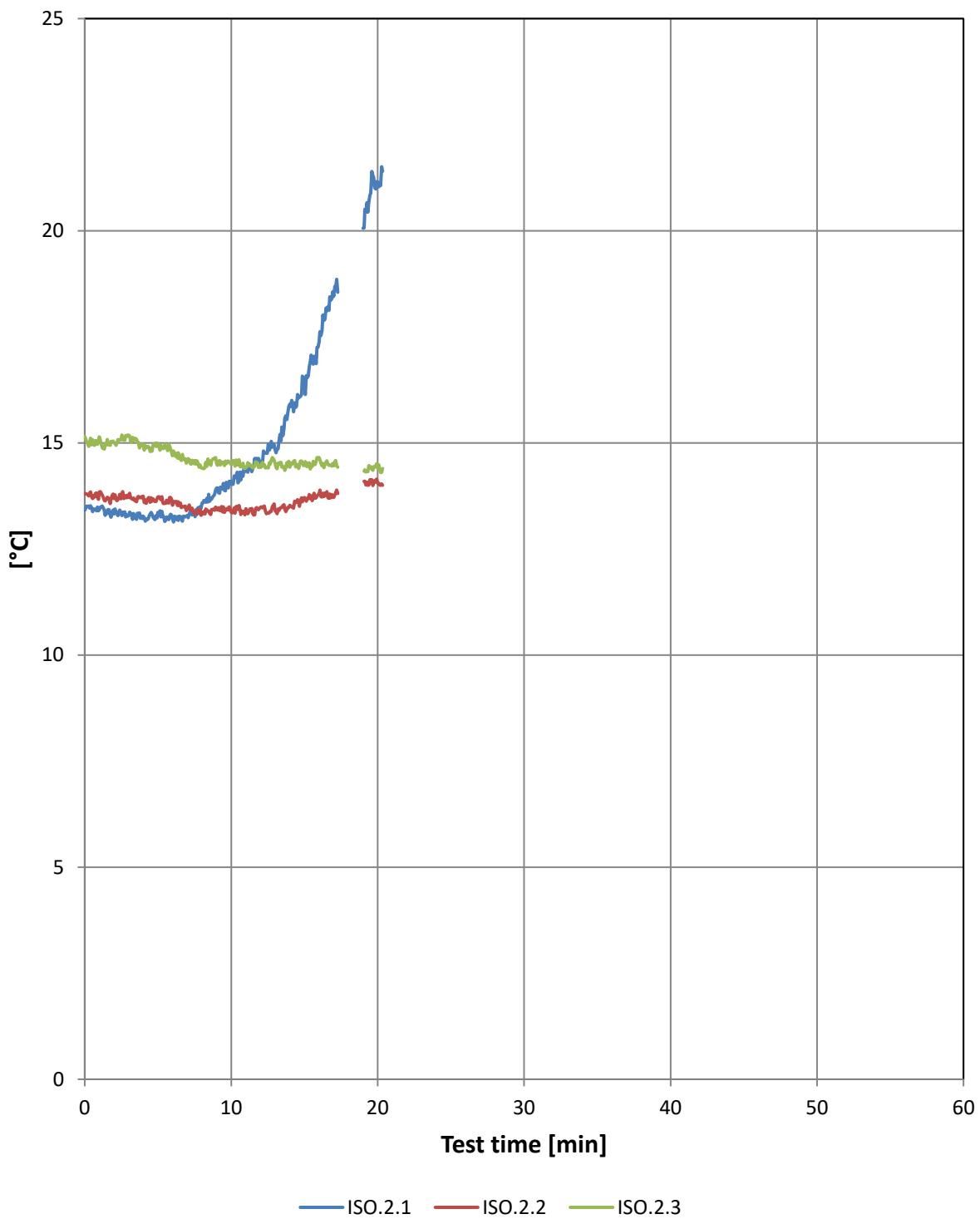
**Temperature measured behind windbreaker**

*All ISO failed due to mechanical failure after 16 minutes of testing*

## Temperature measured behind windbreaker

Min. / °C	ISO.1.1	ISO.1.2	ISO.1.3
0	13	15	15
2	32	14	15
4	71	14	15
6	87	14	15
8	98	14	15
10	105	14	14
12	106	14	14
14	113	14	14
15	122	14	14
16	122	14	15
18	0	0	0
20	132	14	15
22	0	0	0
24	0	0	0
26	0	0	0
28	0	0	0
30	0	0	0
32	0	0	0
34	0	0	0
36	0	0	0
38	0	0	0
40	0	0	0
42	0	0	0
44	0	0	0
46	0	0	0
48	0	0	0
50	0	0	0
52	0	0	0
54	0	0	0
56	0	0	0
58	0	0	0
60	0	0	0

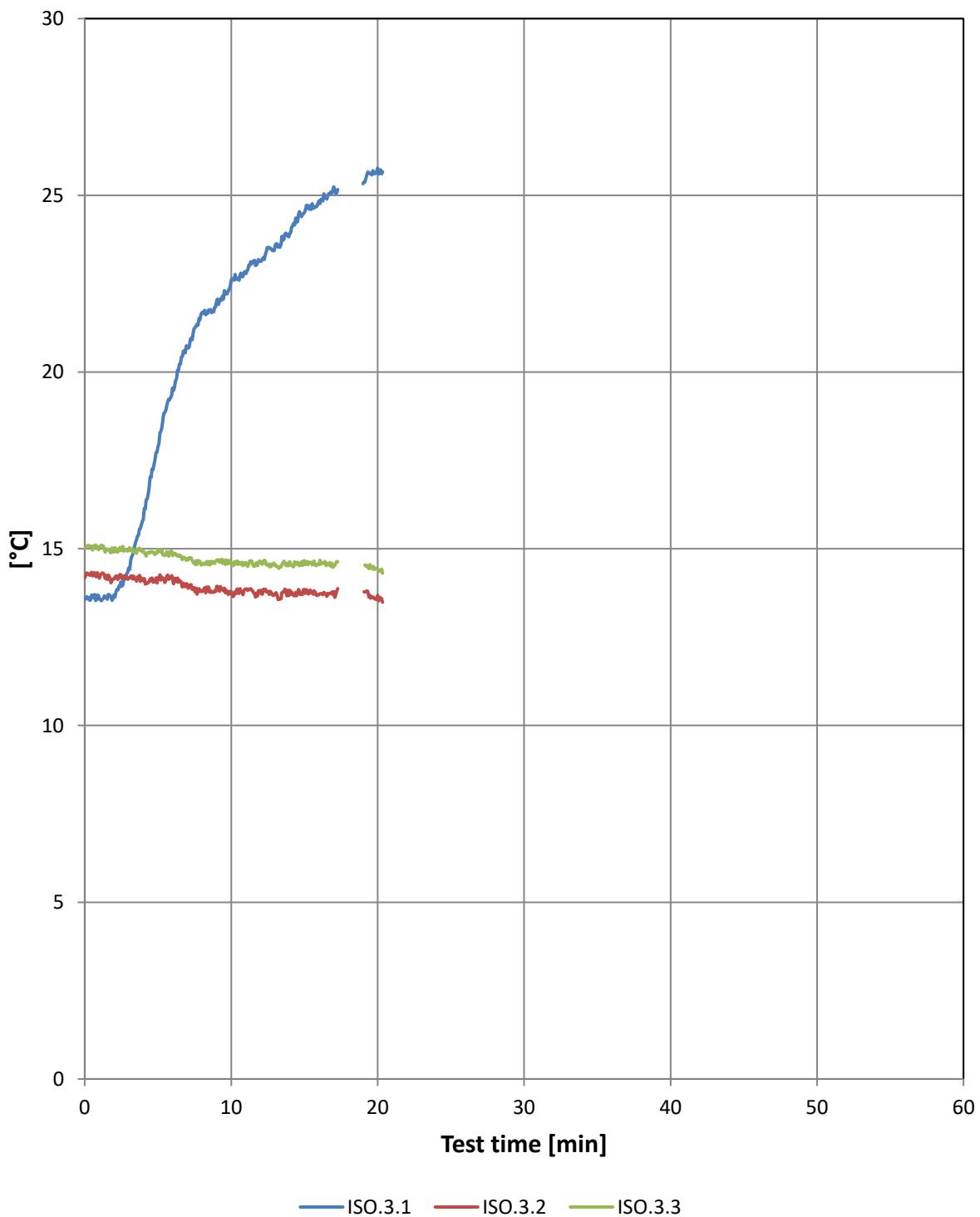
All ISO failed due to mechanical failure after 16 minutes of testing

**Temperature measured back side of insulation***All ISO failed due to mechanical failure after 16 minutes of testing*

## Temperature measured back side of insulation

Min. / °C	ISO.2.1	ISO.2.2	ISO.2.3
0	13	14	15
2	13	14	15
4	13	14	15
6	13	14	15
8	14	13	14
10	14	13	14
12	15	13	14
14	16	14	14
15	16	14	14
16	17	14	15
18	0	0	0
20	21	14	14
22	0	0	0
24	0	0	0
26	0	0	0
28	0	0	0
30	0	0	0
32	0	0	0
34	0	0	0
36	0	0	0
38	0	0	0
40	0	0	0
42	0	0	0
44	0	0	0
46	0	0	0
48	0	0	0
50	0	0	0
52	0	0	0
54	0	0	0
56	0	0	0
58	0	0	0
60	0	0	0

All ISO failed due to mechanical failure after 16 minutes of testing

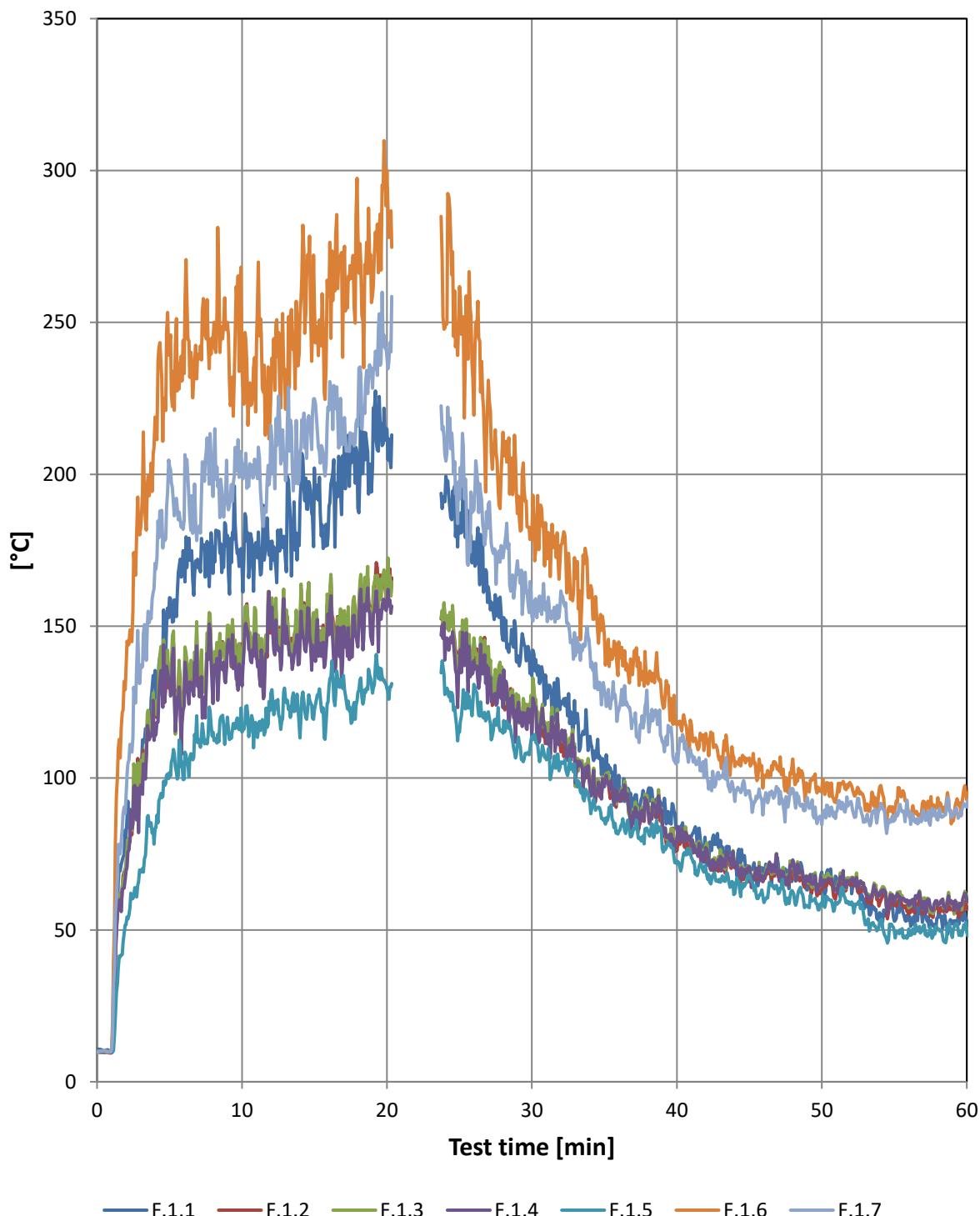
**Temperature measured middle of insulation***All ISO failed due to mechanical failure after 16 minutes of testing*

## Temperature measured middle of insulation

Min. / °C	ISO.3.1	ISO.3.2	ISO.3.3
0	14	14	15
2	14	14	15
4	16	14	15
6	20	14	15
8	22	14	15
10	23	14	15
12	23	14	15
14	24	14	15
15	25	14	15
16	25	14	15
18	0	0	0
20	26	14	14
22	0	0	0
24	0	0	0
26	0	0	0
28	0	0	0
30	0	0	0
32	0	0	0
34	0	0	0
36	0	0	0
38	0	0	0
40	0	0	0
42	0	0	0
44	0	0	0
46	0	0	0
48	0	0	0
50	0	0	0
52	0	0	0
54	0	0	0
56	0	0	0
58	0	0	0
60	0	0	0

All ISO failed due to mechanical failure after 16 minutes of testing

## Vertical measurements on main facade



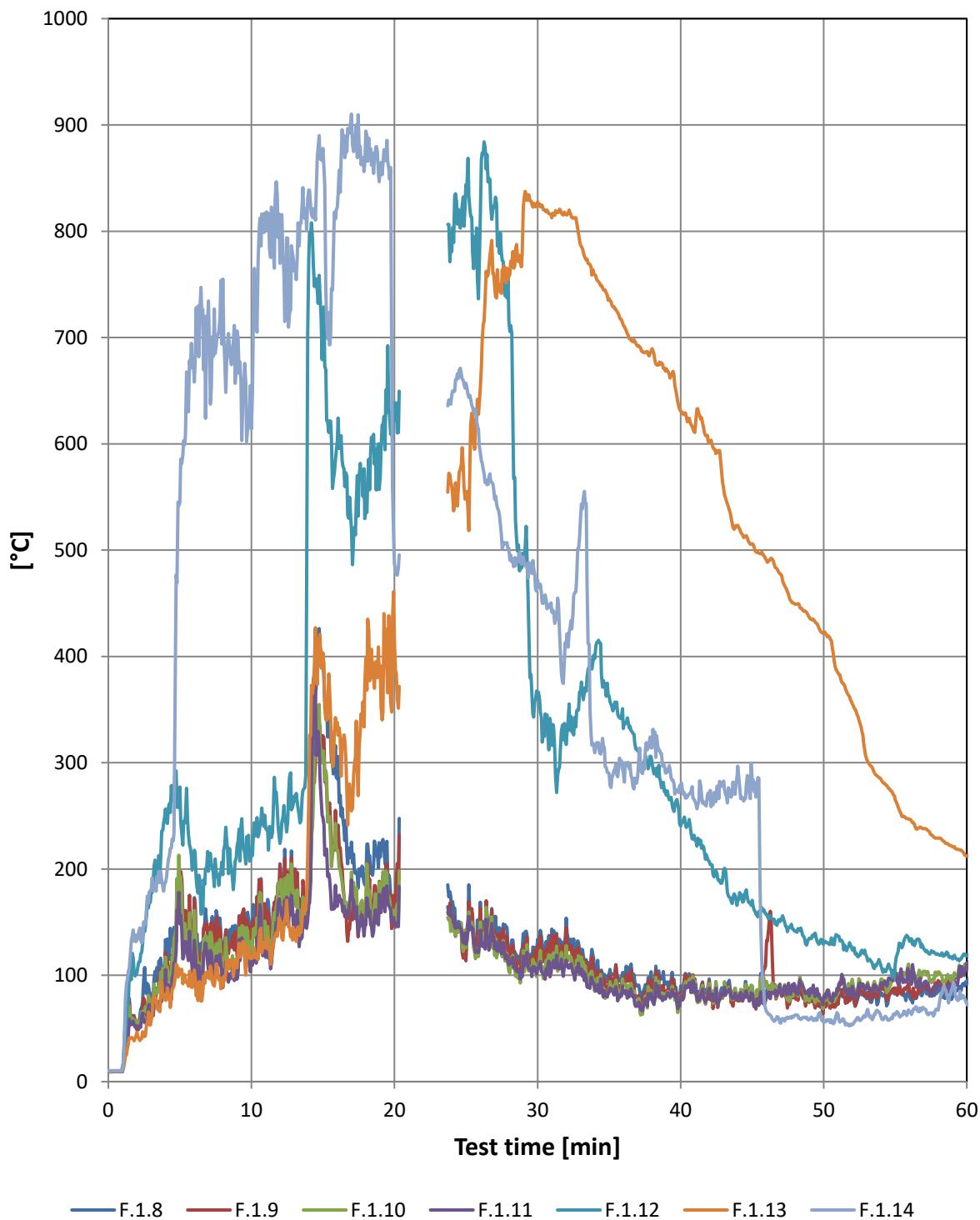
A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

## Vertical measurements on main facade

Min. / °C	F.1.1	F.1.2	F.1.3	F.1.4	F.1.5	F.1.6	F.1.7
0	11	10	10	10	10	10	10
2	80	71	72	69	52	136	94
4	135	124	123	115	84	219	171
6	171	129	130	124	100	233	185
8	167	133	133	125	115	244	193
10	169	139	137	130	115	234	204
12	169	148	154	149	128	226	216
14	190	146	148	143	113	252	207
15	202	152	153	143	122	256	225
16	190	155	154	147	130	259	221
18	189	152	148	143	128	280	216
20	215	161	160	156	129	300	238
22	0	0	0	0	0	0	0
24	191	153	149	139	128	248	207
26	178	143	146	139	131	219	188
28	145	127	126	123	115	214	173
30	134	115	116	113	114	178	153
32	125	109	115	114	105	177	162
34	114	97	99	97	92	160	142
36	101	93	94	93	83	145	122
38	96	91	92	91	83	131	121
40	83	76	79	79	72	118	108
42	77	75	78	77	70	115	106
44	72	71	73	70	62	104	92
46	69	67	68	67	59	101	92
48	70	68	72	73	63	106	96
50	69	63	64	64	58	97	85
52	67	65	67	67	58	98	92
54	56	59	62	62	53	97	90
56	54	55	57	58	50	88	88
58	54	57	58	58	50	94	86
60	53	57	61	60	49	93	90

A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

## Vertical measurements on main facade



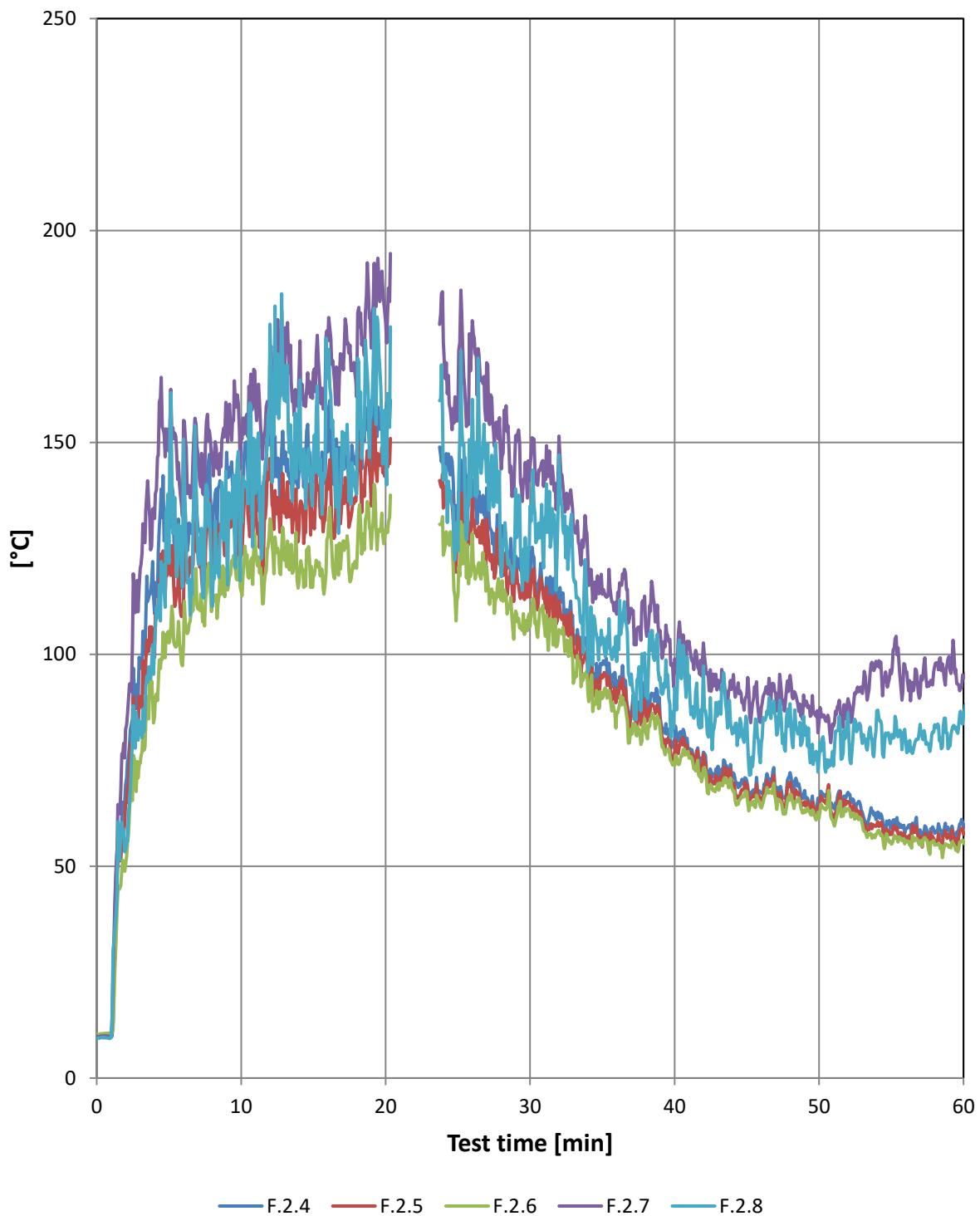
A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

## Vertical measurements on main facade

Min. / °C	F.1.8	F.1.9	F.1.10	F.1.11	F.1.12	F.1.13	F.1.14
0	9	9	9	10	10	10	10
2	51	48	58	51	102	46	133
4	133	121	117	105	256	76	187
6	173	172	161	133	218	105	658
8	110	102	98	88	195	90	755
10	146	147	132	119	219	119	614
12	205	203	187	163	224	152	770
14	185	228	193	166	775	263	839
15	398	325	311	249	718	404	878
16	285	234	217	165	602	338	823
18	189	167	162	148	538	398	894
20	160	153	150	149	622	415	487
22	0	0	0	0	0	0	0
24	158	143	144	154	781	560	646
26	169	163	150	143	813	652	592
28	116	109	104	110	716	757	502
30	134	127	108	107	366	828	472
32	154	145	128	114	317	816	409
34	94	85	85	87	398	759	309
36	99	93	91	85	332	711	290
38	90	83	78	78	299	690	314
40	90	84	81	80	240	631	279
42	96	94	93	88	207	601	266
44	79	76	77	77	171	523	297
46	86	133	94	81	158	491	66
48	90	86	90	89	142	449	63
50	73	73	80	79	130	422	56
52	86	87	96	90	124	355	53
54	84	92	97	93	109	284	61
56	80	87	105	99	132	247	66
58	87	95	103	90	120	229	67
60	92	105	106	112	118	212	74

A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

## Vertical measurements on the wing



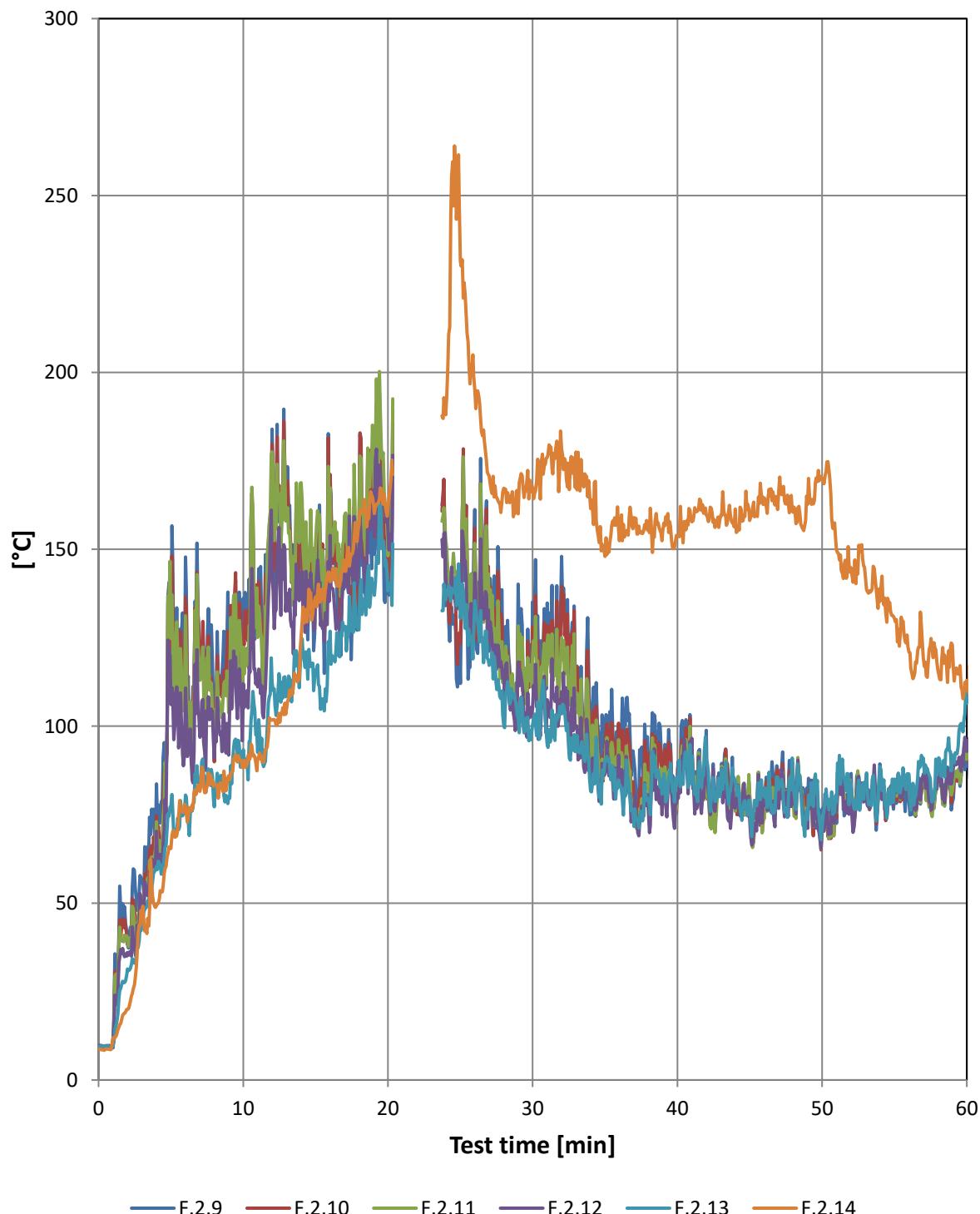
A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

## Vertical measurements on the wing

Min. / °C	F.2.4	F.2.5	F.2.6	F.2.7	F.2.8
0	10	10	10	10	9
2	69	65	50	82	54
4	110	99	85	132	102
6	123	112	102	155	151
8	125	119	112	147	111
10	130	123	115	151	133
12	153	146	132	171	178
14	144	129	117	166	160
15	145	131	118	167	147
16	148	139	128	174	168
18	147	139	120	161	138
20	154	145	130	178	148
22	0	0	0	0	0
24	143	134	123	174	141
26	141	137	128	179	160
28	128	119	113	144	118
30	116	113	107	144	135
32	115	113	106	152	147
34	96	95	91	122	96
36	94	91	86	109	98
38	89	86	82	106	90
40	80	77	74	99	92
42	77	76	73	103	97
44	71	69	68	92	81
46	67	66	64	88	79
48	72	70	67	95	88
50	64	63	61	84	75
52	67	65	64	90	86
54	62	60	58	97	87
56	59	57	56	96	80
58	58	56	55	97	83
60	59	57	56	95	85

A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

## Vertical measurements on the wing



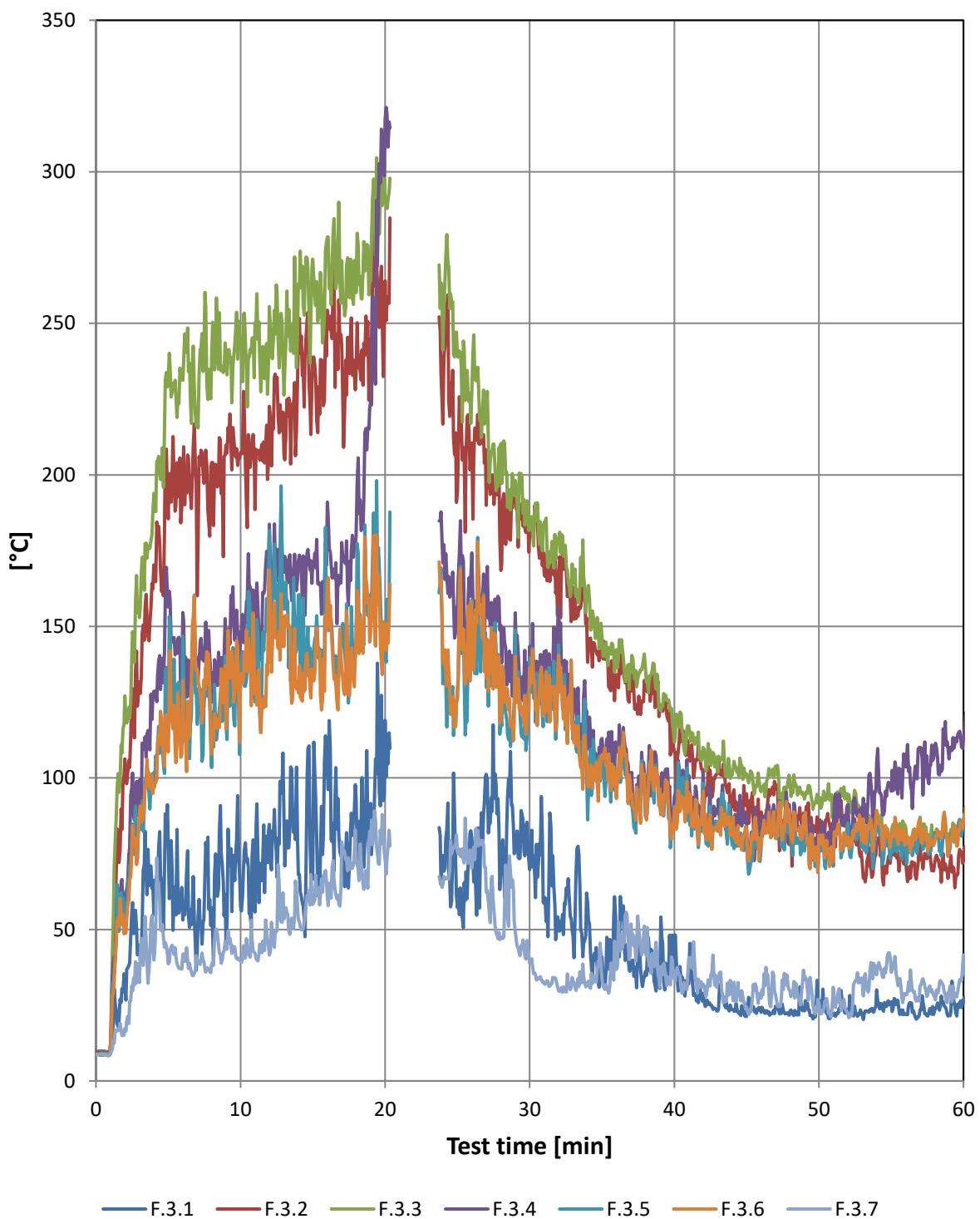
A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

## Vertical measurements on the wing

Min. / °C	F.2.9	F.2.10	F.2.11	F.2.12	F.2.13	F.2.14
0	9	10	9	10	9	9
2	38	38	39	36	31	20
4	84	75	73	70	60	49
6	148	137	131	111	81	78
8	95	90	92	91	77	84
10	136	126	122	112	93	90
12	184	180	178	143	112	102
14	166	165	169	138	122	125
15	145	147	151	137	116	137
16	168	171	167	154	127	141
18	137	153	157	149	127	157
20	140	141	148	156	138	161
22	0	0	0	0	0	0
24	134	141	153	142	136	188
26	161	156	152	143	136	195
28	117	115	115	114	100	167
30	135	128	119	105	100	167
32	148	140	125	110	103	178
34	88	90	90	84	82	162
36	93	94	92	86	83	152
38	86	86	83	76	79	156
40	88	84	85	81	86	154
42	99	92	87	87	91	160
44	77	77	76	77	84	161
46	79	76	74	78	80	165
48	87	84	80	82	85	160
50	75	73	74	71	71	170
52	87	82	83	81	82	145
54	89	87	87	85	89	135
56	79	83	83	85	86	121
58	85	86	87	85	90	116
60	91	92	91	93	107	113

A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

## Horizontal measurements



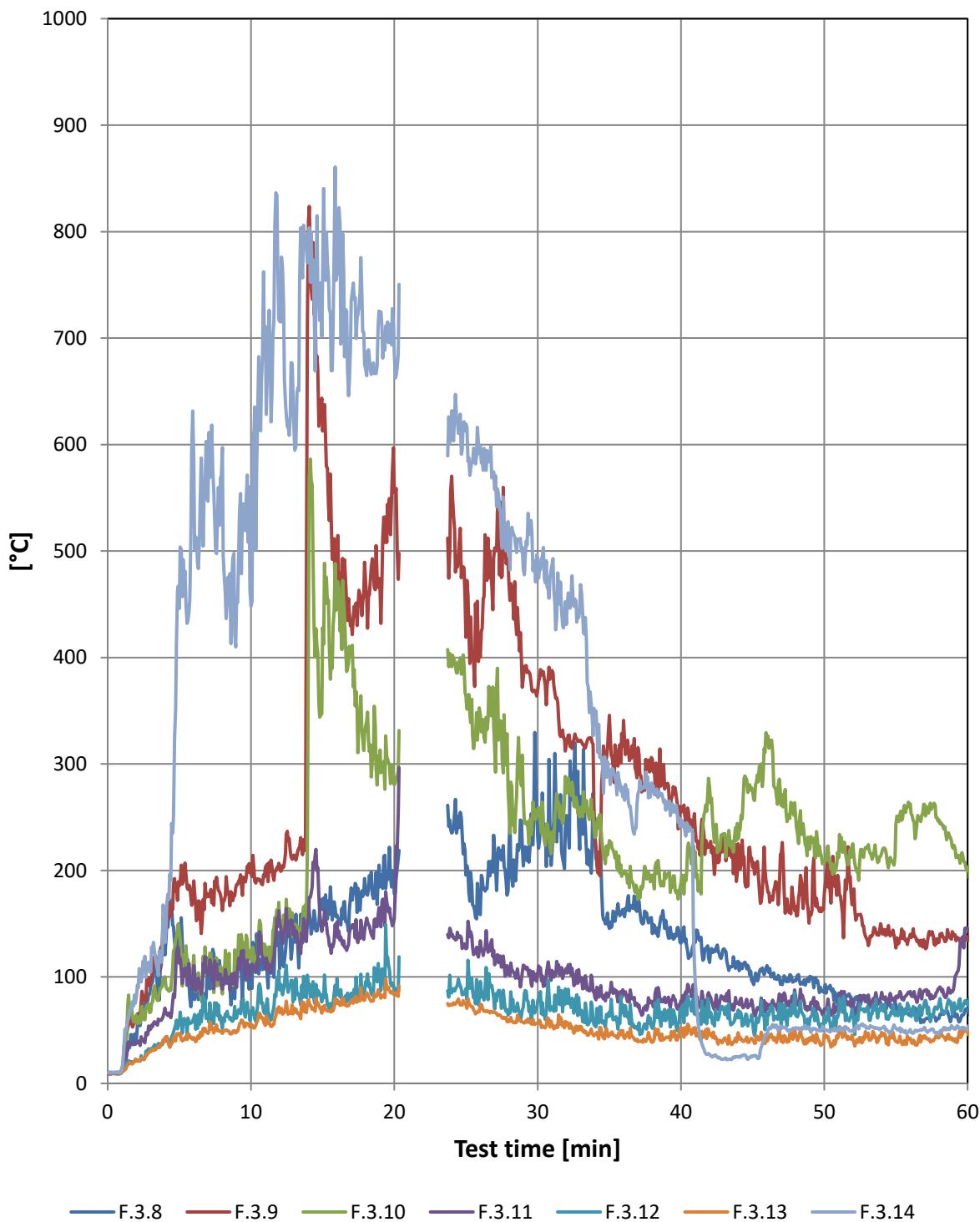
A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

## Horizontal measurements

Min. / °C	F.3.1	F.3.2	F.3.3	F.3.4	F.3.5	F.3.6	F.3.7
0	9	10	9	9	9	9	9
2	31	106	127	58	57	51	17
4	55	170	194	129	102	97	40
6	53	197	231	155	147	132	42
8	57	204	238	125	103	108	38
10	57	208	243	148	136	133	39
12	85	223	256	184	182	169	42
14	68	244	263	172	160	128	53
15	67	239	271	171	140	134	58
16	103	254	278	191	166	164	61
18	93	233	260	180	145	147	73
20	119	264	290	317	140	143	73
22	0	0	0	0	0	0	0
24	74	217	241	171	131	138	65
26	80	211	228	174	159	154	70
28	69	168	210	150	120	120	47
30	70	180	182	143	140	136	39
32	53	168	179	156	144	140	30
34	59	138	160	110	86	98	32
36	45	131	142	108	94	93	37
38	36	131	136	98	87	92	43
40	37	108	112	94	91	90	34
42	29	101	110	102	98	96	32
44	24	91	101	79	78	83	30
46	23	89	95	83	77	77	27
48	23	80	99	89	86	87	30
50	25	84	93	79	77	81	26
52	23	81	92	91	85	81	22
54	30	79	89	105	87	89	35
56	22	72	84	104	76	81	28
58	23	72	80	110	82	79	28
60	27	73	86	113	85	86	42

A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

## Horizontal measurements



A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

## Horizontal measurements

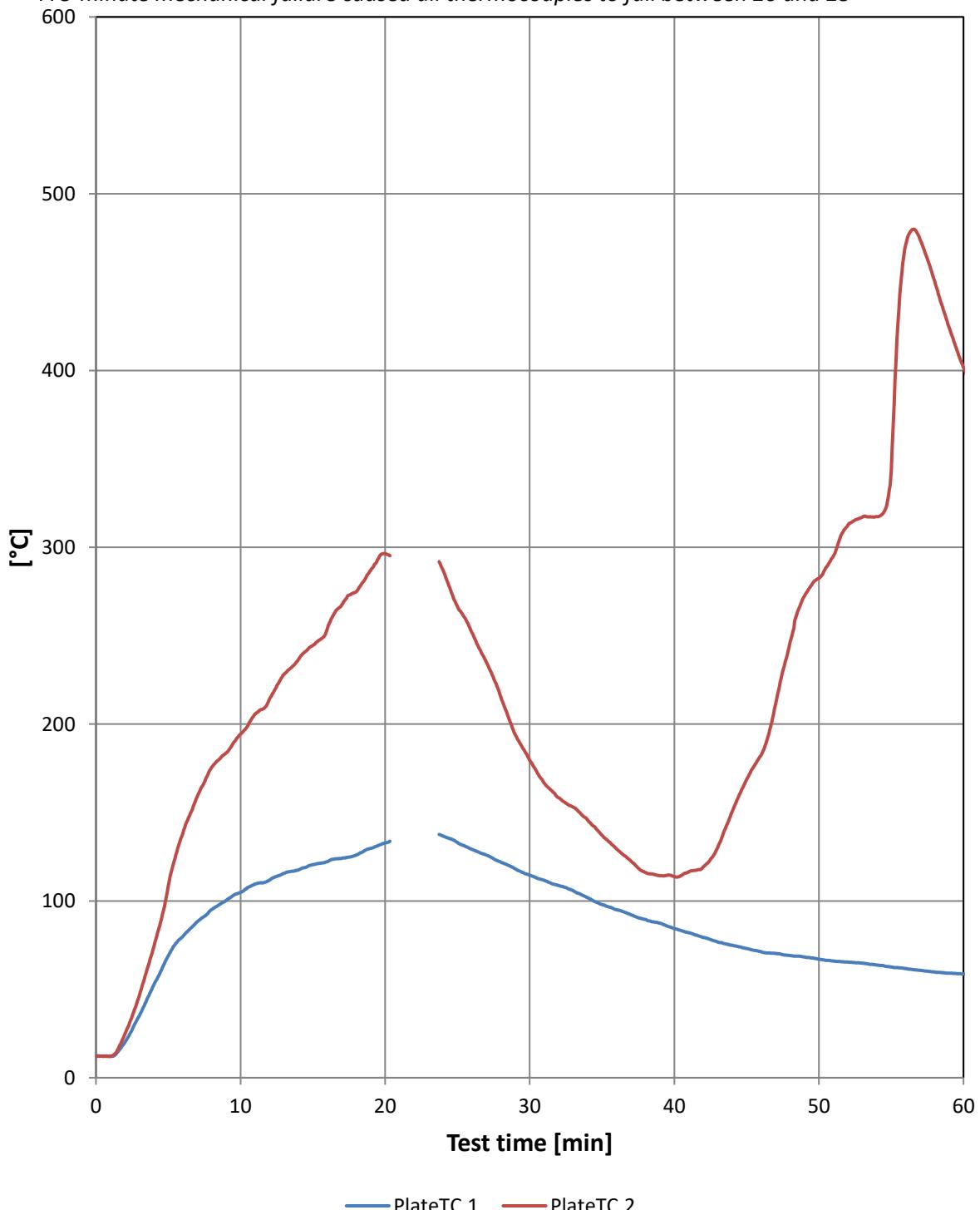
Min. / °C	F.3.8	F.3.9	F.3.10	F.3.11	F.3.12	F.3.13	F.3.14
0	9	9	10	10	10	10	10
2	40	62	64	38	21	23	81
4	121	137	100	71	40	43	132
6	92	190	120	111	61	43	584
8	101	162	84	88	52	47	597
10	103	197	125	111	67	56	448
12	108	205	155	151	88	67	716
14	174	810	434	156	91	79	787
15	164	613	428	150	83	72	758
16	158	501	463	152	99	79	789
18	183	471	335	150	95	82	671
20	178	555	281	154	87	83	687
22	0	0	0	0	0	0	0
24	235	570	391	138	85	74	632
26	159	401	346	134	96	74	598
28	220	470	260	106	66	58	511
30	231	370	256	103	77	57	493
32	252	319	281	108	77	55	431
34	233	233	231	80	54	46	346
36	160	341	199	85	67	44	273
38	141	304	196	75	52	39	278
40	132	254	189	78	68	49	243
42	114	225	278	83	62	46	27
44	115	225	230	75	69	48	25
46	111	185	319	70	55	40	46
48	96	166	250	81	64	45	52
50	88	178	209	70	63	46	51
52	77	173	225	76	66	41	50
54	72	145	216	85	74	48	52
56	65	140	262	86	70	42	51
58	61	133	248	89	75	43	46
60	70	138	201	146	74	49	52

A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

## Plate thermocouple on facade

### Plate thermocouple on facade

A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23



FacadePlateTC.1 Top

FacadePlateTC.2 Bottom

## Plate thermocouple on facade

### *Plate thermocouple on facade*

A 3-minute mechanical failure caused all thermocouples to fail between 20 and 23

Min. / °C	PlateTC.1	PlateTC.2
0	12	12
2	20	25
4	53	74
6	80	138
8	95	176
10	105	194
12	112	214
14	117	237
15	121	244
16	122	254
18	126	275
20	133	297
22	0	0
24	137	287
26	129	252
28	122	215
30	115	180
32	109	158
34	102	146
36	95	129
38	89	116
40	84	114
42	79	119
44	75	150
46	71	183
48	69	246
50	67	282
52	65	312
54	64	317
56	62	471
58	60	451
60	59	402

*FacadePlateTC.1 Top*

*FacadePlateTC.2 Bottom*



Photo No. 1 Prefabricated cassettes mounted on the façade rig.



Photo No. 2 Fixing of prefabricated cassettes.



Photo No. 3 Gap between two cassettes.



Photo No. 4 Insulation in the gap.



Photo No. 5 Isolation layer applied to the façade.



Photo No. 6 Plywood on the gap to keep the insulation.



24.10.2023 12:33

Photo No. 7 Two layers of Hunton windbreaker boards mounted to the prefabricated cassettes.



25.10.2023 08:23

Photo No. 8 Cembrit boards mounted to the gap.



Photo No. 9 Traspir alu 430 mounted to the prefabricated cassettes.



Photo No. 10 Traspir alu 420 has been mounted and steel profiles around window and fire chamber has been installed.

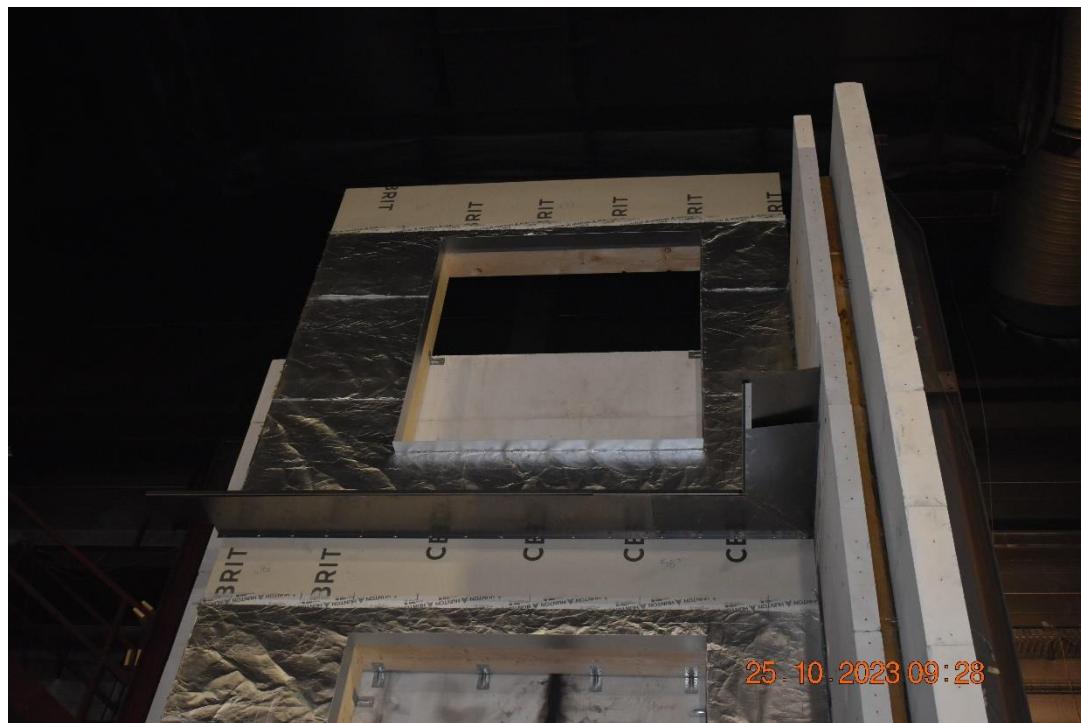


Photo No. 11 Flame deflectors are being mounted.



Photo No. 12 Vertical formworks have been mounted.



Photo No. 13 Horizontal cladding is being mounted.



Photo No. 14 Mineral wool insulated on the side of the main façade.



Photo No. 15 Façade before start test.



Photo No. 16 Test specimen at start test.



Photo No. 17 Test specimen 2 minutes into the test.



Photo No. 18 Test specimen 4 minutes into the test.



Photo No. 19 Test specimen 7 minutes into the test.



Photo No. 20 Test specimen 13 minutes into the test.



Photo No. 21 Test specimen 19 minutes into the test.



Photo No. 22 Test specimen 27 minutes into the test.



Photo No. 23 Test specimen 33 minutes into the test.



Photo No. 24 Test specimen 34 minutes into the test.



Photo No. 25 Test specimen 37 minutes into the test.

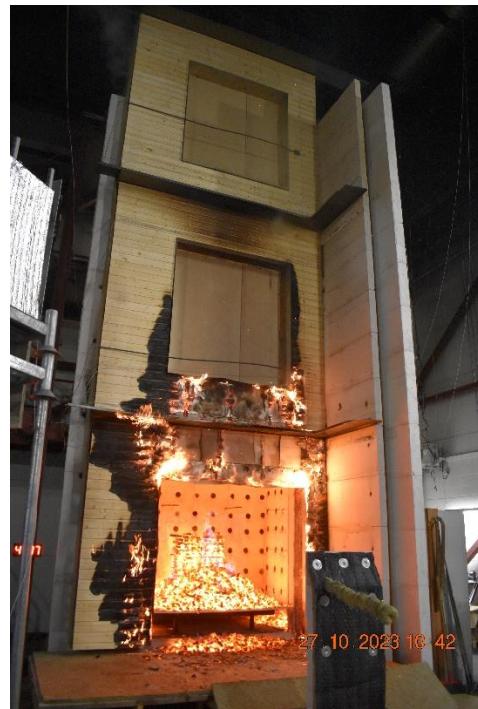
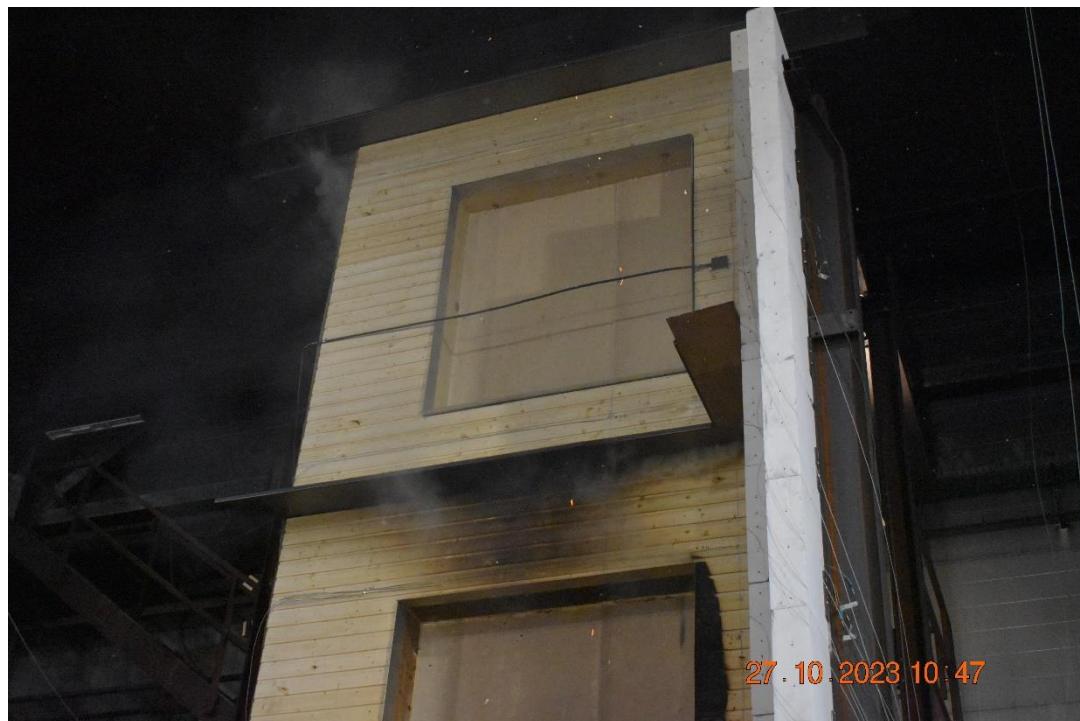


Photo No. 26 Test specimen 37 minutes into the test.



27.10.2023 10:47

Photo No. 27 Test specimen 45 minutes into the test.



Photo No. 28 Test specimen 54 minutes into the test.



Photo No. 29 Test specimen after the test. Detailed photo of cladding between the fire chamber and the first window.



Photo No. 30 Test specimen after the test. Insulation between the fire chamber and the flame deflector.



Photo No. 31 Test specimen after the test. Detailed photo of cladding and the cassette at the right side of fire chamber.



Photo No. 32 Test specimen after the test. Detailed photo of the left side of fire chamber.



Photo No. 33 Test specimen after the test. The cassette above the fire chamber.



Photo No. 34 Test specimen after the test. Insulation at the right side of the first window.



27.10.2023 13:12

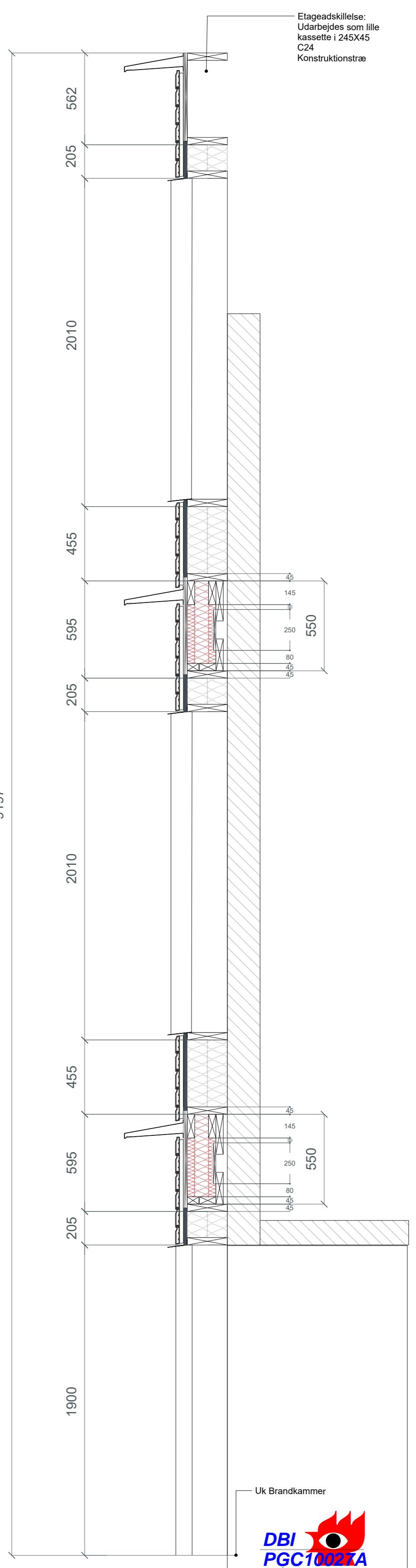
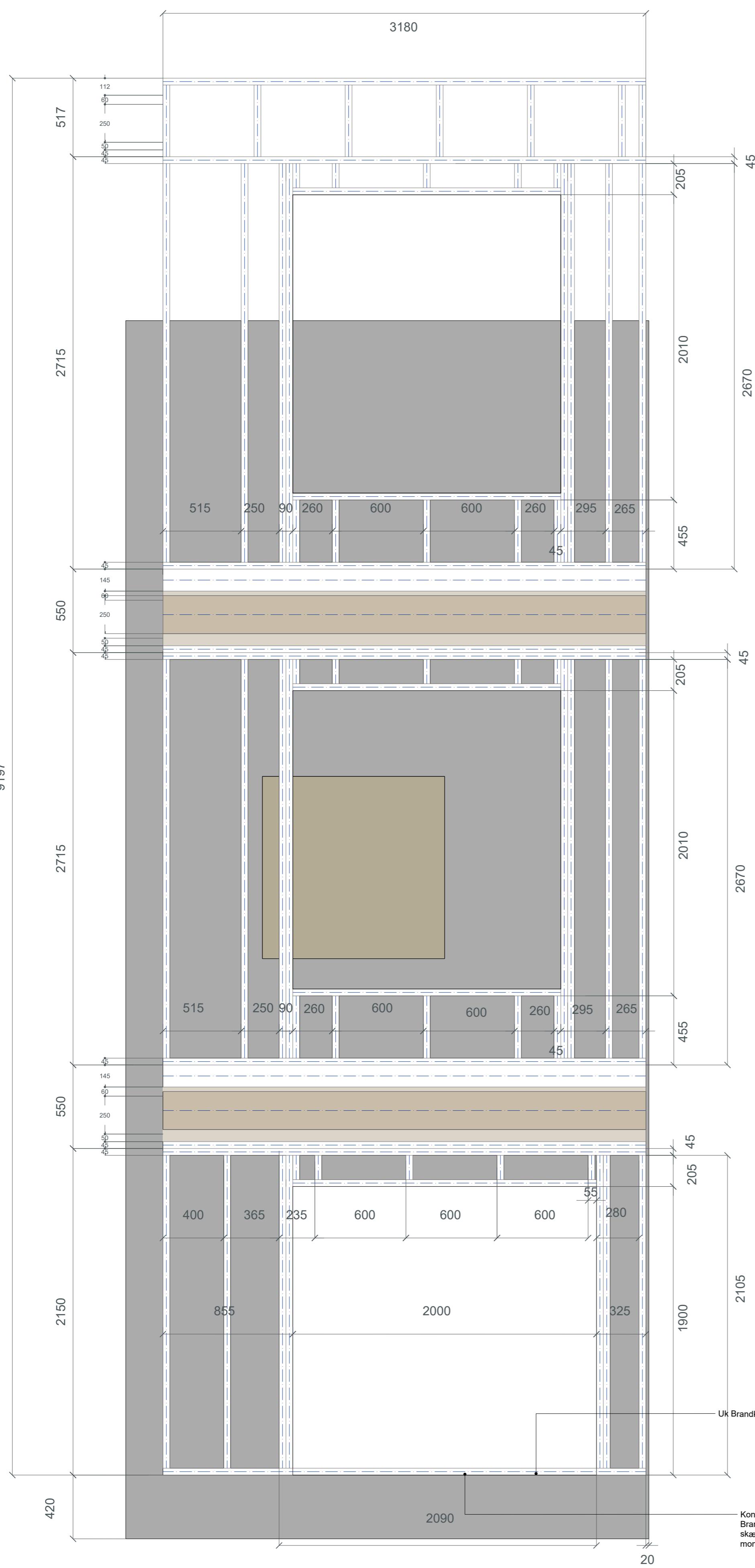
Photo No. 35 Test specimen after the test. Insulation at the bottom of the first window.

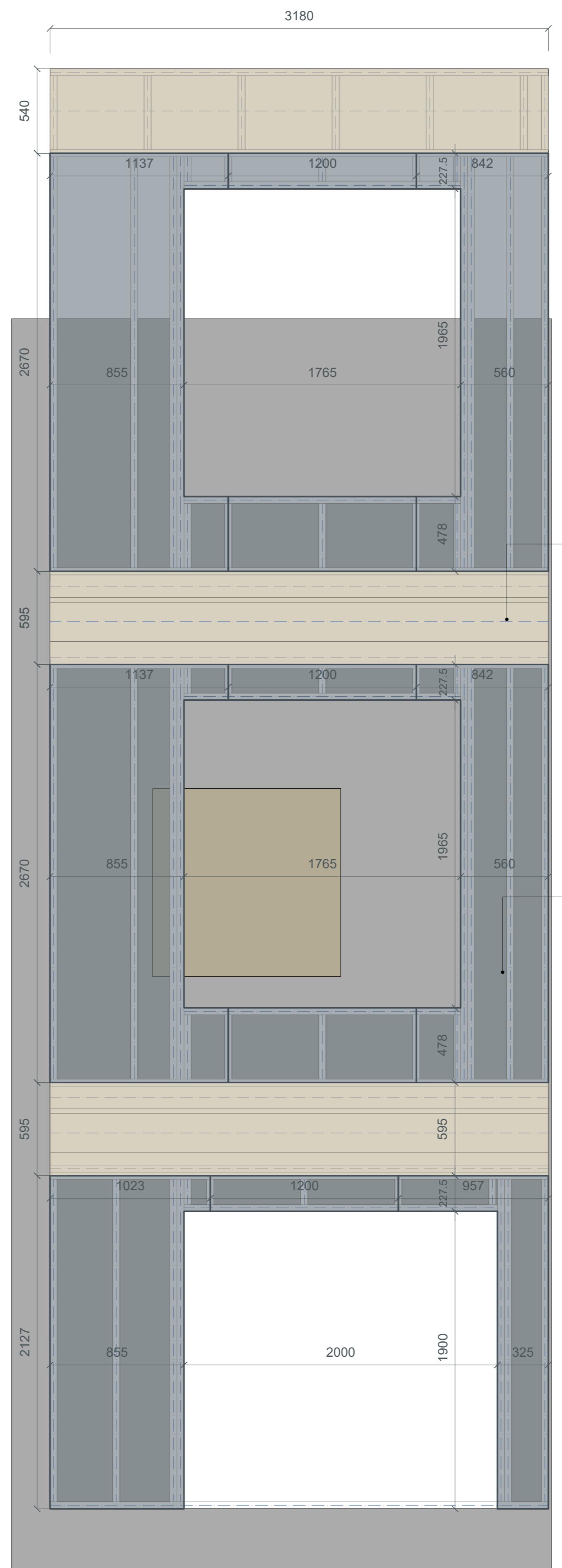


27.10.2023 13:15

Photo No. 36 Test specimen after the test. Cassette at the right side of the first window.

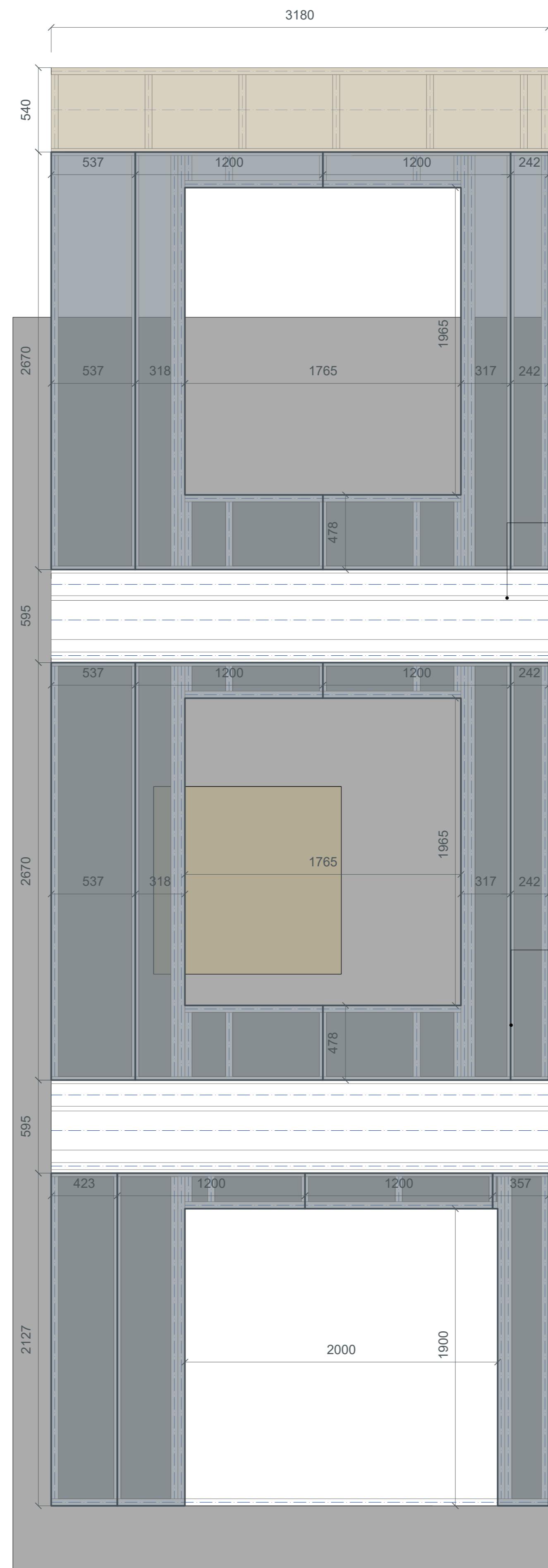






**Vindspærre**  
Hunton Vindtæt  
2x 12 mm  
Samlet i forbandt  
jf. tegninger  
Fæstnes med 840265 PZ-16  
klammer 64 mm,  
elgalvaniseret 12+  
Pladerne fæstnes med 100  
mm afstand langs  
pladekanterne og med 250  
mm afstand langs midten af  
pladerne for at sikre  
tilstrækkelig vindafstivning  
og tætning

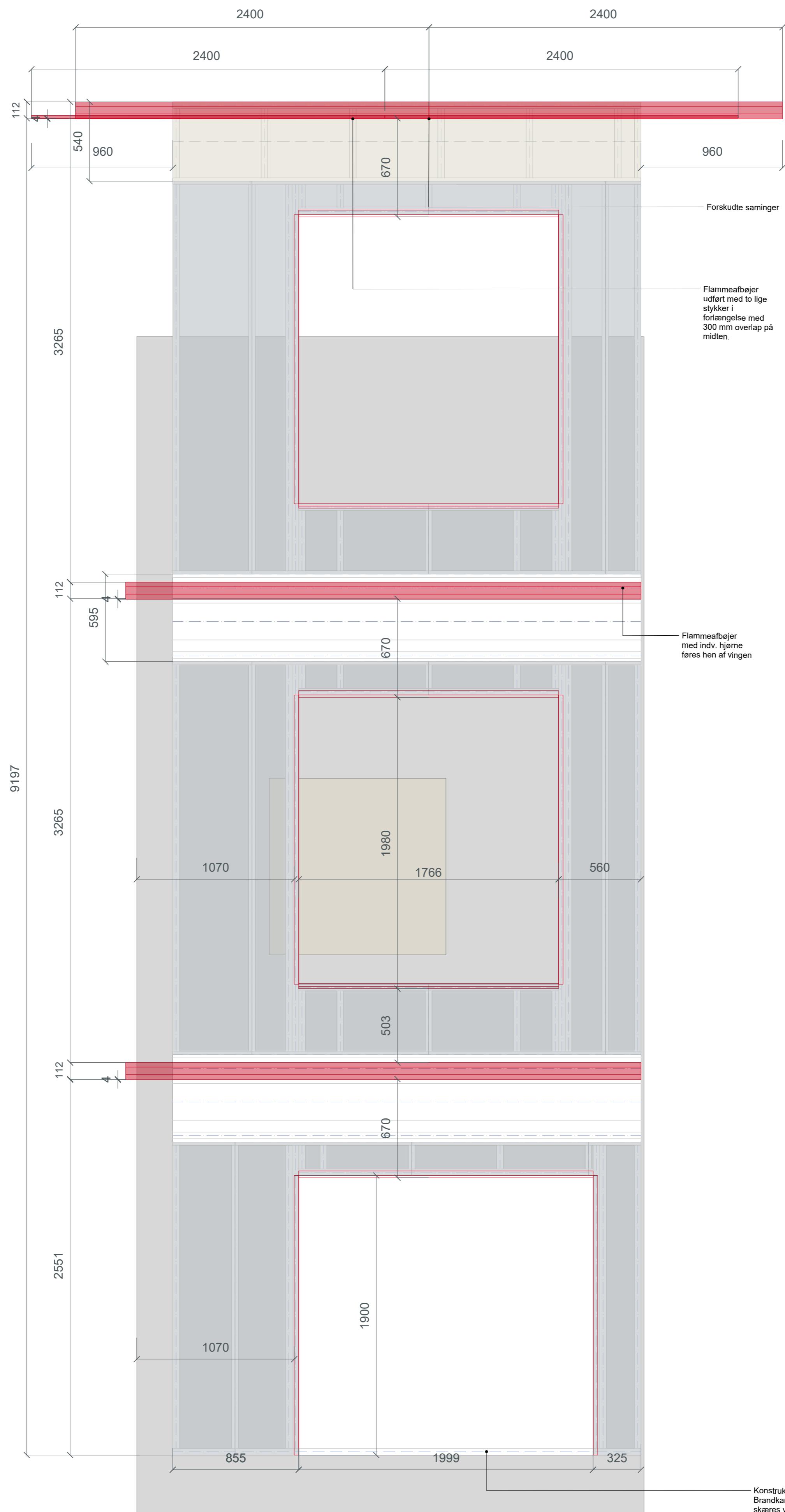
**DBI**  
**PGC10027A**  
Chanyang Dong



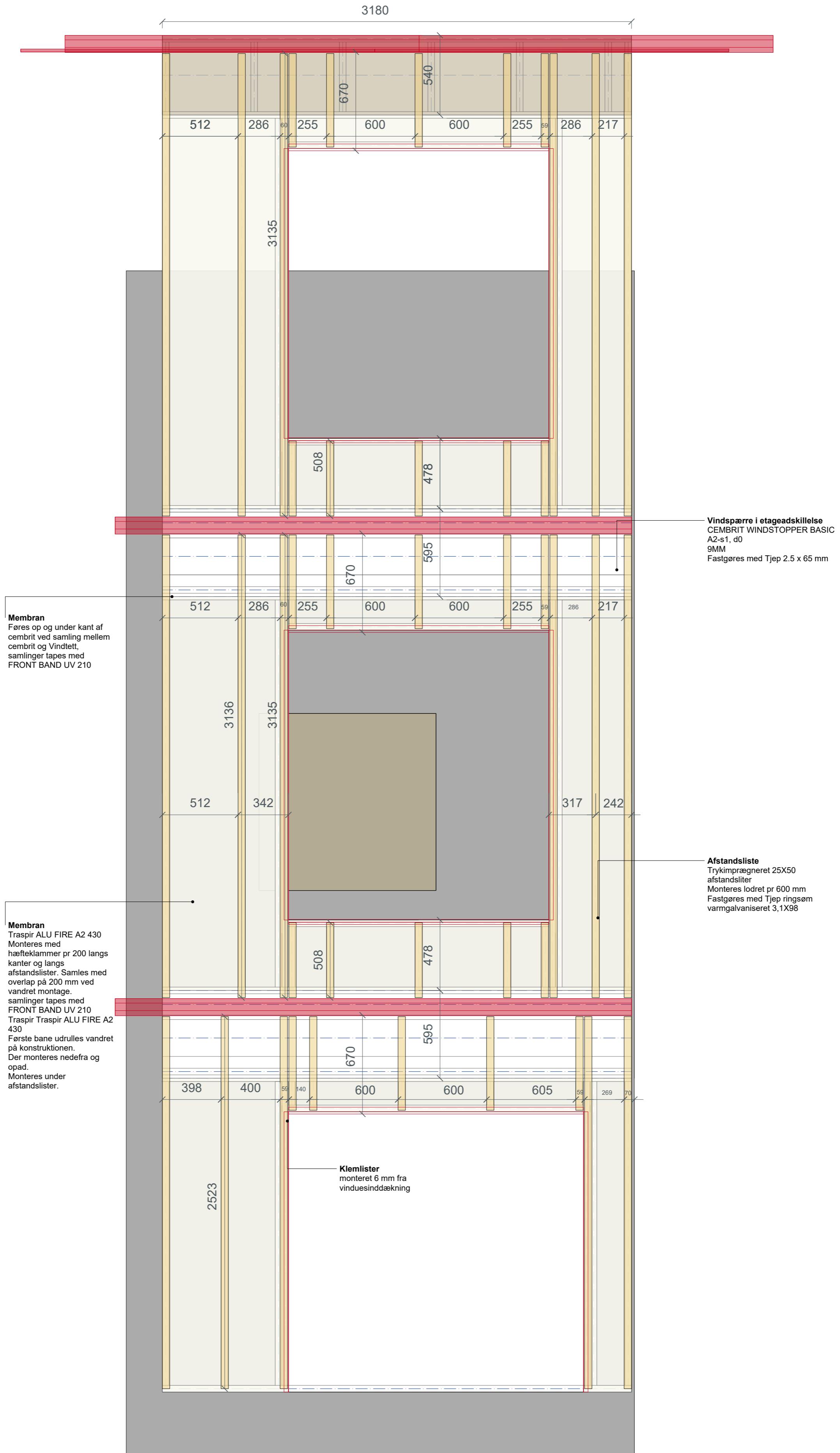
Cembrit Windstopper Basic  
i andet lag i etageadskillelsen  
Fastgøres med Tjep 2.5 x 65  
mm

**Vindspærre**  
Hunton Vindtæt  
2x 12 mm  
Samlet i forbandt  
jf. tegninger  
Fæstnes med 840265 PZ-16  
klammer 64 mm,  
elgalvaniseret 12+  
Pladerne fæstnes med 100  
mm afstand langs  
pladekanterne og med 250  
mm afstand langs midten af  
pladerne for at sikre  
tilstrækkelig vindafstivning  
og tætning

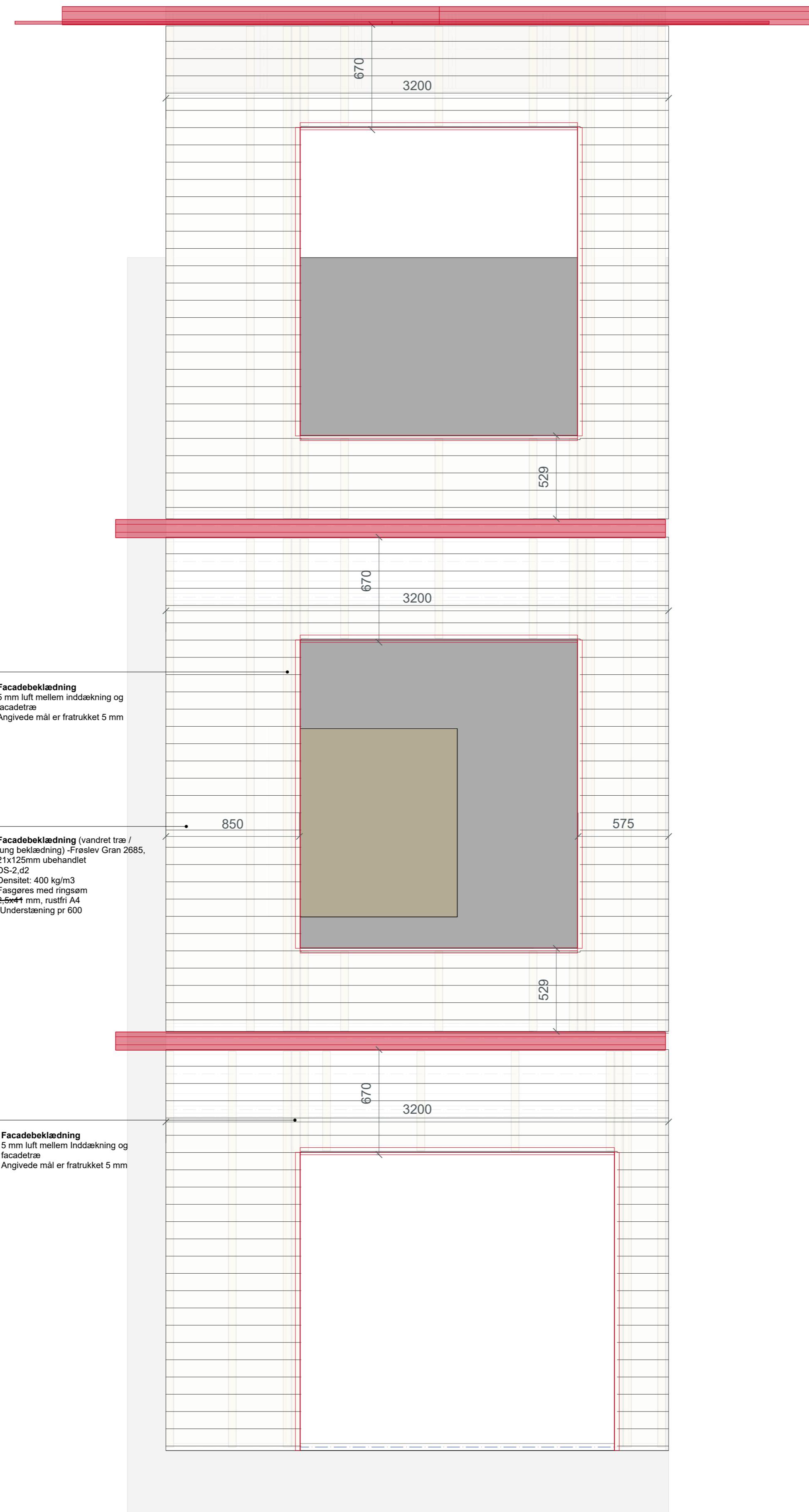
**DBI**  
**PGC10027A**  
Chanyang Dony



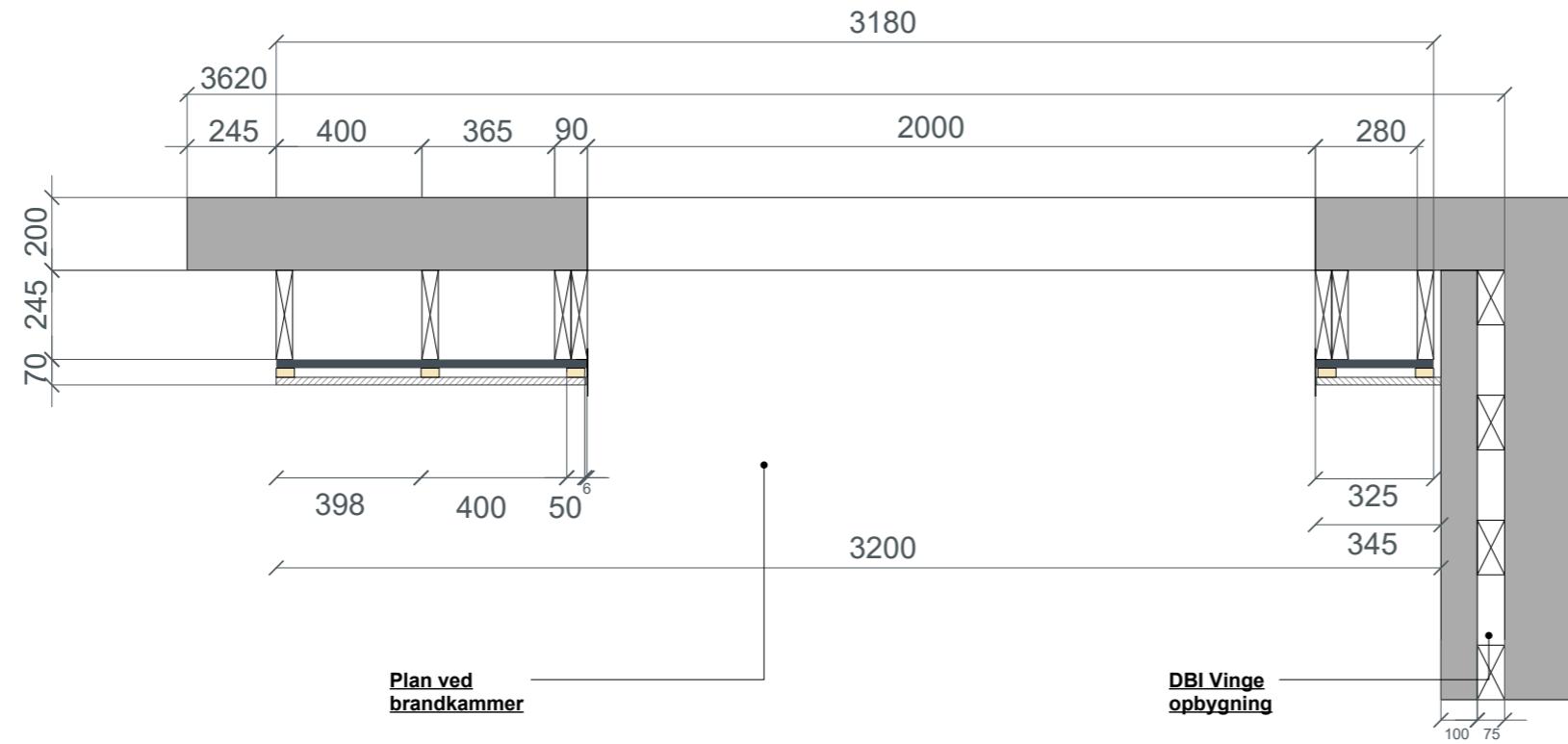
**DBI**  
**PGC10027A**  
Chanyang Dong



DBI  
PGC10027A  
Chanyang Dony

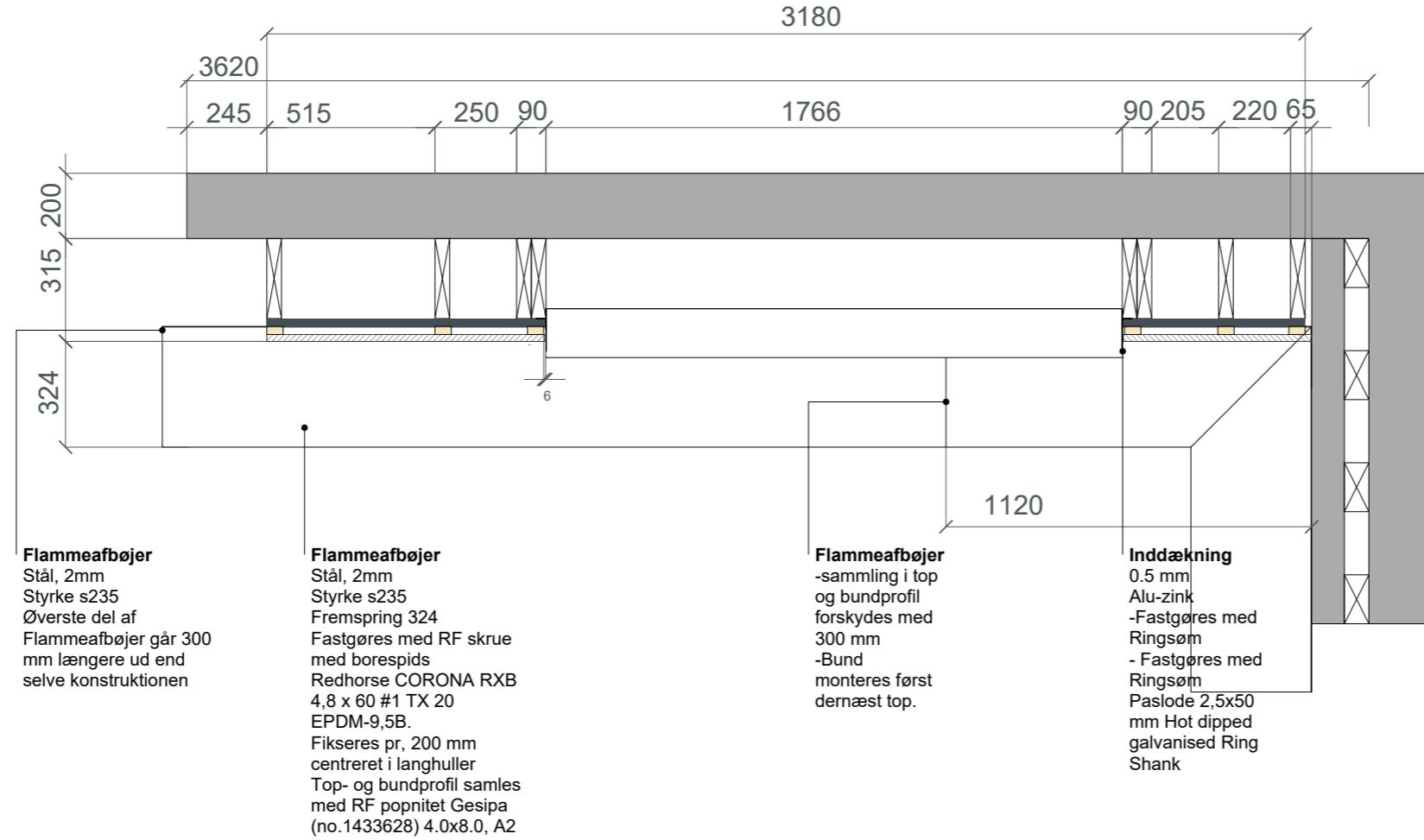


**DBI**  
**PGC10027A**  
Chanyang Dong



DBI  
PGC10027A  
*Chunyan Dong*

Detalje plan brandkammer	
Skala:	1 : 20
Format:	A3
Tegn.:	RSM
Kontrol:	SNI
Træksignatur:	
CPH VILLAGE	Referatsserie 1012 142 København K
	Dato: 25.10.2023
	TU_ST1_N01



**DBI**   
**PGC10027A**  
*Chanyang Dong*

Konstruktionstræ C24, 45X145 mm.

**Isolering**

Mineraluld  
Rockwool A-Batts 965x650x195  
Brandklasse A1  
Diffusionsmodstand: MU1

**Flammeafbøjer**

Stål, 2mm  
Styrke s235  
Fremspring 324  
Fastgøres med RF skruer med  
borespids  
Redhorse CORONA RXB 4,8 x  
60 #1 TX 20 EPDM-9,5B.  
Fikseres pr. 200 mm centeret i  
langhuller  
Top- og bundprofil samles med  
RF popnitet Gesipa  
(no.1433628) 4.0x8.0, A2

Konstruktionstræ

C24, 45 x 245.

**Samleplader**

Raw Krydsfinér  
Radiata Pine TG2  
15 mm  
D-s2, d0  
Fastgøres med  
NKT SPUN+  
CLIMATE-G3 UH TX20  
4.5x55

595

Konstruktionstræ

C24, 45 x 245.

**Samleplader**

Raw Krydsfinér  
Radiata Pine TG2  
15 mm  
D-s2, d0  
Fastgøres med  
NKT SPUN+  
CLIMATE-G3 UH TX20  
4.5x55

195

Konstruktionstræ

C24, 45 x 195.

**Afstandslister**

Trykimprægneret  
25x50 afstandslister  
Monteres lodret pr  
600 mm  
Fastgøres med  
Tjep ringsom  
varmgalvaniseret  
3,1X98

370

Konstruktionstræ

C24, 45 x 100.

**Vindspærre i etageadskillelse**

CEMBRIT WINDSTOPPER BASIC  
A2-s1, d0  
9MM  
Fastgøres med Tjep 2.5 x 65 mm  
50

Konstruktionstræ

C24 45X70



**Detalje flammeafbøjer**

Skala: 1:5

Format: A4

0 50 100 200

Tegn.: RSM

Kontrol: SNI

Dato: 25.10.2023

Tegnadsdato:

CPH VILLAGE

Rønholmvej 161F

1432 København K

TU\_ST1\_N04

**Sålbænk**

- 0.5 mm Alu-zink  
- Hældning 7 grader

Samling tætnes med  
Ms-fugemasse-Dana Lim  
sealflex hybrid.

**Træskelet**

- Konstruktionstræ C24, 245x45

**Afstandslister**

Trykimprægneret 25X50  
afstandslister  
Monteres lodret pr 600 mm  
Fastgøres med Tjep ringsøm  
varmgalvaniseret 3,1X98

**Membran**

TRASPIR AVO 420 A-s1, d0  
Hæftes med hæfte hammer  
eller hæftepistol,  
Tapes over samlinger.  
Monteres under  
afstandslister.

**Vindspærre**

Hunton Vindtæt  
2x 12 mm  
Samlet i forband  
jf. tegninger  
Fæstnes med 840265  
PZ-16 klammer 64 mm,  
elgalvaniseret 12+

**Facadebeklædning** (vandret træ /  
tung beklædning) -Frøslev Gran 2685,  
21x125mm ubehandlet

DS-2,d2

Densitet: 400 kg/m<sup>3</sup>

Fasgøres med ringsøm  
2,5x41 mm, rustfri A4  
-Understæuning pr 600

**Isolering**

Hunton Nativo  
2 x 120  
Klasse E  
Monteres forbandt

**Træskelet**

- Konstruktionstræ C24, 245x45  
Monteres Lodret pr 600

**DBI**   
**PGC10027A**  
*Chunyong Dong*

Detalje sålbænk under vindue

Skala: 1:5

Format: A4

Tegn.: RSM

Kontrol: SNI

Tegnadsdato:

Dato:

25.10.2023

1432 København K

CPH VILLAGE

TU\_ST1\_N03

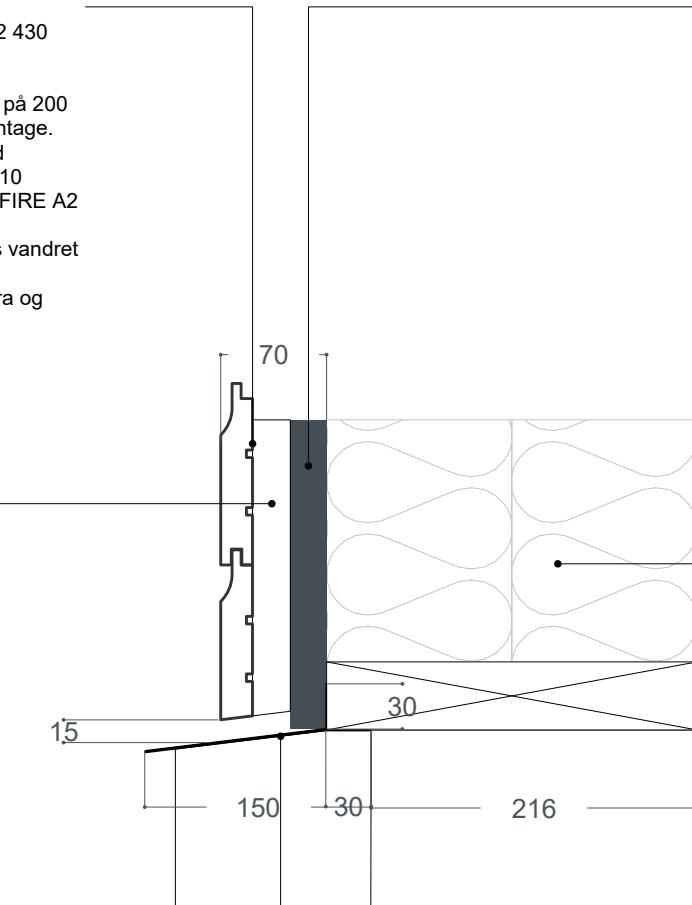
**Membran**  
Traspir ALU FIRE A2 430  
Monteres med  
hæfteklammer,  
samles med overlap på 200  
mm ved vandret montage.  
samlinger tapes med  
FRONT BAND UV 210  
Traspir Traspir ALU FIRE A2  
430  
Første bane udrulles vandret  
på konstruktionen.  
Der monteres nedefra og  
opad.

**Vindspærre**  
Hunton Vindtæt  
2x 12 mm  
Samlet i forbandt  
jf. tegninger  
Fæstnes med 840265 PZ-16  
klammer 64 mm,  
elgalvaniseret 12+

**Afstandsliste**  
25X50  
Monteres lodret pr  
600 mm  
Fastgøres med  
Tjep ringsøm  
varmgalvaniseret  
3,1X100

**Isolering**  
Hunton Nativo  
2 x 120  
Klasse E  
Monteres i forbandt

**Inddækning**  
**over vindue**  
0.5 mm Alu-Zink  
Hældning 7  
grader  
Fasgøres med  
ringsøm- paslode  
2.5 x 50



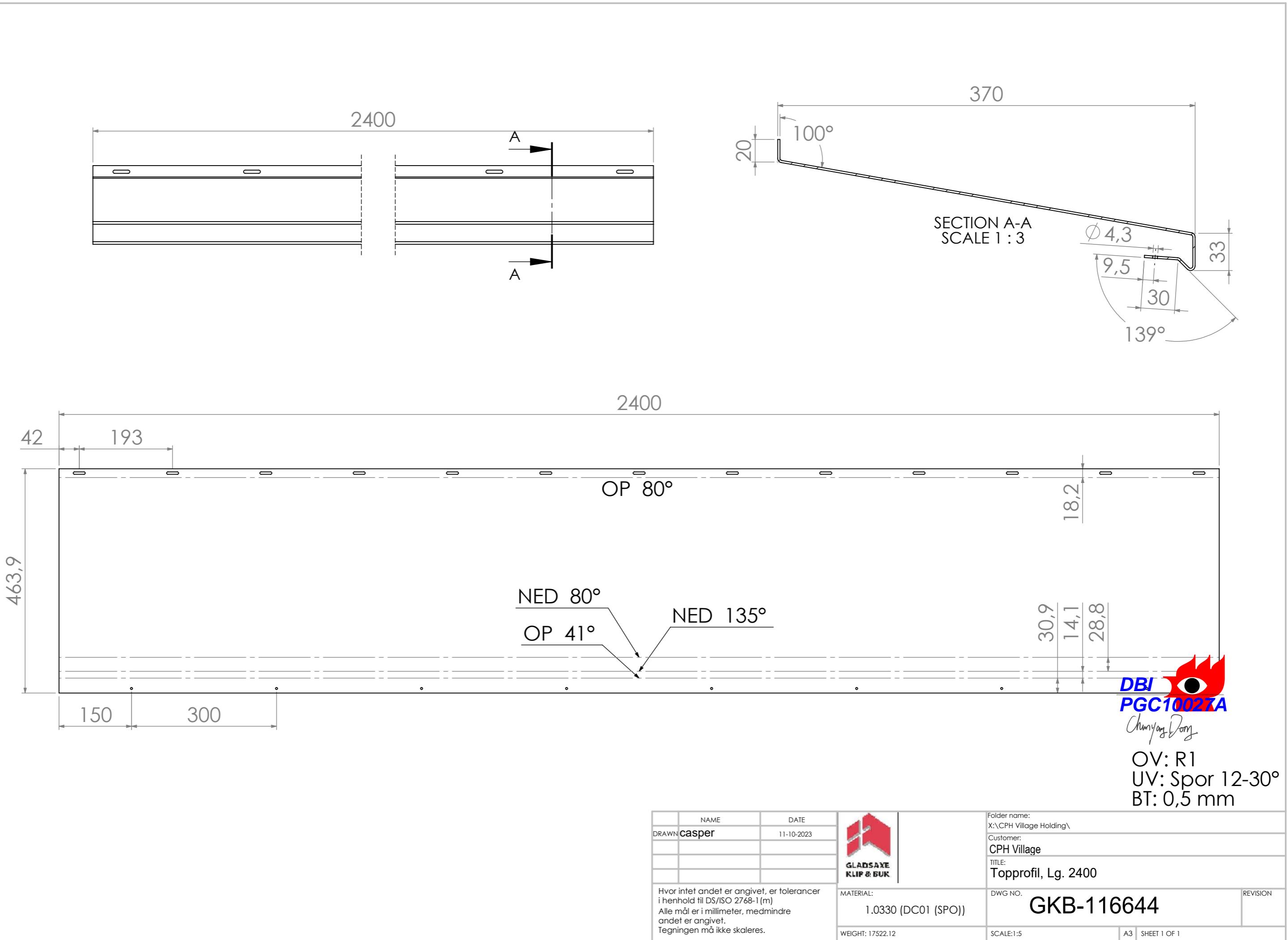
**DBI**   
**PGC10027A**  
*Chunyong Dong*

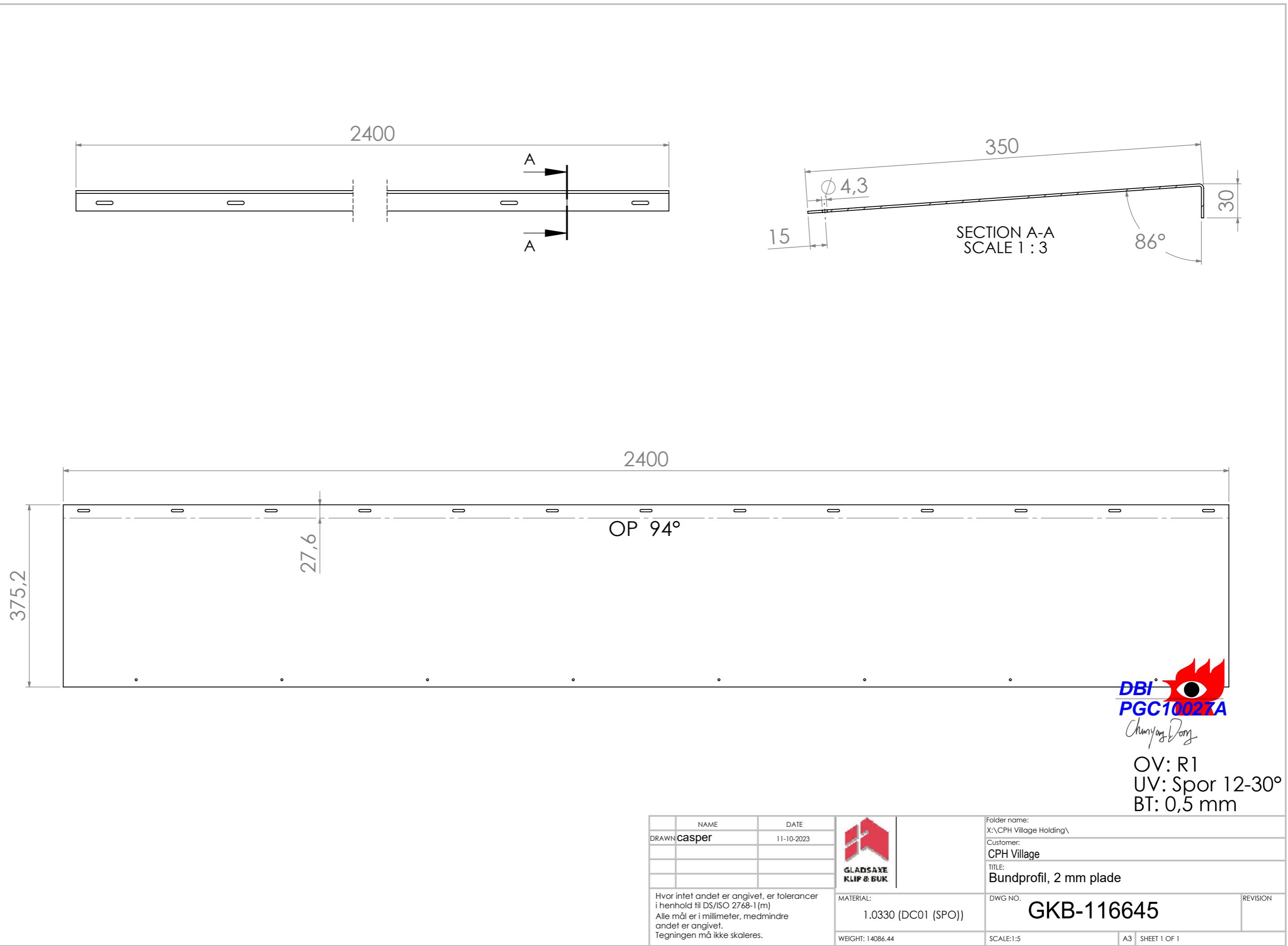
Detalje sålbænk over vindue

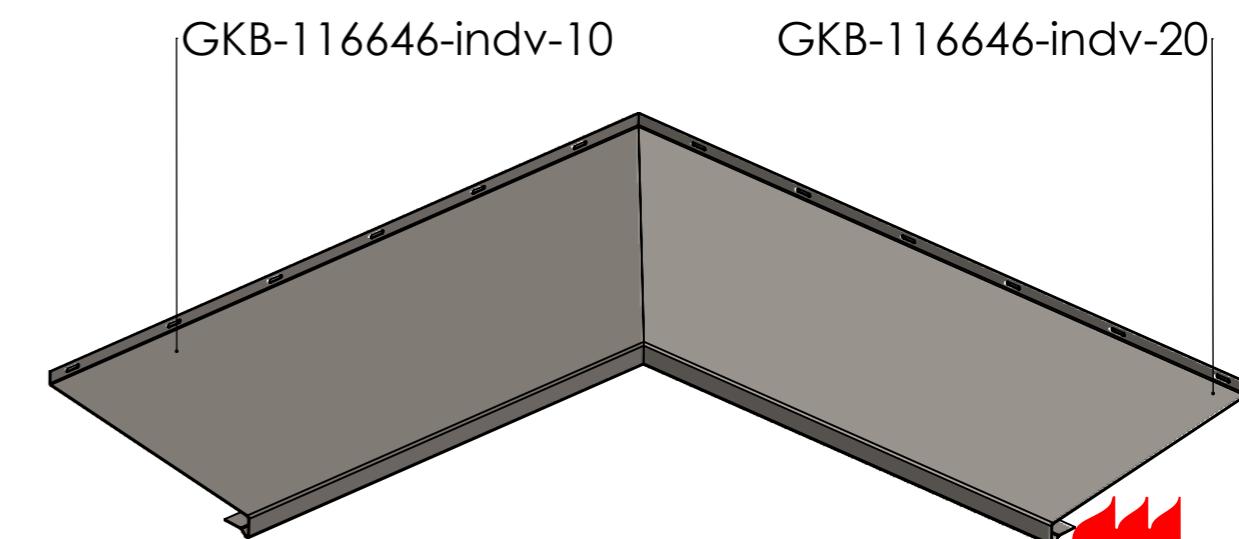
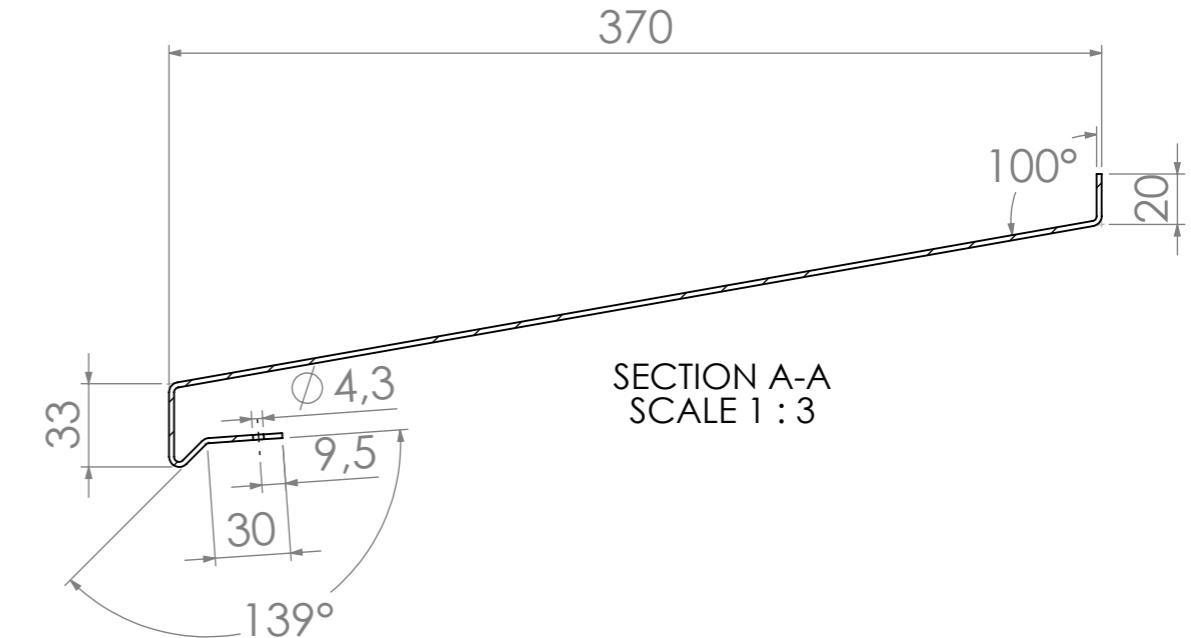
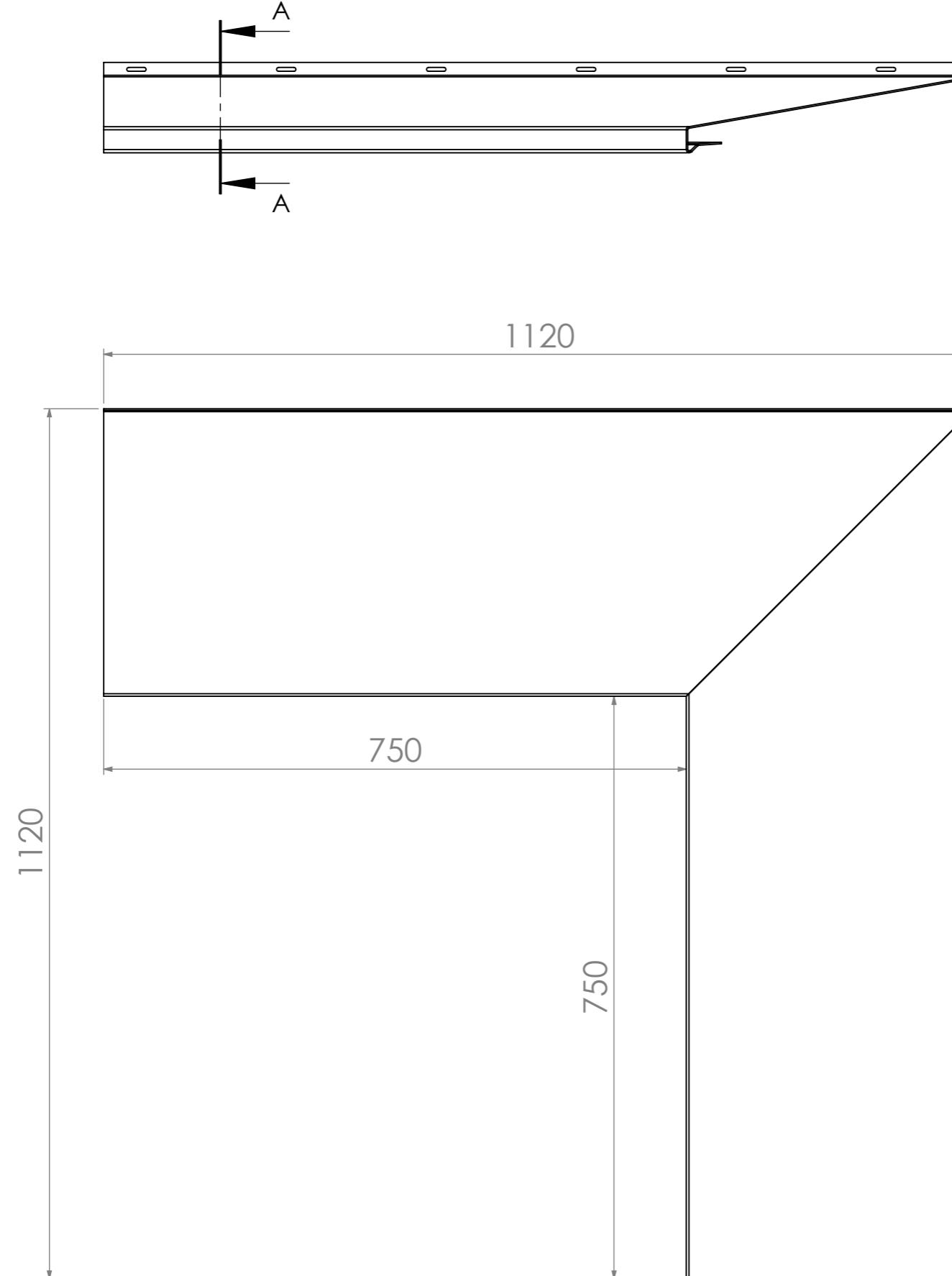
Skala: 1:5 Format: A4 0 50 100 200  
Tegn.: RSM Kontrol: SNI Dato: 25.10.2023

Tegnadsdato:  
**CPH VILLAGE** Refshalevej 161F  
1432 København K

**TU\_ST1\_N05**

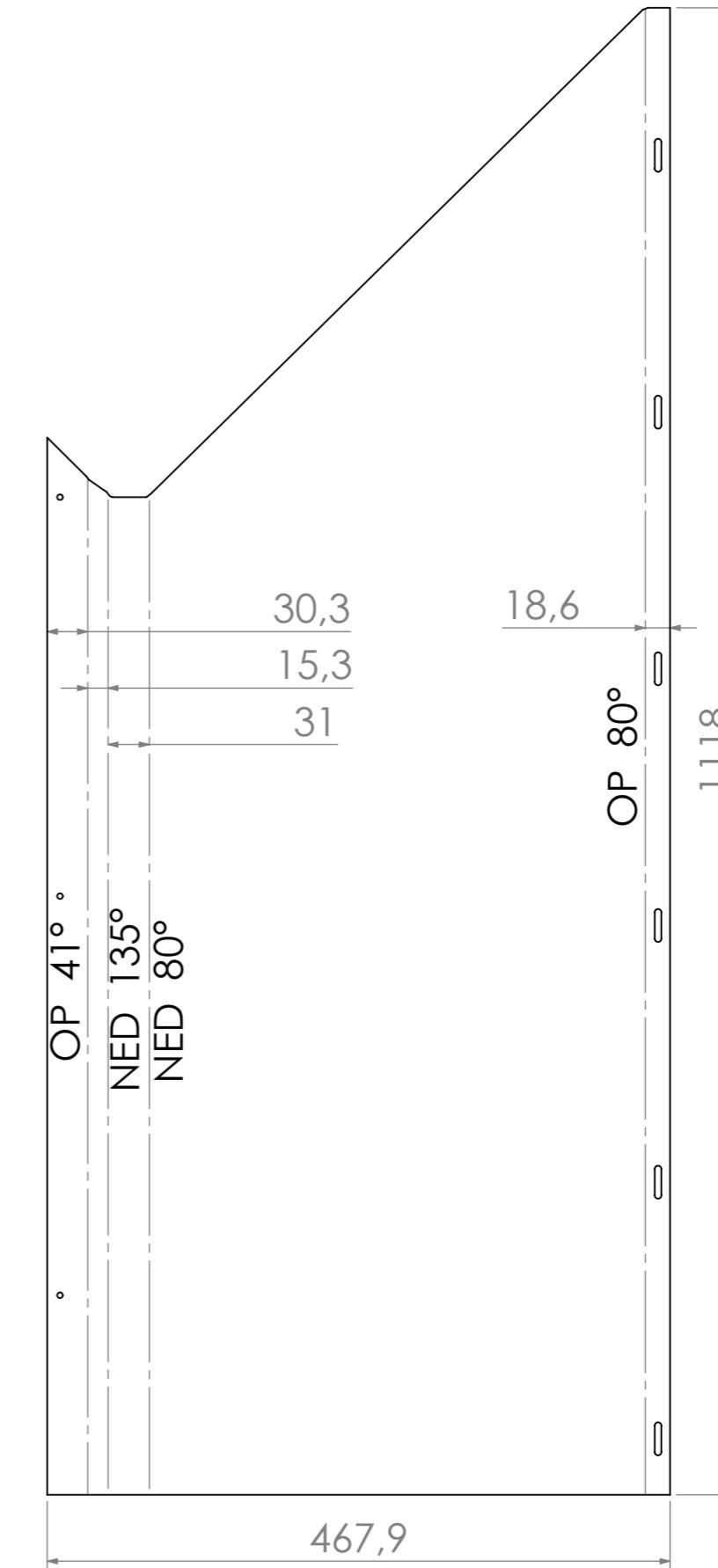
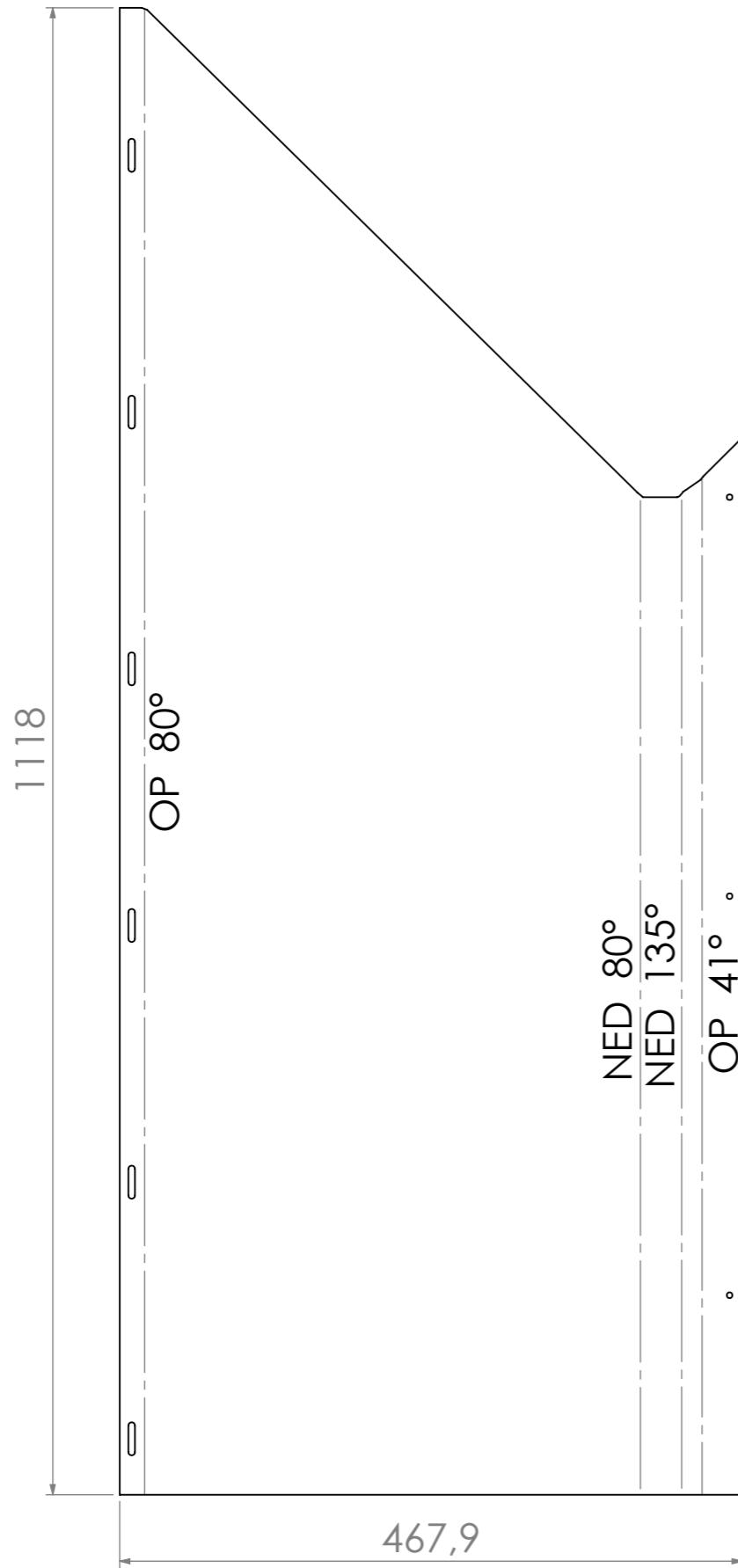






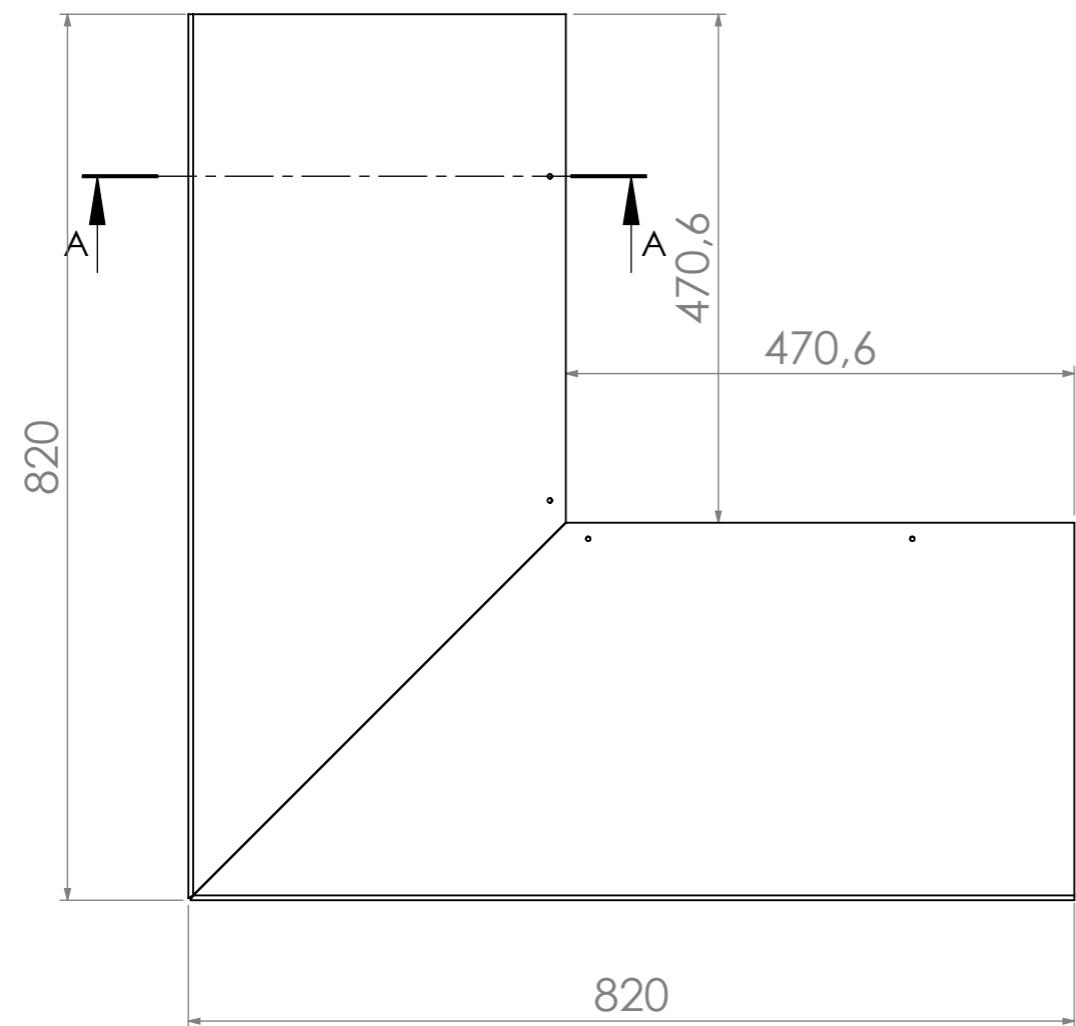
**DBI**  
**PGC10027A**  
Chunyan Dong

DRAWN	NAME	DATE	Folder name: X:\CPH Village Holding\
	casper	13-10-2023	Customer: CPH Village
			TITLE: Indv. Hj. Top, 2 mm plade
			MATERIAL: 1.0330 (DC01 (SPO))
			DWG NO. GKB-116646-indv
			REVISION
		Hvor intet andet er angivet, er tolerancer i henhold til DS/ISO 2768-1(m) Alle mål er i millimeter, medmindre andet er angivet. Tegningen må ikke skaleres.	SCALE:1:7
		WEIGHT: 13341.41	A3 SHEET 1 OF 2

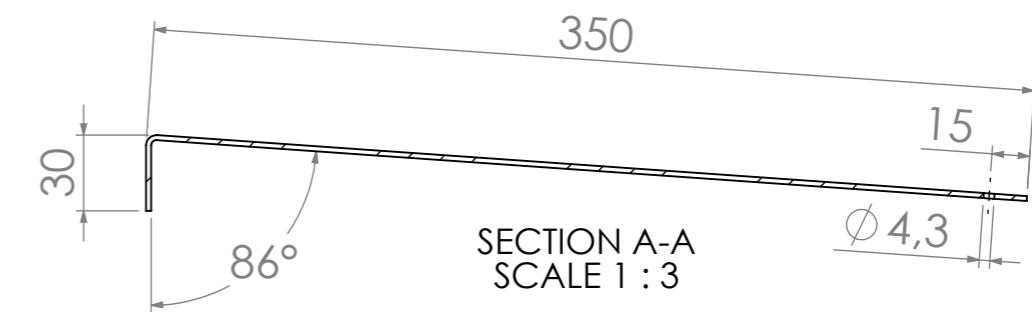


**DBI**   
**PGC10027A**  
Chunyan-Dong

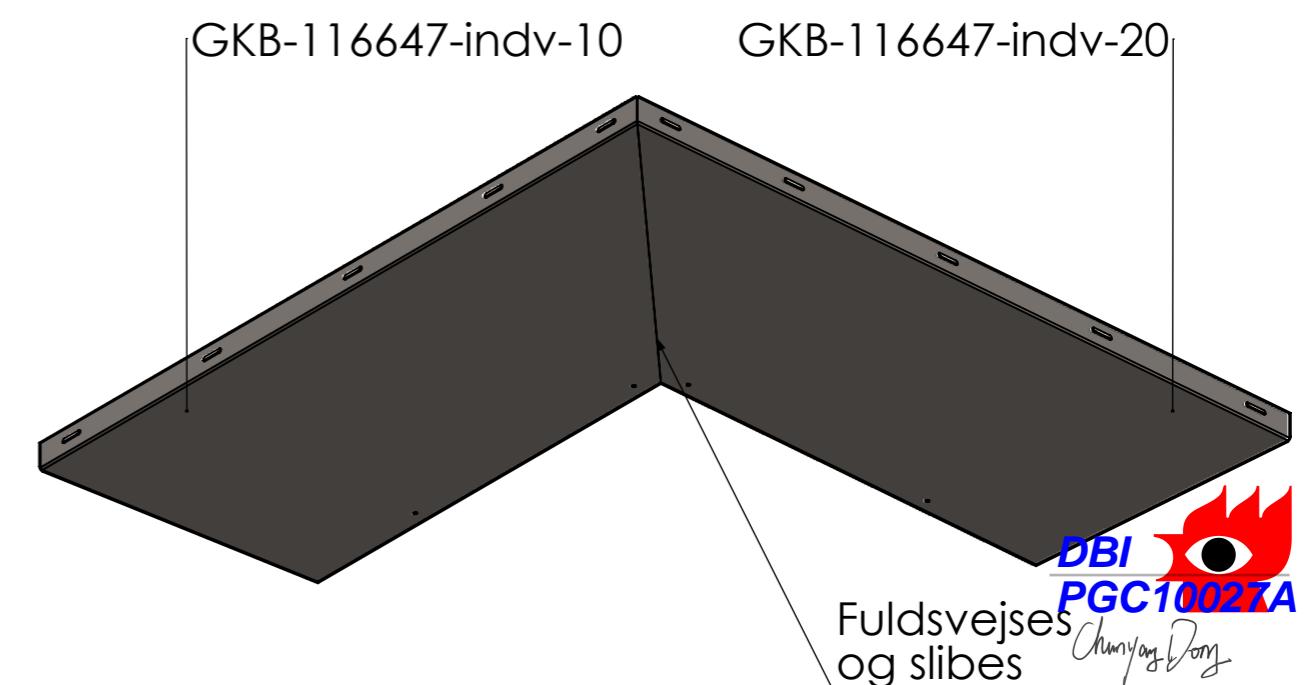
DRAWN	NAME	DATE	Folder name: X:\CPH Village Holding\
	casper	13-10-2023	Customer: CPH Village
			TITLE: Indv. Hj. Top, 2 mm plade
			MATERIAL: 1.0330 (DC01 (SPO))
			DWG NO. GKB-116646-indv
			REVISION
		Hvor intet andet er angivet, er tolerancer i henhold til DS/ISO 2768-1(m) Alle mål er i millimeter, medmindre andet er angivet. Tegningen må ikke skaleres.	SCALE:1:7
		WEIGHT: 13331.14	A3 SHEET 2 OF 2



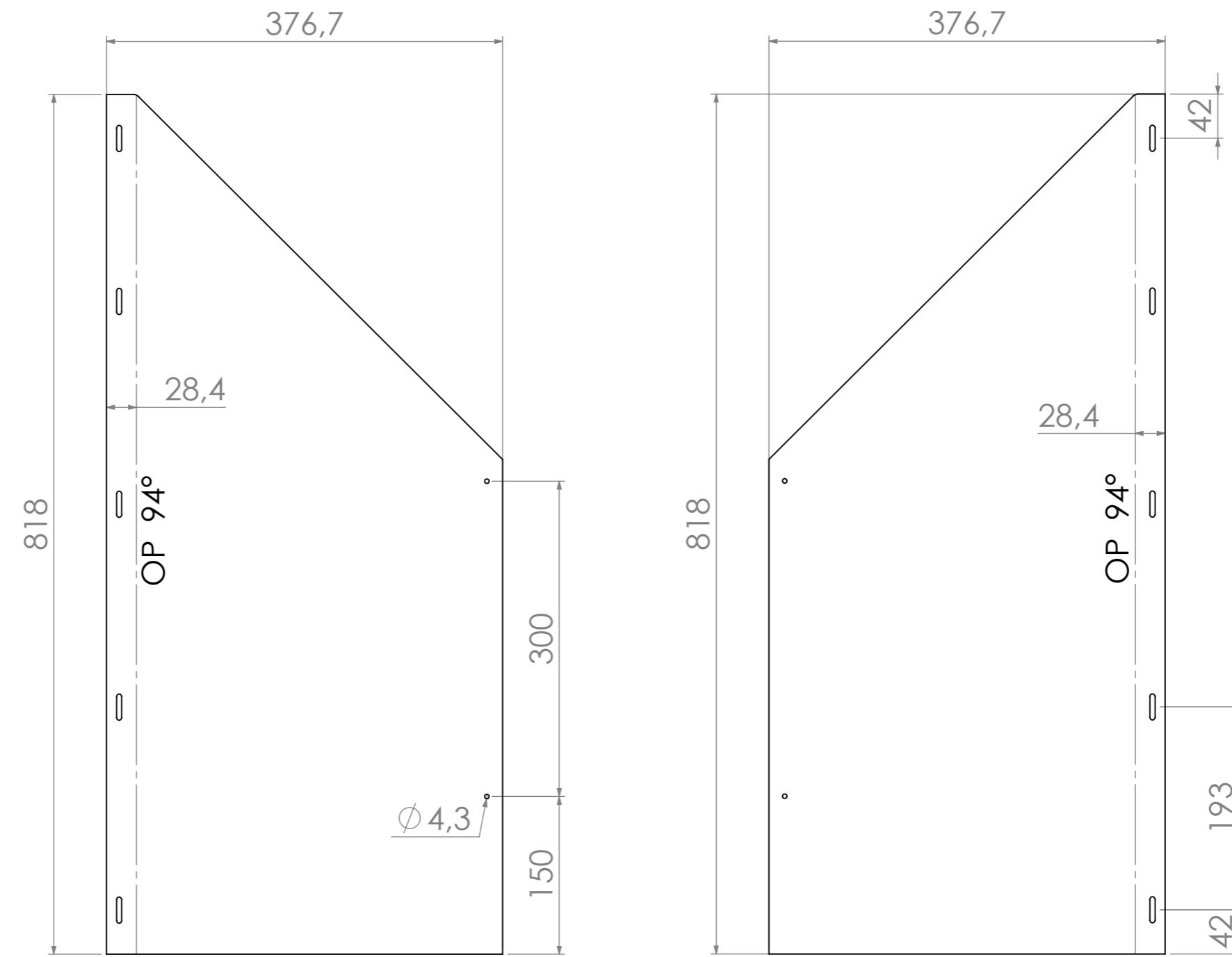
193 193 42



SECTION A-A  
SCALE 1:3



DRAWN	NAME	DATE	Folder name: X:\CPH Village Holding\
	casper	13-10-2023	Customer: CPH Village
			TITLE: Indv. Hj. Bund, 2 mm plade
			MATERIAL: 1.0330 (DC01 (SPO))
			DWG NO. GKB-116647-indv
			REVISION
		Hvor intet andet er angivet, er tolerancer i henhold til DS/ISO 2768-1(m) Alle mål er i millimeter, medmindre andet er angivet. Tegningen må ikke skaleres.	SCALE:1:7
			A3 SHEET 1 OF 2
		WEIGHT: 7712.77	



**DBI**   
**PGC10027A**  
Chunyan Dong

OV: R1  
UV: Spor 12-30°  
BT: 0,5 mm

DRAWN	NAME	DATE	Folder name: X:\CPH Village Holding\
	casper	13-10-2023	Customer: CPH Village
			TITLE: Indv. Hj. Bund, 2 mm plade
			MATERIAL: 1.0330 (DC01 (SPO))
			DWG NO. GKB-116647-indv
			REVISION
		Hvor intet andet er angivet, er tolerancer i henhold til DS/ISO 2768-1(m) Alle mål er i millimeter, medmindre andet er angivet. Tegningen må ikke skaleres.	WEIGHT: 7709,97
			SCALE: 1:5
			A3 SHEET 2 OF 2