TEST REPORT
EU FACADE TEST 7

Name of sponsor:	Fælledby P/S		
Product name:	EU facade test draft 6		
File no.:	PGC10036A	**Revision no.:**	0
Test date:	02-05-2024	**Date:**	17-06-2024
Pages:	12	**Encl.:**	110
Ref:	MMN / CHD		

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Client information

Client: Fælledby P/S

Address: c/o Cobblestone A/S

Gammel Køge Landevej 57, 3.

2500, Valby

Denmark

Content

Date of test

The test was conducted on 02-05-2024.

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: BFUH-7
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	1	27-03-2024	Facaderamme
Drawing	2	27-03-2024	Vindspærre
Drawing	3	27-03-2024	L Afstandslister
Drawing	4	27-03-2024	V Afstandslister
Drawing	5	27-03-2024	Facadebeklædning
Drawing	DE01	27-03-2024	Detaljer
Drawing	Flammeafbøjer BFUH-7 (1)	04-04-2024	2 mm plade
Drawing	Flammeafbøjer BFUH-7 (2)	04-04-2024	2 mm plade (3D)
Drawing	GKB-119661	04-04-2024	2 mm plade
Drawing	GKB-119661-1	04-04-2024	2 mm plade (Part 2)

Drawing	GKB-119661-2	04-04-2024	2 mm plade (Part 3)
Drawing	GKB-119661-3	04-04-2024	2 mm plade (Part 4)
Drawing	GKB-119661-4	04-04-2024	2 mm plade (Part 5)
Drawing	Vinduesinddækninger - Test 2	27-03-2024	Top 1
Drawing	Vinduesinddækninger - Test 2	27-03-2024	Vinkel 1
Drawing	Vinduesinddækninger - Test 2	27-03-2024	Bund 1
Drawing	Vinduesinddækninger - Test 2	27-03-2024	Side 1

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: 7600 mm	Main width: 3680 mm	Wing width: 1500 mm	Thickness: 283.5 mm With flame deflector: 588.5 mm

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

The build-up of the façade system is shown on the attached drawings, supplied by the sponsor. The construction of the facade 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 195 mm which had a nominal density of 480 kg/m³. A 45 x 95 wooden beam with a nominal density of 480 kg/m³ was mounted on the bottom construction wood. There were 3 cassettes in total, and they were mounted with 289 mm horizontal gap in between. See drawing No. 1.

The backside of the prefabricated cassettes was closed with 12 mm OSB board with a nominal density of 550 kg/m³.

Fixing of first layer: The construction woods C24 were fixed to each other with steel angles designated Simpson Strong-tie ABR9020 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 OSB boards were fixed on the prefabricated cassette with nail designated Tjep ZE 2.5 x 65 ring. The c/c distance of the nails was approx. 150 mm.

The cassettes were put on 2 ACW 155 Simpson strong-tie console bracket which were fixed to the aerated concrete frame with 4 screws designated Spit ACS CSK ø8 x 90/30 mm. One screw designated Paslode 5.0 x 40 mm was used to connect the cassette and each console bracket. All the other edges of prefabricated cassettes were fixed to the aerated concrete with steel angles designated Paslode 90 x 90 x 65. 4 screws designated Paslode 5.0 x 40 mm were used to connect the angle to the wood. The angles were fixed to the aerated concrete with one screw designated

Spit ACS CSK ø8 x 90/30 mm. The angles were mounted 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. 15 mm.

Gaps in the first layer: The gaps between the cassettes were filled with insulation. The insulation designated Rockwool flexibatts 37 with the thickness of the wall with the nominal density of 32 kg/m³ were placed in the gap. The gap was closed off by the second layer (weatherboard), mounted on to a 25 x 50 mm wooden batten in the top of the gap. The wood had a nominal density of 450 kg/m³. See drawing No. DE01.

The 45 x 45 mm wooden batten with a nominal density of 450 kg/m³ was fixed to the construction wood C24 with screws designated NKT Spun+ 4.5 x 70 mm. See drawing No. DE01.

Insulation in the cassette: The in-blown insulation consisted of Isocell paper insulation with a nominal density of 54 kg/m³.

Trickle Protection Membrane was used on both sides of the cassette, closing off the opening to the in-blown insulation. The membrane had a thickness on 0.5 mm and was mounted with staples.

Second layer: The second layer was 9.5 mm boards designated Knauf weatherboard 365, which had a nominal density of 768kg/m³. See drawing No. 2.

A z-profile size 20 x 10 x 20 mm with the thickness of 0.55 mm was mounted to cover the joint of two weatherboards, one side of the z-profile was mounted between the construction wood and the board, the other side covered the upper edge of the below board.

Fixing of second layer: The boards were fixed with nails designated Tjep ZE 2.5 x 50 mm with a c/c distance of 300 mm.

Knauf W tape 60 mm x 22.8 mm was used to close off joints of the board after mounting.

Flame deflector: The flame deflectors were made with 2 mm steel profile. The profile was fixed on the façade with screws designated RedHorse CORONA™ RXB 4.8 X 60 EPDM-9.5B, the c/c distance between screws was 300 mm. Top and bottom profile fasten with RF rivet designated Gesipa 4.0 x 8.0 mm, the c/c distance between rivets was approx. 200 mm. Joint in fire deflectors between top and bottom profile is offset according to drawings. The 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 305 mm out from the surface of the cladding andprotruded approx. 600 mm out from the edge of the main façade. The air gap inside the Flame deflectors was filled with insulation at the ends to prevent a horizontal air flow.

All details about the flame deflectors are shown on the following drawings: Flammeafbøjer BFUH-7 (1), Flammeafbøjer BFUH-7 (2), GKB-119661-1, GKB-119661-2, GKB-119661-3, GKB-119661-4, GKB-119661.

Formwork: The impregnated wood formworks with a dimension of 25 x 50 mm with a nominal density of 450 kg/m³ were mounted vertically and then horizontally on the main façade. See drawing No. 3 and 4.

The 22 x 100 mm wooden batten with a nominal density of 450 kg/m³ was mounted horizontally on the vertical formwork. The distance between the horizontal wooden batten and the flame deflector was 496 mm.

Fixing of formwork: The vertical formwork was nailed with 2.5 x 65 mm Tjep ZE, per 120 mm.
The horizontal formwork and wooden batten were nailed with 3.1 x 90 mm Tjep ZE, per 600 mm.

Cladding: Wooden planks designated Finnforest Thermowood profile 330 with a dimension of 21 x 118 mm and nominal density of 435 kg/m³ with groove and tongue were mounted horizontally on the top of the formworks as the cladding.

The cladding was cut horizontally 583 mm below the flame deflector.

Fixing of cladding: The cladding was fixed on the formwork horizontally with two nails per profile designated Tjep ZE 2.5 x 50 mm ring. See drawing No.5.

Window and fire chamber details: The powder-coated galvanized steel profiles were mounted around the window and fire chamber with Tjep ZE 2.5 x 50 mm Ring nails. The c/c distance of nails was 300 mm.

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 window, the ceramic wool was used to close the gap. On top of that a fire sealant was used to close of the airgap.

Measured by DBI

Product		Construction wood 195mm	OSB board	Isocell Blown insulation	Knauf Weatherboard 365	45 x 45 wooden beam
Density	kg/m³	459	655*	64*	806	529*
Thickness	mm	44.5	11.6	-	9.7	44.6
Moisture content	%	17.3	8.0	9.5	0.2	12.9
Organic content	%	-	-	-	-	-
Sampling method		Extra material	Extra material	Extra material	Extra material	Extra material
Drying temperature	°C	105	105	55	55	105

Product		45x 95mm wooden beam	25 x 50 formwork	Frøslev klinkeprofil	22 x 100 wooden batten	Rockwool slab
Density	kg/m³	525*	520*	455	478	36
Thickness	mm	43.5	26.8		21.1	128.7
Moisture content	%	17.2	13.6	5.0	13.9	0.3
Organic content	%	-	-	-	-	2.1
Sampling method		Extra material	Extra material	Extra material	Extra material	Extra material
Drying temperature	°C	105	105	105	105	105

*The measured density of OSB board, Isocell Blown insulation, 45 x 45 mm wooden beam, 45x 95mm wooden beam, 25 x 50 formwork were more than 10% higher than the nominal density.

Test conditions

Conditioning

The materials for the test specimen were delivered on the 15-04-2024 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 26-04-2024.

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 1500 mm wide. The surface of the test rig was built with 150 mm aerated concrete blocks, with a nominal density of 575 kg/m^3.

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. 19 °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 m^3/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.2.1-2.5, I.3.1-3.5. 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.2.1-2.5, I.3.1-3.5. 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/m³.

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.

The test was terminated after 49 minutes.

Test results

Duration of the test was 49 minutes.

Measurements

The enclosed graphs and tables show:

Enclosures 2.0 and 2.1	The temperature in the fire chamber during the test
Enclosures 3.0 and 3.1	Ambient temperature The ambient temperature in the laboratory during the test
Enclosures 4.0 and 4.1	Location 1 - Flux
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 8.0 and 8.1	Location 1,2 - Plate TC 1.4m and 2.5m height Plate TC.1 Location 1 Plate TC.2 Location 2
Enclosures 9.0 and 9.1	Location 2 - 5 m from facade 4.5 m height.
Enclosures 10.0 and 10.1	Location 1 - TC on PlateTC
Enclosures 11.0 and 11.1	Location 1 - TC on Flux Flux.TC.2 located 3 m from fire chamber
Enclosures 12.0 and 12.1	Location 2 - TC TC.1 Location 1 TC.2 Location 2

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 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 measurments
Enclosures 28.0 and 28.1	Plate thermocouple on facade
Enclosures 29.0 and 29.1	Heat flux on window
Enclosures 30.0 and 30.1	TC on window heat Flux Flux.TC. on window
Enclosures 31.0 and 31.1	Temperature rise measured behind the windbreaker board

Visual observations:

Time / Minutes	Visual observations:
0:00	Test start
1:35	Flames had reached the window
2:33	Whole chamber burning
2:40	Cladding burning above chamber
3:17	Fire chamber right side burning
4:12	Chamber steel bending
4:40	Lot of charring and burning cladding above chamber
5:40	Smoke from flame deflector edge
6:40	Deflector bending above chamber
7:26	Flames reach second deflector
8:00	Discolouring above first deflector
9:30	First floor burning right to window and above
10:14	Burning and charring right under second deflector
12:14	Flames spreading under deflection two
14:33	Cladding is falling
15:40	Big flames under deflector two
16:40	Left side edge burning
18:07	Additional falling of cladding
19:00	More charring and falling of cladding plus flames decreasing
21:00	Sustained flaming
21:30	Flame deflector bending and opening
23:40	Fire reading out right side
28:00	Heavy smoke from top
42:10	Flames very small
42:40	Lots of cladding fallen
46:10	Flames reaching out and around second flame deflector
55:12	Most of cladding has fallen
60:30	Test stopped

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	Criteria	Test result
Fire spread		
	Vertical fire spread	No failure
	Horizontal fire spread	12 minutes
	Burning parts	21 minutes
Falling parts – Level 0		
	Falling parts – (Level 0)	21 minutes
Falling parts – Level 1		
	Falling parts – (Level 1)	Not measured
Falling parts – Level 2		
	Falling parts – (Level 2)	Not measured

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.

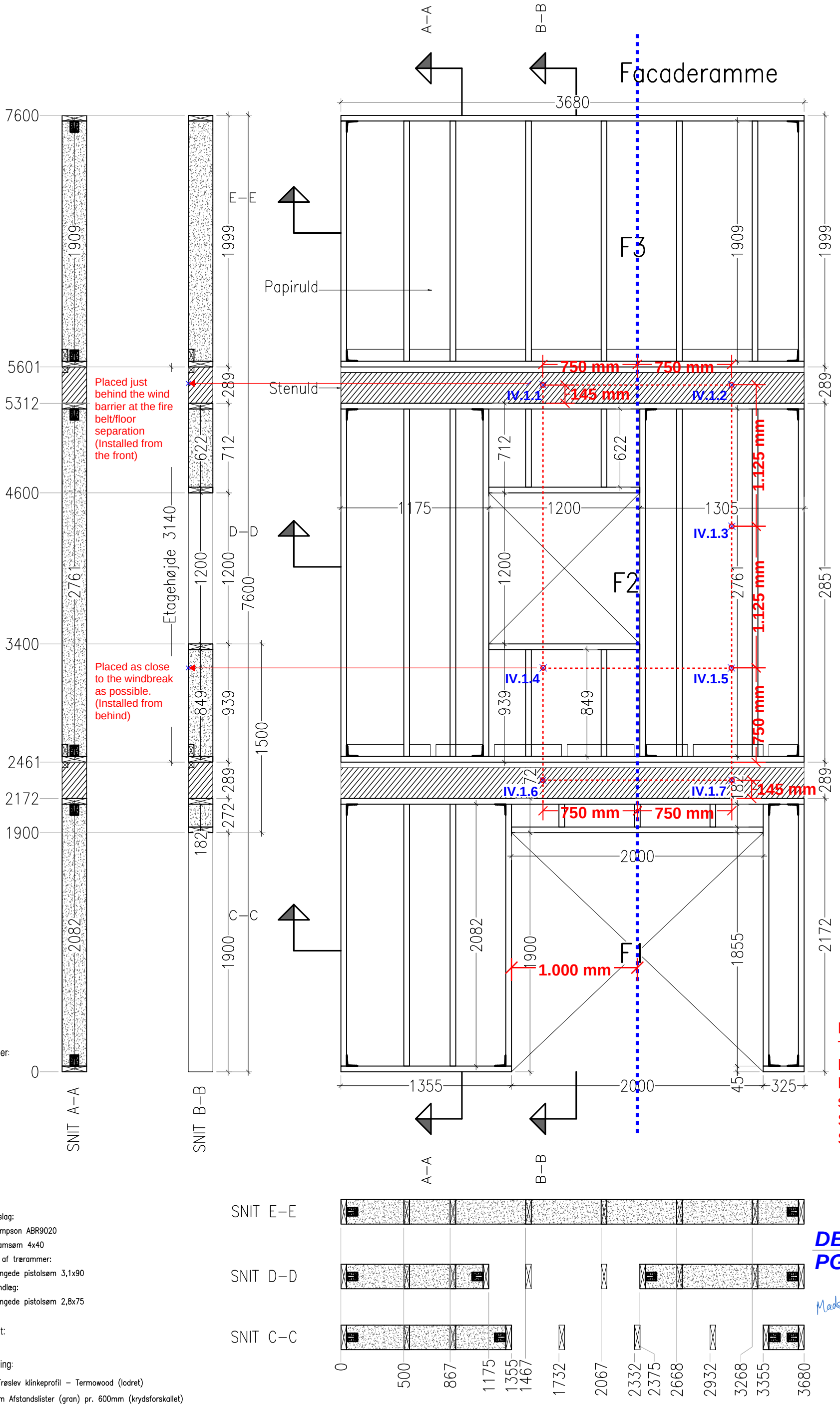
The test was not performed accredited.

Danish Institute of Fire and Security Technology

Mads Møllgren
Resistance to Fire Engineer

Chunyang Dong
M.Sc. (Safety Eng.)

Fælledby P/S	**Enclosures:**	**110**
c/o Cobblestone A/S	DBI drawings:	8
Gammel Køge Landevej 57, 3.	DBI graphs and tables:	52
2500, Valby	Photo sheets:	14
Denmark	Sponsors drawings:	36



Materialer:

Træ:

F1:

45x195:

F2:

45x195:

45x45:

F3:

45x195

45x45

Vinkelbeslag:

Simpson ABR9020

Kamsøm 4x40

Samling af trærammer:

Ringede pistolsøm 3,1x90

45x45 indlæg:

Ringede pistolsøm 2,8x75

Generelt:

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Opbygning:

22mm Frøslev klinkeprofil – Termowood (lodret)

22x45mm Afstandslister (gran) pr. 600mm (krydsforskallet)

9,5mm Knauf Weatherboard 365

45x195mm stoplekonstruktion pr. 600mm

195mm Isocell (isolering kl 37)

195mm Rockwool (isolering kl 37) (over vinduer og i lukkestykker)

Revisionstekst:

A) Isolering tilføjet, opdatering af befæstigelse

File no.: PGC10036A
Test date: 02-05-2024
Enclosure: 1.1
Danish Institute of Fire and security Technology
Sponsor: Fælledby P/S
Subject: EU Facade test 7

DBI
PGC10036A

Mads Mock

BFUH-6 Facadetest ved DBI - Version 2

Foreløbig

Facaderamme

BYGHERRE:
Fælledby
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DATO: 2024-03-27 REV. NR/DATO: 2024-03-27

ANSV: CMA MÅL: 1:30 ANTAL: –

TEGN.NR: 1

BM Byggeindustri Lupinvej 18 - 9500 Hobro - Tlf. +45 9852 1744

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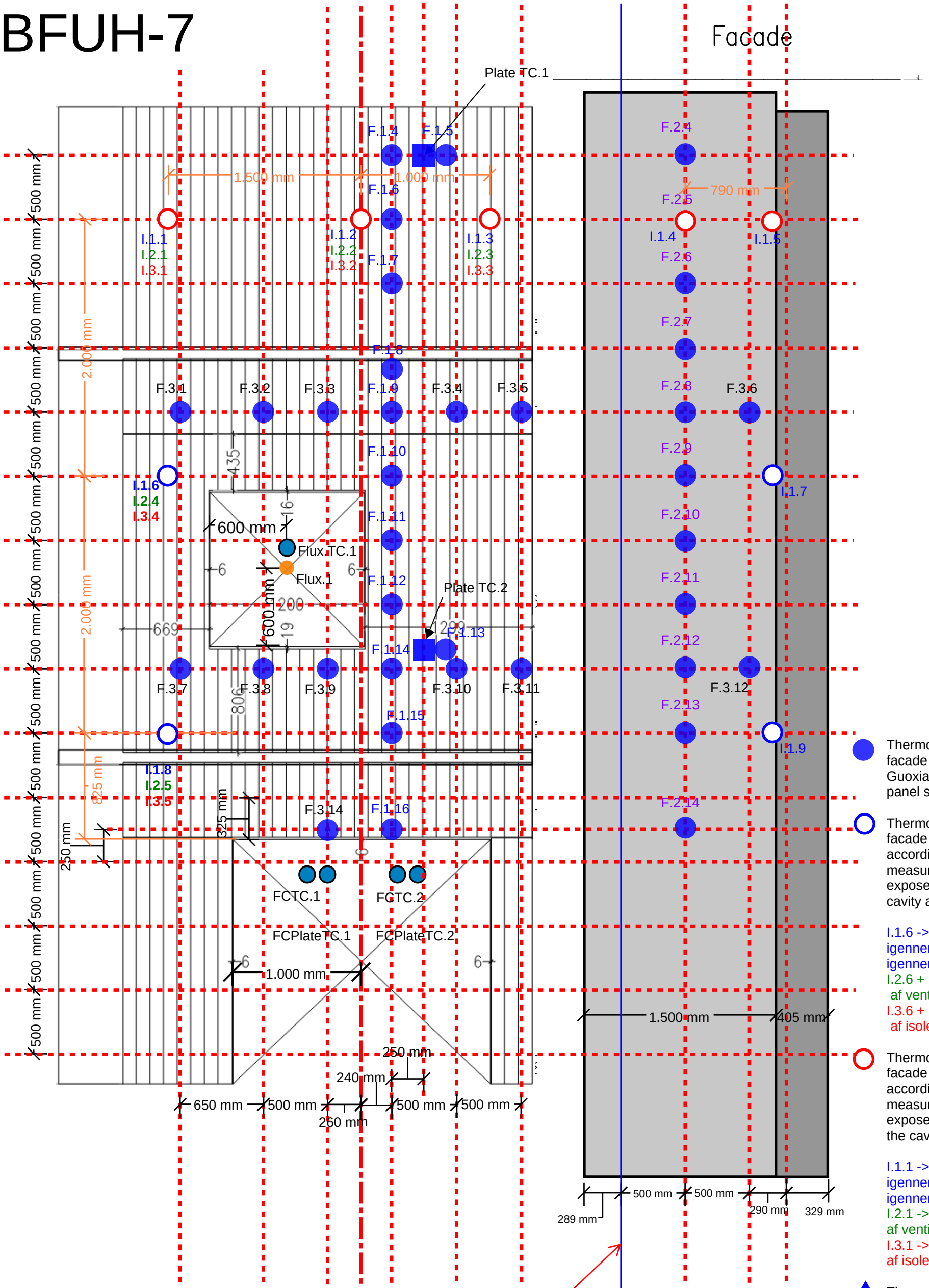
BFUH-7



Front of the cladding on the main facade.

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).

I.1.6 -> I.1.9 50mm ud igennem facade (Hele vejen igennem)
I.2.6 + I.2.8 I midten af ventilationslag
I.3.6 + I.3.8 I midten af isolering

Thermocouple location on the facade surface required according to the standard (2 measurements: 5 cm out on exposed surface and middle of the cavity)

I.1.1 -> I.1.5 50mm ud igennem facade (Hele vejen igennem)
I.2.1 -> I.2.3 I midten af ventilationslag
I.3.1 -> I.3.3 I midten af isolering

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.

Materialer:

22mm Frøslev klinkeprofil – Termowood (lodret) LBM:
Rundhovedet rustfri A4 pistolsøm 2,5x50

Generelt:

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Opbygning:

22mm Frøslev klinkeprofil – Termowood (lodret)
22x45mm Afstandslister (gran) pr. 600mm (krydsforskallet)
9,5mm Knauf Weatherboard 365
45x195mm stoplekonstruktion pr. 600mm
195mm Isocell (isolering kl 37)
195mm Rockwool (isolering kl 37) (over vinduer og i lukkestykker)

Revisionstekst:

A) Befæstigelse tilføjet

File no.: PGC10036A
Test date: 02-05-2024
Enclosure: 1.2
Danish Institute of Fire and security Technology
Sponsor: Fælledby P/S
Subject: EU Facade test 7

BFUH-6 Facadetest ved DBI - Version 2 — Foreløbig

Facadebeklædning

BYGHERRE: Fælledby
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DATO: 2024-03-27 REV. NR/DATO: 2024-03-27
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TEGN.NR: 5

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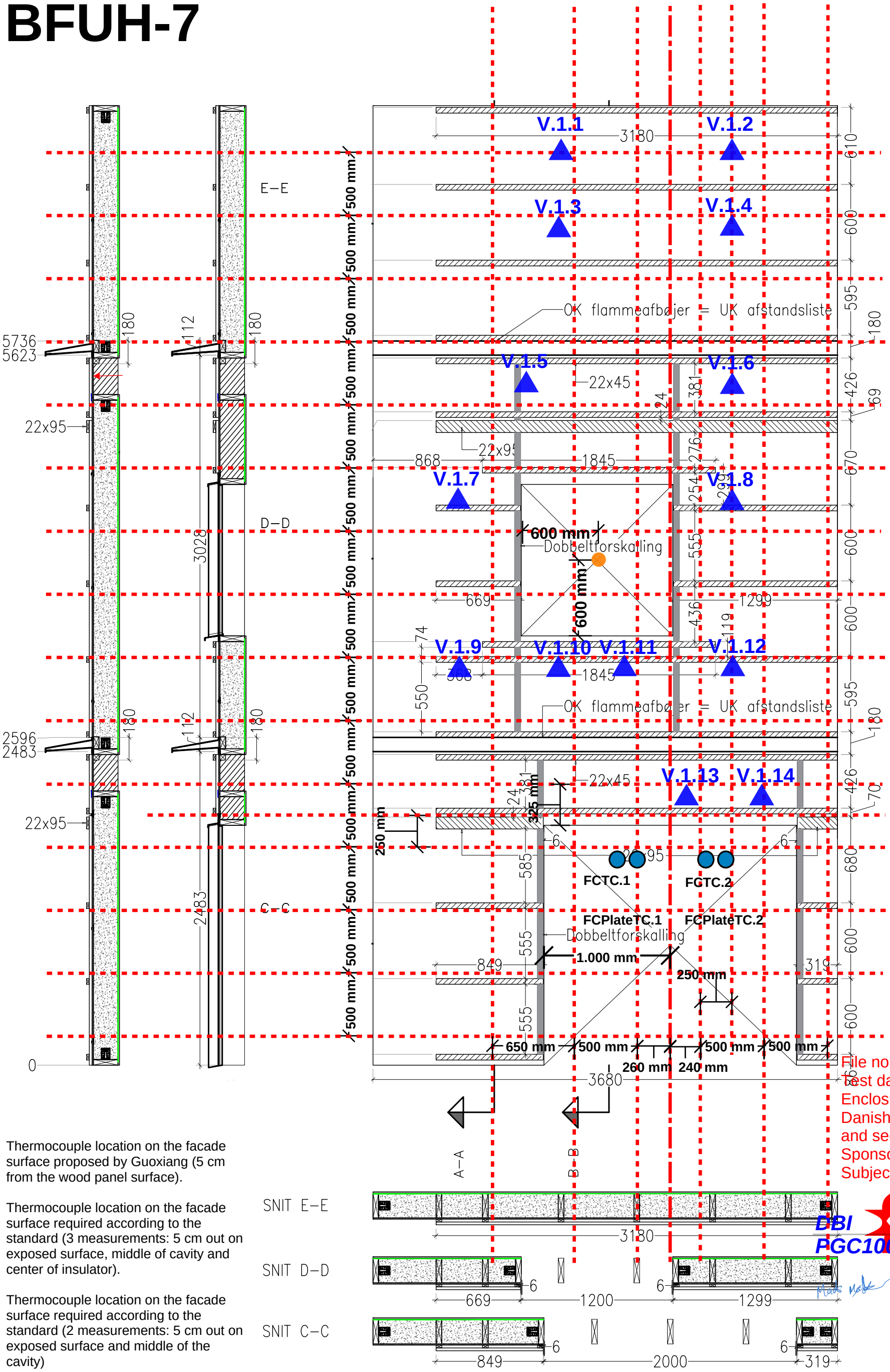

- Thermocouple location on the facade surface proposed by Guoxiang (5 cm from the wood panel surface).
- Thermocouple location on the facade surface required according to the standard (3 measurements: 5 cm out on exposed surface, middle of cavity and center of insulator).
- Thermocouple location on the 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.

BFUH-6 Facadetest ved DBI - Version 2 — Foreløbig

V Afstandslister

BYGHERRE: Fælledby

DATO: 2024-03-27 REV. NR/DATO: 2024-03-27

ANSV: CMA MÅL: 1:30 ANTAL: –

TEGN.NR: 4

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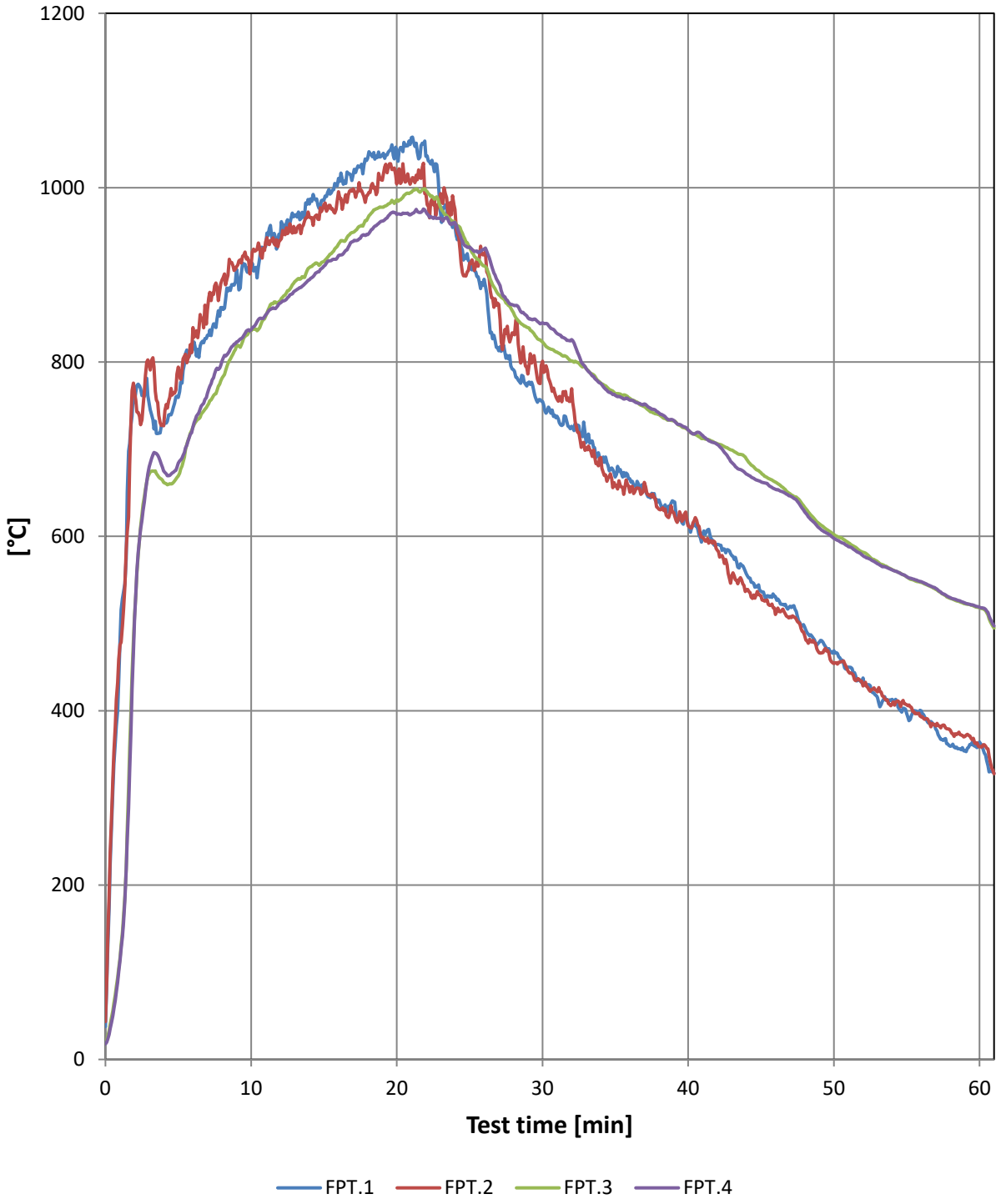
File no.: PGC10036A
Test date: 02-05-2024
Enclosure: 1.3
Danish Institute of Fire and security Technology
Sponsor: Fælledby P/S
Subject: EU Facade test 7

DBI
PGC10036A

The temperature in the fire chamber during the test



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

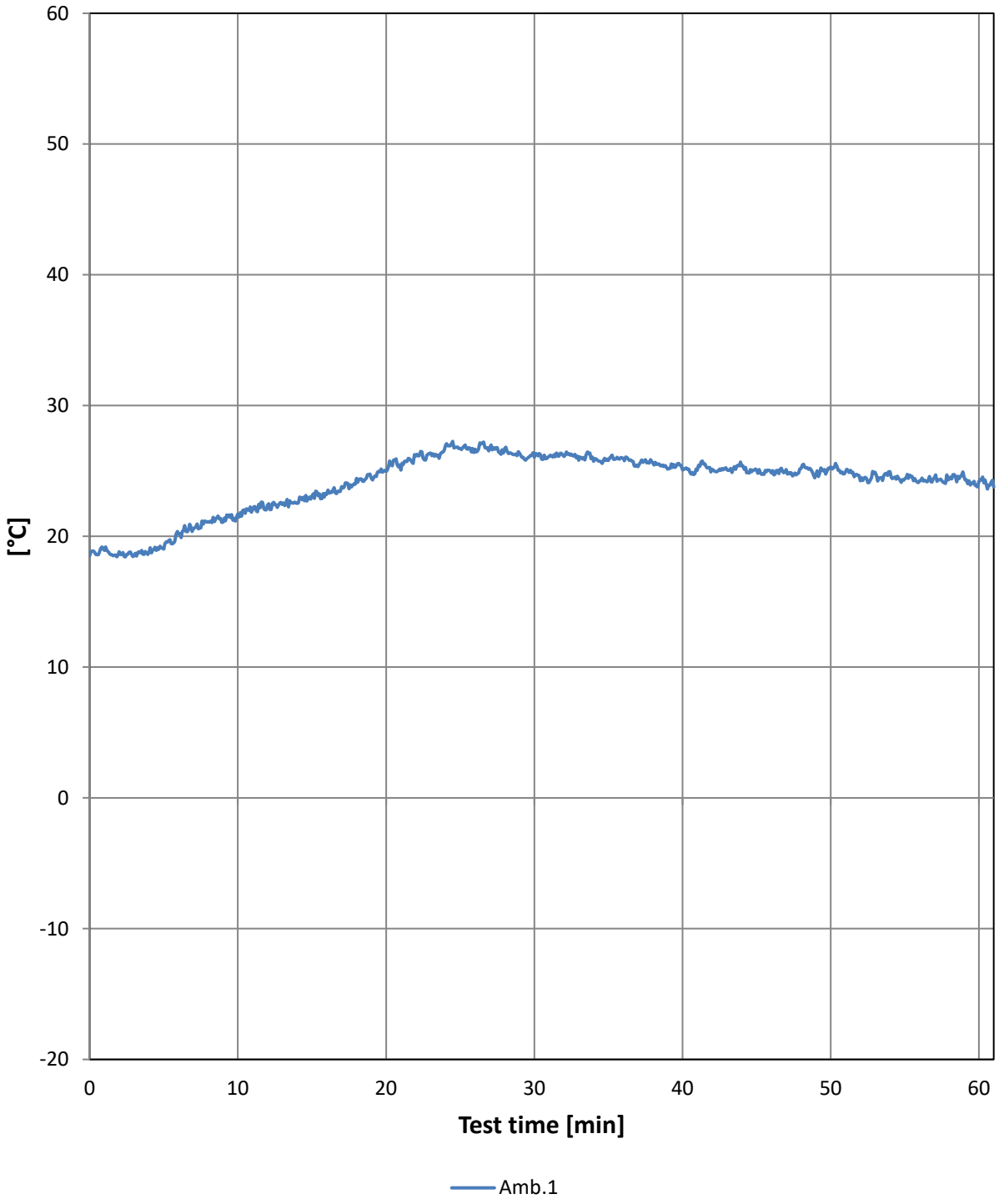
The temperature in the fire chamber during the test

Min. / °C	FPT.1	FPT.2	FPT.3	FPT.4
0	38	43	18	18
2	754	766	508	503
4	727	727	662	675
6	816	839	725	726
8	863	894	782	801
10	906	911	836	837
12	943	940	870	868
14	981	966	908	894
15	985	980	915	910
16	1011	995	935	922
18	1034	992	965	946
20	1042	1004	986	969
22	1036	994	997	972
24	956	975	960	960
26	895	924	910	930
28	791	833	857	865
30	755	801	823	845
32	726	770	801	826
34	683	690	776	776
36	666	651	758	756
38	642	631	740	742
40	614	612	722	722
42	591	584	706	705
44	557	539	689	672
46	531	510	662	654
48	496	486	633	628
50	469	454	602	598
52	438	428	582	578
54	413	408	562	562
56	400	393	547	548
58	359	377	529	530
60	364	359	518	519
61	328	328	495	497

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

Ambient temperature

The ambient temperature in the laboratory during the test

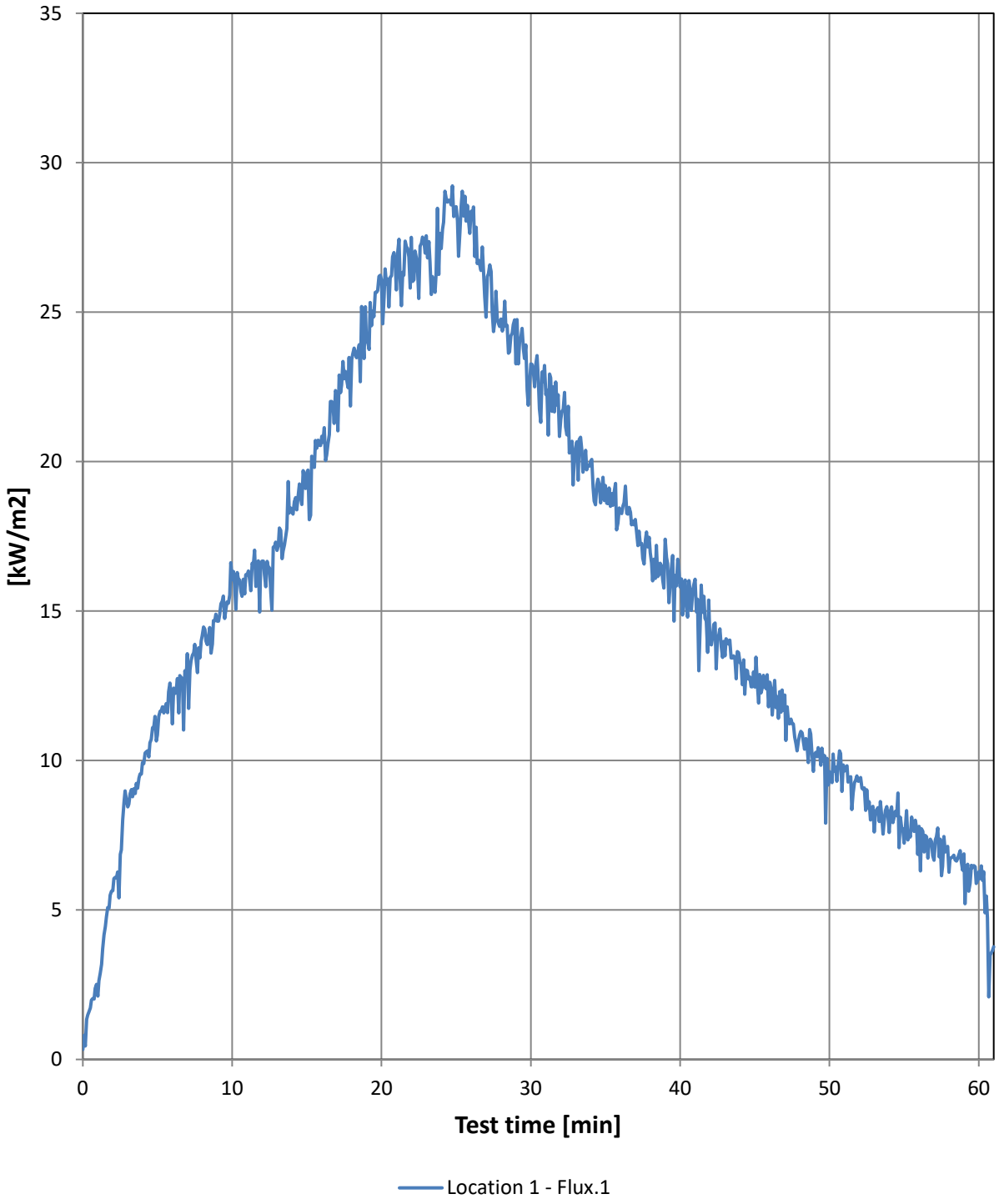


Ambient temperature

The ambient temperature in the laboratory during the test

Min. / °C	Amb.1
0	19
2	19
4	19
6	20
8	21
10	22
12	22
14	23
15	23
16	23
18	24
20	25
22	26
24	27
26	27
28	27
30	26
32	26
34	26
36	26
38	26
40	25
42	25
44	25
46	25
48	25
50	25
52	24
54	25
56	24
58	24
60	24
61	24

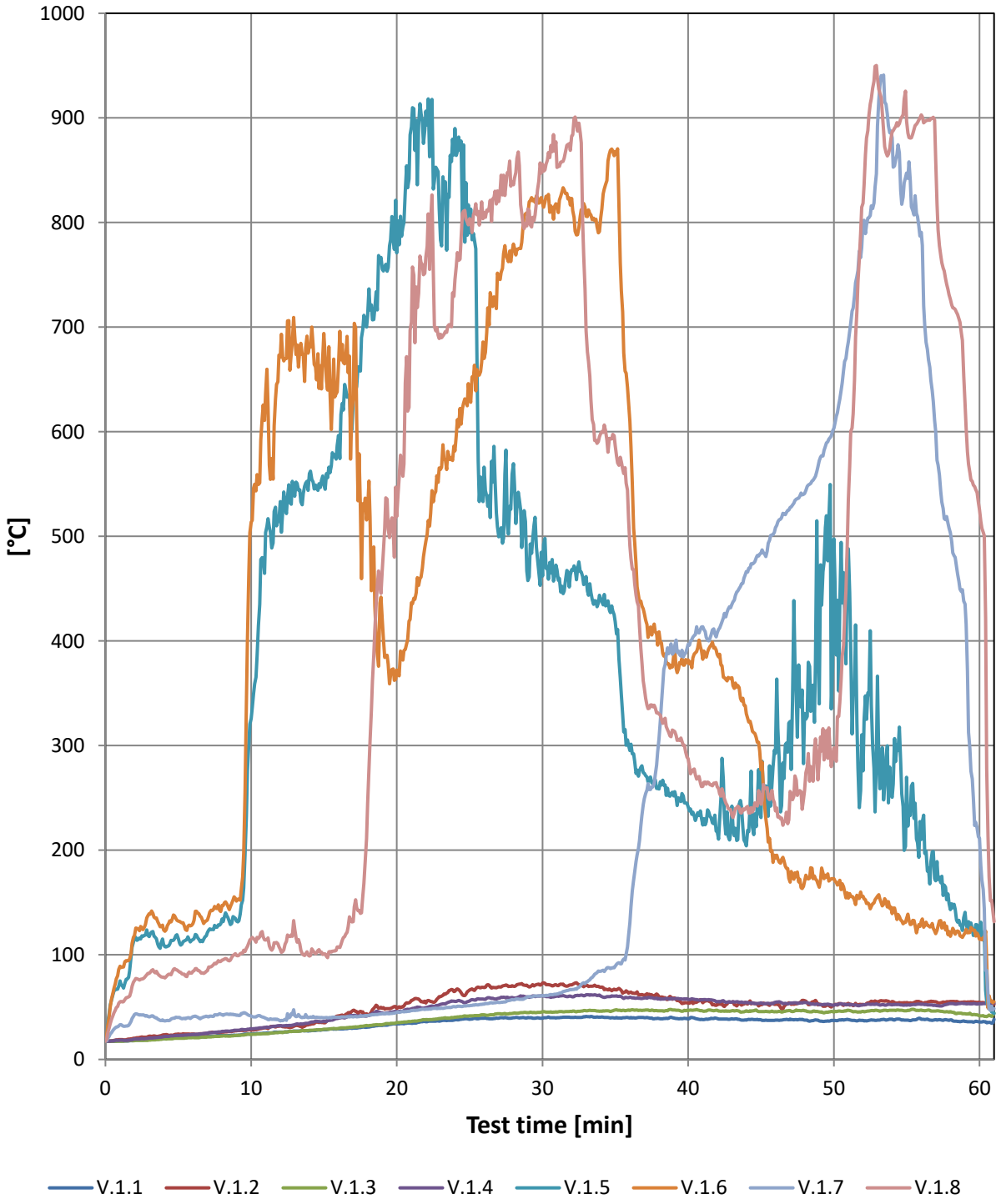
Location 1 - Flux



Location 1 - Flux

Min. / kW/m2	Location 1 - Flux.1
0	0
2	6
4	10
6	11
8	14
10	16
12	17
14	18
15	20
16	21
18	23
20	26
22	28
24	27
26	28
28	25
30	23
32	21
34	20
36	18
38	17
40	16
42	14
44	13
46	13
48	11
50	10
52	9
54	8
56	8
58	6
60	6
61	4

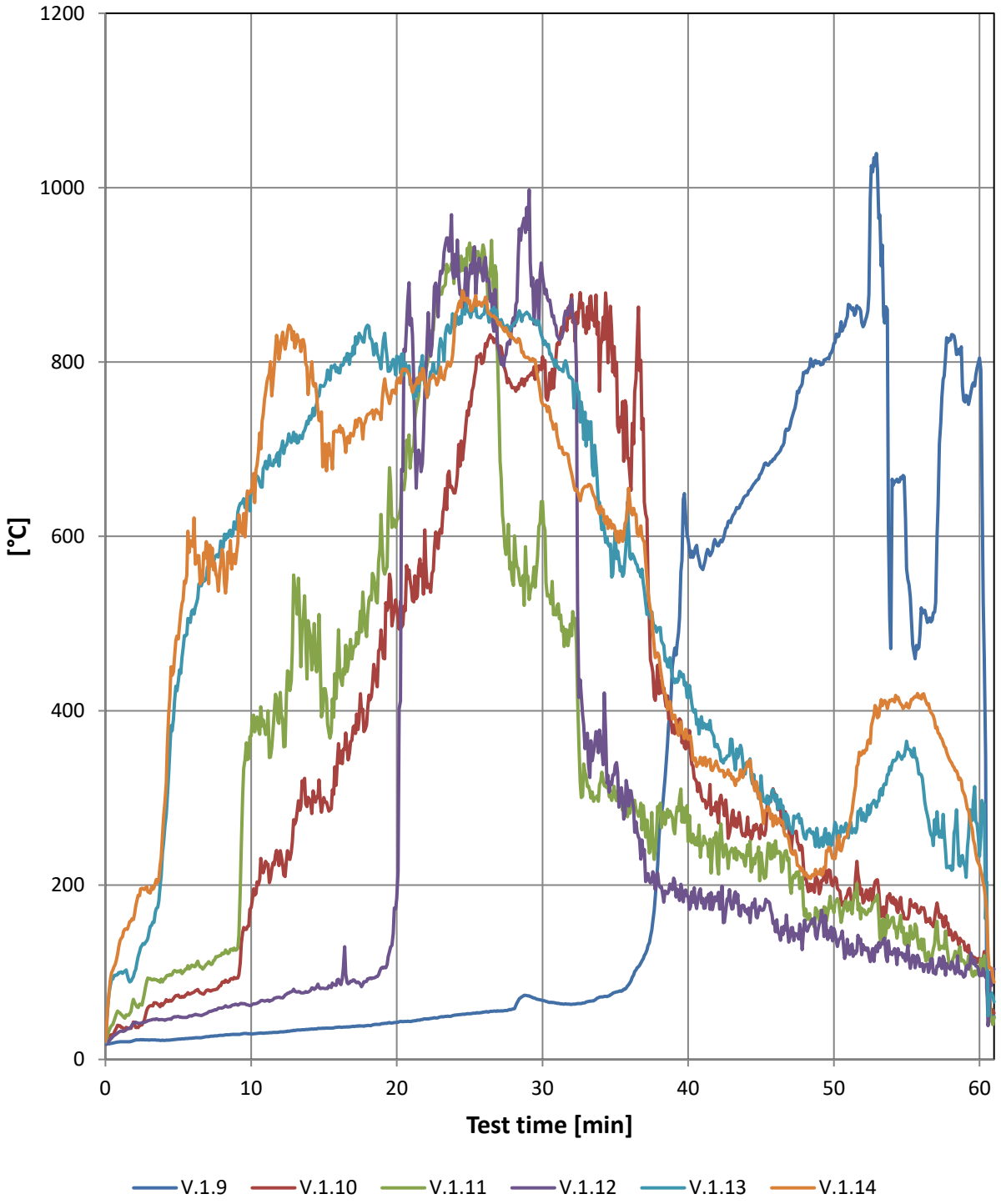
Temperature measured in the ventilated cavity



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	17	17	17	17	18	17	18	18
2	18	20	18	19	117	119	43	75
4	20	23	20	22	110	124	37	79
6	21	24	21	24	115	130	41	84
8	23	26	22	27	134	147	43	95
10	24	28	24	29	326	514	41	115
12	26	32	26	32	533	671	37	105
14	27	34	28	35	560	682	40	99
15	28	35	29	36	549	694	40	101
16	29	42	30	39	597	664	40	108
18	31	43	32	42	711	525	42	244
20	34	49	35	46	771	372	45	519
22	36	54	38	50	907	495	48	767
24	38	65	40	55	890	582	50	746
26	39	69	43	57	566	670	53	809
28	40	70	44	59	569	779	57	836
30	39	73	46	61	462	818	61	856
32	40	71	46	60	468	823	67	883
34	40	69	46	61	440	805	84	599
36	40	64	47	60	295	610	131	491
38	39	60	46	58	259	409	306	330
40	39	54	47	58	242	382	397	288
42	39	53	47	55	218	387	408	261
44	38	53	46	55	204	330	466	241
46	37	53	46	55	293	193	508	238
48	38	56	47	54	331	170	541	257
50	37	52	45	52	498	173	604	298
52	37	53	46	52	276	156	802	818
54	39	55	47	52	251	139	881	887
56	38	55	47	53	210	132	791	903
58	38	55	46	53	143	118	504	727
60	36	55	42	53	118	115	211	526
61	38	53	44	54	44	55	48	132

Temperature measured in the ventilated cavity

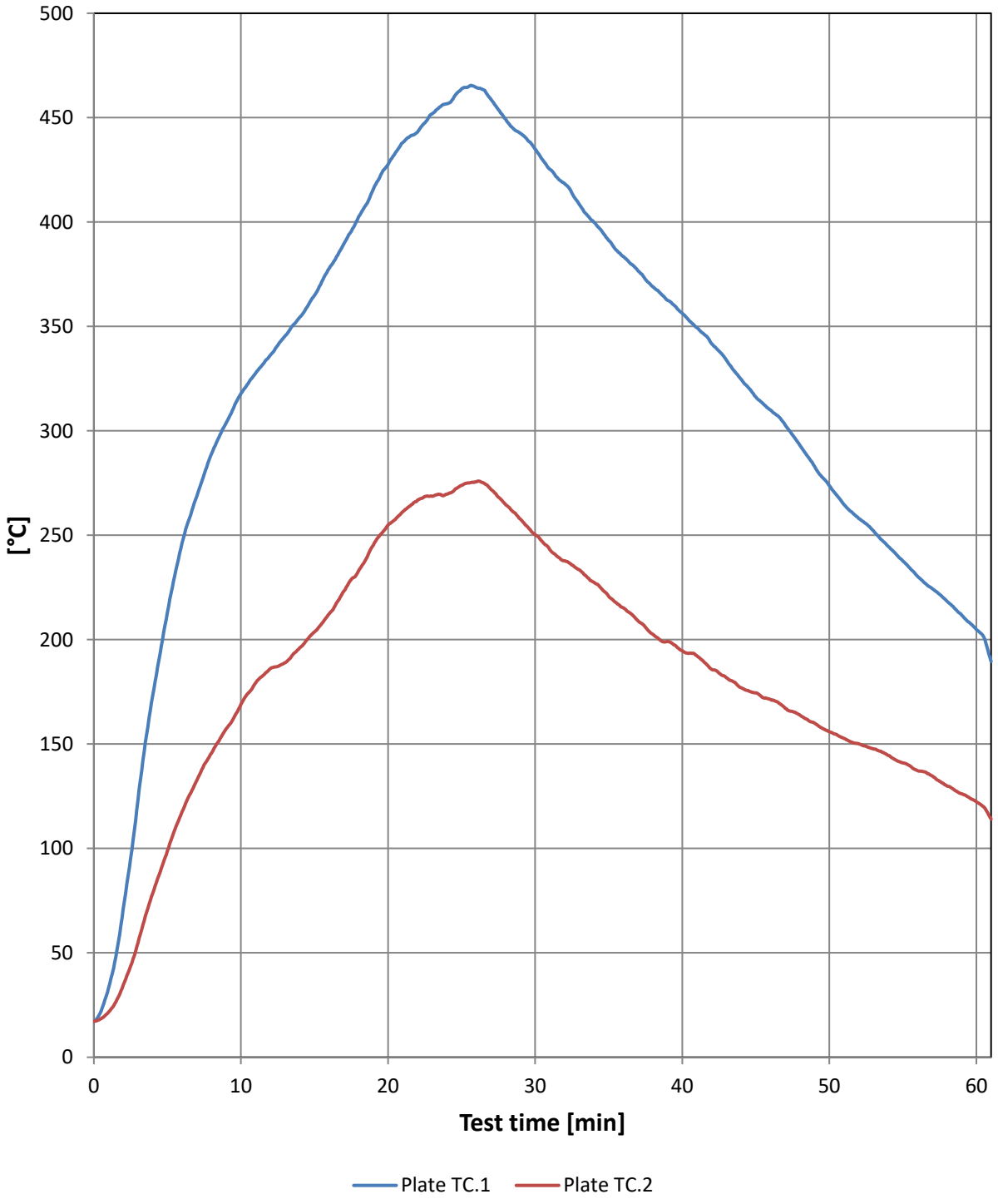


Temperature measured in the ventilated cavity

Min. / °C	V.1.9	V.1.10	V.1.11	V.1.12	V.1.13	V.1.14
0	18	19	18	18	19	21
2	22	40	65	43	100	166
4	22	64	92	45	248	278
6	24	77	108	51	516	588
8	28	89	122	59	590	585
10	29	174	371	62	653	652
12	32	239	421	71	698	813
14	35	298	492	78	738	782
15	36	300	425	82	772	700
16	37	362	493	92	788	721
18	39	402	510	92	842	740
20	43	517	619	185	807	779
22	46	566	790	786	770	769
24	51	650	916	923	840	853
26	54	805	929	913	855	868
28	58	771	544	851	843	827
30	68	806	640	898	827	752
32	63	877	486	872	781	672
34	72	820	320	365	620	635
36	88	670	282	308	576	640
38	255	419	286	200	496	463
40	597	358	250	187	415	367
42	589	284	225	186	361	338
44	647	263	233	172	340	335
46	691	304	251	146	296	280
48	787	207	165	160	254	211
50	822	205	169	150	262	233
52	840	180	170	132	283	354
54	666	180	163	120	340	413
56	518	175	138	110	326	413
58	825	149	108	103	222	342
60	805	113	104	96	233	223
61	48	53	49	104	66	88

Location 1,2 - Plate TC 1.4m and 2.5m height

Plate TC.1 Location 1
Plate TC.2 Location 2

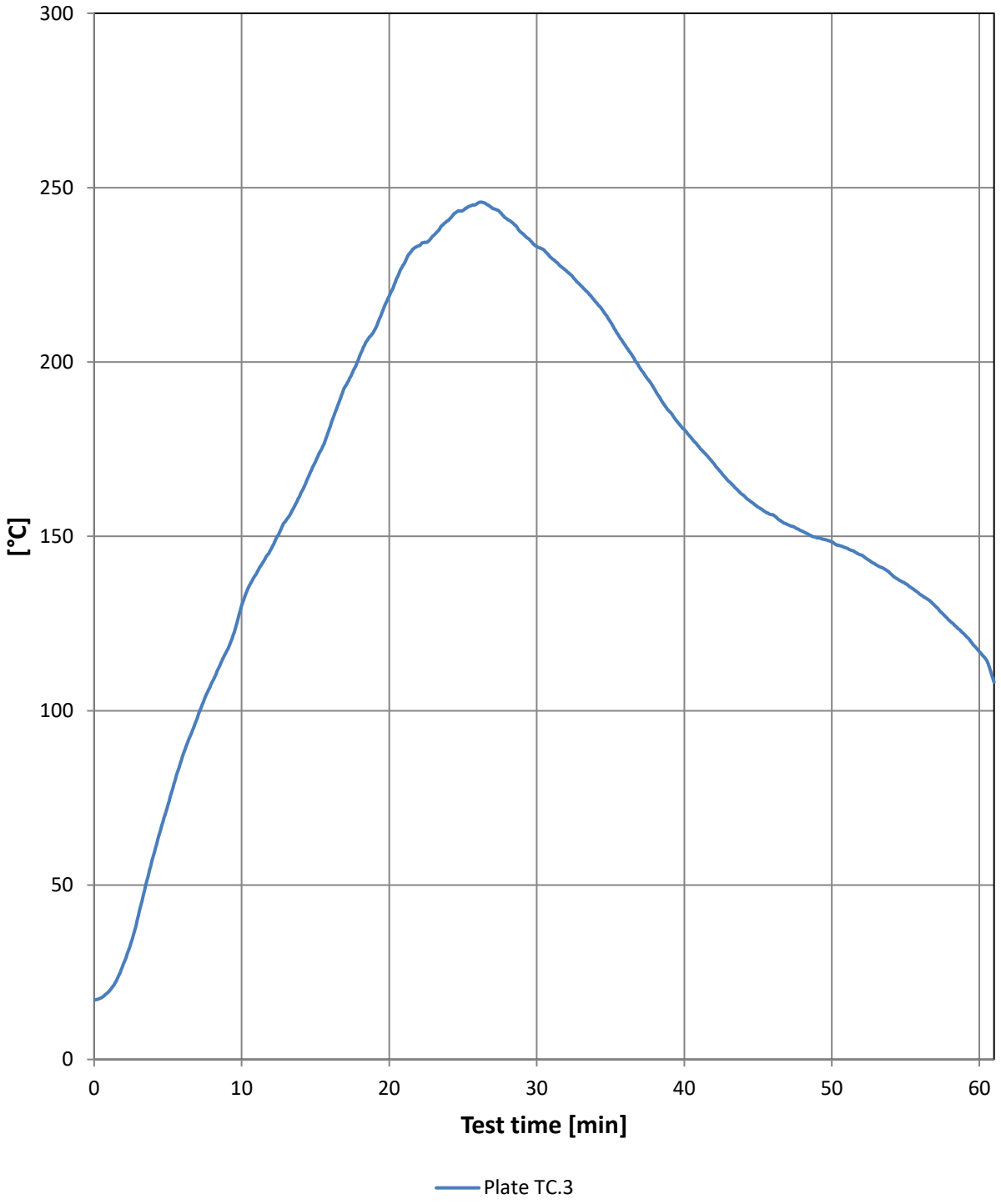


Location 1,2 - Plate TC 1.4m and 2.5m height

Plate TC.1 Location 1
Plate TC.2 Location 2

Min. / °C	Plate TC.1	Plate TC.2
0	17	17
2	71	34
4	173	79
6	246	117
8	289	146
10	318	169
12	336	186
14	354	196
15	365	204
16	378	212
18	402	233
20	428	255
22	443	267
24	457	270
26	464	276
28	449	265
30	435	250
32	418	238
34	400	227
36	383	215
38	369	203
40	356	195
42	342	186
44	325	177
46	310	171
48	293	164
50	274	156
52	258	150
54	245	145
56	230	137
58	218	130
60	205	122
61	190	114

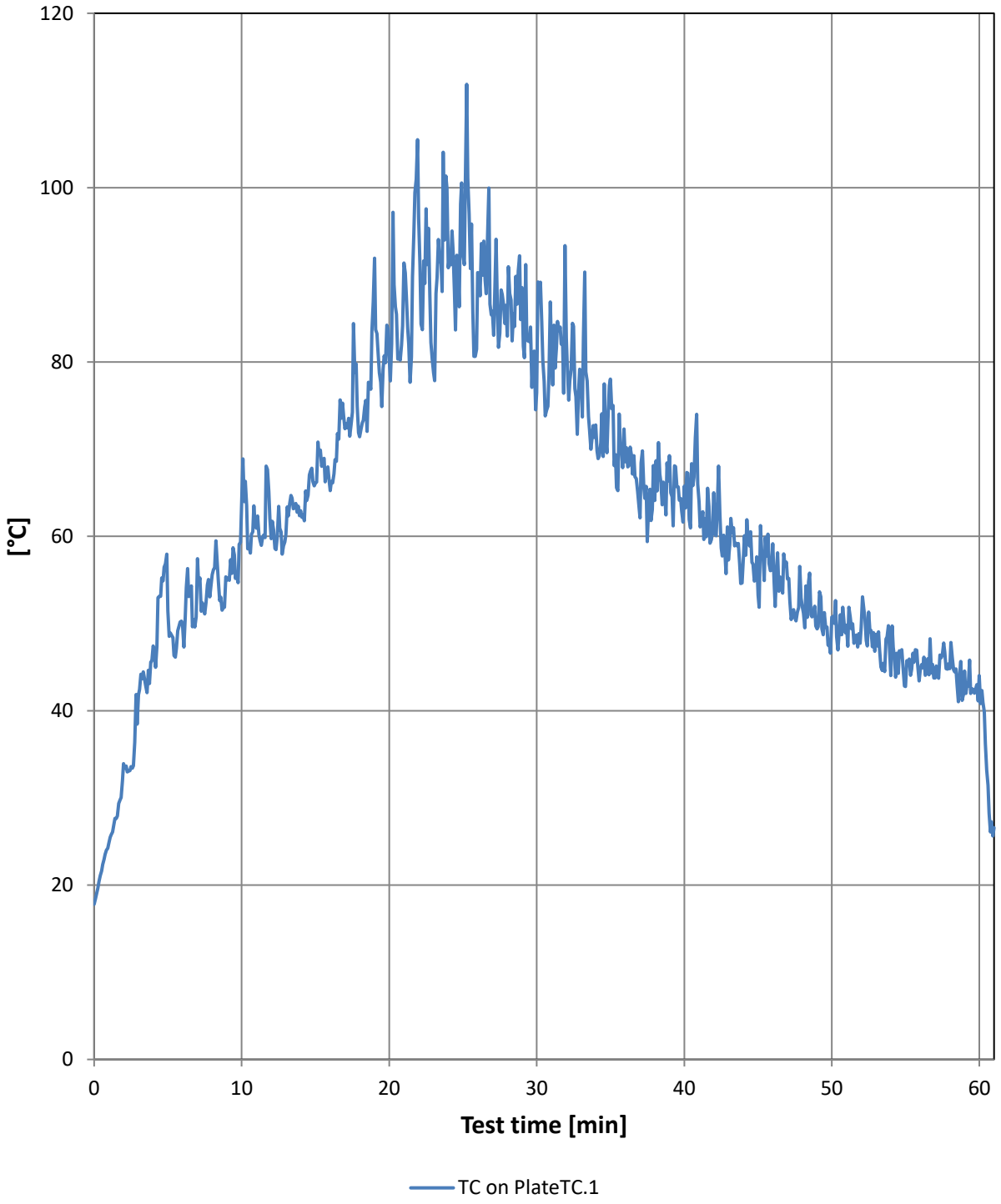
Location 2 - 5 m from facade 4.5 m height.



Location 2 - 5 m from facade 4.5 m height.

Min. / °C	Plate TC.3
0	17
2	27
4	58
6	87
8	108
10	130
12	146
14	162
15	171
16	181
18	202
20	219
22	233
24	241
26	246
28	241
30	233
32	226
34	217
36	205
38	192
40	181
42	171
44	162
46	156
48	151
50	148
52	145
54	139
56	133
58	126
60	117
61	108

Location 1 - TC on PlateTC

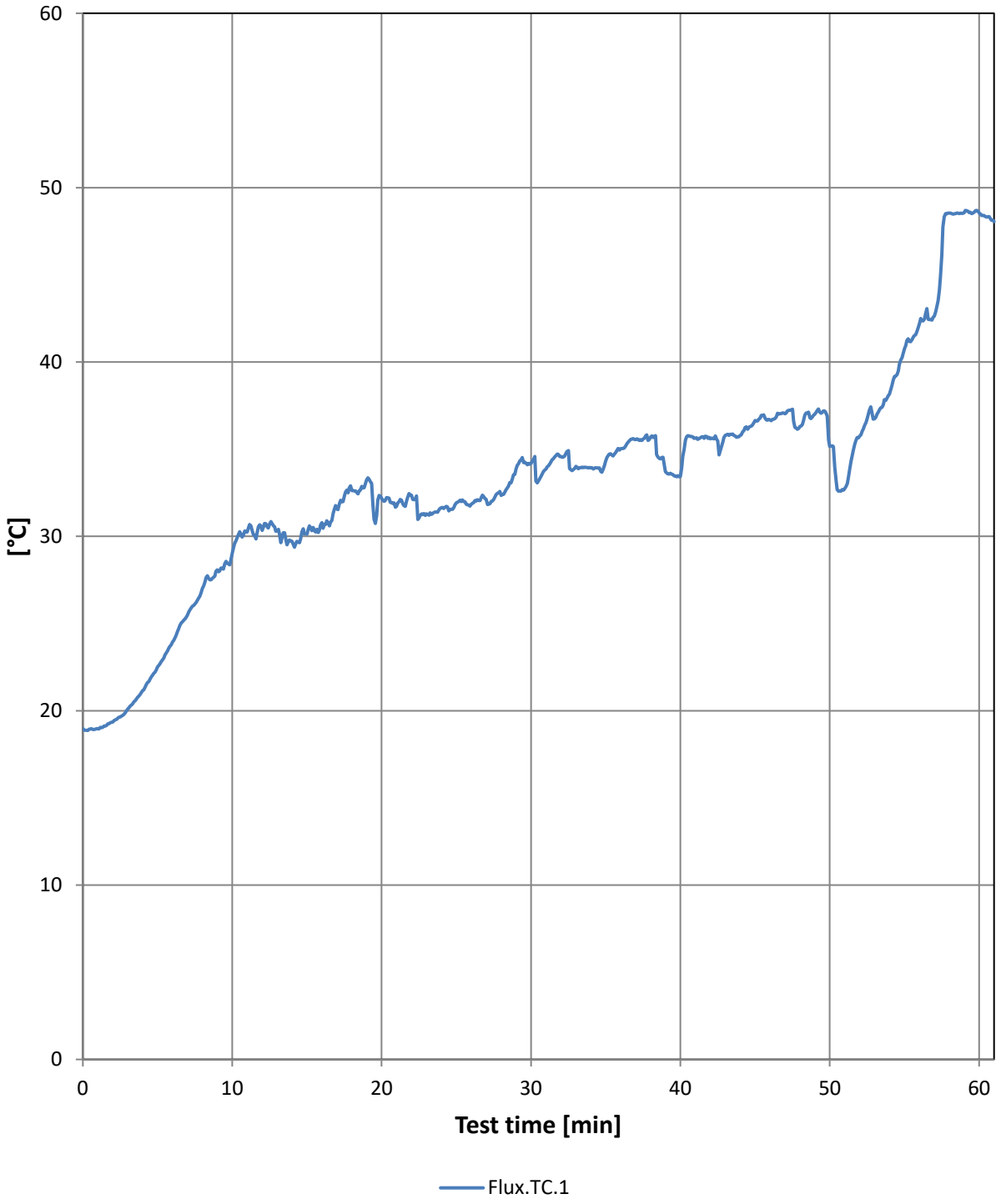


Location 1 - TC on PlateTC

Min. / °C	TC on PlateTC.1
0	18
2	34
4	47
6	50
8	56
10	63
12	60
14	63
15	66
16	65
18	71
20	80
22	97
24	91
26	90
28	83
30	76
32	83
34	73
36	69
38	64
40	66
42	65
44	58
46	59
48	52
50	51
52	50
54	44
56	45
58	45
60	44
61	27

Location 1 - TC on Flux

Flux.TC.2 located 3 m from fire chamber



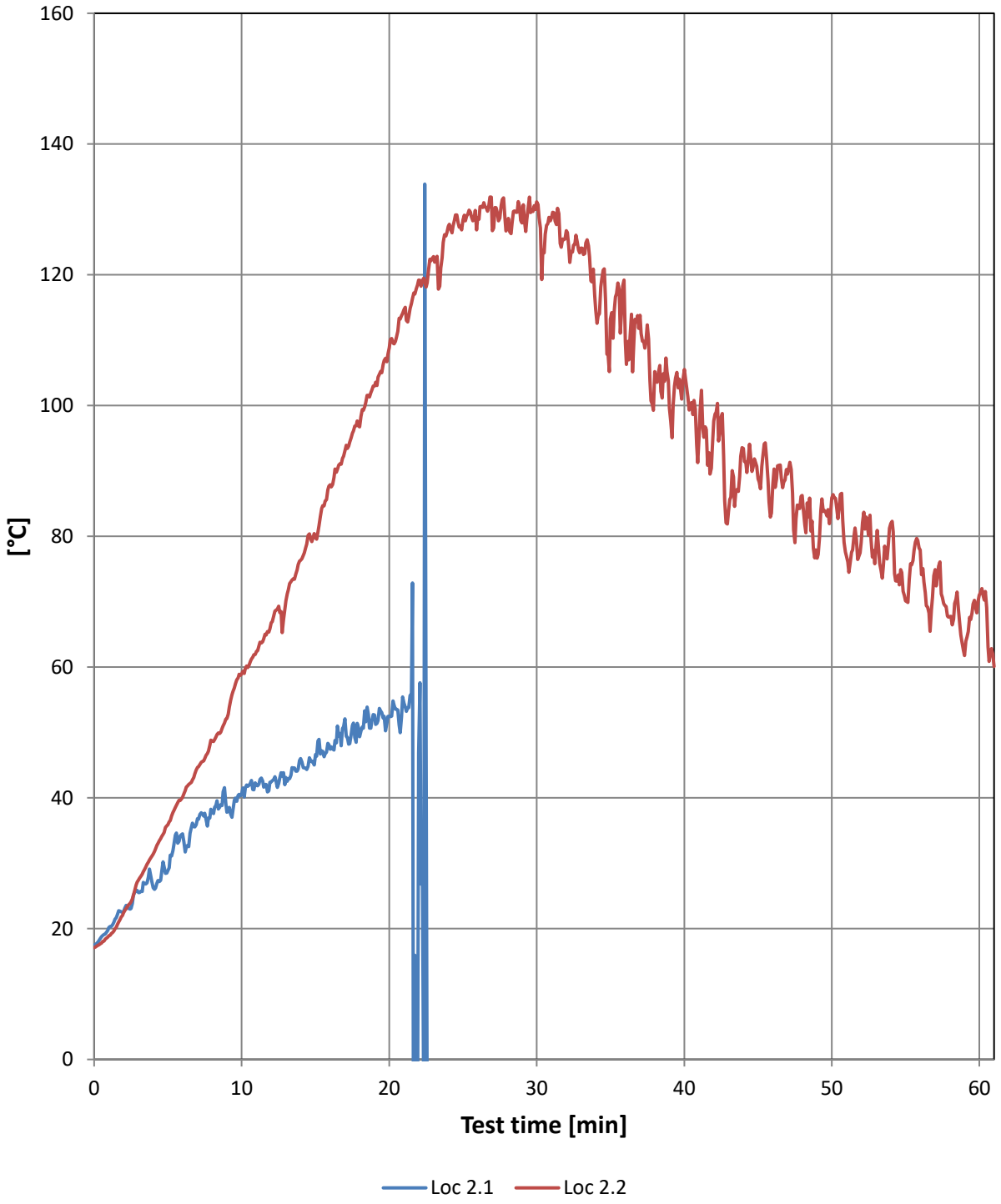
Location 1 - TC on Flux

Flux.TC.2 located 3 m from fire chamber

Min. / °C	Flux.TC.1
0	19
2	19
4	21
6	24
8	27
10	29
12	30
14	30
15	30
16	31
18	33
20	32
22	32
24	32
26	32
28	32
30	34
32	35
34	34
36	35
38	36
40	33
42	36
44	36
46	37
48	36
50	35
52	36
54	38
56	42
58	49
60	49
61	48

Location 2 - TC

TC.1 Location 1
TC.2 Location 2

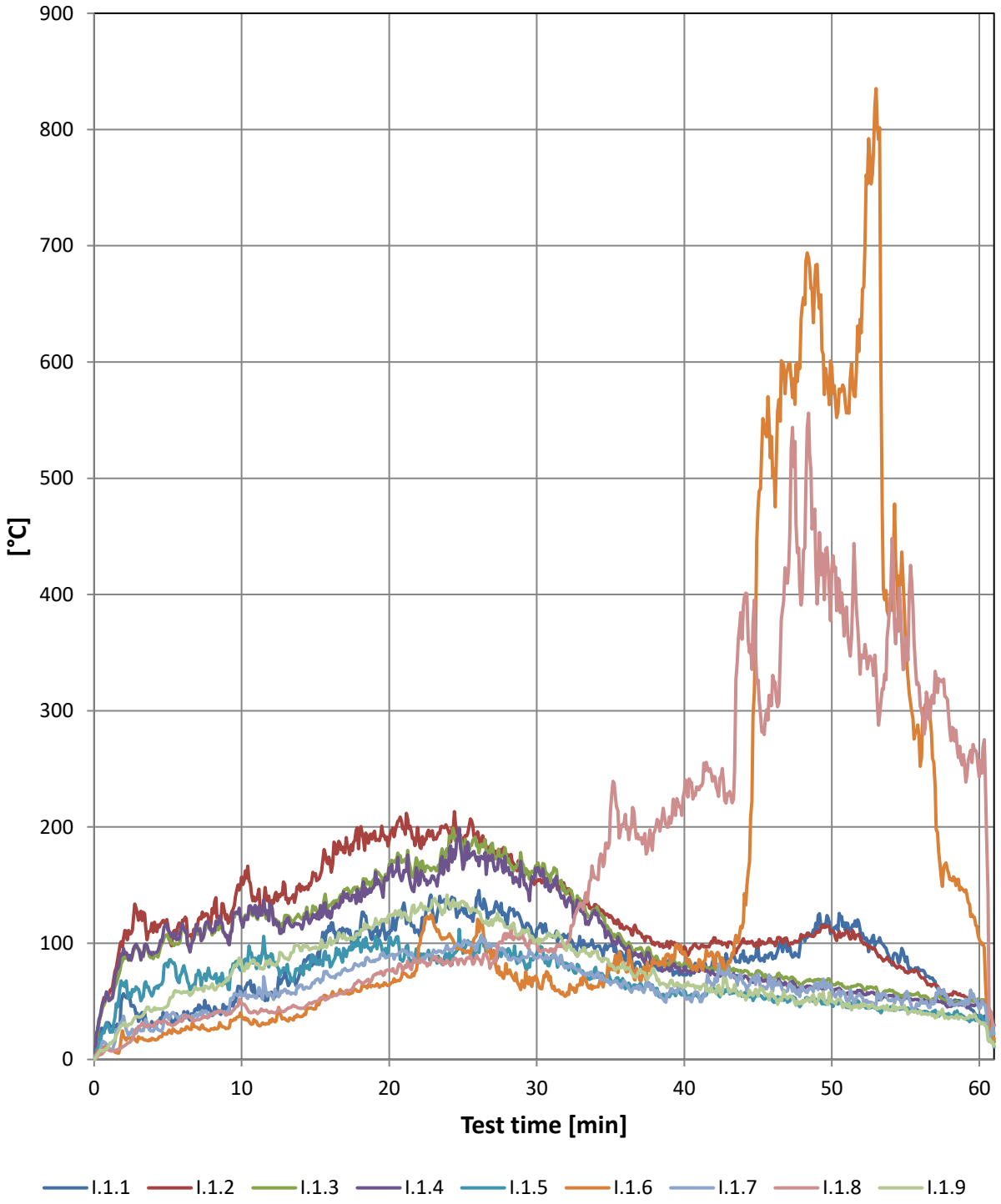


Location 2 - TC

TC.1 Location 1
TC.2 Location 2

Min. / °C	Loc 2.1	Loc 2.2
0	18	17
2	23	22
4	26	31
6	34	40
8	38	49
10	41	59
12	42	67
14	46	76
15	47	80
16	47	88
18	49	97
20	52	109
22	47	119
24	0	127
26	0	129
28	0	127
30	0	131
32	0	127
34	0	115
36	0	110
38	0	105
40	0	106
42	0	98
44	0	93
46	0	88
48	0	86
50	0	86
52	0	79
54	0	82
56	0	78
58	0	68
60	0	71
61	0	60

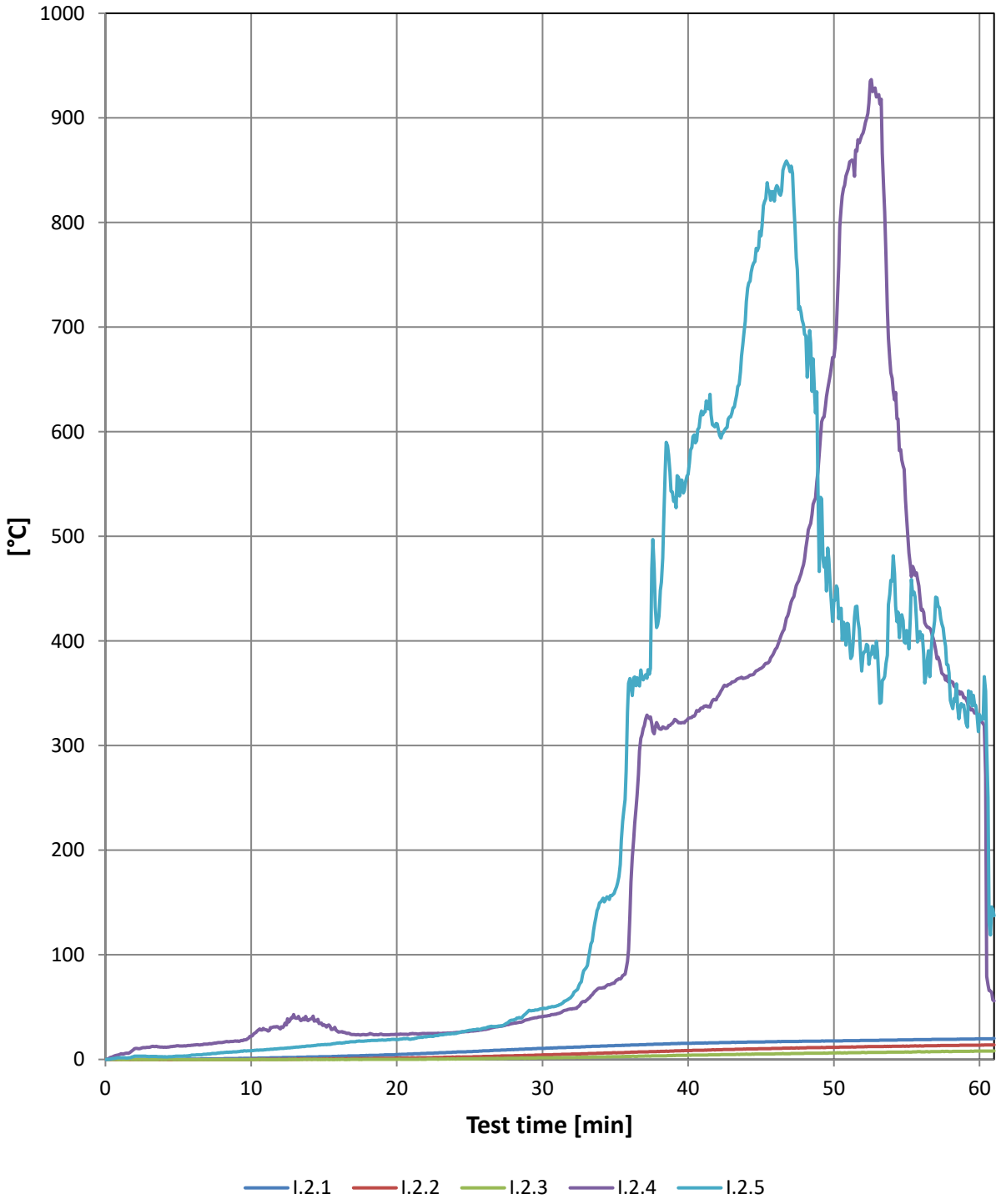
Temperature rise measured 50mm from the facade



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	57	104	88	95	66	20	37	11	31
4	29	109	87	92	57	18	24	30	43
6	35	120	112	116	78	25	38	33	58
8	38	130	107	109	70	26	39	39	65
10	59	157	121	118	79	37	55	47	82
12	58	130	130	132	91	32	55	41	82
14	75	145	122	115	80	37	64	44	94
15	85	160	131	125	88	43	68	50	97
16	111	169	133	121	80	54	71	54	105
18	106	196	147	144	100	58	81	67	107
20	108	189	168	165	104	64	89	77	125
22	109	191	164	150	91	97	84	83	131
24	131	197	179	162	84	106	95	84	135
26	139	196	185	174	99	121	100	87	126
28	116	176	170	165	94	74	89	108	114
30	112	153	166	161	91	70	87	99	103
32	106	146	142	131	83	55	80	97	94
34	97	133	129	124	79	62	72	157	93
36	85	113	98	94	61	77	66	211	77
38	80	98	86	82	61	83	58	197	74
40	73	97	83	80	59	93	55	231	64
42	87	105	77	74	61	81	63	243	59
44	93	104	75	70	56	119	65	390	54
46	86	100	70	66	50	501	59	331	55
48	107	105	64	60	49	647	63	399	48
50	111	111	65	59	48	596	61	422	51
52	103	102	64	59	46	625	54	348	48
54	86	83	59	55	45	390	50	404	42
56	76	72	54	49	40	252	49	304	42
58	51	56	49	46	38	155	47	282	36
60	36	49	51	50	38	104	43	243	33
61	11	15	17	30	29	18	22	29	11

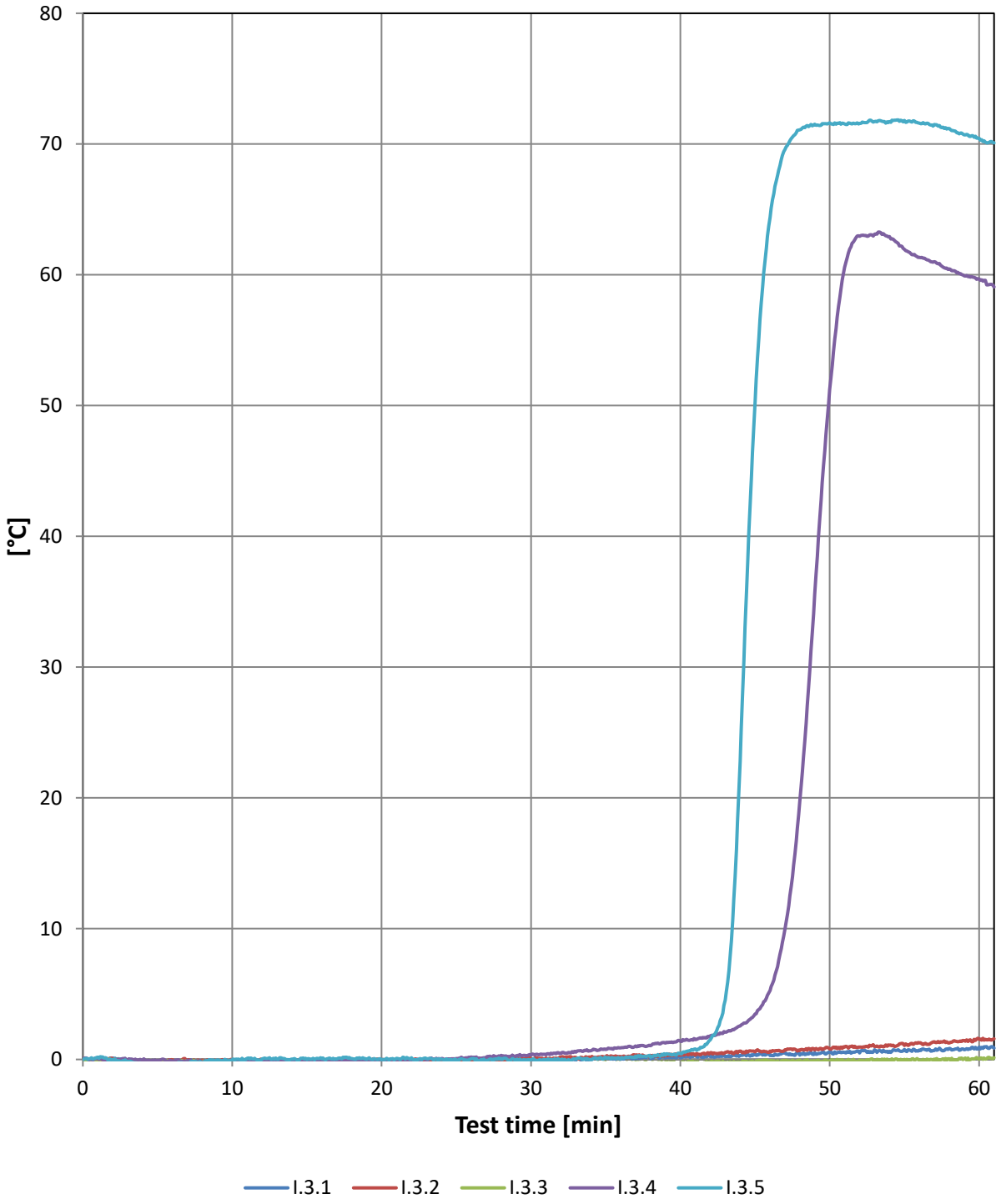
Temperature rise measured in ventilation layer



Temperature rise measured in ventilation layer

Min. / °C	I.2.1	I.2.2	I.2.3	I.2.4	I.2.5
0	0	0	0	0	0
2	0	0	0	10	3
4	0	0	0	12	2
6	0	0	0	14	4
8	1	0	0	16	6
10	1	0	0	22	8
12	2	0	0	29	10
14	2	0	0	38	13
15	3	0	0	33	14
16	3	1	0	26	16
18	4	1	0	24	18
20	5	1	0	24	19
22	6	2	0	25	22
24	7	2	0	26	25
26	8	3	1	29	30
28	9	4	1	34	38
30	11	4	2	41	49
32	12	5	2	48	60
34	13	6	2	68	151
36	14	7	3	138	364
38	15	8	4	316	424
40	15	9	4	326	559
42	16	9	4	346	607
44	17	10	5	365	724
46	17	11	5	392	832
48	17	11	6	478	693
50	18	12	6	671	439
52	18	12	7	886	387
54	19	13	7	651	457
56	19	13	7	429	402
58	19	13	8	362	343
60	20	14	8	326	330
61	20	14	8	56	137

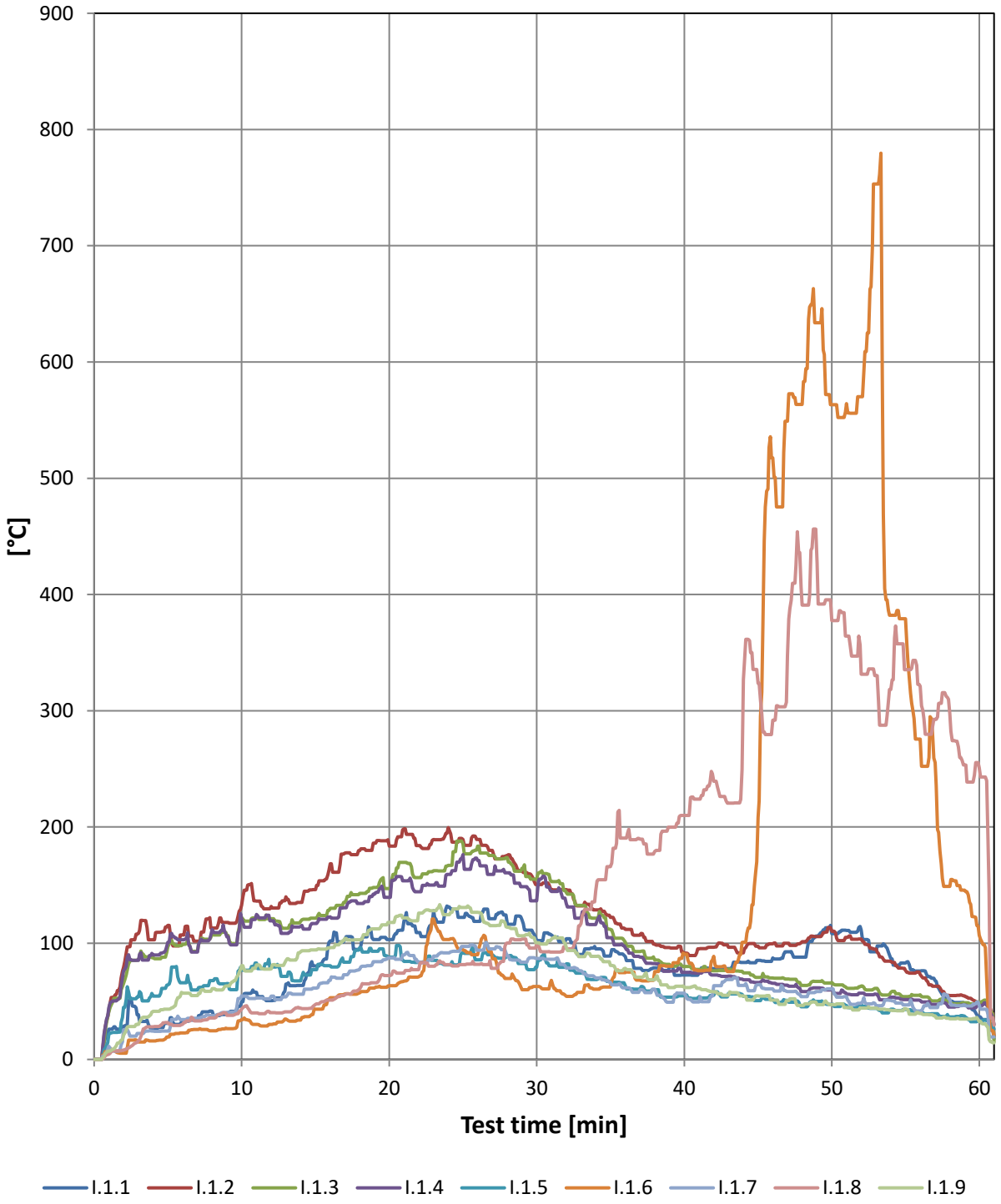
Temperature rise measured in middle of insulation



Temperature rise measured in middle of insulation

Min. / °C	I.3.1	I.3.2	I.3.3	I.3.4	I.3.5
0	0	0	0	0	0
2	0	0	0	0	0
4	0	0	0	0	0
6	0	0	0	0	0
8	0	0	0	0	0
10	0	0	0	0	0
12	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
18	0	0	0	0	0
20	0	0	0	0	0
22	0	0	0	0	0
24	0	0	0	0	0
26	0	0	0	0	0
28	0	0	0	0	0
30	0	0	0	0	0
32	0	0	0	0	0
34	0	0	0	1	0
36	0	0	0	1	0
38	0	0	0	1	0
40	0	0	0	1	0
42	0	1	0	2	1
44	0	1	0	3	23
46	0	1	0	5	64
48	0	1	0	20	71
50	1	1	0	51	72
52	1	1	0	63	72
54	1	1	0	63	72
56	1	1	0	61	72
58	1	1	0	60	71
60	1	2	0	60	70
61	1	2	0	59	70

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

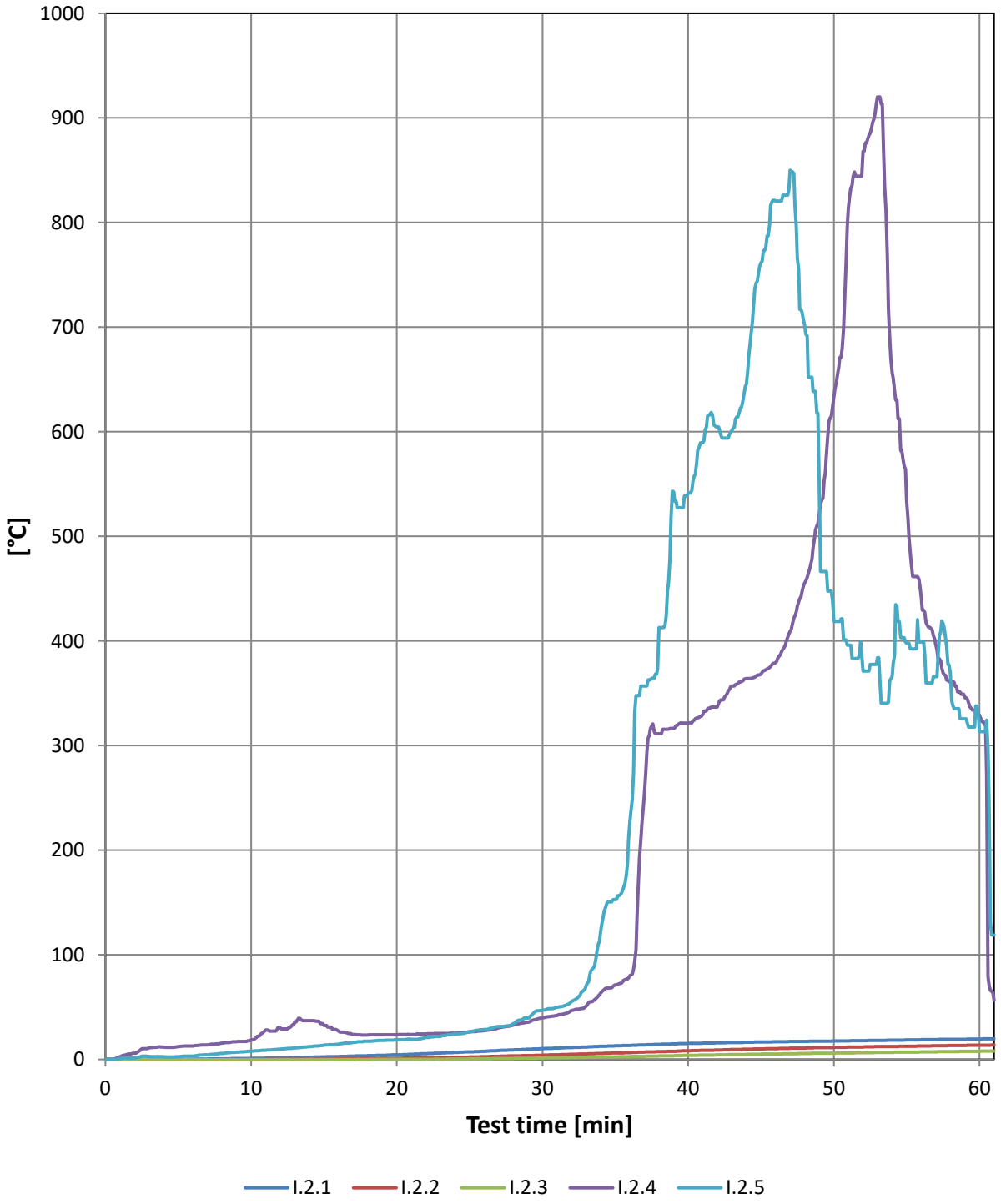


Temperature rise measured according to the standard - 50 mm from facade. Minimum of 30 sec

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	29	79	65	76	45	5	26	8	21	79
4	26	103	88	90	54	16	24	28	41	103
6	32	107	99	103	66	23	34	30	57	107
8	41	113	109	112	68	25	38	36	61	113
10	50	133	122	121	77	34	55	43	81	133
12	51	132	121	119	80	30	55	40	78	134
14	64	135	119	115	68	34	56	44	93	135
15	81	146	122	117	77	43	61	47	94	146
16	102	168	130	123	81	53	68	51	96	168
18	95	180	143	134	96	57	78	61	103	180
20	103	184	147	139	88	63	87	72	118	184
22	109	184	156	144	83	71	84	77	126	184
24	131	199	167	159	81	103	92	82	125	199
26	119	189	184	171	86	90	94	82	127	191
28	117	175	174	161	88	70	89	100	114	175
30	102	151	155	136	79	63	87	100	100	159
32	104	146	143	134	82	54	79	95	96	147
34	95	129	122	116	69	60	70	145	89	145
36	88	112	101	96	63	75	62	190	78	190
38	79	99	85	82	60	76	60	179	68	179
40	73	91	80	75	56	90	57	210	62	210
42	78	96	76	73	55	89	63	239	58	239
44	83	92	75	69	54	101	64	327	55	327
46	87	100	70	66	52	518	61	292	51	518
48	88	101	64	58	45	564	54	391	47	564
50	108	110	66	61	47	563	61	378	47	563
52	111	104	63	57	47	570	48	331	44	570
54	87	84	58	54	43	382	51	318	42	382
56	76	73	56	51	41	276	42	321	40	321
58	50	55	49	45	37	149	52	297	35	297
60	37	49	49	46	33	107	47	251	33	251
61	18	20	15	30	26	20	19	30	14	30

Failure [min]	-	-	-	-	-	45,67	-	-	-	45,67
Failure°C	500	500	500	500	500	500	500	500	500	500

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

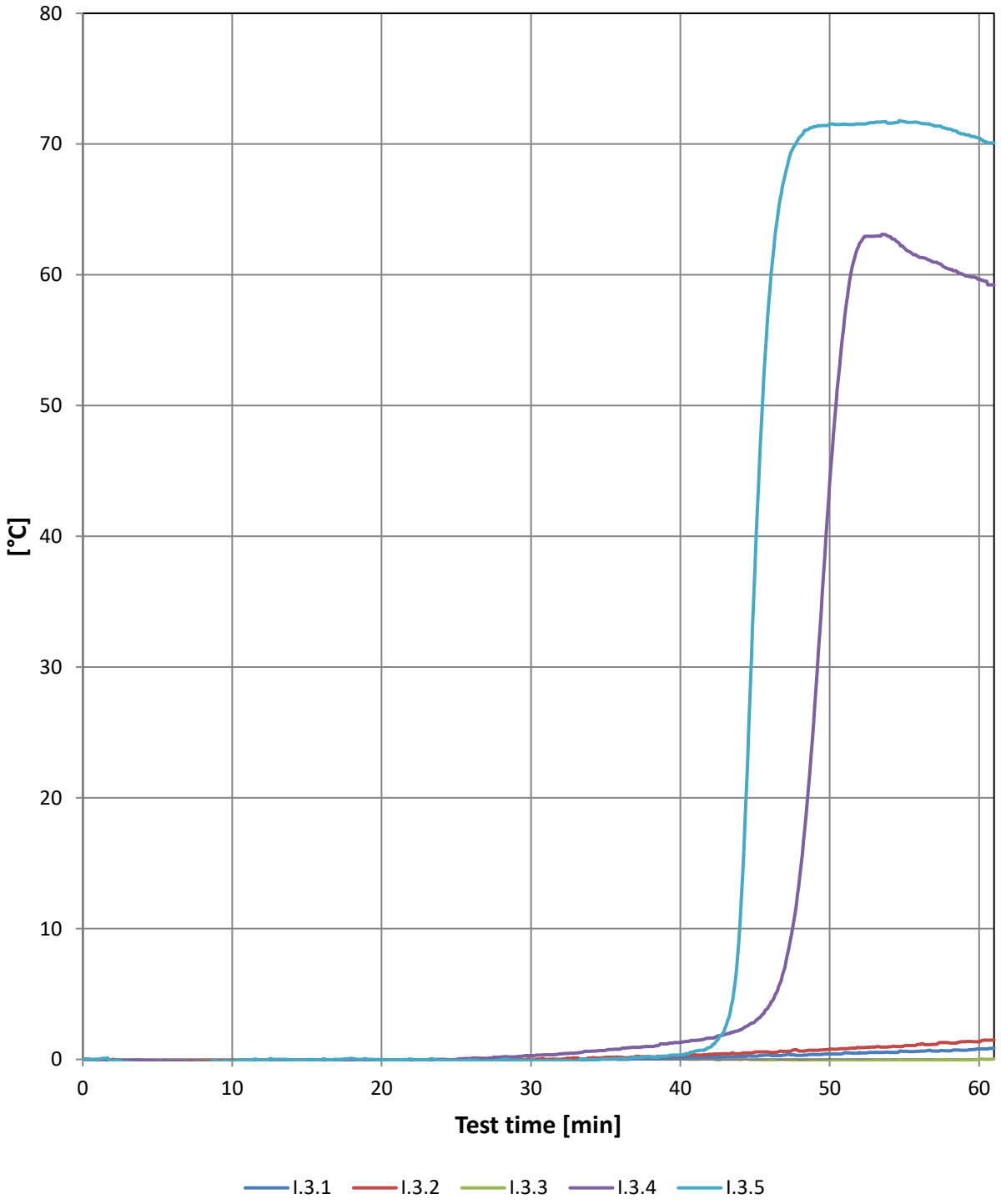


Temperature rise measured according to the standard - ventilation layer. Minimum of 30 sec

Min. / °C	I.2.1	I.2.2	I.2.3	I.2.4	I.2.5	I.2.Max
0	0	0	0	0	0	0
2	0	0	0	6	1	6
4	0	0	0	12	3	12
6	0	0	0	13	3	13
8	1	0	0	16	6	16
10	1	0	0	19	8	19
12	2	0	0	30	10	30
14	2	0	0	37	12	37
15	2	0	0	32	14	32
16	3	0	0	27	15	27
18	4	1	0	23	17	23
20	4	1	0	24	19	24
22	5	2	0	24	21	24
24	7	2	0	25	24	25
26	8	3	1	28	29	29
28	9	3	1	33	34	34
30	10	4	1	40	47	47
32	11	5	2	47	56	56
34	12	6	2	64	123	123
36	13	7	3	80	228	228
38	14	7	3	311	413	413
40	15	8	4	322	541	541
42	16	9	4	337	605	605
44	16	10	5	364	645	645
46	17	10	5	379	820	820
48	17	11	6	455	703	703
50	18	11	6	633	419	633
52	18	12	6	868	371	868
54	18	12	7	656	366	656
56	19	13	7	442	399	442
58	19	13	8	361	370	370
60	20	14	8	329	313	329
61	20	14	8	57	119	119

Failure [min]	-	-	-	48,67	38,75	38,75
Failure°C	500	500	500	500	500	500

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

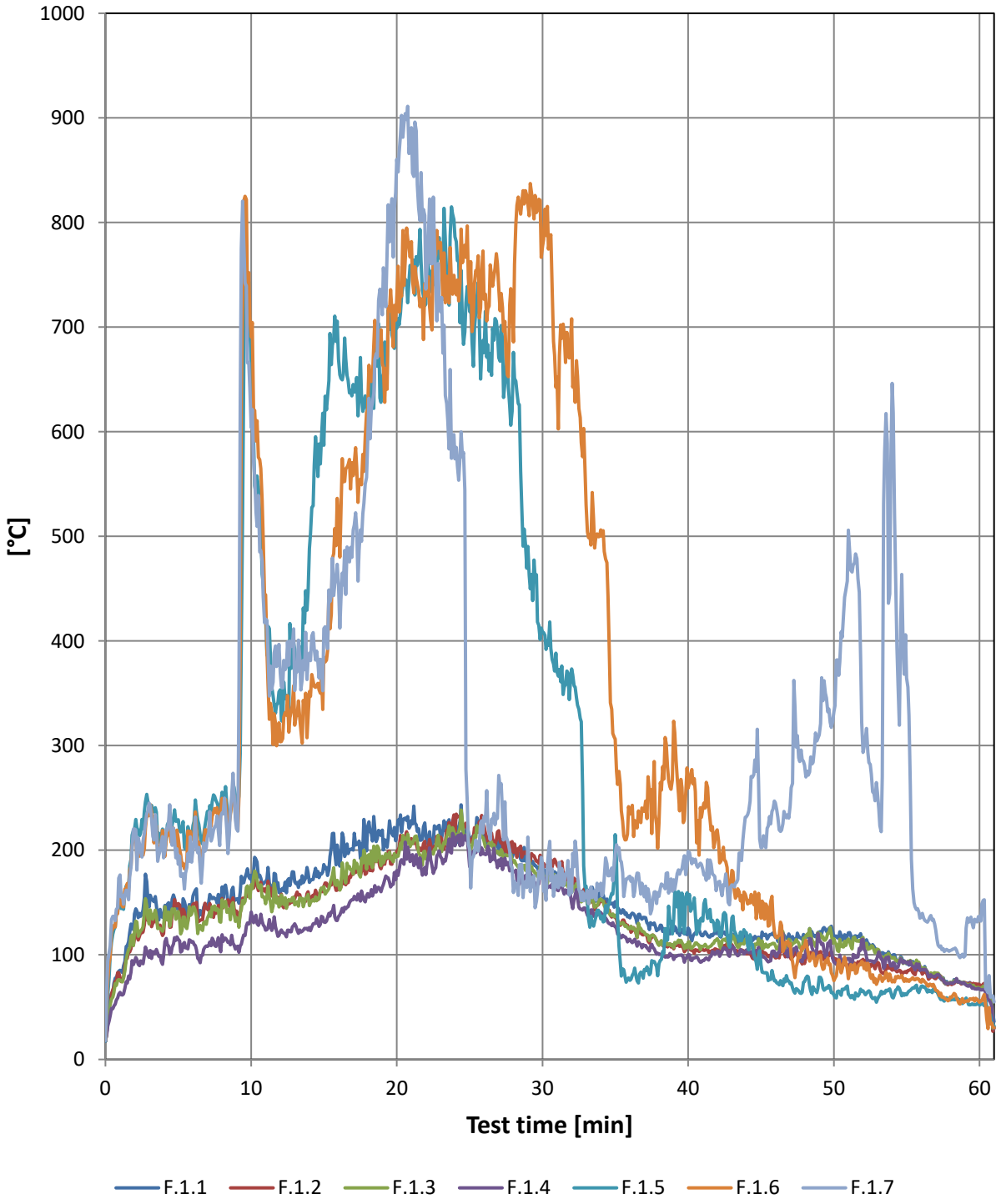


Temperature rise measured according to the standard - in the middle of the insulation. Minimum of 30 sec

Min. / °C	I.3.1	I.3.2	I.3.3	I.3.4	I.3.5	I.3.Max
0	0	0	0	0	0	0
2	0	0	0	0	0	0
4	0	0	0	0	0	0
6	0	0	0	0	0	0
8	0	0	0	0	0	0
10	0	0	0	0	0	0
12	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
18	0	0	0	0	0	0
20	0	0	0	0	0	0
22	0	0	0	0	0	0
24	0	0	0	0	0	0
26	0	0	0	0	0	0
28	0	0	0	0	0	0
30	0	0	0	0	0	0
32	0	0	0	0	0	0
34	0	0	0	1	0	1
36	0	0	0	1	0	1
38	0	0	0	1	0	1
40	0	0	0	1	0	1
42	0	0	0	2	1	2
44	0	0	0	2	11	11
46	0	1	0	4	59	59
48	0	1	0	14	71	71
50	0	1	0	44	72	72
52	1	1	0	62	72	72
54	1	1	0	63	72	72
56	1	1	0	61	72	72
58	1	1	0	60	71	71
60	1	1	0	60	70	70
61	1	1	0	59	70	70

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

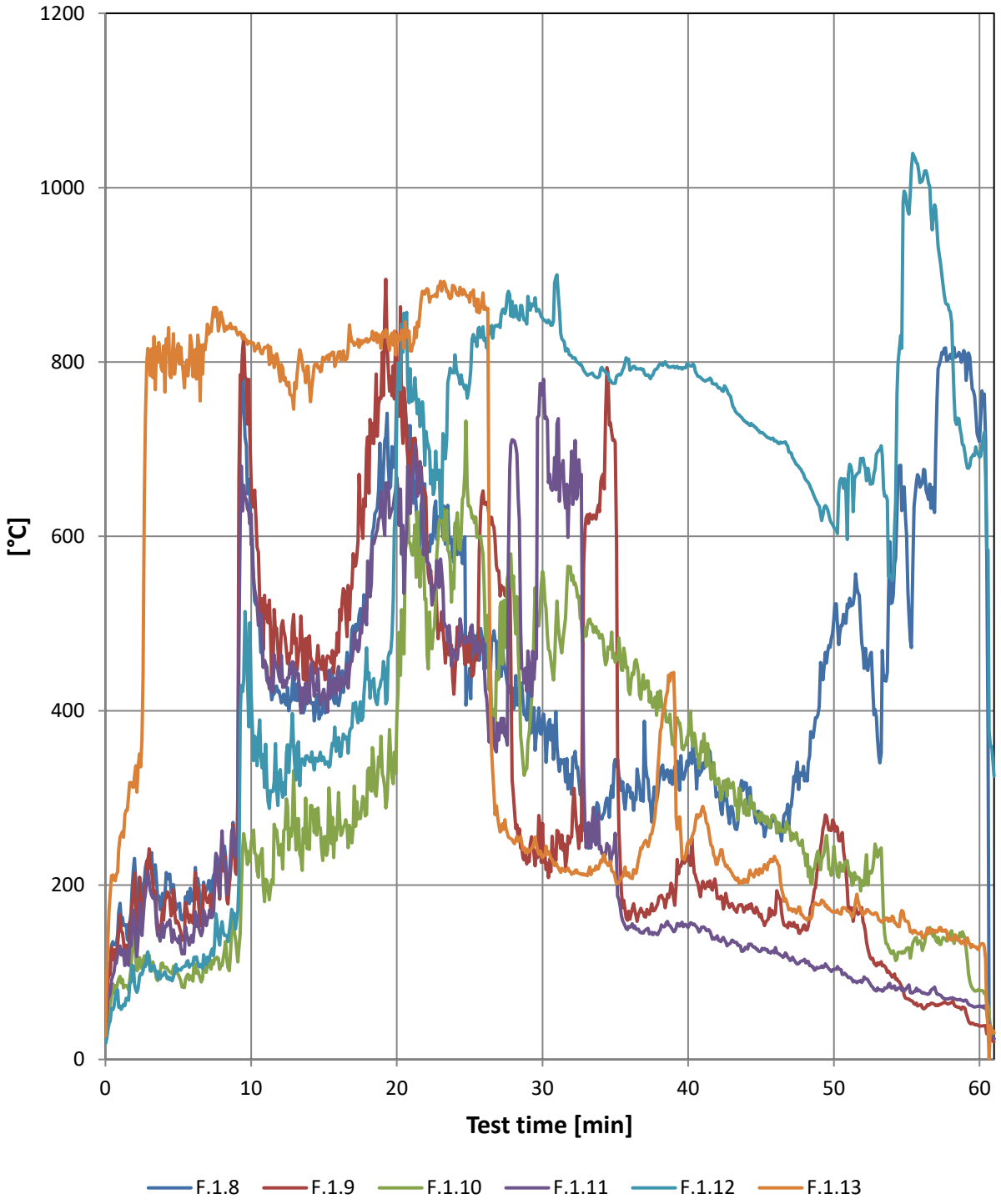
Vertical measurements on main facade



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	17	17	17	17	17	19	18
2	139	116	122	94	220	220	220
4	138	120	126	99	205	202	193
6	156	148	146	112	224	214	201
8	165	154	153	119	256	250	236
10	176	167	167	141	668	691	604
12	159	155	148	122	354	304	369
14	169	153	147	126	488	352	388
15	186	165	165	132	587	384	412
16	196	169	168	137	669	520	454
18	223	189	194	159	616	621	588
20	215	199	195	181	699	727	860
22	214	196	192	177	722	734	736
24	222	218	213	204	786	741	574
26	211	223	208	197	676	727	232
28	197	198	189	179	676	686	160
30	178	187	178	176	408	777	187
32	170	171	160	149	373	708	159
34	160	153	153	140	134	506	169
36	135	126	125	115	76	234	175
38	125	109	109	100	92	226	156
40	126	110	112	100	149	259	199
42	122	104	115	104	133	220	168
44	119	101	115	105	121	154	232
46	117	97	109	99	75	117	245
48	119	92	114	97	74	109	281
50	117	97	115	93	62	75	332
52	112	96	117	115	66	93	293
54	99	85	97	89	60	74	646
56	88	84	88	86	70	74	136
58	73	72	74	73	57	60	104
60	69	71	68	67	52	55	136
61	36	31	31	29	32	30	55

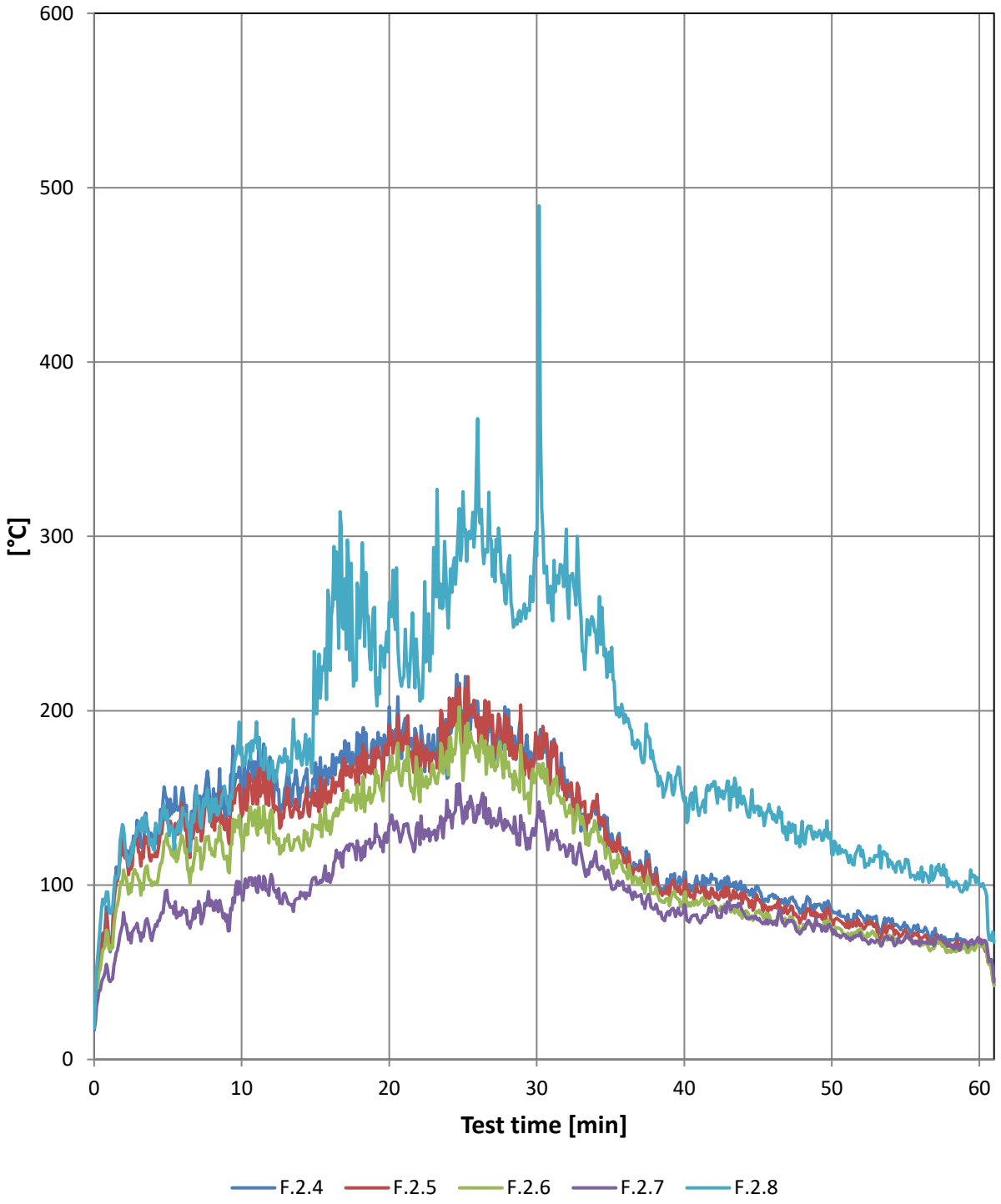
Vertical measurements on main facade



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
0	19	22	18	20	19	27
2	231	214	141	155	86	324
4	173	160	106	140	98	818
6	183	156	90	134	111	783
8	231	229	108	262	158	851
10	590	659	249	626	419	821
12	416	460	242	433	332	778
14	424	486	241	415	342	771
15	420	450	255	425	346	801
16	406	467	306	451	369	811
18	542	714	331	572	436	823
20	772	784	387	668	736	832
22	595	646	529	580	720	882
24	611	443	615	464	808	885
26	447	637	545	457	825	860
28	402	302	555	710	851	249
30	389	271	560	762	850	232
32	304	255	549	698	807	212
34	277	663	484	245	792	228
36	312	161	419	152	790	209
38	319	187	403	147	797	351
40	337	233	371	151	797	249
42	305	185	318	142	772	224
44	317	176	280	128	730	206
46	273	168	276	128	710	229
48	319	154	237	115	667	162
50	506	271	244	103	610	170
52	468	158	200	90	690	165
54	524	94	122	82	549	164
56	659	63	133	77	1007	146
58	809	65	146	71	857	138
60	709	38	79	62	691	130
61	24	20	30	24	325	31

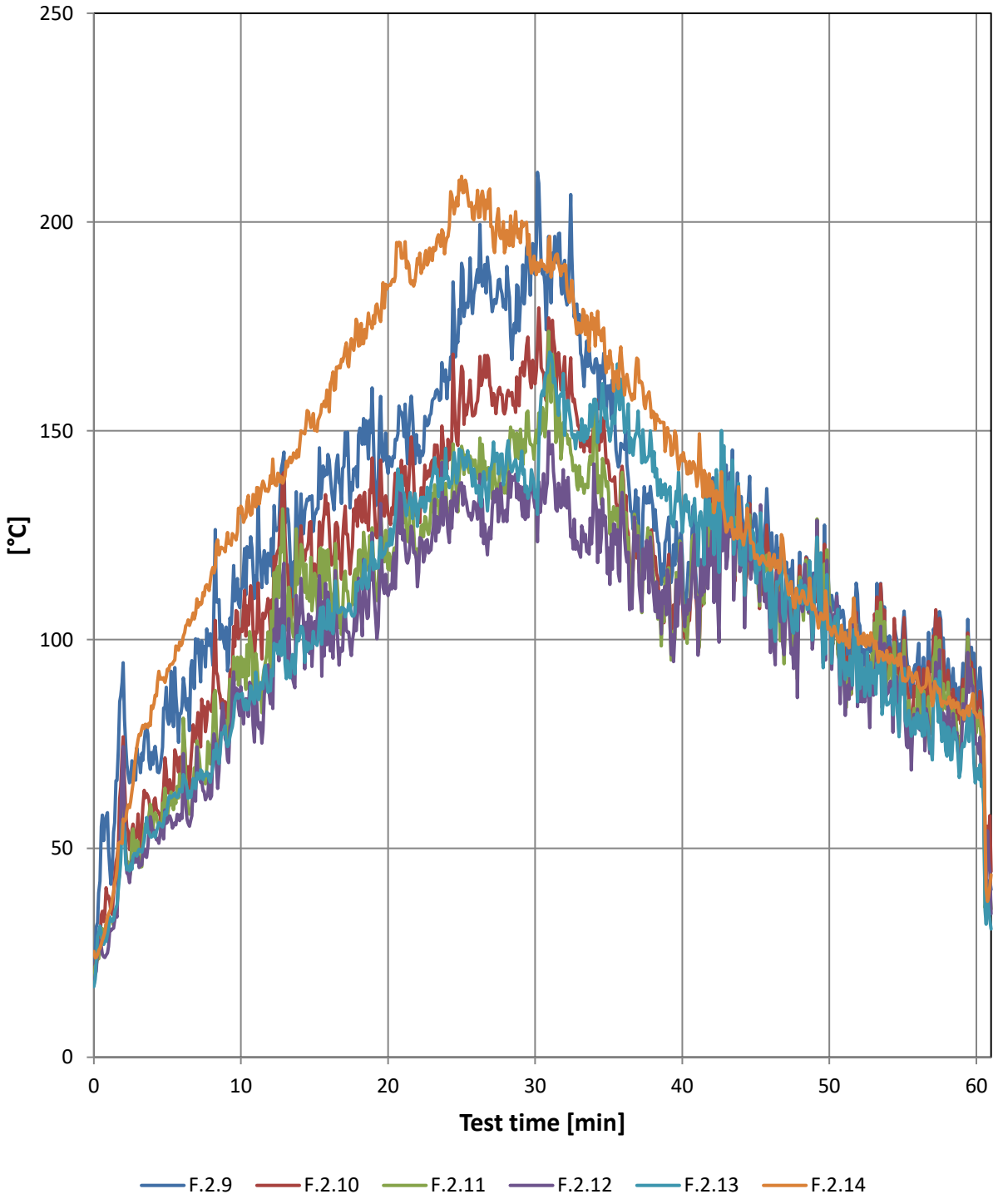
Vertical measurements on the wing



Vertical measurements on the wing

Min. / °C	F.2.4	F.2.5	F.2.6	F.2.7	F.2.8
0	17	17	17	17	18
2	131	125	109	84	133
4	123	117	101	73	121
6	156	145	128	87	144
8	143	133	117	91	150
10	148	139	127	96	179
12	164	164	143	106	168
14	156	141	122	96	172
15	170	153	134	104	218
16	163	148	129	102	223
18	186	174	152	122	242
20	202	192	169	135	262
22	160	161	153	131	219
24	162	176	163	139	247
26	205	197	180	146	368
28	183	178	169	137	274
30	173	178	164	138	289
32	157	149	139	116	304
34	140	144	135	119	246
36	115	113	107	98	198
38	106	102	95	86	169
40	107	101	95	89	148
42	103	95	88	88	159
44	97	92	83	84	151
46	95	88	79	77	138
48	86	81	74	74	137
50	85	80	73	75	118
52	82	78	74	71	117
54	78	75	70	69	112
56	74	68	65	66	106
58	68	66	62	66	101
60	68	67	66	67	101
61	46	43	42	44	67

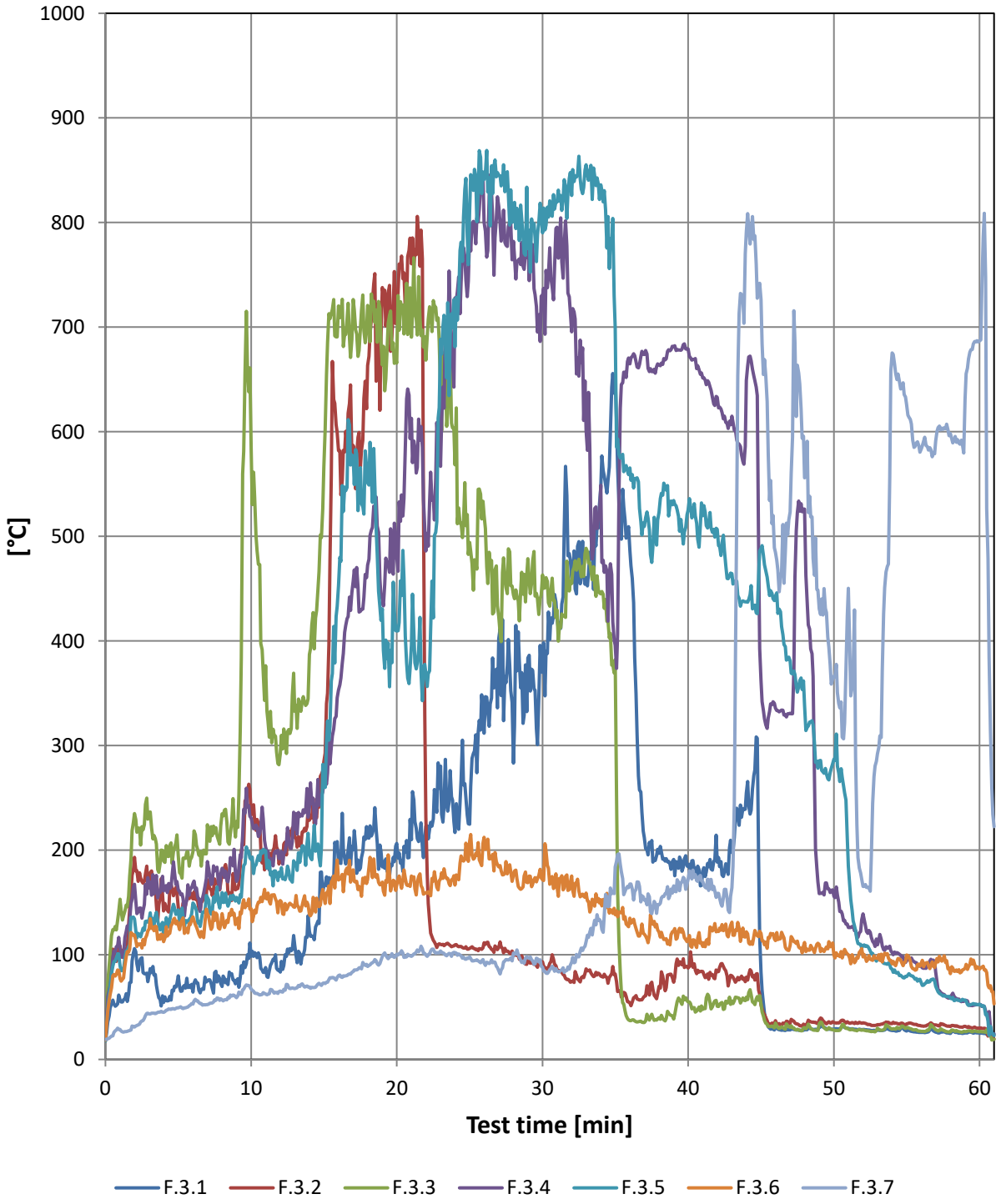
Vertical measurements on the wing



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	18	18	18	17	17	25
2	94	77	68	74	57	57
4	70	56	53	54	53	84
6	84	68	63	57	64	99
8	98	83	71	63	68	116
10	112	103	96	89	86	132
12	118	102	92	85	88	139
14	127	121	116	107	101	147
15	130	118	116	104	99	150
16	143	127	116	108	108	155
18	149	134	121	115	114	170
20	140	130	117	111	123	185
22	144	131	122	113	127	191
24	158	141	131	130	139	196
26	187	156	140	132	135	203
28	179	155	137	131	141	194
30	187	161	147	132	134	190
32	191	168	151	132	149	190
34	164	154	153	142	158	177
36	146	138	136	130	155	162
38	132	123	117	114	140	155
40	120	110	112	109	126	143
42	137	132	131	125	127	138
44	134	128	126	122	118	124
46	112	99	101	97	103	117
48	121	118	115	110	110	109
50	107	106	110	108	106	103
52	104	98	97	99	100	99
54	97	93	91	87	85	95
56	96	92	89	83	82	91
58	92	90	85	77	72	85
60	85	80	78	75	67	82
61	40	44	35	34	31	44

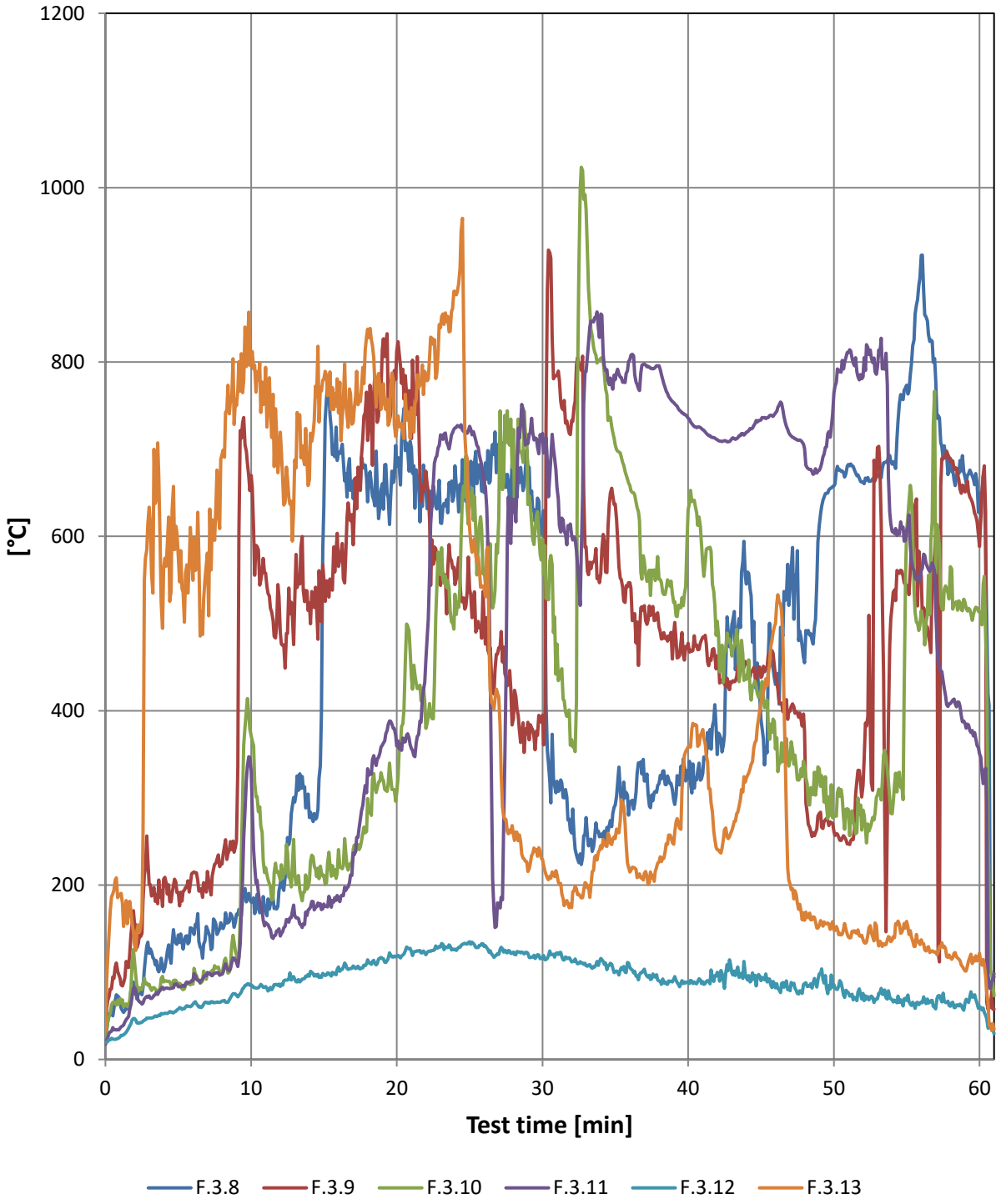
Horizontal measurements



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	18	20	20	18	18	18	19
2	106	193	235	167	134	119	31
4	54	142	190	161	118	113	45
6	64	153	199	168	150	136	53
8	70	177	235	183	159	139	57
10	99	234	583	231	191	144	67
12	83	190	292	194	175	152	65
14	123	229	387	241	195	139	69
15	166	285	566	265	272	156	73
16	188	582	720	353	453	171	80
18	212	663	721	473	551	172	89
20	206	719	666	481	410	167	101
22	223	232	669	486	369	160	100
24	217	109	569	728	681	167	102
26	312	112	520	800	841	212	92
28	283	99	444	782	806	176	102
30	370	93	463	730	790	172	88
32	460	74	455	696	826	175	93
34	546	80	445	549	836	153	131
36	487	54	37	665	565	135	168
38	197	70	40	664	523	122	148
40	184	87	55	679	525	115	172
42	189	84	51	633	507	122	159
44	255	79	60	649	438	122	791
46	32	37	35	336	443	114	485
48	28	33	30	526	339	112	556
50	29	35	28	156	287	100	366
52	29	35	28	139	109	98	165
54	28	34	29	102	86	91	675
56	26	32	27	89	73	92	583
58	25	32	26	60	58	82	598
60	25	29	26	52	53	86	687
61	25	20	19	23	23	53	222

Horizontal measurments



Horizontal measurments

Min. / °C	F.3.8	F.3.9	F.3.10	F.3.11	F.3.12	F.3.13
0	22	26	18	17	19	33
2	75	156	113	83	47	132
4	101	207	89	80	53	562
6	147	214	86	90	63	550
8	151	224	98	98	67	694
10	181	670	371	331	85	807
12	201	490	206	142	84	719
14	277	524	204	173	96	665
15	634	552	211	178	98	780
16	696	566	241	184	106	742
18	640	710	299	333	114	838
20	680	812	305	360	119	723
22	653	675	380	458	120	784
24	681	545	534	724	126	881
26	650	507	563	661	130	543
28	633	391	723	628	123	258
30	616	395	597	718	116	230
32	260	733	367	601	112	174
34	256	557	804	855	116	245
36	296	547	658	803	106	215
38	316	496	551	796	90	226
40	322	477	630	736	89	358
42	350	463	503	711	100	241
44	545	454	436	719	94	323
46	430	439	356	741	82	500
48	455	376	337	701	87	160
50	658	261	279	764	86	148
52	662	314	286	783	76	138
54	683	521	282	606	69	137
56	923	555	515	561	66	137
58	689	686	565	408	61	117
60	647	589	513	351	61	122
61	95	58	73	98	29	35

Plate thermocouple on facade

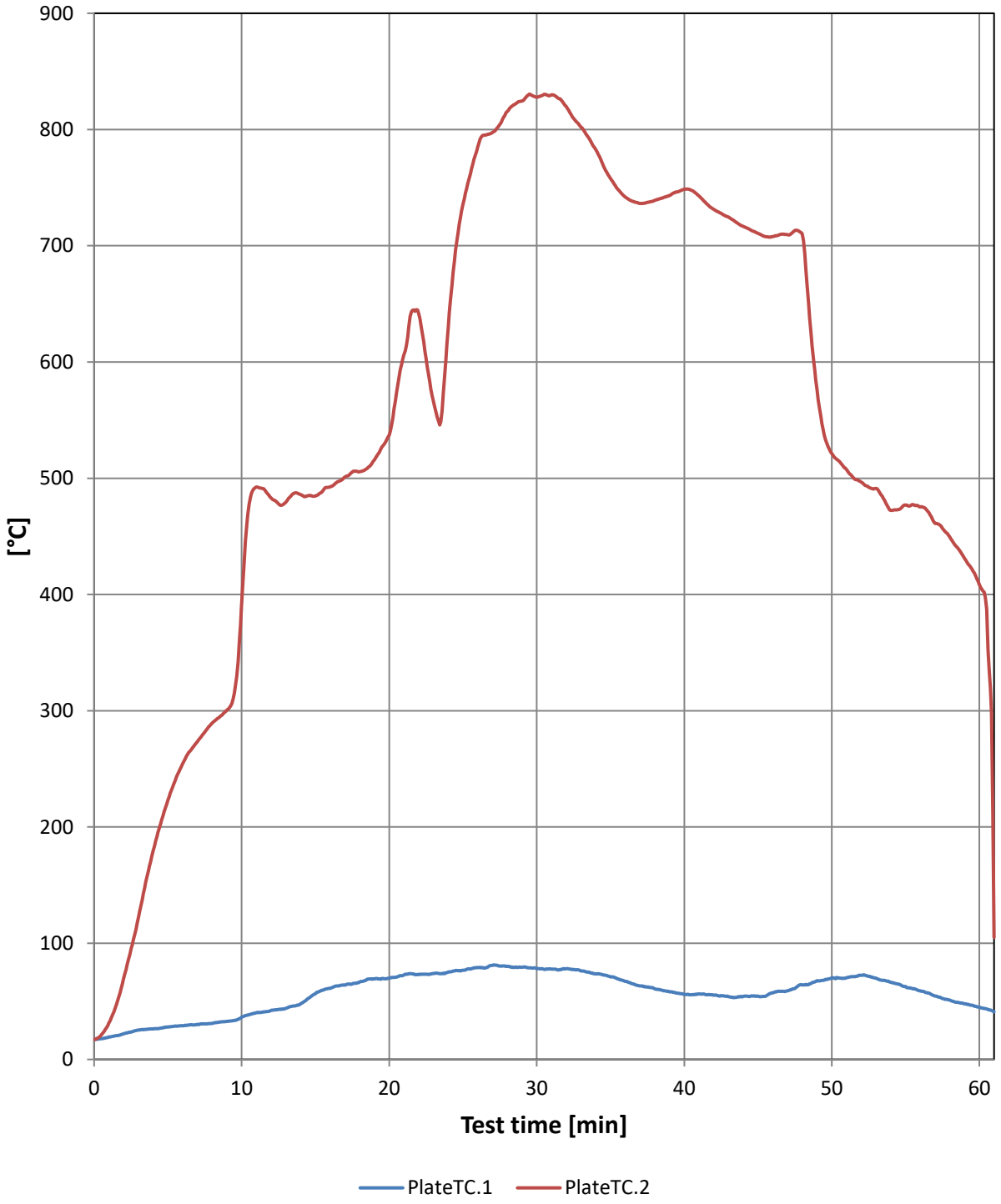
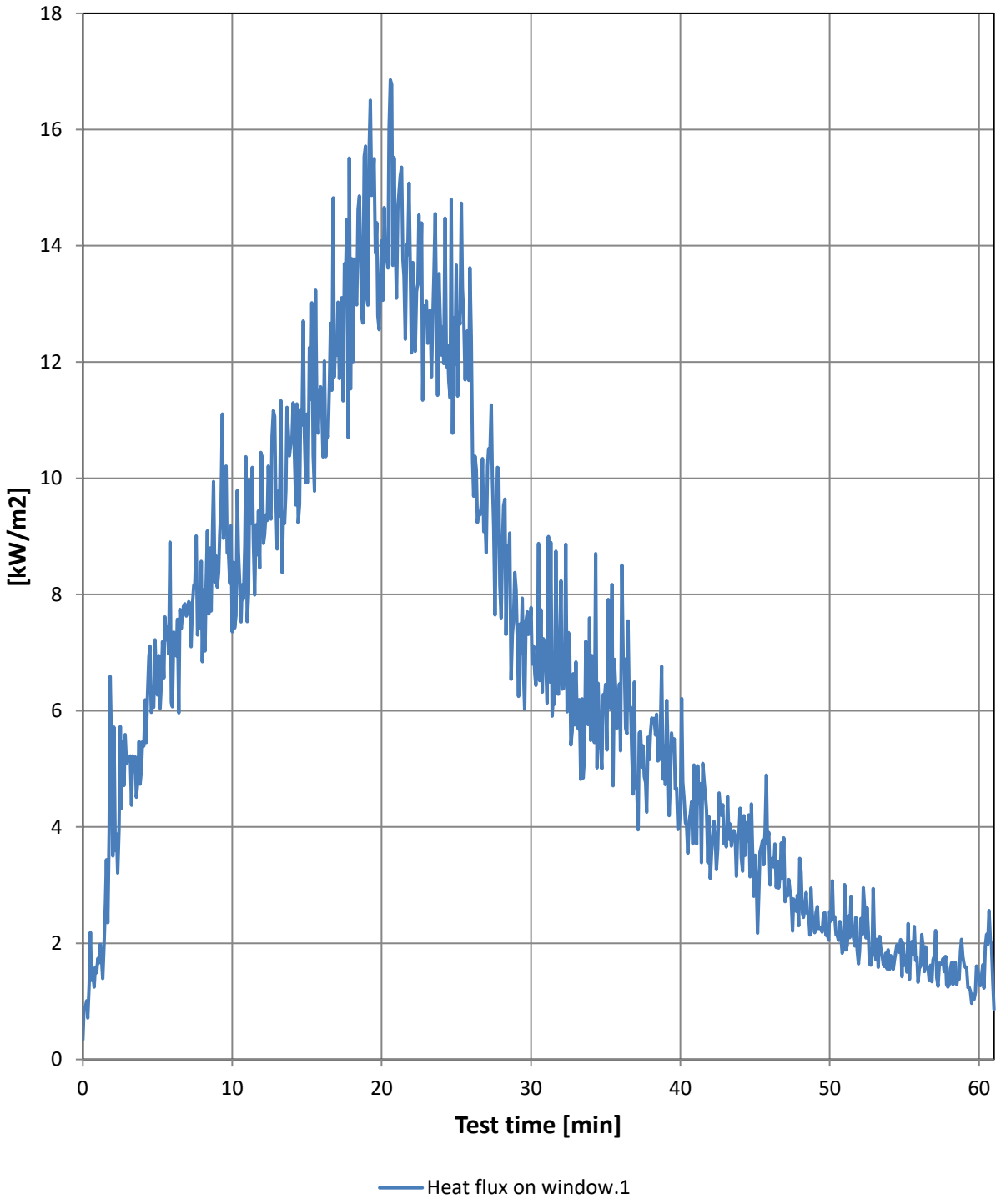


Plate thermocouple on facade

Min. / °C	PlateTC.1	PlateTC.2
0	17	17
2	22	70
4	26	180
6	29	254
8	31	289
10	36	391
12	42	483
14	48	486
15	57	485
16	61	493
18	67	506
20	70	537
22	73	642
24	75	630
26	79	785
28	80	816
30	78	828
32	78	820
34	74	783
36	67	742
38	61	739
40	56	748
42	55	731
44	54	717
46	57	708
48	64	711
50	70	521
52	72	497
54	66	472
56	59	475
58	51	449
60	45	409
61	41	105

Heat flux on window

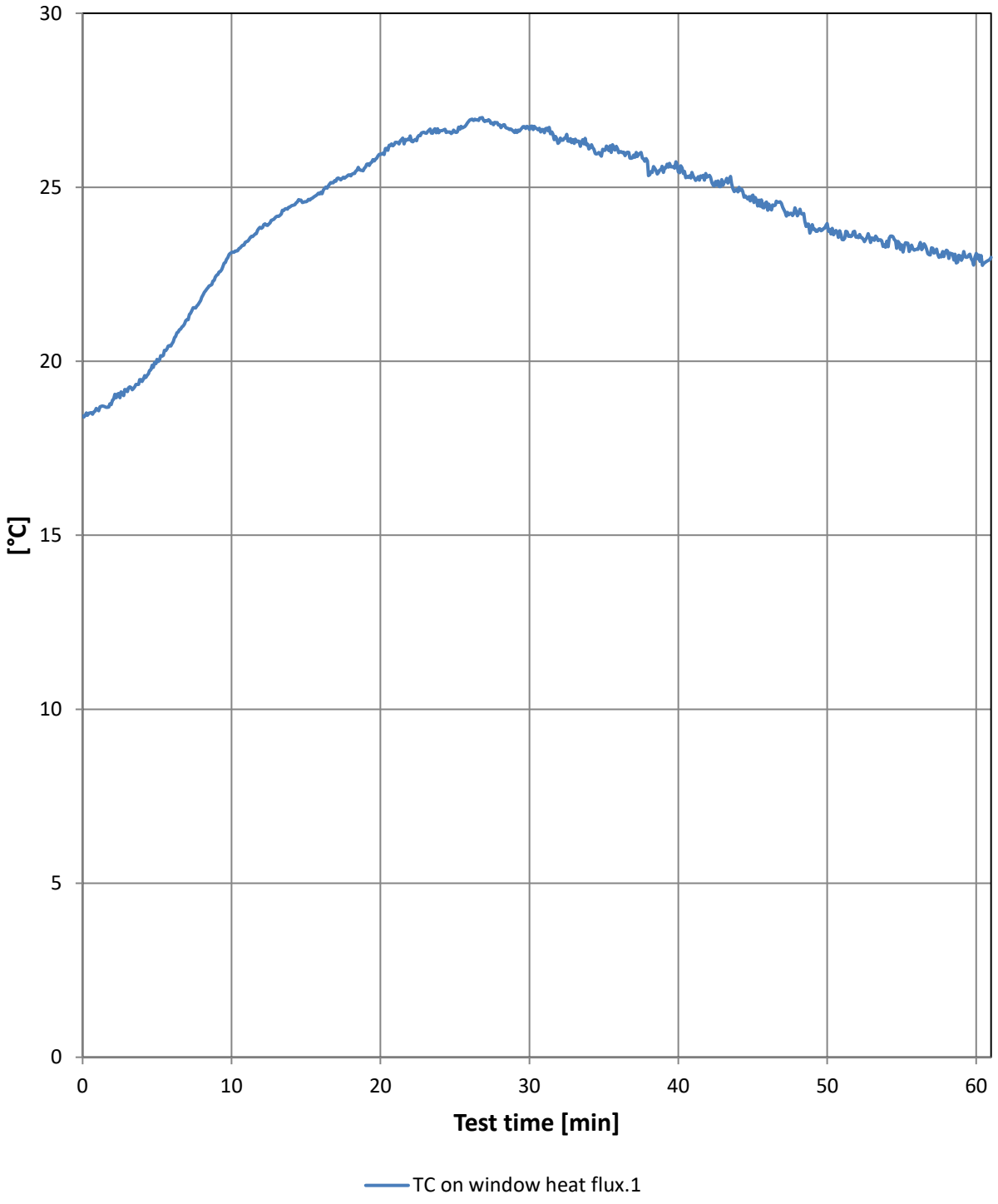


Heat flux on window

Min. / kW/m2	Heat flux on window.1
0	0
2	4
4	5
6	6
8	7
10	7
12	10
14	11
15	11
16	11
18	14
20	14
22	12
24	12
26	12
28	8
30	8
32	8
34	5
36	5
38	6
40	4
42	3
44	4
46	3
48	3
50	3
52	2
54	2
56	2
58	1
60	1
61	1

TC on window heat Flux

Flux.TC. on window

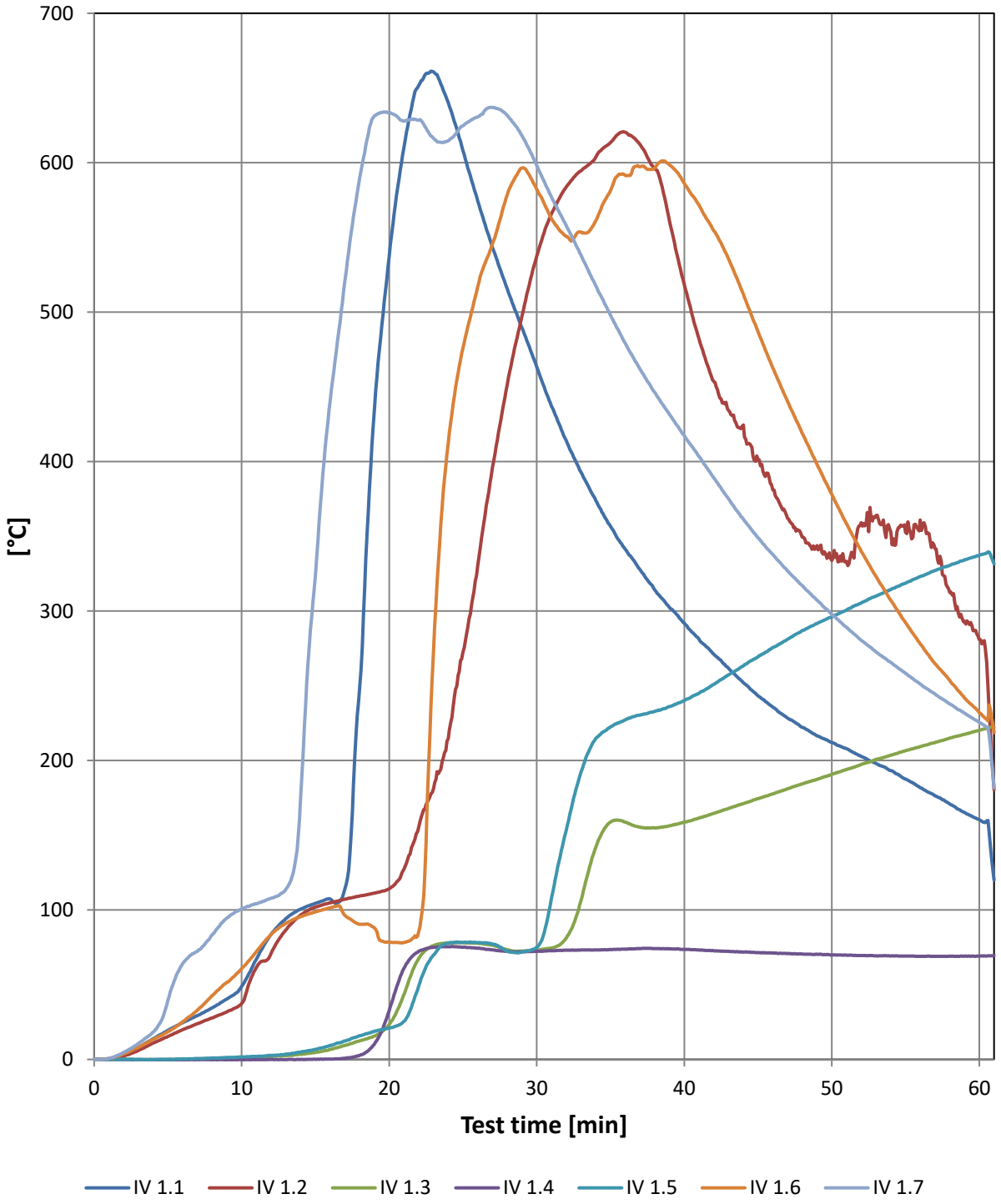


TC on window heat Flux

Flux.TC. on window

Min. / °C	TC on window heat flux.1
0	18
2	19
4	19
6	20
8	22
10	23
12	24
14	24
15	25
16	25
18	25
20	26
22	26
24	27
26	27
28	27
30	27
32	26
34	26
36	26
38	25
40	25
42	25
44	25
46	24
48	24
50	24
52	24
54	23
56	23
58	23
60	23
61	23

Temperature rise measured behind the windbreaker board



Temperature rise measured behind the windbreaker board

Min. / °C	IV 1.1	IV 1.2	IV 1.3	IV 1.4	IV 1.5	IV 1.6	IV 1.7	IV 1.Max
0	0	0	0	0	0	0	0	0
2	3	2	0	0	0	4	5	5
4	14	11	0	0	0	13	18	18
6	25	20	0	0	0	25	64	64
8	35	28	1	0	1	43	83	83
10	49	37	1	0	2	61	101	101
12	84	71	2	0	3	84	108	108
14	101	97	3	0	5	96	175	175
15	104	102	5	0	7	99	325	325
16	107	105	7	0	9	102	441	441
18	248	109	12	3	16	90	590	590
20	538	114	23	33	21	78	633	633
22	652	155	68	72	49	85	628	652
24	640	215	78	75	78	412	615	640
26	575	330	78	74	78	517	631	631
28	516	452	73	72	73	579	632	632
30	463	537	73	72	75	582	598	598
32	414	584	81	73	153	551	558	584
34	374	604	142	73	215	561	518	604
36	341	620	159	74	227	592	479	620
38	314	596	155	74	233	597	446	597
40	292	518	159	74	240	586	417	586
42	271	454	165	73	251	555	389	555
44	252	425	171	72	263	512	361	512
46	236	381	178	71	276	463	338	463
48	222	349	184	71	287	419	317	419
50	212	334	191	70	296	378	298	378
52	203	359	197	70	305	340	280	359
54	193	353	204	69	314	307	266	353
56	182	361	209	69	323	278	251	361
58	171	312	215	69	331	254	238	331
60	160	281	220	69	337	232	225	337
61	120	180	222	69	332	219	182	332

Failure [min]	19,58	29,00	-	-	-	25,58	16,67	16,67
Failure°C	500	500	500	500	500	500	500	500

Photo No. 1 Prefabricated cassettes being mounted

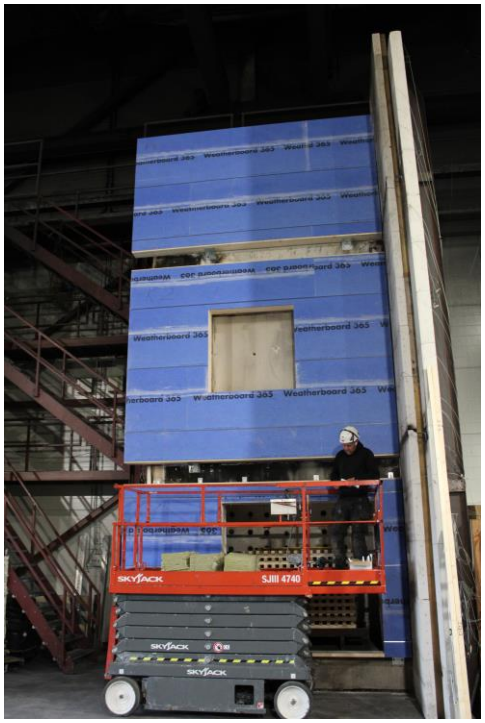


Photo No. 2 Fixing of prefabricated cassettes

Photo No. 3 Insulation mounted between the prefabricated cassettes

Photo No. 4 Insulation in the gap between two cassettes

Photo No. 5 Flame deflector is mounted

Photo No. 6 Window steel flashing is mounted

Photo No. 7 Vertical and horizontal formworks is mounted

Photo No. 8 Vertical cladding is mounted

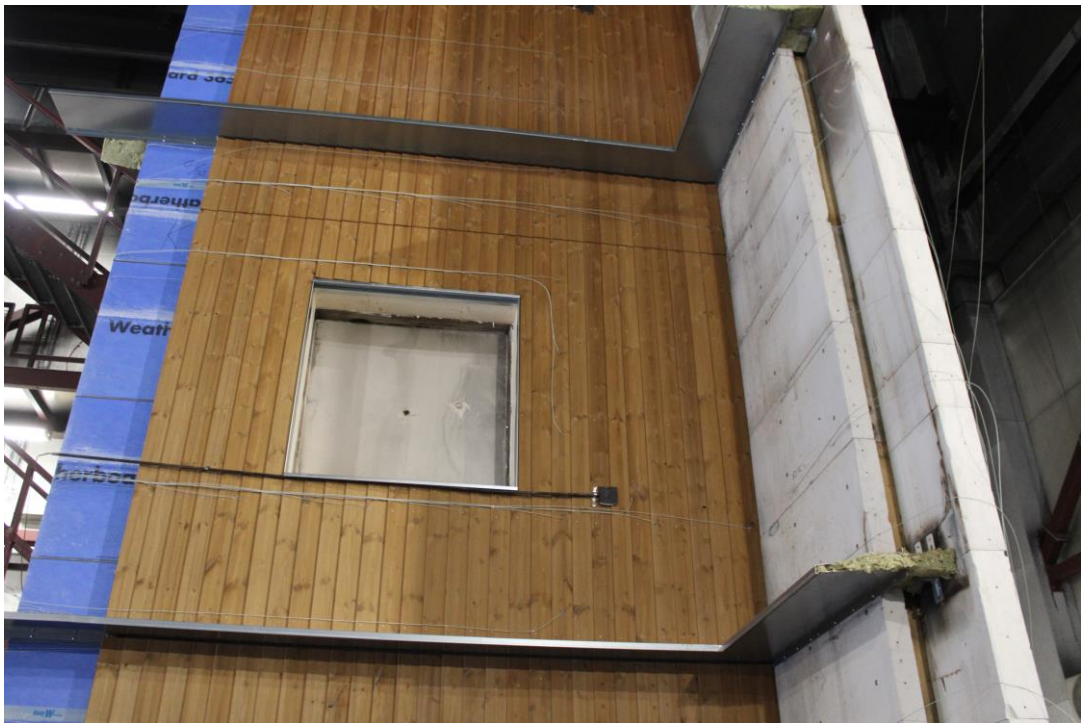


Photo No. 9 Insulation mounted in between the flame deflectors

Photo No. 10 Test specimen before start test

Photo No. 11 Test specimen 2 minutes into the test

Photo No. 12 Test specimen 4 minutes into the test

Photo No. 13 Test specimen 7 minutes into the test

Photo No. 14 Test specimen 10 minutes into the test

Photo No. 15 Test specimen 11 minutes into the test

Photo No. 16 Test specimen 17 minutes into the test

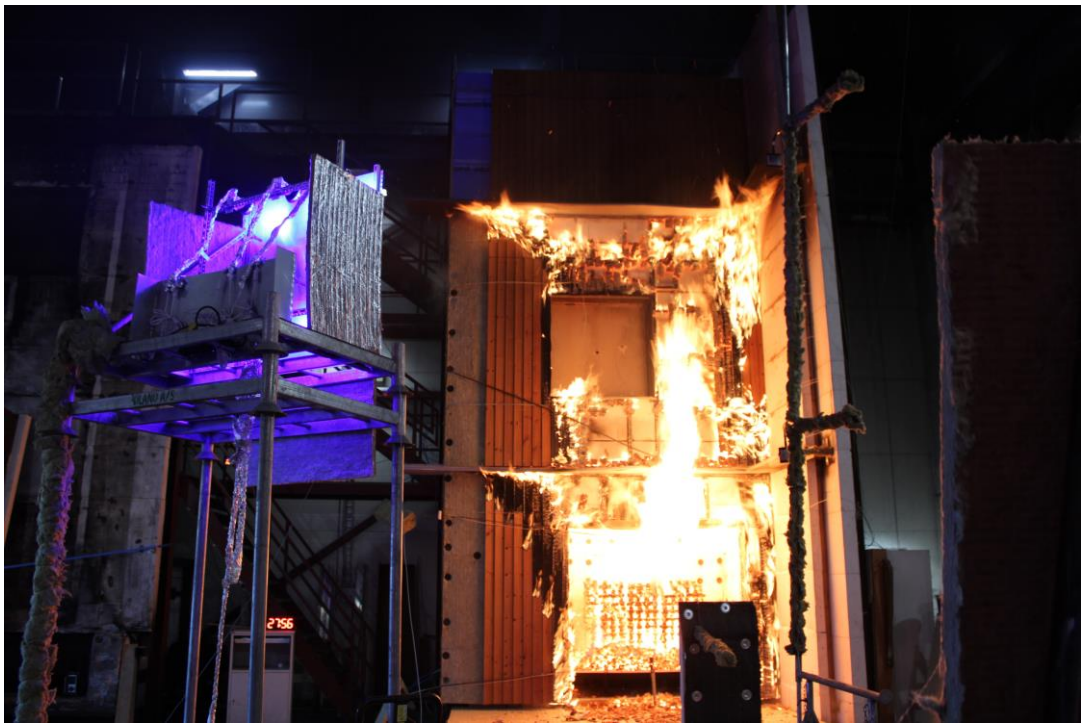


Photo No. 17 Test specimen 28 minutes into the test

Photo No. 18 Test specimen 38 minutes into the test

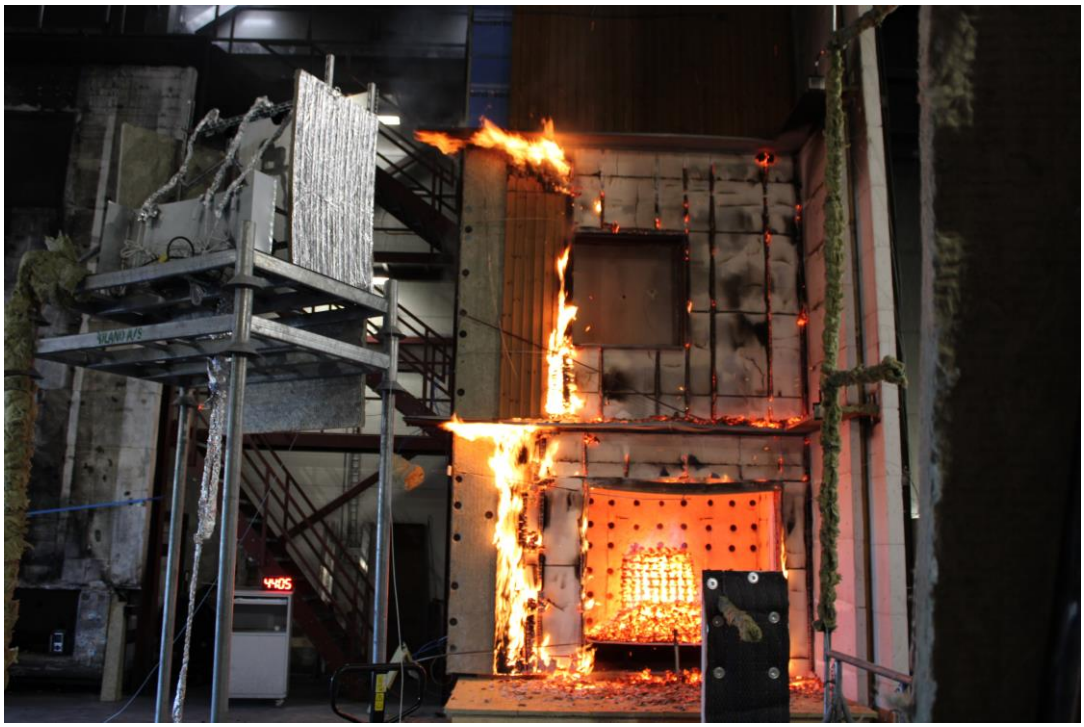


Photo No. 19 Test specimen 44 minutes into the test

Photo No. 20 Test specimen 48 minutes into the test

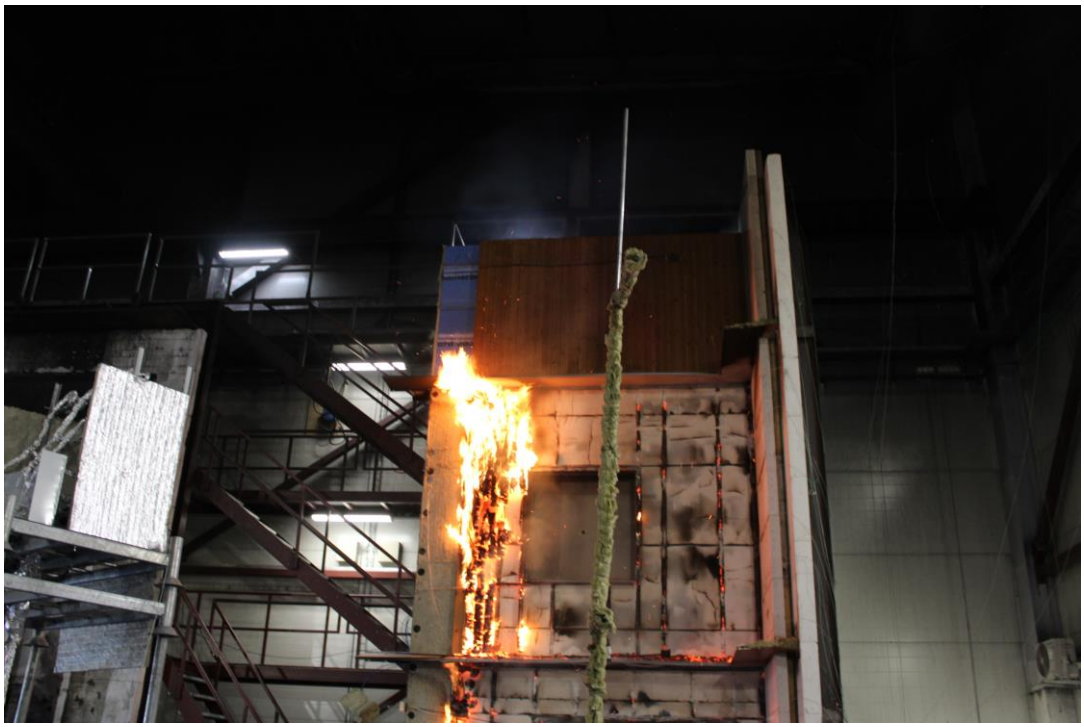


Photo No. 21 Test specimen 53 minutes into the test

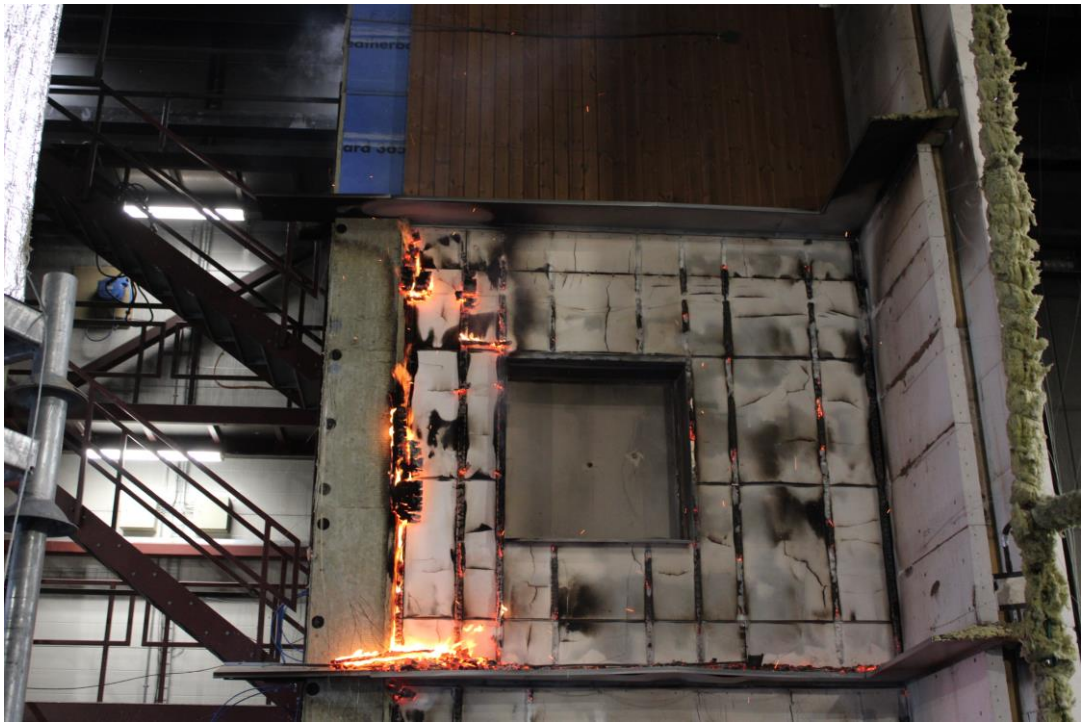


Photo No. 22 Test specimen 60 minutes into the test

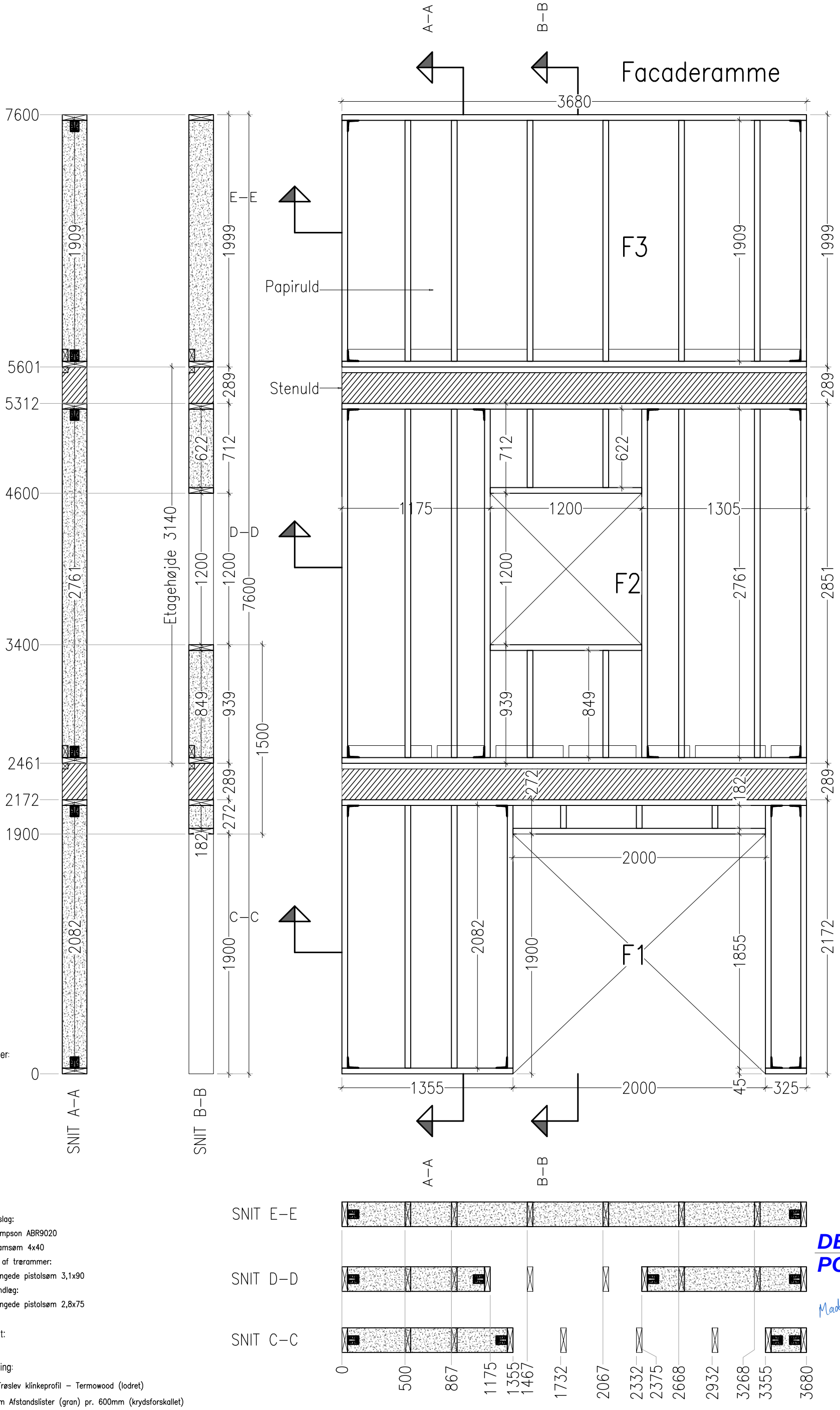
Photo No. 23 Test specimen after the test

Photo No. 24 Test specimen after the test. Detailed photo below the first flame deflector

Photo No. 25 Test specimen after the test. Detailed photo of corner below the first flame deflector

Photo No. 26 Test specimen after the test. Detailed photo of wooden frame corner

Photo No. 27 Test specimen after the test. Detailed photo of top prefabricated cassette



Materialer:

Træ:

F1:

45x195:

F2:

45x195:

45x45:

F3:

45x195

45x45

Vinkelbeslag:

Simpson ABR9020

Kamsøm 4x40

Samling af trærammer:

Ringede pistolsøm 3,1x90

45x45 indlæg:

Ringede pistolsøm 2,8x75

Generelt:

–

Opbygning:

22mm Frøslev klinkeprofil – Termowood (lodret)

22x45mm Afstandslister (gran) pr. 600mm (krydsforskallet)

9,5mm Knauf Weatherboard 365

45x195mm stoplekonstruktion pr. 600mm

195mm Isocell (isolering kl 37)

195mm Rockwool (isolering kl 37) (over vinduer og i lukkestykker)

Revisionstekst:

A) Isolering tilføjet, opdatering af befæstigelse

DBI
PGC10036A

Mads Mock

BFUH-6 Facadetest ved DBI - Version 2

Foreløbig

Facaderamme

BYGHERRE:
Fælledby
–
–

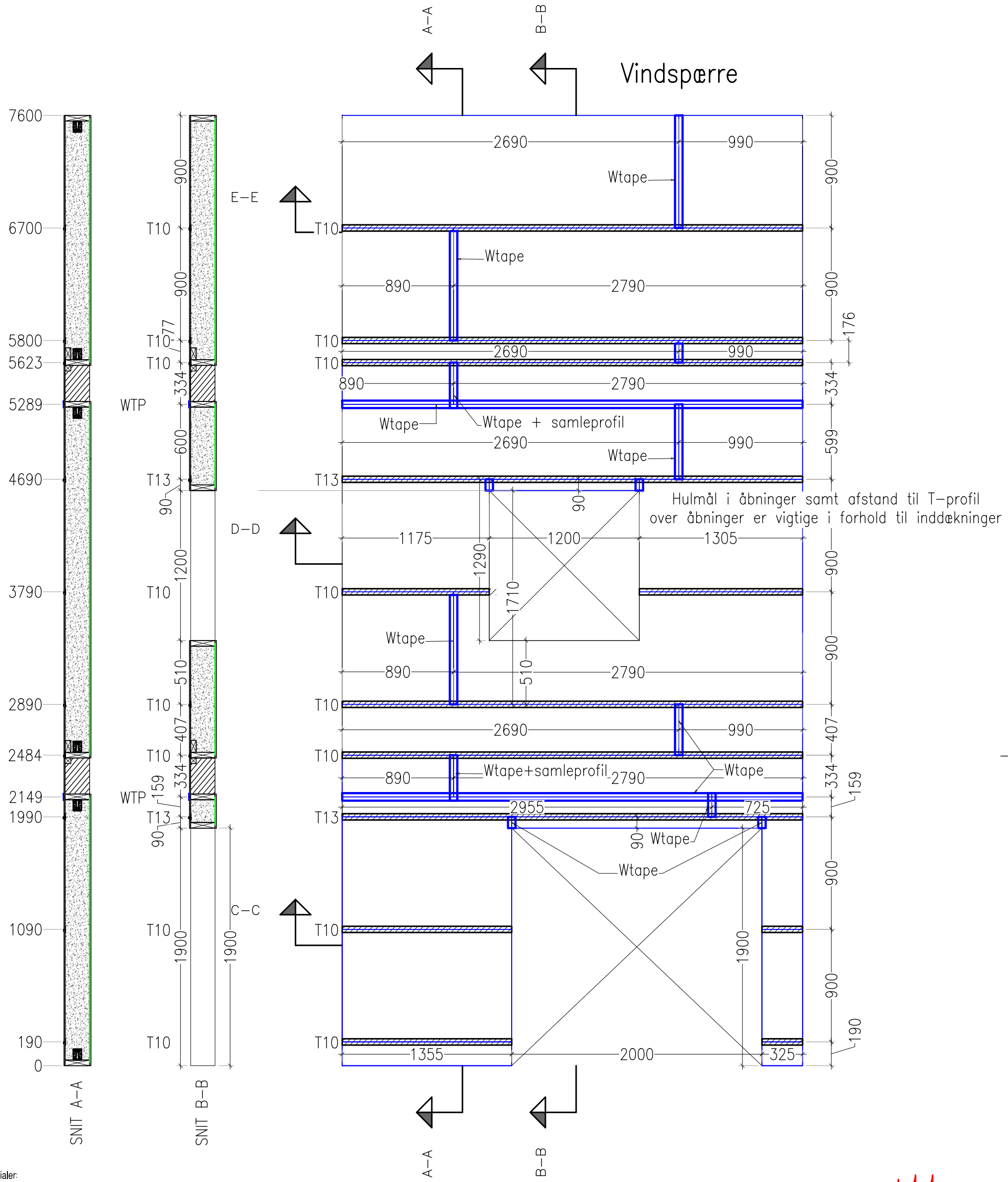
DATO: 2024-03-27 REV. NR/DATO: 2024-03-27

ANSV: CMA MÅL: 1:30 ANTAL: –

TEGN.NR: 1

BM Byggeindustri Lupinvej 18 - 9500 Hobro - Tlf. +45 9852 1744

K:\031_Teknisk\02 Brand\Fælledby Brandtest\Brandtest 2\Mock-Up_BMB – Test 2.dwg



Materialer:

Vindspærre:

9,5 Knauf Weatherboard 365 – 900x3000mm – 12 stk.

Knauf W–tape til lodrette og vandrette samlinger

13 mm T–profil – leveres af BM Byggeindustri A/S

Ringede galvaniserede pistolsøm 2,5 x 50

195mm Isocell isolering – bagside afdækkes af isoleringsdug fra isocell

12mm OSB3 1220x2420 på bagside for at holde på isolering. Samme befæstigelser som vindspærre.

Generelt:

–

Opbygning:

22mm Frøslev klinkeprofil – Termowood (lodret)

22x45mm Afstandslister (gran) pr. 600mm (krydsforskallet)

9,5mm Knauf Weatherboard 365

45x195mm stoplekonstruktion pr. 600mm

195mm Isocell (isolering kl 37)

195mm Rockwool (isolering kl 37) (over vinduer og i lukkestykker)

Revisionstekst:

A) Vindspærre ændret i størrelse og lagt ned. Flere T–profiler. Isoleringsdug og OSB–plade tilføjet.

Hulmål i åbninger samt afstand til T–profil over åbninger er vigtige i forhold til inddækninger

DBI
PGC10036A

Mads Mølle

BFUH-6 Facadetest ved DBI - Version 2

Foreløbig

Vindspærre

BYGHERRE:
Fælledby
–
–

DATO: 2024–03–27 REV. NR/DATO: 2024–03–27

ANSV: CMA MÅL: 1:30 ANTAL: –

TEGN.NR: 2

BM Byggeindustri Lupinvej 18 - 9500 Hobro - Tlf. +45 9852 1744

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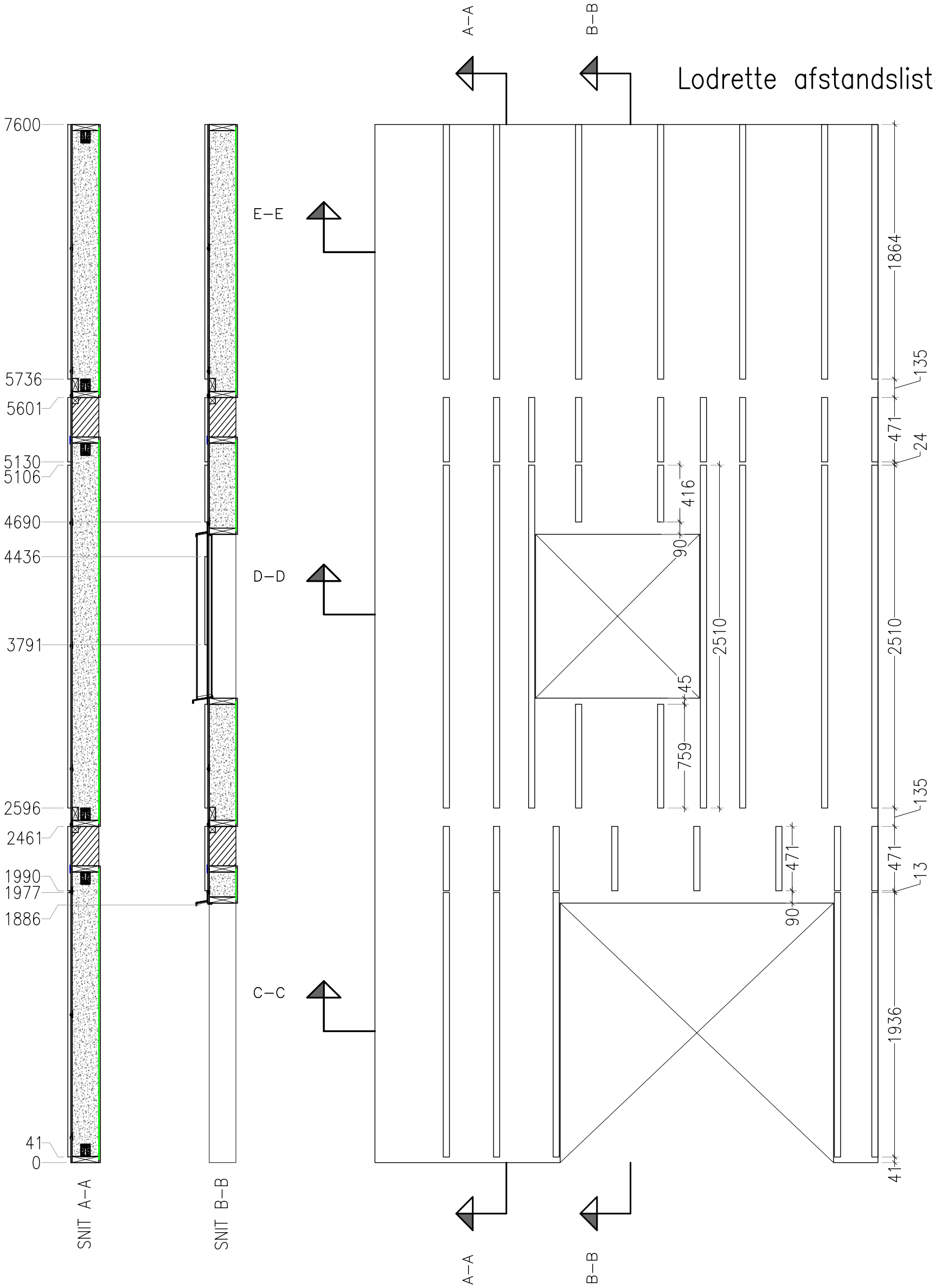


Materialer:

22x45mm afstandslister i gran ubehandlet LBM:
Ringede galvaniserede pistolsøm 2,8 x 75
Flammeafbøjer leveres af Facadeplan

Vinduesinddækninger leveres af BM Byggeindustri og monteres inden afstandslister

Generelt:

–

Opbygning:

22mm Frøslev klinkeprofil – Termowood (lodret)
22x45mm Afstandslister (gran) pr. 600mm (krydsforskallet)
9,5mm Knauf Weatherboard 365
45x195mm stoplekonstruktion pr. 600mm
195mm Isocell (isolering kl 37)
195mm Rockwool (isolering kl 37) (over vinduer og i lukkestykker)

Revisionstekst:

A) Befæstigelse tilføjet

DBI
PGC10036A

Mads Mølle

BFUH-6 Facadetest ved DBI - Version 2 — Foreløbig

L Afstandslister

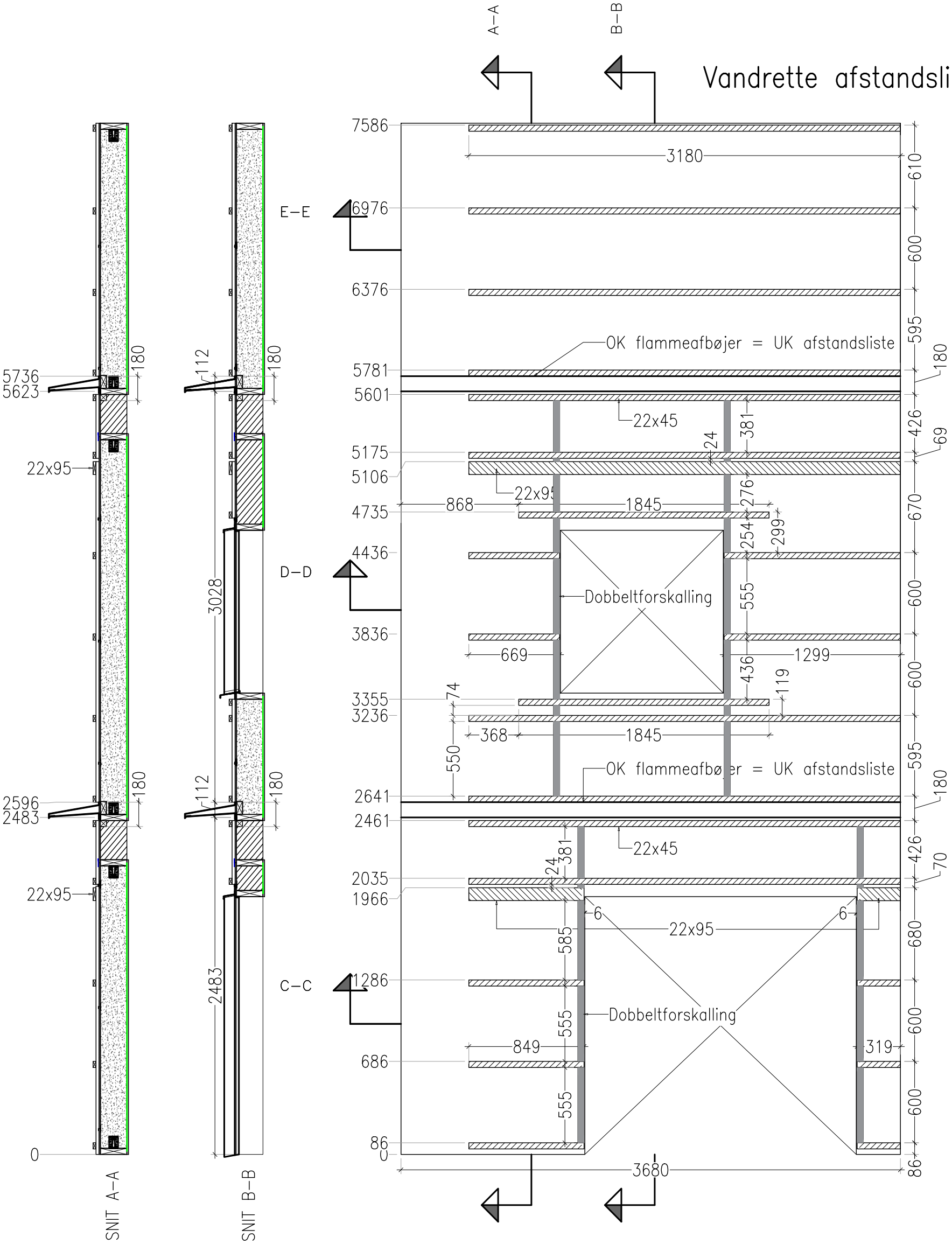
BYGHERRE:
Fælledby
–
–

DATO: 2024-03-27 REV. NR/DATO: 2024-03-27
ANSV: CMA MÅL: 1:30 ANTAL: –
TEGN.NR: 3

BM Byggeindustri Lupinvej 18 - 9500 Hobro - Tlf. +45 9852 1744

K:\031_Teknisk\02 Brand\Fælledby Brandtest\Brandtest 2\Mock-Up_BMB – Test 2.dwg

Vandrette afstandslister



Materialer:

22x45mm + 22x95 afstandslister i gran ubehandlet LBM:
Ringede galvaniserede pistolsøm 3,1 x 90

Generelt:

–

Opbygning:

22mm Frøslev klinkeprofil – Termowood (lodret)
22x45mm Afstandslister (gran) pr. 600mm (krydsforskallet)
9,5mm Knauf Weatherboard 365
45x195mm stoplekonstruktion pr. 600mm
195mm Isocell (isolering kl 37)
195mm Rockwool (isolering kl 37) (over vinduer og i lukkestykker)

Revisionstekst:

A) Bredforskalling samt befæstigelse tilføjet

DBI
PGC10036A

BFUH-6 Facadetest ved DBI - Version 2 — Foreløbig

V Afstandslister

BYGHERRE:
Fælledby
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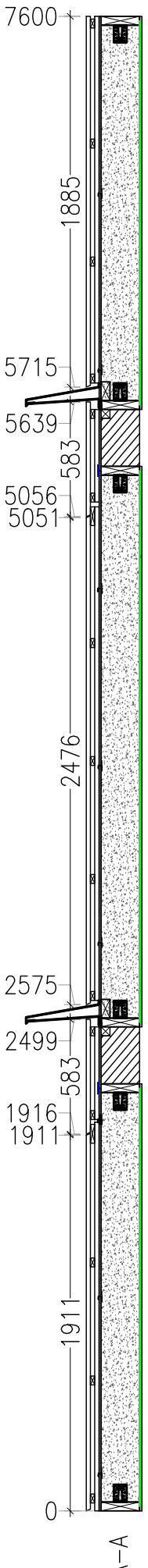
–

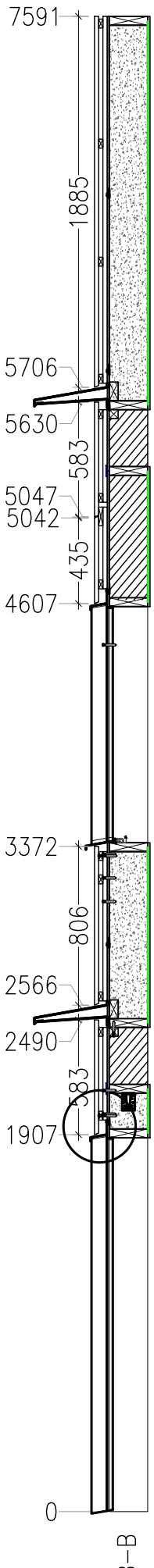
DATO: 2024-03-27 REV. NR/DATO: 2024-03-27
ANSV: CMA MÅL: 1:30 ANTAL: –
TEGN.NR: 4

BM Byggeindustri Lupinvej 18 - 9500 Hobro - Tlf. +45 9852 1744

K:\031_Teknisk\02 Brand\Fælledby Brandtest\Brandtest 2\Mock-Up_BMB – Test 2.dwg

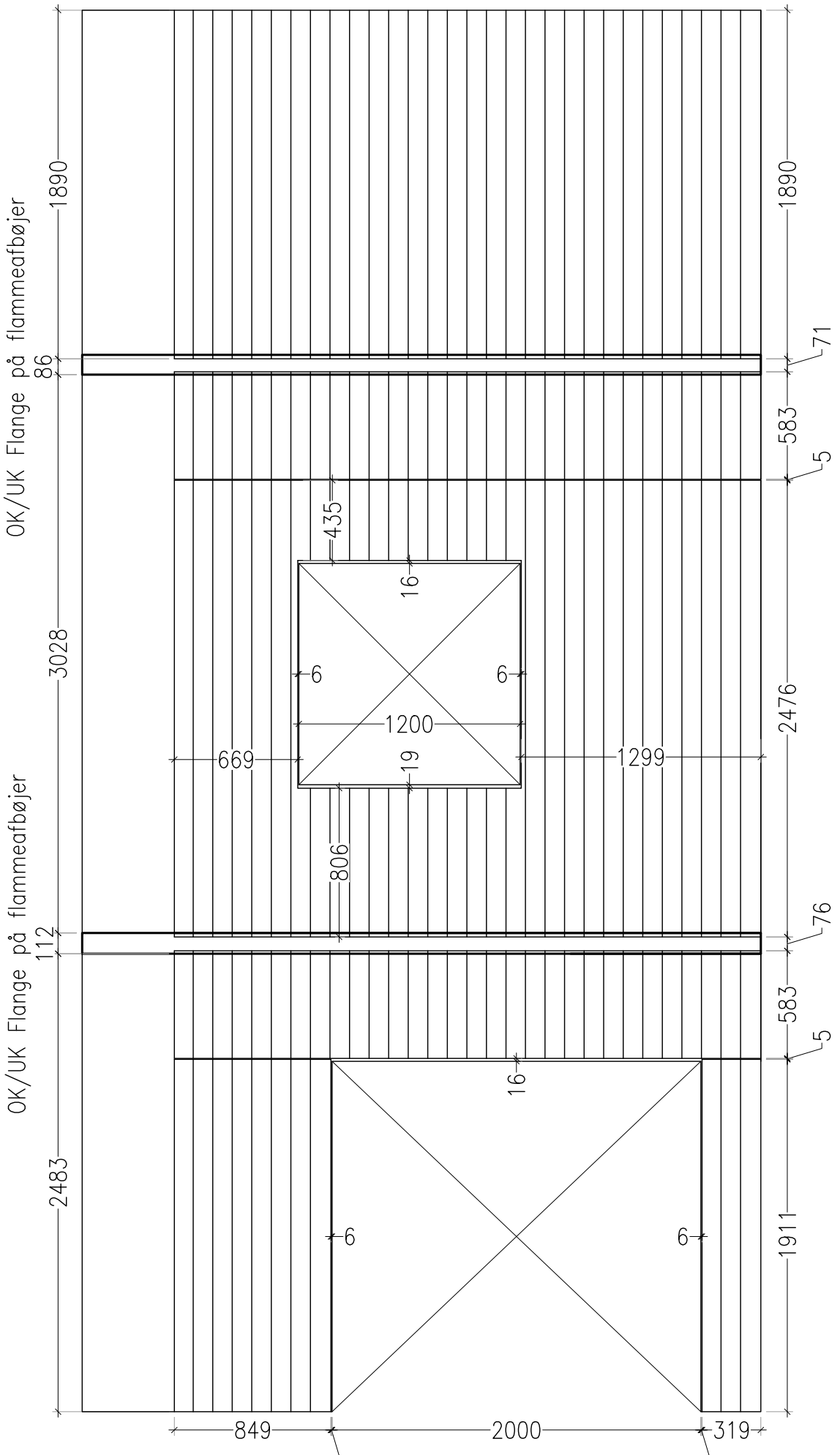
Facade

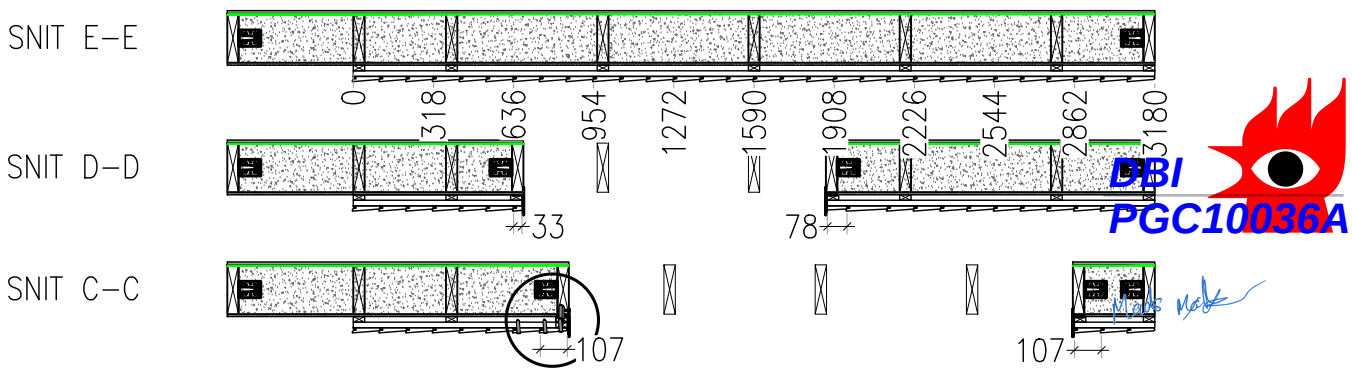




SNIT

SNIT





Materialer:

22mm Frøslev klinkeprofil – Termowood (lodret) LBM:
Rundhovedet rustfri A4 pistolsøm 2,5x50

Generelt:

–

Opbygning:

22mm Frøslev klinkeprofil – Termowood (lodret)
22x45mm Afstandslister (gran) pr. 600mm (krydsforskallet)
9,5mm Knauf Weatherboard 365
45x195mm stoplekonstruktion pr. 600mm
195mm Isocell (isolering kl 37)
195mm Rockwool (isolering kl 37) (over vinduer og i lukkestykker)

Revisionstekst:

A) Befæstigelse tilføjet

DBI
PGC10036A

BFUH-6 Facadetest ved DBI - Version 2 — Foreløbig

Facadebeklædning

BYGHERRE:
Fælledby
–
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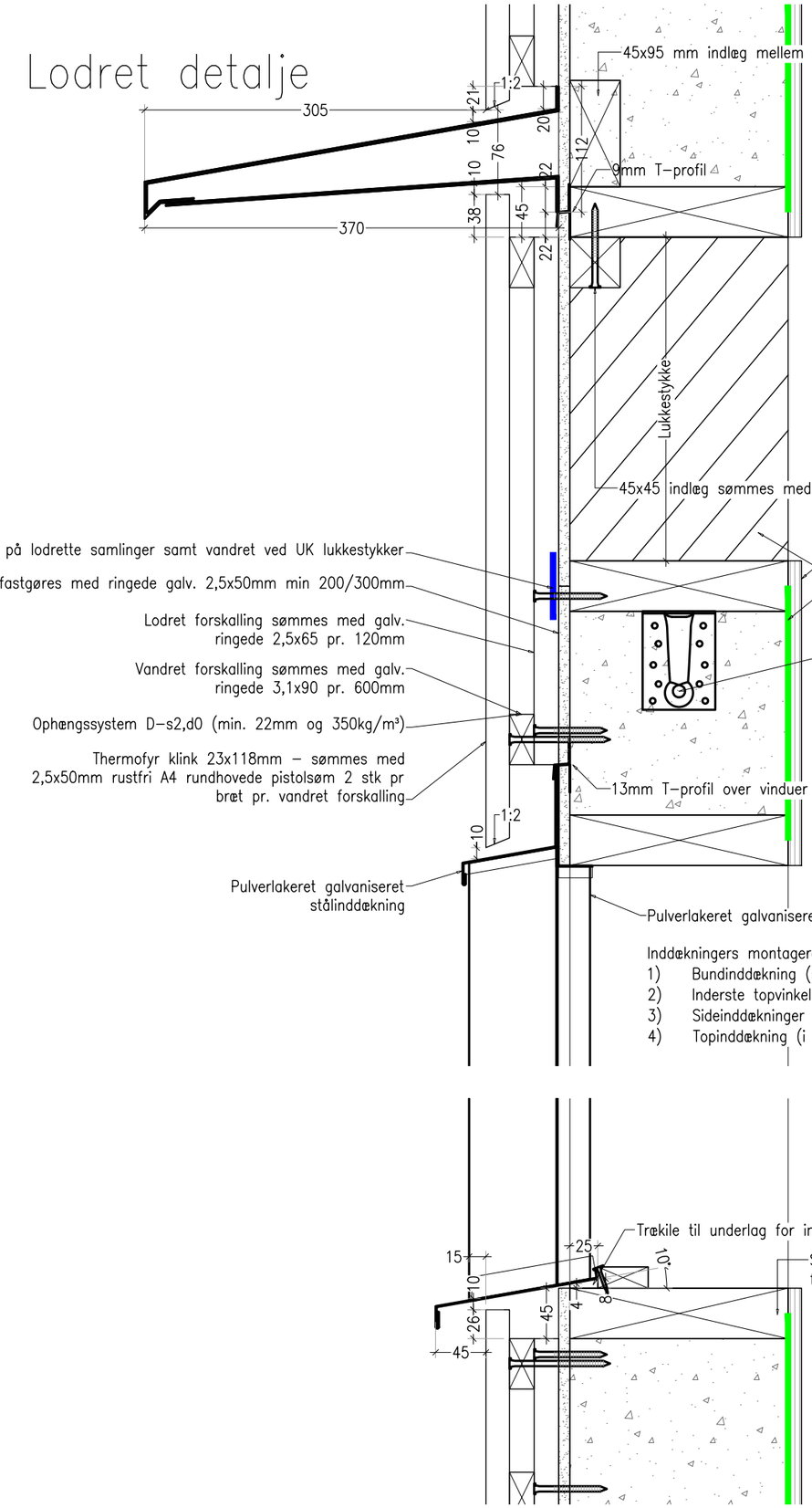
DATO: 2024-03-27 REV. NR/DATO: 2024-03-27
ANSV: CMA MÅL: 1:30 ANTAL: –
TEGN.NR: 5

BM Byggeindustri Lupinvej 18 - 9500 Hobro - Tlf. +45 9852 1744

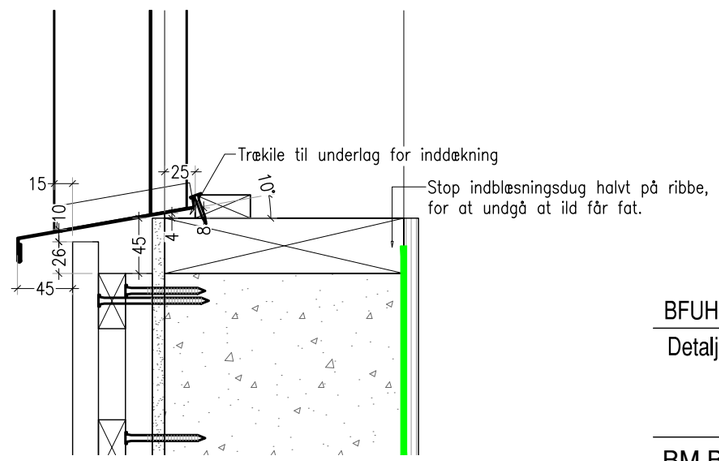
K:\031_Teknisk\02 Brand\Fælledby Brandtest\Brandtest 2\Mock-Up_BMB – Test 2.dwg

Lodret detalje

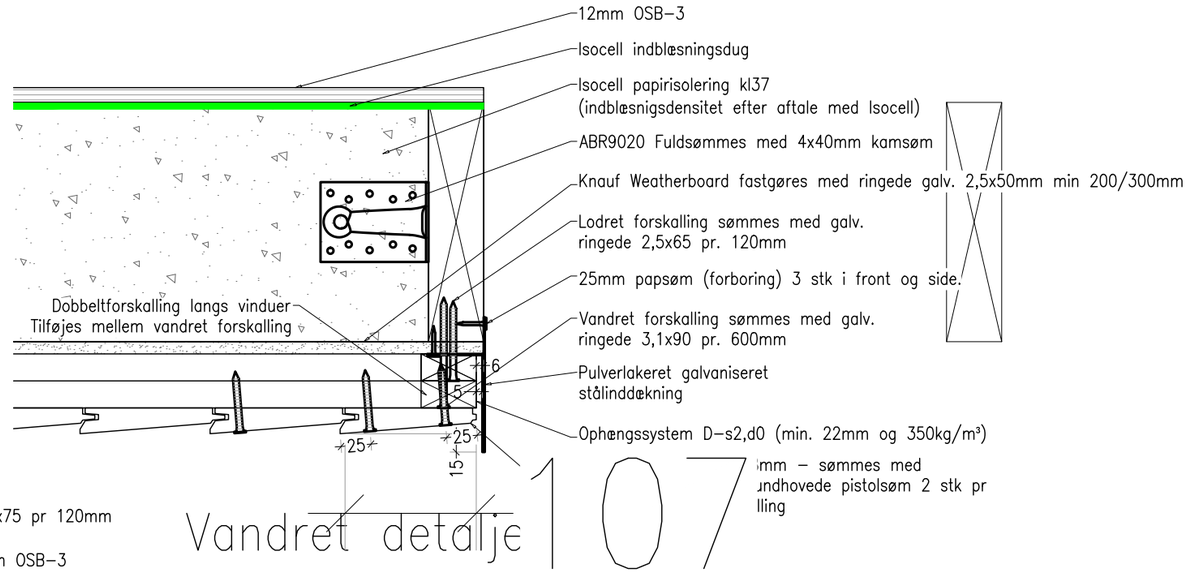


Inddækningers montagerækkefølge:

1) Bundinddækning (sålbænk)–popnittes til sideinddækning – forbores)
2) Inderste topvinkel (i T-profil og fastholdes med papsøm – forbores)
3) Sideinddækninger (papsøm i side og karm – forbores))
4) Topinddækning (i T-profil – popnittes til sideinddækning – forbores)



Vandret detalje 107



DBI
PGC10036A

Mads Mock

BFUH-6 Facadetest ved DBI - Version 2 — Foreløbig

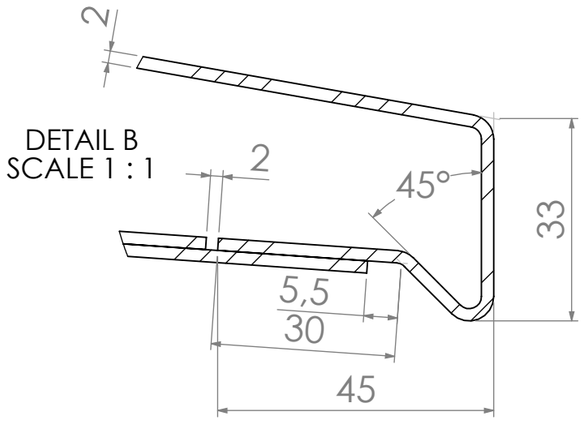
Detaljer

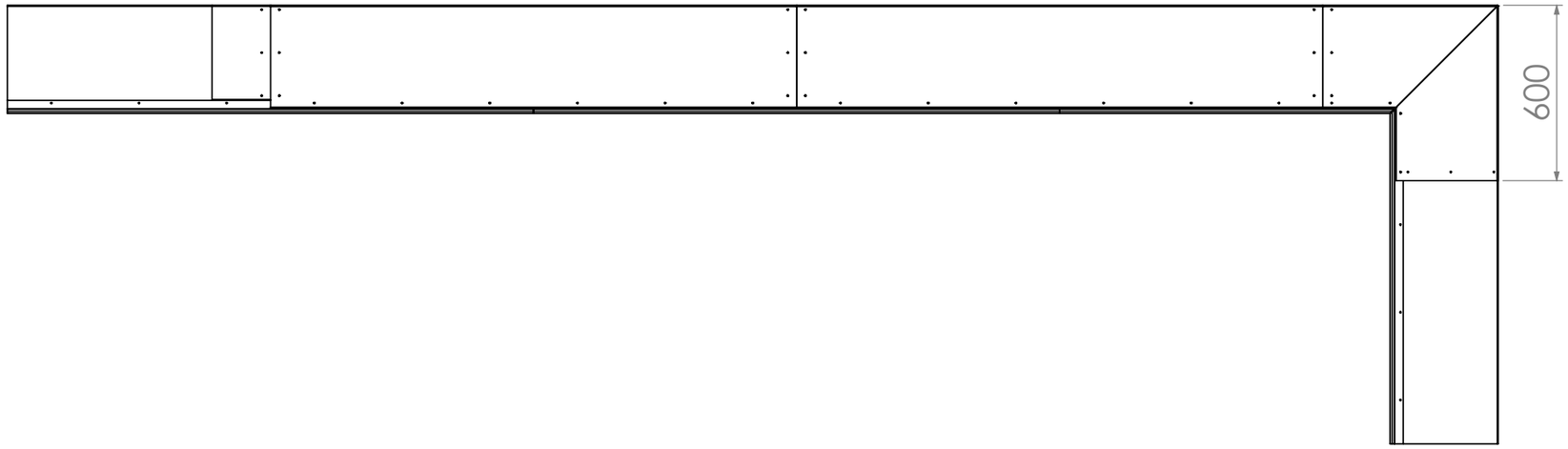
BYGHERRE: Fælledby
–
–

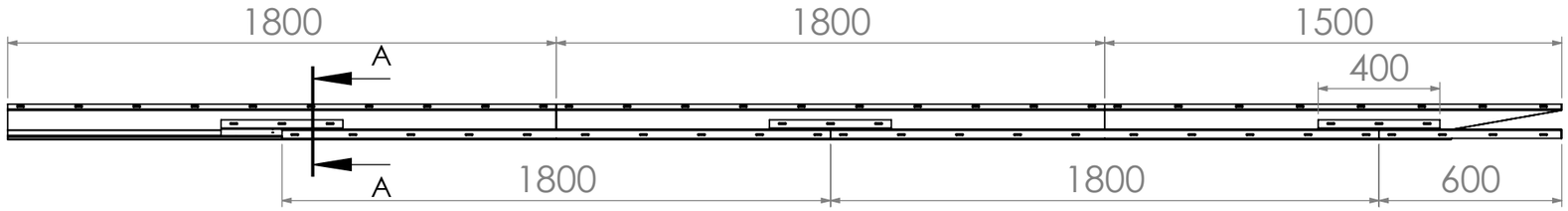
DATO: 2024-03-27 REV. NR/DATO: 2024-03-27
ANSV: CMA MÅL: 1:5 ANTAL: –
TEGN.NR: DE01

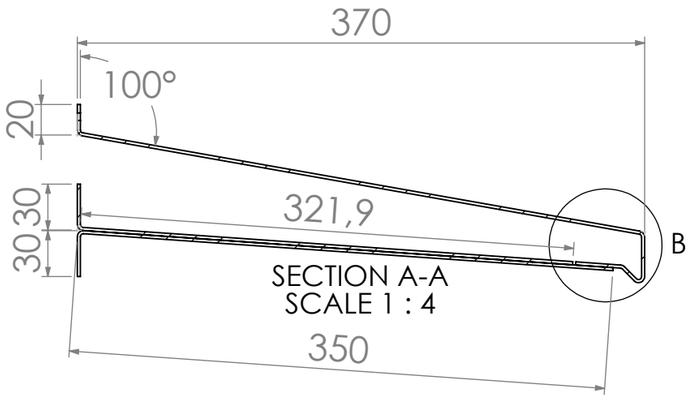
BM Byggeindustri Lupinvej 18 - 9500 Hobro - Tlf. +45 9852 1744

K:\031_Teknisk\02 Brand\Fælledby Brandtest\Brandtest 2\Mock-Up_BMB – Test 2.dwg









	NAME	DATE
DRAWN	casper	04-04-2024

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.

GLADSAXE KLIP & BUK

Folder name: X:\Facadeplan\BFUH-7\

Customer:

TITLE: 2 mm plade

MATERIAL: DX51D Z275 (Varm-Galv)

DWG NO. Flammeafbøjer BFUH-7

REVISION

WEIGHT: 77970.48 | SCALE:1:20 | A3 | SHEET 1 OF 2

DBI
PGC10036A

Mads Mølk

	NAME	DATE
DRAWN	casper	04-04-2024

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.

GLADSAXE KLIP & BUK

Folder name: X:\Facadeplan\BFUH-7\

Customer:

TITLE: 2 mm plade

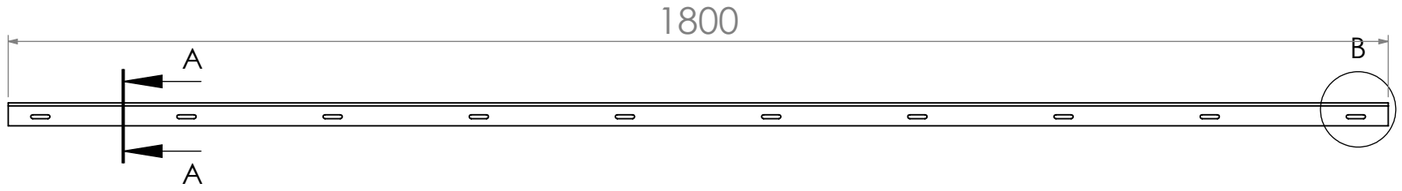
MATERIAL: DX51D Z275 (Varm-Galv)

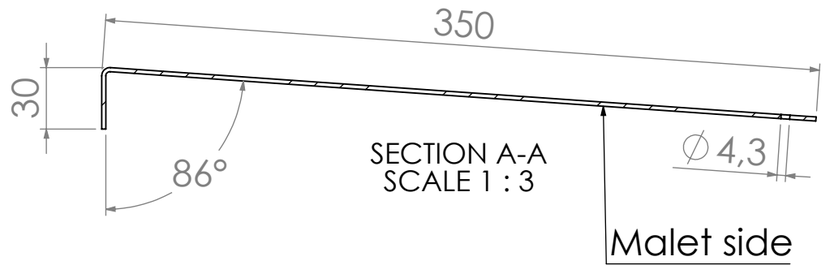
DWG NO. Flammeafbøjer BFUH-7

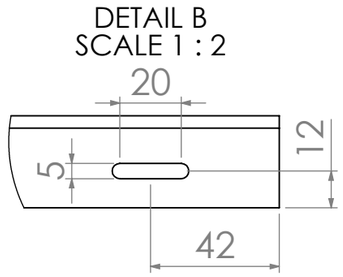
REVISION

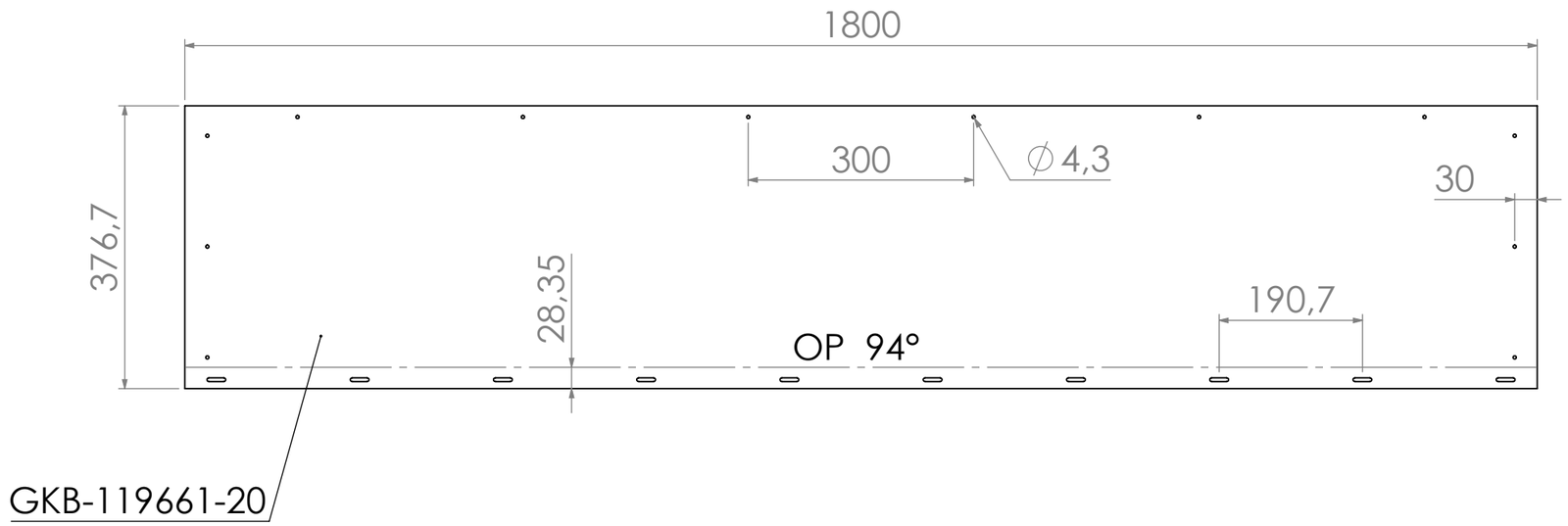
WEIGHT: 77970.48

SCALE:1:15 | A3 | SHEET 2 OF 2









DBI
PGC10036A

Mads Mdk

OV: R1
UV: Spor 12-30°
BT: 0,5 mm

	NAME	DATE
DRAWN	casper	04-04-2024

GLADSAXE KLIP & BUK

Folder name: X:\Facadeplan\BFUH-7\

Customer:

TITLE: 2 mm plade

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.

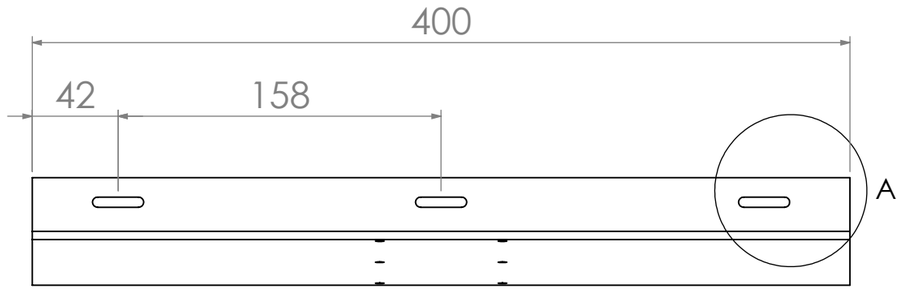
MATERIAL: DX51D Z275 (Varm-Galv)

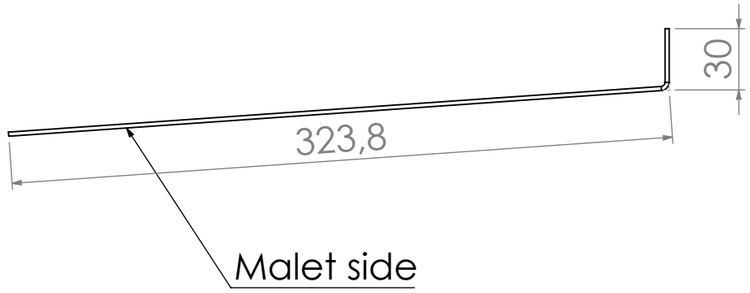
DWG NO. GKB-119661-1

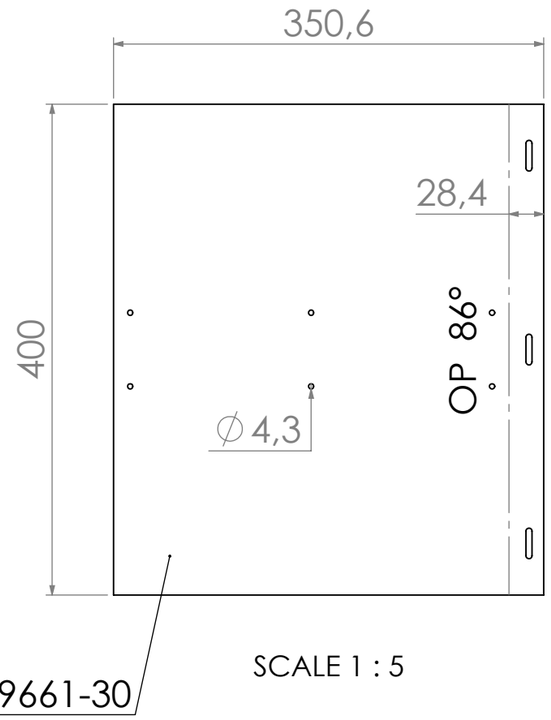
REVISION

WEIGHT: 77970.48

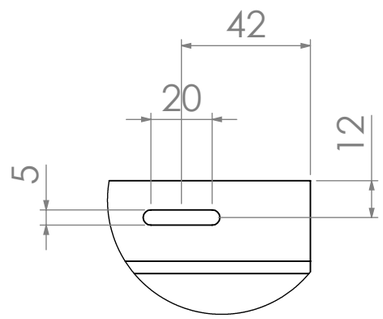
SCALE:1:8 | A3 | SHEET 1 OF 1







SCALE 1 : 5



DETAIL A
SCALE 1 : 2

DBI
PGC10036A

OV: R1
UV: Spor 12-30°
BT: 0,5 mm

	NAME	DATE
DRAWN	casper	04-04-2024

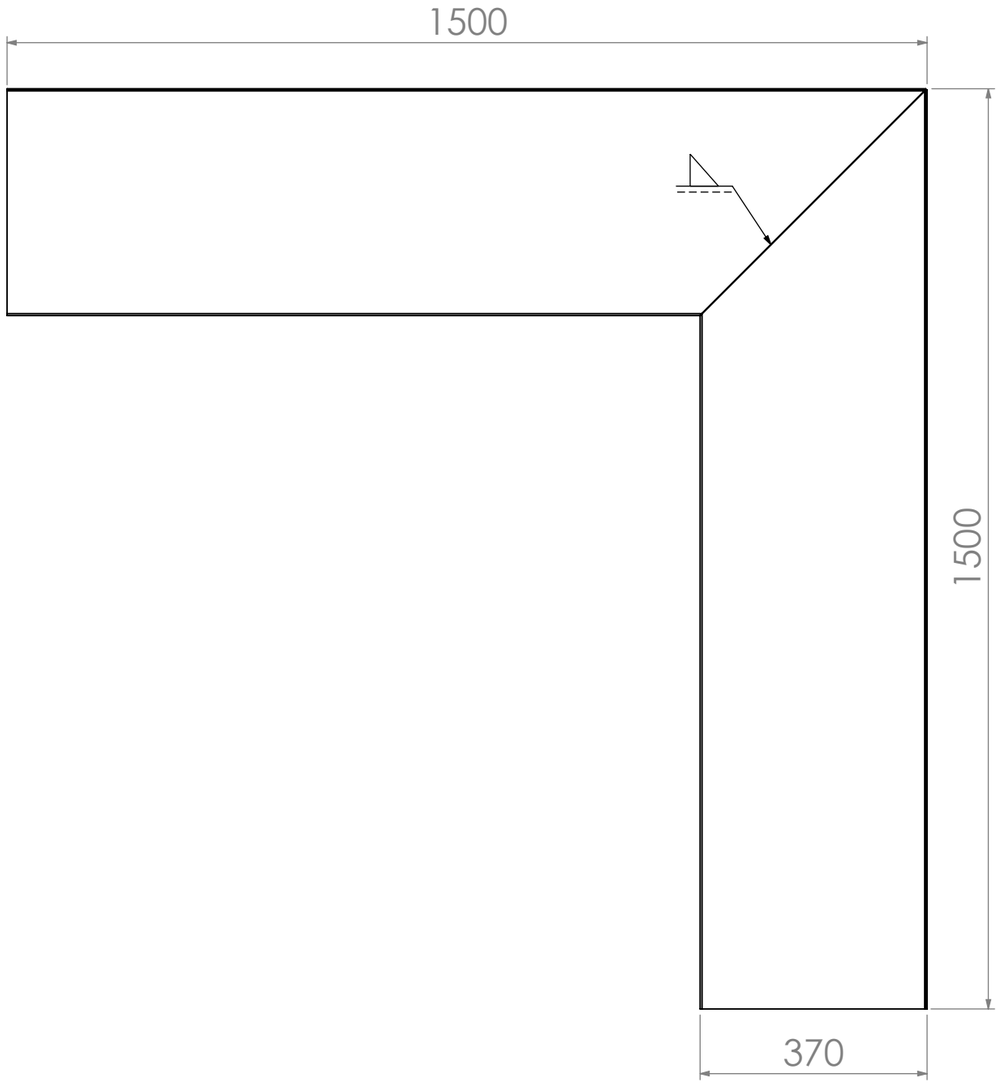
GLADSAXE KLIP & BUK

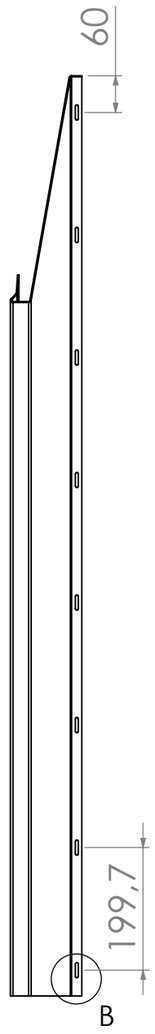
Folder name: X:\Facadeplan\BFUH-7\
Customer:
TITLE: 2 mm plade

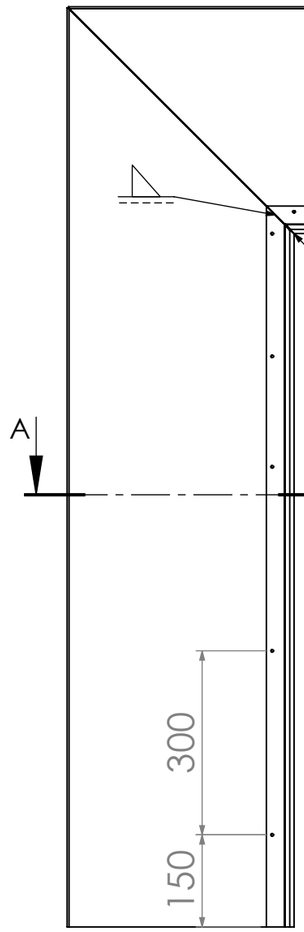
Hvor intet andet er angivet, er tolerancer i henhold til DS/ISO 2768-1(m)
Alle mål er i millimeter, medmindre andet er angivet.
Tegningen må ikke skaleres.

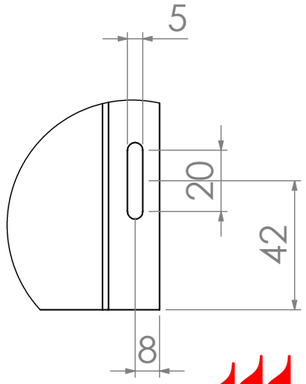
MATERIAL: DX51D Z275 (Varm-Galv)
DWG NO. GKB-119661-2
REVISION

WEIGHT: 77970.48 | SCALE:1:3 | A3 | SHEET 1 OF 1

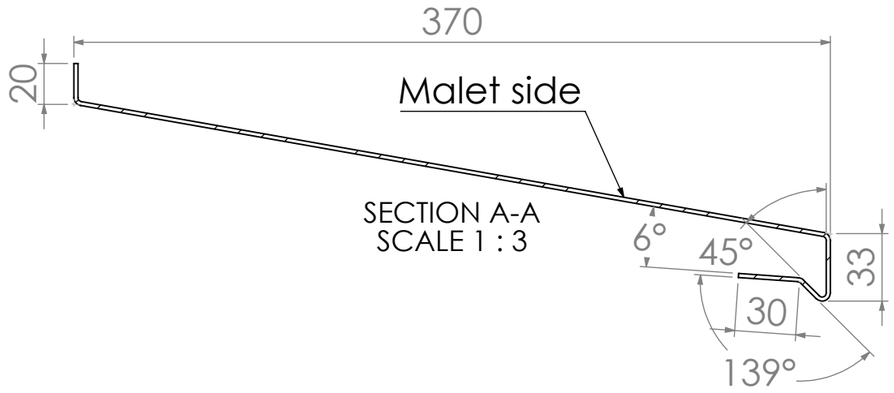








DETAIL B
SCALE 2 : 1



	NAME	DATE
DRAWN	casper	04-04-2024

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.

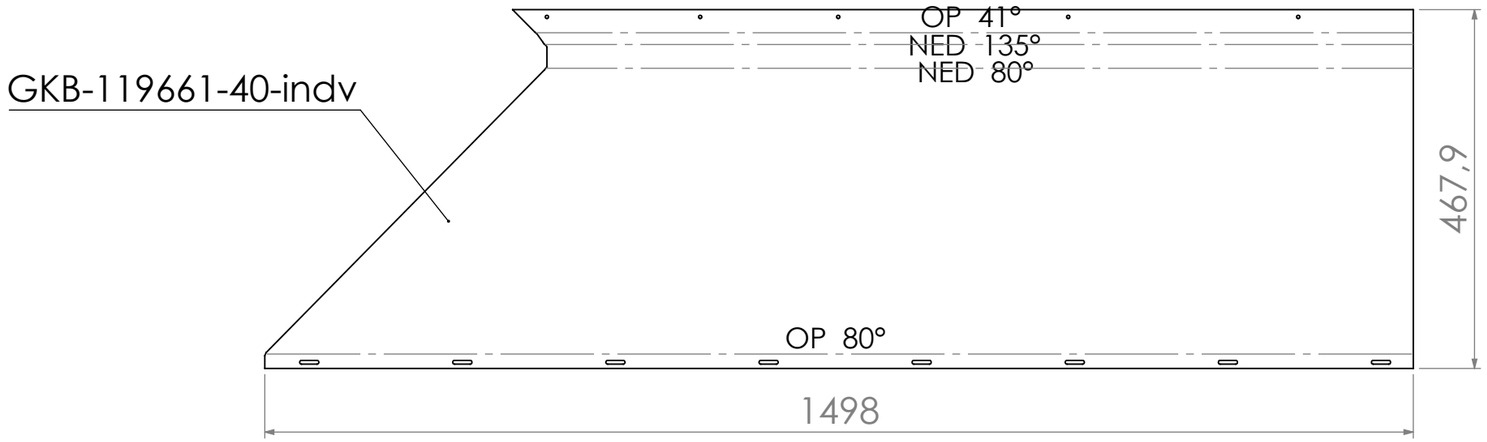
GLADSAXE KLIP & BUK

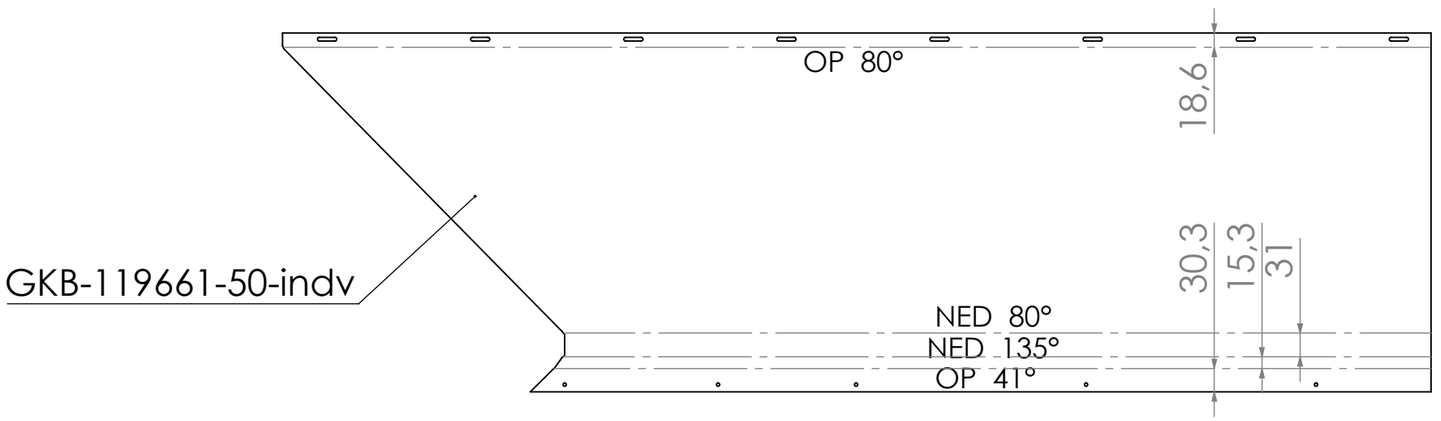
Folder name: X:\Facadeplan\BFUH-7\
Customer:
TITLE: 2 mm plade

MATERIAL: DX51D Z275 (Varm-Galv)
DWG NO. GKB-119661-3
REVISION

WEIGHT: 77970.48
SCALE:1:10
A3
SHEET 1 OF 2

DB1
PGC10036A





DBI
PGC10036A

OV: R1
UV: Spor 12-30°
BT: 0,5 mm

	NAME	DATE
DRAWN	casper	04-04-2024

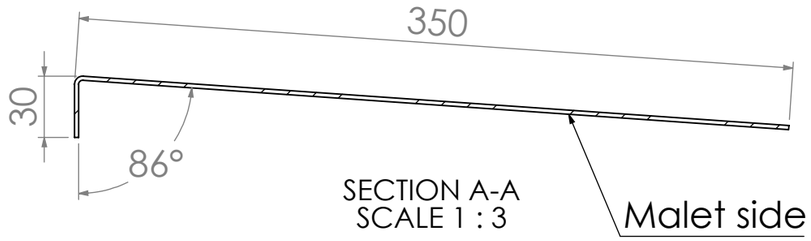
Hvor intet andet er angivet, er tolerancer i henhold til DS/ISO 2768-1(m)
Alle mål er i millimeter, medmindre andet er angivet.
Tegningen må ikke skaleres.

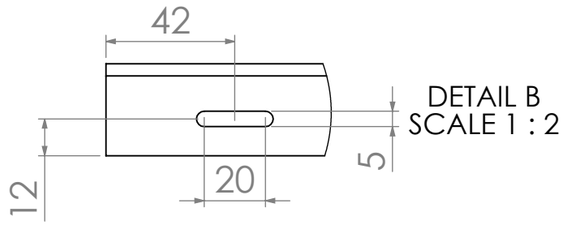
GLADSAXE KLIP & BUK

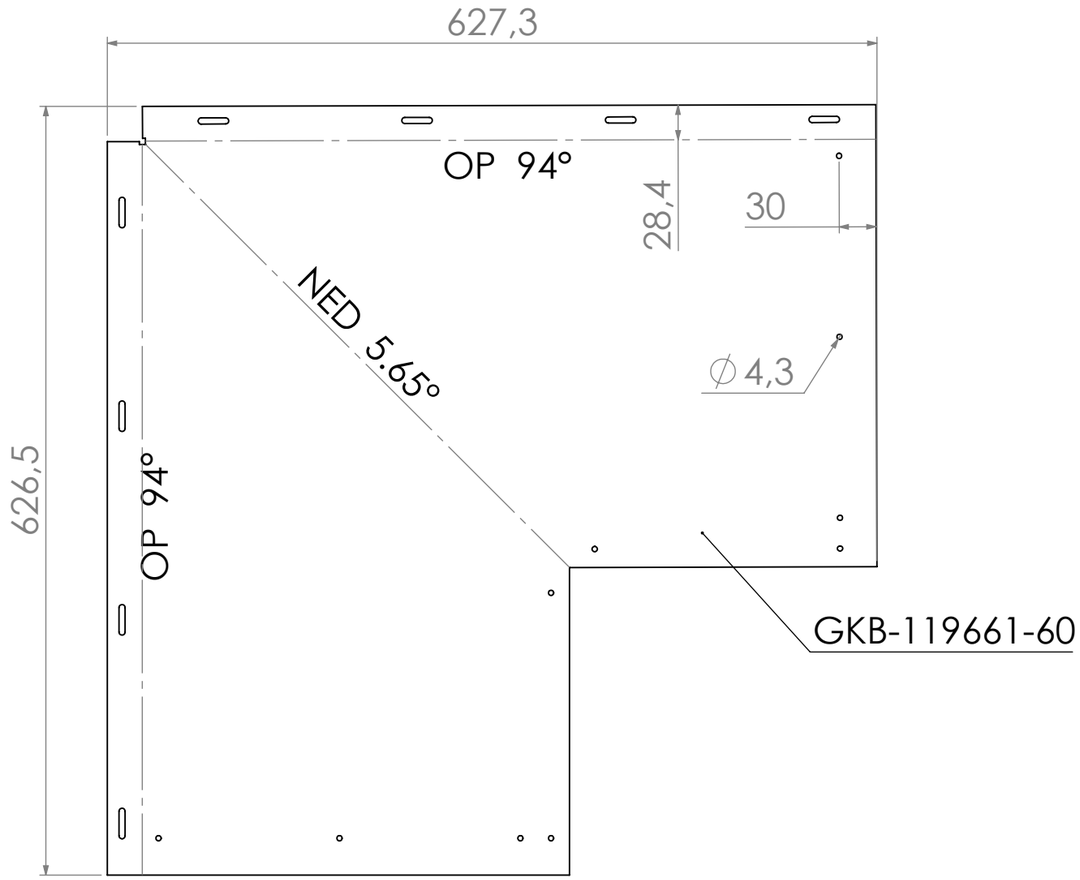
Folder name: X:\Facadeplan\BFUH-7\
Customer:
TITLE: 2 mm plade

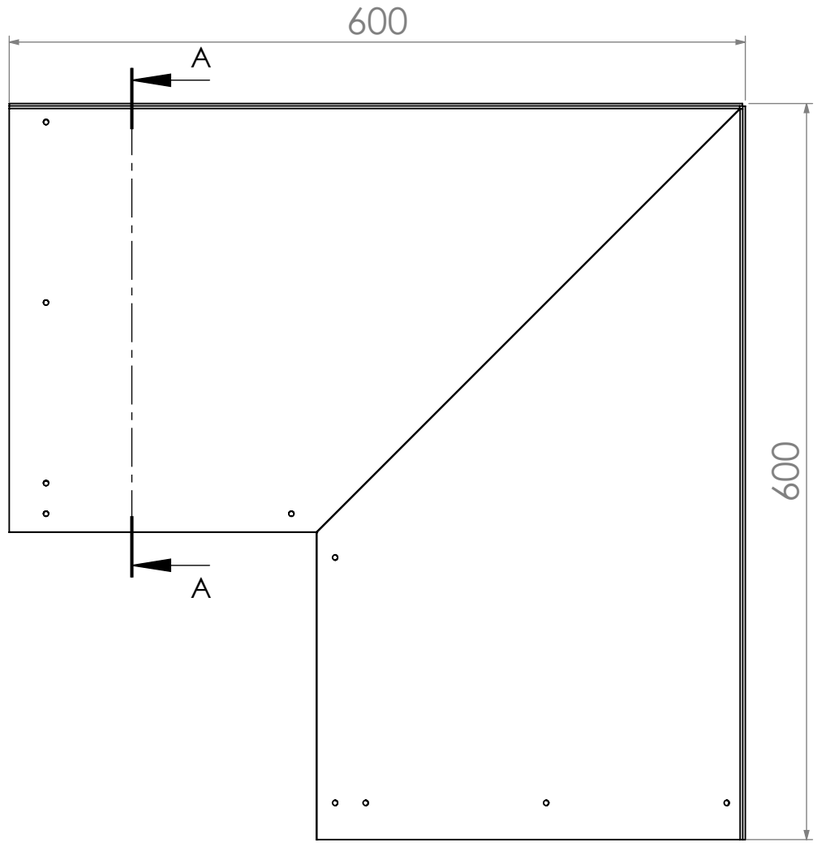
MATERIAL: DX51D Z275 (Varm-Galv)
DWG NO. GKB-119661-3
REVISION

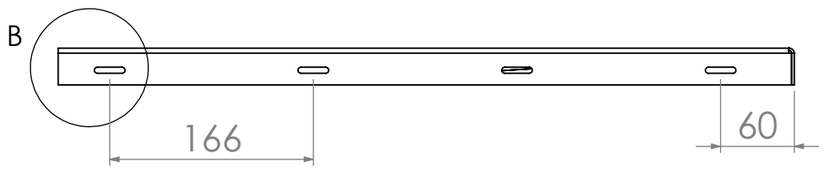
WEIGHT: 77955.55
SCALE:1:8
A3
SHEET 2 OF 2











DBI
PGC10036A

OV: R1
UV: Spor 12-30°
BT: 0,5 mm

	NAME	DATE
DRAWN	casper	04-04-2024

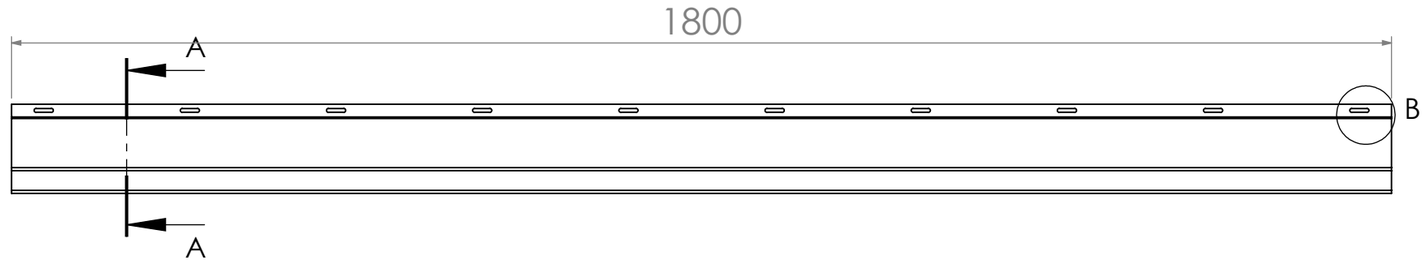
Hvor intet andet er angivet, er tolerancer i henhold til DS/ISO 2768-1(m)
Alle mål er i millimeter, medmindre andet er angivet.
Tegningen må ikke skaleres.

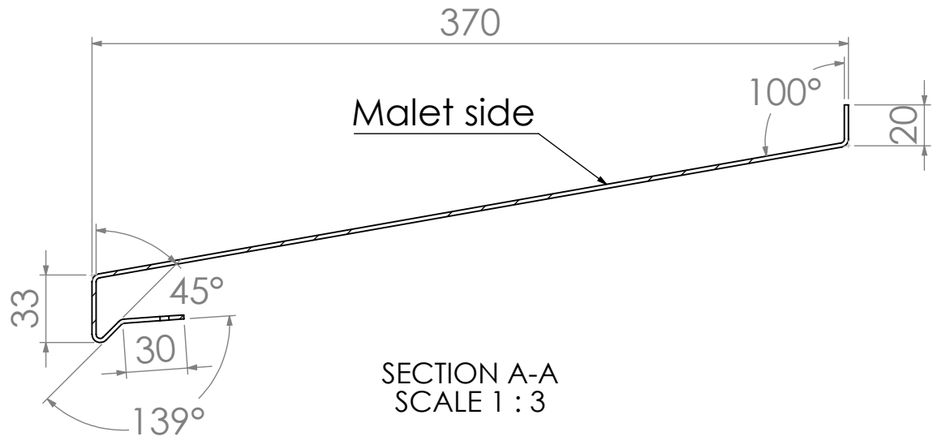
GLADSAXE KLIP & BUK

Folder name: X:\Facadeplan\BFUH-7\
Customer:
TITLE: 2 mm plade

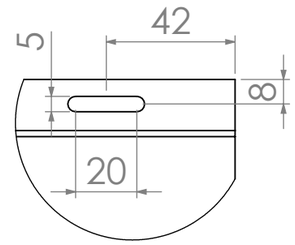
MATERIAL: DX51D Z275 (Varm-Galv)
DWG NO. GKB-119661-4
REVISION

WEIGHT: 77970.48
SCALE:1:5
A3
SHEET 1 OF 1

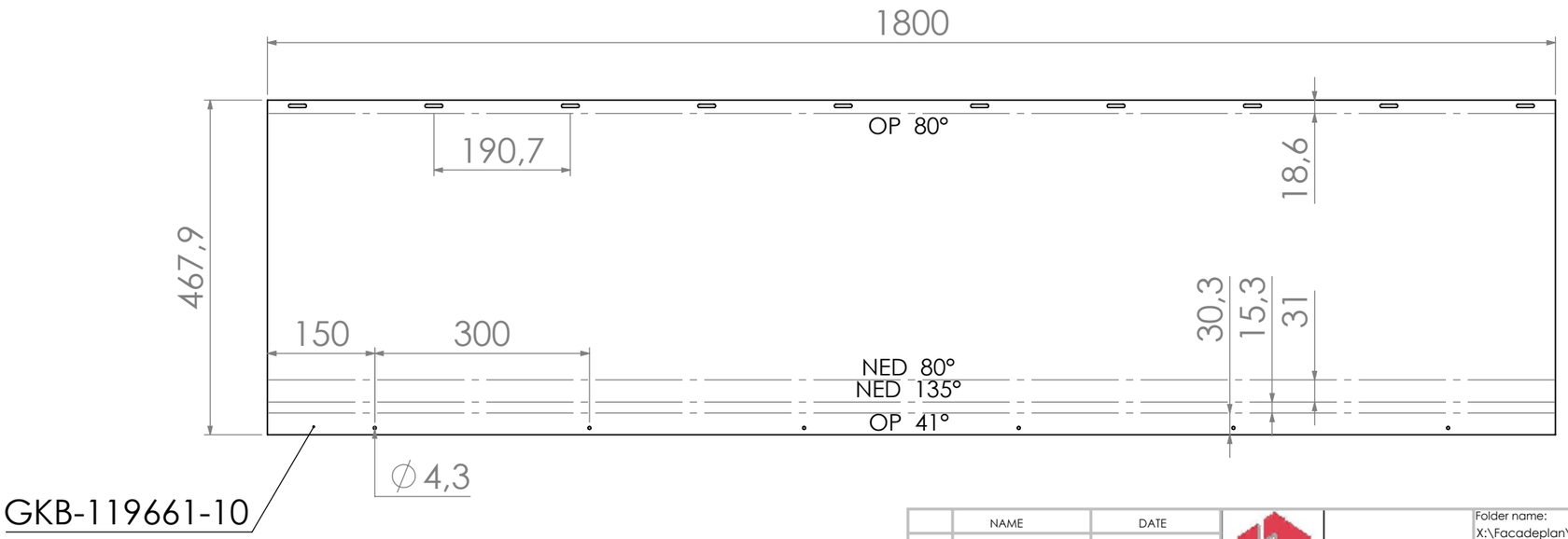




SECTION A-A
SCALE 1 : 3



DETAIL B
SCALE 1 : 2



DBI
PGC10036A

OV: R1
UV: Spor 12-30°
BT: 0,5 mm

	NAME	DATE
DRAWN	casper	04-04-2024

GLADSAXE KLIP & BUK

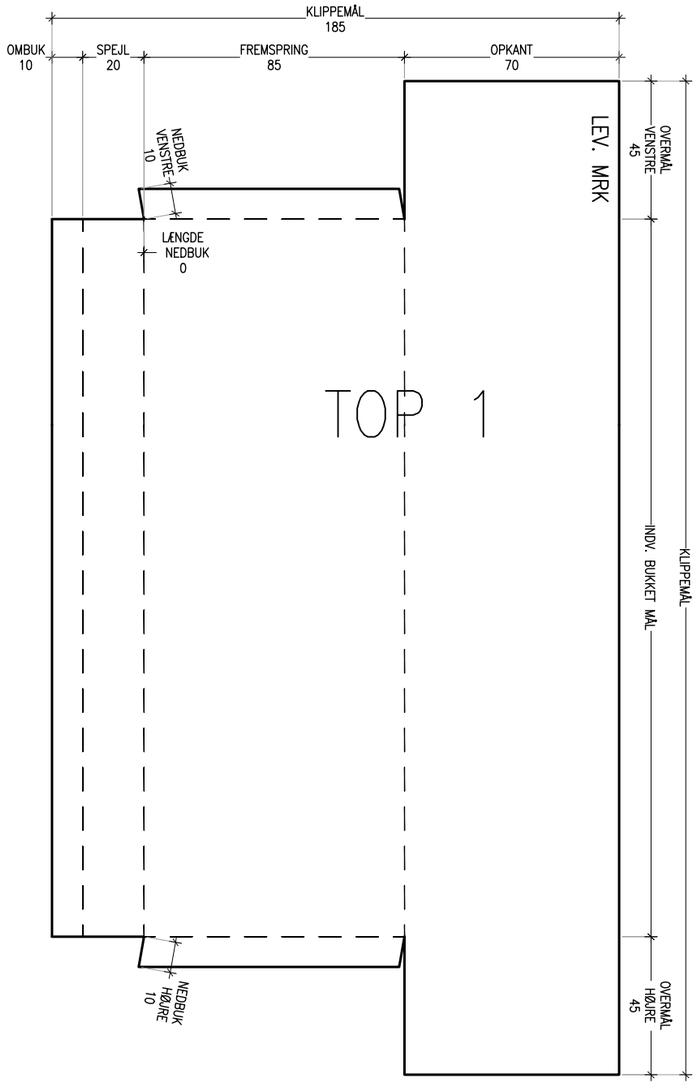
Folder name: X:\Facadeplan\BFUH-7\
Customer:
TITLE: 2 mm plade

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.

MATERIAL: DX51D Z275 (Varm-Galv)
DWG NO. GKB-119661
REVISION

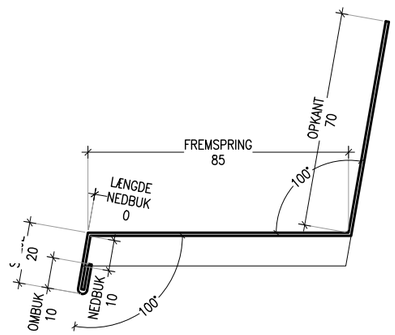
WEIGHT: 77970.48
SCALE:1:8
A3
SHEET 1 OF 1

TEGN.NR: Vinduesinddækninger - Test 2 - TOP 1
PLOT DATO: 2024.03.27



KLIPPEMÅL
1/1290mm
1/2090mm

TOP 1
m. 2
endebuk



DBI
PGC10036A

BFUH-6 Facadetest ved DBI - Version 2 — Produktion

TOP 1

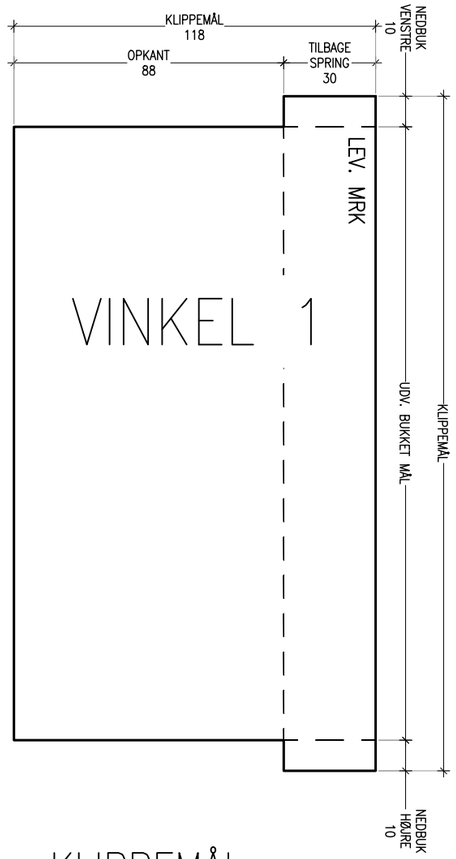
BYGHERRE:
Fælledby
–
–

DATO: 2024-03-27 REV. NR/DATO: 2024-03-27
ANSV: CMA MÅL: 1:5 ANTAL: –
TEGN.NR: DE01

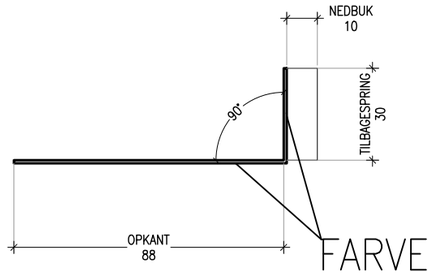
BM Byggeindustri A/S Lupinvej 18 - 9500 Hobro - Tlf. +45 9852 1744

K:\031_Teknisk\02 Brand\Fælledby Brandtest\Brandtest 2\Vinduesinddækninger – Test 2.dwg

TEGN.NR: Vinduesinddækninger - Test 2 - VINKEL 1
PLOT DATO: 2024.03.27



KLIPPEMÅL
1/1218mm
1/2018mm



DBI
PGC10036A

Mads Mak

BFUH-6 Facadetest ved DBI - Version 2 — Produktion

VINKEL 1

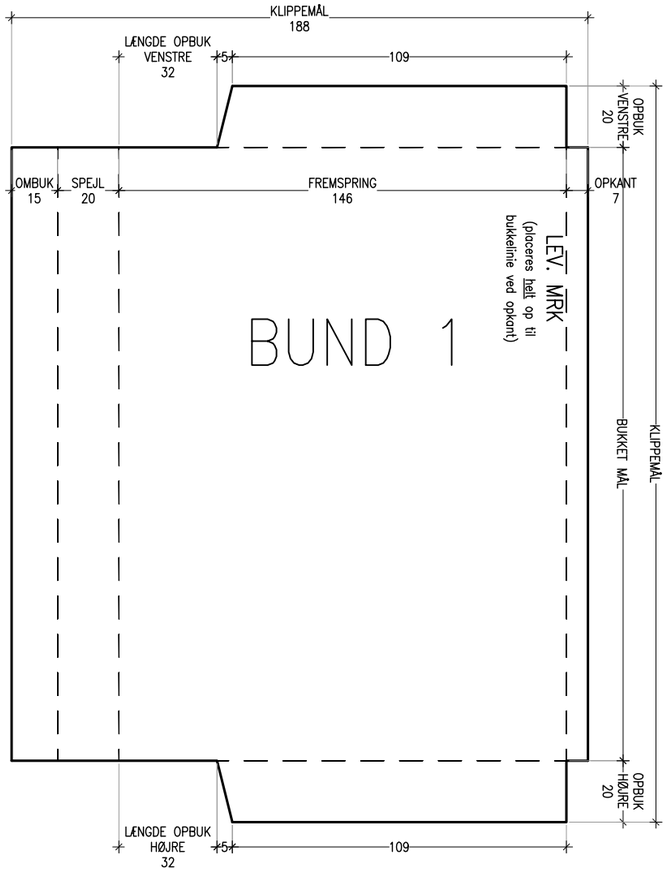
BYGHERRE:
Fælledby
–
–

DATO: 2024-03-27 REV. NR/DATO: 2024-03-27
ANSV: CMA MÅL: 1:5 ANTAL: –
TEGN.NR: DE01

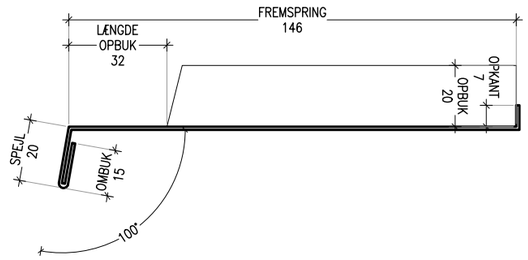
BM Byggeindustri A/S Lupinvej 18 - 9500 Hobro - Tlf. +45 9852 1744

K:\031_Teknisk\02 Brand\Fælledby Brandtest\Brandtest 2\Vinduesinddækninger – Test 2.dwg

TEGN.NR: Vinduesinddækninger - Test 2 - BUND 1
PLOT DATO: 2024.03.27



KLIPPEMÅL
1/1238mm



DBI
PGC10036A

BFUH-6 Facadetest ved DBI - Version 2 — Produktion

BUND 1

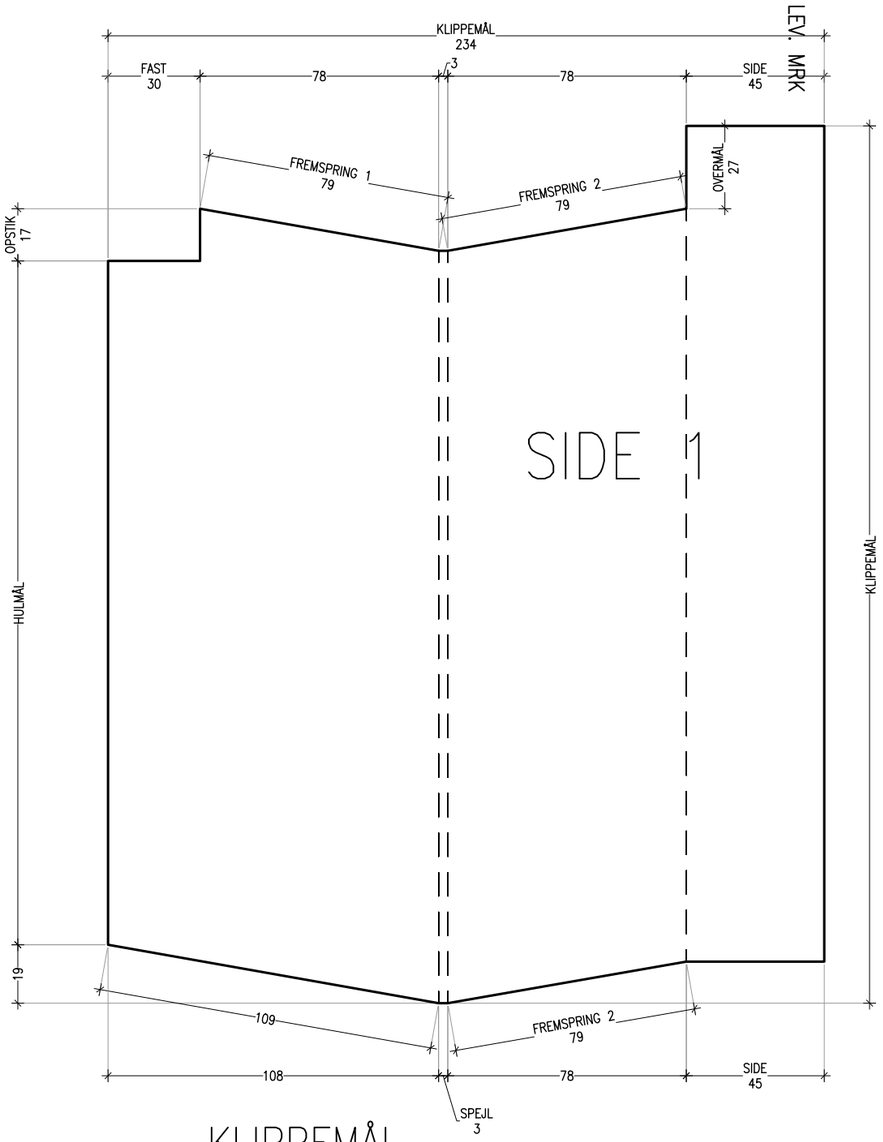
BYGHERRE:
Fælledby
–
–

DATO: 2024-03-27 REV. NR/DATO: 2024-03-27
ANSV: CMA MÅL: 1:5 ANTAL: –
TEGN.NR: DE01

BM Byggeindustri A/S Lupinvej 18 - 9500 Hobro - Tlf. +45 9852 1744

K:\031_Teknisk\02 Brand\Fælledby Brandtest\Brandtest 2\Vinduesinddækninger – Test 2.dwg

TEGN.NR: Vinduesinddækninger - Test 2 - SIDE 1
PLOT DATO: 2024.03.27



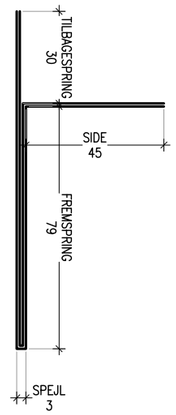
KLIPPEMÅL

1V+1H/1262mm

1V+1H/1962mm

vist som højre
kan findes som venstre

SIDE V



DBI
PGC10036A

BFUH-6 Facadetest ved DBI - Version 2 — Produktion

SIDE 1

BYGHERRE:
Fælledby
–
–

DATO: 2024-03-27 REV. NR/DATO: 2024-03-27
ANSV: CMA MÅL: 1:5 ANTAL: –
TEGN.NR: DE01

BM Byggeindustri A/S Lupinvej 18 - 9500 Hobro - Tlf. +45 9852 1744

K:\031_Teknisk\02 Brand\Fælledby Brandtest\Brandtest 2\Vinduesinddækninger – Test 2.dwg