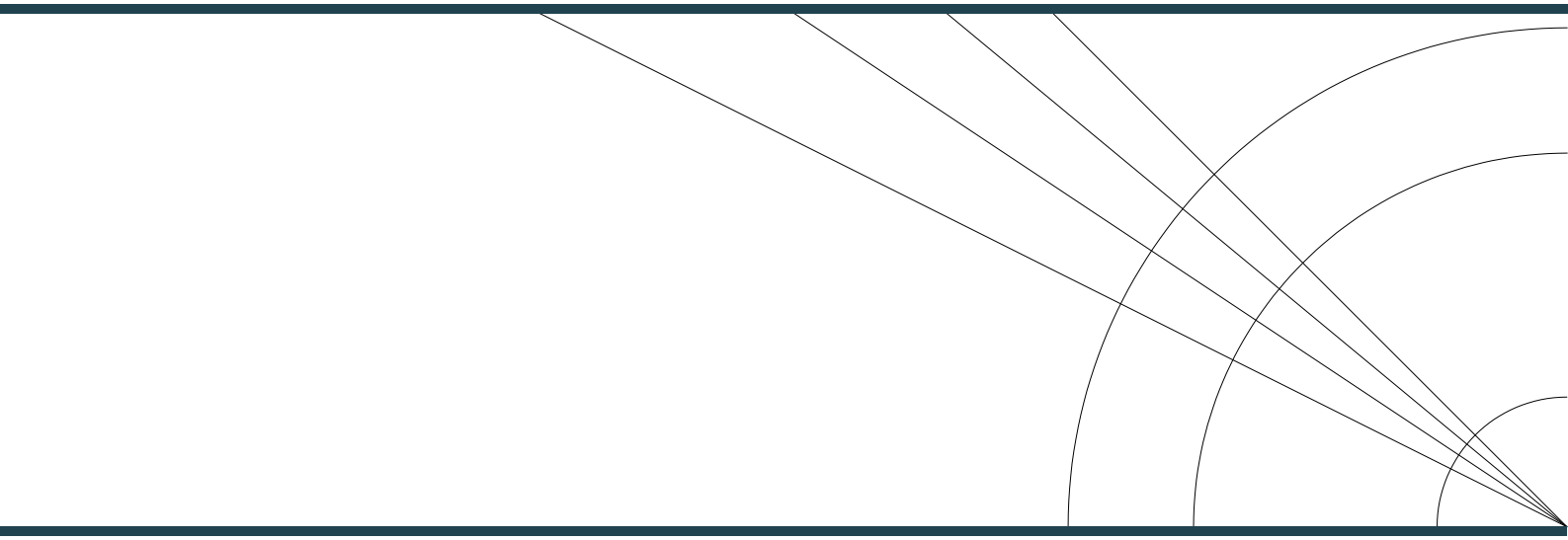
# TEST REPORT
# EU FACADE TEST 9

| | | | |
|---|---|---|---|
| **Name of sponsor:** | The Danish Institute of Fire and Security Technology | | |
| **Product name:** | EU-facade test draft 6 | | |
| **File no.:** | PGC10039A | **Revision no.:** | 0 |
| **Test date:** | 2024-09-05 | **Date:** | 10-10-2024 |
| **Pages:** | 13 | **Encl.:** | 84 |
| **Ref:** | MMN / CHD | | |



**Danish Institute of Fire and Security Technology**
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## Client information

Client: The Danish Institute of Fire and Security Technology

Address: Jernholmen 12

2650 Hvidovre

Denmark

## Content

# Date of test

The test was conducted on 2024-09-05

# 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-9 |
| 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 | 08-14-2024 | Facaderamme |
| Drawing | 2 | 08-14-2024 | Vindspærre |
| Drawing | 3 | 08-14-2024 | L Afstandslister |
| Drawing | 4 | 08-14-2024 | V Afstandslister |
| Drawing | 5 | 08-14-2024 | Facadebeklædning |
| Drawing | DE01-03 | 08-14-2024 | Detaljer |
| Drawing | samlet | 08-14-2024 | samlet |
| Drawing | Indd. 2090 | 08-13-2024 | 1 mm plade |
| Drawing | Indd. 1290 | 08-13-2024 | 1 mm plade |
| Drawing | GKB-122142-50 | 08-14-2024 | 2 mm plade |
| Drawing | GKB-122142-40 | 08-14-2024 | 2 mm plade |
| Drawing | GKB-122142-30 | 08-14-2024 | 2 mm plade |
| Drawing | GKB-122142-20 | 08-14-2024 | 2 mm plade |
| Drawing | GKB-122142-10 | 08-14-2024 | 2 mm plade |

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.

**Test specimen**

External measures: Height: 7600 mm Main width: 3680 mm Wing width: 1500 mm Thickness: 282 mm
With flame deflector: 489 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 facade 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 mm 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 a 12 mm OSB board.

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. DE01-03.

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. DE01-03.

Insulation in the cassette: The insulation in the cassettes consisted of 195 mm Rockwool Flexibatts 37 with a nominal density on 32 kg/m³.

Second layer: The second layer was 9 mm boards designated swisspearl windstopper extreme, which had a nominal density of 1375 kg/m³. See drawing No. 2.

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. 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 200 mm out from the surface of the cladding and protruded approx. 500 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. Rockwool with a nominal density of 32 m³/kg, was put inside the flame bender at the joints.

All details about the flame deflectors are shown on the following drawings: GKB-122142-50, GKB-122142-40, GKB-122142-30, GKB-122142-20, GKB-122142-10 and drawing samlet.

Formwork: The impregnated wood formworks with a dimension of 22 x 45 mm with a nominal density of 450 kg/m³ were mounted vertically and then horizontally on the main facade. See drawing No. 3 and 4.

| | |
|---|---|
| Fixing of formwork: | The vertical formwork was nailed with 2.5 x 65 mm Tjep ZE, per 120 mm.<br>The horizontal formwork and wooden batten were nailed with 3.1 x 90 mm Tjep ZE, per 600 mm. |
| Cladding: | Wooden planks designated Thermowood fer & not with a dimension of 21 x 117 mm and nominal density of 400 kg/m³ 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 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: | 45 mm soft stone wool was mounted on the cassettes, where the prefabricated cassettes was mounted to the concrete, pressed up against the stone wool.<br><br>The side of the main façade was covered by mineral wool insulation. See photo No. 10.<br><br>Between the prefabricated cassette and the aerated concrete around the fire chamber and the window, the ceramic wool was used to close the gap.<br><br>Fire sealant was used to close off the gaps around the window. |

### Measured by DBI

| Product | | 195x45 wood (C24) | 95x45 wood | *45x25 wood | 45x45 wood (C14) | Cladding wood | *Rockwool Flexibatts 37, 45mm | Rockwool Flexibatts 37, 195mm | Swisspearl windstopper |
|---|---|---|---|---|---|---|---|---|---|
| Density | kg/m³ | 488 | 363 | 628 | 562 | 461 | *20 | 32 | 1519 |
| Thickness | mm | 43,5 | 44,6 | 25,7 | 44,4 | 25,1 | 44.5 | 195 | 8,8 |
| Moisture content | % | 16,3 | 14,0 | 57,1 | 15,6 | 5,3 | 0,2 | 0,2 | 2,9 |
| Organic content | % | - | - | - | - | - | 2,9 | 2,5 | - |
| Sampling method | | Extra material | Extra material | Extra material | Extra material | Extra material | Extra material | Extra material | Extra material |
| Drying temperature | °C | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 55 |

*25 x 45 wood had a measured moisture content on 57.1%. The density of the wood had also been measured to be 628 kg/m³, which is an increase on above 30 % from the nominal density.
*The measured density of Rockwool Flexibatts 37, 45mm had been measured to be 20 kg/m³, which is a decrease on above 30 % from the nominal density.

# Test conditions

## Conditioning

The materials for the test specimen were delivered on the 21-08-2024 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 29-08-2024.

## Mounting

The test specimen was mounted on the test rig that had a size of 8040 mm in height and with main surface of 3600 mm and wing 2150 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
The fire test was conducted in the following conditions:

- Ambient temperature: approx. 24 °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. 45 x 45 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$^3$.

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 61 minutes.

# 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 |
| Enclosures 3.0 and 3.1 | Ambient temperature<br>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 7.0 and 7.1 | Location 1,2 - Plate TC 1.4m and 2.5m height<br>Plate TC.1 Location 1<br>Plate TC.2 Location 2 |
| Enclosures 8.0 and 8.1 | Location 2 - 5 m from facade 4.5 m height. |
| Enclosures 9.0 and 9.1 | Location 1 - TC on PlateTC |
| Enclosures 10.0 and 10.1 | Location 1 - TC on Flux<br>Flux.TC.2 located 3 m from fire chamber |
| Enclosures 11.0 and 11.1 | Location 2 - TC<br>TC.1 Location 1<br>TC.2 Location 2 |
| Enclosures 12.0 and 12.1 | Temperature rise measured 50mm from the facade |
| Enclosures 13.0 and 13.1 | Temperature rise measured in ventilation layer |
| Enclosures 14.0 and 14.1 | Temperature rise measured in middle of insulation |
| Enclosures 15.0 and 15.1 | Temperature rise measured according to the standard - 50 mm from facade.<br>Minimum of 30 sec |

| | |
|---|---|
| Enclosures 16.0 and 16.1 | Temperature rise measured according to the standard - ventilation layer. Minimum of 30 sec |
| Enclosures 17.0 and 17.1 | Temperature rise measured according to the standard - in the middle of the insulation. Minimum of 30 sec |
| Enclosures 18.0 and 18.1 | Vertical measurements on main facade |
| Enclosures 19.0 and 19.1 | Vertical measurements on main facade |
| Enclosures 20.0 and 20.1 | Vertical measurements on the wing |
| Enclosures 21.0 and 21.1 | Vertical measurements on the wing |
| Enclosures 22.0 and 22.1 | Horizontal measurements |
| Enclosures 23.0 and 23.1 | Horizontal measurements |
| Enclosures 24.0 and 24.1 | Plate thermocouple on facade |
| Enclosures 25.0 and 25.1 | Heat flux on window |
| Enclosures 26.0 and 26.1 | TC on window heat Flux<br>Flux.TC. on window |
| Enclosures 27.0 and 27.1 | Temperature rise measured behind the windbreaker board |

## Visual observations:

| Time / Minutes | Visual observations: |
|---|---|
| 0 | Test commences |
| 0.54 | Flames had reached the window |
| 1.51 | Top profile in fire chamber began to bend |
| 2.26 | Cladding began to burn around the fire chamber |
| 3.34 | Flames had reached the top flame bender |
| 4.02 | Cladding began to burn in the horizontal direction |
| 4.29 | Cladding began to burn on the right side of the window |
| 5.13 | Cladding began to burn under the top flame bender. |
| 8.17 | Cladding burned heavily around the fire chamber. |
| 11.28 | Flames was spread further to the sides. |
| 14.38 | The flames where crawling over the top flame bender in the corner of the façade. |
| 16.32 | The top flame bender began to deform at the gap in the top of it. |
| 21.32 | Flames had spread through most of the cladding. |
| 22.16 | Cladding began to fall and burn. |
| 35.50 | Most of the cladding had fallen. |
| 38.00 | Windbreaker boards started cracking. |
| 50.00 | All cladding had fallen, except from the left side of the façade. |
| 50.40 | The flames reached past the top flame bender at the top and were touching the cladding. |
| 60.00 | Test stopped. No visible charring or burning parts on the top element. |

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 | 44 minutes |
| | Burning parts | 23 minutes |
| **Falling parts – Level 0** | | |
| | Falling parts – (Level 0) | 23 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.)

**The Danish Institute of Fire and Security Technology**
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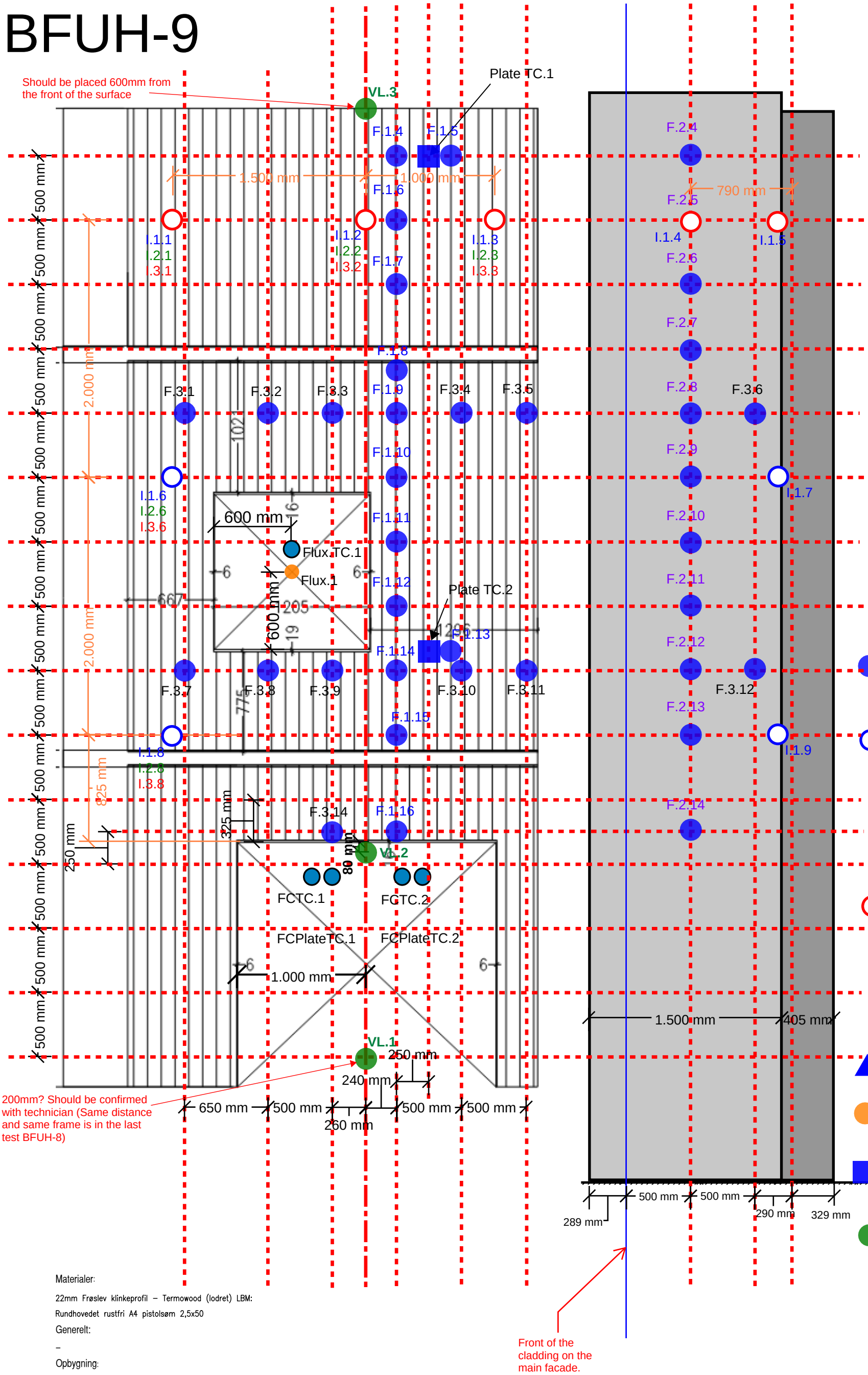
Denmark

| **Enclosures:** | **84** |
|---|---|
| DBI drawings: | 4 |
| DBI graphs and tables: | 52 |
| Photo sheets: | 14 |
| Sponsors drawings: | 14 |

# BFUH-9




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 ventilationslagI.3.6 + I.3.8 I midten af isolering

Thermocouple location o facade surface required ng 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 ventilationslagI.3.1 -> I.3.3 I midtenaf isolering

Thermocouple within the ventilated cavity.

Water cooled heat flux censor at the center of the seconda window.

Plate thermometer at the surface of the facade, flush to the surface of the facade.

Velocity probe locations for flow velocity measurement

File no.:PGC10039A
Test date: 05-09-2024
Enclosure: 1.0
Danish Institute of Fire and security Technology
Subject: EU FAcade test 9

Materialer:

22mm Frøslev klinkeprofil – Termowood (lodret) LBM:

Rundhovedet rustfri A4 pistolsøm 2,5x50

Generelt:

–

Opbygning:

22mm Frøslev klinkeprofil – Termowood (lodret)

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

9mm Swisspearl Windstopper Extreme

45x195mm stoplekonstruktion pr. 600mm

195mm Stenuld (isolering kl 37)

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

Revisionstekst:

A) Element ændret til version som BFUH 7

BFUH-9 Facadetest ved DBI - Test 1 — Gældende

Facadebeklædning

BYGHERRE:
Fælledby
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DATO: 2024-08-01 REV. NR/DATO: A 2024-08-14
ANSV: CMA MÅL: 1:30 ANTAL: –
TEGN.NR: 5

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

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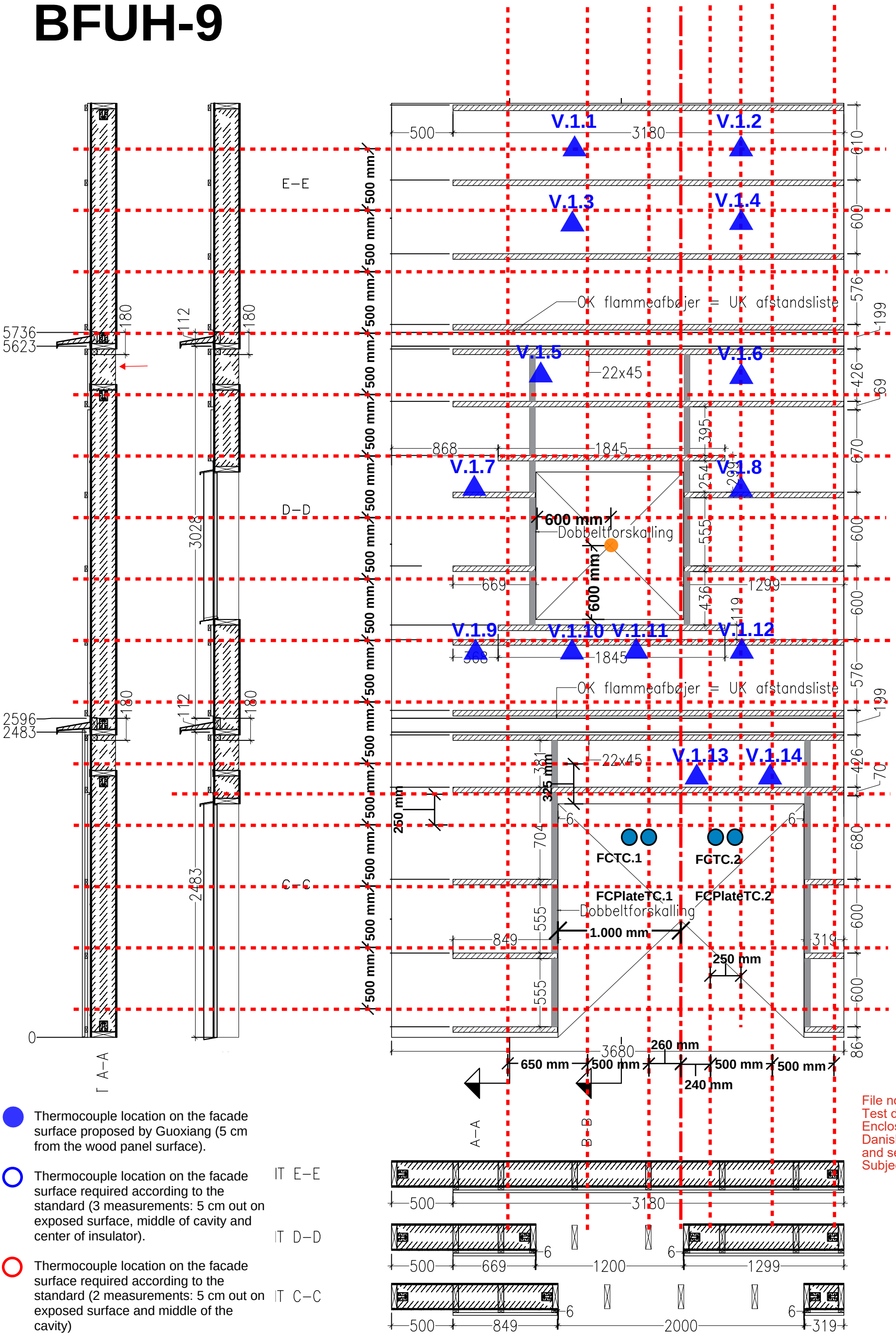
# BFUH-9




- 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.

IT E–E

IT D–D

IT C–C

File no.:PGC10039A
Test date: 05-09-2024
Enclosure: 1.1
Danish Institute of Fire and security Technology
Subject: EU FAcade test 9

BFUH-9 Facadetest ved DBI - Test 1 — Gældende

V Afstandslister

BYGHERRE: Fælledby
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DATO: 2024-08-01 REV. NR/DATO: A 2024-08-14
ANSV: CMA MÅL: 1:30 ANTAL: –
TEGN.NR: 4

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

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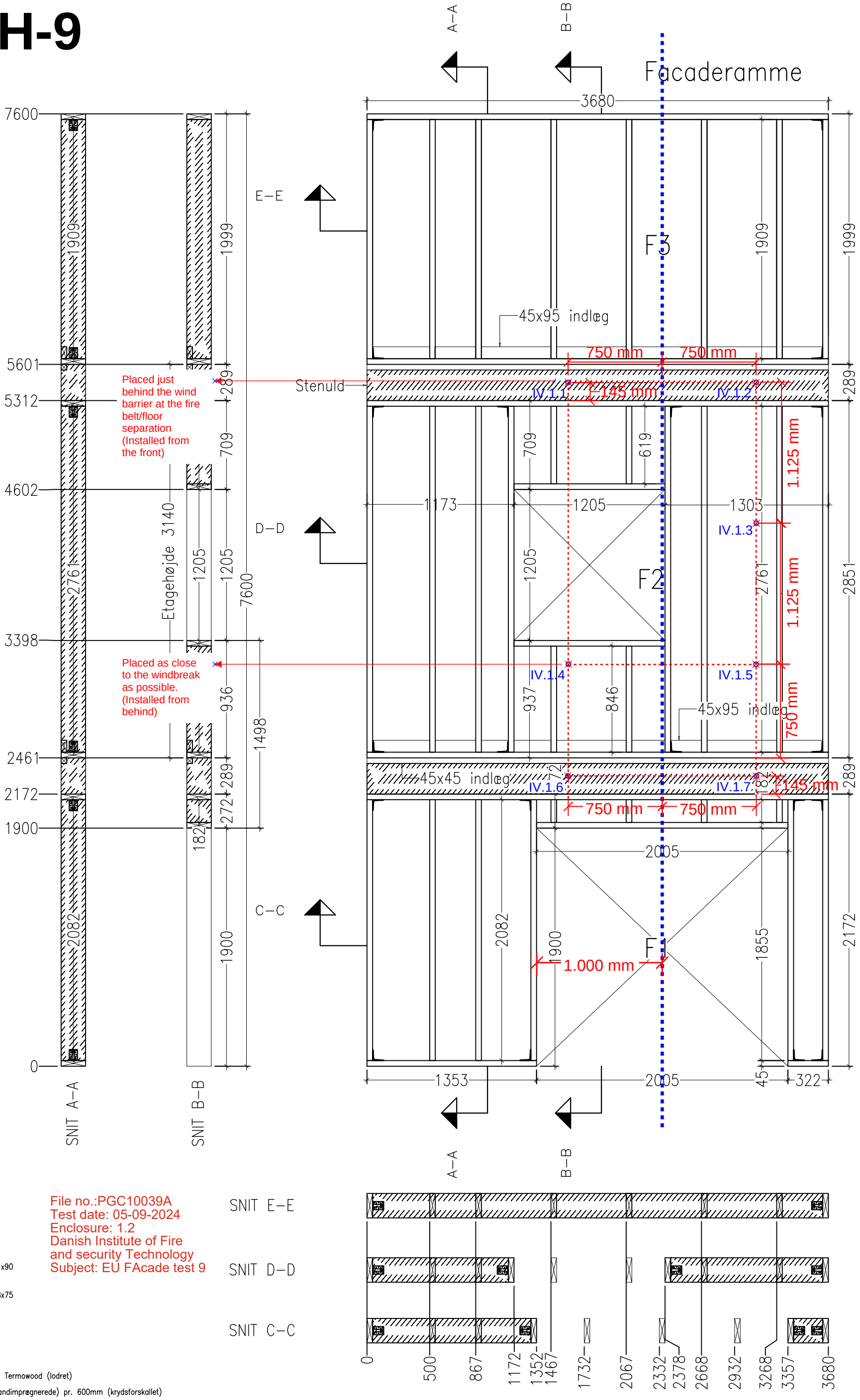
# BFUH-9




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

File no.:PGC10039A
Test date: 05-09-2024
Enclosure: 1.2
Danish Institute of Fire and security Technology
Subject: EU FAcade test 9

Generelt:

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Opbygning:

22mm Frøslev klinkeprofil – Termowood (lodret)

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

9mm Swisspearl Windstopper Extreme

45x195mm stoplekonstruktion pr. 600mm

195mm Stenuld (isolering kl 37)

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

Revisionstekst:

A) Element ændret til version som BFUH 7

BFUH-9 Facadetest ved DBI - Test 1 — Gældende

Facaderamme

BYGHERRE:
Fælledby
–
–

DATO: 2024-08-01 REV. NR/DATO: A 2024-08-14

ANSV: CMA MÅL: 1:30 ANTAL: –

TEGN.NR: 1

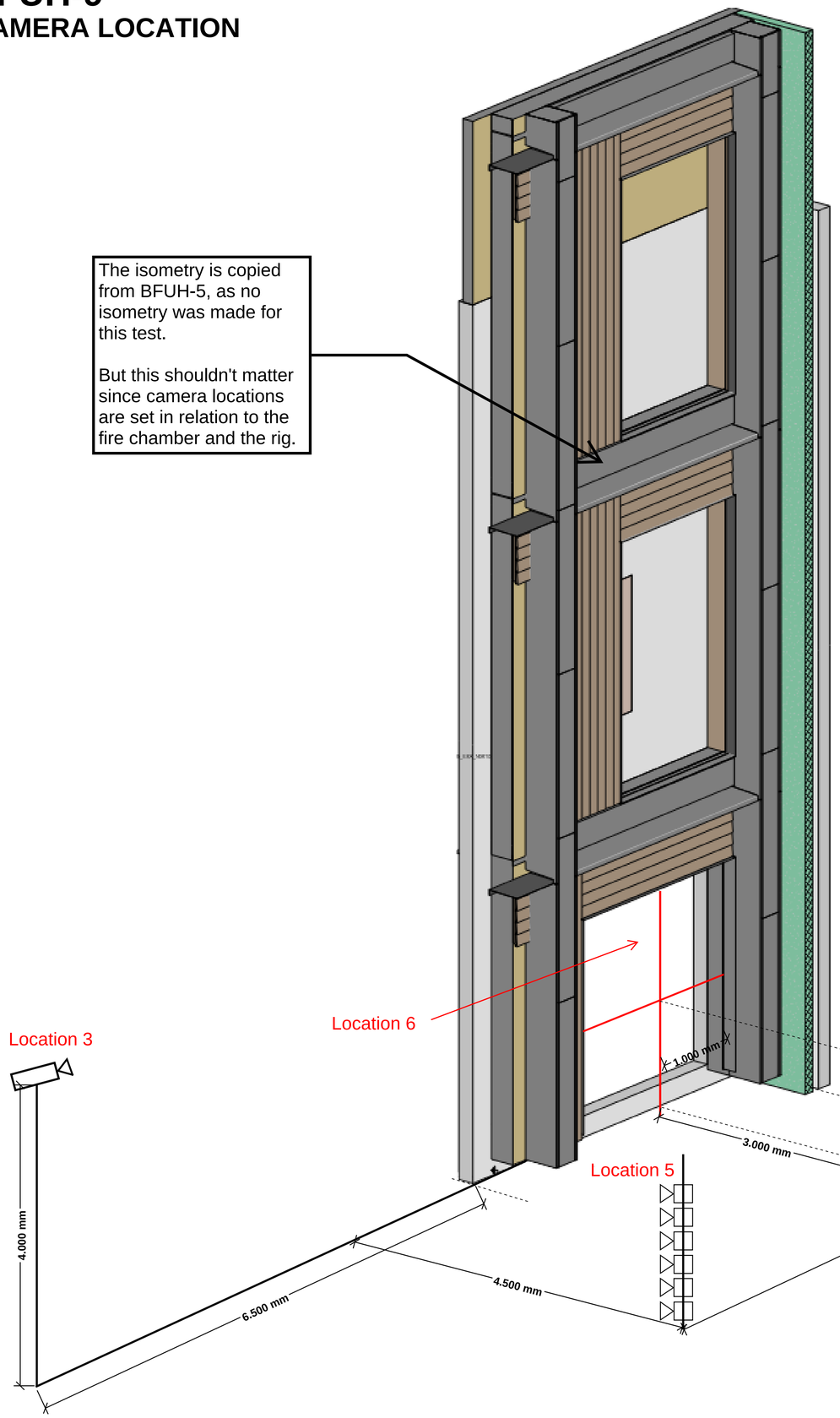
BM Byggeindustri Lupinvej 18 - 9500 Hobro - Tlf. +45 9852 1744

K:\031_Teknisk\02 Brand\Fælledby Brandtest\BFUH-9 Mock-Up_Test 1.dwg

# BFUH-9
## CAMERA LOCATION

The isometry is copied from BFUH-5, as no isometry was made for this test.

But this shouldn't matter since camera locations are set in relation to the fire chamber and the rig.



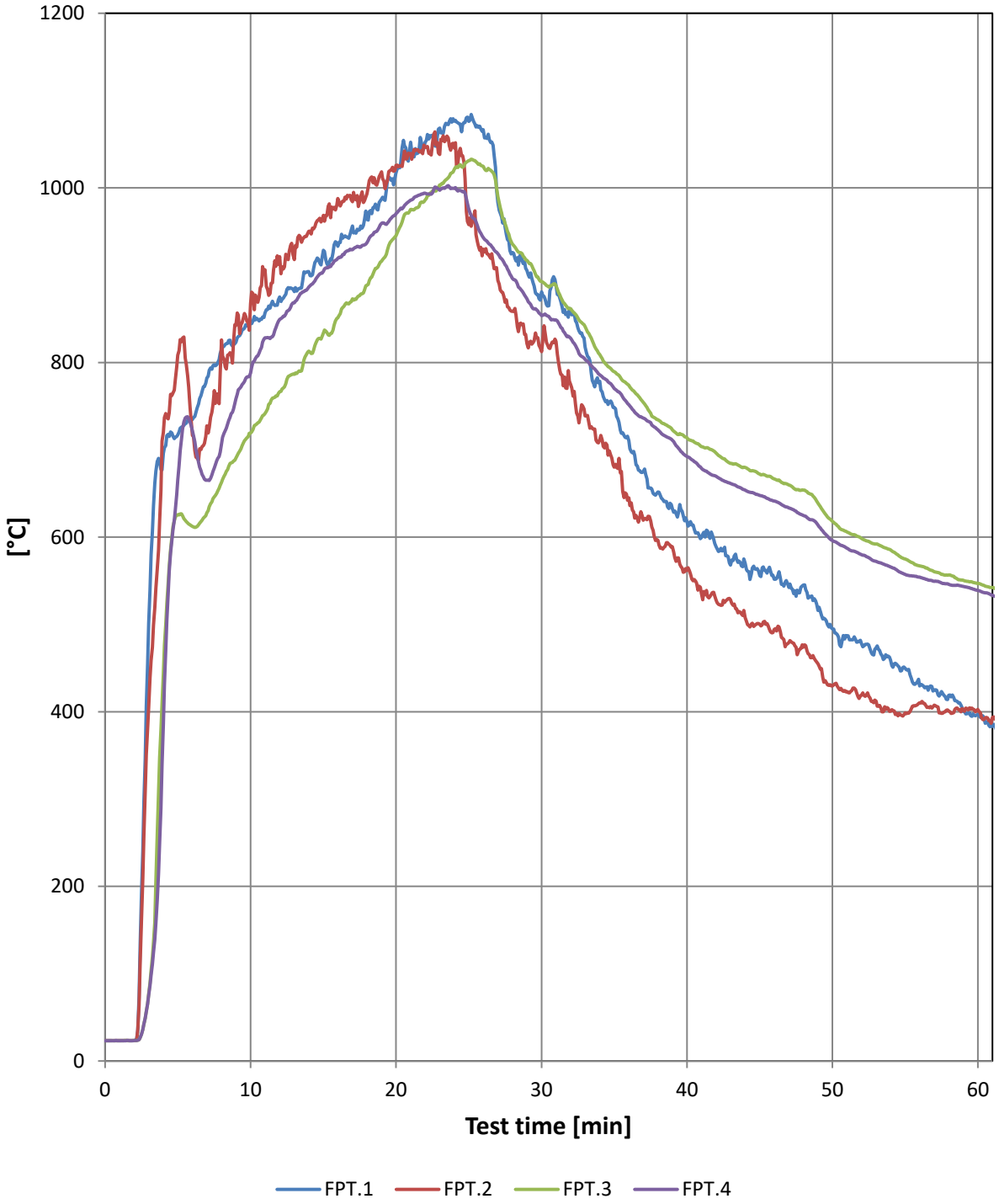

**NOTE:**

- Location 1: 3 m away to the center of the combustion chamber (both horizontally and vertically), a plate thermometer, a thermocouple and a water cooled heat flux censor.

- Location 2: 5 m away from the facade wall, 2.5 m above the ground and 4.5 m above the ground, a plate thermometer and a thermocouple.
Location 3 : 1 camera from the side view, 4 meters hight, mounted on the SP-FIRE rig, observerving the test from the side.
Location 4: 1 camera from front view, 4 meters hight, mounted on the gas-beton rig, at the opposite end of the facadehall in the corner.
Location 5: 6 blue LED lights, light should focus on the second section of the facade.
Location 6: two plate thermometers + two wire thermocouples inside the combustion chamber.
Location 7 and 8: bi-direction velocity tube together with a wire temperature thermocouple to measure the measuring the flow speed towards the wood crib
Note: height indicator every 500 mm at two edges of the facade.

File no.:PGC10039A
Test date: 05-09-2024
Enclosure: 1.3
Danish Institute of Fire and security Technology
Subject: EU FAcade test 9

## The temperature in the fire chamber during the test




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

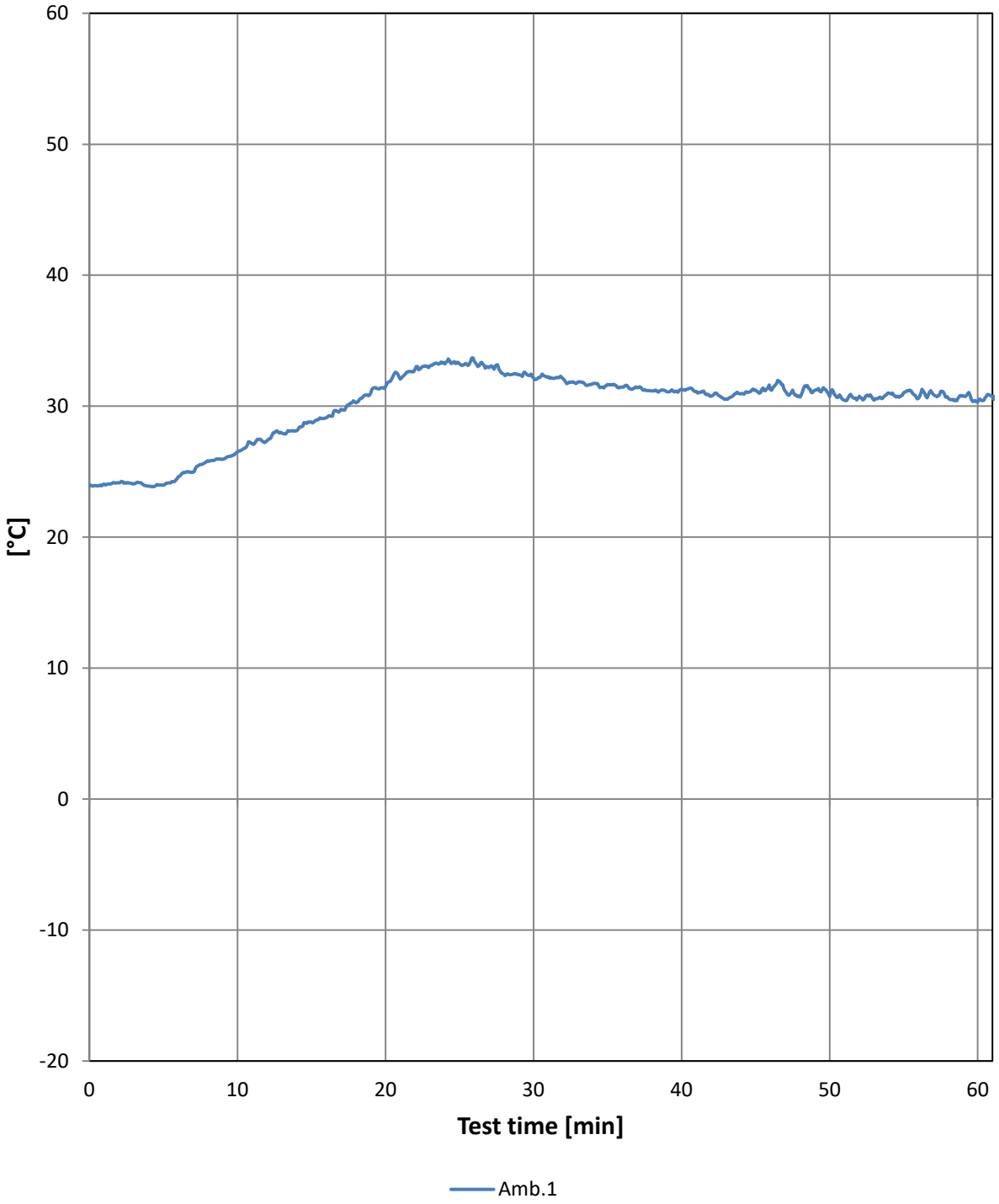
# The temperature in the fire chamber during the test

| Min. / °C | FPT.1 | FPT.2 | FPT.3 | FPT.4 |
|---|---|---|---|---|
| **0** | 23 | 23 | 23 | 23 |
| **2** | 23 | 24 | 23 | 23 |
| **4** | 696 | 720 | 443 | 385 |
| **6** | 735 | 716 | 612 | 722 |
| **8** | 815 | 826 | 663 | 707 |
| **10** | 845 | 868 | 719 | 788 |
| **12** | 875 | 921 | 766 | 849 |
| **14** | 904 | 950 | 813 | 886 |
| **15** | 929 | 968 | 834 | 904 |
| **16** | 933 | 988 | 851 | 919 |
| **18** | 964 | 993 | 889 | 937 |
| **20** | 1017 | 1026 | 945 | 970 |
| **22** | 1052 | 1046 | 986 | 994 |
| **24** | 1076 | 1046 | 1021 | 1000 |
| **26** | 1067 | 930 | 1025 | 943 |
| **28** | 926 | 859 | 936 | 897 |
| **30** | 881 | 812 | 893 | 854 |
| **32** | 861 | 775 | 862 | 828 |
| **34** | 779 | 712 | 809 | 786 |
| **36** | 710 | 645 | 774 | 752 |
| **38** | 652 | 596 | 734 | 723 |
| **40** | 618 | 562 | 714 | 692 |
| **42** | 589 | 528 | 696 | 670 |
| **44** | 570 | 508 | 680 | 654 |
| **46** | 552 | 494 | 667 | 641 |
| **48** | 545 | 474 | 654 | 625 |
| **50** | 495 | 429 | 618 | 596 |
| **52** | 478 | 419 | 598 | 580 |
| **54** | 459 | 401 | 585 | 566 |
| **56** | 430 | 410 | 567 | 554 |
| **58** | 419 | 401 | 557 | 546 |
| **60** | 397 | 403 | 547 | 539 |
| **61** | 383 | 394 | 542 | 533 |

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

## Ambient temperature

*The ambient temperature in the laboratory during the test*

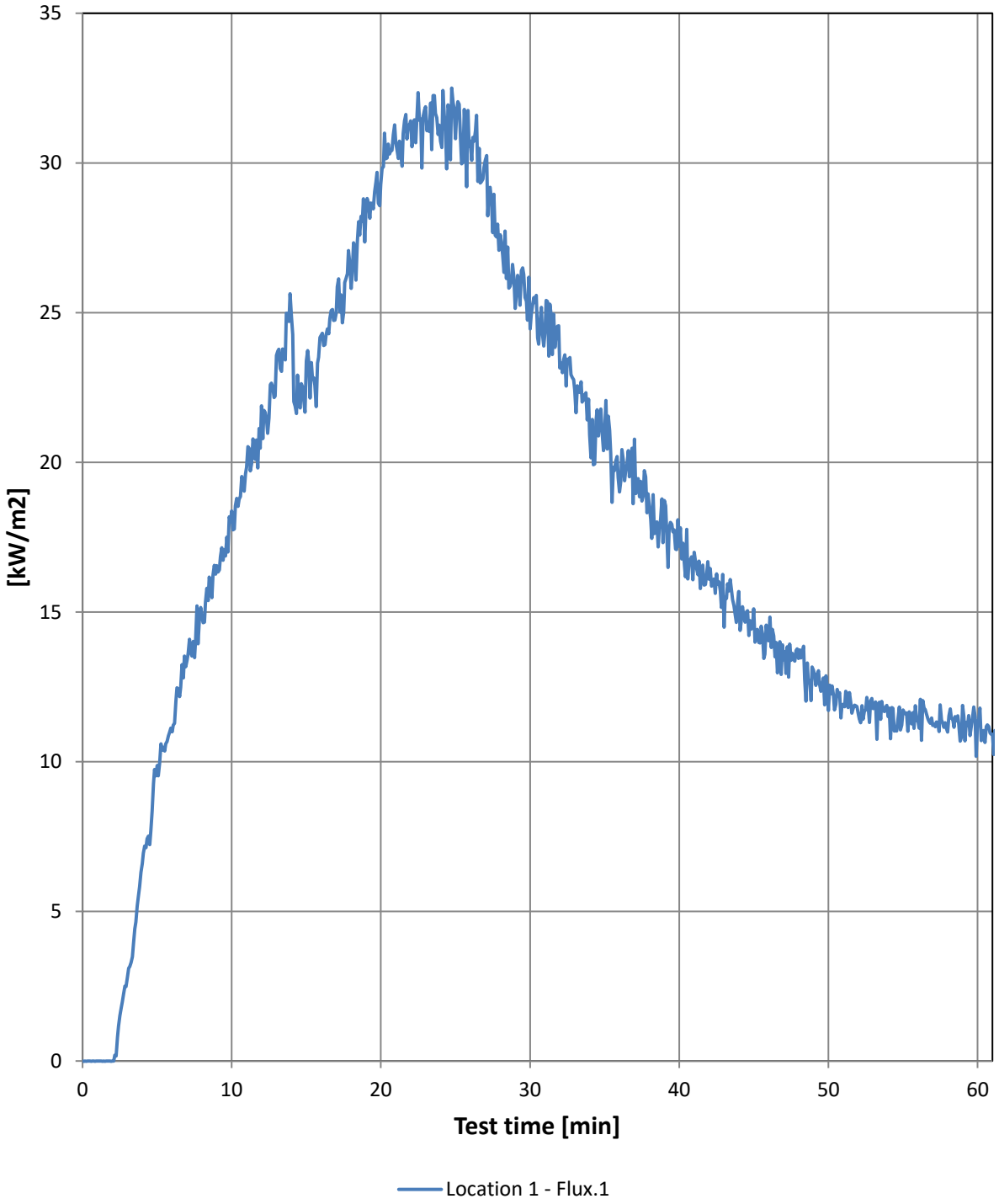


## Ambient temperature

*The ambient temperature in the laboratory during the test*

| Min. / °C | Amb.1 |
|---|---|
| **0** | 24 |
| **2** | 24 |
| **4** | 24 |
| **6** | 25 |
| **8** | 26 |
| **10** | 26 |
| **12** | 27 |
| **14** | 28 |
| **15** | 29 |
| **16** | 29 |
| **18** | 30 |
| **20** | 31 |
| **22** | 33 |
| **24** | 33 |
| **26** | 33 |
| **28** | 32 |
| **30** | 32 |
| **32** | 32 |
| **34** | 32 |
| **36** | 31 |
| **38** | 31 |
| **40** | 31 |
| **42** | 31 |
| **44** | 31 |
| **46** | 31 |
| **48** | 31 |
| **50** | 31 |
| **52** | 31 |
| **54** | 31 |
| **56** | 31 |
| **58** | 31 |
| **60** | 30 |
| **61** | 31 |

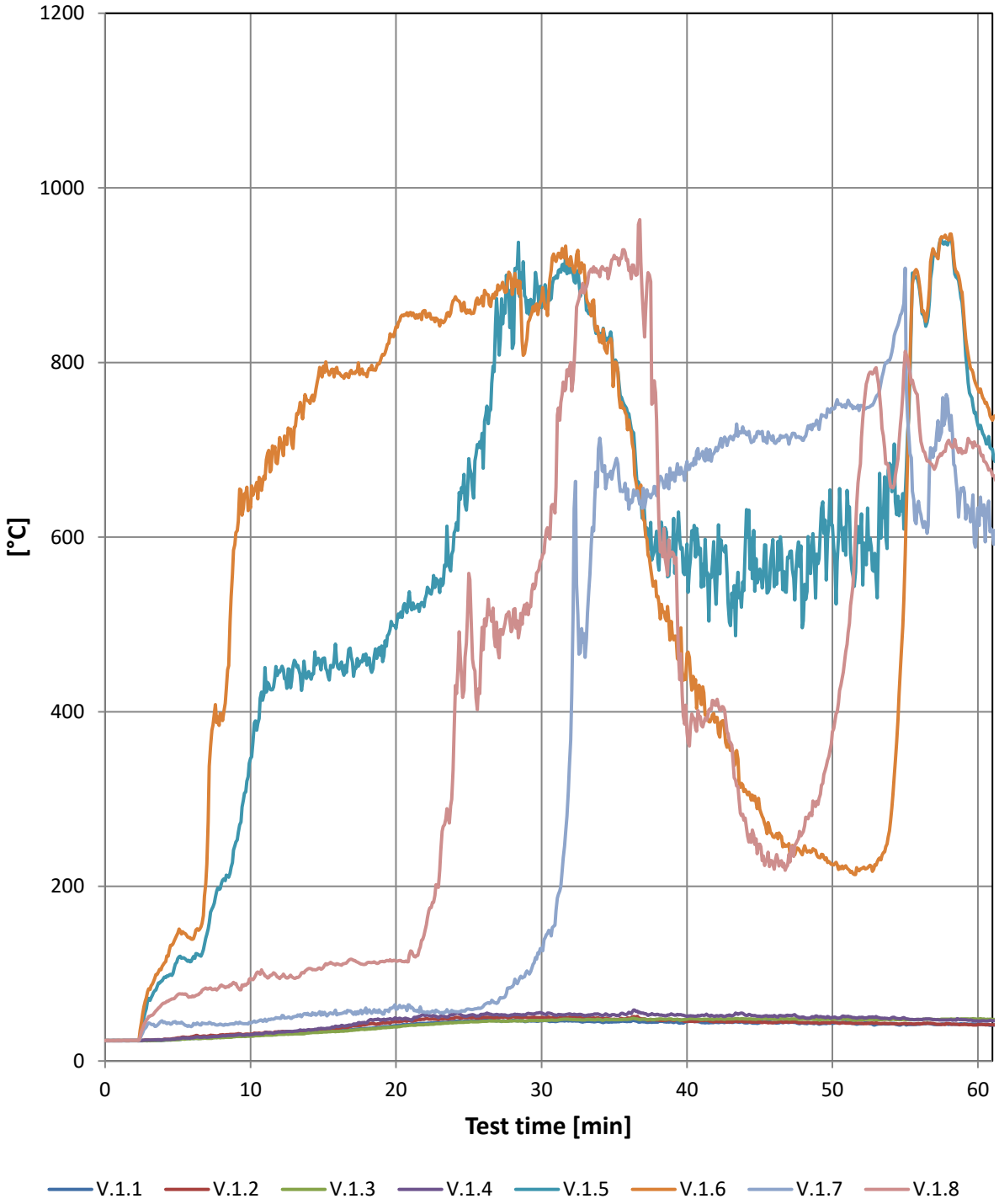
## Location 1 - Flux



# Location 1 - Flux

| Min. / kW/m2 | Location 1 - Flux.1 |
|---|---|
| **0** | 0 |
| **2** | 0 |
| **4** | 7 |
| **6** | 11 |
| **8** | 15 |
| **10** | 18 |
| **12** | 22 |
| **14** | 25 |
| **15** | 23 |
| **16** | 24 |
| **18** | 26 |
| **20** | 29 |
| **22** | 31 |
| **24** | 31 |
| **26** | 31 |
| **28** | 28 |
| **30** | 24 |
| **32** | 23 |
| **34** | 21 |
| **36** | 19 |
| **38** | 19 |
| **40** | 17 |
| **42** | 16 |
| **44** | 16 |
| **46** | 14 |
| **48** | 13 |
| **50** | 12 |
| **52** | 12 |
| **54** | 12 |
| **56** | 11 |
| **58** | 11 |
| **60** | 11 |
| **61** | 11 |

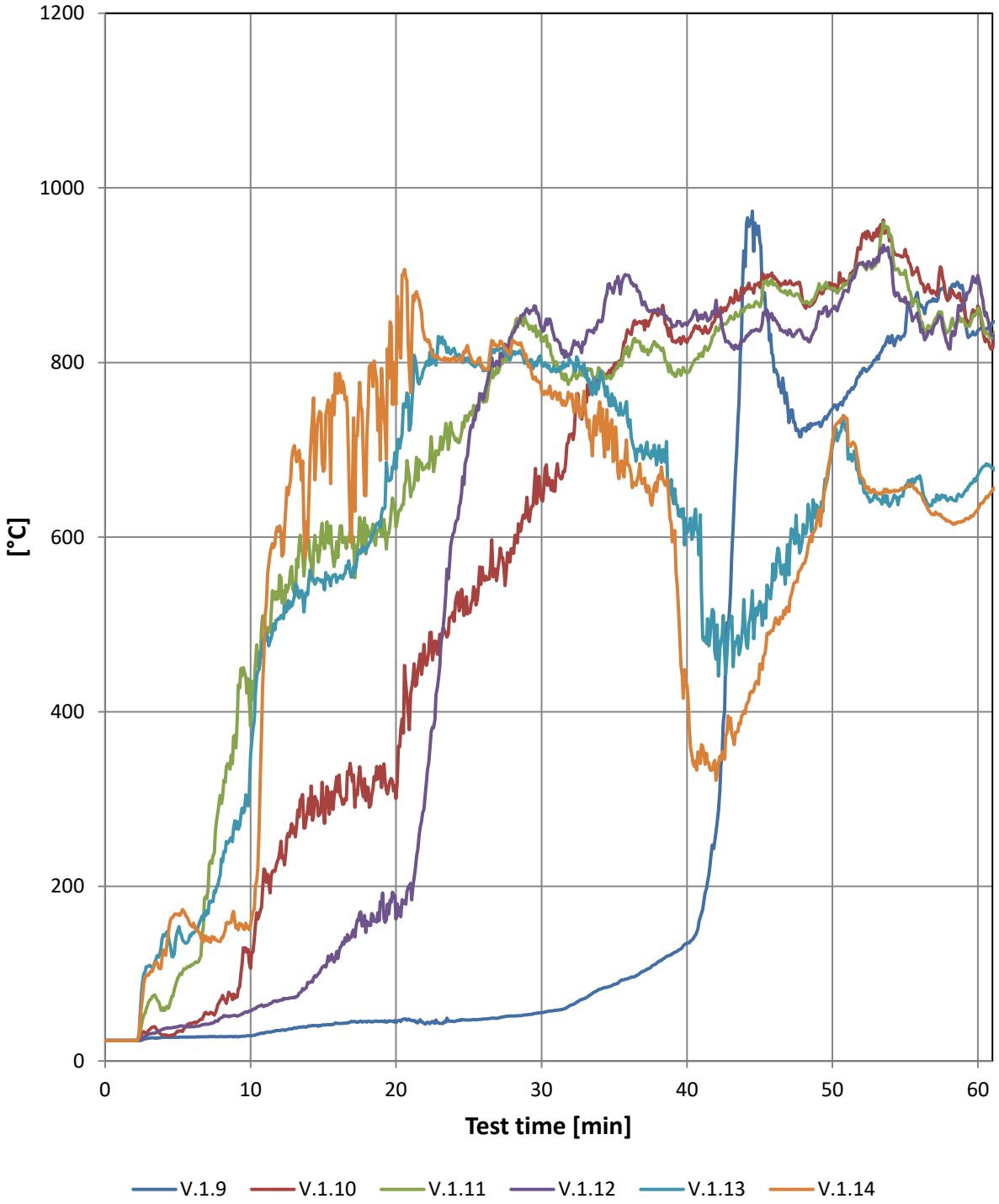
## Temperature measured in the ventilated cavity



# 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** | 23 | 23 | 23 | 23 | 23 | 23 | 24 | 24 |
| **2** | 23 | 23 | 23 | 23 | 24 | 23 | 24 | 24 |
| **4** | 24 | 25 | 24 | 24 | 94 | 110 | 44 | 66 |
| **6** | 26 | 28 | 26 | 27 | 117 | 139 | 40 | 75 |
| **8** | 27 | 30 | 27 | 29 | 204 | 398 | 42 | 87 |
| **10** | 29 | 31 | 28 | 30 | 347 | 634 | 43 | 95 |
| **12** | 31 | 33 | 30 | 33 | 445 | 714 | 49 | 94 |
| **14** | 33 | 35 | 32 | 36 | 446 | 756 | 53 | 106 |
| **15** | 34 | 36 | 33 | 37 | 461 | 796 | 53 | 107 |
| **16** | 35 | 37 | 34 | 39 | 451 | 788 | 54 | 111 |
| **18** | 37 | 42 | 36 | 44 | 453 | 784 | 55 | 112 |
| **20** | 40 | 45 | 39 | 49 | 495 | 841 | 59 | 115 |
| **22** | 43 | 48 | 42 | 52 | 529 | 860 | 56 | 149 |
| **24** | 45 | 49 | 44 | 54 | 605 | 872 | 57 | 377 |
| **26** | 47 | 50 | 45 | 54 | 679 | 865 | 63 | 471 |
| **28** | 46 | 51 | 46 | 53 | 816 | 878 | 85 | 495 |
| **30** | 46 | 50 | 47 | 55 | 863 | 872 | 129 | 575 |
| **32** | 46 | 50 | 48 | 54 | 908 | 921 | 367 | 800 |
| **34** | 45 | 48 | 48 | 53 | 831 | 823 | 713 | 898 |
| **36** | 45 | 49 | 48 | 56 | 741 | 734 | 632 | 905 |
| **38** | 45 | 47 | 48 | 53 | 571 | 532 | 651 | 659 |
| **40** | 45 | 45 | 48 | 51 | 592 | 467 | 687 | 376 |
| **42** | 44 | 46 | 48 | 52 | 523 | 394 | 703 | 407 |
| **44** | 44 | 45 | 48 | 53 | 586 | 311 | 721 | 278 |
| **46** | 44 | 44 | 48 | 52 | 543 | 256 | 708 | 220 |
| **48** | 43 | 44 | 48 | 50 | 504 | 241 | 711 | 263 |
| **50** | 43 | 45 | 48 | 50 | 614 | 225 | 748 | 377 |
| **52** | 43 | 43 | 47 | 50 | 627 | 220 | 751 | 714 |
| **54** | 43 | 43 | 47 | 49 | 683 | 275 | 806 | 657 |
| **56** | 42 | 42 | 47 | 48 | 883 | 888 | 631 | 725 |
| **58** | 42 | 43 | 48 | 47 | 939 | 940 | 738 | 711 |
| **60** | 42 | 42 | 48 | 46 | 729 | 770 | 633 | 705 |
| **61** | 41 | 41 | 48 | 46 | 701 | 734 | 606 | 671 |

## Temperature measured in the ventilated cavity

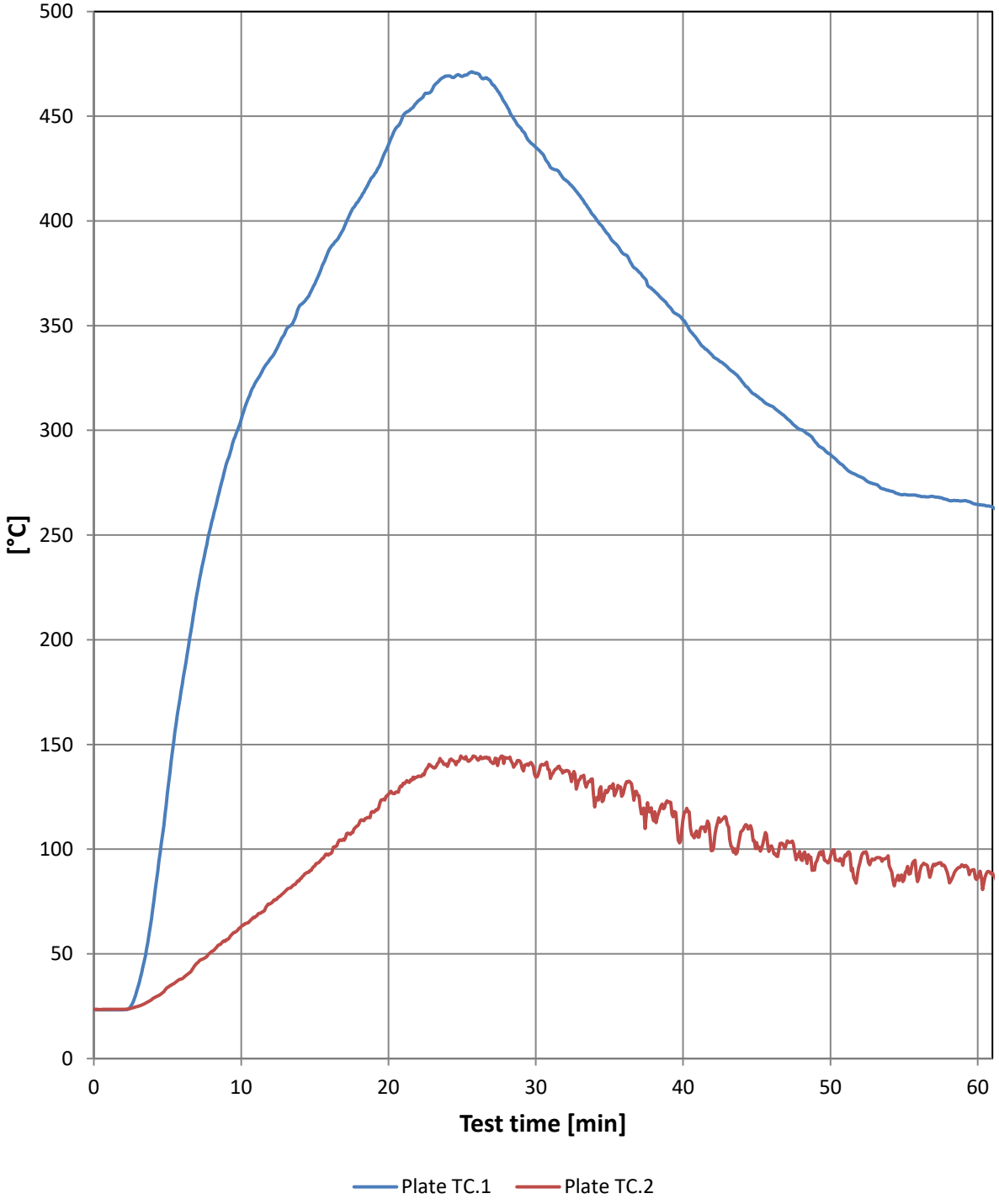


# Temperature measured in the ventilated cavity

| Min. / °C | V.1.9 | V.1.10 | V.1.11 | V.1.12 | V.1.13 | V.1.14 |
|---|---|---|---|---|---|---|
| **0** | 23 | 23 | 23 | 23 | 24 | 23 |
| **2** | 23 | 23 | 23 | 23 | 24 | 23 |
| **4** | 27 | 30 | 61 | 37 | 145 | 127 |
| **6** | 27 | 43 | 110 | 39 | 147 | 154 |
| **8** | 28 | 71 | 295 | 50 | 231 | 141 |
| **10** | 29 | 106 | 384 | 57 | 350 | 156 |
| **12** | 35 | 239 | 556 | 69 | 506 | 613 |
| **14** | 40 | 301 | 597 | 89 | 549 | 640 |
| **15** | 42 | 287 | 591 | 108 | 547 | 675 |
| **16** | 43 | 308 | 576 | 117 | 553 | 765 |
| **18** | 45 | 314 | 613 | 160 | 588 | 717 |
| **20** | 44 | 301 | 612 | 163 | 678 | 752 |
| **22** | 42 | 457 | 680 | 303 | 795 | 826 |
| **24** | 45 | 504 | 715 | 606 | 816 | 807 |
| **26** | 48 | 555 | 754 | 757 | 791 | 793 |
| **28** | 52 | 584 | 835 | 833 | 812 | 825 |
| **30** | 55 | 643 | 824 | 839 | 798 | 768 |
| **32** | 64 | 718 | 780 | 809 | 801 | 759 |
| **34** | 82 | 780 | 792 | 848 | 783 | 755 |
| **36** | 95 | 835 | 807 | 900 | 726 | 682 |
| **38** | 114 | 854 | 820 | 862 | 693 | 668 |
| **40** | 135 | 823 | 788 | 843 | 605 | 431 |
| **42** | 263 | 859 | 841 | 871 | 460 | 321 |
| **44** | 910 | 885 | 862 | 827 | 495 | 398 |
| **46** | 789 | 899 | 891 | 851 | 551 | 501 |
| **48** | 724 | 867 | 869 | 829 | 615 | 570 |
| **50** | 747 | 890 | 885 | 862 | 703 | 712 |
| **52** | 787 | 941 | 912 | 914 | 662 | 669 |
| **54** | 823 | 940 | 947 | 920 | 637 | 653 |
| **56** | 865 | 897 | 855 | 845 | 670 | 650 |
| **58** | 876 | 872 | 836 | 816 | 643 | 619 |
| **60** | 837 | 865 | 862 | 900 | 671 | 631 |
| **61** | 846 | 816 | 828 | 830 | 679 | 654 |

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

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

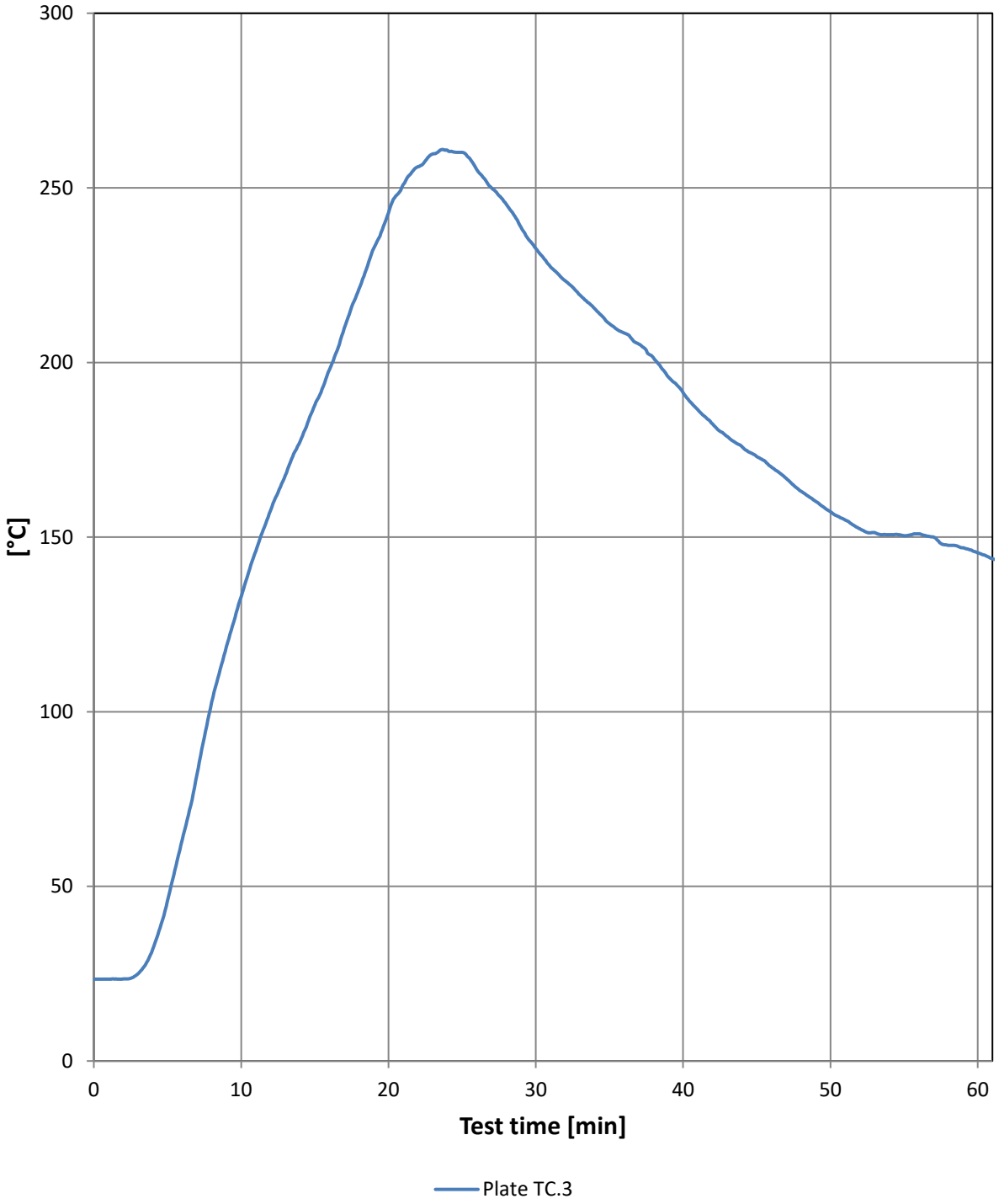


# Location 1,2 - Plate TC 1.4m and 2.5m height

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

| Min. / °C | Plate TC.1 | Plate TC.2 |
|---|---|---|
| **0** | 23 | 23 |
| **2** | 23 | 24 |
| **4** | 71 | 29 |
| **6** | 179 | 38 |
| **8** | 256 | 51 |
| **10** | 305 | 63 |
| **12** | 334 | 74 |
| **14** | 360 | 86 |
| **15** | 370 | 92 |
| **16** | 387 | 98 |
| **18** | 410 | 112 |
| **20** | 436 | 126 |
| **22** | 457 | 135 |
| **24** | 469 | 140 |
| **26** | 471 | 143 |
| **28** | 455 | 143 |
| **30** | 435 | 134 |
| **32** | 420 | 137 |
| **34** | 402 | 120 |
| **36** | 384 | 128 |
| **38** | 367 | 114 |
| **40** | 353 | 114 |
| **42** | 336 | 99 |
| **44** | 323 | 109 |
| **46** | 312 | 102 |
| **48** | 300 | 95 |
| **50** | 288 | 97 |
| **52** | 278 | 93 |
| **54** | 271 | 92 |
| **56** | 269 | 86 |
| **58** | 267 | 87 |
| **60** | 265 | 86 |
| **61** | 263 | 89 |

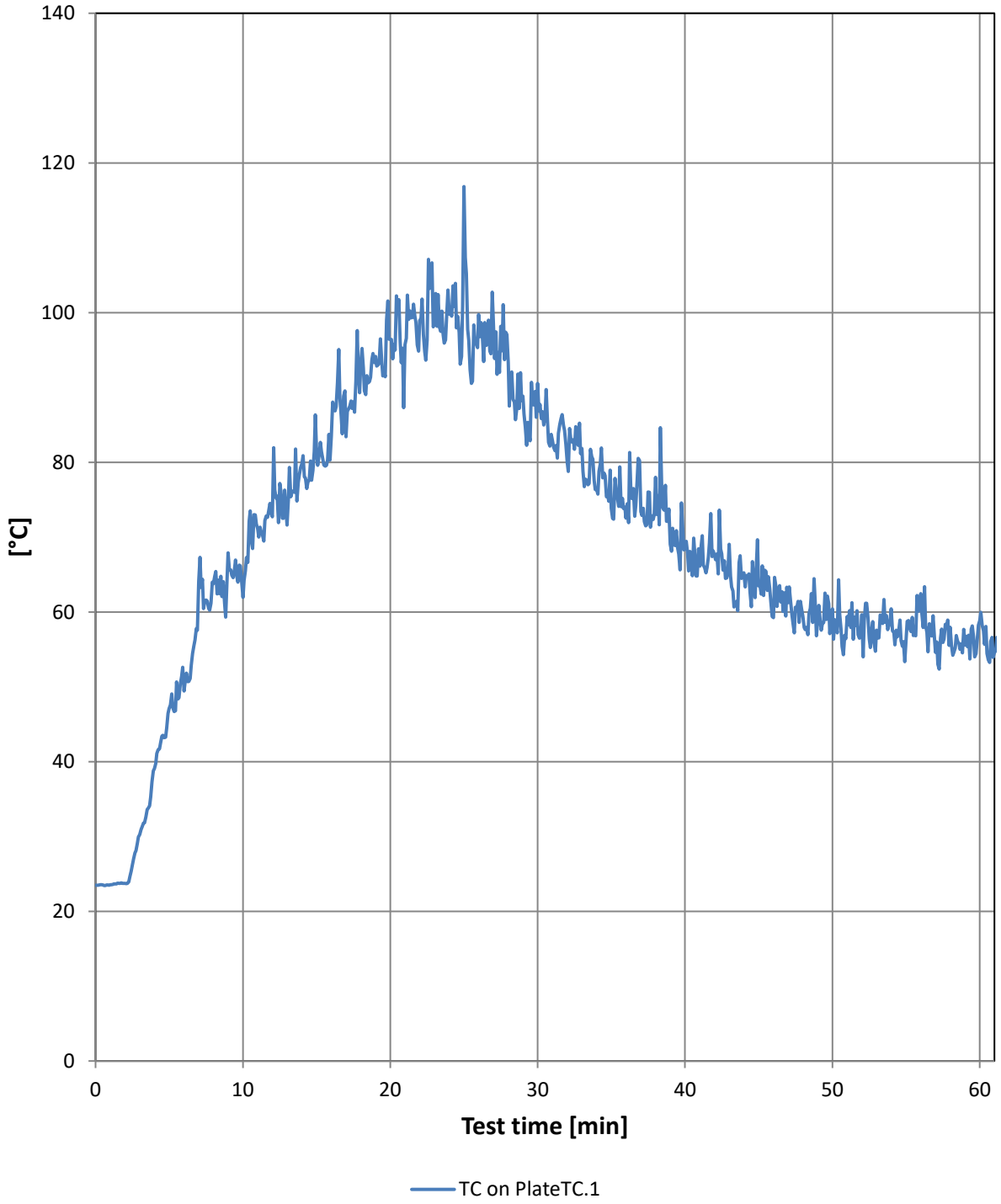
## Location 2 - 5 m from facade 4.5 m height.



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

| Min. / °C | Plate TC.3 |
|---|---|
| **0** | 23 |
| **2** | 23 |
| **4** | 32 |
| **6** | 63 |
| **8** | 103 |
| **10** | 133 |
| **12** | 158 |
| **14** | 177 |
| **15** | 188 |
| **16** | 198 |
| **18** | 221 |
| **20** | 243 |
| **22** | 256 |
| **24** | 261 |
| **26** | 255 |
| **28** | 245 |
| **30** | 233 |
| **32** | 223 |
| **34** | 215 |
| **36** | 208 |
| **38** | 201 |
| **40** | 191 |
| **42** | 182 |
| **44** | 176 |
| **46** | 170 |
| **48** | 163 |
| **50** | 157 |
| **52** | 152 |
| **54** | 151 |
| **56** | 151 |
| **58** | 148 |
| **60** | 146 |
| **61** | 144 |

## Location 1 - TC on PlateTC

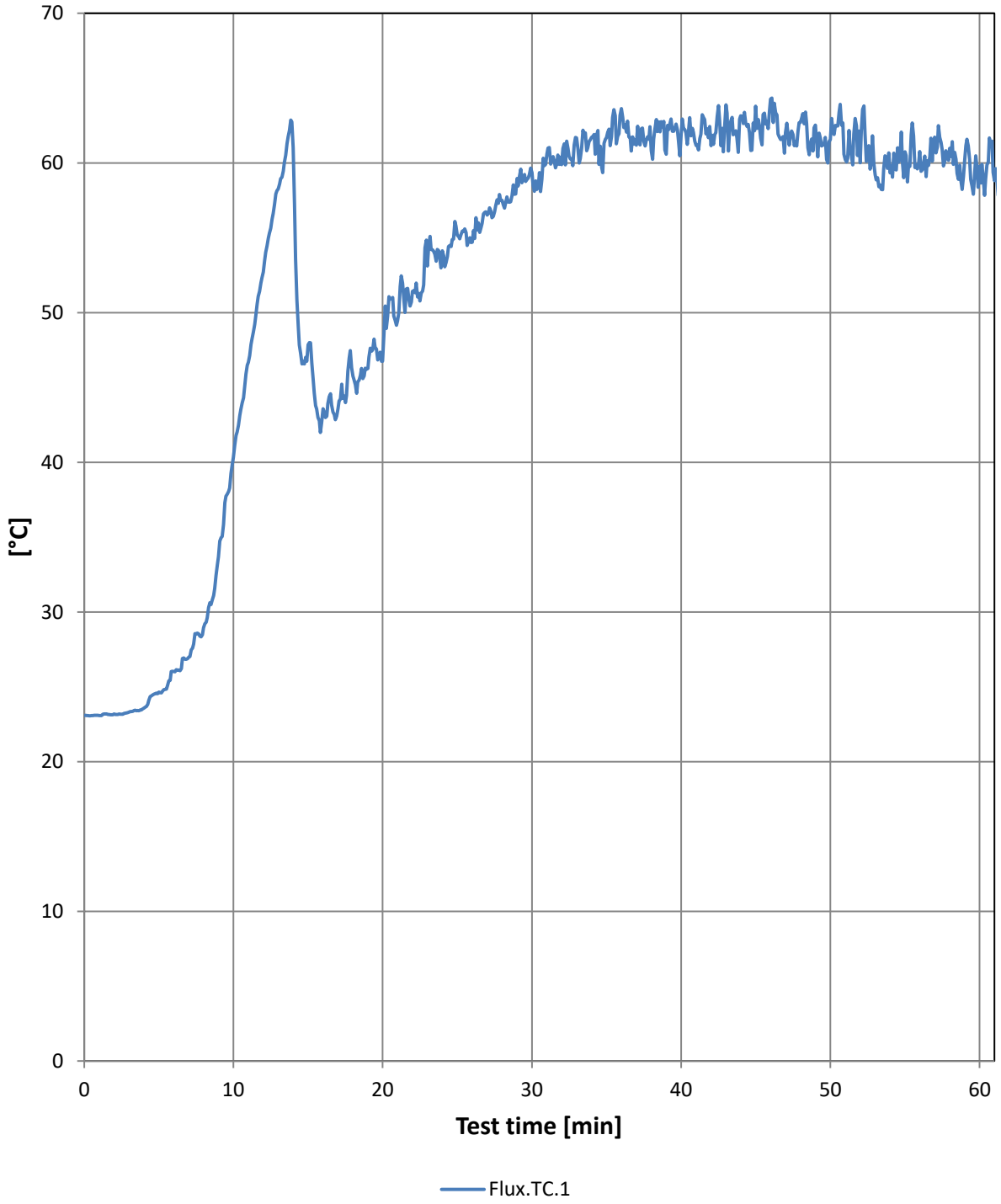


## Location 1 - TC on PlateTC

| Min. / °C | TC on PlateTC.1 |
|---|---|
| **0** | 23 |
| **2** | 24 |
| **4** | 39 |
| **6** | 49 |
| **8** | 64 |
| **10** | 62 |
| **12** | 73 |
| **14** | 80 |
| **15** | 81 |
| **16** | 83 |
| **18** | 93 |
| **20** | 96 |
| **22** | 99 |
| **24** | 100 |
| **26** | 100 |
| **28** | 93 |
| **30** | 91 |
| **32** | 80 |
| **34** | 76 |
| **36** | 73 |
| **38** | 78 |
| **40** | 69 |
| **42** | 68 |
| **44** | 65 |
| **46** | 59 |
| **48** | 59 |
| **50** | 60 |
| **52** | 60 |
| **54** | 60 |
| **56** | 62 |
| **58** | 58 |
| **60** | 59 |
| **61** | 55 |

## Location 1 - TC on Flux

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



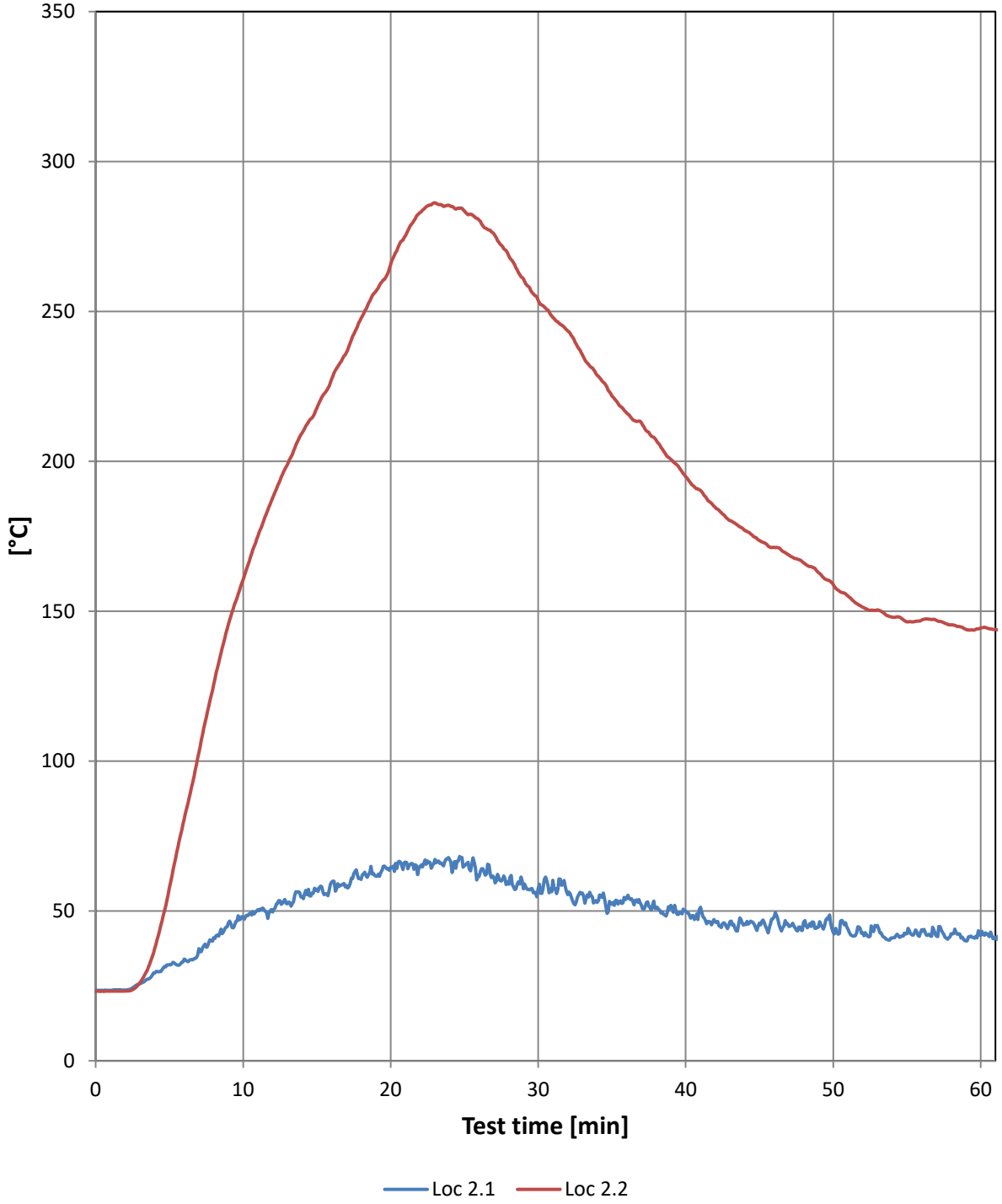
## Location 1 - TC on Flux

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

| Min. / °C | Flux.TC.1 |
|---|---|
| **0** | 23 |
| **2** | 23 |
| **4** | 24 |
| **6** | 26 |
| **8** | 29 |
| **10** | 40 |
| **12** | 53 |
| **14** | 61 |
| **15** | 48 |
| **16** | 44 |
| **18** | 46 |
| **20** | 47 |
| **22** | 51 |
| **24** | 54 |
| **26** | 55 |
| **28** | 57 |
| **30** | 59 |
| **32** | 60 |
| **34** | 62 |
| **36** | 64 |
| **38** | 61 |
| **40** | 62 |
| **42** | 61 |
| **44** | 63 |
| **46** | 64 |
| **48** | 63 |
| **50** | 62 |
| **52** | 60 |
| **54** | 59 |
| **56** | 61 |
| **58** | 61 |
| **60** | 60 |
| **61** | 59 |

## Location 2 - TC

*TC.1 Location 1*
*TC.2 Location 2*

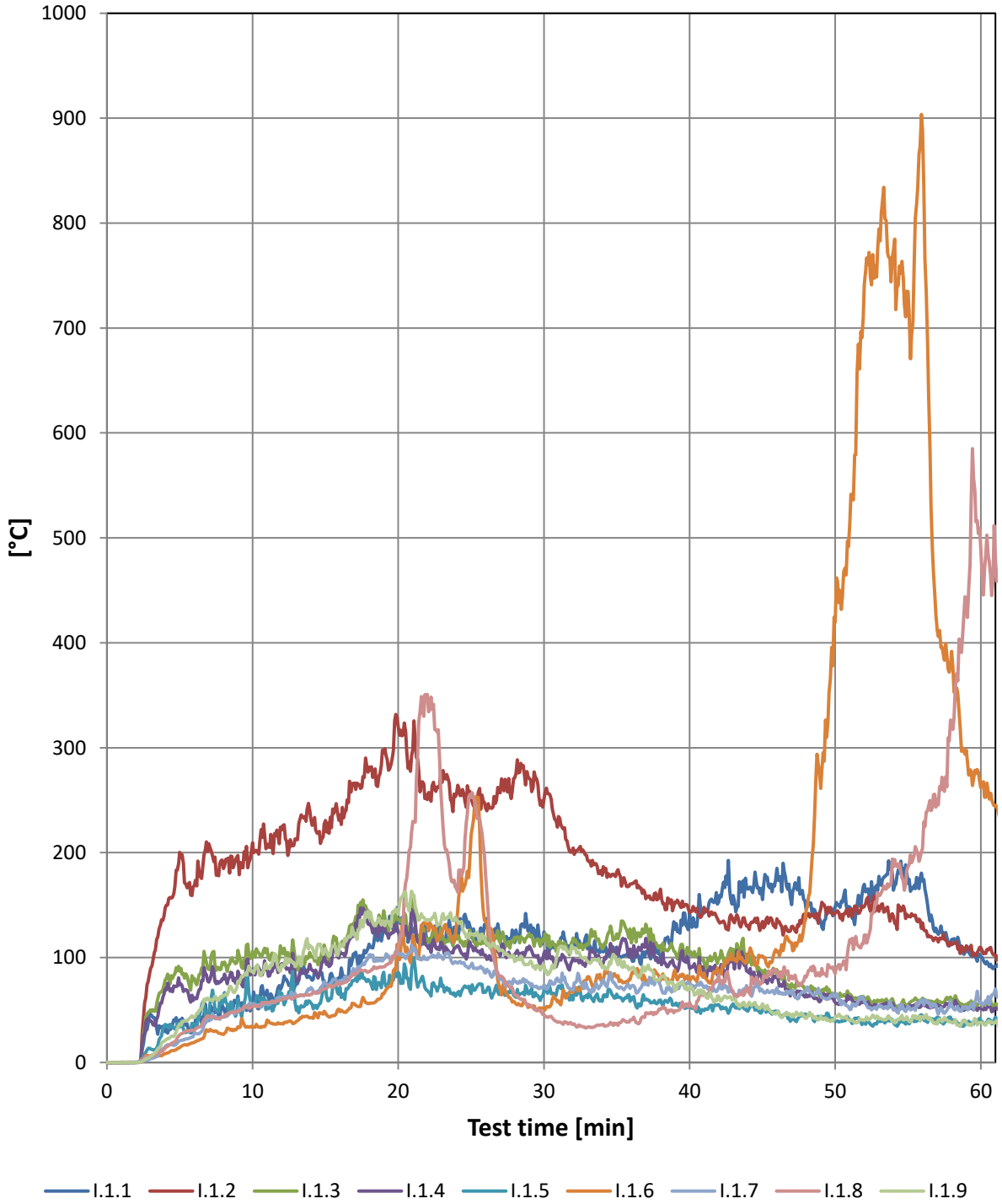


## Location 2 - TC

*TC.1 Location 1*
*TC.2 Location 2*

| Min. / °C | Loc 2.1 | Loc 2.2 |
|---|---|---|
| **0** | 24 | 23 |
| **2** | 24 | 23 |
| **4** | 29 | 37 |
| **6** | 34 | 81 |
| **8** | 41 | 125 |
| **10** | 48 | 161 |
| **12** | 50 | 188 |
| **14** | 55 | 210 |
| **15** | 57 | 218 |
| **16** | 60 | 227 |
| **18** | 60 | 248 |
| **20** | 65 | 266 |
| **22** | 65 | 283 |
| **24** | 67 | 285 |
| **26** | 62 | 280 |
| **28** | 59 | 269 |
| **30** | 57 | 254 |
| **32** | 55 | 243 |
| **34** | 53 | 229 |
| **36** | 54 | 216 |
| **38** | 51 | 207 |
| **40** | 50 | 195 |
| **42** | 46 | 185 |
| **44** | 46 | 177 |
| **46** | 48 | 171 |
| **48** | 46 | 166 |
| **50** | 43 | 159 |
| **52** | 43 | 151 |
| **54** | 41 | 148 |
| **56** | 44 | 147 |
| **58** | 42 | 145 |
| **60** | 42 | 144 |
| **61** | 41 | 144 |

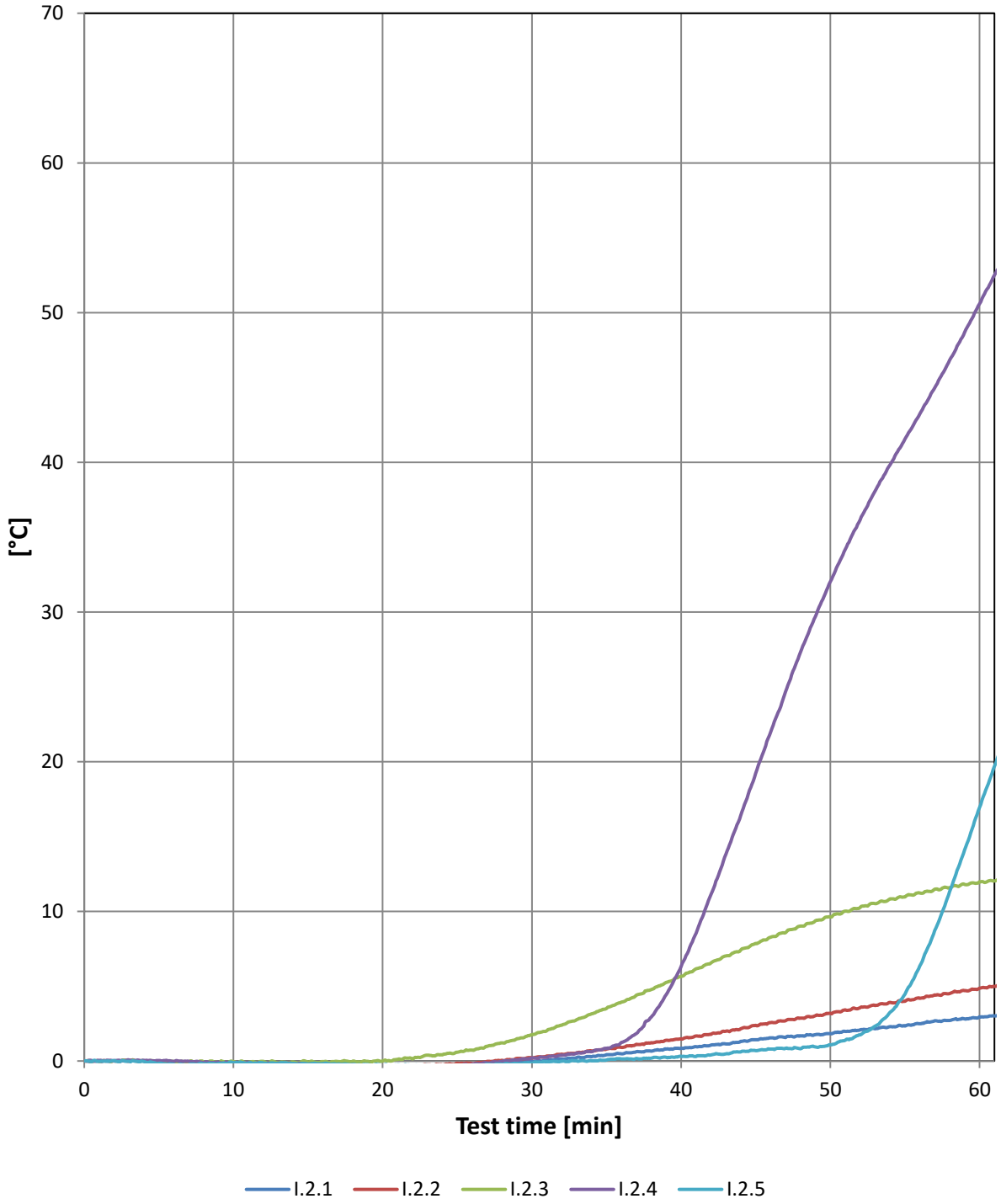
## Temperature rise measured 50mm from the facade



# 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** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **4** | 29 | 148 | 79 | 70 | 36 | 8 | 15 | 14 | 21 |
| **6** | 34 | 168 | 80 | 62 | 36 | 19 | 29 | 31 | 43 |
| **8** | 52 | 185 | 93 | 79 | 59 | 27 | 43 | 44 | 64 |
| **10** | 57 | 210 | 106 | 89 | 53 | 34 | 54 | 54 | 87 |
| **12** | 72 | 222 | 106 | 94 | 66 | 37 | 61 | 60 | 93 |
| **14** | 80 | 232 | 101 | 90 | 57 | 43 | 72 | 65 | 110 |
| **15** | 72 | 231 | 107 | 97 | 72 | 47 | 76 | 70 | 109 |
| **16** | 80 | 236 | 112 | 106 | 72 | 48 | 78 | 74 | 113 |
| **18** | 113 | 282 | 142 | 131 | 78 | 56 | 103 | 87 | 138 |
| **20** | 138 | 320 | 137 | 124 | 86 | 105 | 104 | 110 | 141 |
| **22** | 115 | 251 | 117 | 111 | 69 | 132 | 98 | 351 | 136 |
| **24** | 119 | 255 | 118 | 111 | 64 | 130 | 95 | 166 | 136 |
| **26** | 129 | 243 | 116 | 102 | 67 | 135 | 85 | 180 | 115 |
| **28** | 114 | 271 | 119 | 103 | 63 | 57 | 77 | 65 | 96 |
| **30** | 124 | 251 | 119 | 104 | 69 | 51 | 74 | 45 | 93 |
| **32** | 112 | 204 | 119 | 99 | 60 | 67 | 69 | 36 | 108 |
| **34** | 106 | 178 | 108 | 94 | 58 | 79 | 78 | 36 | 90 |
| **36** | 100 | 170 | 114 | 99 | 62 | 84 | 73 | 41 | 90 |
| **38** | 100 | 165 | 112 | 98 | 60 | 78 | 73 | 51 | 81 |
| **40** | 142 | 143 | 104 | 90 | 54 | 76 | 75 | 57 | 72 |
| **42** | 153 | 134 | 99 | 85 | 55 | 84 | 71 | 84 | 63 |
| **44** | 165 | 131 | 95 | 87 | 49 | 103 | 68 | 68 | 54 |
| **46** | 185 | 137 | 88 | 83 | 49 | 105 | 71 | 86 | 48 |
| **48** | 146 | 139 | 70 | 65 | 46 | 144 | 68 | 81 | 42 |
| **50** | 149 | 142 | 64 | 57 | 39 | 420 | 64 | 85 | 43 |
| **52** | 170 | 149 | 62 | 57 | 38 | 742 | 58 | 121 | 40 |
| **54** | 164 | 139 | 58 | 55 | 38 | 774 | 50 | 187 | 39 |
| **56** | 173 | 133 | 61 | 56 | 44 | 889 | 57 | 204 | 43 |
| **58** | 117 | 112 | 59 | 55 | 40 | 392 | 55 | 326 | 38 |
| **60** | 101 | 110 | 57 | 51 | 39 | 262 | 58 | 490 | 38 |
| **61** | 92 | 103 | 56 | 52 | 43 | 245 | 70 | 479 | 39 |

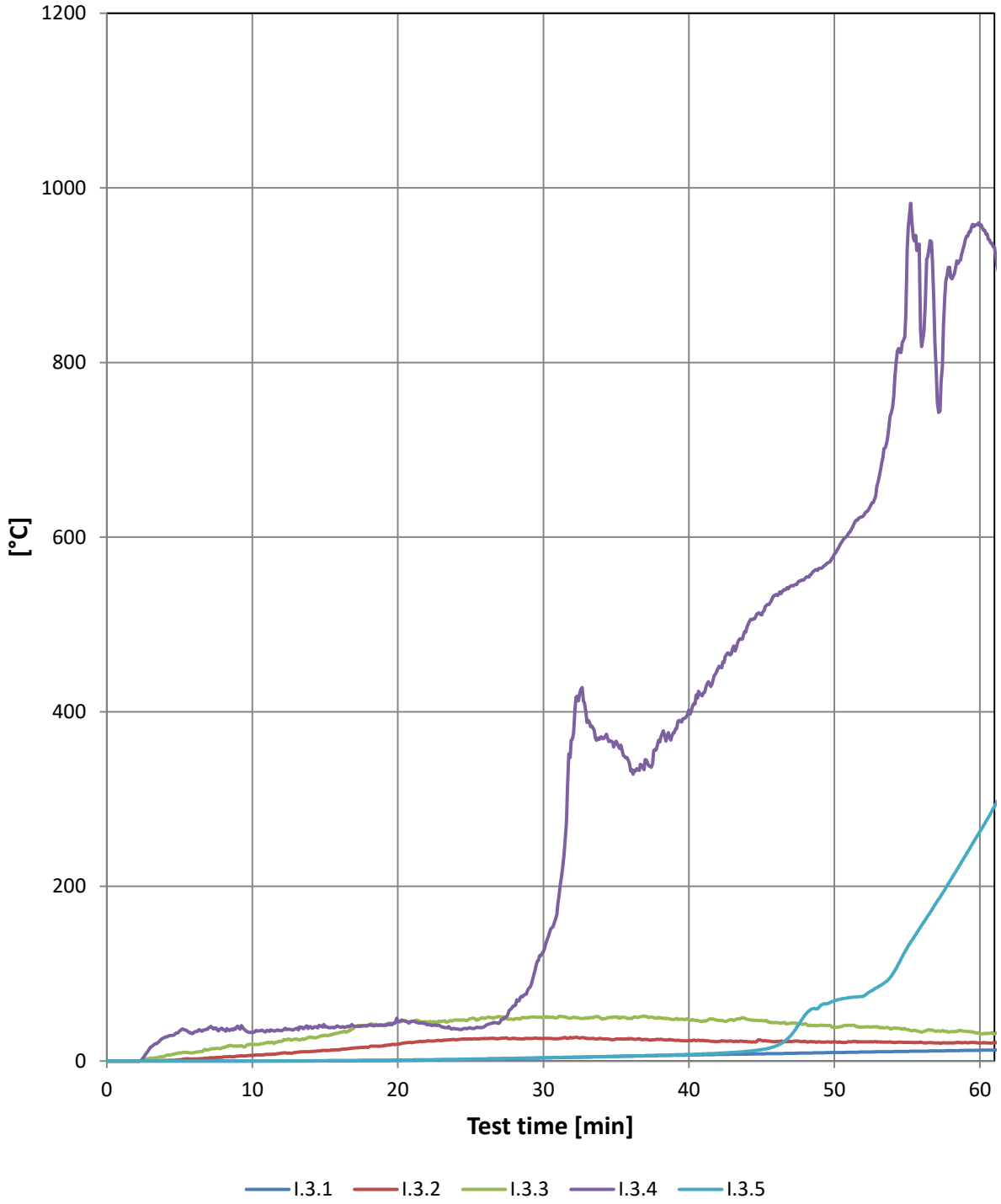
## Temperature rise measured in ventilation layer



# 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 | 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 | 1 | 0 | 0 |
| **28** | 0 | 0 | 1 | 0 | 0 |
| **30** | 0 | 0 | 2 | 0 | 0 |
| **32** | 0 | 0 | 2 | 0 | 0 |
| **34** | 0 | 1 | 3 | 1 | 0 |
| **36** | 0 | 1 | 4 | 1 | 0 |
| **38** | 1 | 1 | 5 | 3 | 0 |
| **40** | 1 | 1 | 6 | 6 | 0 |
| **42** | 1 | 2 | 7 | 11 | 0 |
| **44** | 1 | 2 | 7 | 16 | 1 |
| **46** | 2 | 3 | 8 | 22 | 1 |
| **48** | 2 | 3 | 9 | 27 | 1 |
| **50** | 2 | 3 | 10 | 32 | 1 |
| **52** | 2 | 4 | 10 | 36 | 2 |
| **54** | 2 | 4 | 11 | 40 | 3 |
| **56** | 2 | 4 | 11 | 43 | 6 |
| **58** | 3 | 5 | 12 | 47 | 11 |
| **60** | 3 | 5 | 12 | 51 | 17 |
| **61** | 3 | 5 | 12 | 53 | 20 |

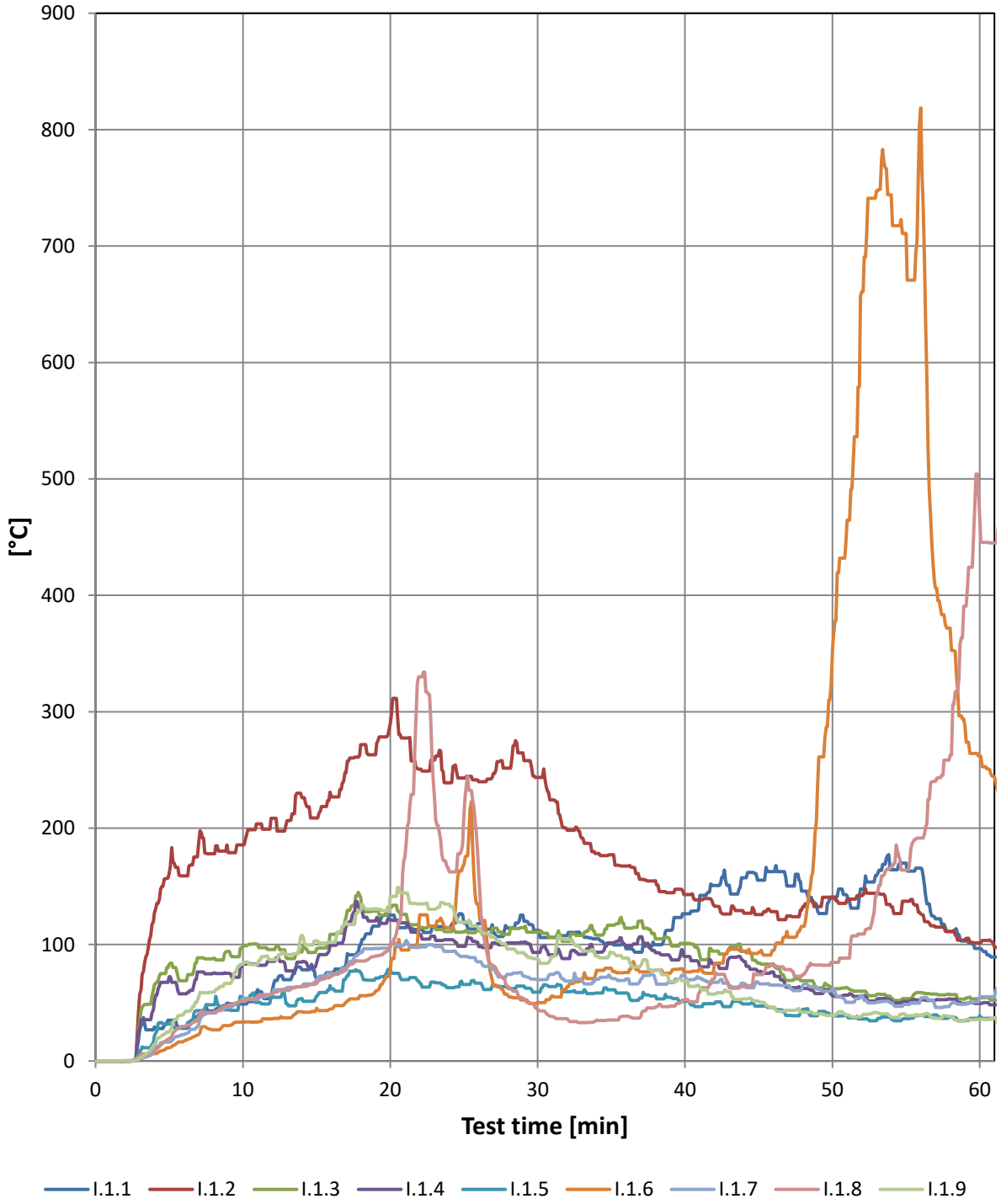
## Temperature rise measured in middle of insulation



# 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 | 1 | 6 | 27 | 0 |
| **6** | 0 | 2 | 10 | 33 | 0 |
| **8** | 0 | 5 | 16 | 36 | 0 |
| **10** | 0 | 6 | 19 | 32 | 0 |
| **12** | 0 | 9 | 23 | 35 | 0 |
| **14** | 0 | 11 | 27 | 39 | 0 |
| **15** | 0 | 12 | 29 | 39 | 0 |
| **16** | 0 | 13 | 32 | 39 | 1 |
| **18** | 1 | 16 | 41 | 41 | 1 |
| **20** | 1 | 19 | 46 | 46 | 1 |
| **22** | 1 | 23 | 45 | 42 | 1 |
| **24** | 2 | 25 | 47 | 37 | 2 |
| **26** | 2 | 26 | 49 | 40 | 2 |
| **28** | 3 | 26 | 48 | 63 | 3 |
| **30** | 4 | 26 | 50 | 126 | 4 |
| **32** | 4 | 27 | 50 | 369 | 4 |
| **34** | 5 | 25 | 48 | 371 | 5 |
| **36** | 6 | 25 | 49 | 332 | 6 |
| **38** | 6 | 25 | 49 | 365 | 7 |
| **40** | 7 | 23 | 47 | 402 | 8 |
| **42** | 8 | 22 | 46 | 449 | 9 |
| **44** | 8 | 22 | 48 | 497 | 11 |
| **46** | 9 | 22 | 44 | 534 | 17 |
| **48** | 9 | 23 | 43 | 553 | 53 |
| **50** | 10 | 22 | 38 | 581 | 69 |
| **52** | 10 | 22 | 39 | 625 | 74 |
| **54** | 11 | 21 | 37 | 748 | 99 |
| **56** | 11 | 21 | 33 | 818 | 155 |
| **58** | 12 | 21 | 33 | 897 | 208 |
| **60** | 12 | 20 | 32 | 957 | 263 |
| **61** | 13 | 21 | 31 | 932 | 292 |

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

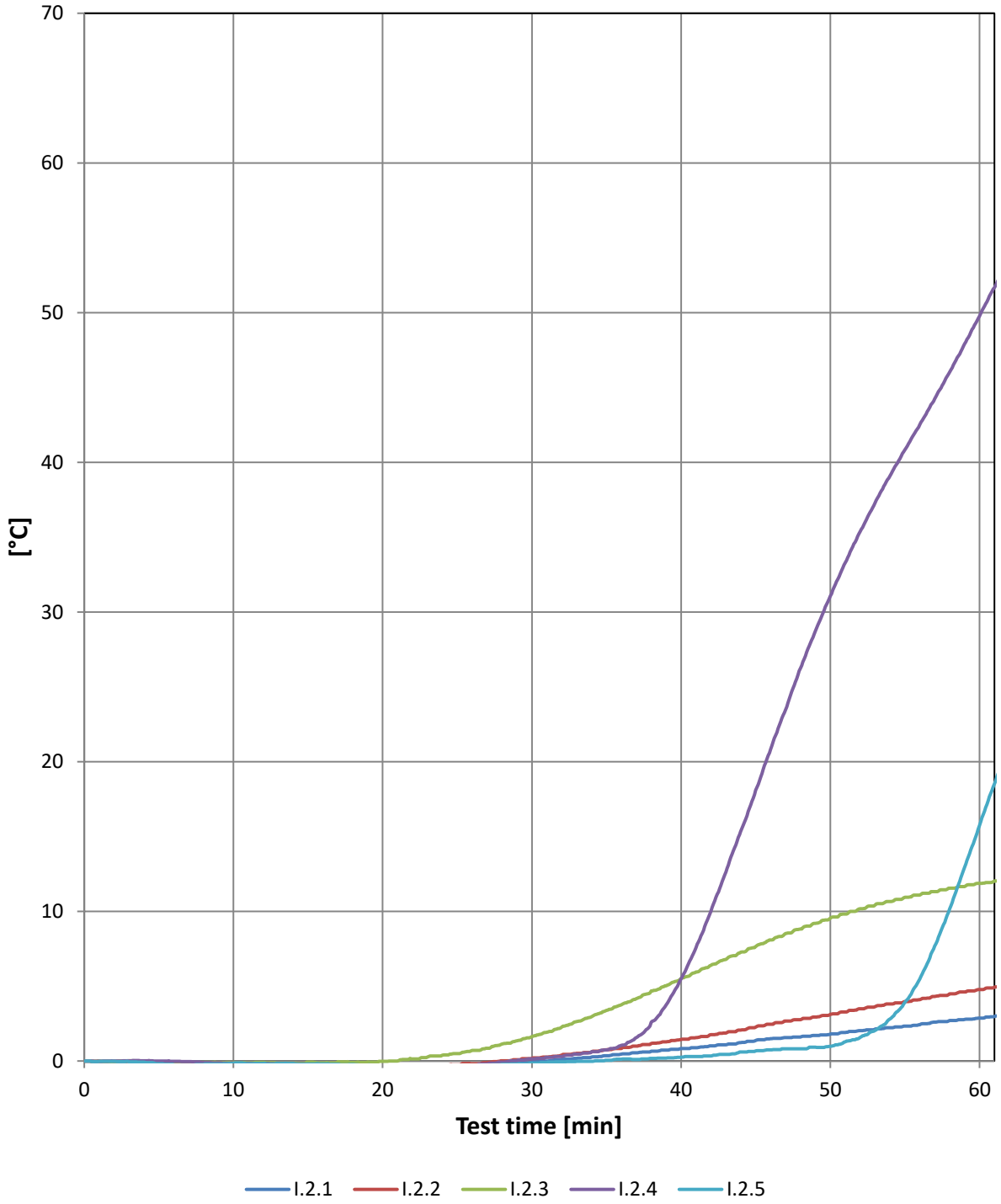


## Temperature rise measured according to the standard - 50 mm from facade. Minimum of 30 sec

| 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** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **4** | 29 | 127 | 66 | 51 | 22 | 6 | 8 | 10 | 14 | 127 |
| **6** | 28 | 159 | 69 | 58 | 29 | 17 | 23 | 30 | 41 | 159 |
| **8** | 43 | 178 | 88 | 76 | 48 | 27 | 41 | 42 | 59 | 178 |
| **10** | 49 | 186 | 99 | 83 | 53 | 33 | 53 | 51 | 83 | 186 |
| **12** | 61 | 208 | 96 | 86 | 56 | 36 | 57 | 58 | 87 | 208 |
| **14** | 78 | 226 | 94 | 85 | 54 | 42 | 64 | 64 | 108 | 226 |
| **15** | 71 | 209 | 97 | 85 | 56 | 45 | 69 | 67 | 103 | 209 |
| **16** | 76 | 227 | 109 | 99 | 62 | 45 | 75 | 73 | 102 | 227 |
| **18** | 100 | 272 | 140 | 131 | 76 | 56 | 93 | 86 | 129 | 272 |
| **20** | 125 | 290 | 132 | 121 | 79 | 78 | 97 | 101 | 141 | 290 |
| **22** | 113 | 251 | 114 | 108 | 67 | 125 | 98 | 330 | 135 | 330 |
| **24** | 115 | 239 | 111 | 104 | 63 | 114 | 94 | 162 | 135 | 239 |
| **26** | 118 | 240 | 112 | 98 | 67 | 132 | 85 | 162 | 114 | 240 |
| **28** | 114 | 252 | 109 | 101 | 62 | 56 | 74 | 63 | 96 | 252 |
| **30** | 112 | 243 | 111 | 93 | 59 | 50 | 70 | 44 | 87 | 243 |
| **32** | 108 | 198 | 103 | 88 | 60 | 64 | 69 | 36 | 104 | 198 |
| **34** | 105 | 178 | 108 | 93 | 58 | 78 | 70 | 35 | 90 | 178 |
| **36** | 96 | 167 | 114 | 99 | 58 | 76 | 71 | 38 | 88 | 167 |
| **38** | 100 | 155 | 105 | 93 | 56 | 78 | 69 | 46 | 78 | 155 |
| **40** | 126 | 143 | 101 | 90 | 51 | 76 | 73 | 52 | 69 | 143 |
| **42** | 151 | 133 | 94 | 84 | 49 | 83 | 67 | 71 | 58 | 151 |
| **44** | 157 | 127 | 94 | 85 | 49 | 94 | 67 | 64 | 53 | 157 |
| **46** | 163 | 128 | 83 | 76 | 46 | 95 | 65 | 82 | 46 | 163 |
| **48** | 146 | 133 | 69 | 62 | 44 | 116 | 65 | 74 | 42 | 146 |
| **50** | 140 | 141 | 62 | 56 | 39 | 352 | 61 | 85 | 39 | 352 |
| **52** | 148 | 142 | 60 | 56 | 36 | 661 | 56 | 109 | 39 | 661 |
| **54** | 164 | 133 | 54 | 51 | 36 | 744 | 50 | 167 | 38 | 744 |
| **56** | 166 | 126 | 59 | 53 | 39 | 819 | 54 | 192 | 39 | 819 |
| **58** | 111 | 111 | 57 | 53 | 38 | 372 | 48 | 263 | 38 | 372 |
| **60** | 97 | 102 | 54 | 50 | 39 | 262 | 56 | 466 | 36 | 466 |
| **61** | 89 | 98 | 52 | 48 | 37 | 244 | 55 | 445 | 37 | 445 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Failure [min] | - | - | - | - | - | 51.33 | - | 59.67 | - | 51.33 |
| 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

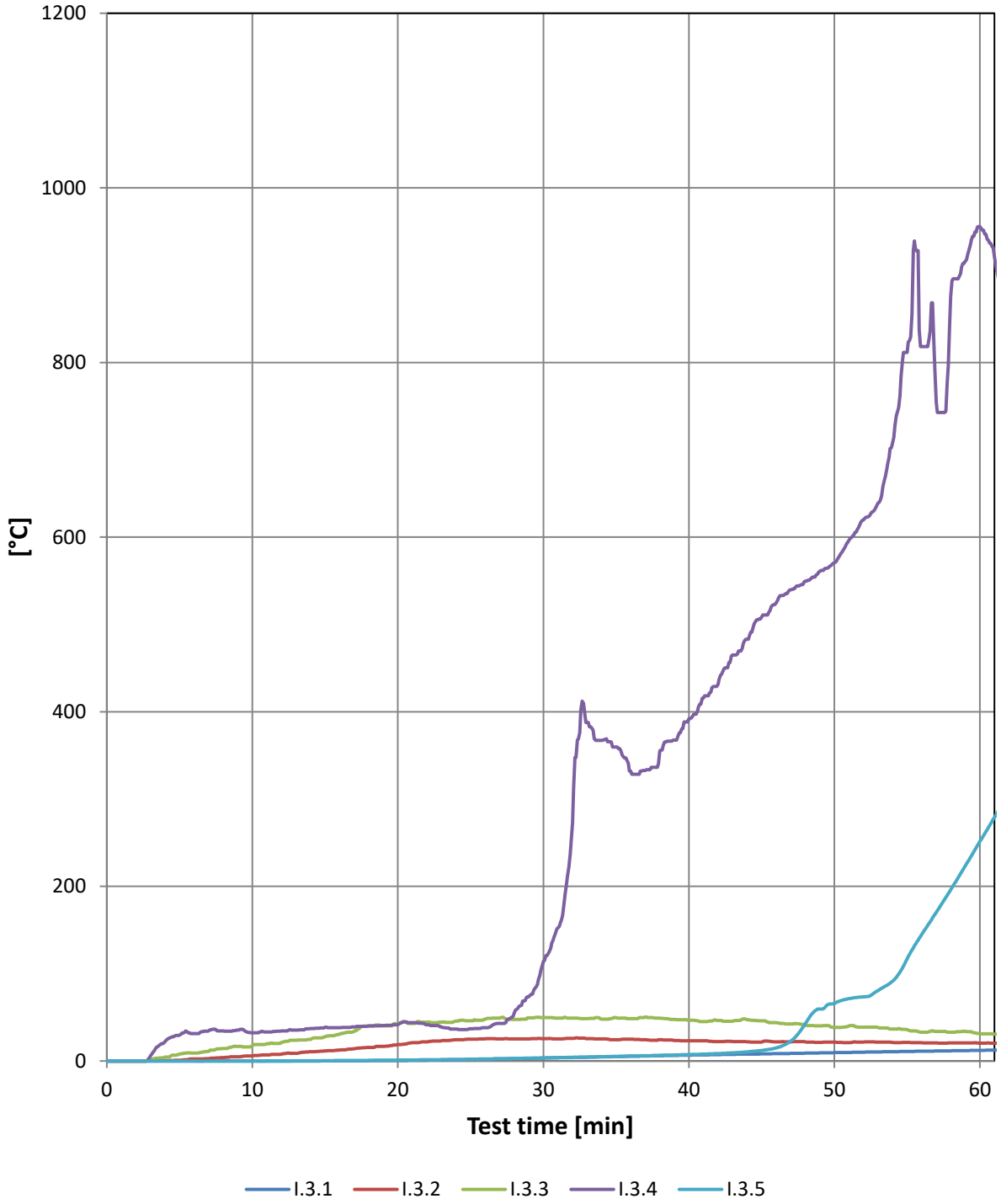


## Temperature rise measured according to the standard - ventilation layer. Minimum of 30 sec

| 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 | 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 | 1 | 0 | 0 | 1 |
| **28** | 0 | 0 | 1 | 0 | 0 | 1 |
| **30** | 0 | 0 | 2 | 0 | 0 | 2 |
| **32** | 0 | 0 | 2 | 0 | 0 | 2 |
| **34** | 0 | 1 | 3 | 1 | 0 | 3 |
| **36** | 0 | 1 | 4 | 1 | 0 | 4 |
| **38** | 1 | 1 | 5 | 3 | 0 | 5 |
| **40** | 1 | 1 | 6 | 5 | 0 | 6 |
| **42** | 1 | 2 | 6 | 10 | 0 | 10 |
| **44** | 1 | 2 | 7 | 15 | 1 | 15 |
| **46** | 1 | 2 | 8 | 21 | 1 | 21 |
| **48** | 2 | 3 | 9 | 26 | 1 | 26 |
| **50** | 2 | 3 | 10 | 31 | 1 | 31 |
| **52** | 2 | 3 | 10 | 35 | 2 | 35 |
| **54** | 2 | 4 | 11 | 39 | 3 | 39 |
| **56** | 2 | 4 | 11 | 43 | 5 | 43 |
| **58** | 3 | 4 | 12 | 46 | 10 | 46 |
| **60** | 3 | 5 | 12 | 50 | 16 | 50 |
| **61** | 3 | 5 | 12 | 52 | 19 | 52 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Failure [min] | - | - | - | - | - | - |
| 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

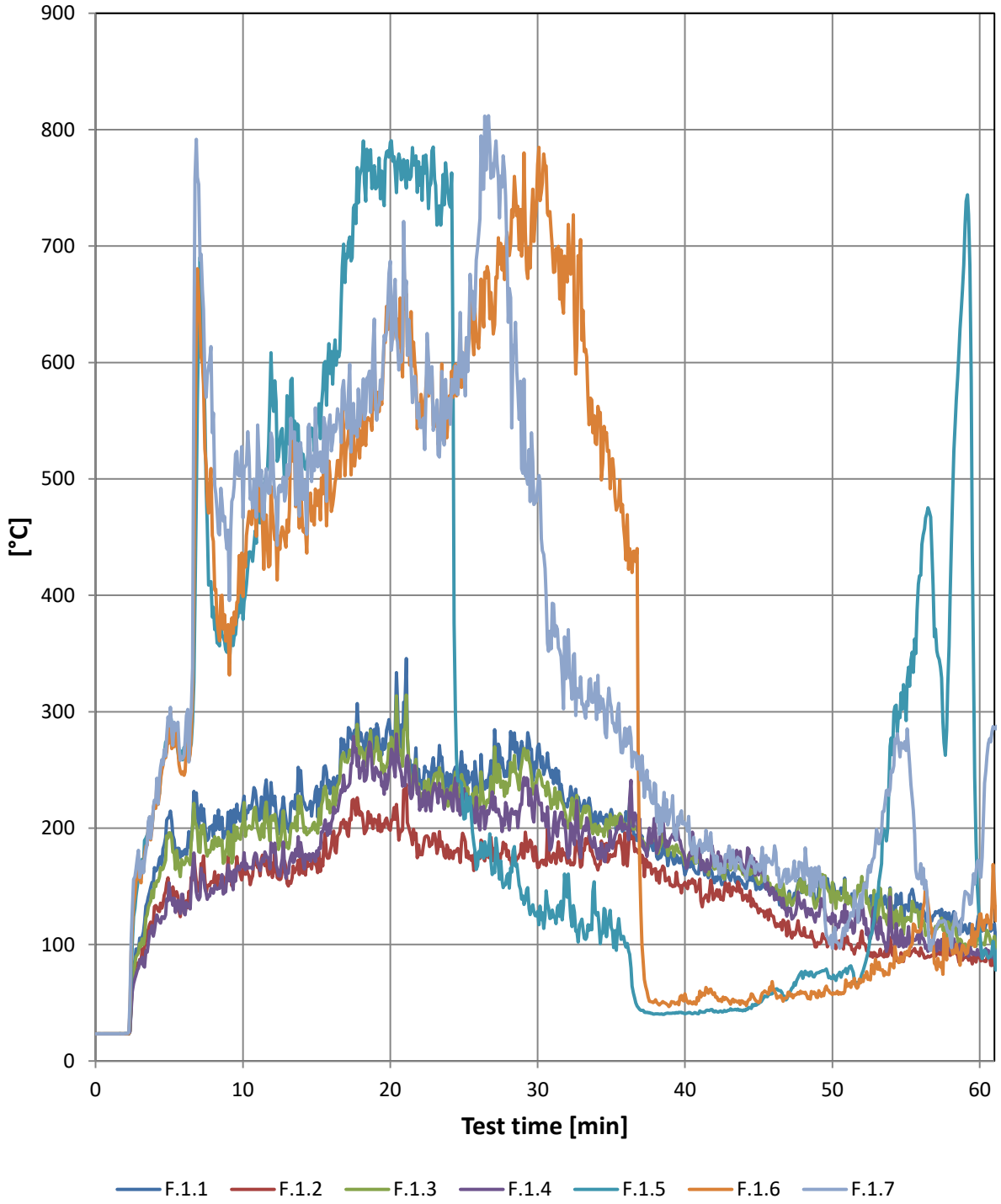


## Temperature rise measured according to the standard - in the middle of the insulation. Minimum of 30 sec

| 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 | 1 | 5 | 22 | 0 | 22 |
| **6** | 0 | 2 | 9 | 31 | 0 | 31 |
| **8** | 0 | 4 | 14 | 34 | 0 | 34 |
| **10** | 0 | 6 | 18 | 32 | 0 | 32 |
| **12** | 0 | 8 | 21 | 34 | 0 | 34 |
| **14** | 0 | 11 | 25 | 37 | 0 | 37 |
| **15** | 0 | 12 | 28 | 39 | 0 | 39 |
| **16** | 0 | 13 | 31 | 38 | 0 | 38 |
| **18** | 0 | 15 | 40 | 40 | 1 | 40 |
| **20** | 1 | 19 | 43 | 42 | 1 | 43 |
| **22** | 1 | 22 | 45 | 42 | 1 | 45 |
| **24** | 1 | 24 | 46 | 37 | 2 | 46 |
| **26** | 2 | 25 | 48 | 38 | 2 | 48 |
| **28** | 3 | 25 | 48 | 55 | 3 | 55 |
| **30** | 3 | 26 | 50 | 114 | 4 | 114 |
| **32** | 4 | 26 | 49 | 273 | 4 | 273 |
| **34** | 5 | 25 | 48 | 367 | 5 | 367 |
| **36** | 5 | 25 | 49 | 332 | 6 | 332 |
| **38** | 6 | 24 | 49 | 355 | 6 | 355 |
| **40** | 7 | 23 | 47 | 392 | 7 | 392 |
| **42** | 7 | 22 | 46 | 431 | 9 | 431 |
| **44** | 8 | 22 | 47 | 483 | 10 | 483 |
| **46** | 8 | 22 | 44 | 525 | 15 | 525 |
| **48** | 9 | 22 | 42 | 550 | 43 | 550 |
| **50** | 10 | 22 | 38 | 571 | 66 | 571 |
| **52** | 10 | 22 | 39 | 620 | 73 | 620 |
| **54** | 11 | 21 | 37 | 708 | 91 | 708 |
| **56** | 11 | 21 | 33 | 818 | 145 | 818 |
| **58** | 12 | 21 | 33 | 876 | 196 | 876 |
| **60** | 12 | 20 | 31 | 956 | 251 | 956 |
| **61** | 12 | 21 | 31 | 921 | 279 | 921 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Failure [min] | - | - | - | 44.42 | - | 44.42 |
| Failure°C | 500 | 500 | 500 | 500 | 500 | 500 |

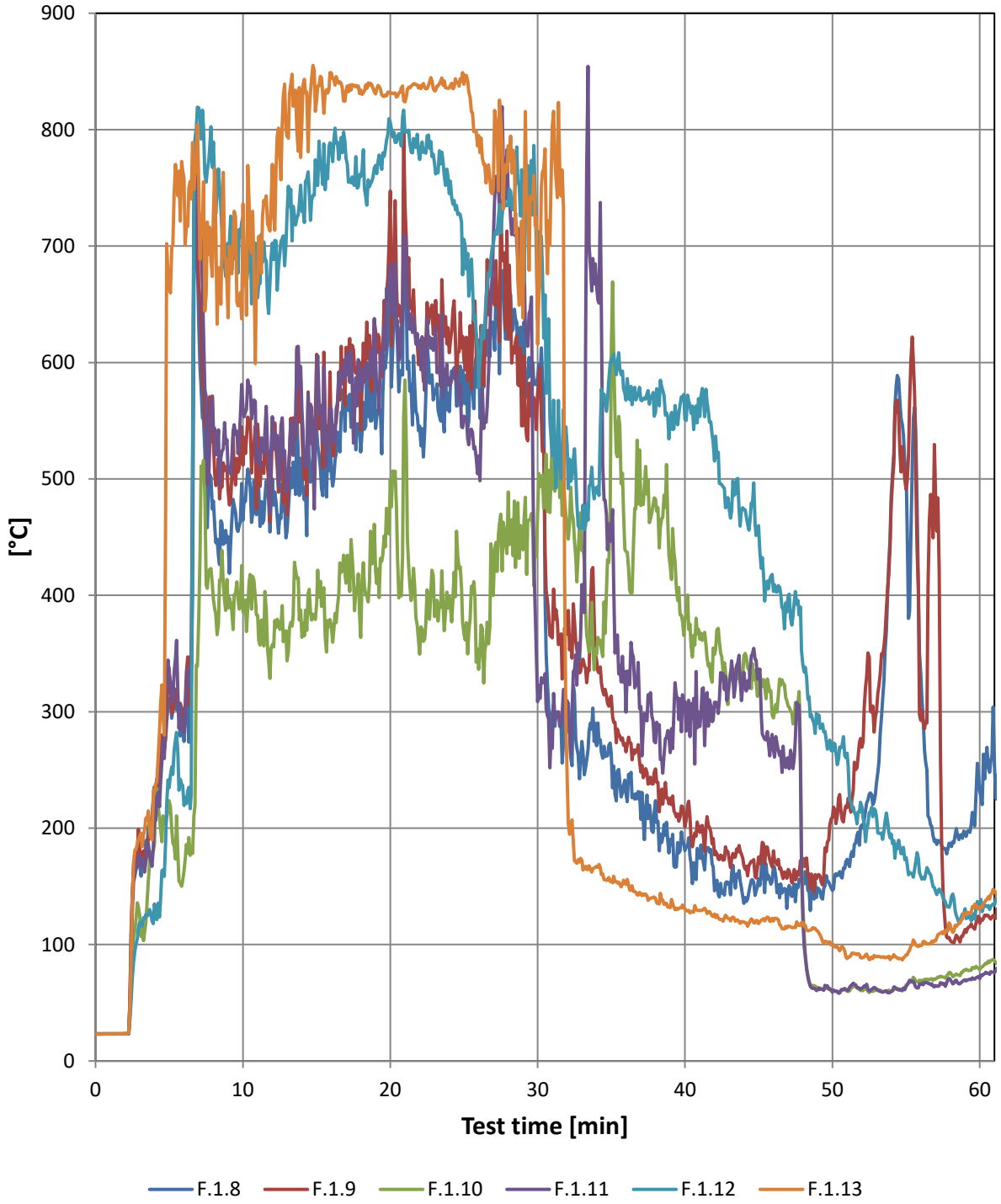
## Vertical measurements on main facade



# 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** | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| **2** | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| **4** | 166 | 133 | 153 | 112 | 223 | 222 | 224 |
| **6** | 181 | 129 | 169 | 127 | 270 | 246 | 262 |
| **8** | 193 | 153 | 182 | 144 | 390 | 446 | 557 |
| **10** | 222 | 164 | 205 | 167 | 379 | 399 | 466 |
| **12** | 224 | 158 | 211 | 185 | 567 | 472 | 534 |
| **14** | 229 | 163 | 214 | 180 | 515 | 468 | 502 |
| **15** | 236 | 167 | 203 | 181 | 549 | 486 | 531 |
| **16** | 240 | 185 | 219 | 205 | 610 | 472 | 524 |
| **18** | 282 | 214 | 269 | 251 | 764 | 541 | 555 |
| **20** | 283 | 198 | 266 | 254 | 789 | 658 | 687 |
| **22** | 238 | 177 | 225 | 215 | 752 | 552 | 545 |
| **24** | 229 | 174 | 222 | 225 | 736 | 571 | 569 |
| **26** | 231 | 175 | 221 | 204 | 180 | 612 | 709 |
| **28** | 257 | 181 | 238 | 206 | 161 | 702 | 635 |
| **30** | 269 | 166 | 246 | 229 | 128 | 770 | 492 |
| **32** | 218 | 170 | 202 | 178 | 141 | 669 | 342 |
| **34** | 198 | 168 | 196 | 179 | 125 | 530 | 293 |
| **36** | 214 | 178 | 203 | 200 | 98 | 430 | 270 |
| **38** | 189 | 165 | 193 | 196 | 41 | 53 | 237 |
| **40** | 160 | 153 | 168 | 175 | 41 | 58 | 203 |
| **42** | 153 | 141 | 165 | 173 | 42 | 59 | 167 |
| **44** | 152 | 139 | 162 | 162 | 44 | 49 | 163 |
| **46** | 145 | 124 | 147 | 148 | 59 | 61 | 174 |
| **48** | 145 | 108 | 145 | 135 | 71 | 59 | 159 |
| **50** | 152 | 106 | 154 | 127 | 71 | 57 | 97 |
| **52** | 154 | 112 | 158 | 137 | 75 | 70 | 132 |
| **54** | 132 | 100 | 132 | 118 | 277 | 83 | 249 |
| **56** | 135 | 97 | 128 | 115 | 417 | 113 | 169 |
| **58** | 120 | 91 | 110 | 96 | 400 | 101 | 106 |
| **60** | 121 | 89 | 105 | 92 | 111 | 126 | 167 |
| **61** | 118 | 86 | 107 | 94 | 92 | 145 | 286 |

## Vertical measurements on main facade



# Vertical measurements on main facade

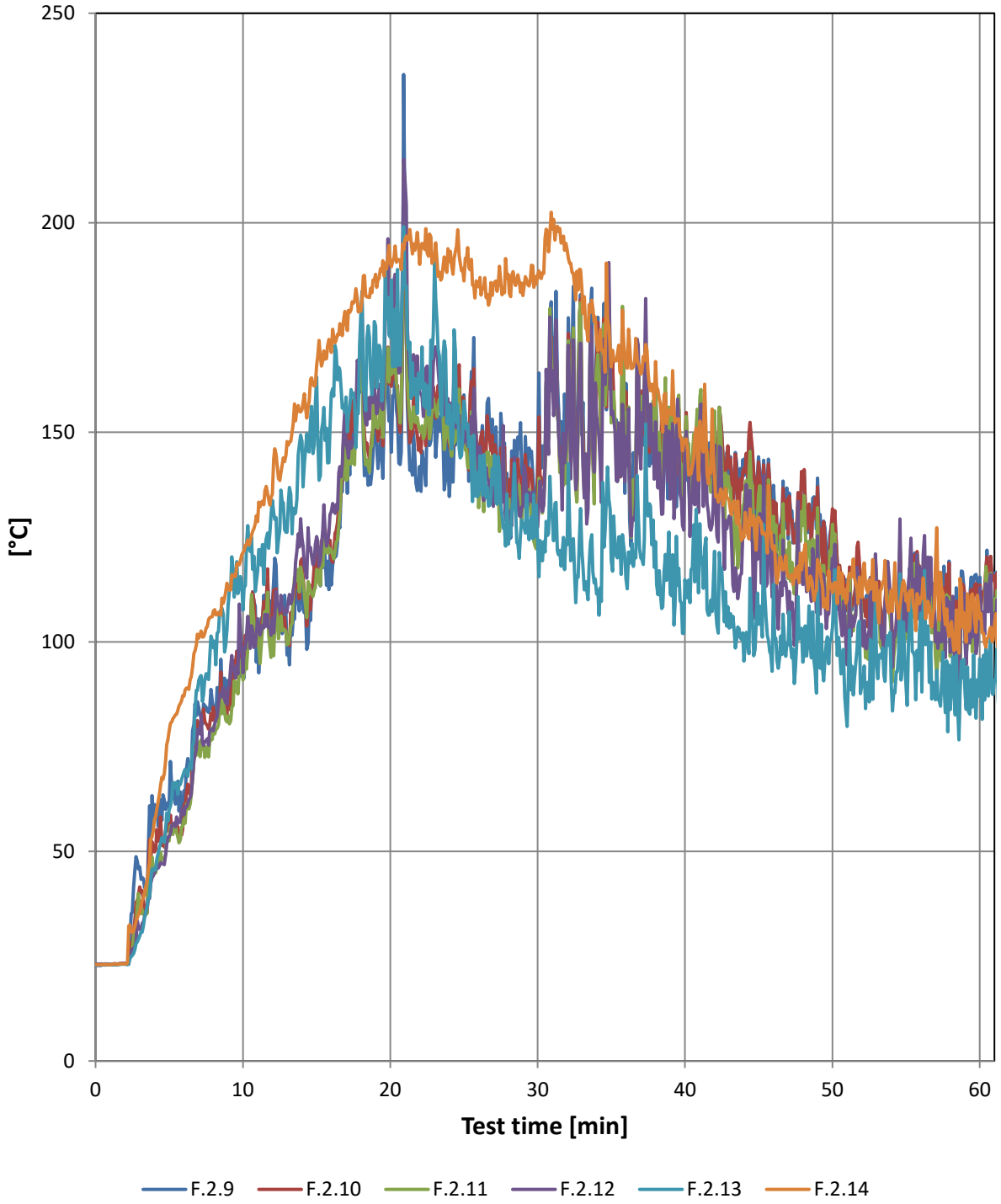
| Min. / °C | F.1.8 | F.1.9 | F.1.10 | F.1.11 | F.1.12 | F.1.13 |
|---|---|---|---|---|---|---|
| **0** | 23 | 23 | 23 | 23 | 23 | 23 |
| **2** | 23 | 23 | 23 | 23 | 23 | 23 |
| **4** | 236 | 235 | 186 | 207 | 135 | 232 |
| **6** | 275 | 283 | 163 | 283 | 219 | 758 |
| **8** | 481 | 532 | 397 | 544 | 789 | 728 |
| **10** | 464 | 512 | 386 | 560 | 725 | 736 |
| **12** | 500 | 539 | 358 | 553 | 703 | 770 |
| **14** | 500 | 541 | 364 | 557 | 730 | 809 |
| **15** | 543 | 607 | 393 | 586 | 753 | 826 |
| **16** | 505 | 531 | 374 | 560 | 785 | 849 |
| **18** | 523 | 542 | 364 | 576 | 760 | 834 |
| **20** | 678 | 747 | 500 | 684 | 806 | 831 |
| **22** | 545 | 612 | 349 | 619 | 774 | 838 |
| **24** | 558 | 608 | 399 | 586 | 745 | 836 |
| **26** | 619 | 603 | 336 | 520 | 578 | 795 |
| **28** | 620 | 621 | 489 | 743 | 735 | 786 |
| **30** | 587 | 573 | 470 | 309 | 638 | 616 |
| **32** | 283 | 367 | 457 | 309 | 528 | 242 |
| **34** | 271 | 344 | 349 | 666 | 488 | 167 |
| **36** | 230 | 265 | 438 | 300 | 568 | 152 |
| **38** | 224 | 251 | 483 | 273 | 557 | 140 |
| **40** | 181 | 201 | 380 | 309 | 551 | 131 |
| **42** | 146 | 177 | 349 | 308 | 515 | 126 |
| **44** | 135 | 168 | 348 | 334 | 474 | 120 |
| **46** | 168 | 181 | 295 | 267 | 403 | 120 |
| **48** | 157 | 174 | 134 | 122 | 341 | 119 |
| **50** | 146 | 209 | 60 | 59 | 266 | 100 |
| **52** | 203 | 269 | 61 | 63 | 219 | 88 |
| **54** | 485 | 478 | 60 | 60 | 195 | 89 |
| **56** | 332 | 293 | 69 | 66 | 159 | 99 |
| **58** | 187 | 104 | 76 | 70 | 134 | 117 |
| **60** | 232 | 118 | 79 | 71 | 132 | 131 |
| **61** | 255 | 123 | 86 | 76 | 134 | 145 |

## 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** | 23 | 23 | 23 | 23 | 23 |
| **2** | 23 | 23 | 23 | 23 | 23 |
| **4** | 100 | 97 | 87 | 66 | 95 |
| **6** | 99 | 93 | 76 | 49 | 93 |
| **8** | 117 | 108 | 92 | 62 | 104 |
| **10** | 118 | 114 | 101 | 68 | 139 |
| **12** | 120 | 121 | 107 | 78 | 134 |
| **14** | 114 | 111 | 100 | 72 | 135 |
| **15** | 132 | 118 | 108 | 74 | 140 |
| **16** | 121 | 131 | 117 | 89 | 154 |
| **18** | 152 | 146 | 134 | 100 | 212 |
| **20** | 140 | 139 | 131 | 99 | 206 |
| **22** | 128 | 125 | 113 | 90 | 187 |
| **24** | 126 | 120 | 113 | 90 | 190 |
| **26** | 135 | 124 | 107 | 87 | 184 |
| **28** | 130 | 126 | 105 | 89 | 179 |
| **30** | 134 | 130 | 115 | 97 | 182 |
| **32** | 129 | 125 | 110 | 93 | 198 |
| **34** | 126 | 117 | 107 | 91 | 199 |
| **36** | 122 | 114 | 105 | 92 | 199 |
| **38** | 118 | 114 | 107 | 91 | 194 |
| **40** | 124 | 117 | 99 | 84 | 185 |
| **42** | 111 | 107 | 98 | 84 | 184 |
| **44** | 107 | 103 | 93 | 83 | 176 |
| **46** | 101 | 98 | 96 | 81 | 164 |
| **48** | 87 | 85 | 82 | 72 | 155 |
| **50** | 85 | 80 | 75 | 71 | 144 |
| **52** | 80 | 78 | 76 | 67 | 122 |
| **54** | 78 | 76 | 73 | 65 | 117 |
| **56** | 86 | 82 | 77 | 72 | 126 |
| **58** | 82 | 80 | 75 | 65 | 116 |
| **60** | 83 | 79 | 72 | 65 | 124 |
| **61** | 79 | 76 | 73 | 68 | 123 |

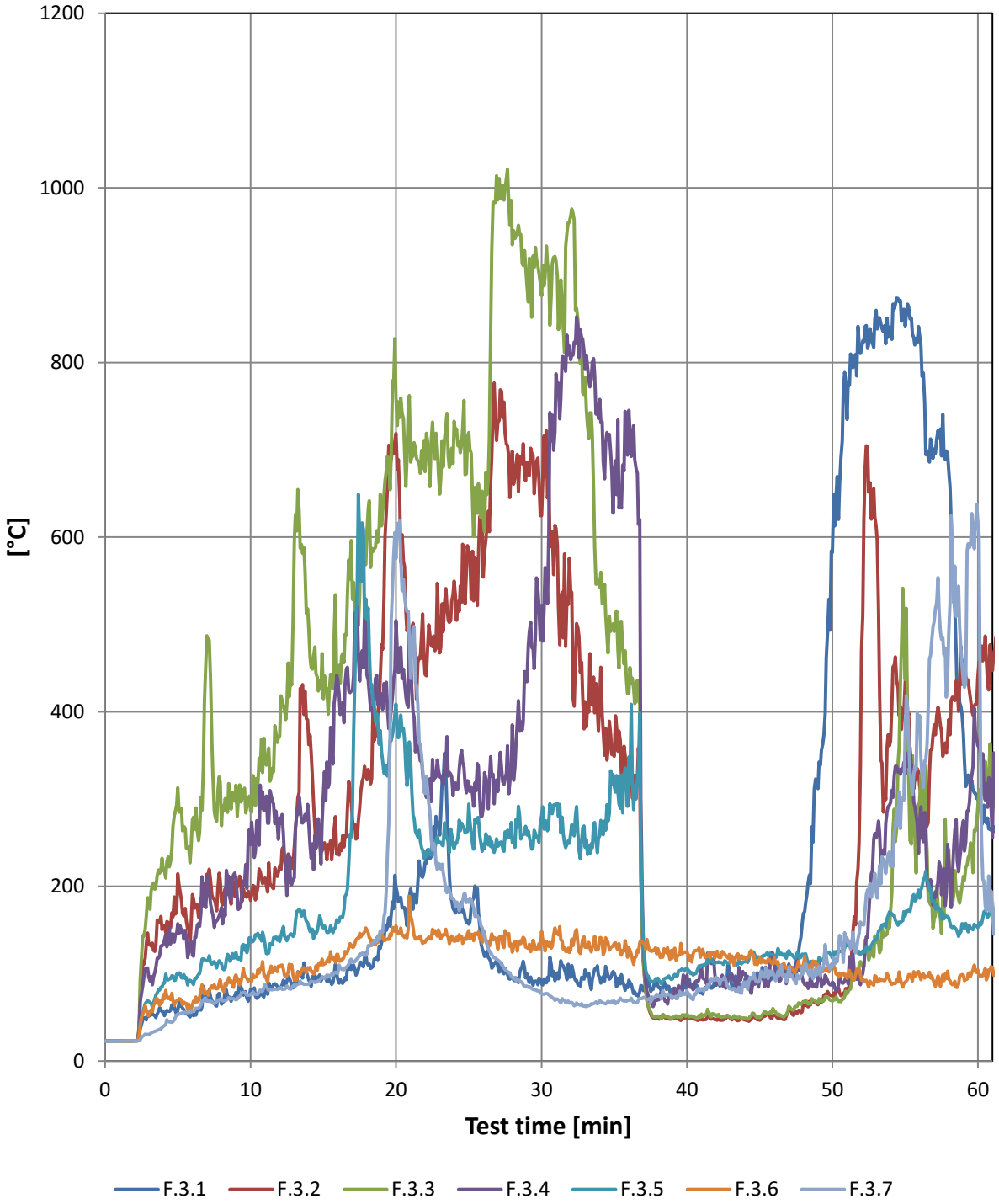
## Vertical measurements on the wing



## 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** | 23 | 23 | 23 | 23 | 23 | 23 |
| **2** | 23 | 23 | 23 | 23 | 23 | 23 |
| **4** | 61 | 50 | 45 | 45 | 46 | 57 |
| **6** | 65 | 61 | 58 | 59 | 69 | 87 |
| **8** | 84 | 84 | 80 | 79 | 99 | 107 |
| **10** | 96 | 98 | 91 | 93 | 108 | 121 |
| **12** | 109 | 107 | 102 | 106 | 134 | 135 |
| **14** | 117 | 120 | 116 | 125 | 148 | 155 |
| **15** | 119 | 123 | 117 | 125 | 163 | 166 |
| **16** | 114 | 120 | 122 | 131 | 159 | 169 |
| **18** | 160 | 164 | 163 | 174 | 177 | 179 |
| **20** | 154 | 164 | 168 | 179 | 173 | 190 |
| **22** | 142 | 149 | 151 | 159 | 163 | 190 |
| **24** | 135 | 147 | 148 | 153 | 157 | 191 |
| **26** | 139 | 140 | 132 | 139 | 136 | 185 |
| **28** | 129 | 128 | 129 | 131 | 123 | 188 |
| **30** | 143 | 139 | 129 | 127 | 124 | 187 |
| **32** | 157 | 155 | 150 | 154 | 123 | 193 |
| **34** | 171 | 167 | 165 | 154 | 111 | 171 |
| **36** | 162 | 160 | 155 | 149 | 115 | 166 |
| **38** | 161 | 157 | 161 | 153 | 124 | 167 |
| **40** | 149 | 148 | 148 | 145 | 115 | 148 |
| **42** | 152 | 154 | 155 | 147 | 122 | 140 |
| **44** | 140 | 141 | 133 | 130 | 95 | 125 |
| **46** | 137 | 134 | 130 | 125 | 114 | 122 |
| **48** | 138 | 136 | 128 | 114 | 95 | 120 |
| **50** | 129 | 132 | 128 | 120 | 103 | 112 |
| **52** | 108 | 111 | 105 | 101 | 90 | 111 |
| **54** | 104 | 108 | 103 | 111 | 90 | 112 |
| **56** | 113 | 113 | 110 | 114 | 107 | 111 |
| **58** | 106 | 105 | 97 | 97 | 84 | 103 |
| **60** | 115 | 114 | 111 | 113 | 96 | 106 |
| **61** | 117 | 116 | 110 | 106 | 91 | 104 |

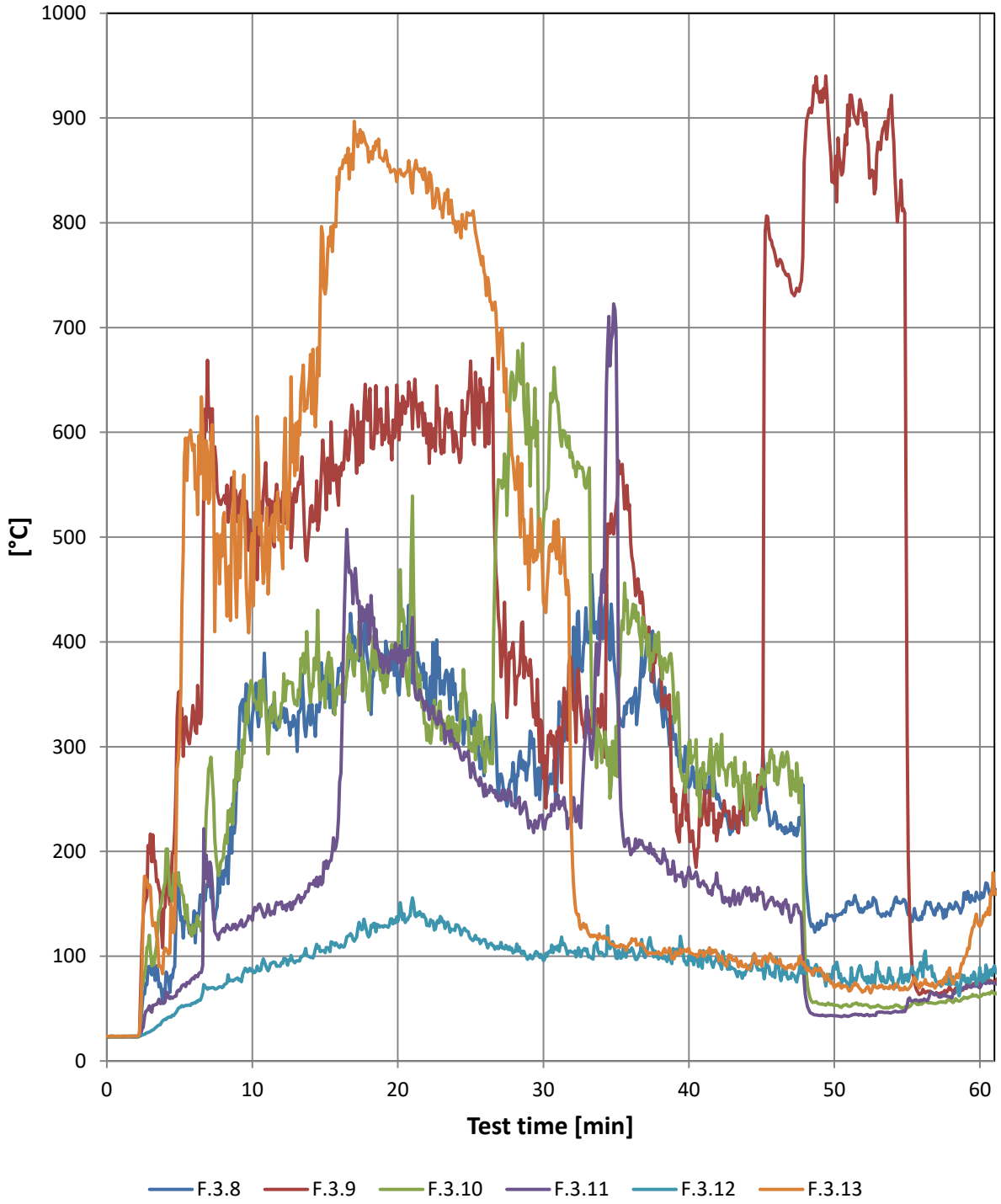
## Horizontal measurements



## 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** | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| **2** | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| **4** | 56 | 156 | 218 | 134 | 89 | 76 | 40 |
| **6** | 54 | 191 | 276 | 121 | 90 | 64 | 57 |
| **8** | 65 | 182 | 269 | 176 | 111 | 85 | 69 |
| **10** | 82 | 184 | 287 | 248 | 141 | 94 | 77 |
| **12** | 83 | 224 | 372 | 278 | 137 | 108 | 83 |
| **14** | 93 | 362 | 495 | 272 | 153 | 106 | 88 |
| **15** | 96 | 247 | 415 | 307 | 152 | 110 | 95 |
| **16** | 93 | 241 | 438 | 436 | 159 | 122 | 100 |
| **18** | 113 | 322 | 605 | 442 | 506 | 150 | 122 |
| **20** | 199 | 719 | 759 | 505 | 409 | 155 | 576 |
| **22** | 228 | 443 | 675 | 310 | 239 | 136 | 307 |
| **24** | 173 | 550 | 733 | 318 | 243 | 137 | 184 |
| **26** | 126 | 554 | 624 | 290 | 248 | 150 | 148 |
| **28** | 96 | 699 | 935 | 385 | 250 | 125 | 96 |
| **30** | 88 | 625 | 877 | 522 | 281 | 148 | 77 |
| **32** | 96 | 538 | 968 | 803 | 260 | 127 | 67 |
| **34** | 96 | 418 | 543 | 758 | 258 | 141 | 69 |
| **36** | 92 | 321 | 421 | 745 | 348 | 130 | 69 |
| **38** | 86 | 49 | 52 | 70 | 95 | 129 | 75 |
| **40** | 85 | 50 | 54 | 98 | 106 | 125 | 81 |
| **42** | 87 | 48 | 53 | 87 | 113 | 123 | 96 |
| **44** | 94 | 47 | 49 | 100 | 114 | 117 | 86 |
| **46** | 98 | 53 | 57 | 109 | 121 | 119 | 96 |
| **48** | 169 | 68 | 67 | 90 | 122 | 108 | 100 |
| **50** | 582 | 74 | 68 | 91 | 118 | 108 | 108 |
| **52** | 816 | 469 | 109 | 96 | 124 | 93 | 157 |
| **54** | 841 | 366 | 171 | 296 | 169 | 90 | 223 |
| **56** | 831 | 315 | 298 | 273 | 187 | 98 | 396 |
| **58** | 677 | 391 | 242 | 229 | 164 | 94 | 489 |
| **60** | 302 | 439 | 290 | 361 | 153 | 104 | 619 |
| **61** | 268 | 447 | 323 | 256 | 174 | 107 | 173 |

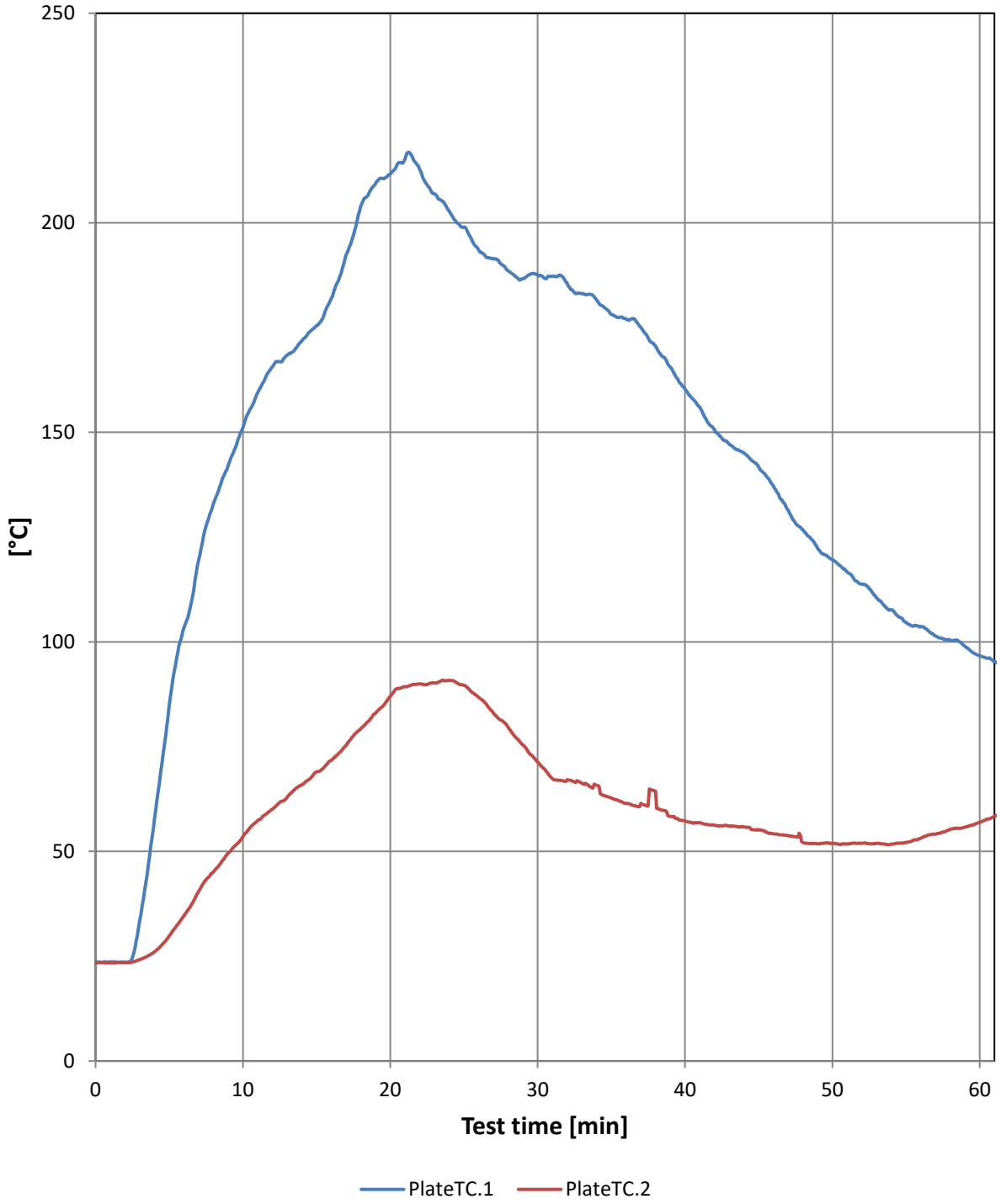
## Horizontal measurments



## Horizontal measurments

| Min. / °C | F.3.8 | F.3.9 | F.3.10 | F.3.11 | F.3.12 | F.3.13 |
|---|---|---|---|---|---|---|
| **0** | 23 | 23 | 23 | 23 | 23 | 24 |
| **2** | 23 | 23 | 23 | 23 | 24 | 24 |
| **4** | 67 | 147 | 171 | 56 | 40 | 108 |
| **6** | 143 | 330 | 122 | 78 | 56 | 588 |
| **8** | 169 | 537 | 194 | 126 | 71 | 519 |
| **10** | 330 | 505 | 359 | 134 | 87 | 504 |
| **12** | 327 | 514 | 341 | 152 | 94 | 491 |
| **14** | 321 | 528 | 342 | 169 | 99 | 675 |
| **15** | 368 | 559 | 337 | 184 | 103 | 732 |
| **16** | 372 | 567 | 358 | 266 | 108 | 852 |
| **18** | 374 | 624 | 335 | 398 | 118 | 858 |
| **20** | 353 | 628 | 383 | 380 | 133 | 848 |
| **22** | 349 | 590 | 306 | 339 | 129 | 829 |
| **24** | 339 | 598 | 322 | 303 | 130 | 791 |
| **26** | 305 | 586 | 275 | 264 | 116 | 750 |
| **28** | 272 | 382 | 631 | 245 | 104 | 559 |
| **30** | 286 | 269 | 516 | 222 | 96 | 437 |
| **32** | 372 | 357 | 577 | 240 | 104 | 188 |
| **34** | 434 | 350 | 285 | 465 | 104 | 118 |
| **36** | 346 | 494 | 417 | 197 | 105 | 113 |
| **38** | 364 | 384 | 378 | 189 | 102 | 102 |
| **40** | 261 | 223 | 304 | 185 | 101 | 108 |
| **42** | 255 | 219 | 285 | 166 | 102 | 100 |
| **44** | 243 | 249 | 225 | 158 | 88 | 88 |
| **46** | 233 | 764 | 280 | 150 | 98 | 94 |
| **48** | 180 | 878 | 99 | 63 | 83 | 90 |
| **50** | 134 | 837 | 53 | 43 | 91 | 70 |
| **52** | 143 | 900 | 53 | 43 | 79 | 66 |
| **54** | 145 | 895 | 51 | 47 | 80 | 70 |
| **56** | 135 | 65 | 54 | 58 | 89 | 72 |
| **58** | 149 | 68 | 58 | 60 | 73 | 81 |
| **60** | 154 | 74 | 62 | 70 | 89 | 128 |
| **61** | 164 | 74 | 64 | 74 | 91 | 160 |

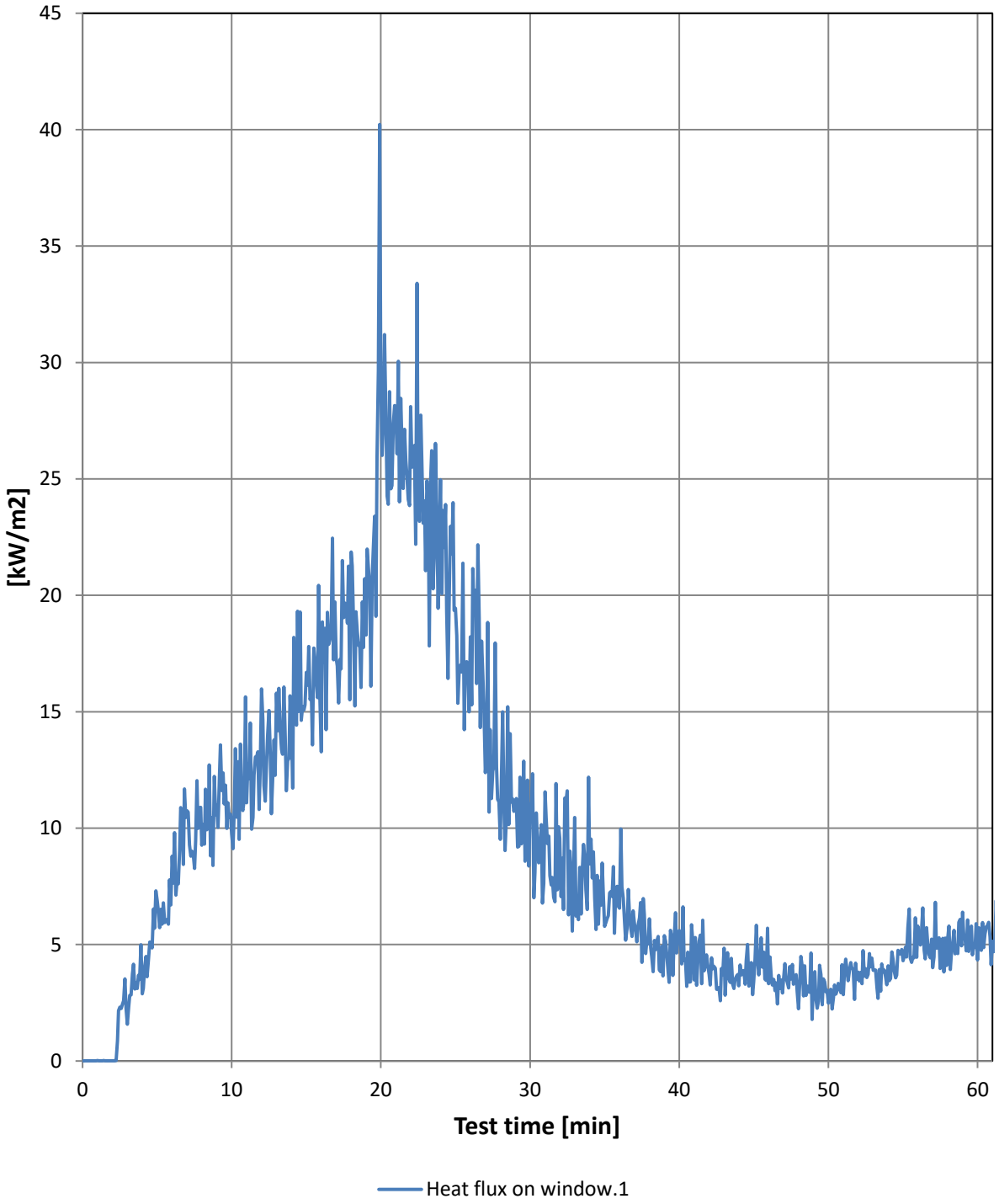
## Plate thermocouple on facade



# Plate thermocouple on facade

| Min. / °C | PlateTC.1 | PlateTC.2 |
|---|---|---|
| **0** | 24 | 23 |
| **2** | 24 | 23 |
| **4** | 58 | 26 |
| **6** | 103 | 35 |
| **8** | 133 | 45 |
| **10** | 151 | 53 |
| **12** | 166 | 60 |
| **14** | 172 | 66 |
| **15** | 175 | 69 |
| **16** | 182 | 72 |
| **18** | 204 | 79 |
| **20** | 212 | 87 |
| **22** | 213 | 90 |
| **24** | 203 | 91 |
| **26** | 193 | 87 |
| **28** | 189 | 80 |
| **30** | 188 | 71 |
| **32** | 186 | 67 |
| **34** | 182 | 66 |
| **36** | 177 | 61 |
| **38** | 171 | 64 |
| **40** | 160 | 57 |
| **42** | 151 | 56 |
| **44** | 145 | 56 |
| **46** | 137 | 54 |
| **48** | 127 | 52 |
| **50** | 120 | 52 |
| **52** | 114 | 52 |
| **54** | 108 | 52 |
| **56** | 104 | 53 |
| **58** | 100 | 55 |
| **60** | 97 | 57 |
| **61** | 95 | 58 |

## Heat flux on window

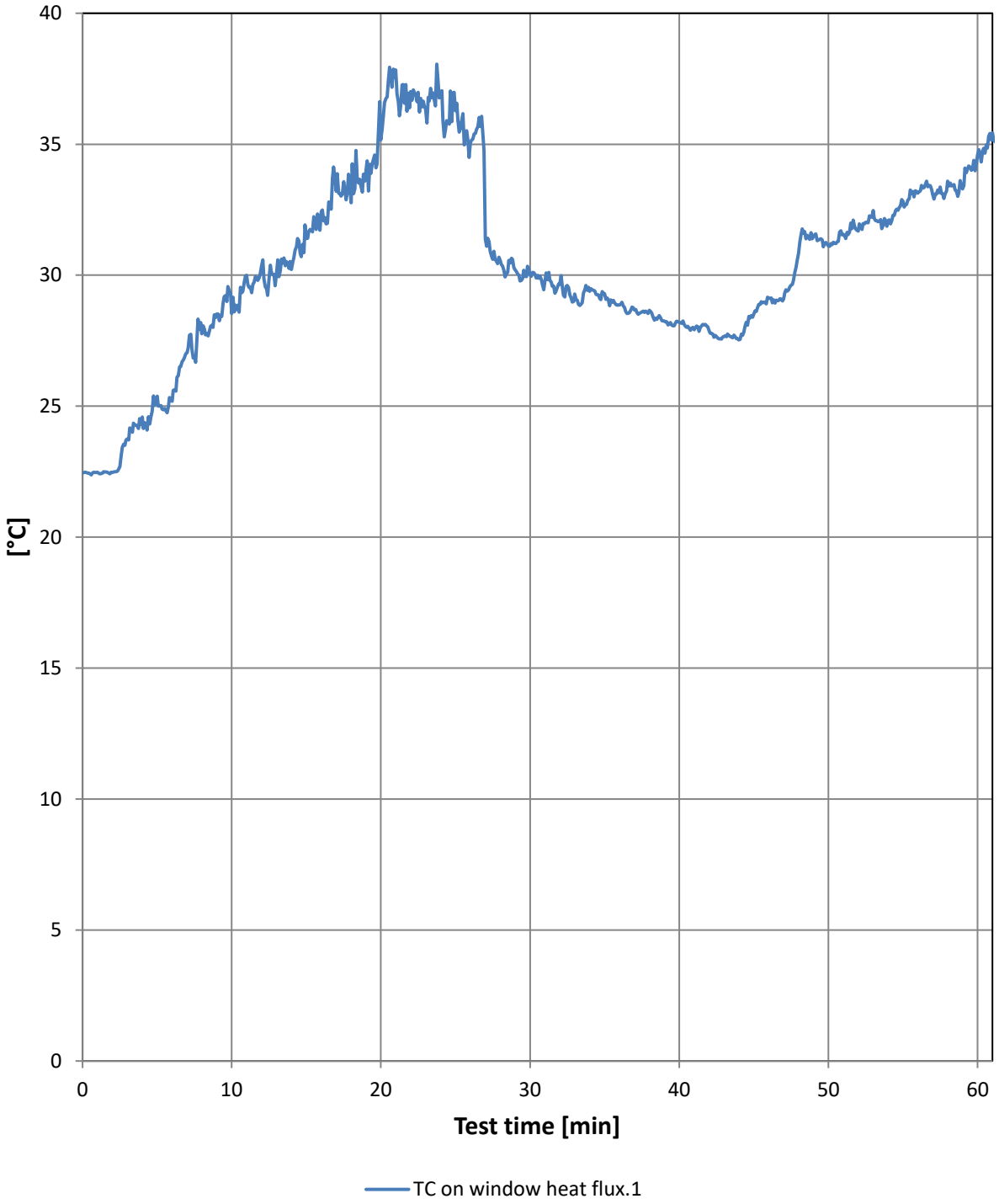


# Heat flux on window

| Min. / kW/m2 | Heat flux on window.1 |
|---|---|
| **0** | 0 |
| **2** | 0 |
| **4** | 3 |
| **6** | 9 |
| **8** | 9 |
| **10** | 10 |
| **12** | 16 |
| **14** | 14 |
| **15** | 17 |
| **16** | 13 |
| **18** | 22 |
| **20** | 30 |
| **22** | 28 |
| **24** | 25 |
| **26** | 18 |
| **28** | 10 |
| **30** | 11 |
| **32** | 10 |
| **34** | 8 |
| **36** | 7 |
| **38** | 6 |
| **40** | 6 |
| **42** | 4 |
| **44** | 3 |
| **46** | 3 |
| **48** | 2 |
| **50** | 2 |
| **52** | 4 |
| **54** | 4 |
| **56** | 6 |
| **58** | 5 |
| **60** | 4 |
| **61** | 5 |

## TC on window heat Flux

*Flux.TC. on window*

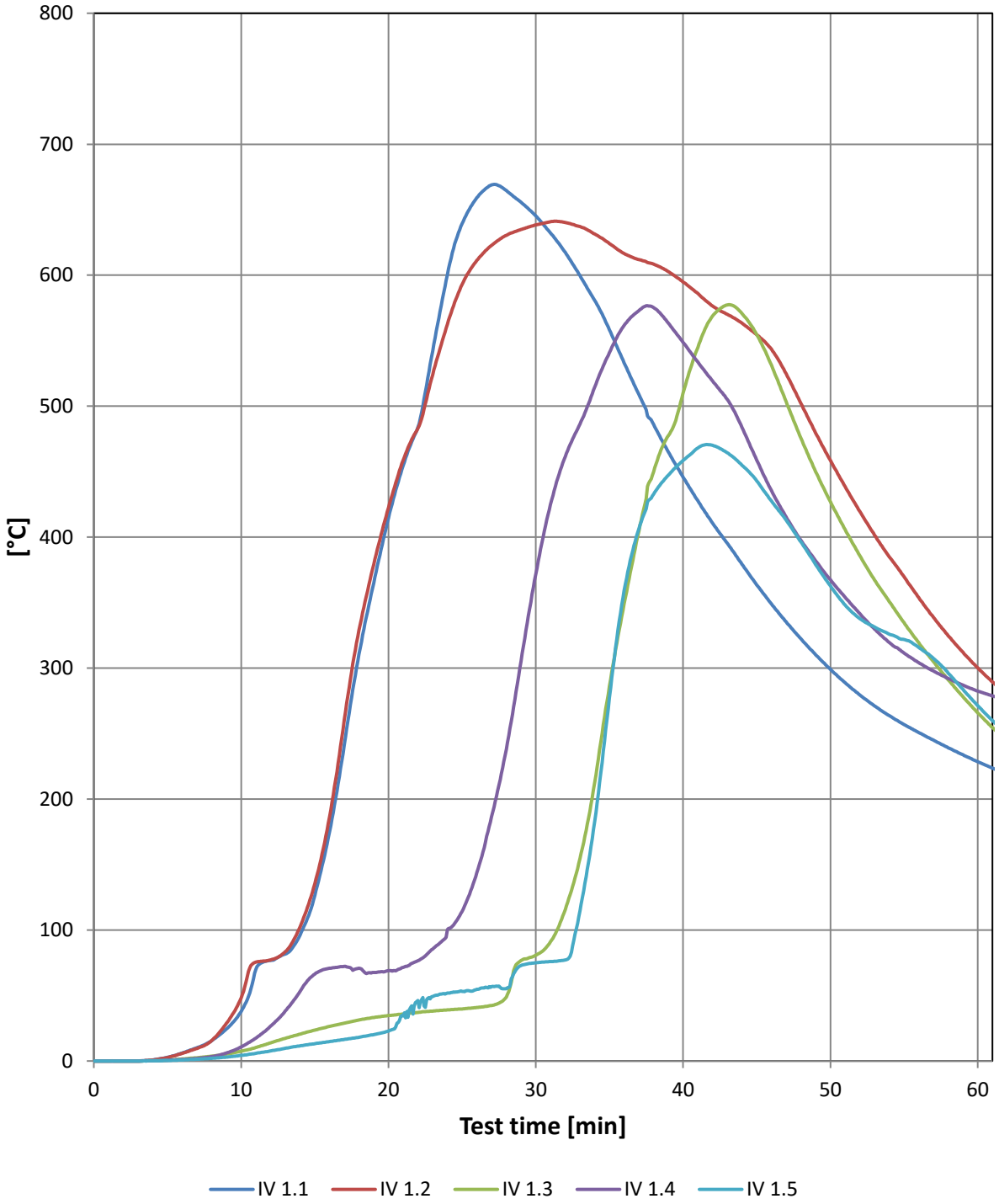


# TC on window heat Flux

*Flux.TC. on window*

| Min. / °C | TC on window heat flux.1 |
|---|---|
| **0** | 22 |
| **2** | 22 |
| **4** | 25 |
| **6** | 25 |
| **8** | 28 |
| **10** | 29 |
| **12** | 30 |
| **14** | 30 |
| **15** | 31 |
| **16** | 32 |
| **18** | 33 |
| **20** | 35 |
| **22** | 37 |
| **24** | 37 |
| **26** | 35 |
| **28** | 31 |
| **30** | 30 |
| **32** | 30 |
| **34** | 29 |
| **36** | 29 |
| **38** | 29 |
| **40** | 28 |
| **42** | 28 |
| **44** | 28 |
| **46** | 29 |
| **48** | 31 |
| **50** | 31 |
| **52** | 32 |
| **54** | 32 |
| **56** | 33 |
| **58** | 34 |
| **60** | 35 |
| **61** | 35 |

## 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.Max |
|---|---|---|---|---|---|---|
| **0** | 0 | 0 | 0 | 0 | 0 | 0 |
| **2** | 0 | 0 | 0 | 0 | 0 | 0 |
| **4** | 1 | 1 | 0 | 0 | 0 | 1 |
| **6** | 6 | 6 | 2 | 1 | 1 | 6 |
| **8** | 16 | 16 | 4 | 3 | 2 | 16 |
| **10** | 38 | 48 | 7 | 11 | 4 | 48 |
| **12** | 77 | 77 | 14 | 27 | 8 | 77 |
| **14** | 96 | 103 | 21 | 53 | 12 | 103 |
| **15** | 127 | 136 | 24 | 66 | 13 | 136 |
| **16** | 175 | 186 | 26 | 71 | 15 | 186 |
| **18** | 310 | 329 | 31 | 71 | 18 | 329 |
| **20** | 414 | 422 | 35 | 69 | 23 | 422 |
| **22** | 484 | 483 | 37 | 76 | 46 | 484 |
| **24** | 600 | 563 | 39 | 100 | 52 | 600 |
| **26** | 659 | 611 | 41 | 144 | 55 | 659 |
| **28** | 665 | 630 | 49 | 238 | 55 | 665 |
| **30** | 645 | 638 | 81 | 371 | 75 | 645 |
| **32** | 617 | 640 | 116 | 462 | 77 | 640 |
| **34** | 581 | 631 | 213 | 515 | 183 | 631 |
| **36** | 533 | 616 | 349 | 562 | 359 | 616 |
| **38** | 486 | 608 | 450 | 575 | 433 | 608 |
| **40** | 446 | 595 | 510 | 549 | 459 | 595 |
| **42** | 411 | 576 | 569 | 519 | 470 | 576 |
| **44** | 379 | 563 | 571 | 484 | 455 | 571 |
| **46** | 349 | 543 | 531 | 435 | 428 | 543 |
| **48** | 322 | 502 | 476 | 398 | 396 | 502 |
| **50** | 299 | 459 | 427 | 367 | 363 | 459 |
| **52** | 279 | 420 | 386 | 342 | 338 | 420 |
| **54** | 264 | 385 | 351 | 319 | 326 | 385 |
| **56** | 251 | 354 | 319 | 304 | 316 | 354 |
| **58** | 239 | 325 | 291 | 292 | 296 | 325 |
| **60** | 229 | 300 | 266 | 282 | 271 | 300 |
| **61** | 224 | 289 | 255 | 279 | 260 | 289 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Failure [min] | 22.33 | 22.42 | 39.75 | 33.50 | - | 22.33 |
| Failure°C | 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 Connection between prefabricated cassettes.

Photo No. 5 Steel flashing around window mounted.

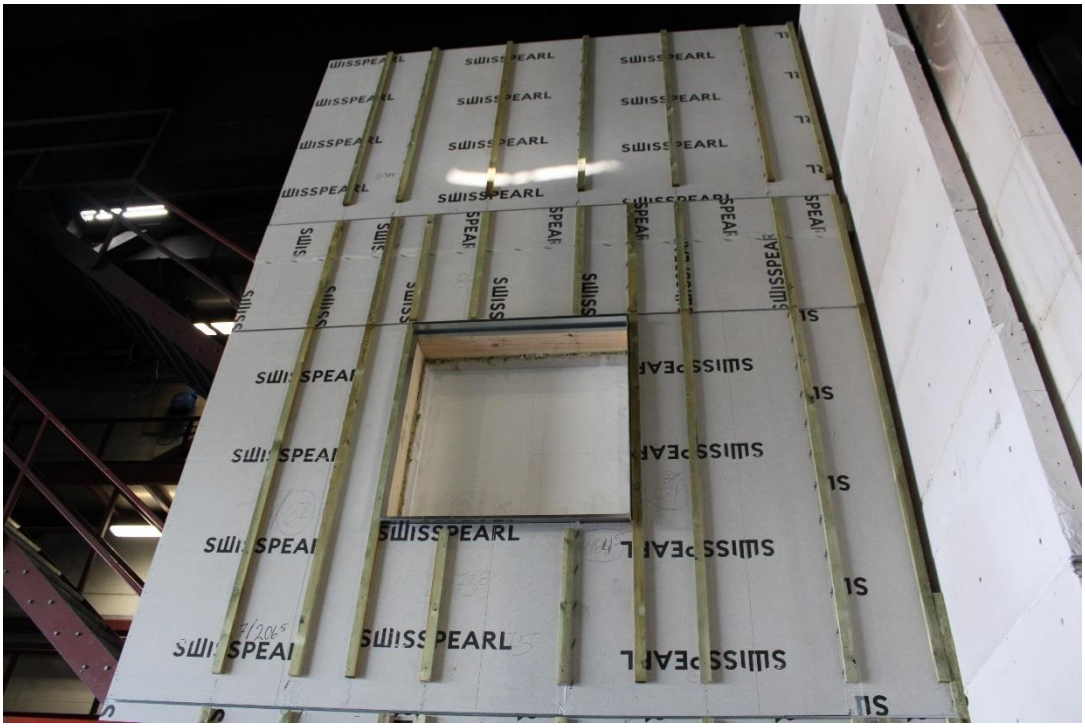


Photo No. 6 Vertical formwork mounted with room for flame deflector.

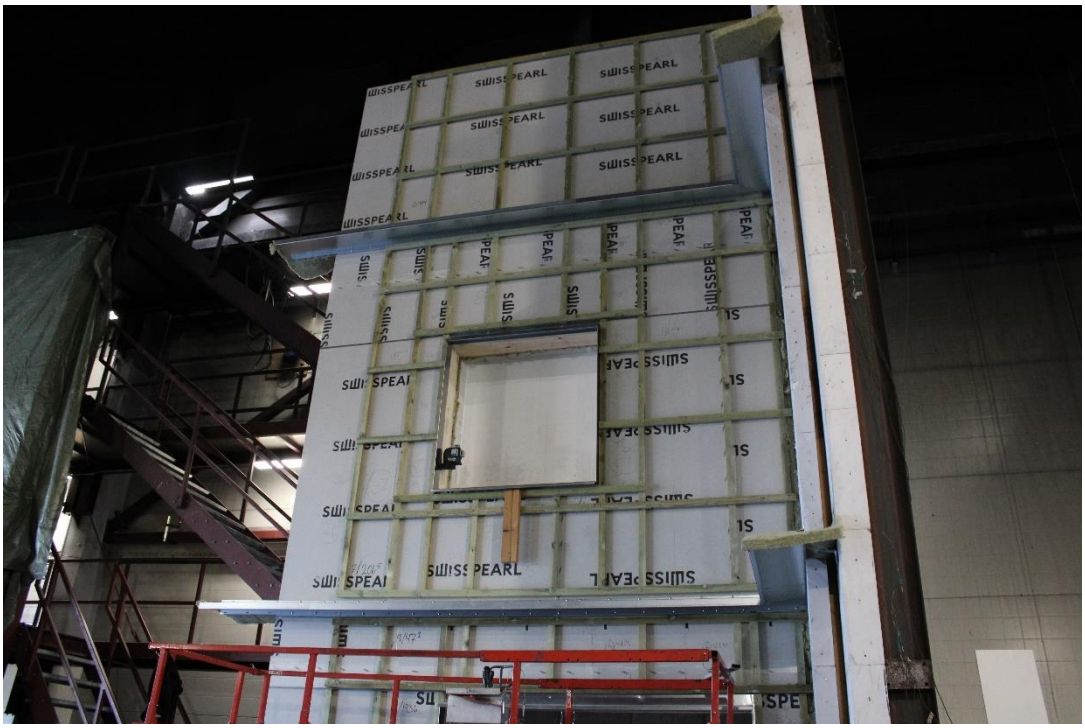



Photo No. 7 Horizontal formwork and flame deflector mounted.

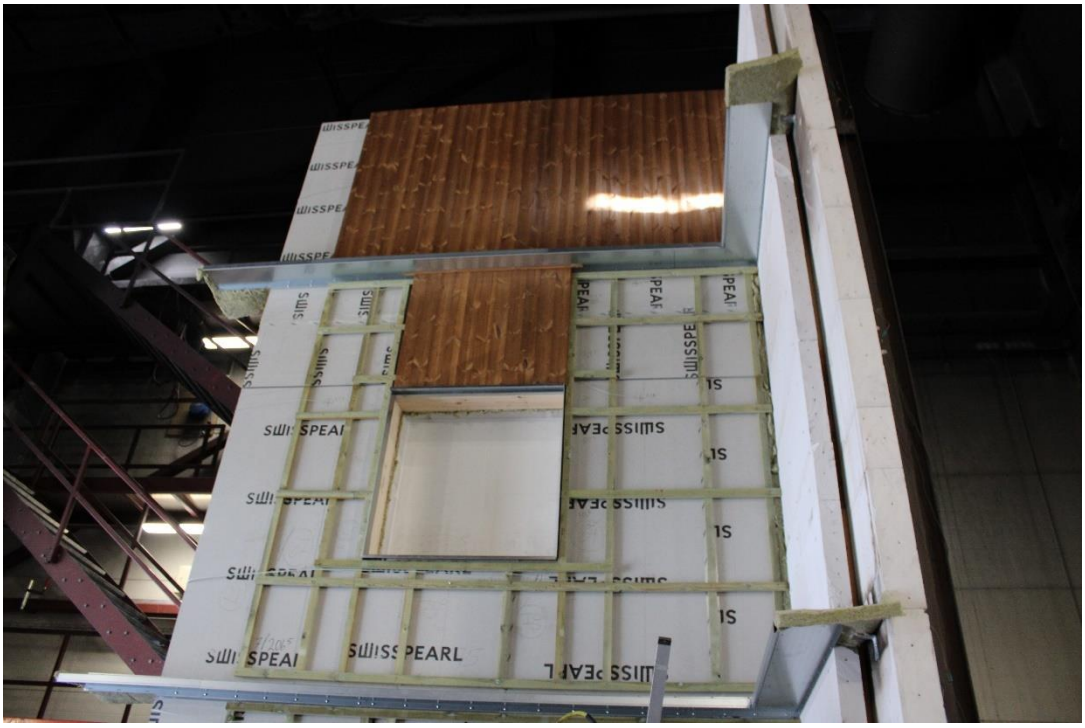



Photo No. 8 Vertical cladding is mounted.

Photo No. 9 Vertical cladding mounting done. Insulation inside flame deflectors mounted.

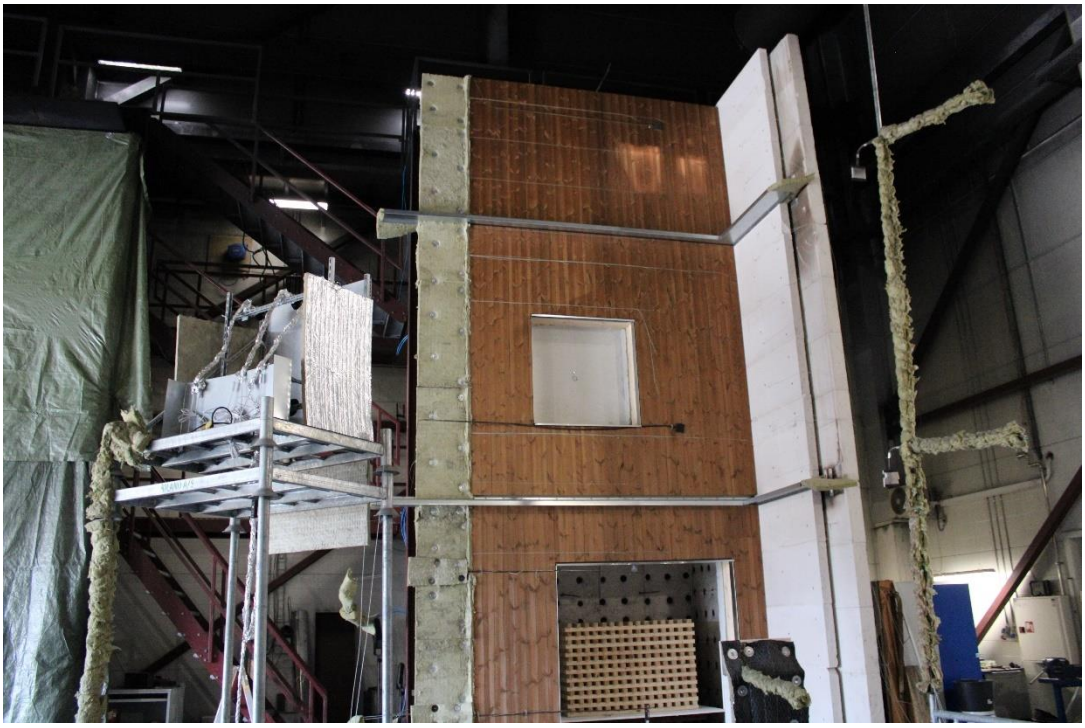


Photo No. 10 Test specimen before test start.

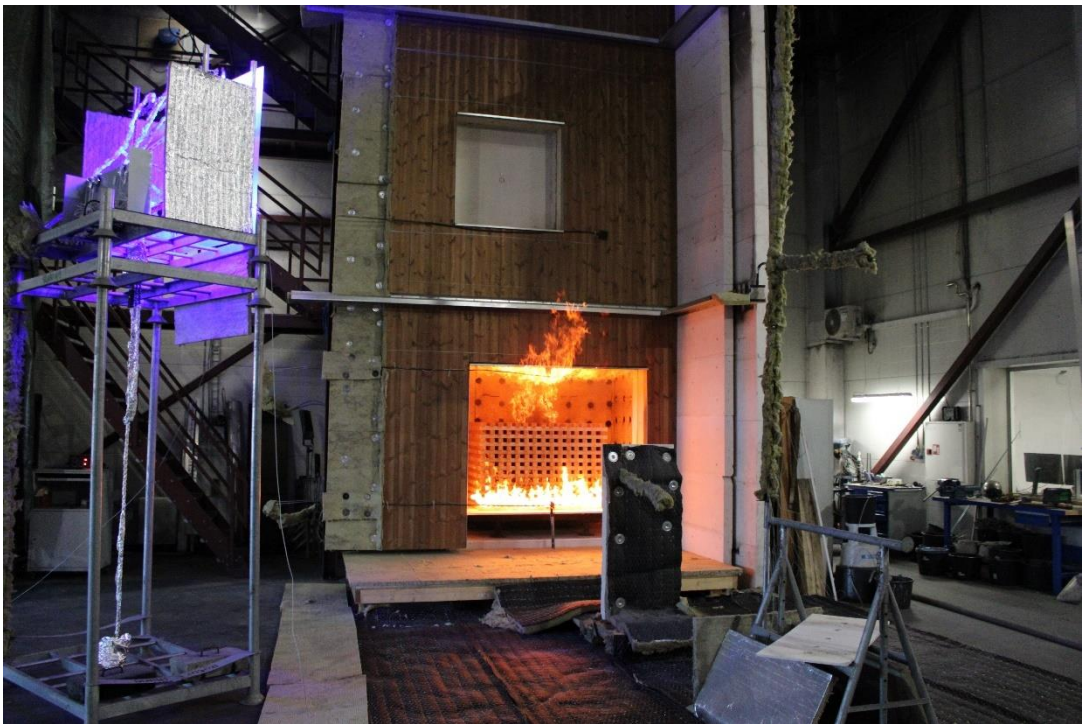


Photo No. 11 Test specimen 10 seconds into the test.

Photo No. 12 Test specimen 1:30 minutes into the test.


Photo No. 13 Test specimen 3:30 minutes into the test.


Photo No. 14 Test specimen 6 minutes into the test.

Photo No. 15 Test specimen 8 minutes into the test.

Photo No. 16 Test specimen 13 minutes into the test.

Photo No. 17 Test specimen 19 minutes into the test.

Photo No. 18 Test specimen 25 minutes into the test.

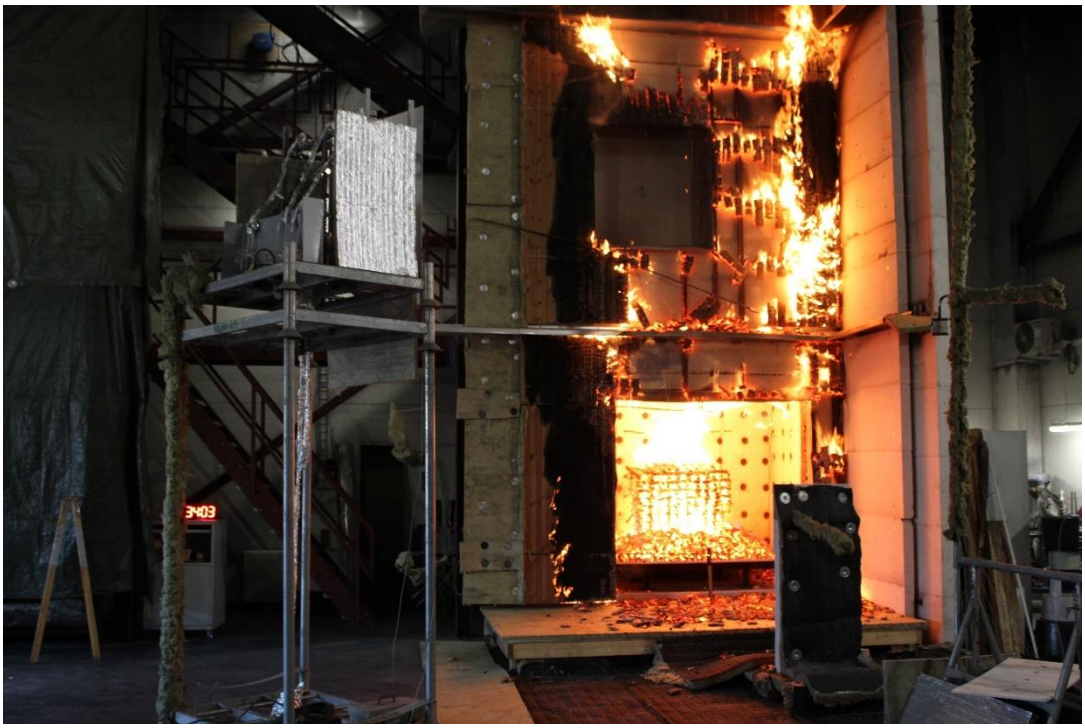



Photo No. 19 Test specimen 34 minutes into the test.

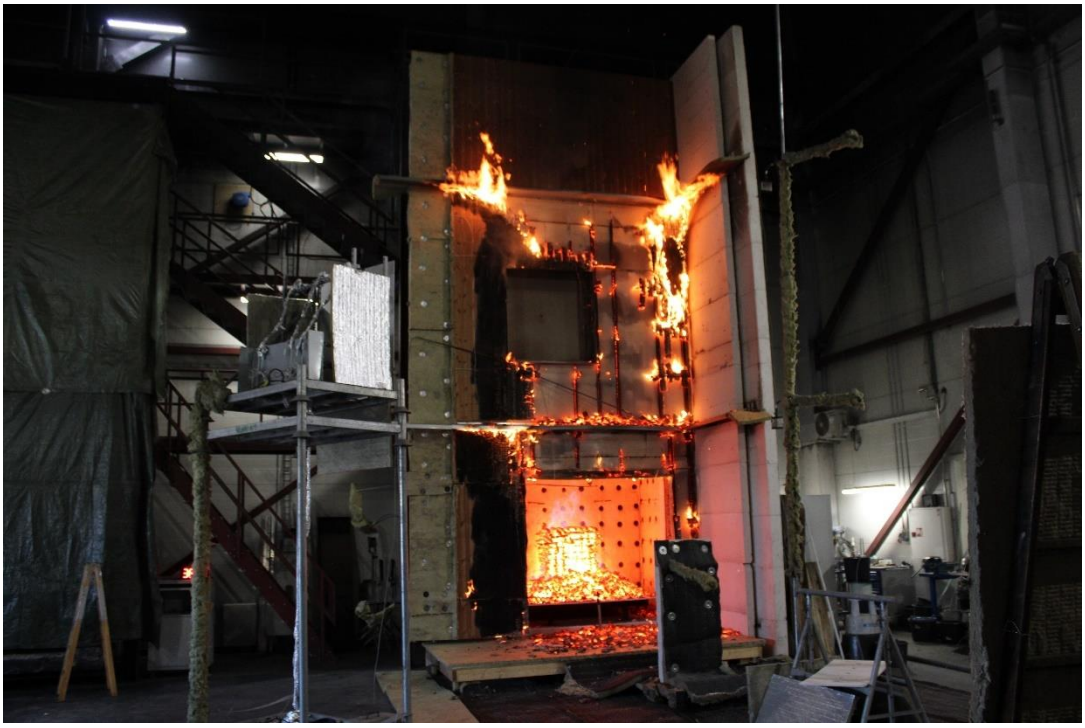


Photo No. 20 Test specimen 36 minutes into the test.

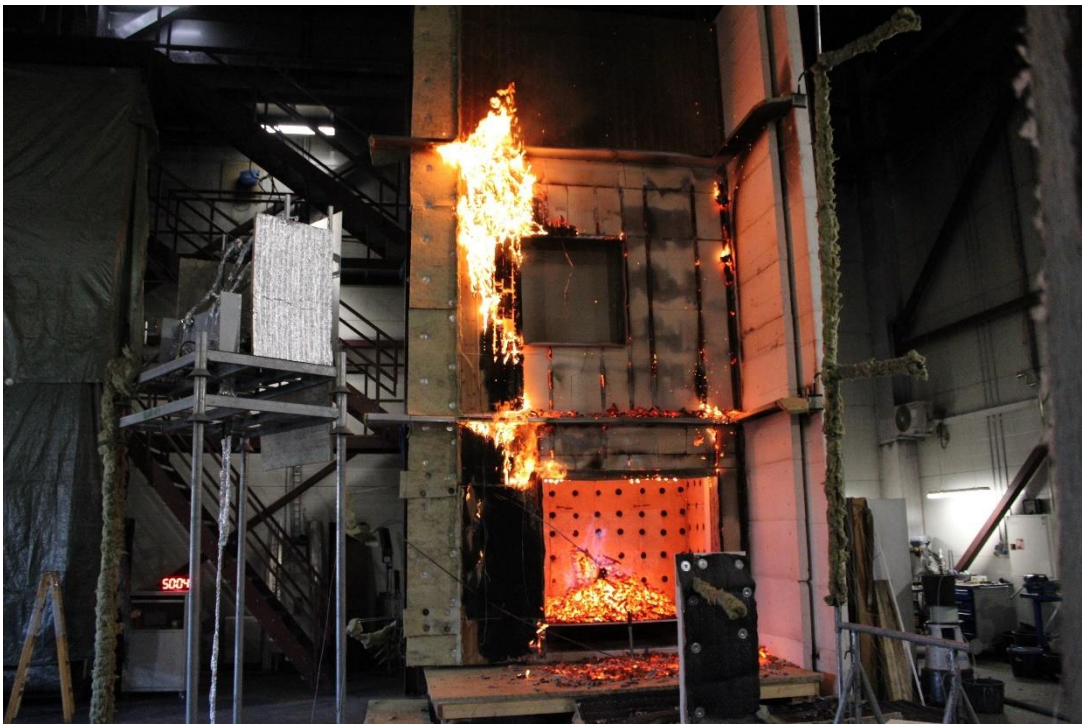


Photo No. 21 Test specimen 50 minutes into the test.

Photo No. 22 Test specimen 56 minutes into the test.

Photo No. 23 Test specimen 60 minutes into the test.

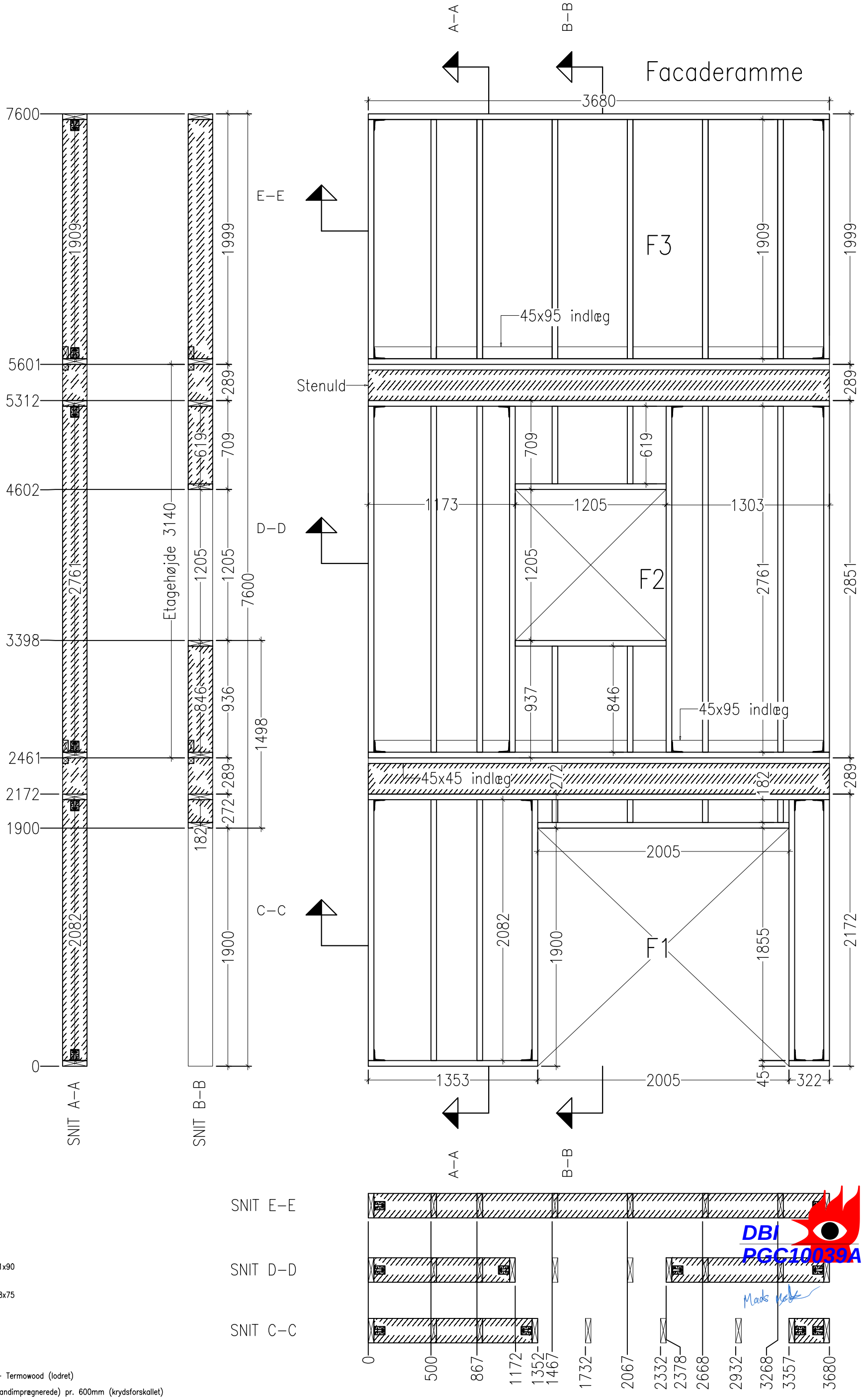
Photo No. 24 Test specimen after the test.

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

Photo No. 26 Test specimen after the test. Detailed photo of edge of burn specimen.

Photo No. 27 Test specimen after the test. Detailed photo below the second flame deflector.

Photo No. 28 Test specimen after the test. Detailed photo of the 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 (brandimprægnerede) pr. 600mm (krydsforskallet)

9mm Swisspearl Windstopper Extreme

45x195mm stoplekonstruktion pr. 600mm

195mm Stenuld (isolering kl 37)

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

Revisionstekst:

A) Element ændret til version som BFUH 7

DBI
PGC10039A

Mads

BFUH-9 Facadetest ved DBI - Test 1

Gældende

Facaderamme

BYGHERRE:
Fælledby
–
–

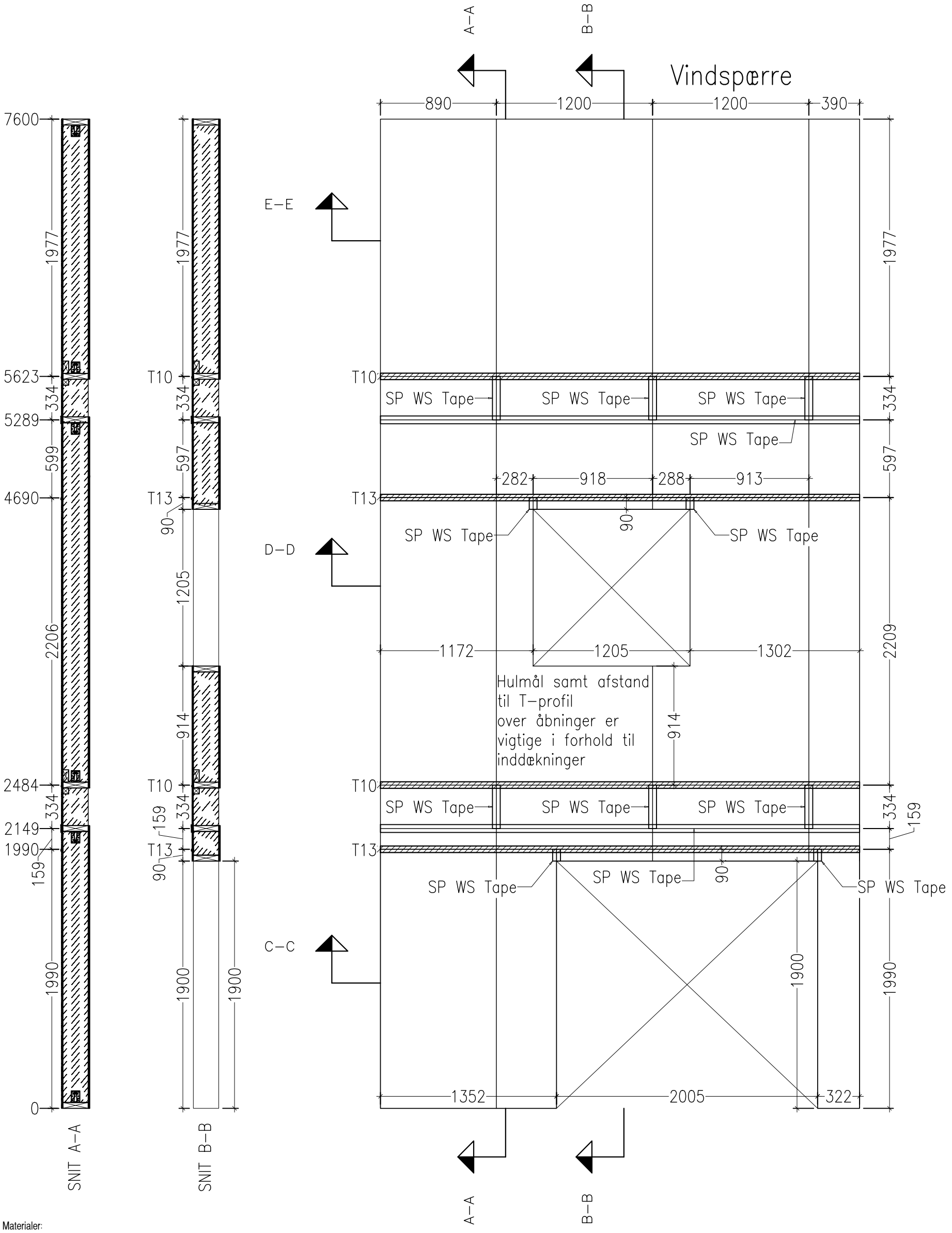
DATO: 2024-08-01 REV. NR/DATO: A 2024-08-14

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\BFUH-9 Mock-Up_Test 1.dwg




Materialer:

Vindspærre:

9 mm Swisspearl Windstopper Extreme 1200x3000

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 Stenuld kl 37

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

Generelt:

–

Opbygning:

22mm Frøslev klinkeprofil – Termowood (lodret)

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

9mm Swisspearl Windstopper Extreme

45x195mm stoplekonstruktion pr. 600mm

195mm Stenuld (isolering kl 37)

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

Revisionstekst:

A) Element ændret til version som BFUH 7

SNIT E–E

SNIT D–D

SNIT C–C

DBI
PGC10039A

Mads Mølle

BFUH-9 Facadetest ved DBI - Test 1

Gældende

Vindspærre

BYGHERRE:
Fælledby
–
–

DATO: 2024-08-01 REV. NR/DATO: A 2024-08-14

ANSV: CMA MÅL: 1:30 ANTAL: –

TEGN.NR: 2

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

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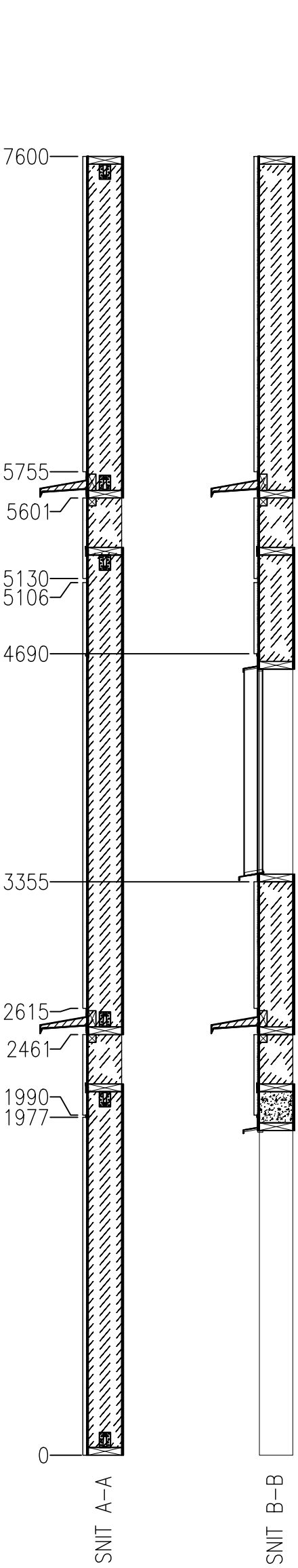


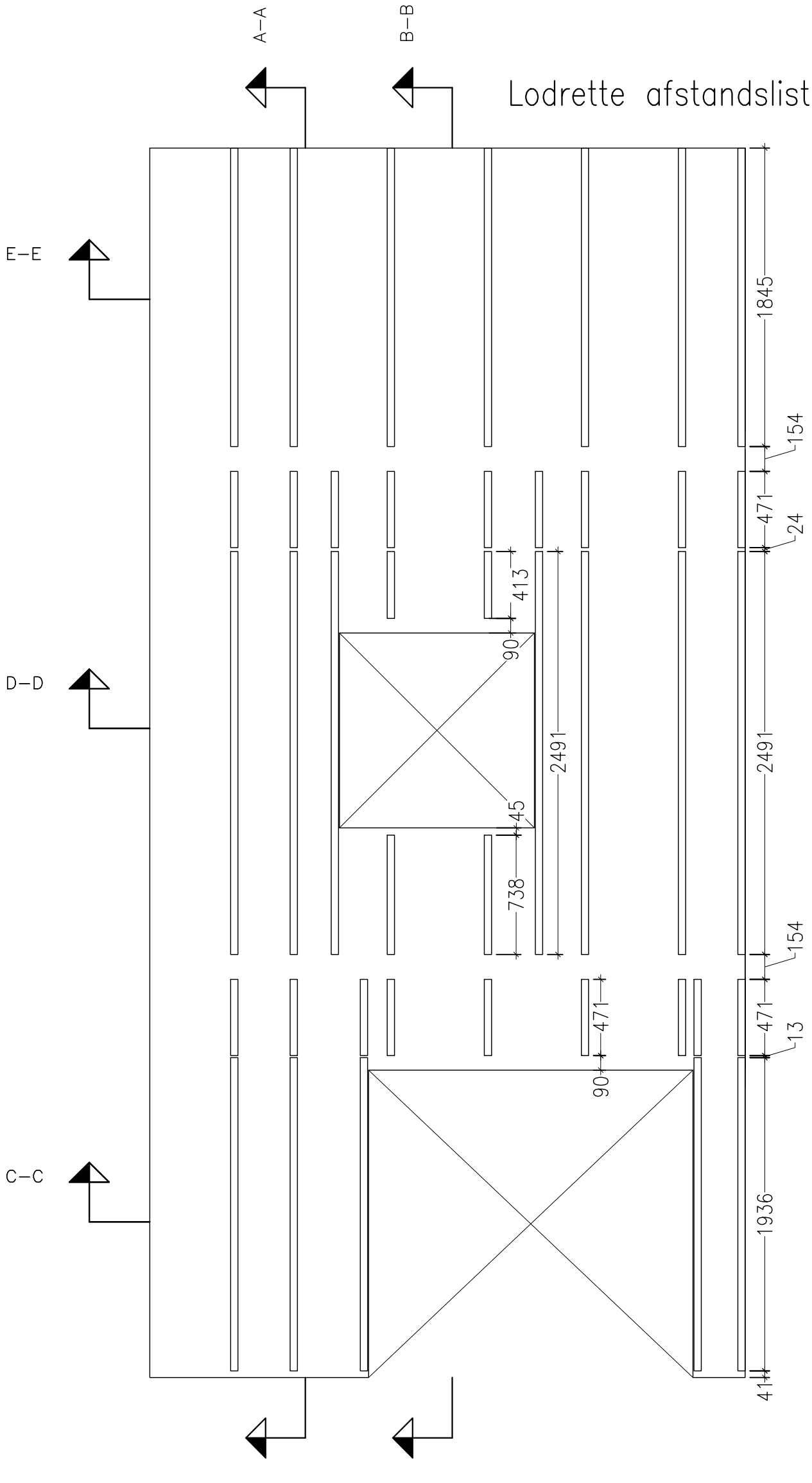


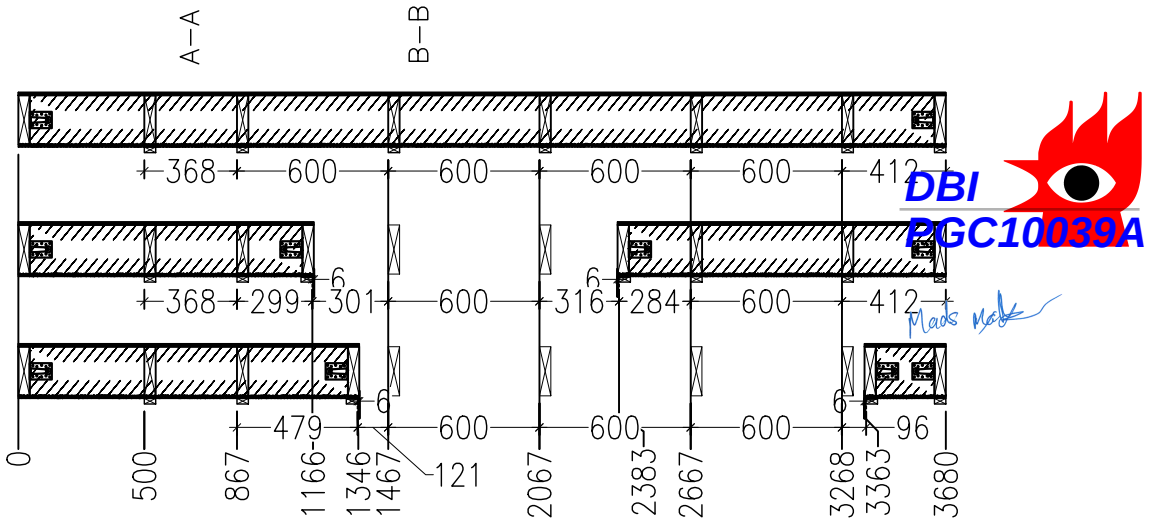


SNIT E–E

SNIT D–D

SNIT C–C

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 (brandimprægnerede) pr. 600mm (krydsforskallet)
9mm Swisspearl Windstopper Extreme
45x195mm stoplekonstruktion pr. 600mm
195mm Stenuld (isolering kl 37)
195mm Stenuld (isolering kl 37) (over vinduer og i lukkestykker)

Revisionstekst:

A) Element ændret til version som BFUH 7
B)

DBI
PGC10039A

BFUH-9 Facadetest ved DBI - Test 1

Gældende

L Afstandslister

BYGHERRE:
Fælledby
–
–

DATO: 2024-08-01 REV. NR/DATO: A 2024-08-14
ANSV: CMA MÅL: 1:30 ANTAL: –
TEGN.NR: 3

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

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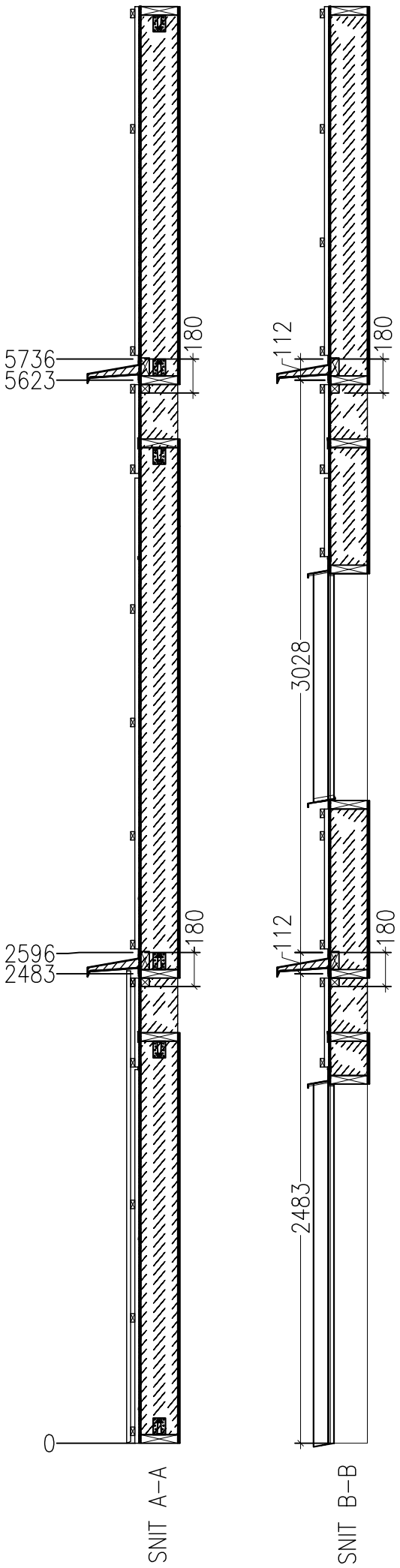
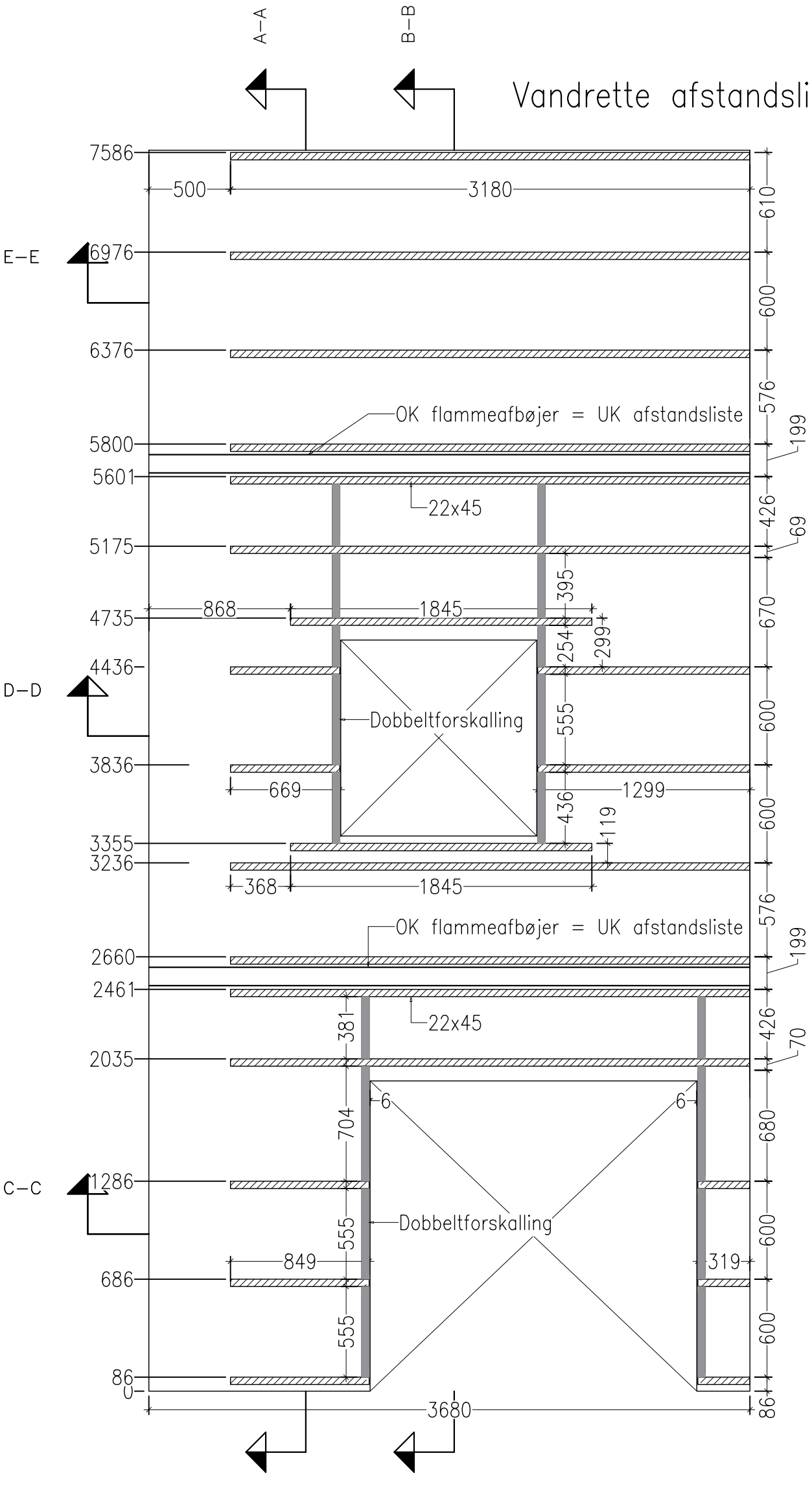
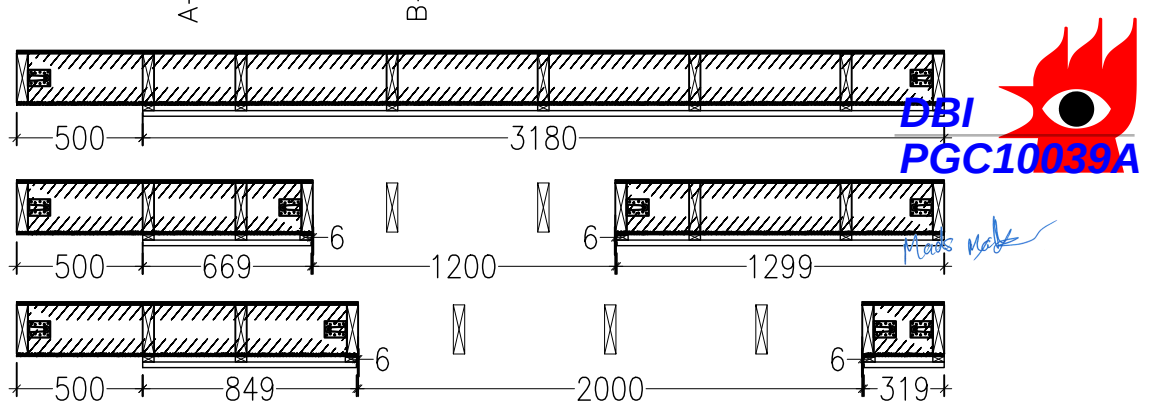



DBI
PGC10039A

Materialer:

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

Generelt:

–

Opbygning:

22mm Frøslev klinkeprofil – Termowood (lodret)
22x45mm Afstandslister (brandimprægnerede) pr. 600mm (krydsforskallet)
9mm Swisspearl Windstopper Extreme
45x195mm stoplekonstruktion pr. 600mm
195mm Stenuld (isolering kl 37)
195mm Stenuld (isolering kl 37) (over vinduer og i lukkestykker)

Revisionstekst:

A) Element ændret til version som BFUH 7
B)

BFUH-9 Facadetest ved DBI - Test 1 — Gældende

V Afstandslister

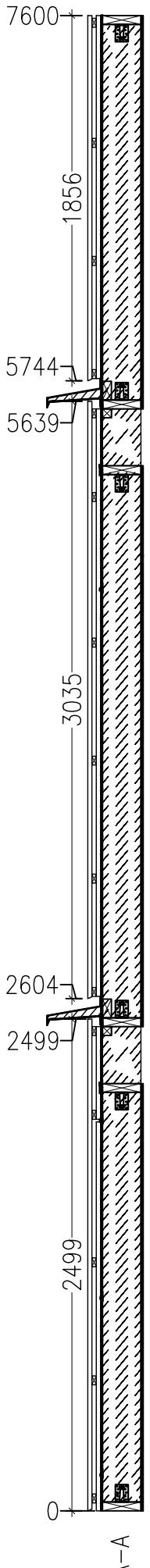
BYGHERRE:
Fælledby
–
–

DATO: 2024-08-01 REV. NR/DATO: A 2024-08-14
ANSV: CMA MÅL: 1:30 ANTAL: –
TEGN.NR: 4

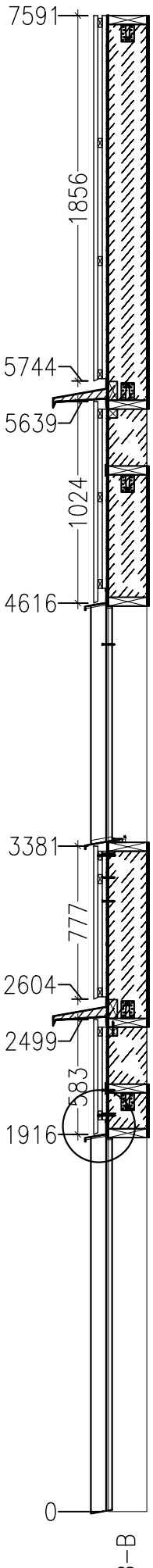
BM Byggeindustri Lupinvej 18 - 9500 Hobro - Tlf. +45 9852 1744

K:\031_Teknisk\02 Brand\Fælledby Brandtest\BFUH-9 Mock-Up_Test 1.dwg

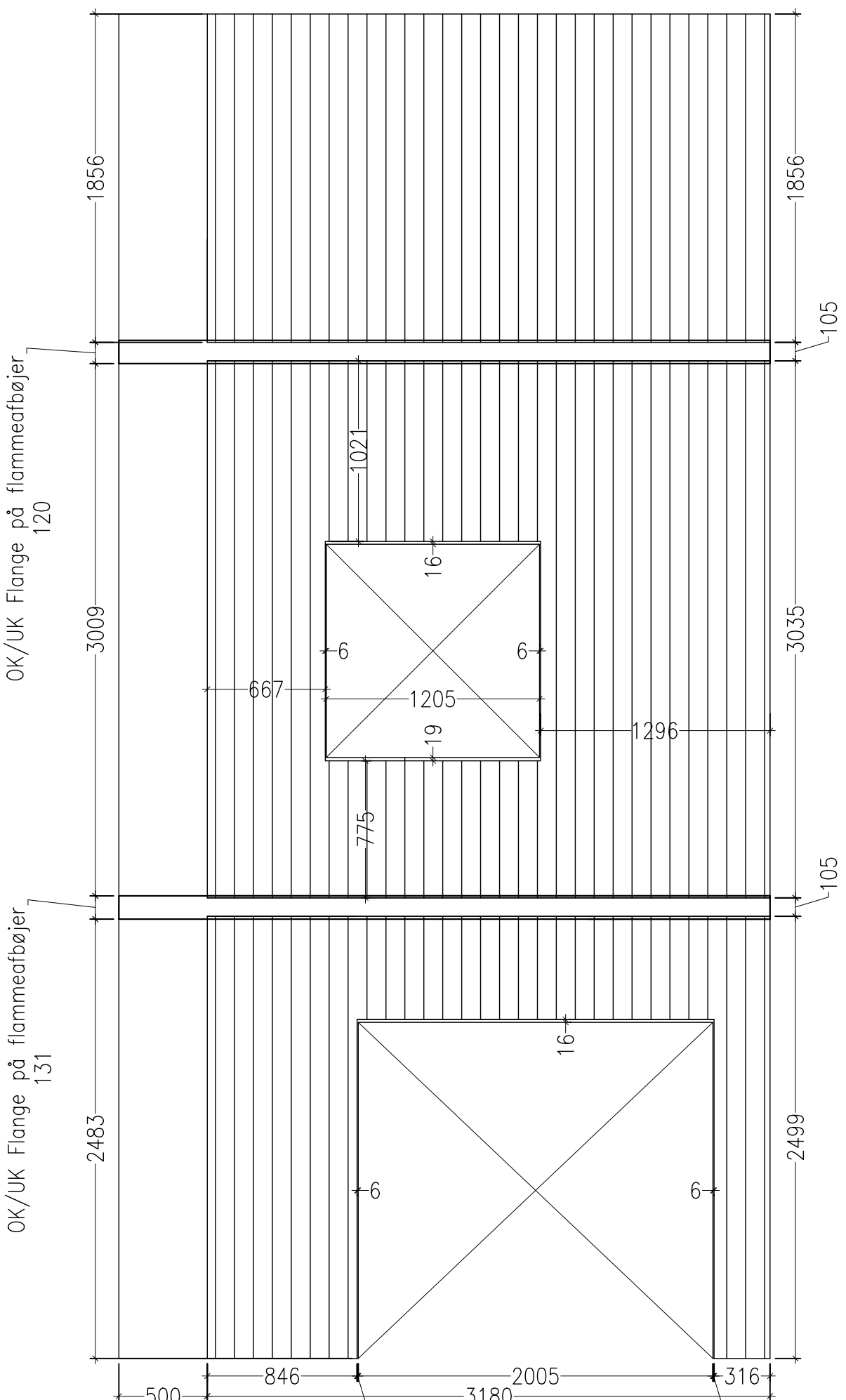
# Facade




SNIT A–A



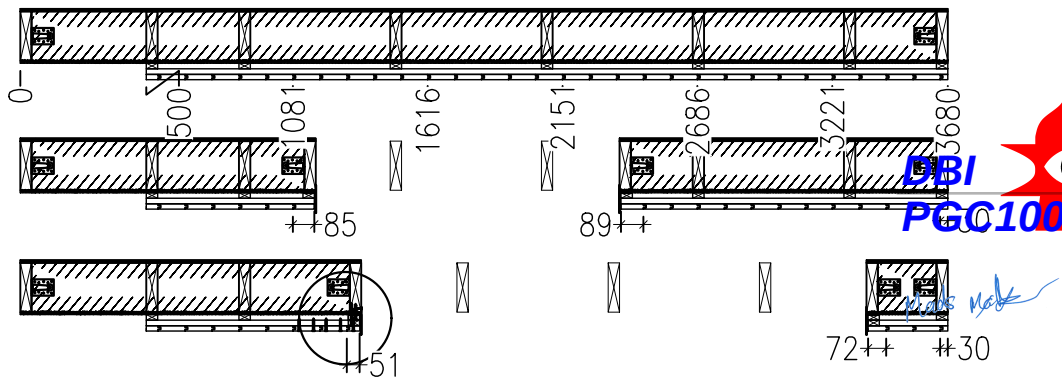

SNIT B–B




SNIT E–E

SNIT D–D

SNIT C–C




Materialer:

22mm Frøslev klinkeprofil – Termowood (lodret) LBM:

Rundhovedet rustfri A4 pistolsøm 2,5x50

Generelt:

–

Opbygning:

22mm Frøslev klinkeprofil – Termowood (lodret)

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

9mm Swisspearl Windstopper Extreme

45x195mm stoplekonstruktion pr. 600mm

195mm Stenuld (isolering kl 37)

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

Revisionstekst:

A) Element ændret til version som BFUH 7

DBI
PGC10039A

BFUH-9 Facadetest ved DBI - Test 1

Gældende

Facadebeklædning

BYGHERRE:
Fælledby
–
–

DATO: 2024-08-01 REV. NR/DATO: A 2024-08-14

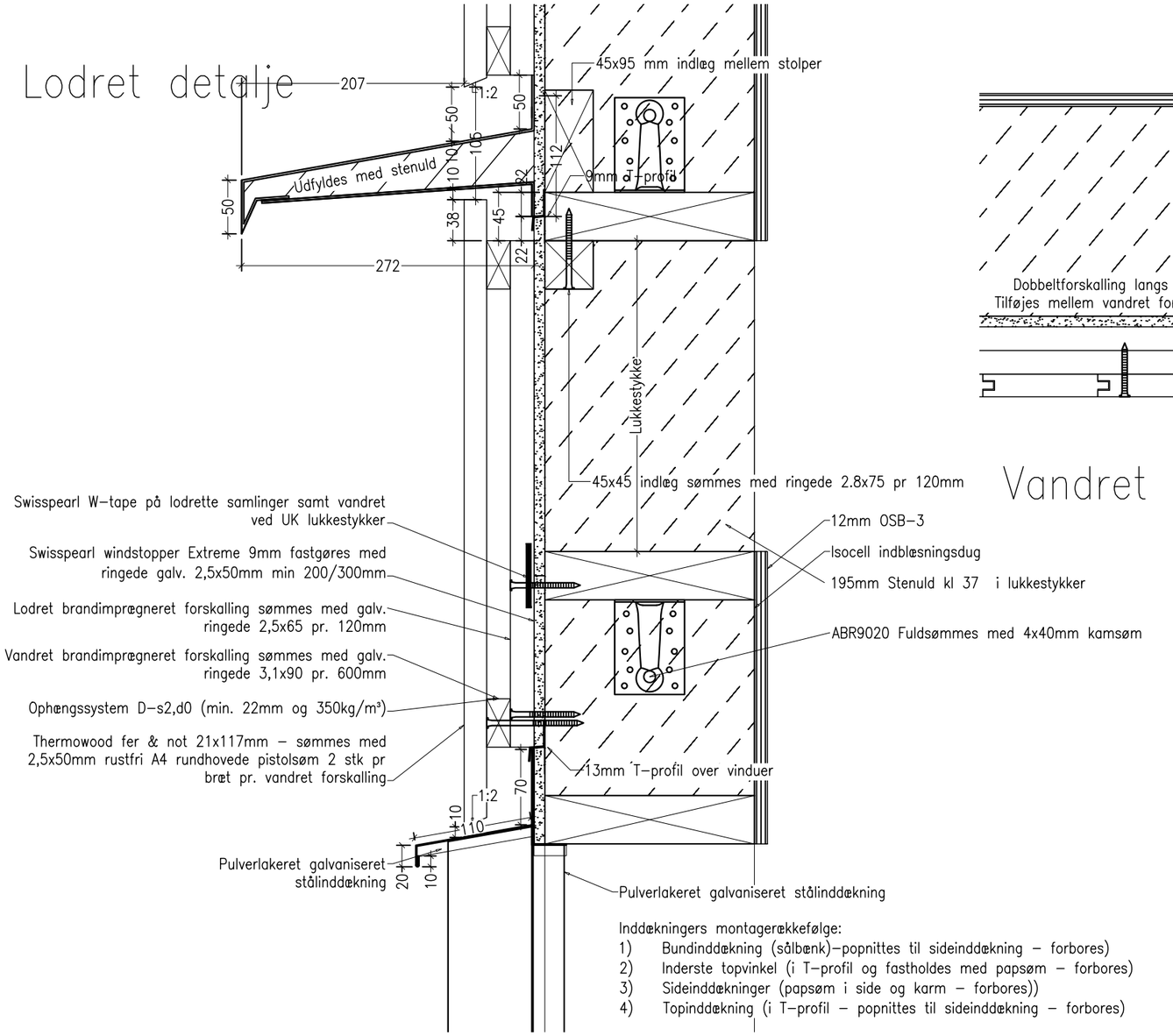
ANSV: CMA MÅL: 1:30 ANTAL: –

TEGN.NR: 5

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

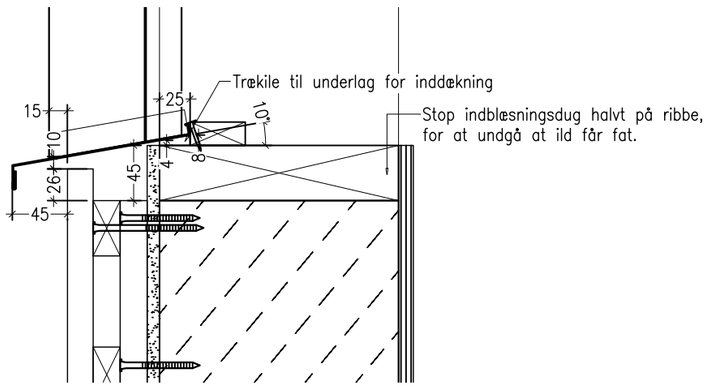
K:\031_Teknisk\02 Brand\Fælledby Brandtest\BFUH-9 Mock-Up_Test 1.dwg

# Lodret detalje

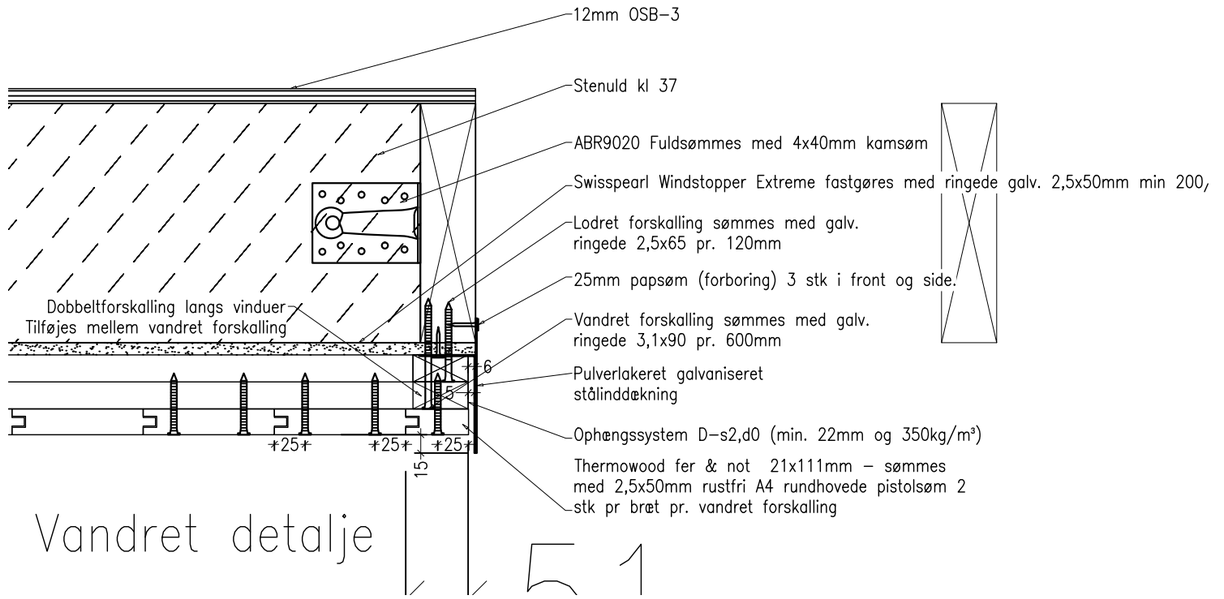


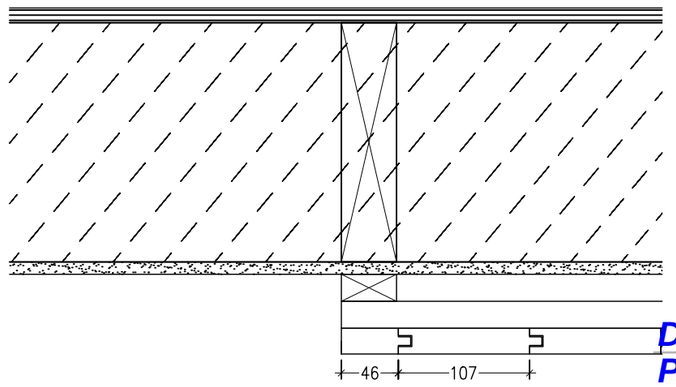

Inddækningers montagerækkefølge:

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




DBI
PGC10039A

Mads Mark

BFUH-9 Facadetest ved DBI - Test 1

Gældende

Detaljer

DATO: 2024-08-01 REV. NR/DATO: A 2024-08-14

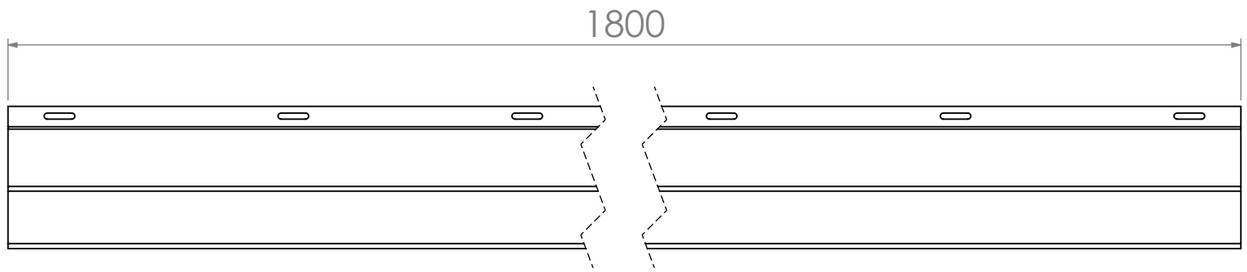
BYGHERRE: Fælledby - -

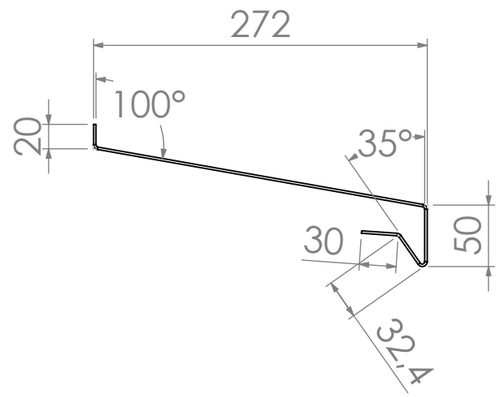
ANSV: CMA MÅL: 1:5 ANTAL: -

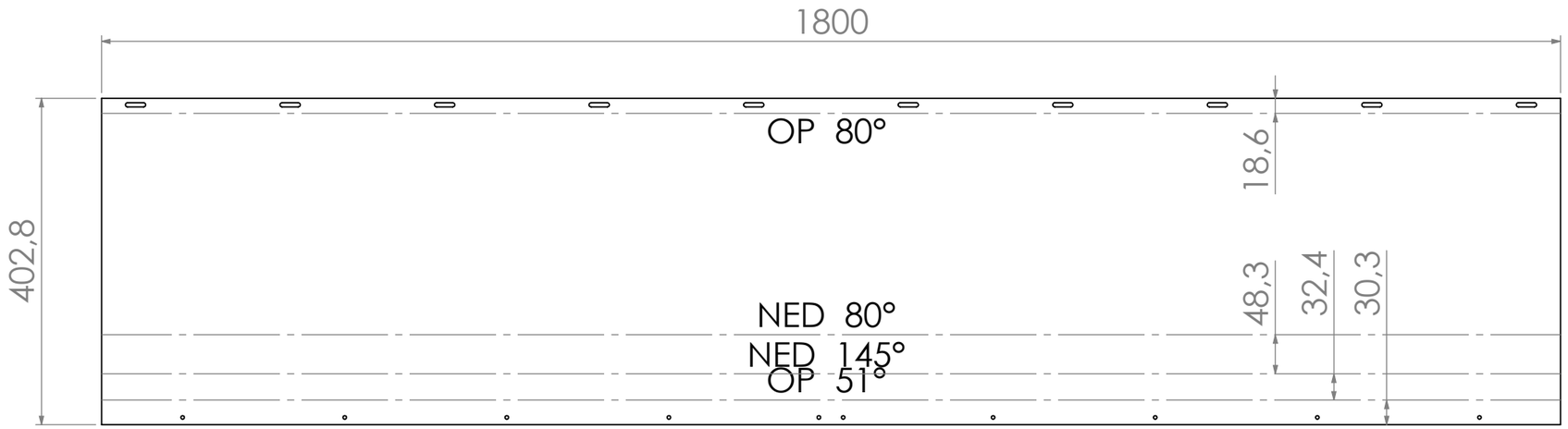
TEGN.NR: DE01-03

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

K:\031_Teknisk\02 Brand\Fælledby Brandtest\BFUH-9 Mock-Up_Test 1.dwg




SCALE 1 : 7

DBI
PGC10039A

OV: R1
UV: Spor 12
BT: 0,5 mm

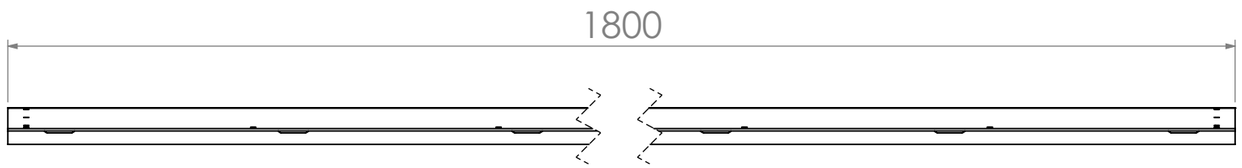
| | NAME | DATE |
|---|---|---|
| DRAWN | casper | 14-08-2024 |

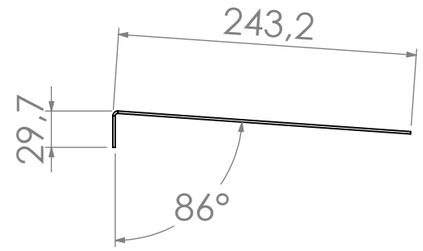
Hvor intet andet er angivet, er tolerancer i henhold til DS/ISO 2768-1(m)
Alle mål er i millimeter, medmindre andet er angivet.
Tegningen må ikke skaleres.

GLADSAXE KLIP & BUK

Folder name: X:\Facadeplan\BFUH-8\
Customer:
TITLE: 2 mm plade

MATERIAL: DX51D Z275 (Varm-Galv)
DWG NO. GKB-122142-10
REVISION
WEIGHT: 20383.22
SCALE:1:5
A3
SHEET 1 OF 1







SCALE 1 : 7

DBI
PGC10039A

Mads Mak

OV: R1
UV: Spor 12
BT: 0,5 mm

| | NAME | DATE |
|---|---|---|
| DRAWN | casper | 14-08-2024 |
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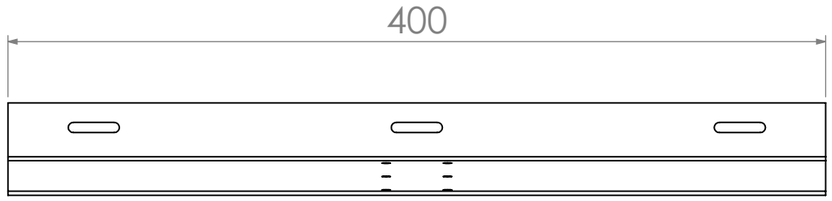
Hvor intet andet er angivet, er tolerancer i henhold til DS/ISO 2768-1(m)
Alle mål er i millimeter, medmindre andet er angivet.
Tegningen må ikke skaleres.

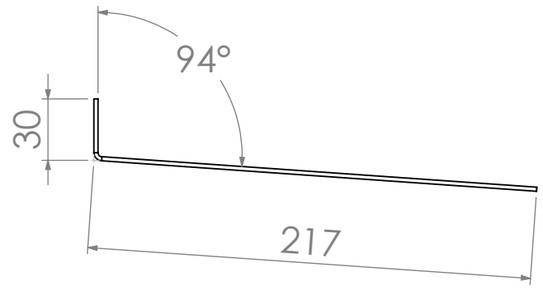
GLADSAXE KLIP & BUK

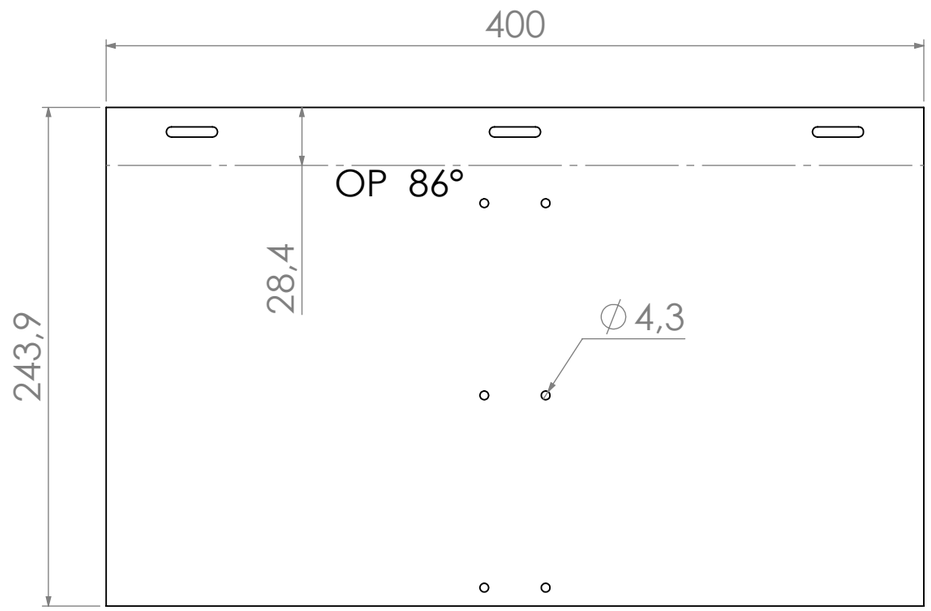
Folder name: X:\Facadeplan\BFUH-8\
Customer:
TITLE: 2 mm plade

MATERIAL: DX51D Z275 (Varm-Galv)
DWG NO. GKB-122142-20
REVISION

WEIGHT: 20383.22
SCALE:1:5
A3
SHEET 1 OF 1




DBI
PGC10039A

Mads Mølk

OV: R1
UV: Spor 12
BT: 0,5 mm

| | NAME | DATE |
|---|---|---|
| DRAWN | casper | 15-08-2024 |

GLADSAXE KLIP & BUK

Folder name: X:\Facadeplan\BFUH-8\

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.

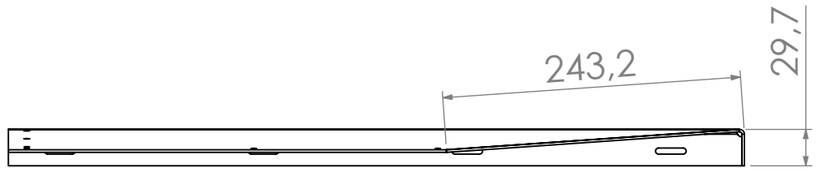
MATERIAL: DX51D Z275 (Varm-Galv)

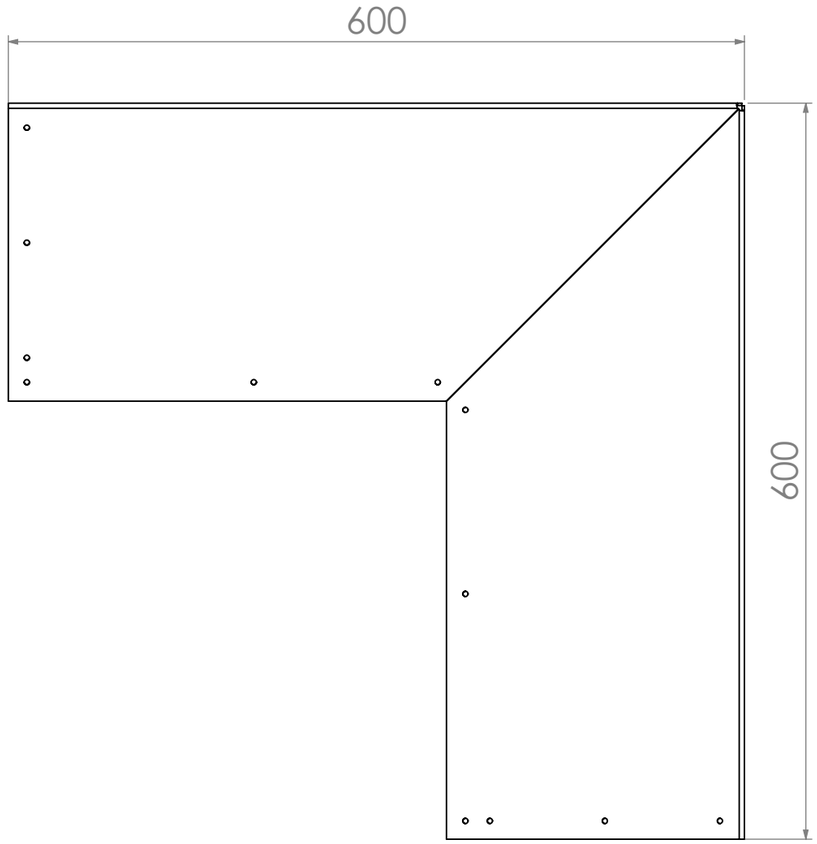
DWG NO. GKB-122142-30

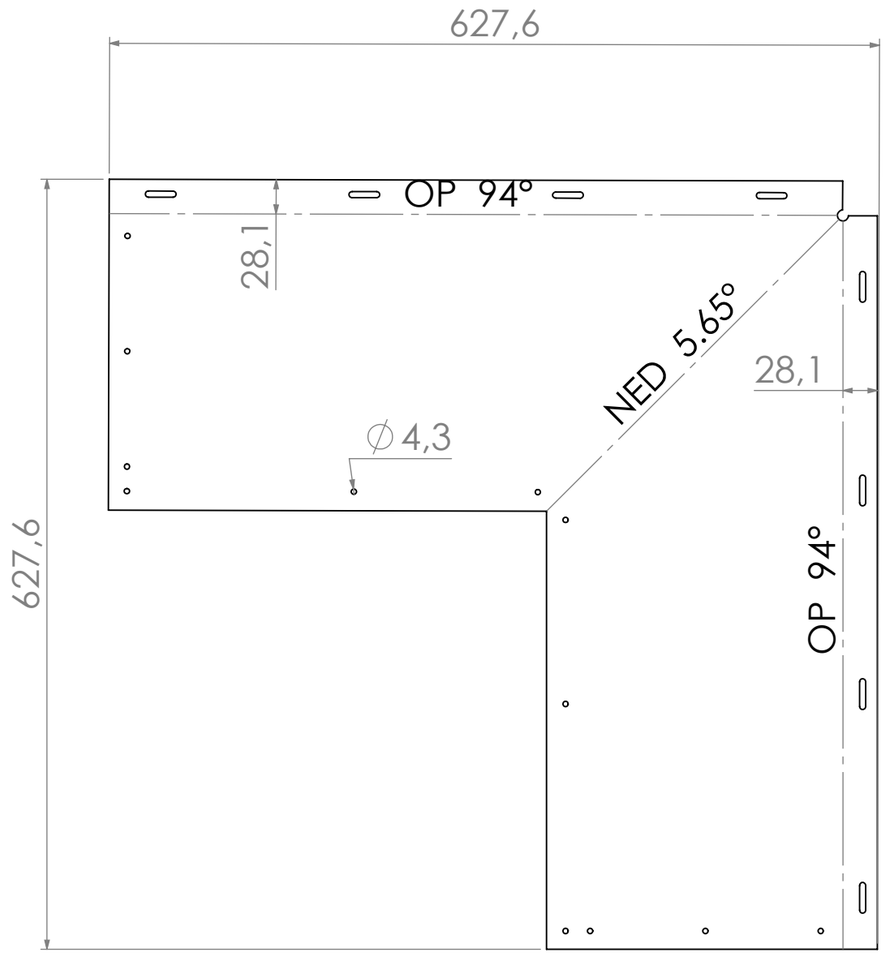
REVISION

WEIGHT: 20383.22

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




DBI
PGC10039A

Mads Mølk

OV: R1
UV: Spor 12
BT: 0,5 mm

| | NAME | DATE |
|---|---|---|
| DRAWN | casper | 14-08-2024 |
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| | | |

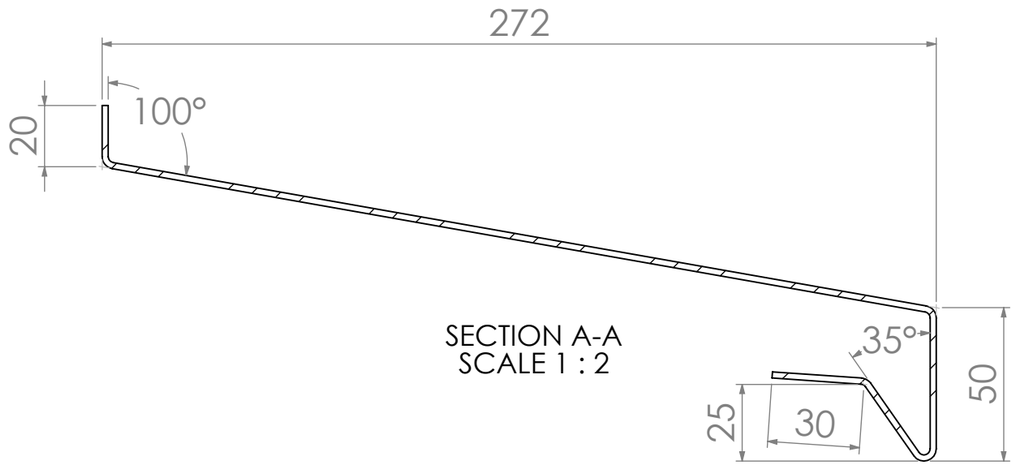
Hvor intet andet er angivet, er tolerancer i henhold til DS/ISO 2768-1(m)
Alle mål er i millimeter, medmindre andet er angivet.
Tegningen må ikke skaleres.

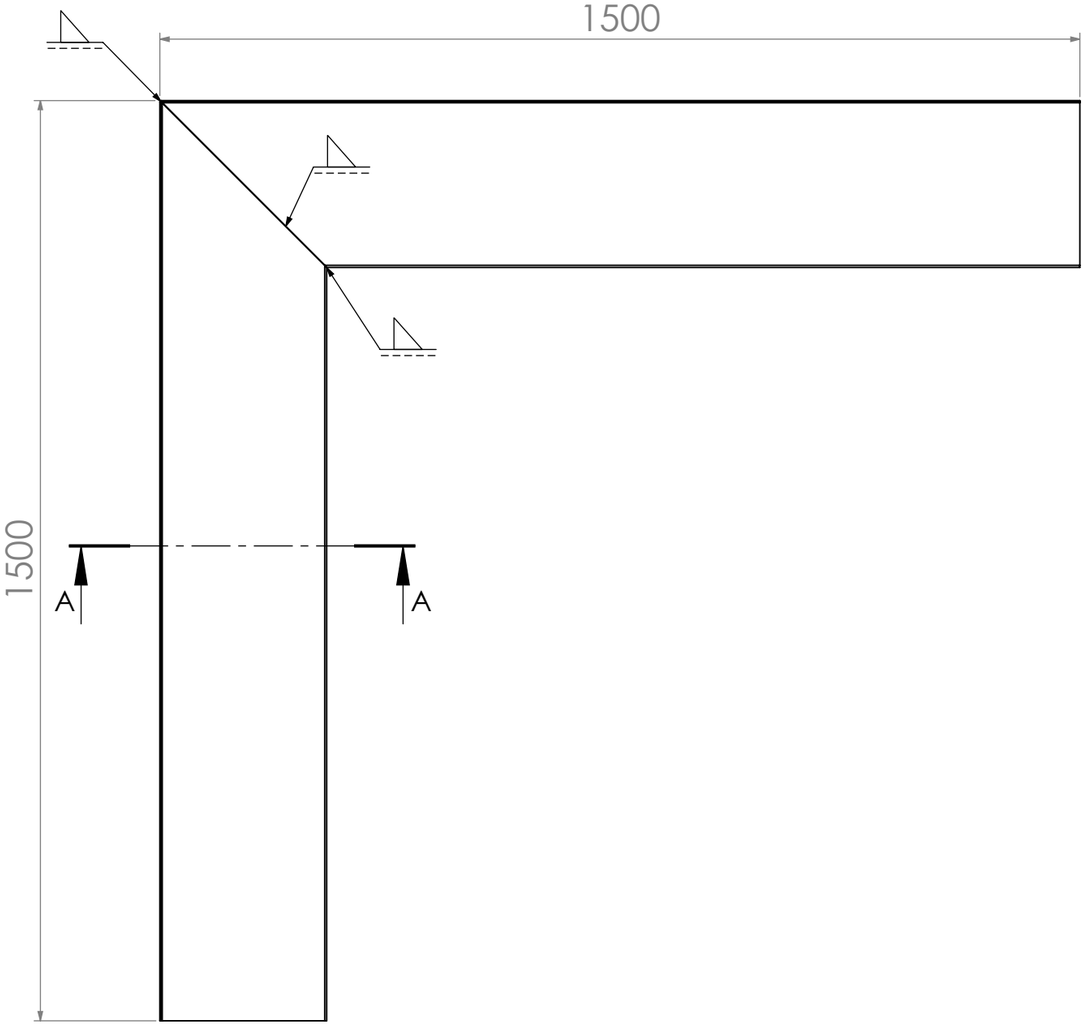
GLADSAXE KLIP & BUK

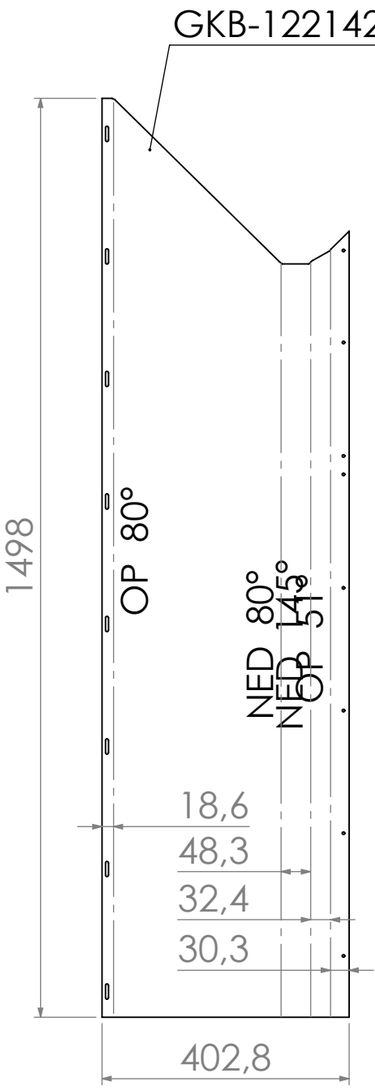
Folder name: X:\Facadeplan\BFUH-8\
Customer:
TITLE: 2 mm plade

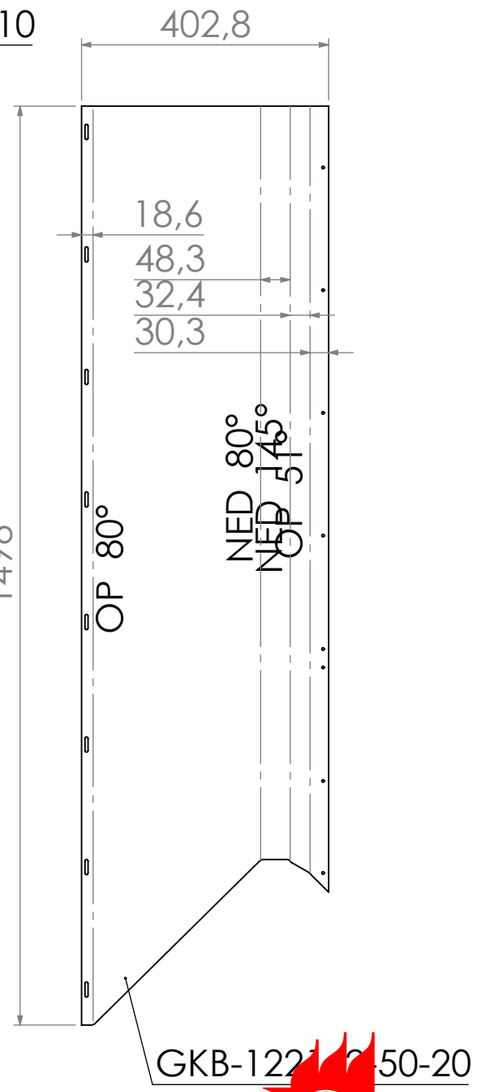
MATERIAL: DX51D Z275 (Varm-Galv)
DWG NO. GKB-122142-40
REVISION

WEIGHT: 4105.14
SCALE:1:5
A3
SHEET 1 OF 1




DBI
PGC10039A

Mads Mølk

OV: R1
UV: Spor 12
BT: 0,5 mm

| | NAME | DATE |
|---|---|---|
| DRAWN | casper | 15-08-2024 |

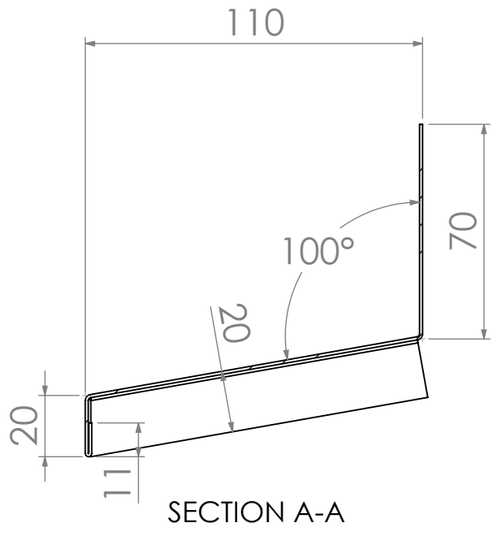
Hvor intet andet er angivet, er tolerancer i henhold til DS/ISO 2768-1(m)
Alle mål er i millimeter, medmindre andet er angivet.
Tegningen må ikke skaleres.

GLADSAXE KLIP & BUK

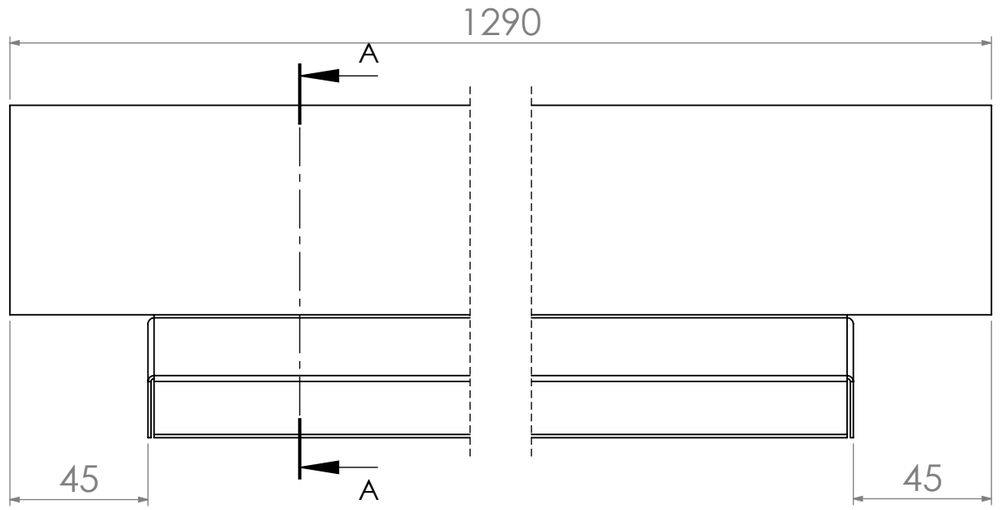
Folder name: X:\Facadeplan\BFUH-8\
Customer:
TITLE: 2 mm plade

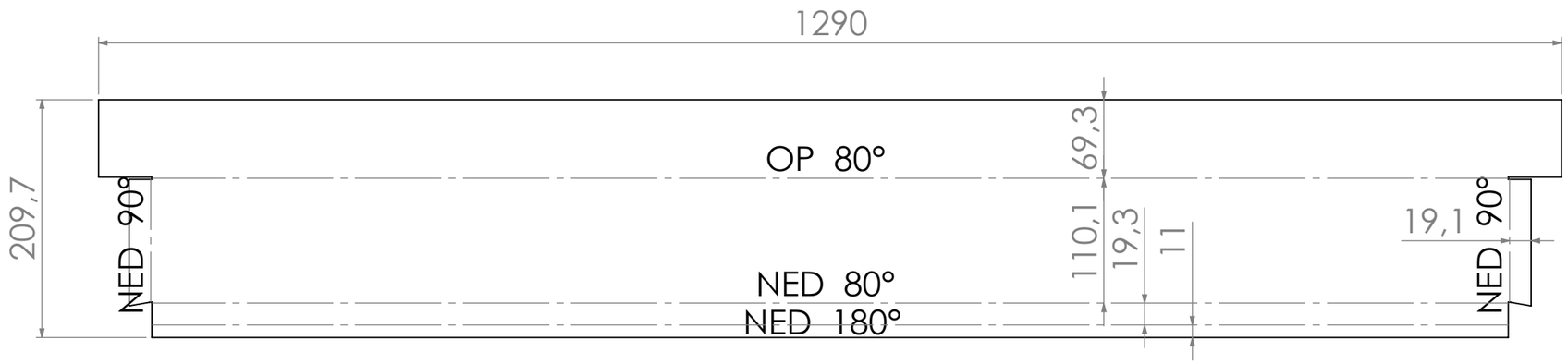
MATERIAL: DX51D Z275 (Varm-Galv)
DWG NO. GKB-122142-50
REVISION

WEIGHT: 16794.86
SCALE:1:10
A3
SHEET 1 OF 1




SECTION A-A




DBI
PGC10039A

Mads Mak

OV: R1
UV: Spor 6
BT: 0,2 mm

| | NAME | DATE |
|---|---|---|
| DRAWN | casper | 13-08-2024 |
| | | |
| | | |
| | | |

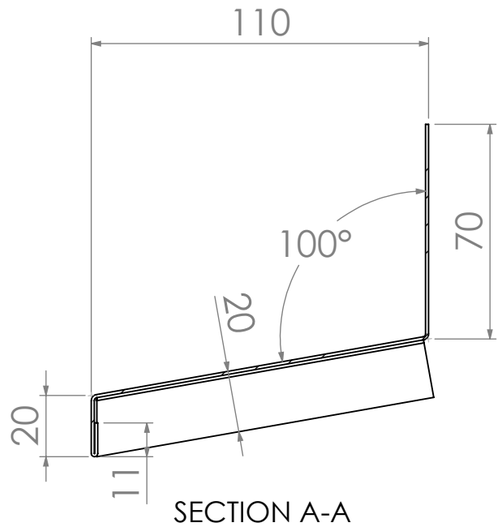
Hvor intet andet er angivet, er tolerancer i henhold til DS/ISO 2768-1(m)
Alle mål er i millimeter, medmindre andet er angivet.
Tegningen må ikke skaleres.

GLADSAXE KLIP & BUK

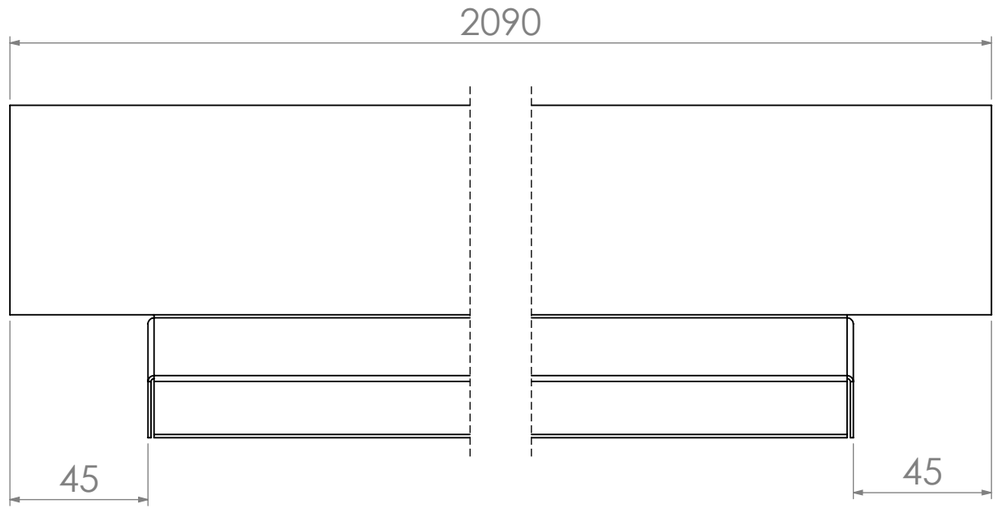
Folder name: X:\Facadeplan\BFUH-8\
Customer:
TITLE: 1 mm plade

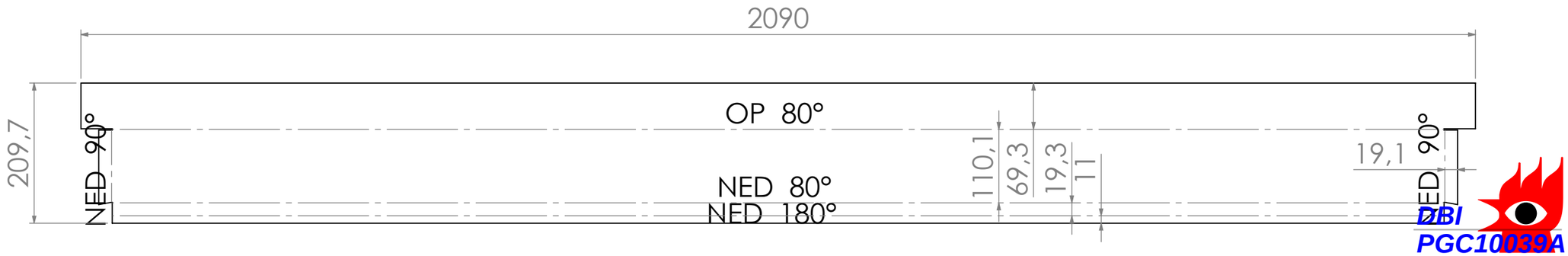
MATERIAL: DX51D Z275 (Varm-Galv)
DWG NO. Indd. 1290
REVISION

WEIGHT: 2.04
SCALE:1:2
A3
SHEET 1 OF 1




SECTION A-A




DBI
PGC10039A

OV: R1
UV: Spor 6
BT: 0,2 mm

| | NAME | DATE |
|---|---|---|
| DRAWN | casper | 13-08-2024 |

GLADSAXE KLIP & BUK

Folder name: X:\Facadeplan\BFUH-8\

Customer:

TITLE: 1 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. Indd. 2090

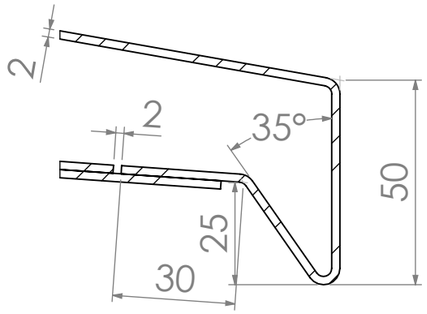
REVISION

WEIGHT: 3.35

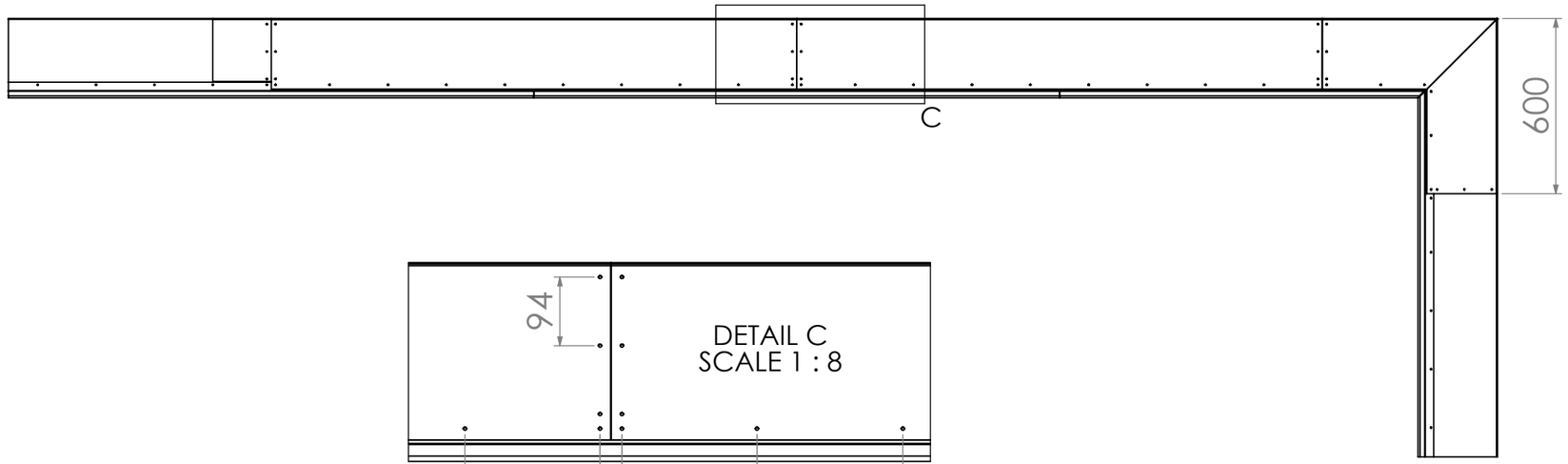
SCALE:1:2

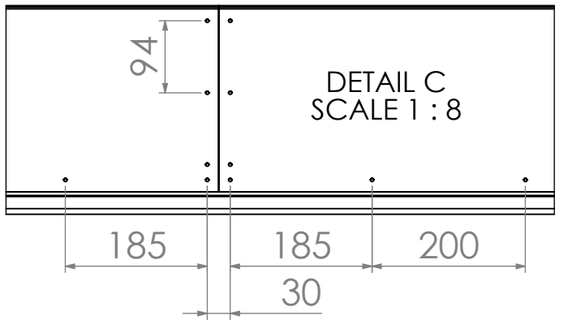
A3

SHEET 1 OF 1

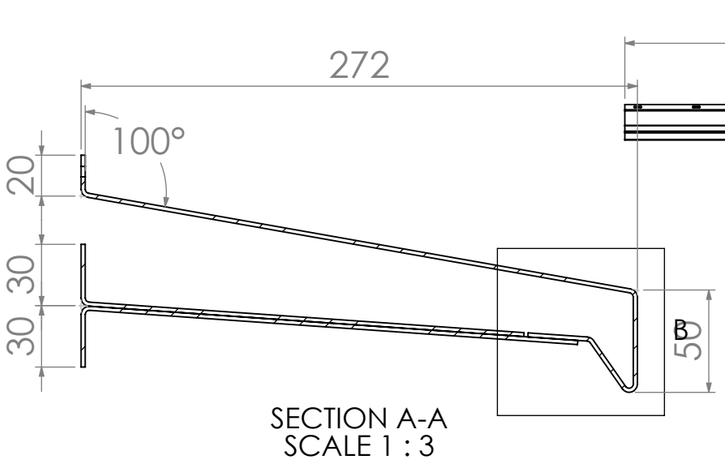



DETAIL B
SCALE 2 : 3

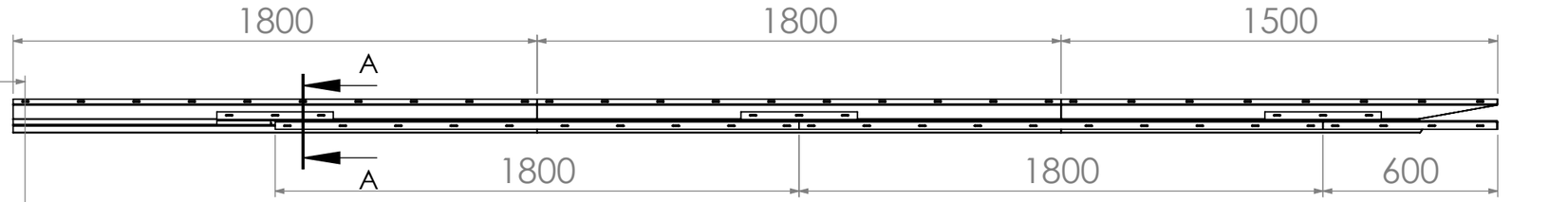


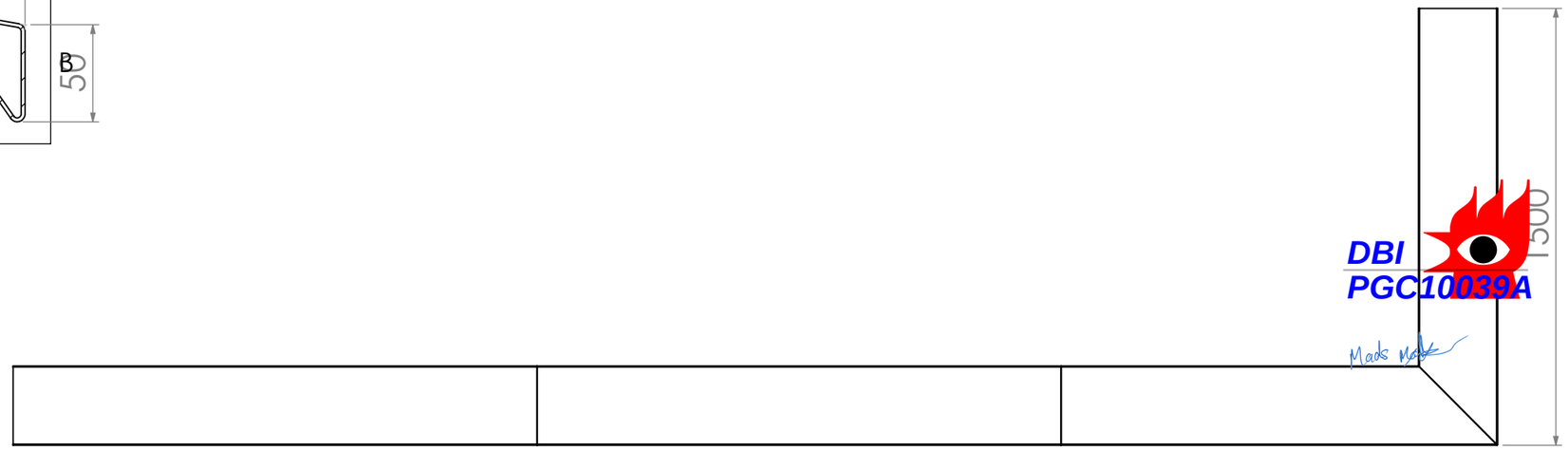




DETAIL C
SCALE 1 : 8




SECTION A-A
SCALE 1 : 3




| | NAME | DATE |
|---|---|---|
| DRAWN | casper | 14-08-2024 |

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-8\
Customer:
TITLE:

MATERIAL: Material <not specified>
DWG NO. samlet
REVISION

WEIGHT: 63186.37
SCALE:1:20
A3
SHEET 1 OF 1