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Title:

The Fire Resistance Performance of a Non-Loadbearing Ceiling Assembly Incorporating Six Extract Fans With Closure Devices Tested Generally In Accordance with BS EN 1364-2: 2018 And Additional Guidance From BS EN 1366-3: 2009

Date Of Test:

8th February 2022

Issue 3:

24th March 2022

WF Report No.

510322/R

Prepared for:

Quelfire Ltd

Unit 3 Millbuck Way
Springvale Industrial Estate
Sandbach
Cheshire
CW11 3HT

This report supersedes original issue dated 10th March 2022.

Test Specimen

Summary of Tested Specimen

The specimen had overall nominal dimensions of 2200 mm long by 1700 mm wide by 230mm deep. The specimen comprised of C16 softwood joists 195 mm deep by 45 mm thick at 600 mm centres. The upper face of the floor comprised of 22 mm thick tongue and groove chipboard. The floor assembly was protected on its underside by 1 layer of 12.5 mm thick fireline gypsum plasterboard. The ceiling board contained 6 circular apertures: 3 cut to 170mm diameter (A-C) and 3 cut to 135 mm diameter (D-F). Each aperture was complete with an extraction fan with section of connecting vent duct and closure device.

The extraction fans were referenced Service 'A' to 'F' for the purpose of the test, details of each service can be found in the table below:

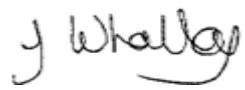
Service	Extract Fan Unit	Fire Collar	Vent Duct Assembly
'A'	Envirovent Silent 125	Quelfire Ltd 'CFC 125 Fire Cuff' fitted around the duct within the aperture in the plasterboard and secured within the aperture using two spring clips. Nominally 7mm wide annular gap between the fire collar and the aperture sealed with 'Quelfire QuelStop Acrylic Sealant'.	127 mm diameter PVC duct, duct connector and a 204 mm wide x 60 mm deep rectangular duct.
'B'	Venti-Axia Silhouette 125B		
'C'	Vectaire Elagance EL1203		
'D'	Envirovent Silent 100	Quelfire Ltd 'CFC 100 Fire Cuff' fitted around the duct within the aperture in the plasterboard and secured within the aperture using two spring clips. Nominally 7mm wide annular gap between the fire collar and the aperture sealed with 'Quelfire QuelStop Acrylic Sealant'.	102 mm diameter PVC duct, duct connector and a 204 mm wide x 60 mm deep rectangular duct.
'E'	Envirovent Eco dMEV		
'F'	Titon Ultimate dMEV		

Detailed drawings of the test specimen(s) and a comprehensive description of the test construction based on a detailed survey of the specimen(s) and information supplied by the sponsor of the test are included in the Test Specimen and Schedule of Components sections of this report.

Performance Criteria and Test Results

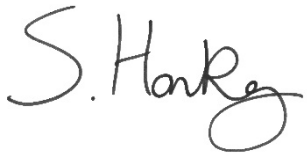
Integrity	It is required that the specimen retains its separating function, without: ▪ causing ignition of a cotton pad when applied ▪ permitting the penetration of a gap gauge as specified in BS EN 1363-1: 2020 ▪ sustained flaming on the unexposed surface **These requirements were satisfied for the periods shown below:**
Sustained flaming	62 minutes
Gap gauge	62 minutes* No failure*
Cotton pad	61 minutes
Insulation	It is required that the mean temperature rise of the unexposed surface shall not be greater than 140°C and that the maximum temperature rise shall not be greater than 180°C. Insulation failure also occurs simultaneously with integrity failure. **These requirements were satisfied for the period shown below:**
Specimen	61 minutes* Due to integrity failure *Test was discontinued after a period of 62 minutes.
Date of Test	8th February 2022

Signatories



Responsible Officer
J. Whalley*
Technical Officer – Fire Resistance

Approved
S. Gilfedder*
Test Report Co-ordinator – Fire Resistance



Head of Department
S. Hankey*
Business Unit Head – Fire Resistance

* For and on behalf of **Warringtonfire**.

Report Issued: 24th March 2022

Revision History

Issue No: 2	Re-issue Date: 22nd March 2022
Revised By: J. Whalley	Approved By: S. Gilfedder
Reason for Revision: Fixing information added to schedule of components for all fan units. Title of figure 7 amended from ‘view from exposed face prior to screw fixing’ to ‘view from exposed face prior to the Ceiling Fan installation’.	

Issue No: 3	Re-issue Date: 24th March 2022
Revised By: J. Whalley	Approved By: S. Gilfedder
Reason for Revision: Fixing information changed in summary from screw fixing to use of spring clips. Title of figure 7 bottom photo amended from ‘view from exposed face prior to screw fixing’ to ‘view from exposed face prior to the Ceiling Fan installation’.	

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Test Conditions

Standard

Generally in accordance with BS EN 1364-2: 2018 Fire resistance tests for non-loadbearing elements - Part 2: Ceilings.

The specimen as described is not fully in accordance with BS EN 1364-2: 2018 as it does not satisfy clause 6.1.1 of BS EN 1362-2: 2018, this requirement was not satisfied due to the reduced size of Specimen; therefore the test was conducted generally in accordance with the standard. Test results obtained are only valid to the Specimens as tested.

Sampling

A representative of **Warringtonfire** sample selected the following components of the tested specimen:

Component	Sampling date	Sampling report reference
CFC125 Ceiling Fan Cuff	18/11/2021	FM509874
CFC100 Ceiling Fan Cuff	18/04/2021	FM509874
QuelStop Acrylic Sealant	15/02/2021	FM438137

Copies of sampling reports are included in the Sample Report section.

The results obtained during the test only apply to the test samples as provided by the test sponsor.

Installation

The specimen was built by representatives of **Warringtonfire.** Representatives of the test sponsor installed the services and closure devices between the 17th January 2022 and the 20th January 2022.

Conditioning

The specimen's storage, construction, and test preparation took place in the test laboratory over a total, combined time of 23 days. Throughout this period of time both the temperature and the humidity of the laboratory were measured and recorded as being within a range of from 8°C to 24°C and 34.5% to 75% respectively.

Instruction to Test

The test was conducted on the 8th February 2022 at the request of Quelfire Ltd, the test sponsor.

Mr. D. Wells and Mr. A. Wells representative of the test sponsor witnessed the test

Ambient Temperature

The ambient air temperature in the vicinity of the test construction was 15ºC at the start of the test with a maximum variation of +1ºC during the test.

Furnace

The furnace was controlled so that its mean temperature complied with the requirements of BS EN 1363-1: 2012 Clause 5.1 using four plate thermometers, distributed over a plane 100 mm below the surface of the test construction.

Thermocouples

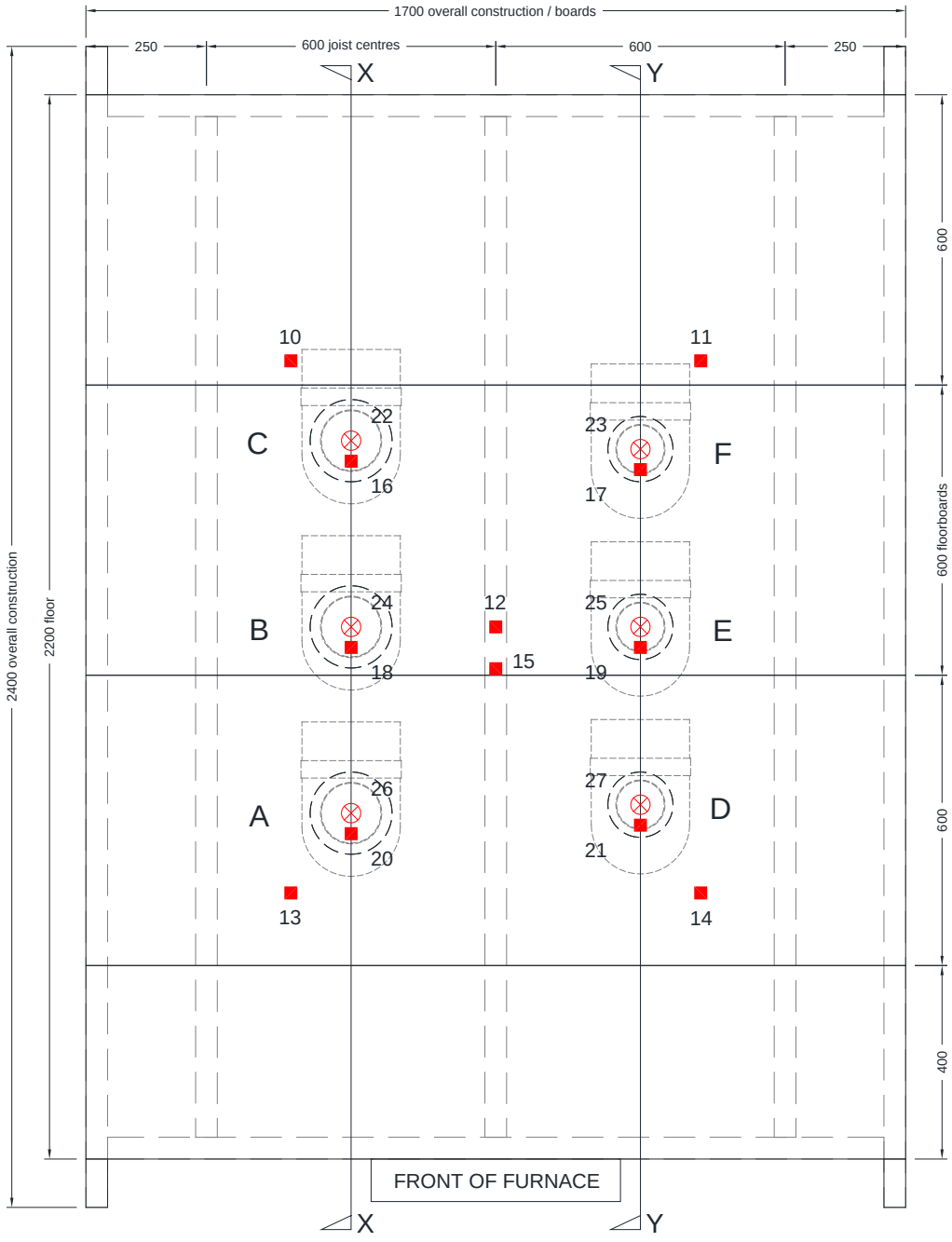
Thermocouples were provided to monitor the unexposed surface of the specimen and were added internally in the air cavity to measure the temperatures above the individual ceiling fans. The output of all instrumentation was recorded at no less than one minute intervals. The locations and reference numbers of the various unexposed surface thermocouples and internal mineral insulated thermocouples are shown in Figure 1.

Furnace Pressure

After the first five minutes of testing and for the remainder of the test, the furnace atmospheric pressure was controlled so that it complied with the requirements of BS EN 1363-1: 2012, clause 5.2.1 The calculated pressure differential relative to the laboratory atmosphere 100 mm below the specimen was 20 (± 5) Pa between 5 and 10 minutes and 20 (± 3) Pa thereafter.

Test Construction

Figure 1 – General plan of unexposed face showing thermocouple positions

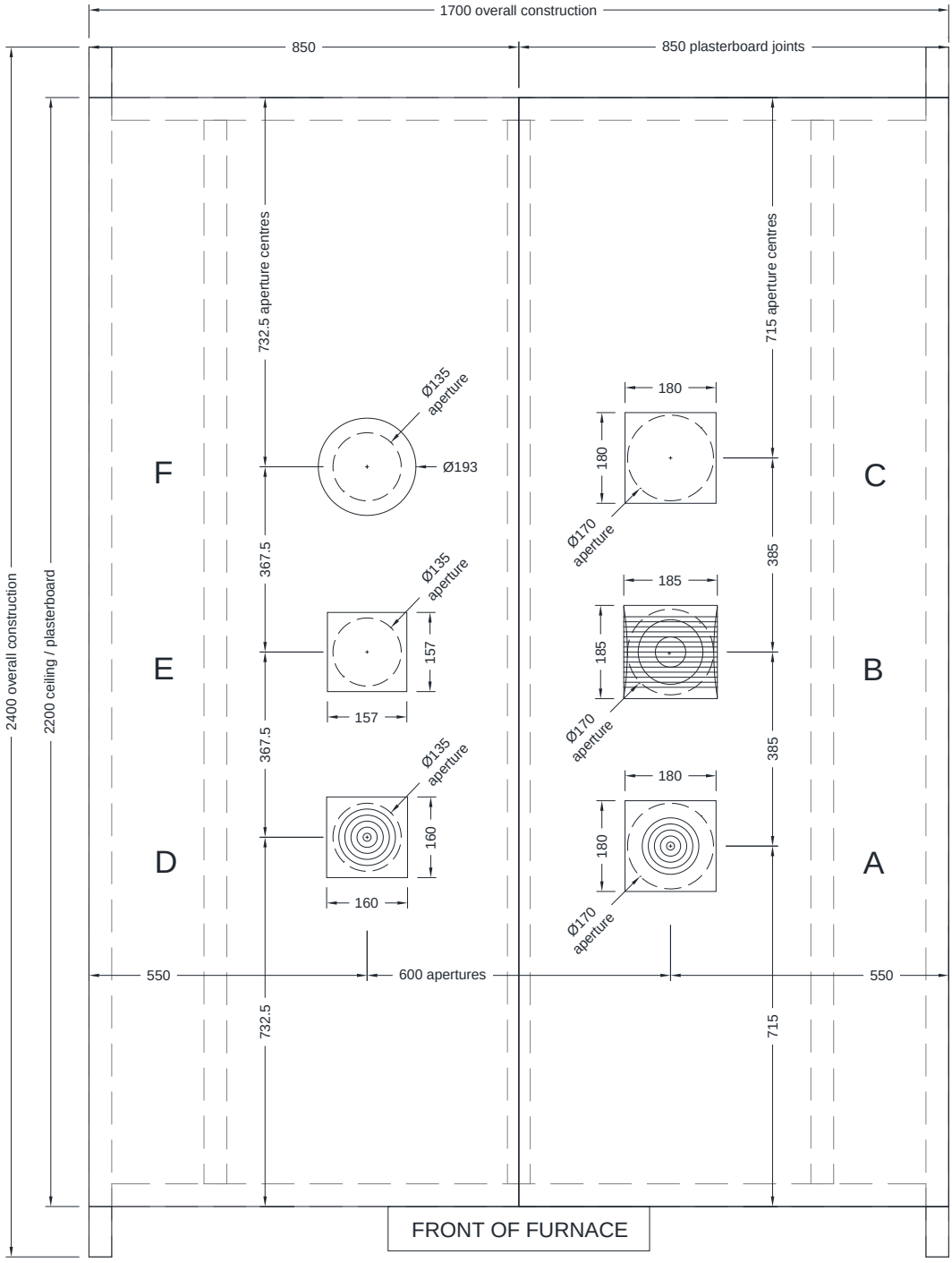


GENERAL PLAN OF UNEXPOSED FACE SHOWING THERMOCOUPLE POSITIONS

■ Positions of thermocouples
⊗ Positions of mineral insulated thermocouples 40 mm from unexposed face

Do not scale. All dimensions are in mm

Figure 2 – General plan of exposed face showing aperture locations



GENERAL PLAN OF EXPOSED FACE SHOWING APERTURE POSITIONS

Do not scale. All dimensions are in mm

Figure 3 – Typical vertical sections through test specimen

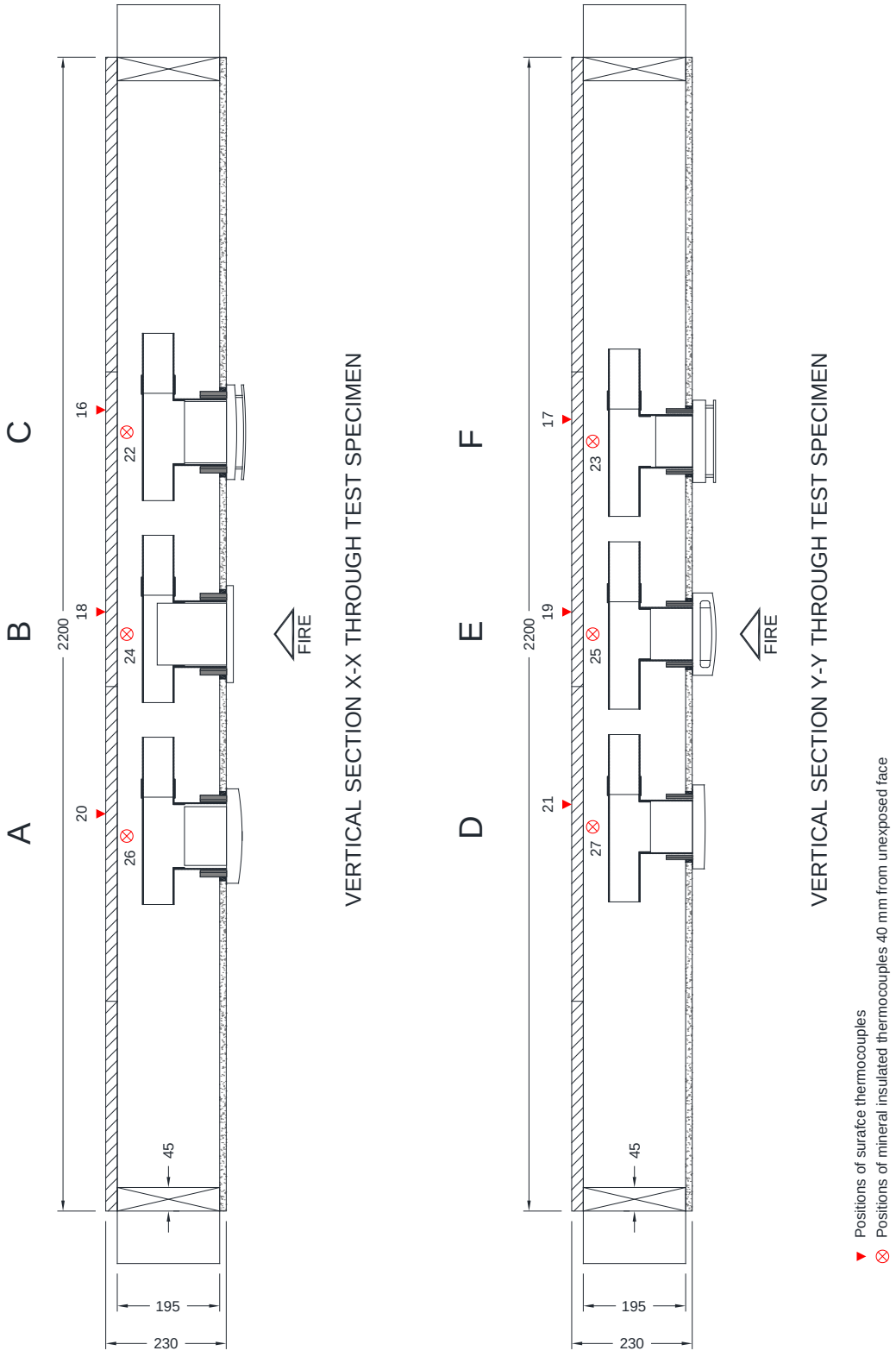


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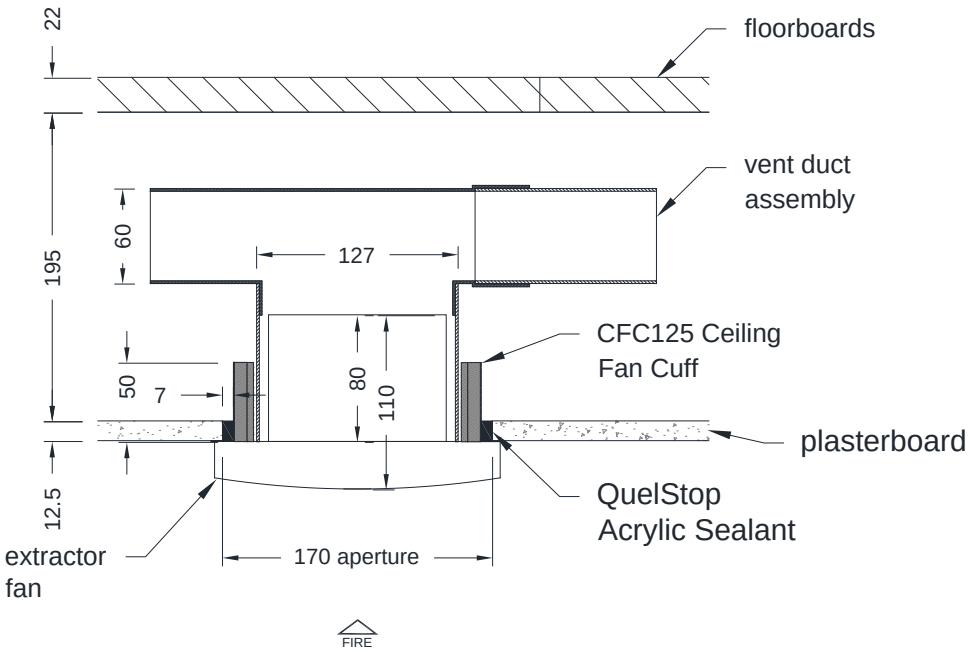
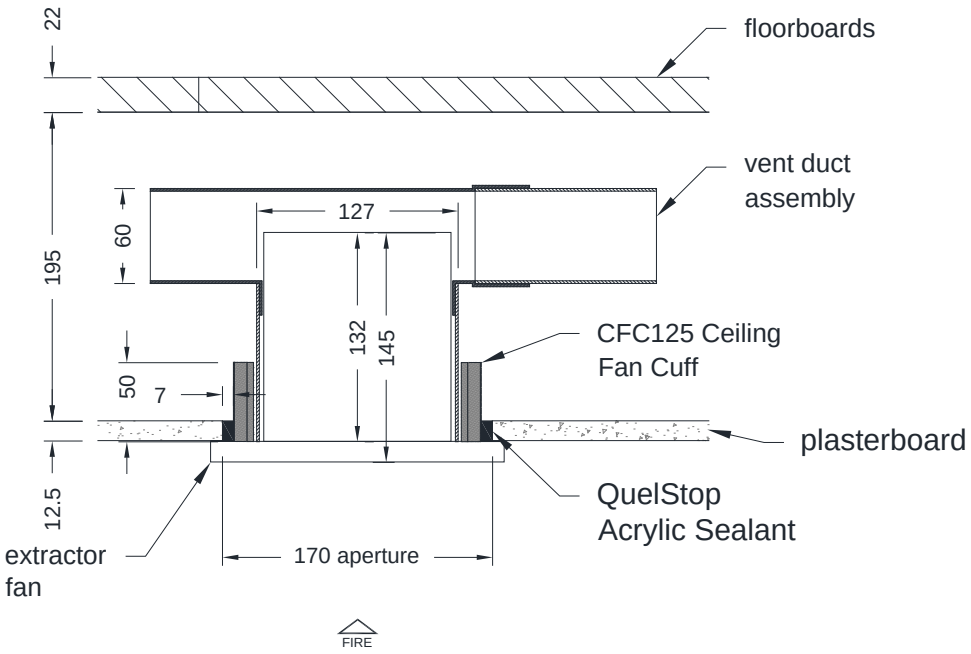
Figure 4 – Typical section through specimens A & B



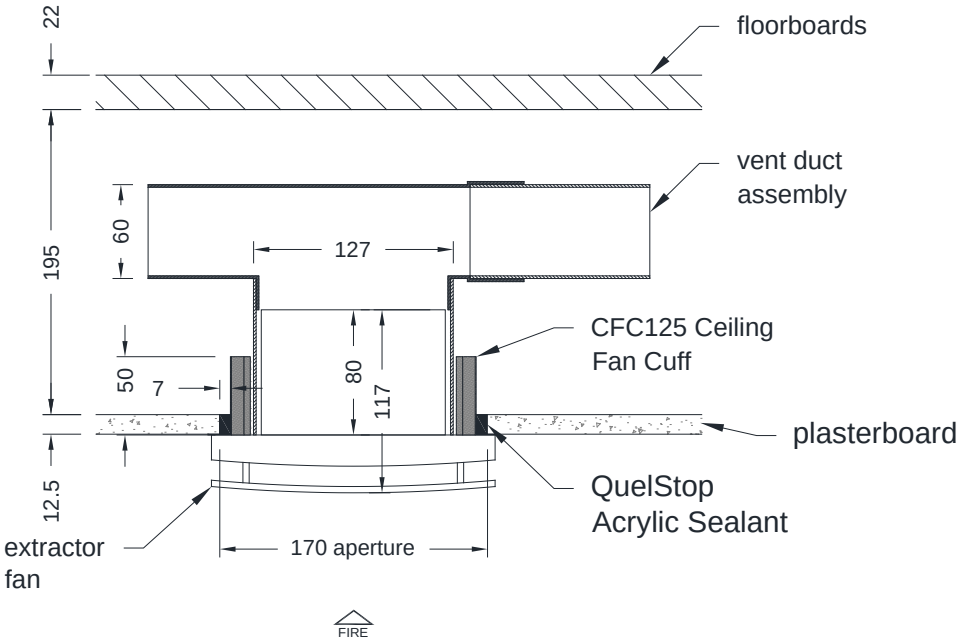
TYPICAL VERTICAL SECTION THROUGH SPECIMEN A



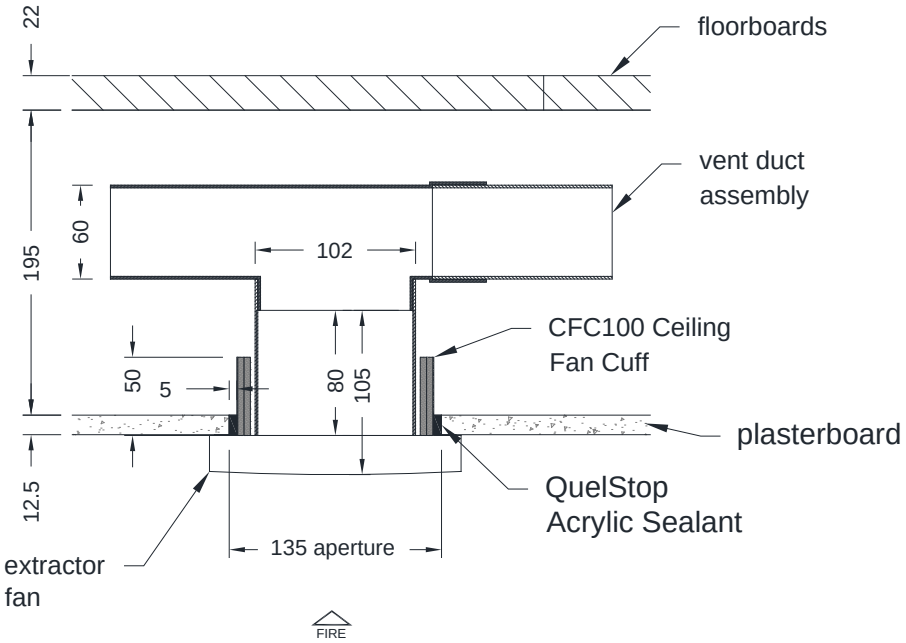
TYPICAL VERTICAL SECTION THROUGH SPECIMEN B

Do not scale. All dimensions are in mm

Figure 5 – Typical section through specimens C & D



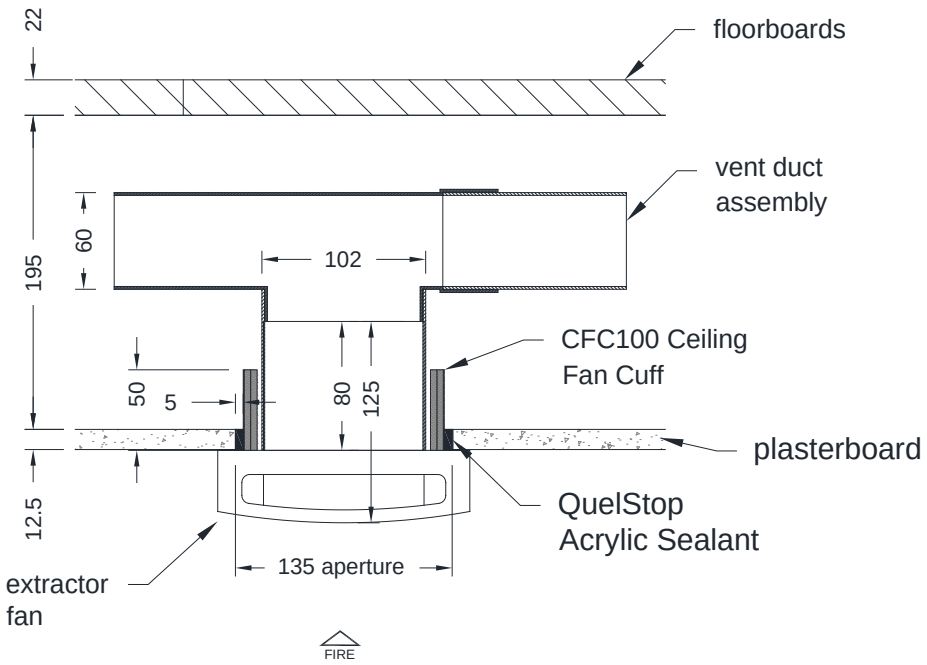
TYPICAL VERTICAL SECTION THROUGH SPECIMEN C



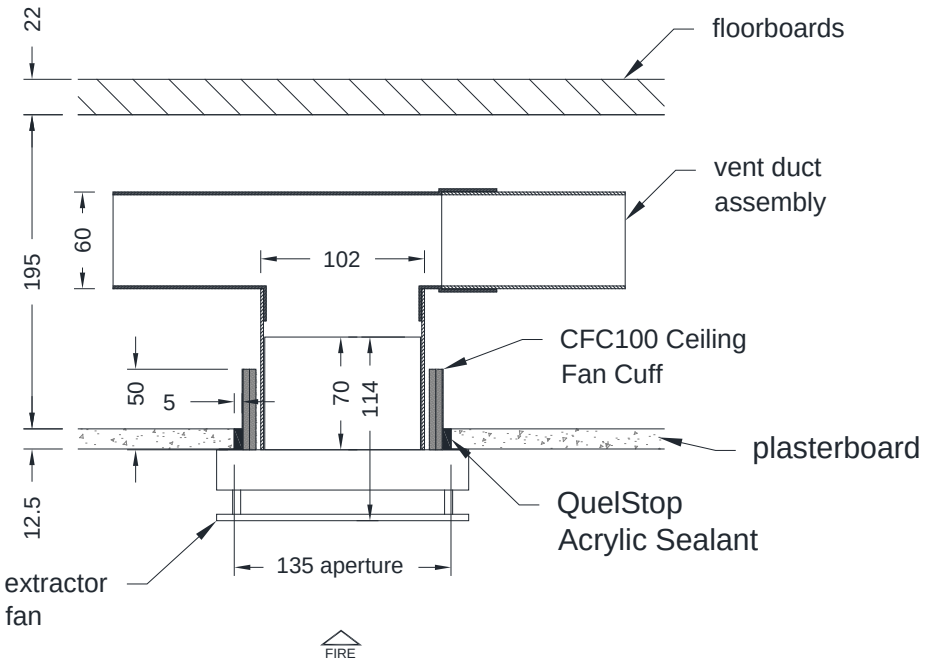
TYPICAL VERTICAL SECTION THROUGH SPECIMEN D

Do not scale. All dimensions are in mm

Figure 6 – Typical section through specimens E & F



TYPICAL VERTICAL SECTION THROUGH SPECIMEN E



TYPICAL VERTICAL SECTION THROUGH SPECIMEN F

Do not scale. All dimensions are in mm

Figure 7 – Photographs of ceiling fan cuff

Ceiling fan cuff (125 mm) – view from exposed face prior to the ceiling fan installation

Ceiling fan cuff (125 mm) – view from unexposed face prior to the ceiling fan installation

Do not scale. All dimensions are in mm

Schedule of Components

(Refer to Figures 1 to 7)
(All values are nominal unless stated otherwise)
(All other details are as stated by the sponsor)

Item		Description
1. Timber framework		
Material	:	Softwood (Grade C16)
Section size	:	195 mm deep x 45 mm wide
Density	:	440 – 490 kg/m³ (typical)
Fixing method	:	End beams through fixed with 7 nails to each joist joint. Joists were spaced at 600 mm centres.
Fixings		
i. type	:	Ring shank nails
ii. size	:	100 mm long x 3.8 mm diameter
2. Ceiling boards		
Manufacturer	:	British Gypsum
Reference	:	Gyproc FireLine
Material	:	Gypsum plasterboard with glass fibre and additional additives
Thickness	:	12.5 mm
Density	:	830 kg/m³ (measured)
Fixing method	:	Through fixed to internal framework with screws. Board joints were taped and filled.
Fixings		
i. type	:	Black phosphate coated steel screws
ii. size	:	32 mm long x 3.5 mm diameter
iii. centres	:	150 mm (edge), 150 mm (field)
Tape		
i. manufacturer	:	Siniat
ii. reference	:	GTEC Joint Tape
Filler		
i. manufacturer	:	Siniat
ii. reference	:	Siniat Smartmix
3. Floorboards		
Manufacturer	:	Norbord
Reference	:	Caberfloor P5
Material	:	Chipboard (tongue & groove)
Thickness	:	22 mm
Fixing method	:	Through fixed to internal framework with screws
Fixings		
i. manufacturer	:	Gold Screw
ii. reference	:	Single Thread Woodscrew
iii. type	:	Yellow passivated steel screws
iv. size	:	50 mm long x 5.0 mm diameter
v. centres	:	270 mm

Item		Description
4. Specimen A		
Details of aperture	:	170 mm diameter
Details of extractor fan		
i. manufacturer	:	Envirovent
ii. reference	:	Silent 125
iii. size	:	180 mm long x 180 mm wide x 110 mm deep (overall) 180 mm long x 180 mm wide x 30 mm thick (cover) 80 mm long x 112 mm diameter (spigot)
iv. fixing method	:	Push-fitted into vent duct spigot and fixed to the ceiling boards with 4 no. 5 mm diameter x 25 mm long screws.
Details of vent duct assembly		
i. material	:	Polyvinyl chloride (PVC)
ii. size	:	100 mm long x 127 mm outer diameter x 1.7 mm thick (spigot), 235 mm long x 204 mm wide x 60 mm deep (duct connector) 300 mm long x 204 mm wide x 60 mm deep (rectangular duct)
Details of fire collar		
i. manufacturer	:	Quelfire Ltd.
ii. reference	:	CFC125 Ceiling Fan Cuff
iii. sample selected	:	FM509874 (18/11/21)
iv. batch number	:	21-46-09
v. material	:	Stainless steel flexible shell containing graphite based intumescent material
vi. overall size	:	125 mm diameter x 50 mm wide x 12.5 mm thick. (125 mm diameter x 50 mm wide x 0.5 mm thick (shell). 2 no. layers intumescent, 50 mm wide x 4 mm & 8 mm thick)
vii. fixing method	:	The fan cuff was slid over the spigot and retained on the unexposed face of the boards with two spring clips. Annular gap between the fire collar and the aperture sealed with QuelStop Intumescent Acoustic Acrylic sealant.
5. Specimen B		
Details of aperture	:	170 mm diameter
Details of extractor fan		
i. manufacturer	:	Vent-Axia
ii. reference	:	Silhouette 125B
iii. size	:	185 mm long x 185 mm wide x 145 mm deep (overall) 185 mm long x 185 mm wide x 13 mm thick (cover) 132 mm long x 118 mm diameter (spigot)
iv. fixing method	:	Push-fitted into vent duct spigot and fixed to the ceiling boards with 4 no. 5 mm diameter x 25 mm long screws.
Details of vent duct assembly		
i. material	:	Polyvinyl chloride (PVC)
ii. size	:	100 mm long x 127 mm outer diameter x 1.7 mm thick (spigot), 235 mm long x 204 mm wide x 60 mm deep (duct connector) 300 mm long x 204 mm wide x 60 mm deep (rectangular duct)

Item		Description
5. Specimen B (continued)		
Details of fire collar		
i. manufacturer	:	Quelfire Ltd.
ii. reference	:	CFC125 Ceiling Fan Cuff
iii. sample selected	:	FM509874 (18/11/21)
iv. batch number	:	21-46-09
v. material	:	Stainless steel flexible shell containing graphite based intumescent material
vi. overall size	:	125 mm diameter x 50 mm wide x 12.5 mm thick. (125 mm diameter x 50 mm wide x 0.5 mm thick (shell). 2 no. layers intumescent, 50 mm wide x 4 mm & 8 mm thick)
vii. fixing method	:	The fan cuff was slid over the spigot and retained on the unexposed face of the boards with two spring clips. Annular gap between the fire collar and the aperture sealed with QuelStop Intumescent Acoustic Acrylic sealant.
6. Specimen C		
Details of aperture	:	170 mm diameter
Details of extractor fan		
i. manufacturer	:	Vectaire
ii. reference	:	Elegance EL1203
iii. size	:	180 mm long x 180 mm wide x 117 mm deep (overall) 180 mm long x 180 mm wide x 37 mm thick (cover) 80 mm long x 117 mm diameter (spigot)
iv. fixing method	:	Push-fitted into vent duct spigot and fixed to the ceiling boards with 4 no. 5 mm diameter x 25 mm long screws.
Details of vent duct assembly		
i. material	:	Polyvinyl chloride (PVC)
ii. size	:	100 mm long x 127 mm outer diameter x 1.7 mm thick (spigot), 235 mm long x 204 mm wide x 60 mm deep (duct connector) 300 mm long x 204 mm wide x 60 mm deep (rectangular duct)
Details of fire collar		
i. manufacturer	:	Quelfire Ltd.
ii. reference	:	CFC125 Ceiling Fan Cuff
iii. sample selected	:	FM509874 (18/11/21)
iv. batch number	:	21-46-09
v. material	:	Stainless steel flexible shell containing graphite based intumescent material
vi. overall size	:	125 mm diameter x 50 mm wide x 12.5 mm thick. (125 mm diameter x 50 mm wide x 0.5 mm thick (shell). 2 no. layers intumescent, 50 mm wide x 4 mm & 8 mm thick)
vii. fixing method	:	The fan cuff was slid over the spigot and retained on the unexposed face of the boards with two spring clips. Annular gap between the fire collar and the aperture sealed with QuelStop Intumescent Acoustic Acrylic sealant.

Item		Description
7. Specimen D		
Details of aperture	:	135 mm diameter
Details of extractor fan		
i. manufacturer	:	Envirovent
ii. reference	:	Silent 100
iii. size	:	160 mm long x 160 mm wide x 105 mm deep (overall) 160 mm long x 160 mm wide x 25 mm thick (cover) 80 mm long x 100 mm diameter (spigot)
iv. fixing method	:	Push-fitted into vent duct spigot and fixed to the ceiling boards with 4 no. 5 mm diameter x 25 mm long screws.
Details of vent duct assembly		
i. material	:	Polyvinyl chloride (PVC)
ii. size	:	100 mm long x 102 mm outer diameter x 1.7 mm thick (spigot), 235 mm long x 204 mm wide x 60 mm deep (duct connector) 300 mm long x 204 mm wide x 60 mm deep (rectangular duct)
Details of fire collar		
i. manufacturer	:	Quelfire Ltd.
ii. reference	:	CFC100 Ceiling Fan Cuff
iii. sample selected	:	FM509874 (18/11/21)
iv. batch number	:	21-40-09
v. material	:	Stainless steel flexible shell containing graphite based intumescent material
vi. overall size	:	100 mm diameter x 50 mm wide x 8.5 mm thick. (100 mm diameter x 50 mm wide x 0.5 mm thick (shell). 2 no. layers intumescent, 50 mm wide x 4 mm thick)
vii. fixing method	:	The fan cuff was slid over the spigot and retained on the unexposed face of the boards with two spring clips. Annular gap between the fire collar and the aperture sealed with QuelStop Intumescent Acoustic Acrylic sealant.
8. Specimen E		
Details of aperture	:	135 mm diameter
Details of extractor fan		
i. manufacturer	:	Envirovent
ii. reference	:	Eco dMEV
iii. size	:	157 mm long x 157 mm wide x 125 mm deep (overall) 157 mm long x 157 mm wide x 38 mm thick (cover) 80 mm long x 100 mm diameter (spigot)
iv. fixing method	:	Push-fitted into vent duct spigot and fixed to the ceiling boards with 4 no. 5 mm diameter x 25 mm long screws.
Details of vent duct assembly		
i. material	:	Polyvinyl chloride (PVC)
ii. size	:	100 mm long x 102 mm outer diameter x 1.7 mm thick (spigot), 235 mm long x 204 mm wide x 60 mm deep (duct connector) 300 mm long x 204 mm wide x 60 mm deep (rectangular duct)

Item		Description
8. Specimen E (continued)		
Details of fire collar		
i. manufacturer	:	Quelfire Ltd.
ii. reference	:	CFC100 Ceiling Fan Cuff
iii. sample selected	:	FM509874 (18/11/21)
iv. batch number	:	21-40-09
v. material	:	Stainless steel flexible shell containing graphite based intumescent material
vi. overall size	:	100 mm diameter x 50 mm wide x 8.5 mm thick. (100 mm diameter x 50 mm wide x 0.5 mm thick (shell). 2 no. layers intumescent, 50 mm wide x 4 mm thick)
vii. fixing method	:	The fan cuff was slid over the spigot and retained on the unexposed face of the boards with two spring clips. Annular gap between the fire collar and the aperture sealed with QuelStop Intumescent Acoustic Acrylic sealant.
9. Specimen F		
Details of aperture	:	135 mm diameter
Details of extractor fan		
i. manufacturer	:	Titon
ii. reference	:	Ultimate dMEV
iii. size	:	193 mm long x 193 mm wide x 114 mm deep (overall) 193 mm diameter x 44 mm thick (cover) 70 mm long x 97 mm diameter (spigot)
iv. fixing method	:	Push-fitted into vent duct spigot and fixed to the ceiling boards with 4 no. 5 mm diameter x 25 mm long screws.
Details of vent duct assembly		
i. material	:	Polyvinyl chloride (PVC)
ii. size	:	100 mm long x 102 mm outer diameter x 1.7 mm thick (spigot), 235 mm long x 204 mm wide x 60 mm deep (duct connector) 300 mm long x 204 mm wide x 60 mm deep (rectangular duct)
Details of fire collar		
i. manufacturer	:	Quelfire Ltd.
ii. reference	:	CFC100 Ceiling Fan Cuff
iii. sample selected	:	FM509874 (18/11/21)
iv. batch number	:	21-40-09
v. material	:	Stainless steel flexible shell containing graphite based intumescent material
vi. overall size	:	100 mm diameter x 50 mm wide x 8.5 mm thick. (100 mm diameter x 50 mm wide x 0.5 mm thick (shell). 2 no. layers intumescent, 50 mm wide x 4 mm thick)
vii. fixing method	:	The fan cuff was slid over the spigot and retained on the unexposed face of the boards with two spring clips. Annular gap between the fire collar and the aperture sealed with QuelStop Intumescent Acoustic Acrylic sealant.

Item		Description
10. Ceiling fan cuff (100 mm)		
Manufacturer	:	Quelfire Ltd.
Reference	:	CFC100 Ceiling Fan Cuff
Sample selected	:	FM509874 (18/11/21)
Batch number	:	21-40-09
Material	:	Stainless steel flexible shell containing graphite based intumescent material
Overall size	:	100 mm diameter x 50 mm wide x 8.5 mm thick. (100 mm diameter x 50 mm wide x 0.5 mm thick (shell). 2 no. layers intumescent, 50 mm wide x 4 mm thick)
Fixing method	:	The fan cuff was slid over the spigot and retained on the unexposed face of the boards with two spring clips.
11. Ceiling fan cuff (125 mm)		
Manufacturer	:	Quelfire Ltd.
Reference	:	CFC125 Ceiling Fan Cuff
Sample selected	:	FM509874 (18/11/21)
Batch number	:	21-46-09
Material	:	Stainless steel flexible shell containing graphite based intumescent material
Overall size	:	125 mm diameter x 50 mm wide x 12.5 mm thick. (125 mm diameter x 50 mm wide x 0.5 mm thick (shell). 2 no. layers intumescent, 50 mm wide x 4 mm & 8 mm thick)
Fixing method	:	The fan cuff was slid over the spigot and retained on the unexposed face of the boards with two spring clips.
12. Service sealant (acrylic)		
Manufacturer	:	Quelfire
Reference	:	QuelStop Acrylic Sealant
Sample selected	:	FM438137 (15/02/21)
Batch number	:	01011146
Material	:	Water-based intumescent acrylic
Application method	:	Cartridge gunned and trowel applied

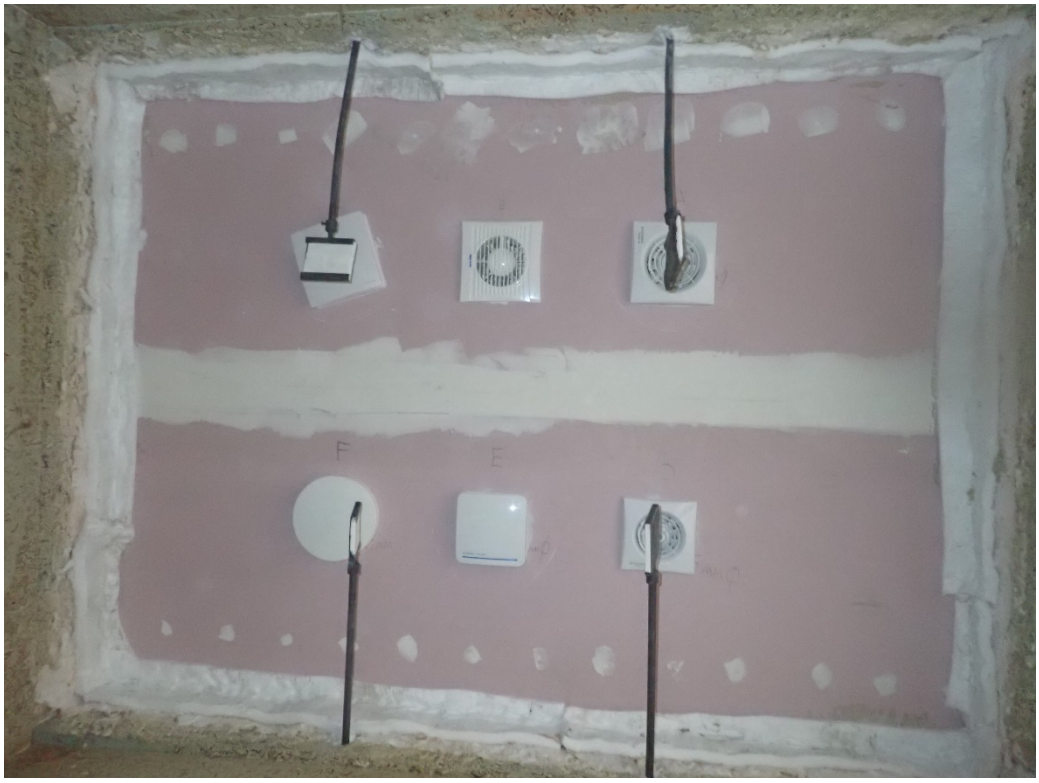
Test Observations

Time		All observations are from the unexposed face unless noted otherwise.
mins	secs	
00	00	**The test commences.**
04	45	Steam/smoke release at perimeter of supporting construction.
07	15	When viewed form the exposed face, covers detached from Specimens A, B and C apertures are sealed.
09	15	When viewed form the exposed face, small amounts of intumescent material falls away from seals on all specimens.
11	30	When viewed form the exposed face, large amounts of intumescent material falls away from seals on all specimens.
16	45	When viewed form the exposed face, tape and jointing has detached and a ~3mm gap has formed between the ceiling boards.
20	00	No significant visible change on unexposed face.
24	30	When viewed form the exposed face, large discoloured area observed along centre joint.
28	45	When viewed form the exposed face, centre joint expanded to ~10mm.
30	00	Slight steam/smoke release on joint near Specimen B.
35	00	When viewed form the exposed face, centre joint expanded to ~15mm.
38	00	Steam/smoke release from every joint, very slight dip into furnace, cracking sound observed.
40	00	Steam/smoke release increased on central board joint near Specimen B and joint darkened.
41	00	When viewed form the exposed face, centre joint expanded to ~30mm.
42	45	Darkened area on central board joint near Specimen B expanded to ~30mm and boards have moved towards heating conditions ~20mm, increased steam/smoke release.
47	00	Darkening and heavy steam/smoke release along whole of central board joint.
50	00	When viewed form the exposed face, boards at centre have detached and dropped ~50mm.
52	00	floorboards sag either side of central stud clips ~30mm towards heating conditions. Significant steam/smoke release heavy on all joints.

Time		
mins	secs	
55	30	When viewed form the exposed face, board below Specimens D, E and F dropping ~100mm.
58	30	Glowing observed on joint adjacent to Specimen B.
59	00	Glowing observed on joint adjacent to Specimen E.
60	00	Glowing area adjacent to Specimen E increases in size.
61	45	**Cotton pad applied to joint near Specimen E, pad ignites- integrity failure is deemed to have occurred.**
62	00	**Sustained flaming observed along centre joint.**
62	30	**Test discontinued.**

Test Photographs

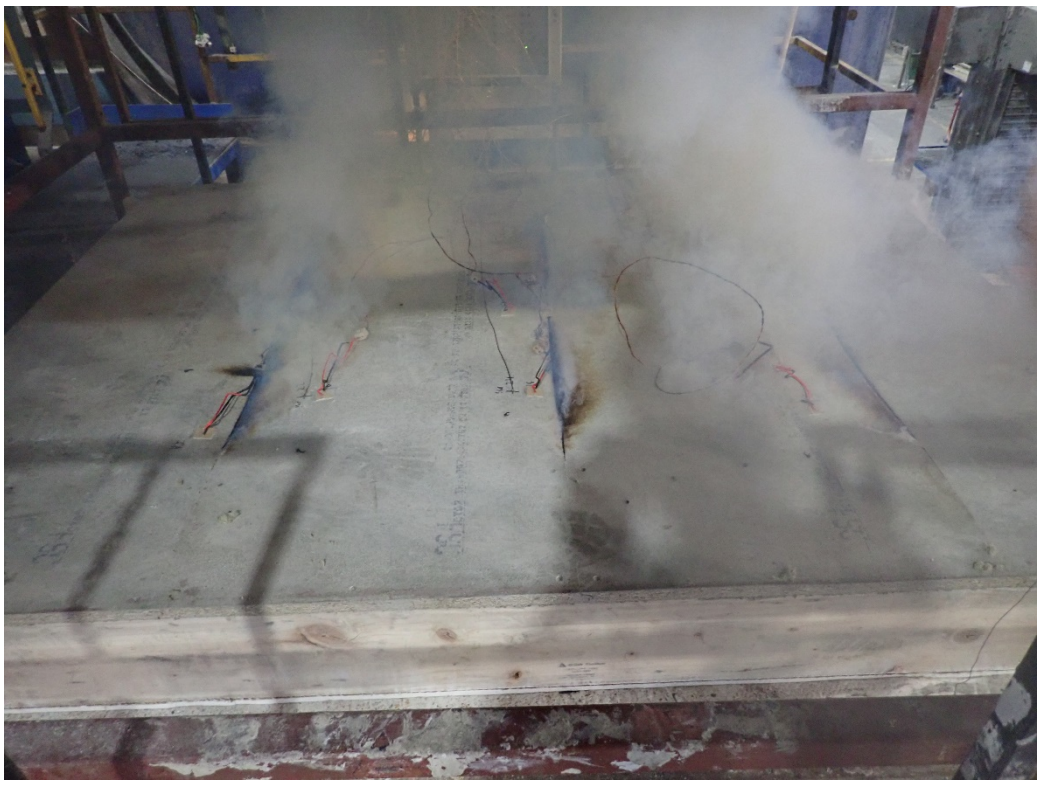
The exposed face of the assembly prior to testing



The unexposed face of the assembly prior to testing

The unexposed face of the assembly after a test duration of 30 minutes

The unexposed face of the assembly after a test duration of 60 minutes



The unexposed face of the assembly immediately after the test.

The exposed face of the assembly immediately after the test.

Temperature Data

Mean Furnace Temperature, Together With The Temperature/Time Relationship Specified In The Standard

Time Mins	Specified Furnace Temperature Deg. C	Actual Furnace Temperature Deg. C
0	20	23
2	445	433
4	544	548
6	603	554
8	645	650
10	678	669
12	705	692
14	728	727
16	748	746
18	766	767
20	781	786
22	796	802
24	809	819
26	820	816
28	832	830
30	842	838
32	851	845
34	860	850
36	869	861
38	877	871
40	885	879
42	892	888
44	899	899
46	906	906
48	912	911
50	918	917
52	924	924
54	930	926
56	935	926
58	940	926
60	945	928
62	950	935

Individual Temperatures For Standard Five and Joist On The Unexposed Surface Of The Specimen

Time Mins	T/C Number 10 Deg. C	T/C Number 11 Deg. C	T/C Number 12 Deg. C	T/C Number 13 Deg. C	T/C Number 14 Deg. C	T/C Number 15 Deg. C
0	18	18	17	17	17	18
2	18	18	17	17	17	18
4	19	18	17	17	17	18
6	19	18	17	18	17	18
8	20	19	18	19	18	19
10	22	20	20	20	19	21
12	24	22	21	22	21	24
14	26	25	23	24	23	26
16	28	28	25	26	24	29
18	30	31	27	29	26	32
20	32	35	29	32	28	35
22	34	43	32	39	29	39
24	37	54	37	53	32	45
26	42	66	47	69	36	55
28	50	74	63	79	43	65
30	60	79	75	83	52	73
32	70	81	82	86	63	78
34	77	83	86	86	70	79
36	82	83	88	87	76	81
38	84	84	90	87	79	82
40	86	85	90	88	81	84
42	87	86	90	89	81	85
44	88	87	90	89	82	86
46	88	88	91	89	83	87
48	89	89	91	89	83	89
50	90	90	91	90	84	92
52	90	90	92	90	85	93
54	92	91	93	91	86	93
56	92	92	93	92	87	94
58	92	93	94	93	88	96
60	92	94	94	95	89	96
62	93	95	95	95	91	106

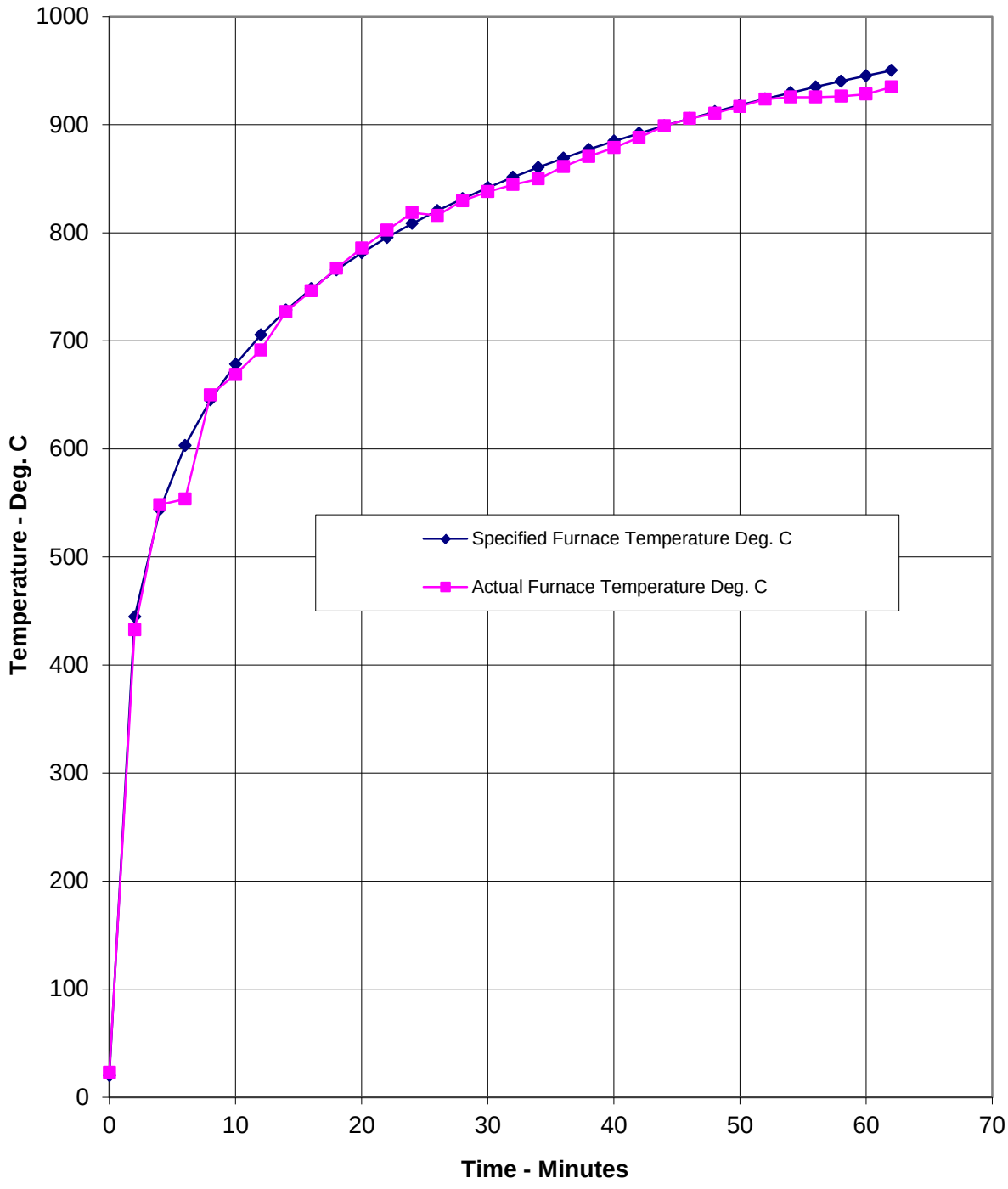
Individual Temperatures Recorded On Samples A-F On The Unexposed Face.

Time Mins	T/C Number 16 Deg. C	T/C Number 17 Deg. C	T/C Number 18 Deg. C	T/C Number 19 Deg. C	T/C Number 20 Deg. C	T/C Number 21 Deg. C
0	21	17	18	18	15	17
2	20	17	17	18	14	17
4	20	17	17	18	15	17
6	20	17	18	18	14	17
8	22	19	19	19	13	18
10	24	23	22	21	12	20
12	26	34	24	24	9	22
14	29	49	28	28	3	23
16	32	61	33	33	36	26
18	38	70	41	39	44	28
20	48	77	52	47	51	31
22	60	84	65	57	56	36
24	72	89	76	67	57	44
26	79	88	82	75	57	53
28	83	87	86	80	57	64
30	86	87	87	82	57	75
32	87	86	88	84	56	84
34	88	87	88	85	54	90
36	89	87	89	86	53	93
38	89	88	90	86	54	95
40	90	89	90	87	55	94
42	90	90	91	88	53	94
44	90	91	92	89	52	92
46	90	92	93	90	51	92
48	91	93	94	93	51	91
50	92	94	95	96	-17	91
52	93	94	96	97	49	91
54	95	95	98	98	44	92
56	96	97	98	99	40	93
58	97	99	98	98	33	94
60	99	99	100	97	22	95
62	99	99	113	100	20	96

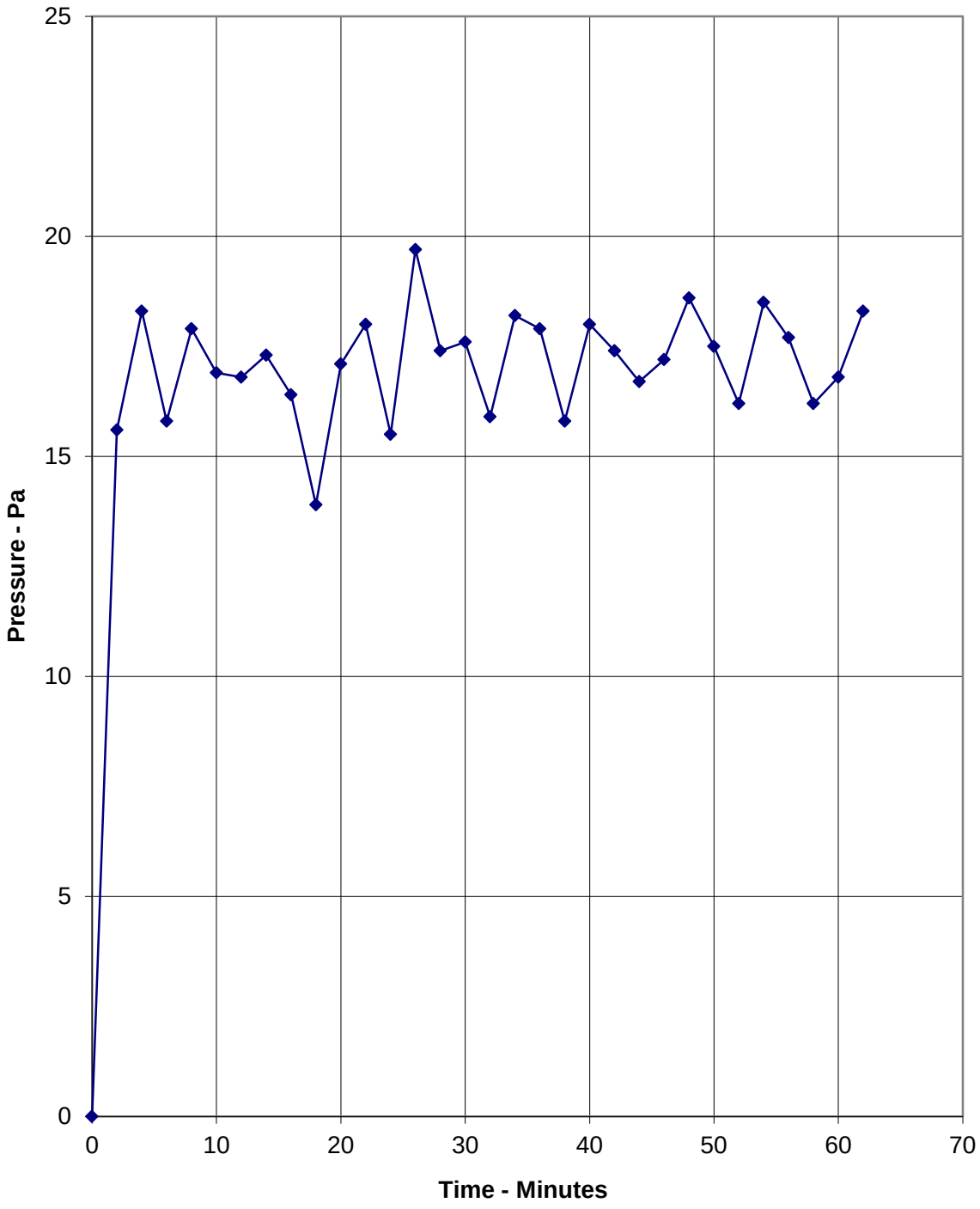
Individual Temperatures Recorded On Samples A-F In The Cavity Above The Extract Fans

Time Mins	T/C Number 22 Deg. C	T/C Number 23 Deg. C	T/C Number 24 Deg. C	T/C Number 25 Deg. C	T/C Number 26 Deg. C	T/C Number 27 Deg. C
0	19	19	23	19	20	20
2	114	48	200	55	99	90
4	140	273	167	121	218	78
6	127	273	151	306	228	90
8	138	340	168	196	219	92
10	162	372	227	192	240	104
12	183	340	239	230	269	118
14	235	356	234	227	290	128
16	244	384	273	240	304	139
18	271	454	316	283	381	161
20	299	482	351	305	403	182
22	313	490	372	341	400	207
24	316	488	383	338	421	227
26	327	427	393	372	429	243
28	343	391	411	382	431	260
30	364	395	430	401	446	276
32	386	390	449	418	453	299
34	408	402	469	427	457	320
36	425	415	473	443	477	340
38	444	430	489	457	495	360
40	458	443	501	477	504	376
42	475	454	516	483	511	394
44	489	467	531	498	526	414
46	505	478	550	506	535	433
48	519	494	567	531	547	454
50	532	525	577	568	558	495
52	545	550	592	595	570	530
54	559	581	612	629	590	565
56	572	607	635	660	606	608
58	587	636	657	701	623	649
60	605	669	681	747	641	697
62	626	858	694	887	665	801

Graph Showing Mean Furnace Temperature, Together With The Temperature/Time Relationship Specified In The Standard



Graph Showing Recorded Furnace Pressure 450 mm Below The Specimen



On-going Implications

Limitations

This report details the method of construction, the test conditions and the results obtained when the specific elements of construction described herein were tested following the procedure outlined in BS EN 1363-1: 2012, and where appropriate BS EN 1363-2: 1999. Any significant deviation with respect to size, constructional details, loads, stresses, edge or end conditions other than those allowed under the field of direct application in the relevant test method is not covered by this report. Annex A of BS EN 1363-1: 2012, provides guidance information on the application of fire resistance tests and the interpretation of test data.

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 supersedes original issue dated 10/03/2022

Sample Report

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Sample Report

This report provides a record of the information relating to samples taken by Warringtonfire Testing and Certification Limited trading, or its agent, for certification of the products detailed below.

Job No.	FM509874
Manufacturer	Quelfire Ltd.
Manufacturing site	Unit 3, Millbuck Way, Srpingvale Industrial Estate, Sandbach, CW11 3HT.
Place of sampling	Unit 3, Millbuck Way, Srpingvale Industrial Estate, Sandbach, CW11 3HT.
Traceability information	Date/time of production:18th November 2021 Production unit/line:Main Factory Batch number: See attached summary list Shift: Day
Product Number/ Description	Quelstop Batt QFP3 – Large Pillows QFP2 – Medium Pillows QuelCoil CFC100 Fire Cuff CFC125 Fire Cuff
Marking of the product by the manufacturer e.g. label, batch number and date of manufacture	FM509874, 18.11.21, 1121 – E R Fletcher Batch numbers as per attached summary list
Marking of the samples by Warringtonfire Testing and Certification Limited	Job No: WF 509874 Date: 18.11.21 Signature or initials: E R Fletcher
Stock/batch quantity from which samples selected and sample quantity	Samples selected from bulk stock. Quelstop Batt – 1 pallet from 16 QFP3 – Large Pillows – 4 boxes from 11 QFP2 – Medium Pillows – 20 from 377 QuelCoil – 5 x boxes from 280 CFC100 Fire Cuff – 10 x 272 CFC125 Fire Cuff - 12 from 12 – (New Product)
Results of tests and/or inspections during manufacture	Inspected at manufacturer. Testing carried out in lab and passed . All traceable through the batch numbers and SOP numbers from purchased materials.
Essential Characteristics to be tested ie. Test reference	This is for ongoing testing at Warrington Fire – Test Engineers – Dan Whittle and Jenni Whalley
Samples to be dispatched by manufacturer to *** within *** weeks/month(s)	To be dispatched to WarringtonFire within 4 weeks.
Date of sampling	18.11.21
Warringtonfire Testing and Certification Limited notified body number	1121
Signed: (for and on behalf of Manufacturer)	Signed: (for and on behalf of Warringtonfire Testing and Certification Limited)
Print: DARRYL WELLS	Print: ELIZABETH R FLETCHER
Date: 18.11.21	Date: 18·11·21

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Warringtonfire Testing and Certification Limited
(a company registered in England and Wales with registered number 11371436)

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Sample Report

This report provides a record of the information relating to samples taken by Warringtonfire Testing and Certification Limited trading, or its agent, for certification of the products detailed below.

Job No.	FM438137 Remote audit via MS Teams
Manufacturer	Quelfire Ltd
Manufacturing site	Unit 3 Millbuck way, Springvale Industrial estate, Sandbach, Cheshire, CW11 3HT
Place of sampling	As above
Traceability information	Date/time of production: 15th February 2021 Production unit/line: Main factory Batch number: As attached list Shift: Day
Product Number/ Description	This is for ongoing testing at Warrington and the test engineers are Dan Whittle and Jenni Whalley
Marking of the product by the manufacturer e.g. label, batch number and date of manufacture	1 Pallet/60 no Quelstop Batt, 20 boxes QuelStop acrylic sealant, 15 boxes HPE sealant, 4 no Quelstop Ablative coating, 30 no bags QF2 compound, 20 no QRS205/60 sleeves, 20 no QRS 220/90 sleeves, 20 no QRS 204/60SS sleeves, 20 no QRS 220/90SS sleeves, 5no QRS 220/90-250(250mm long) sleeves, 2 no QRS 205/60-250(250mm long) Sleeves, 24 no QuelCast 110 Cast in collars, 20 no QuelCast 160 Cast in collars, 8 no QuelCast 50 cast in collars, 10 boxes (200no) double Putty Pads, 2 boxes (40no) single putty pads, 2 Boxes (30 no) QWR160/CE collars and 1 box (50no) QWR110/CE Collars
Marking of the samples by Warringtonfire Testing and Certification Limited	Job No: FM438137 Notified Body 1121 Date: 15th February 2021 Signature or initials: Darryl Wells (Quelfire)
Stock/batch quantity from which samples selected and sample quantity	The samples have been selected from bulk stock and general racking locations, all witnessed and selected via video link
Results of tests and/or inspections during manufacture	Inspected during manufacture, testing carried-out in laboratory all passed all traceable through the batch numbers & SOP numbers for purchased materials
Essential Characteristics to be tested ie. Test reference	Mainly testing to EN1366-3 penetration seals and acoustic testing
Samples to be dispatched by manufacturer to *** within *** weeks/month(s)	Dispatched to: Within two weeks Warringtonfire Holmesfield Road Warrington, Cheshire WA1 2DS
Date of sampling	15th February 2021
Warringtonfire Testing and Certification Limited notified body number	1121

Signed: (for and on behalf of Manufacturer)	Signed: (for and on behalf of Warringtonfire Testing and Certification Limited)
Print: Darryl Wells	Print: Andrew Cape
Date: 15th February 2021	Date: 15th February 2021