TEST REPORT

(주)사람과안전
CFEL 건설화재에너지연구원
23-42, Songhakjeong-ro,
Bukbang-myeon, Hongcheon-gun,
Gangwon State, Republic of Korea
Tel. 033-436-7000 Fax. 033-434-2586

Report No. :
CFEL-K-2024-00399-1(E)

1. Client
- ○ Name : AT block CO.Ltd
- ○ Address : 183, Balsan 1-gil, Susin-myeon, Dongnam-gu, Cheonan-si, Chungcheongnam-do, Republic of Korea
- ○ Date of Receipt : April 01, 2024

2. Sample Description : AT Block (autoclaved lightweight aerated concrete block)

3. Use of Test Report : For performance check

4. Date of Test : April 26, 2024

5. Location of Test : ■ Permanent Testing Lab □ On Site Testing
(Address : 23-42, Songhakjeong-ro, Bukbang-myeon, Hongcheon-gun, Gangwon State, Republic of Korea)

6. Test method used : (1) KS F 2257-8:2015
(Method of fire resistance test for elements of building construction — Specific requirements for non-loadbearing vertical separating elements)

7. Environment Condition : Refer to test condition

8. Test Results : Refer to test condition

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
This laboratory is not accredited for the test results marked *

Affirmation	Tested by Name : Dong-Min Kim 김 동 민 (Signature)	Technical Manager Name : Kyung-Sang Kim (Signature)

This report complies with KS Q ISO 17025.

The above test certificate is the accredited test results by Korea Laboratory Accreditation Scheme, which signed the ILAC-MRA.

May 16, 2024

C F E L

Accredited by KOLAS, Republic of KOREA

(주)사람과안전
연CFEL구 건설화재에너지연구원
23-42, Songhakjeong-ro,
Bukbang-myeon, Hongcheon-gun,
Gangwon State, Republic of Korea
Tel. 033-436-7000 Fax. 033-434-2586

■ General Information

- Name : AT block CO.Ltd
- Address : 183, Balsan 1-gil, Susin-myeon, Dongnam-gu, Cheonan-si, Chungcheongnam-do, Republic of Korea

■ Application outline

1. Sample Description : AT Block (autoclaved lightweight aerated concrete block)
2. Site of use : the non-bearing walls of a building
3. Fire resistance test application time : 120 min
4. Sample information
   - Model name : AT Block (autoclaved lightweight aerated concrete block)
   - Components : See also Sample Structure Description
5. Date of bringing in the test specimen : April 19, 2024

■ Summary of test results

Test item	Test method	Result
(1)	KS F 2257-8:2015 (Method of fire resistance test for elements of building construction — Specific requirements for non-loadbearing vertical separating elements)	Fire resistance 120 min

※ The above test has a symmetrical structure and is a test result conducted with one sample quantity according to the test method.

(주)사람과안전
연CFEL구 건설화재에너지연구원
23-42, Songhakjeong-ro,
Bukbang-myeon, Hongcheon-gun,
Gangwon State, Republic of Korea
Tel. 033-436-7000 Fax. 033-434-2586

1. Fire resistance test

1.1 Test method used

KS F 2257-8 : 2015 (Method of fire resistance test for elements of building construction — Specific requirements for non-loadbearing vertical separating elements)

1.2 Test condition

Object		Specimen
Test date		April 26, 2024
Specimen Size (㎜)		3 000(W) x 3 000(H)
Furnace temperature		See 3.1
Conditioning		Air-drying – Required from Client
Test condition	Ambient temperature	Lowest : 15.0 ℃, highest : 18.3 ℃
	Relative humidity	Lowest : 45 %, Highest : 57 %
Specimen support and restraint		See drawing 2.1
Measurement location		See drawing 2.1
Test facility (ID No.)		Furnace-3 (CFEL-TD-F-0003)

1.3 Observation of unexposed side

Time (min)	Specimen
17	The center of the test specimen begins to discolor.
-	Nothing special
120	Test terminated

(주)사람과안전
연CFEL구 건설화재에너지연구원
23-42, Songhakjeong-ro,
Bukbang-myeon, Hongcheon-gun,
Gangwon State, Republic of Korea
Tel. 033-436-7000 Fax. 033-434-2586

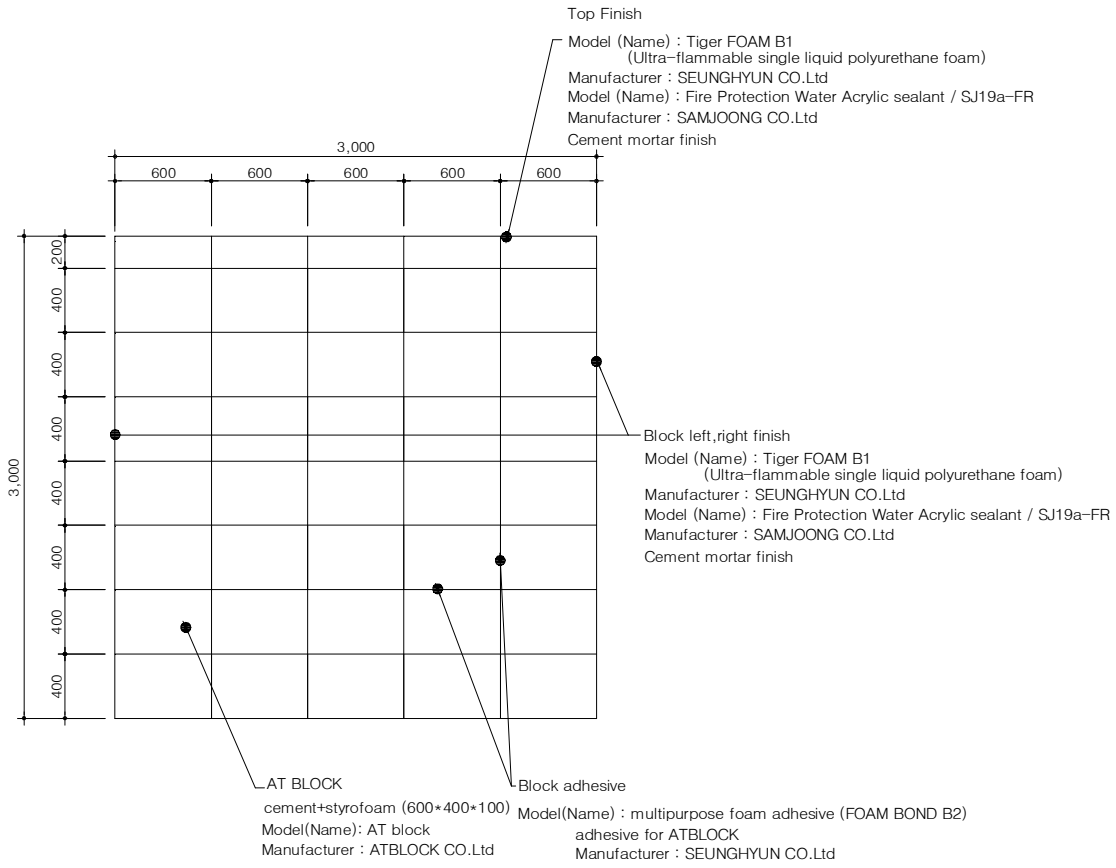
2. Test results

Sortation	Performance criteria			Test results		Performance
SpecImen	flame interruption performance	It should not ignite when applying cotton pads.		Didn't occurred	120 min	120 min
		The gaps which neither 6 ㎜ gap gauge passed through and move more than 150 ㎜ along the gap, nor 25 ㎜ gap gauge can pass through shall not occurred during test.		Didn't occurred	120 min	
		Any flame sustained more that 10 s shall not occurred on unexposed face.		Didn't occurred	120 min	
	Isolation-heat Performance	Unexposed Initial temperature (Initial average temperature)		19.3 ℃	-	
		Unexposed face average temperature[1)]	159.3 ℃ or less	53.8 ℃	120 min	
		Unexposed face maximum temperature[2)]	199.3 ℃ or less	58.7 ℃ (CH. 12)	120 min	
		a movable thermocouple	-	-	-	

※ 1) Unexposed face average temperature + 140 ℃ or less if not heated, 2) Unexposed face average temperature + 180 ℃ or less if not heated

(주)사람과안전
연CFEL구 건설화재에너지연구원
23-42, Songhakjeong-ro,
Bukbang-myeon, Hongcheon-gun,
Gangwon State, Republic of Korea
Tel. 033-436-7000 Fax. 033-434-2586

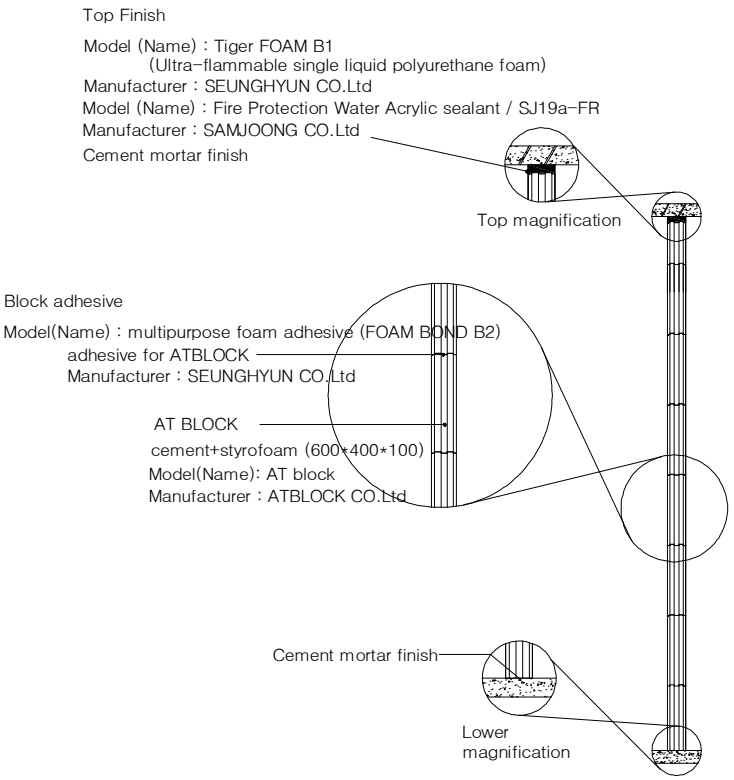
Attachment 1. Description of the structure



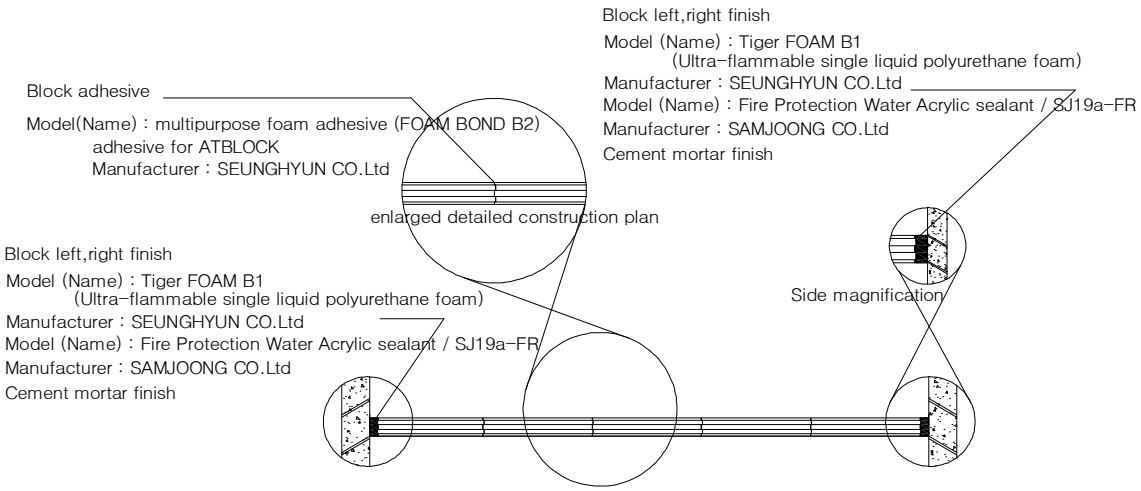
< Structural Description Drawings >

※ The specifications above are provided by the client.

(주)사람과안전
연CFEL구 건설화재에너지연구원
23-42, Songhakjeong-ro,
Bukbang-myeon, Hongcheon-gun,
Gangwon State, Republic of Korea
Tel. 033-436-7000 Fax. 033-434-2586

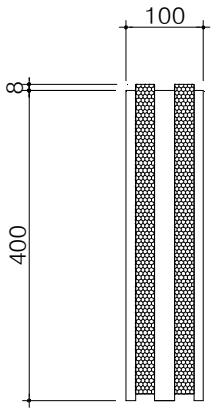


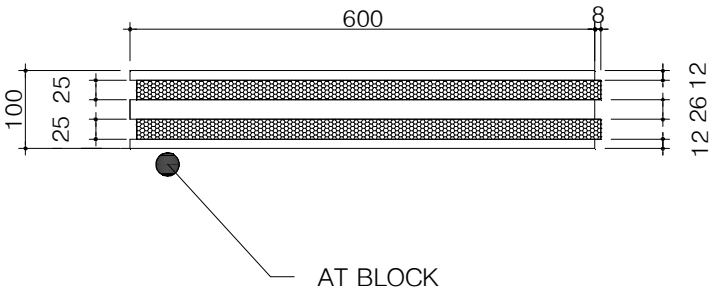
< Vertical Section Detail >



< Horizontal Section Detail >

(주)사람과안전
연CFEL구 건설화재에너지연구원
23-42, Songhakjeong-ro,
Bukbang-myeon, Hongcheon-gun,
Gangwon State, Republic of Korea
Tel. 033-436-7000 Fax. 033-434-2586





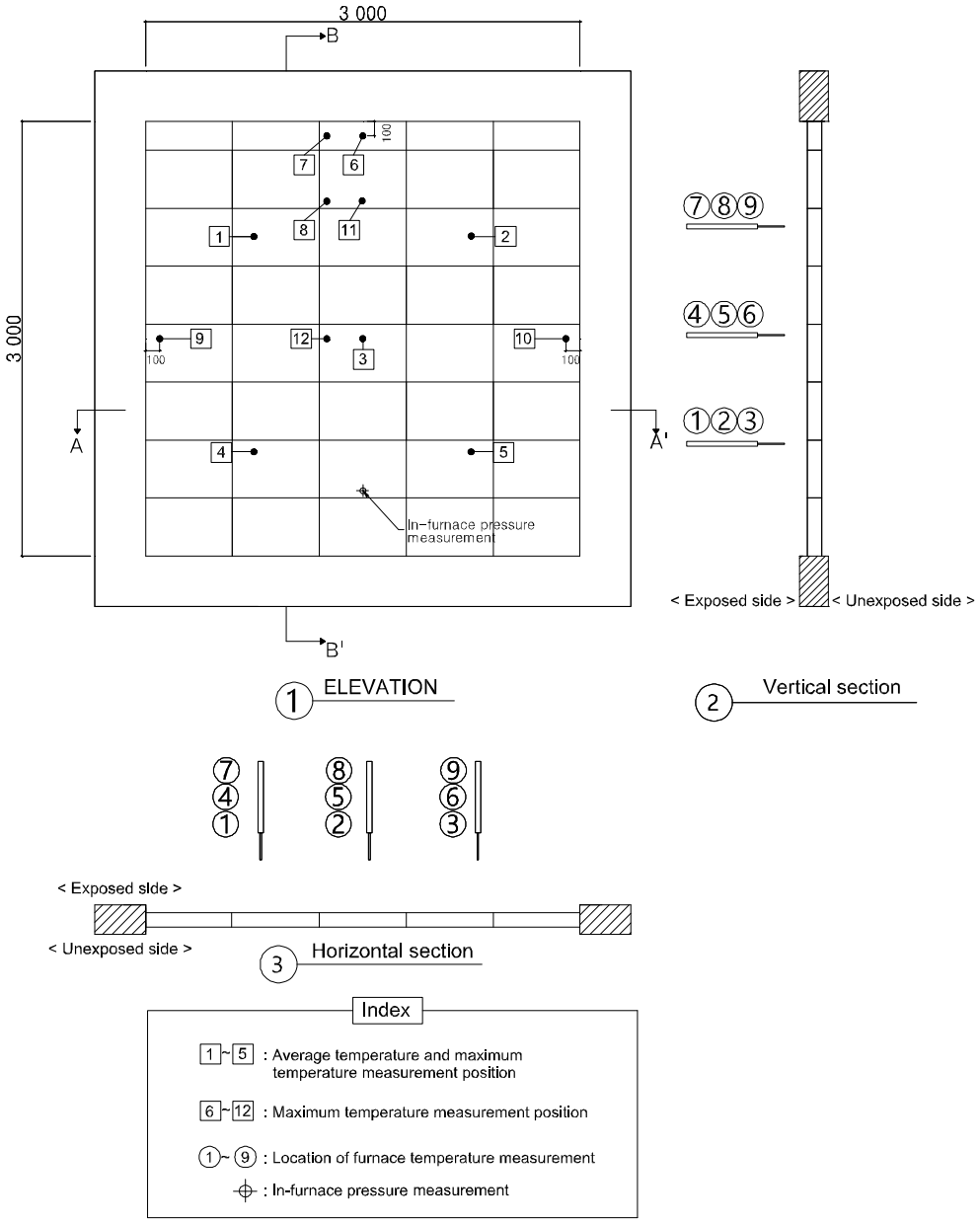
AT BLOCK
cement+styrofoam (600*400*100)
Model(Name): AT block
Manufacturer : ATBLOCK CO.Ltd

< AT block detailed drawing >

(주)사람과안전
연CFEL구 건설화재에너지연구원
23-42, Songhakjeong-ro,
Bukbang-myeon, Hongcheon-gun,
Gangwon State, Republic of Korea
Tel. 033-436-7000 Fax. 033-434-2586

Attachment 2. Specimen drawing

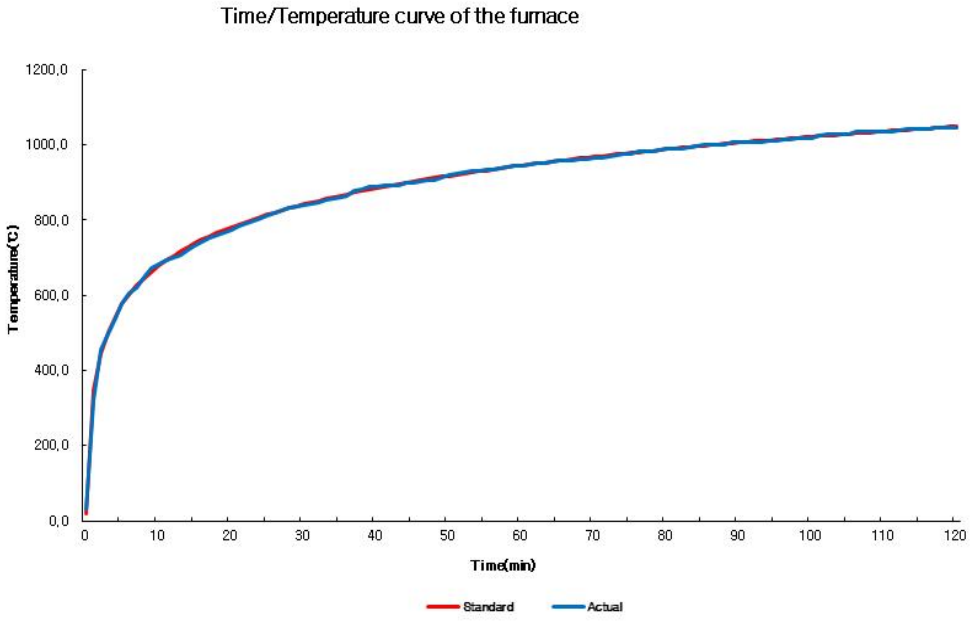
2.1 Specimen



(주)사람과안전
연CFEL구 건설화재에너지연구원
23-42, Songhakjeong-ro,
Bukbang-myeon, Hongcheon-gun,
Gangwon State, Republic of Korea
Tel. 033-436-7000 Fax. 033-434-2586

Attachment 3. Test Data

3.1 Time · Temperature curve of test



(주)사람과안전
연CFEL구 건설화재에너지연구원
23-42, Songhakjeong-ro,
Bukbang-myeon, Hongcheon-gun,
Gangwon State, Republic of Korea
Tel. 033-436-7000 Fax. 033-434-2586

3.2 Furnace temperature and the area under time · temperature curv

Time (min)	Standard furnace temp. (℃)	Actual furnace temp. (℃)	Area under standard curve (℃·min)	Area under actual curve (℃·min)	Difference (%)	Tolerance (%)
0	20.0	30.1	20.0	30.1	51	-
5	576.4	576.6	2 436.3	2 415.4	-1	-
10	678.4	684.2	5 651.9	5 647.7	0	15.0
15	738.6	731.9	9 234.0	9 195.6	0	12.5
20	781.4	774.8	13 060.2	12 995.2	0	10.0
25	814.6	812.5	17 069.7	16 985.7	0	7.5
30	841.8	839.7	21 226.3	21 137.9	0	5.0
35	864.8	862.5	25 505.7	25 404.1	0	4.6
40	884.7	888.6	29 890.6	29 806.0	0	4.2
45	902.3	899.6	34 367.8	34 278.7	0	3.8
50	918.1	919.0	38 927.4	38 824.6	0	3.3
55	932.3	933.6	43 561.0	43 469.3	0	2.9
60	945.3	945.8	48 262.1	48 173.7	0	2.5
65	957.3	957.0	53 025.0	52 936.1	0	2.5
70	968.4	965.6	57 845.1	57 744.4	0	2.5
75	978.7	977.0	62 718.3	62 605.0	0	2.5
80	988.4	988.8	67 641.1	67 525.0	0	2.5
85	997.4	999.1	72 610.4	72 495.0	0	2.5
90	1 006.0	1 006.2	77 623.4	77 511.9	0	2.5
95	1 014.1	1 012.0	82 677.8	82 558.8	0	2.5
100	1 021.8	1 019.6	87 771.3	87 643.7	0	2.5
105	1 029.1	1 029.8	92 902.1	92 783.4	0	2.5
110	1 036.0	1 036.3	98 068.4	97 958.4	0	2.5
111	1 037.4	1 036.7	99 105.8	98 995.1	0	2.5
112	1 038.7	1 039.9	100 144.5	100 035.0	0	2.5
113	1 040.0	1 041.9	101 184.5	101 076.9	0	2.5
114	1 041.4	1 043.7	102 225.9	102 120.6	0	2.5
115	1 042.7	1 043.1	103 268.6	103 163.7	0	2.5
116	1 044.0	1 041.9	104 312.6	104 205.6	0	2.5
117	1 045.3	1 046.0	105 357.9	105 251.6	0	2.5
118	1 046.5	1 046.5	106 404.4	106 298.1	0	2.5
119	1 047.8	1 047.4	107 452.2	107 345.5	0	2.5
120	1 049.0	1 046.2	108 501.2	108 391.7	0	2.5

(주)사람과안전
연CFEL구 건설화재에너지연구원
23-42, Songhakjeong-ro,
Bukbang-myeon, Hongcheon-gun,
Gangwon State, Republic of Korea
Tel. 033-436-7000 Fax. 033-434-2586

3.3 Pressure of the furnace

Time (min)	Furnace Press.(Pa)
0	16.5
1	-3.8
2	-2.0
3	0.5
4	-0.3
5	3.3
6	-2.3
7	2.0
8	-2.8
9	-3.8
10	0.8
15	-1.0
20	-0.3
25	0.3
30	0.0
35	0.0
40	1.8
45	-0.3
50	-1.3
55	1.0
60	-0.5
65	0.0
70	1.8
75	-0.5
80	-1.0
85	0.5
90	-0.3
95	-0.8
100	0.3
105	-0.8
110	0.8
113	-0.3
114	1.0
115	0.8
116	-0.8
117	-0.5
118	0.3
119	0.5
120	-0.8

(주)사람과안전
연CFEL구 건설화재에너지연구원
23-42, Songhakjeong-ro,
Bukbang-myeon, Hongcheon-gun,
Gangwon State, Republic of Korea
Tel. 033-436-7000 Fax. 033-434-2586

3.4 Unexposed face surface temperature measurement results

Time (min)	CH. 1 (℃)	CH. 2 (℃)	CH. 3 (℃)	CH. 4 (℃)	CH. 5 (℃)	**Average temperature (℃)**
0	18.6	19.8	18.5	18.3	17.4	**18.5**
1	18.6	19.9	18.5	18.5	17.4	**18.6**
2	18.6	20.0	18.6	18.5	17.5	**18.6**
3	18.5	19.9	18.5	18.4	17.4	**18.5**
4	18.6	19.9	18.5	18.5	17.5	**18.6**
5	18.6	19.9	18.5	18.5	17.5	**18.6**
6	18.6	20.0	18.6	18.5	17.5	**18.6**
7	18.7	20.0	18.7	18.6	17.4	**18.7**
8	18.6	20.1	18.6	18.5	17.5	**18.7**
9	18.8	20.0	18.7	18.5	17.5	**18.7**
10	18.8	20.1	18.7	18.6	17.6	**18.8**
11	18.8	20.2	18.8	18.7	17.6	**18.8**
12	18.8	20.1	18.7	18.5	17.6	**18.7**
13	18.8	20.2	18.7	18.6	17.7	**18.8**
14	18.8	20.2	18.7	18.6	17.6	**18.8**
15	18.8	20.2	18.8	18.6	17.7	**18.8**
16	18.8	20.1	18.7	18.6	17.7	**18.8**
17	18.8	20.1	18.7	18.6	17.8	**18.8**
18	18.8	20.1	18.8	18.7	17.7	**18.8**
19	18.9	20.2	18.7	18.8	17.9	**18.9**
20	18.9	20.2	18.8	18.8	17.7	**18.9**
21	18.8	20.2	18.8	18.8	17.8	**18.9**
22	18.8	20.1	18.7	18.7	17.9	**18.8**
23	18.8	20.1	18.7	18.7	17.9	**18.8**
24	18.9	20.2	18.9	18.8	17.8	**18.9**
25	18.9	20.2	18.9	18.9	18.0	**19.0**
26	19.0	20.2	19.0	19.0	18.0	**19.0**
27	19.1	20.3	19.0	19.1	18.1	**19.1**
28	19.1	20.3	19.1	19.2	18.1	**19.2**
29	19.1	20.4	19.2	19.3	18.2	**19.2**
30	19.1	20.4	19.1	19.2	18.2	**19.2**

(주)사람과안전
연CFEL구 건설화재에너지연구원
23-42, Songhakjeong-ro,
Bukbang-myeon, Hongcheon-gun,
Gangwon State, Republic of Korea
Tel. 033-436-7000 Fax. 033-434-2586

Time (min)	CH. 1 (℃)	CH. 2 (℃)	CH. 3 (℃)	CH. 4 (℃)	CH. 5 (℃)	**Average temperature (℃)**
31	19.3	20.5	19.3	19.3	18.4	**19.4**
32	19.4	20.6	19.4	19.4	18.5	**19.5**
33	19.5	20.8	19.5	19.5	18.5	**19.6**
34	19.8	20.9	19.8	19.6	18.7	**19.8**
35	20.0	21.1	19.9	19.8	18.7	**19.9**
36	20.1	21.3	20.0	20.0	18.8	**20.0**
37	20.2	21.4	20.2	20.2	19.0	**20.2**
38	20.5	21.6	20.4	20.3	19.1	**20.4**
39	20.7	21.9	20.6	20.5	19.3	**20.6**
40	20.9	22.1	20.9	20.7	19.5	**20.8**
41	21.2	22.4	21.1	20.9	19.7	**21.1**
42	21.5	22.6	21.4	21.3	19.9	**21.3**
43	21.8	22.8	21.7	21.4	20.1	**21.6**
44	22.1	23.2	22.0	21.7	20.2	**21.8**
45	22.4	23.4	22.2	22.1	20.5	**22.1**
46	22.6	23.7	22.6	22.4	20.9	**22.4**
47	23.0	23.9	23.0	22.8	21.2	**22.8**
48	23.3	24.2	23.3	23.0	21.4	**23.0**
49	23.7	24.6	23.6	23.4	21.7	**23.4**
50	24.0	25.0	24.0	23.7	22.0	**23.7**
51	24.4	25.4	24.4	24.0	22.3	**24.1**
52	24.8	25.8	24.7	24.4	22.7	**24.5**
53	25.2	26.2	25.2	24.9	23.0	**24.9**
54	25.6	26.5	25.6	25.2	23.3	**25.2**
55	26.0	26.9	26.0	25.6	23.6	**25.6**
56	26.3	27.3	26.3	26.0	24.0	**26.0**
57	26.7	27.7	26.8	26.4	24.2	**26.4**
58	27.2	28.1	27.2	26.8	24.6	**26.8**
59	27.6	28.6	27.6	27.2	25.1	**27.2**
60	28.0	29.0	28.0	27.7	25.4	**27.6**

(주)사람과안전
CFEL 건설화재에너지연구원
23-42, Songhakjeong-ro,
Bukbang-myeon, Hongcheon-gun,
Gangwon State, Republic of Korea
Tel. 033-436-7000 Fax. 033-434-2586

Time (min)	CH. 1 (℃)	CH. 2 (℃)	CH. 3 (℃)	CH. 4 (℃)	CH. 5 (℃)	**Average temperature (℃)**
61	28.5	29.4	28.5	28.2	25.9	**28.1**
62	29.0	29.9	29.0	28.6	26.2	**28.5**
63	29.5	30.4	29.6	29.2	26.7	**29.1**
64	30.0	30.8	30.0	29.6	27.2	**29.5**
65	30.4	31.3	30.5	30.1	27.7	**30.0**
66	30.9	31.7	31.0	30.7	28.1	**30.5**
67	31.3	32.2	31.4	31.1	28.4	**30.9**
68	31.8	32.6	31.9	31.5	29.0	**31.4**
69	32.2	33.1	32.4	31.9	29.6	**31.8**
70	32.6	33.6	33.0	32.6	30.0	**32.4**
71	33.3	34.1	33.5	33.1	30.5	**32.9**
72	33.7	34.6	34.1	33.6	31.1	**33.4**
73	34.2	35.1	34.7	34.2	31.6	**34.0**
74	34.7	35.6	35.1	34.7	32.1	**34.4**
75	35.2	36.0	35.6	35.2	32.5	**34.9**
76	35.7	36.5	36.0	35.7	32.9	**35.4**
77	36.1	36.9	36.6	36.2	33.4	**35.8**
78	36.5	37.4	37.1	36.7	34.1	**36.4**
79	37.1	37.9	37.6	37.3	34.5	**36.9**
80	37.7	38.4	38.1	37.7	34.9	**37.4**
81	38.2	38.9	38.6	38.2	35.3	**37.8**
82	38.6	39.4	39.0	38.6	35.7	**38.3**
83	39.0	39.9	39.5	38.9	36.1	**38.7**
84	39.4	40.3	40.0	39.3	36.7	**39.1**
85	40.0	40.9	40.5	39.9	37.2	**39.7**
86	40.5	41.3	41.0	40.3	37.7	**40.2**
87	40.9	41.8	41.5	40.8	38.1	**40.6**
88	41.3	42.2	41.9	41.1	38.5	**41.0**
89	41.8	42.6	42.4	41.6	39.0	**41.5**
90	42.2	43.0	42.7	42.1	39.7	**41.9**

(주)사람과안전
연CFEL구 건설화재에너지연구원
23-42, Songhakjeong-ro,
Bukbang-myeon, Hongcheon-gun,
Gangwon State, Republic of Korea
Tel. 033-436-7000 Fax. 033-434-2586

Time (min)	CH. 1 (℃)	CH. 2 (℃)	CH. 3 (℃)	CH. 4 (℃)	CH. 5 (℃)	**Average temperature (℃)**
91	42.7	43.5	43.4	42.6	40.0	**42.4**
92	43.1	43.9	43.7	42.8	40.3	**42.8**
93	43.4	44.2	44.1	43.2	40.7	**43.1**
94	43.8	44.5	44.5	43.7	41.2	**43.5**
95	44.3	45.0	44.9	44.1	41.7	**44.0**
96	44.8	45.5	45.5	44.5	42.1	**44.5**
97	45.0	45.8	45.8	44.9	42.6	**44.8**
98	45.4	46.2	46.2	45.3	42.9	**45.2**
99	45.8	46.5	46.7	45.7	43.4	**45.6**
100	46.4	47.1	47.2	46.1	43.9	**46.1**
101	46.8	47.5	47.6	46.5	44.3	**46.5**
102	47.3	48.0	48.1	47.0	44.7	**47.0**
103	47.7	48.3	48.5	47.4	45.4	**47.5**
104	48.2	48.7	49.1	47.9	45.8	**47.9**
105	48.5	49.1	49.4	48.3	46.1	**48.3**
106	49.1	49.5	50.0	48.7	46.7	**48.8**
107	49.5	50.0	50.4	49.2	47.1	**49.2**
108	49.8	50.3	50.8	49.5	47.7	**49.6**
109	50.2	50.8	51.2	49.9	48.0	**50.0**
110	50.6	51.0	51.6	50.2	48.3	**50.3**
111	50.9	51.3	51.8	50.5	48.5	**50.6**
112	51.1	51.5	52.1	50.8	49.0	**50.9**
113	51.5	51.9	52.6	51.1	49.2	**51.3**
114	51.8	52.2	52.8	51.5	49.6	**51.6**
115	52.1	52.4	53.2	51.9	50.0	**51.9**
116	52.3	52.8	53.5	52.2	50.4	**52.2**
117	52.7	53.1	54.0	52.5	50.7	**52.6**
118	53.2	53.5	54.4	52.9	51.2	**53.0**
119	53.6	53.8	54.8	53.3	51.7	**53.4**
120	**53.8**	**54.2**	**55.1**	**53.6**	**52.1**	**53.8**
maximum temperature (℃)	**53.8**	**54.2**	**55.1**	**53.6**	**52.1**	**53.8**

(주)사람과안전
연CFEL구 건설화재에너지연구원
23-42, Songhakjeong-ro,
Bukbang-myeon, Hongcheon-gun,
Gangwon State, Republic of Korea
Tel. 033-436-7000 Fax. 033-434-2586

Time (min)	CH. 6 (℃)	CH. 7 (℃)	CH. 8 (℃)	CH. 9 (℃)	CH. 10 (℃)	CH. 11 (℃)	CH. 12 (℃)
0	20.7	19.8	20.7	17.9	20.1	19.2	20.0
1	20.8	19.8	20.8	18.0	20.1	19.4	20.0
2	20.8	19.8	20.7	17.9	20.1	19.1	19.9
3	20.7	19.7	20.7	17.9	20.1	19.2	20.0
4	20.7	19.8	20.7	18.0	20.2	19.3	20.0
5	20.8	19.8	20.8	17.9	20.1	19.2	19.9
6	20.7	19.6	20.7	18.0	20.2	19.3	20.0
7	20.8	19.7	20.9	18.0	20.2	19.4	20.1
8	20.8	19.8	20.9	18.0	20.2	19.3	20.0
9	20.8	19.8	20.9	18.0	20.2	19.3	20.1
10	20.8	19.9	20.9	18.1	20.3	19.4	20.2
11	20.8	19.8	21.0	18.1	20.3	19.4	20.4
12	20.9	19.9	21.0	18.2	20.4	19.4	20.7
13	20.8	20.0	20.9	17.9	20.2	19.3	21.1
14	20.8	19.9	20.9	18.1	20.2	19.3	21.4
15	20.8	19.8	21.0	18.1	20.2	19.4	21.2
16	20.8	19.9	21.0	18.1	20.3	19.3	21.3
17	20.9	19.9	21.0	18.1	20.3	19.4	21.2
18	20.7	19.9	20.9	18.3	20.3	19.5	21.5
19	20.8	19.8	20.9	18.1	20.3	19.3	22.1
20	20.8	19.9	20.9	18.1	20.2	19.3	22.6
21	20.8	20.0	21.1	18.0	20.4	19.4	22.2
22	20.9	20.0	21.1	18.1	20.3	19.4	22.3
23	20.9	20.0	21.1	18.2	20.3	19.4	22.7
24	20.8	20.0	21.1	18.2	20.3	19.5	22.4
25	20.8	20.0	21.1	18.2	20.3	19.6	22.3
26	20.8	20.0	21.3	18.3	20.4	19.5	22.5
27	20.9	20.1	21.3	18.4	20.4	19.6	22.6
28	20.9	20.1	21.5	18.4	20.5	19.6	22.7
29	21.0	20.2	21.6	18.4	20.4	19.7	23.3
30	21.0	20.3	21.8	18.4	20.5	19.7	24.6

(주)사람과안전
연CFEL구 건설화재에너지연구원
23-42, Songhakjeong-ro,
Bukbang-myeon, Hongcheon-gun,
Gangwon State, Republic of Korea
Tel. 033-436-7000 Fax. 033-434-2586

Time (min)	CH. 6 (℃)	CH. 7 (℃)	CH. 8 (℃)	CH. 9 (℃)	CH. 10 (℃)	CH. 11 (℃)	CH. 12 (℃)
31	21.1	20.4	22.0	18.6	20.6	19.8	24.0
32	21.2	20.5	22.1	18.6	20.7	19.9	25.2
33	21.3	20.7	22.3	18.7	20.8	20.1	26.0
34	21.4	20.8	22.7	18.8	20.9	20.3	27.0
35	21.4	20.9	22.8	19.0	21.1	20.4	26.6
36	21.6	21.1	23.2	19.1	21.2	20.6	26.1
37	21.8	21.3	23.5	19.3	21.3	20.9	25.9
38	21.9	21.5	23.8	19.4	21.5	21.0	27.2
39	22.0	21.7	24.1	19.5	21.7	21.2	28.2
40	22.2	21.9	24.5	19.6	21.8	21.5	29.3
41	22.4	22.1	24.9	19.9	22.0	21.8	28.5
42	22.7	22.4	25.2	20.1	22.2	22.0	28.1
43	22.9	22.6	25.6	20.2	22.6	22.2	29.0
44	23.1	23.0	26.0	20.5	22.7	22.6	29.1
45	23.3	23.1	26.5	20.8	23.1	22.8	28.9
46	23.6	23.5	26.8	21.0	23.4	23.1	28.9
47	23.8	23.8	27.2	21.3	23.6	23.4	29.1
48	24.1	24.1	27.6	21.6	24.0	23.8	29.6
49	24.4	24.4	28.0	21.8	24.1	24.1	31.1
50	24.7	24.6	28.4	22.0	24.5	24.5	32.2
51	25.0	24.9	28.9	22.3	24.8	24.9	33.0
52	25.4	25.4	29.5	22.6	25.1	25.2	32.7
53	25.7	25.8	29.9	23.0	25.4	25.6	32.7
54	26.1	26.1	30.3	23.3	25.8	25.9	33.7
55	26.4	26.4	30.7	23.5	26.3	26.4	34.3
56	26.8	26.8	31.2	24.0	26.7	26.8	34.5
57	27.2	27.2	31.6	24.4	27.0	27.2	34.9
58	27.7	27.6	32.1	24.7	27.5	27.7	35.6
59	28.0	28.0	32.6	25.2	27.9	28.1	36.0
60	28.4	28.4	33.1	25.5	28.3	28.4	36.2

(주)사람과안전
연CFEL구 건설화재에너지연구원
23-42, Songhakjeong-ro,
Bukbang-myeon, Hongcheon-gun,
Gangwon State, Republic of Korea
Tel. 033-436-7000 Fax. 033-434-2586

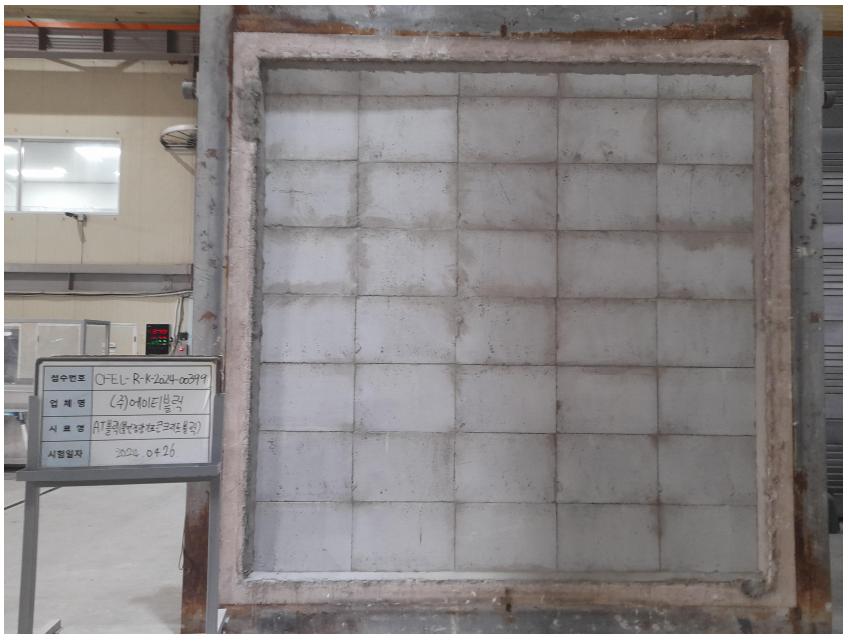
Time (min)	CH. 6 (℃)	CH. 7 (℃)	CH. 8 (℃)	CH. 9 (℃)	CH. 10 (℃)	CH. 11 (℃)	CH. 12 (℃)
61	28.9	28.8	33.5	25.9	28.7	28.9	36.9
62	29.4	29.3	34.0	26.3	29.1	29.4	37.1
63	29.9	29.8	34.6	26.6	29.6	29.9	37.6
64	30.3	30.4	35.0	27.1	30.0	30.3	38.1
65	30.8	30.8	35.5	27.4	30.4	30.7	38.4
66	31.3	31.2	35.9	27.9	30.8	31.2	38.7
67	31.7	31.6	36.4	28.2	31.2	31.6	39.2
68	32.2	32.0	36.8	28.5	31.7	32.1	39.7
69	32.8	32.7	37.4	29.1	32.2	32.6	40.0
70	33.2	33.3	37.8	29.6	32.7	33.0	40.4
71	33.7	33.7	38.3	30.2	33.3	33.5	40.9
72	34.2	34.1	38.6	30.7	33.7	33.9	41.3
73	34.7	34.7	39.0	31.1	34.2	34.4	41.8
74	35.2	35.1	39.4	31.5	34.7	34.8	42.1
75	35.7	35.6	39.9	31.9	35.2	35.3	42.4
76	36.2	36.0	40.4	32.2	35.6	35.8	42.9
77	36.7	36.6	40.8	32.8	36.1	36.3	43.4
78	37.3	37.1	41.2	33.4	36.7	36.9	43.8
79	37.8	37.5	41.6	33.6	37.2	37.2	44.3
80	38.3	38.0	42.1	34.2	37.6	37.8	44.6
81	38.8	38.4	42.5	34.5	38.1	38.2	45.1
82	39.2	39.0	43.0	35.0	38.5	38.8	45.5
83	39.7	39.3	43.4	35.3	38.9	39.1	46.0
84	40.3	39.8	43.9	35.8	39.4	39.7	46.4
85	40.8	40.4	44.3	36.5	40.0	40.1	46.7
86	41.3	40.8	44.7	36.7	40.4	40.6	47.1
87	41.7	41.2	45.1	37.2	40.9	41.0	47.5
88	42.2	41.6	45.6	37.6	41.4	41.5	48.0
89	42.6	42.1	45.9	37.9	41.8	42.0	48.4
90	43.1	42.6	46.3	38.3	42.2	42.4	48.7

(주)사람과안전
연CFEL구 건설화재에너지연구원
23-42, Songhakjeong-ro,
Bukbang-myeon, Hongcheon-gun,
Gangwon State, Republic of Korea
Tel. 033-436-7000 Fax. 033-434-2586

Time (min)	CH. 6 (℃)	CH. 7 (℃)	CH. 8 (℃)	CH. 9 (℃)	CH. 10 (℃)	CH. 11 (℃)	CH. 12 (℃)
91	43.6	42.9	46.7	38.8	42.7	42.8	49.1
92	43.9	43.3	46.9	38.9	43.1	43.1	49.3
93	44.2	43.6	47.2	39.3	43.5	43.5	49.8
94	44.7	44.0	47.6	39.6	44.0	43.9	50.1
95	45.3	44.5	48.0	40.0	44.4	44.3	50.5
96	45.7	44.9	48.3	40.3	44.8	44.6	50.8
97	45.9	45.2	48.6	40.6	45.2	45.0	51.1
98	46.4	45.6	48.9	41.1	45.7	45.4	51.5
99	46.9	46.0	49.2	41.4	46.1	45.9	51.8
100	47.6	46.5	49.7	41.9	46.5	46.3	52.2
101	48.0	47.1	50.0	42.3	46.9	46.7	52.5
102	48.5	47.5	50.4	42.6	47.3	47.1	52.9
103	49.1	48.1	50.9	43.2	47.9	47.5	53.3
104	49.6	48.5	51.1	43.6	48.4	47.9	53.7
105	50.0	48.9	51.4	44.0	48.7	48.3	54.0
106	50.5	49.4	51.7	44.2	49.2	48.7	54.3
107	51.0	49.9	52.1	44.9	49.6	49.0	54.7
108	51.5	50.4	52.5	45.4	50.1	49.3	55.2
109	51.9	50.8	52.6	45.6	50.5	49.7	55.5
110	52.3	51.0	53.0	45.9	50.9	50.0	55.7
111	52.7	51.5	53.2	46.1	51.3	50.4	56.0
112	53.0	51.6	53.4	46.3	51.6	50.7	56.2
113	53.3	51.8	53.6	46.6	51.9	50.9	56.5
114	53.8	52.1	53.9	46.9	52.3	51.2	56.8
115	54.1	52.5	54.1	47.2	52.7	51.6	57.1
116	54.5	52.7	54.4	47.4	52.9	51.8	57.3
117	54.9	52.8	54.6	47.8	53.3	52.0	57.6
118	55.5	53.3	55.1	48.2	53.7	52.4	58.0
119	56.0	53.8	55.4	48.8	54.2	52.9	58.5
120	**56.3**	**54.2**	**55.7**	**48.8**	**54.5**	**53.2**	**58.7**
maximum temperature (℃)	**56.3**	**54.2**	**55.7**	**48.8**	**54.5**	**53.2**	**58.7**

(주)사람과안전
연CFEL구 건설화재에너지연구원
23-42, Songhakjeong-ro,
Bukbang-myeon, Hongcheon-gun,
Gangwon State, Republic of Korea
Tel. 033-436-7000 Fax. 033-434-2586

Attachment 4. Test photos



< Exposed face – before test >

< Exposed face – after test >

(주)사람과안전
연CFEL구 건설화재에너지연구원
23-42, Songhakjeong-ro,
Bukbang-myeon, Hongcheon-gun,
Gangwon State, Republic of Korea
Tel. 033-436-7000 Fax. 033-434-2586

< Unexposed face – before test >

< Unexposed face – after test >

-- The end --