BIG QUOKKA PTY LTD

TEST REPORT

SCOPE OF WORK
AS 1530.8.1:2018+A1:2024 TESTING ON PREMIUM PVC DECKING

REPORT NUMBER
250108015SHF-001

TEST DATE
2024-12-13

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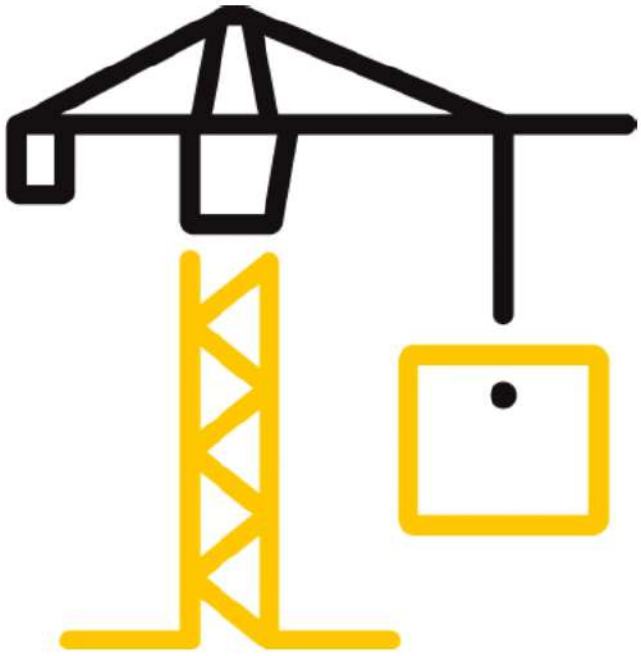

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REPORT ISSUED TO
BIG QUOKKA PTY LTD
26 Terra Cotta Dr, Blackburn VIC 3130

SECTION 1
SCOPE

Intertek has conducted an evaluation for BIG QUOKKA PTY LTD to determine the simulated bushfire attack characteristics of the Premium PVC Decking. This evaluation began on November 26, 2024 and was completed on January 8, 2025. The test was conducted on December 13, 2024.

The test was conducted in accordance with AS 1530.8.1:2018+A1:2024 Methods for fire tests on building materials, components and structures, Part 8.1: Tests on elements of construction for buildings exposed to simulated bushfire attack-Radiant heat and small flaming sources, Section 21 SPECIFIC PROCEDURES FOR DECKS.

Intertek B&C will service this report for the entire test record retention period. The test record retention period ends six years after the test date. Test records, such as detailed drawings, datasheets, or other pertinent project documentation, will be retained for the entire test record retention period.

For INTERTEK B&C:

COMPLETED BY:	Adolph Chen	**REVIEWED BY:**	Jason Xu
TITLE:	Project Engineer– Building & Construction	**TITLE:**	Operation Supervisor – Building & Construction
SIGNATURE:	Adolph Chen	**SIGNATURE:**	Jason Xu
DATE:	2025-01-13	**DATE:**	2025-01-13

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SECTION 2
SUMMARY OF TEST RESULTS

Product Name: Premium PVC Decking
Model: /

The test assembly satisfied the performance requirements for the following bushfire attack level:

PERFORMANCE CRITERIA	RESULTS
Bushfire attack level	**BAL: AA29**

The test was discontinued after a period of 60 minutes according to the test method.

This report details methods of construction, the test conditions and the results obtained when the specific element of construction described herein was tested in accordance with test method of AS 1530.8.1.

SECTION 3
TEST METHODS

The specimen was evaluated in accordance with the following:

AS 1530.8.1:2018+A1:2024, *Methods for fire tests on building materials, components and structures, Part 8.1: Tests on elements of construction for buildings exposed to simulated bushfire attack-Radiant heat and small flaming sources, Section 21 SPECIFIC PROCEDURES FOR DECKS*

AS 1530.4:2014, *Methods for fire tests on building materials, components and structures, Part 4: Fire-resistance test for elements of construction*

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SECTION 4
MATERIAL SOURCE/INSTALLATION

Test specimen was provided to Intertek directly by the client and was not independently selected for testing. Test specimen was received at the Evaluation Center on November 20, 2024.

A description of the test assembly is given in the table below. The description of the specimen is declared by the sponsor of the test. All values quoted below are nominal, unless tolerances are given.

NO	ITEM NAME	SPECIFICATION
1	Decking board	Premium PVC Decking Density: 0.85 g/cm^3; Nominal Size: 140 mm wide × 24 mm thick, 750 mm long
2	Decking screws	Type: Self-tapping screws; Material: Stainless steel 304; Size: Φ3.75x15.7mm
3	Joist	Material: Galvanized Steel tube; Section Size: 40 mm × 40 mm × 1.5 mm thick; Overall size: 1800 mm wide by 750 mm deep
Fixing	One piece 84 mm wide and 12 pieces 140 mm wide decking boards were placed side by side on steel joist. The steel joist was constructed with three lengthwise steel tubes and two transverse steel tubes connected by fully welding per each end. Each decking board was locked with steel clips along board joints on the joists and secured by self-tapping screws. Additional three self-tapping screws were applied along the side edge of the outboard decking board.	

The sample ID number assigned by the test lab is S241126012SHF.001.

The drawings of the Premium PVC Decking and test wall construction can be found in Section 6 and 7 respectively.

The test was conducted in accordance with AS 1530.8.1:2018+A1:2024 Methods for fire tests on building materials, components and structures, Part 8.1: Tests on elements of construction for buildings exposed to simulated bushfire attack-Radiant heat and small flaming sources, Section 21 SPECIFIC PROCEDURES FOR DECKS.

The test assembly comprised a nominal 1800 mm wide × 750 mm deep × 450 mm high deck that was set within an 1800 mm wide × 250 mm deep recess formed within a nominal 3000 mm × 3000 mm wall system which met the minimum requirements as specified by AS 3959 for the specified exposure level. The joists of the deck were supported by steel bars from the underside to get a

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450 mm height. The underside of the deck is designed not to be enclosed at the request of the sponsor.

The wall system met the minimum deemed to satisfy requirements of AS 3959 for the prescribed exposure level and consisted of a metal framed wall system of 45 mm × 45 mm studs clad with two layers of 12 mm thick standard plasterboard to the exposed side and the unexposed side respectively.

Prior to commencement of the test, furnace and radiant panel were preheated to steady state conditions with the specimen shielded from the radiant heat. A calibration run was undertaken to establish the position and radiometer reading that correspond to the required radiant heat flux at the surface of the specimen. Radiation distributions are adjusted so that the average of the four heat flux measurements at the quarter points were 0.75 + 25-15% of the value measured at the central position.

After the preheating and calibration run, positioning the test assembly in the front of the furnace and radiant panel, and then burning cribs were placed at assigned rebate corner. The timer started. Temperatures within the wall and eaves were monitored using thermocouples and the data was recorded. Radiant heat flux was monitored using a radiometer and the data was recorded. Periodic observations were made of the fire exposed face and the non-fire exposed face of the test assembly during the simulated bushfire test.

Position for measurement of internal maximum temperature and radiant heat flux were presented in the drawing of Section 8.

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SECTION 5
TEST RESULTS

Performance criteria		Time to failure (min)	Position of failure
A gap from the fire exposed face to the non-fire exposed face greater than 3 mm		No failure	—
Sustained flaming for 10 s on the non-fire side		No failure	—
Flaming on the fire-exposed side at the end of the 60 min test period		No failure	—
Radiant heat flux 365 mm from the non-fire side exceeding 15 kW/m^2		No failure	—
Mean and maximum temperature rises greater than 140 K and 180 K		No applicable	—
Radiant heat flux 250 mm from the specimen, greater than 3 kW/m^2 between 20 min and 60 min		No failure	—
Mean and maximum temperature of internal faces exceeding 250°C and 300°C respectively between 20 min and 60 min after commencement of test		No failure	—
Flaming of deck assembly extends more than 500 mm in any direction from the rear and side walls		No failure	—
Crib class	AA	Peak heat flux	29 kW/m^2

The test specimen therefore satisfied the applicable performance criteria of **BAL: AA29.**

A full set of test data is included in Section 9, and photographs have been presented in Section 10.

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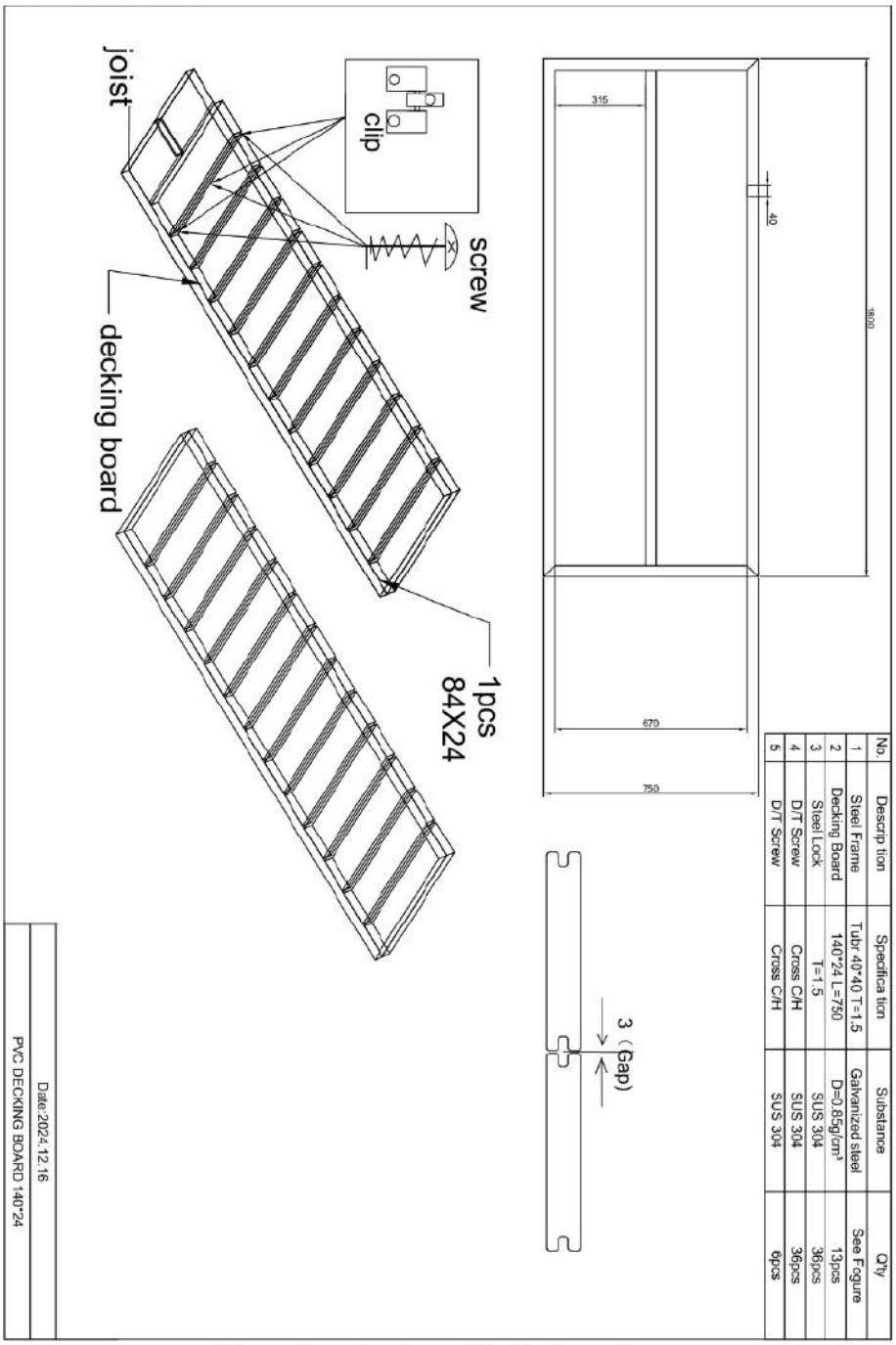
SECTION 6
TEST SAMPLE DRAWINGS



No.	Descrip tion	Specifica tion	Substance	Q'ty
1	Steel Frame	Tubr 40*40 T=1.5	Galvanized steel	See Figure
2	Decking Board	140*24 L=750	D=0.85g/cm³	13pcs
3	Steel Lock	T=1.5	SUS 304	36pcs
4	D/T Screw	Cross C/H	SUS 304	36pcs
5	D/T Screw	Cross C/H	SUS 304	6pcs

Dimension drawing of the test specimen

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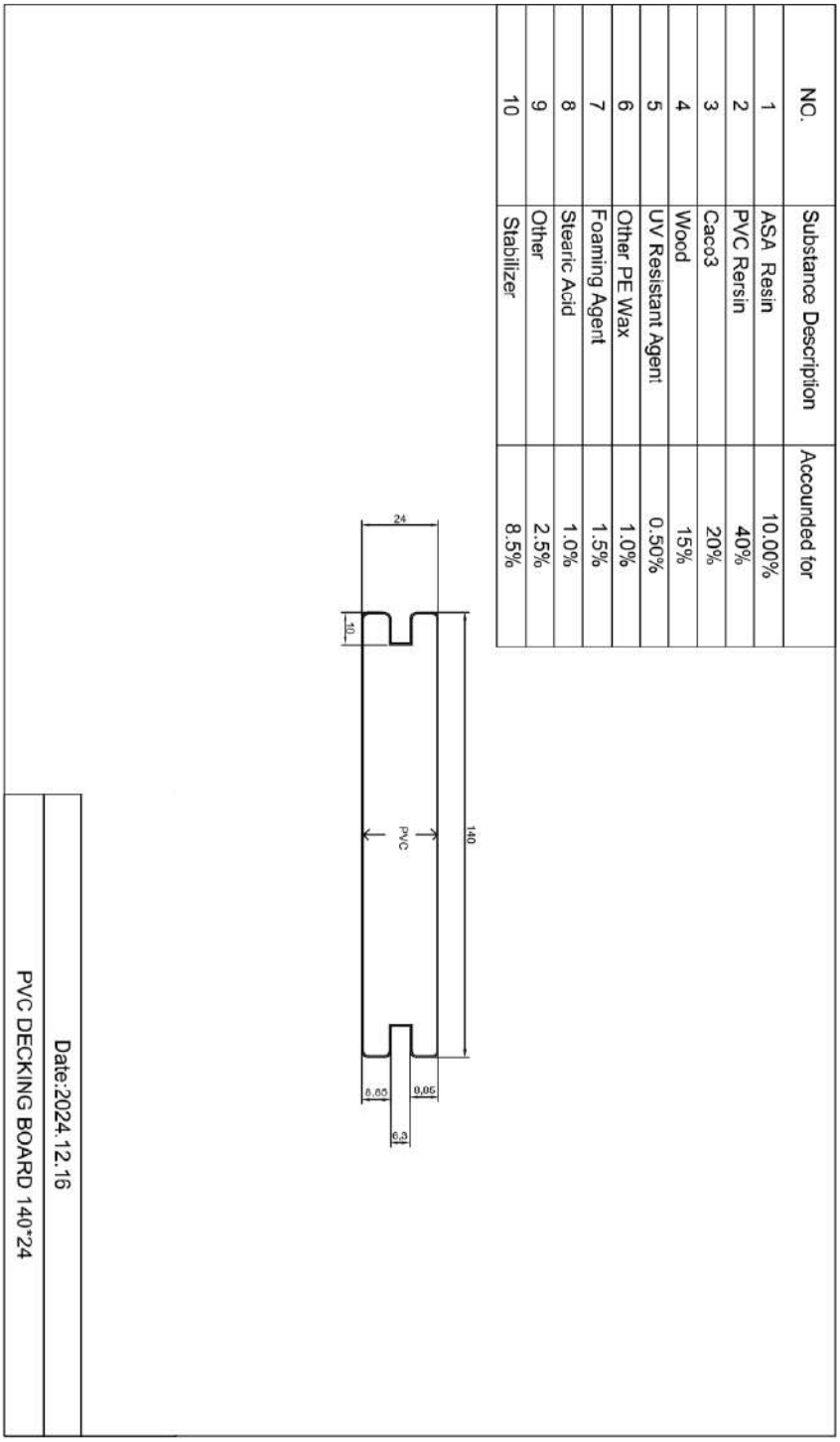
NO.	Substance Description	Accounded for
1	ASA Resin	10.00%
2	PVC Rersin	40%
3	Caco3	20%
4	Wood	15%
5	UV Resistant Agent	0.50%
6	Other PE Wax	1.0%
7	Foaming Agent	1.5%
8	Stearic Acid	1.0%
9	Other	2.5%
10	Stabilizer	8.5%



Deck profiles

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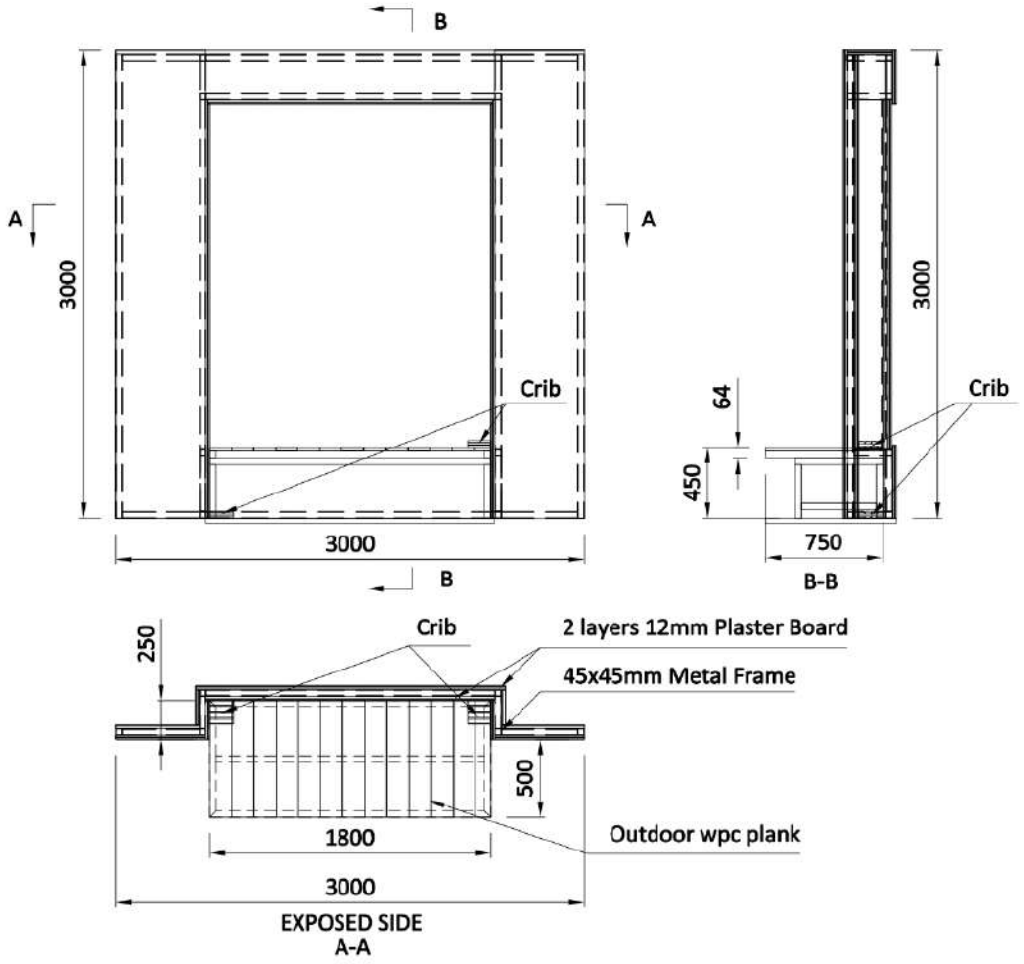
SECTION 7
TEST WALL CONSTRUCTION DRAWING



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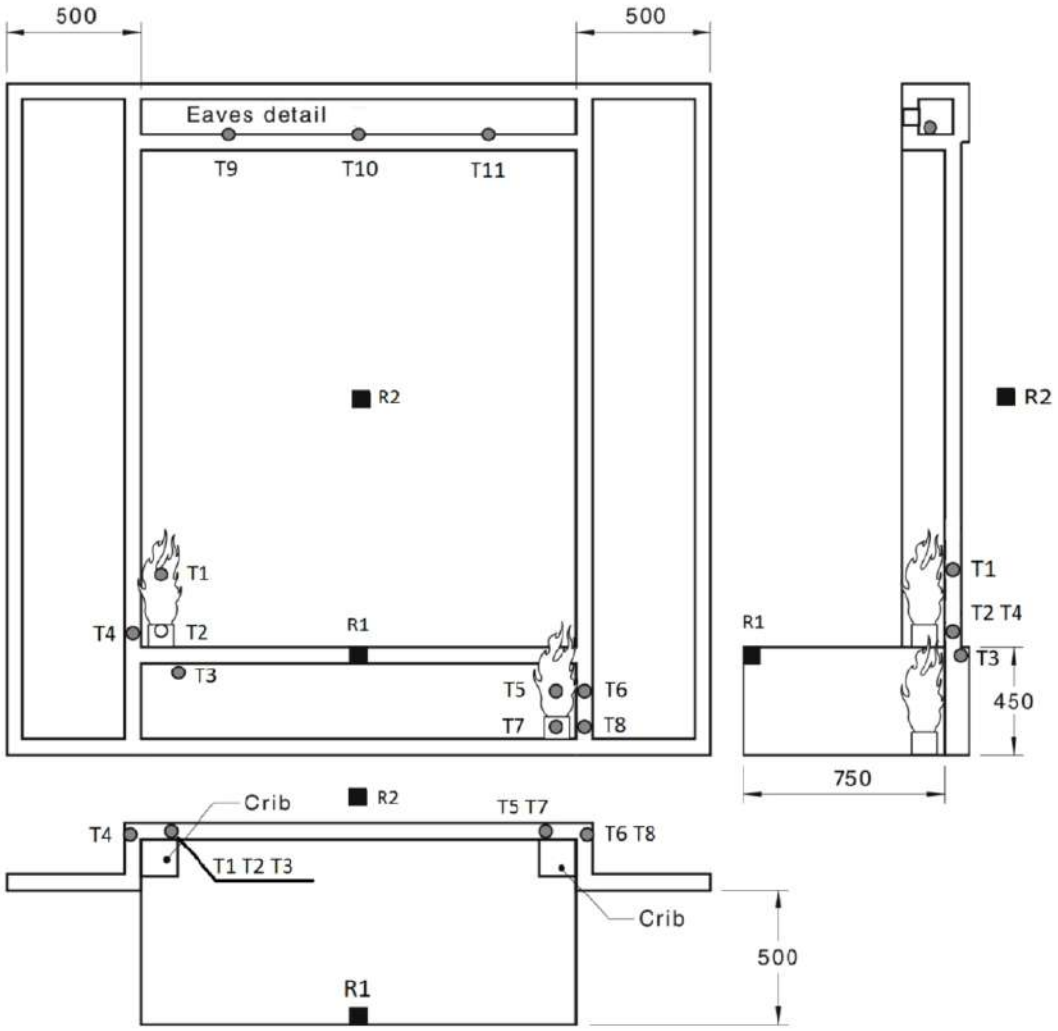
SECTION 8
TEST MEANSUREMENT DATA



Legend:

● = Position for internal maximum temperature of the wall and eave
■ = Location for radiant heat flux

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SECTION 9
TEST DATA

Standards: AS 1530.8.1:2018+A1:2024 Methods for fire tests on building materials, components and structures, Part 8.1: Tests on elements of construction for buildings exposed to simulated bushfire attack-Radiant heat and small flaming sources

Procedure: Part 8.1: Tests on elements of construction for buildings exposed to simulated bushfire attack- Radiant heat and small flaming sources

Conditioning: According to AS 1530.8.1, Section 12

Equipment:

ITEM	ID
Vertical furnace	SH1097
Test Clock	SH1042
Ambient temperature gauge	SH1097-11
Specimen thermocouple	SH1097-12
Heat flux meter	SH1093 & SH1270-3

Exposure Conditions:	According to AS 1530.8.1, Section 3.2, 14.2, 14.3
Test apparatus:	According to AS 1530.4 and 1530.8.1, Section 11
Conditioning:	According to 1530.8.1, Section 12
Test Specimen:	According to AS 1530.8.1, Section 15 through 22
Installation of test specimen:	According to AS 1530.8.1, Section 15 through 22
Heat flux meter:	According to AS 1530.8.1, Clause 11. (c)
Specimen Thermocouples:	According to AS 1530.4 and 1530.8.1, Clause 11. (g)
Test Procedure:	According to AS 1530.8.1, Section 14

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Test Observations:

Time		All observations are from the unexposed face unless noted otherwise.
Mins	Secs	
00	00	One type of AA burning timber crib was placed at a rebate corner on the upper surface of the deck, and another type of AA burning timber crib was placed at the other rebate corner under the deck. The burning crib test started. The test assembly was to be moved to the assigned position with radiation 29kW/m² in the front of furnace and radiant panel and lasted 120s, the radiant heat exposure test started.
01	00	The pilot ignition source was applied to the position of smoke emission of the specimen with 10s and it was not ignited.
02	20	The test assembly moved to second assigned position with radiation 21kW/m² and exposed for 40s.
02	31	The pilot ignition source was applied to the position of smoke emission of the specimen with 10s and it was not ignited.
03	00	The test assembly moved to third assigned position with radiation 14kW/m² and exposed for 60s.
03	03	These two burning timber cribs extinguished.
04	00	The test assembly moved to fourth assigned position with radiation 11kW/m² and exposed for 60s.
05	00	The test assembly moved to fifth assigned position with radiation 8kW/m² and exposed for 60s. Minor smoke issued from the specimen surface.
06	00	The test assembly moved to sixth assigned position with radiation 6.5kW/m² and exposed for 60s.
07	00	The test assembly moved to seventh assigned position with radiation 5kW/m² and exposed for 60s
08	00	The test assembly moved to eighth assigned position with radiation 3.5kW/m² and exposed for 60s. There was no smoke issued from the specimen surface.
09	00	The test assembly moved to ninth assigned position with radiation 3kW/m² and exposed for 60s.
10	00	The test of radiant heat exposure was discontinued. Neither flaming nor through gap were observed on unexposed side of test assembly.
20	00	A radiometer was positioned at a distance 250mm from the fire-exposed face of the plank and measurement of radiant heat started.
50	00	No significant change on exposed side and unexposed side of test assembly.
60	00	Observation of 50 min period was discontinued.

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Heat flux data:
Incident heat flux together with heat flux profiles specified in the standard

Time/ Secs	Specified Heat Flux/ kW/m²	Incident Heat Flux / kW/m²
0	0	0.0
20	29	29.7
40	29	30.4
60	29	30.2
80	29	30.6
100	29	31.0
120	29	31.2
140	29	31.8
160	21	24.3
180	21	23.3
200	14	16.5
220	14	16.1
240	14	16.1
260	11	12.5
280	11	12.7
300	11	12.8
320	8	9.2
340	8	9.2
360	8	9.0
380	6.5	7.4
400	6.5	7.2
420	6.5	7.6
440	5	5.7
460	5	5.9
480	5	6.0
500	3.5	3.8
520	3.5	3.9
540	3.5	3.9
560	3	3.7
580	3	3.4
600	3	3.3

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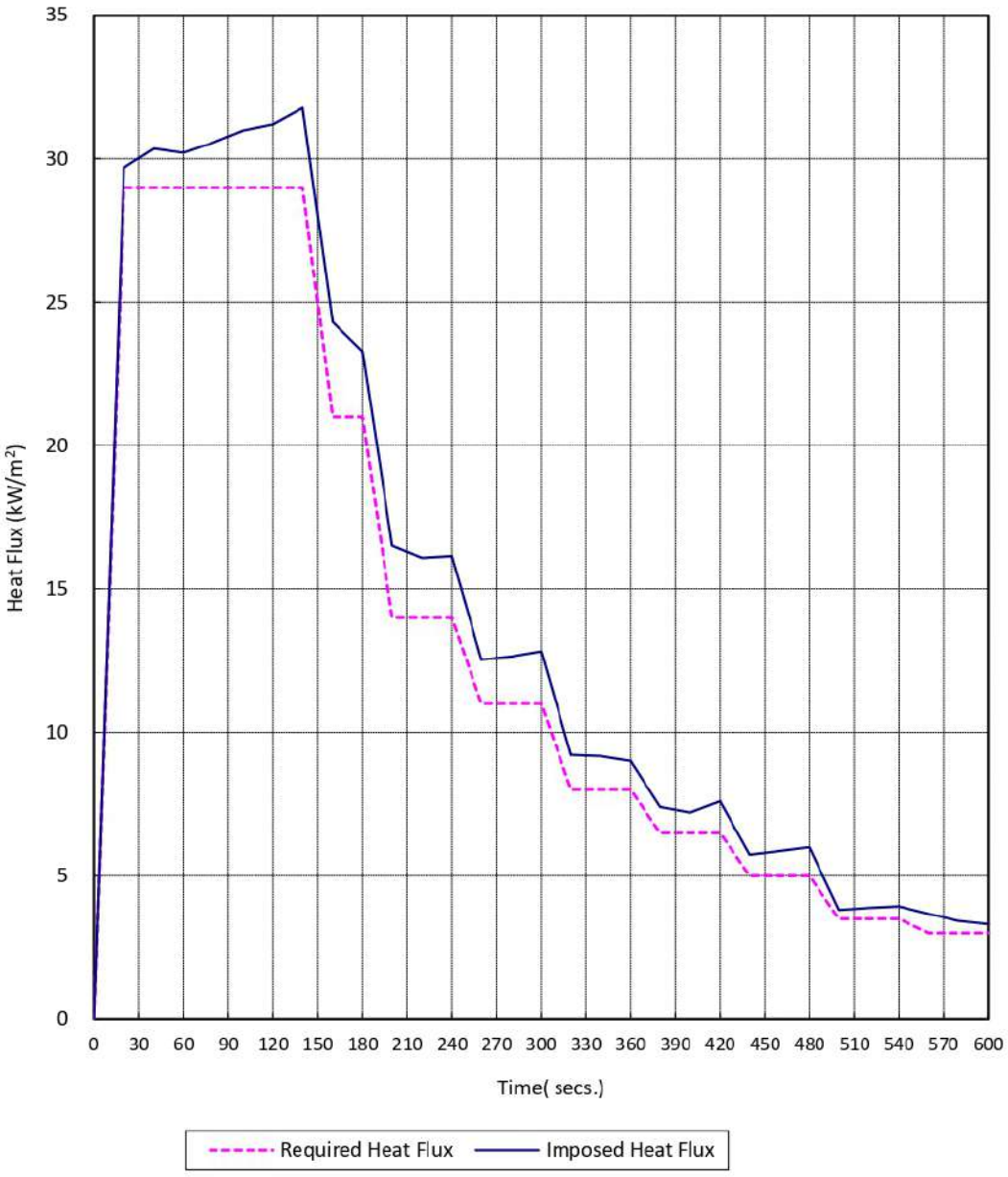
Graph for imposed heat flux and heat flux profiles specified in the standard



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Radiant heat flux:

R1 - At a distance of 250mm from the centre of exposed side of the specimen.
R2 - At a distance of 365mm from the centre of unexposed side of the specimen.

Time Mins	R1 (kW/m²)	R2 (kW/m²)
0	/	0.00
2	/	0.00
4	/	0.00
6	/	0.00
8	/	0.00
10	/	0.00
12	/	0.00
14	/	0.00
16	/	0.00
18	/	0.00
20	0.03	0.00
22	0.04	0.00
24	0.02	0.00
26	0.02	0.00
28	0.03	0.00
30	0.03	0.00
32	0.02	0.00
34	0.02	0.00
36	0.02	0.00
38	0.01	0.00
40	0.01	0.00
42	0.00	0.00
44	0.01	0.00
46	0.02	0.00
48	0.00	0.00
50	0.01	0.00
52	0.01	0.00
54	0.02	0.00
56	0.01	0.00
58	0.01	0.00
60	0.01	0.00

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Internal temperatures

Time Mins	T1 (°C)	T2 (°C)	T3 (°C)	T4 (°C)	T5 (°C)	T6 (°C)
0	18	16	16	15	22	23
2	26	20	17	17	24	25
4	46	47	20	42	45	47
6	60	60	26	52	52	54
8	61	62	32	52	52	54
10	58	62	37	51	49	53
12	58	60	40	50	48	52
14	57	60	42	49	47	50
16	55	63	42	49	45	49
18	53	65	42	51	43	48
20	51	64	41	51	42	47
22	50	62	40	50	40	46
24	49	60	39	48	39	45
26	49	58	38	46	38	44
28	48	55	38	44	37	42
30	47	53	37	42	36	41
32	46	51	36	40	35	40
34	45	49	36	38	34	39
36	44	47	35	37	33	37
38	43	46	34	35	32	36
40	42	44	34	34	31	35
42	41	43	33	33	31	34
44	40	41	33	32	30	33
46	39	40	32	31	30	32
48	38	39	32	30	29	31
50	37	38	31	30	29	31
52	36	37	31	29	28	30
54	35	36	30	28	28	29
56	35	35	30	28	28	28
58	34	34	29	27	27	28
60	33	34	29	27	27	27

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Internal temperatures

Time Mins	T7 (°C)	T8 (°C)	T9 (°C)	T10 (°C)	T11 (°C)
0	16	22	32	28	28
2	20	22	39	36	34
4	44	45	53	53	50
6	55	58	59	60	60
8	56	59	59	59	62
10	56	56	59	58	58
12	54	54	59	58	58
14	52	52	60	59	59
16	50	52	61	60	59
18	51	52	60	59	58
20	50	51	58	58	57
22	50	50	57	57	55
24	48	49	55	54	53
26	47	47	52	52	51
28	45	46	50	50	49
30	44	44	48	48	47
32	42	42	46	47	46
34	41	40	45	45	44
36	40	39	43	44	43
38	38	37	42	42	42
40	37	36	40	41	40
42	36	35	39	40	39
44	35	34	38	39	38
46	34	33	37	38	37
48	33	32	36	37	36
50	32	31	35	36	35
52	31	30	34	35	34
54	31	29	33	34	33
56	30	29	32	33	33
58	29	28	32	33	32
60	29	27	31	32	31

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SECTION 10
PHOTOGRAPHS

Fig. 1 Exposed Side Prior to the radiant heat test

Fig. 2 Exposed Side after 60 minutes

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SECTION 11
REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	2025-01-13	N/A	Original Report Issue