

MODERN INDUSTRIAL CO.,LTD

TEST REPORT

SCOPE OF WORK

Aluminium composite panel

REPORT NUMBER

231030004SHF-001

TEST DATE(S)

2023-10-30 - 2023-11-15

ISSUE DATE

2023-11-16

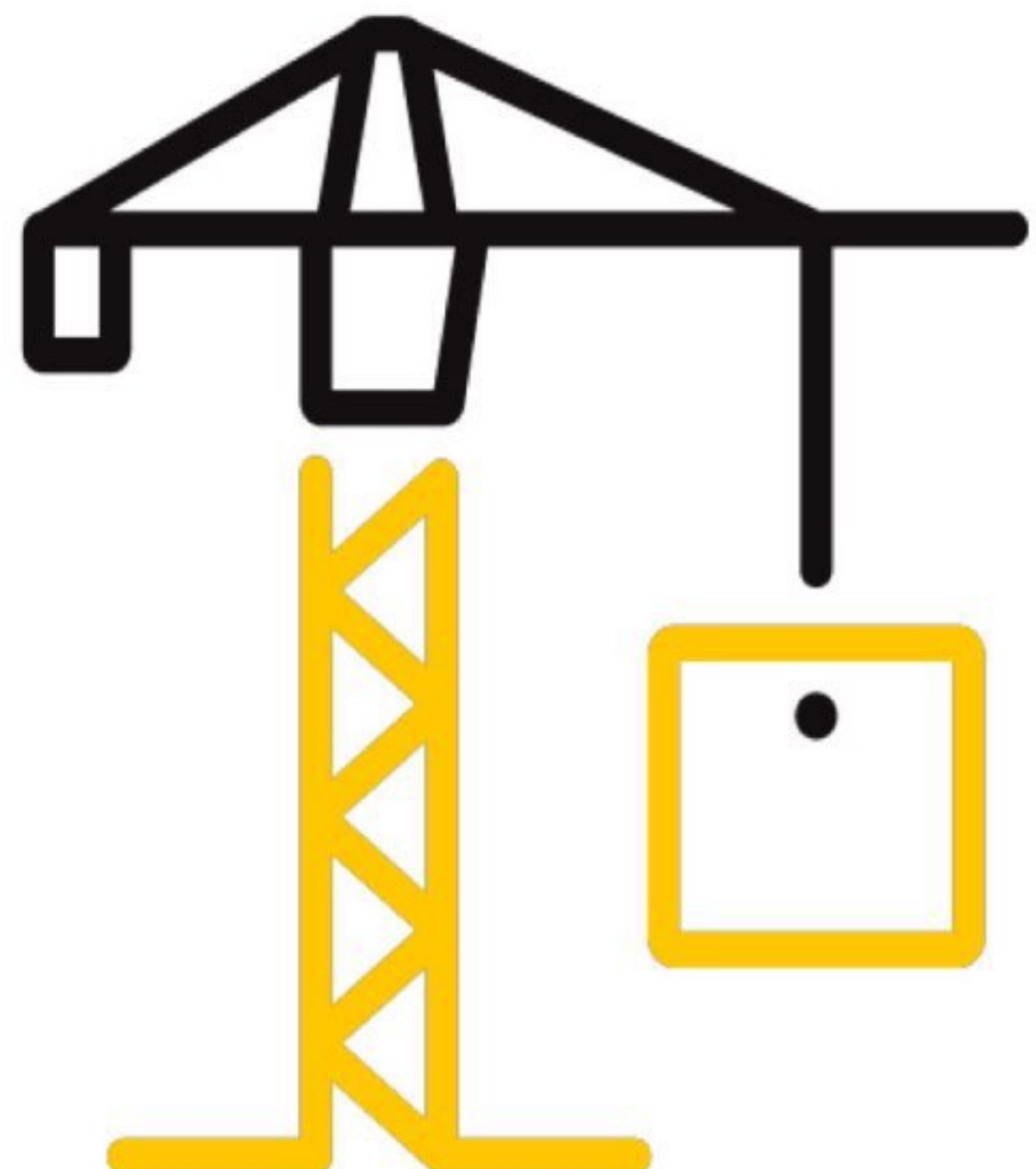
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DOCUMENT CONTROL NUMBER

LFT-APAC-SHF-OP-10k(September 1, 2022)

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Intertek Testing Services Shenzhen Ltd. Shanghai Fengxian Branch

Test Report

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Test Report

Issue Date: 2023-11-16 Intertek Report No. 231030004SHF-001
Applicant: MODERN INDUSTRIAL CO.,LTD
Address: Phase 1, Sudair Industrial And Business City, Al Majmaah City, Riyadh Province, Saudi Arabia
Attn: FAN XIAOWEI
Manufacturer: MODERN INDUSTRIAL CO.,LTD
Address: Phase 1, Sudair Industrial And Business City, Al Majmaah City, Riyadh Province, Saudi Arabia
Test Type: Performance test, samples provided by the applicant.

Product Information

Product Name	Aluminium composite panel	Brand	/
Sample Description	Good Condition	Sample Amount	1 box
		Received Date	2023-10-23
Sample ID	Model	Specification	
S231030004SHF.001~005	/	/	

Test Methods And Standards

Test Standard	EN 13823:2020+A1:2022 and EN ISO 1716:2010
Specification Standard	EN 13501-1:2018
Test Conclusion	The samples were tested according to the above standards, and the results are shown in the following page.

Note:
1.This report does not involve sampling. The report only reflects conformity of the tested items of the samples provided by the testing applicant. Representativeness and authenticity of the submitted samples are responsibilities of the testing applicant.
2.The heat of combustion test section in this report only reflects the testing result based on the data and information followed the Δ mark provided by the testing applicant. The testing applicant agrees that Intertek has no duty, responsibility or obligation including without limitation examination, review, analysis, assessment, commnet, suggestion, adjustment, calibration, modification, revision, guarantee or otherwise in regard to the legitimacy, compliance, applicability, adequacy, necessity, reasonableness, accuracy, appropriateness, reliability or any other feature or aspect of the data and information.

Report Authorized

Sally

Name: Sally Xie

Title: Reviewer

CHENG

Name: Lu Cheng

Title: Project Engineer

Test Report

Issue Date:2023-11-16Intertek Report No.231030004SHF-001

Test Items, Method and Results:

EN 13501-1:2018 Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests

1.1 HEAT OF COMBUSTION TEST

The test was conducted in accordance with EN ISO 1716. This test evaluates the gross heat of combustion (Q_{PCS}) of products at constant volume in a bomb calorimeter.

1.2 SINGLE BURNING ITEM TEST

The test was conducted in accordance with EN 13823. This test evaluates the potential contribution of a product to the development of a fire, under a fire situation simulating a single burning item near to the product.

1.3 CLASSIFICATION CRITERIA

The classification was determined in accordance with EN 13501-1:2018. The class A2 with its corresponding fire performance are given in the table below.

Table - Classes of reaction to fire performance for construction products excluding floorings and linear pipe thermal insulation products.

Class	Test Method(s)	Classification criteria	Additional classifications
A2	EN ISO 1716 and	$PCS \leq 3.0 \text{ MJ/kg}^a$ and $PCS \leq 4.0 \text{ MJ/m}^2^b$ and $PCS \leq 4.0 \text{ MJ/m}^2^c$ and $PCS \leq 3.0 \text{ MJ/kg}^d$	--
	EN 13823	$FIGRA_{0.2MJ} \leq 120 \text{ W/s}$ and $LFS < \text{edge of specimen}$ and $THR_{600s} \leq 7.5 \text{ MJ}$	Smoke production ^e and Flaming droplets/particles ^f

Note:

- a. For homogeneous products and substantial components of non-homogeneous products.
- b. For any external non-substantial component of non-homogeneous products.
- c. For any internal non-substantial component of non-homogeneous products.
- d. For the product as a whole.
- e. $s_1 = SMOGRA \leq 30m^2/s^2$ and $TSP_{600s} \leq 50m^2$; $s_2 = SMOGRA \leq 180m^2/s^2$ and $TSP_{600s} \leq 200m^2$; $s_3 = \text{not } s_1 \text{ or } s_2$.
- f. $d_0 = \text{no flaming droplets/particles in EN 13823 within 600s}$;
 $d_1 = \text{no flaming droplets/particles persisting longer than 10s in EN 13823 within 600s}$;
 $d_2 = \text{not } d_0 \text{ or } d_1$.

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Test Items, Method and Results:

2 RESULTS AND OBSERATIONS

Method	Parameter		Result
EN ISO 1716:2010	PCS	Top paint , MJ/m ²	1.8831
		Aluminum skin, MJ/kg	0
		Adhesive film, MJ/m ²	2.9168
		A2 core, MJ/kg	1.9477
		Adhesive film, MJ/m ²	2.9168
		Aluminum skin, MJ/kg	0
		Bottom paint , MJ/m ²	0.4571
		The whole product, MJ/kg	2.4558
EN 13823:2020+A1:2022	FIGRA _{0.2MJ} , W/s		0
	THR _{600s} , MJ		0.341
	LFS, m		<Edge of specimen
	SMOGRA, m ² /s ²		0
	TSP _{600s} , m ²		9.93
	Flaming droplets/particles		No flaming droplets/particles occur within 600s

Note

1. Per EN 13823, the samples were free standing at a distance of 80mm from the backing board. Backing board was a 15mm thick calcium silicate board. The density of the calcium silicate board was 850kg/m³.
2. Δ The information of each component of the product was declared by applicant, see below table.

Layer No. (from face to back)	Material of each Layer	Mass per unit area (kg/m ²)	Thickness (mm)
1	Top paint	0.093	0.026
2	Aluminum skin	1.355	0.5
3	Adhesive film	0.065	0.07
4	A2 core	1.75	3
5	Adhesive film	0.065	0.07
6	Aluminum skin	1.355	0.5
7	Bottom paint	0.0333	0.01

3 CLASSIFICATION

Fire behaviour		Smoke production			Flaming Droplets	
A2	-	s	1	-	d	0

Reaction to fire classification: A2 - s1, d0

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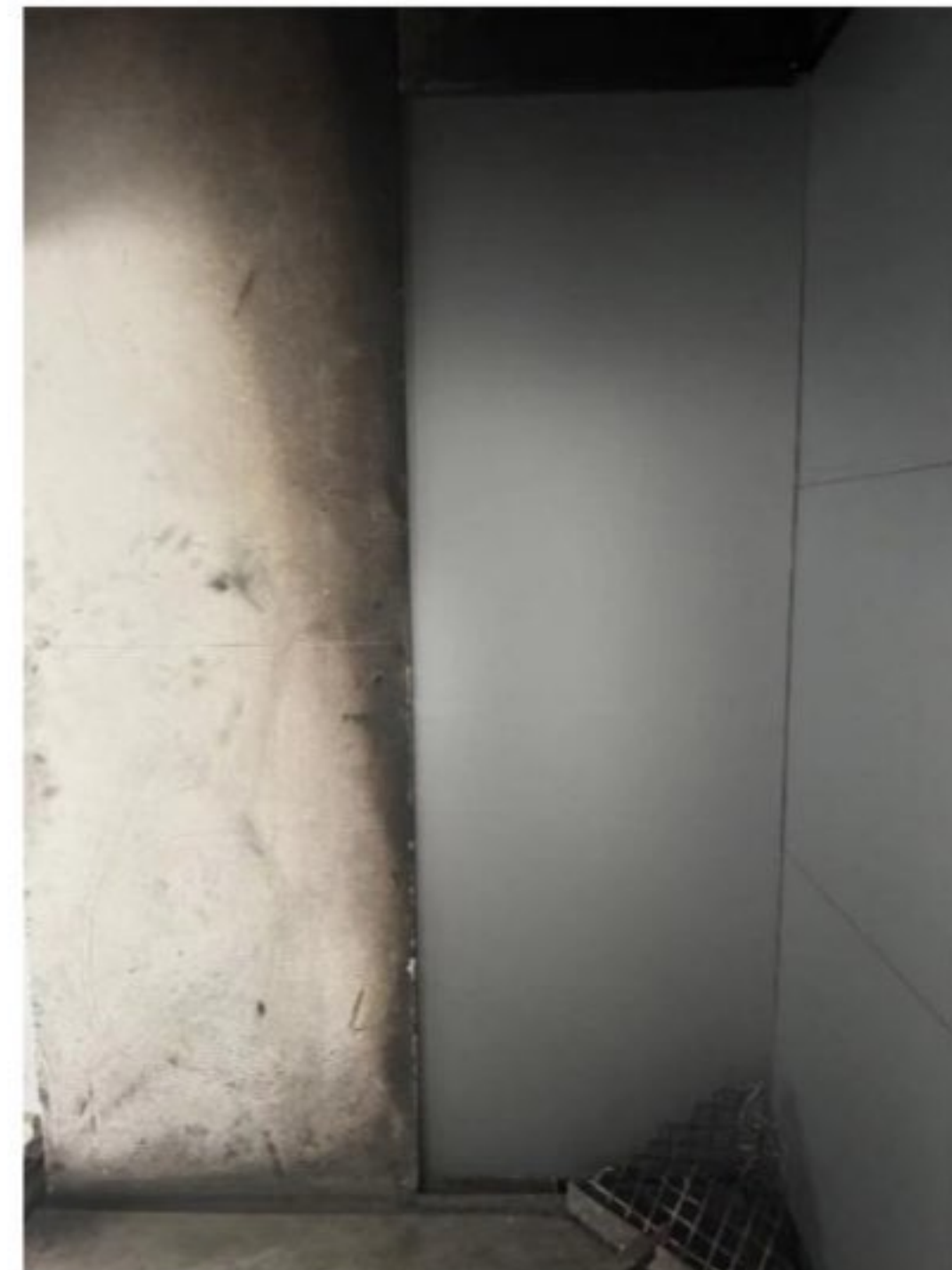
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Test Items, Method and Results:

4 Test Photos of EN 13823



Before test (Long wing)



Before test (Short wing)



After test (Long wing)



After test (Short wing)

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Appendix A: Sample Received Photo



Top paint



Adhesive film



A2 core



Bottom paint



Front view (with protective film)



Back view

Revision:

NO.	Date	Changes
231030004SHF-001	2023-11-16	First issue