Jiangsu Dongfang Botec Technology Co., Ltd.

TEST REPORT

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180314004SHF-BP-2

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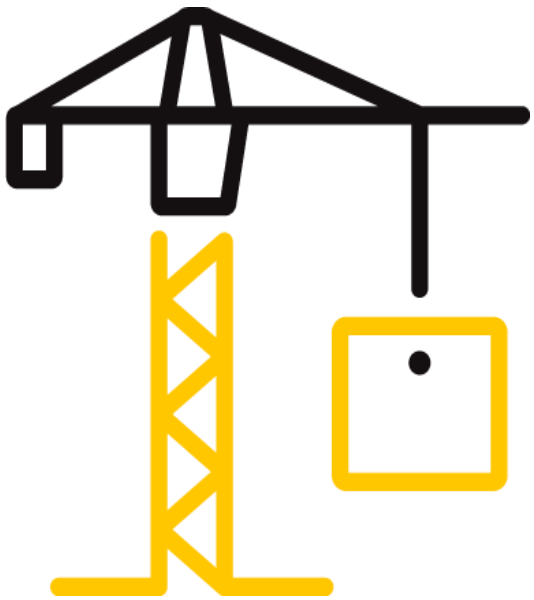

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Applicant: Jiangsu Dongfang Botec Technology Co., Ltd.
Applicant Address: No.8 Huayu Rd., Donglai District, Yangshe Town, Zhangjiagang City, Jiangsu
Manufacturer: Jiangsu Dongfang Botec Technology Co., Ltd.
Manufacturer Address: No.8 Huayu Rd., Donglai District, Yangshe Town, Zhangjiagang City, Jiangsu
Attn: Wei Jian

SUBJECT: Performance testing
Aluminum composite panel

Dear Sir,
This test report represents the results of our evaluation of the above referenced product(s) to the requirements contained in the following standards:

TEST METHODS AND STANDARDS
Refer to the next following Pages.

SAMPLE ID	MODEL	SPECIFICATION
S180314004SHF.002	/	4 x 225 x 225 (mm)

SAMPLE RECEIEVED: 2018/3/23
TESTED FROM: 2018/4/5 TO 2018/4/5

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Test Items, Method and Results:

Test Method: BS 476-6:1989+A1:2009 Fire tests on building material and structures - Part 6: Method of test for fire propagation for products

1.1 Procedure

Six pieces of specimen, said to be Aluminum composite panel for External Cladding application material comprising of Top: 0.5mm thick Aluminum skin with PVDF (0.03mm thick) coating / Core: 3.1 mm thick Mineral core / Bottom: 0.5mm thick Aluminium skin with PE (0.01 mm thick) coating, each of nominal test size of 225mm x 225mm were received. For the test, the Aluminum skin with PVDF coating on one face was removed by the test laboratory to subject the core material to the fire. The overall thickness and bulk density of the specimen with the skin on one face removed were found to be approximatedly 3.5mm and 1789 kg/m^3 respectively.

Prior to test, the specimens were prepared and conditioned in accordance with paragraph 4.4 of the standard.

Three specimens, backed with 25mm air gap calcium silicate spacer, were tested with the Mineral core face exposed to the specified heating conditions, in an apparatus conforming to paragraph 5 and illustrated in Figures 1 to 3 of the Standard.

The calibration and test procedures were as defined in paragraphs 8 and 9, respectively, of the specification. The apparatus was calibrated prior to test and the actual calibration curve obtained is shown in Appendix of this report.

The mean temperature rise above ambient obtained from three specimens is also shown in Appendix (i.e. with the actual calibration curve). The mean temperature readings for the material and the calibration curve were obtained at the following intervals from the start of the test: at 1/2 minute intervals up to 3 minutes, at 1 minute intervals from 4 to 10 minutes, and at 2 minutes intervals from 12 to 20 minutes.

From these readings, the index of performance for the material was determined as follows:

$$s_1 = \sum_{t=0.5}^{t=3} \frac{\Theta_s - \Theta_c}{10t} \qquad s_2 = \sum_{t=4}^{t=10} \frac{\Theta_s - \Theta_c}{10t} \qquad s_3 = \sum_{t=12}^{t=20} \frac{\Theta_s - \Theta_c}{10t}$$

$S=s_1+s_2+s_3$

where S = Index of performance for each of the specimens tested and s_1, s_2 and s_3 are sub-indices

t = Time in minutes from the origin at which readings are taken.

Θ_s = Temperature rise in deg. C for the specimen at time, t

Θ_c = Temperature rise in deg. C for the calibration sheet at time, t

In computations only the positive value of $\frac{\Theta_s - \Theta_c}{10t}$ was used.

1.2 Results:

The following test results were obtained for each specimen tested:

Specimen	Sub-Indices			Index of performance
	s_1	s_2	s_3	S
A	0.0	1.3	1.9	3.2
B	0.0	1.9	1.6	3.5
C	0.0	2.0	1.6	3.6

The test results obtained, as an average of the 3 samples tested are as follows:

Index of overall performance, I = 3.5
(Fire propagation index)

Sub-index, i_1 = 0.0

Sub-index, i_2 = 1.7

Sub-index, i_3 = 1.7

Remarks: The test results relate only to the behaviour of the test specimens of the product under the particular conditions of test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

Note: This test was conducted at the external approved facility, located at Singapore.

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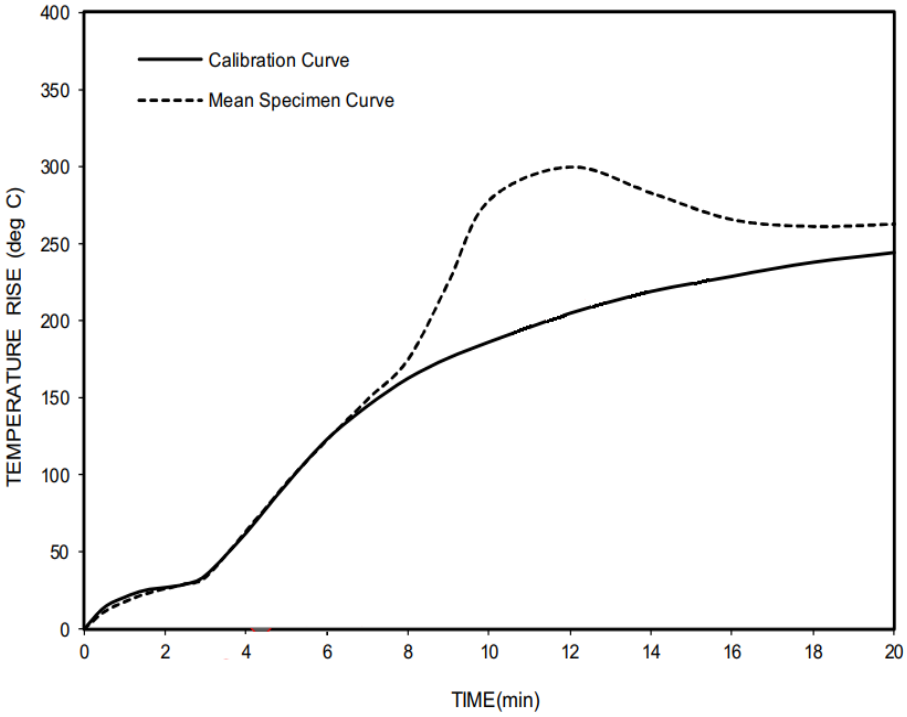
APPENDIX: CALIBRATION CURVES WITH MEAN SPECIMEN CURVE



Comparison of Mean Specimen and Calibration Curves

REPORT AUTHORIZED

When signed with physical or electronic signature, the contents of this report have been prepared and approved per Intertek's quality process in accordance with ISO 17025.

INTERTEK TESTING SERVICES LTD.,SHANGHAI 上海天祥质量技术服务有限公司 检验检测专用章

Name: Harrison Li
Title: Reviewer

Name: Timothy Li
Title: Project Engineer

Revision:

NO.	DATE	CHANGES	AUTHOR	REVIEWER
180314004SHF-BP-2	2018/5/22	First issue	Timothy Li	Harrison Li