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MITREX INC.
TEST REPORT

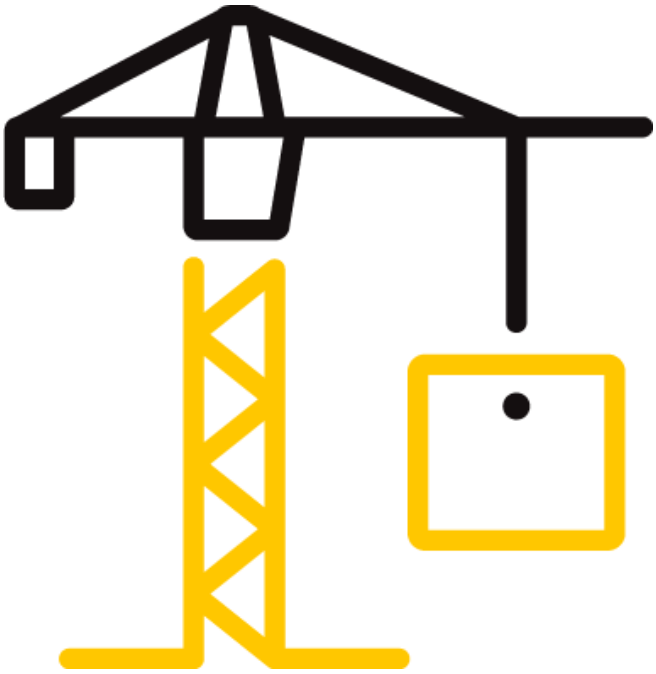
SCOPE OF WORK
REPORT OF TESTING MITREX BIPV SOLAR PANEL FOR COMPLIANCE WITH THE APPLICABLE REQUIREMENTS OF THE FOLLOWING CRITERIA: ASTM E84-23 STANDARD TEST METHOD FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS.

REPORT NUMBER
105680286COQ-001 R1
TEST DATE(S)
03/18/24 - 03/18/24

ISSUE DATE 03/19/24
REVISION DATE 03/25/24

PAGES
12

DOCUMENT CONTROL NUMBER
GFT-OP-10C (09/29/20)



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TEST REPORT FOR MITREX INC.
Report No.: 105680286COQ-001 R1
Date: 03/19/24

REPORT ISSUED TO
MITREX INC.
41 RACINE ROAD
ETOBICOKE, ON M9W 2Z4 CANADA

SECTION 1
SCOPE

Intertek Building & Construction (B&C) was contracted by Mitrex Inc. 41 Racine Road Etobicoke, ON M9W 2Z4 Canada to perform testing in accordance with ASTM E84-23 Standard Test Method for Surface Burning Characteristics of Building Materials on their Mitrex BIPV solar panels. Results obtained are tested values and were secured by using the designated test method(s). Testing was conducted at Intertek Testing Services NA Ltd. (Intertek) test facility in Coquitlam, BC Canada.

Unless differently required, Intertek reports apply the "Simple Acceptance" rule also called “Shared Risk approach,” of ILAC-G8:09/2019, Guidelines on Decision Rules and Statements of Conformity.

Intertek B&C will service this report for the entire test record retention period. The test record retention period ends four years after the test date. Test records, such as detailed drawings, datasheets, representative samples of test specimens (where required by Certification or Accreditation bodies), or other pertinent project documentation, will be retained for the entire test record retention period.

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SECTION 2
SUMMARY OF TEST RESULTS

The samples of the 2 ¼ in. thick Mitrex BIPV solar panels submitted by Mitrex Inc. were tested in accordance with ASTM E84-23 Standard Test Method for Surface Burning Characteristics of Building Materials.

The product test results are presented in Section 10 of this report.

For INTERTEK B&C:

COMPLETED BY:	Sean Fewer	**REVIEWED BY:**	Greg Philp
TITLE:	Technician – B&C	**TITLE:**	Senior Technician – B&C
SIGNATURE:		**SIGNATURE:**	
DATE:	03/19/24	**DATE:**	03/19/24

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SECTION 3
TEST METHOD(S)

The specimens were evaluated in accordance with the following:

ASTM E84-23d Standard Test Method for Surface Burning Characteristics of Building Materials.

SECTION 4
MATERIAL SOURCE/INSTALLATION

Samples were submitted to Intertek directly from the client and were not independently selected for testing and Intertek accepts no responsibility for any inaccuracies provided.

The test samples were received by the test facility on 02/14/24 (Coquitlam ID# VAN2402141130-001).

SECTION 5
EQUIPMENT

ASSET #	DESCRIPTION	MODEL	CAL DUE DATE
WH 2189	Photocell	Huygen 856	05/16/24
WH 2190	Smoke Opacity Meter	Huygen	05/16/24
WH 1052	Data Logger	Phidgets DAQ 2020	11/06/24
	FS Tunnel	N/A	12/17/24

SECTION 6
LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Sean Fewer	Intertek B&C

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SECTION 7
TEST CALCULATIONS

The results of the tests are expressed by indexes, which compare the characteristics of the sample under tests relative to that of select grade red oak flooring and inorganic-cement board.

(A) Flame Spread Index:

This index relates to the rate of progression of a flame along a sample in the 25 foot tunnel. A natural gas flame is applied to the front of the sample at the start of the test and drawn along the sample by a draft kept constant for the duration of the test. An observer notes the progression of the flame front relative to time.

The test apparatus is calibrated such that the flame front for red oak flooring passes out the end of the tunnel in five minutes, thirty seconds (plus or minus 15 seconds).

(B) Smoke Developed:

A photocell is used to measure the amount of light, which is obscured by the smoke passing down the tunnel duct. When the smoke from a burning sample obscures the light beam, the output from the photocell decreases. This decrease with time is recorded and compared to the results obtained for heptane, which is defined to be 100.

SECTION 8
TEST SPECIMEN DESCRIPTION

Upon receipt of the samples at the Intertek Coquitlam laboratory they were placed in a conditioning room where they remained in an atmosphere of 23 ± 3°C (73.4 ± 5°F) and 50 ± 5% relative humidity.

The sample material was identified by the client as Mitrex BIPV solar panels. Each panel measured 2 ¼ in. thick by 24 in. wide by 6 ft. long".

For this trial run, 24 in. wide by 24 ft. length of sample material was placed on the upper ledge of the flame spread tunnel. A layer of 6 mm reinforced cement board was placed over top of the sample material, the tunnel lid was lowered into place, and the samples were then tested in accordance with ASTM E84-23 Standard Test Method for Surface Burning Characteristics of Building Materials at a room temperature of 68 °F and 48% humidity.

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SECTION 9
TEST RESULTS

(A) Flame Spread

The resultant flame spread Indexes are as follows:
(Indexes rounded to nearest 5)

Sample Material	Flame Spread	Flame Spread Index
Mitrex BIPV solar panels	8	10

(B) Smoke Developed

The areas beneath the smoke developed curve and the related indexes are as follows:
(For smoke developed indexes 200 or more, index is rounded to the nearest 50. For smoke developed indexes less than 200, index is rounded to nearest 5)

Sample Material	Smoke Developed	Smoked Developed Index
Mitrex BIPV solar panels	198	200

(C) Observations

During the test run, surface ignition occurred at 345 seconds; the flame then began to progress along the sample length until it reached the maximum flame spread.

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COMMENTARY ON CLASSIFICATION

Neither ASTM E84 nor UL 723 include classification criteria for the results obtained from testing. The International Building Code® (IBC), NFPA 101: Life Safety Code® (NFPA 101), and NFPA 5000: Building Construction and Safety Code® (NFPA 5000) all describe a set of classification criteria required for interior wall and ceiling finish materials based on Flame Spread Index and Smoke Developed Index when tested in accordance with ASTM E84 or UL 723. The classification criteria for all three model codes is the same:

Class	Flame Spread Index	Smoke Developed Index
A	0-25	0-450
B	26-75	0-450
C	76-200	0-450

Note that classification under this scheme for interior wall and ceiling finishes does not strictly apply to all products or materials tested in accordance with ASTM E84 or UL 723 because not all products or materials are recommended or suitable for use as interior wall or ceiling finish materials in buildings, regardless of the surface burning characteristics. Consult with the product manufacturer and the local authority having jurisdiction (AHJ) regarding specific applications of a given product or material.

SECTION 10
CONCLUSION

The samples of Mitrex BIPV solar panels submitted submitted by Mitrex Inc. exhibited the following flame spread characteristics when tested in accordance with ASTM E84-23 Standard Test Method for Surface Burning Characteristics of Building Materials

Sample Material	Flame Spread Index	Smoked Developed Index
Mitrex BIPV solar panels	10	200

The conclusions of this test report may not be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

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TEST DATA (2 PAGES)

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TEST REPORT FOR MITREX INC.
Report No.: 105680286COQ-001 R1
Date: 03/19/24

ASTM E84-23 DATA SHEETS

Standard: ASTM E84/UL723

Lab ID: Intertek Coquitlam Fire Laboratory
Client: G Cat
Date: 18 Mar 2024
Project Number: 105680286
Test Number: 1
Operator: Sean Fewer

Specimen ID and Description:

Mitrex BIPV Solar Panel

TEST RESULTS

FLAMESPREAD INDEX: 10.000
SMOKE DEVELOPED INDEX: 200.000

SPECIMEN DATA

Time to Ignition (sec): 345.265
Time to Max Flame Spread (min): 8.321
Maximum Flame Spread (ft): 7.600
Time to 527 C / 980 F (sec): 0.000
Max Temperature (deg F or C as per test standard): 537.728
Time to Max Temperature (sec): 598.265
Total Fuel Burned (cubic feet): 43.263

Flame Spread*Time Area (M*min): 15.752
Smoke Area (%A*min): 132.661
Unrounded FSI: 8.112
Unrounded SDI: 197.836

CALIBRATION DATA

Time to Ignition of Last Red Oak (sec): 41

Calibrated Smoke Area (%A*min): 67.056

15 point Heptane average for E84
5 point Red Oak average for S102

Tested by: SF. Reviewed by: 9/

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TEST REPORT FOR MITREX INC.
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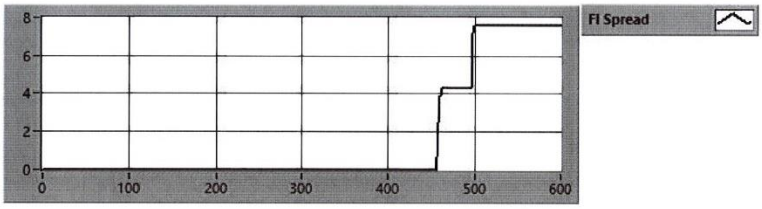
Date: 03/19/24

ASTM E84-23 DATA SHEETS

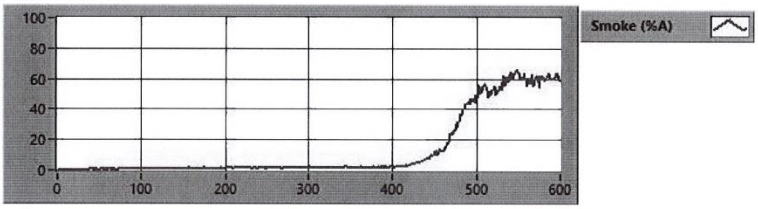
Client: G Cat | Project Number: 105680286

Test Number: 1 | Test Standard: ASTM E84/UL723

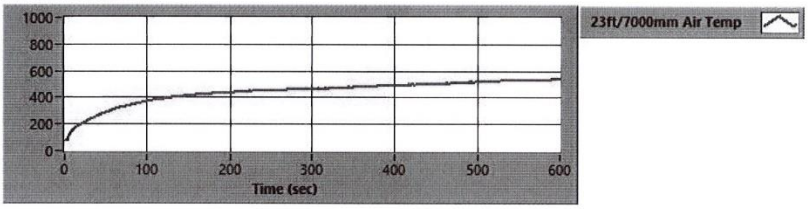
FLAME SPREAD



SMOKE (%A)



TEMPERATURE



Tested by: S.F. Reviewed by:

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SECTION 12
PHOTOGRAPHS

Photo No. 1
Pre-Test

Photo No. 2
Post-Test

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SECTION 13

REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	03/19/24	N/A	Original Report Issue
1	03/25/24	All	Changed Name From Gcat Group to Mitrex Inc.