

RAMTECH LABORATORIES



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TEST REPORT

LABORATORY NUMBER:
3906-17-09

EVALUATION OF:
Wedge-It Class "A" Roofing Assembly
(IBC Section 1505 & ASTM E-108)

PREPARED FOR:
Wedge-It Co.
6771 Warner Ave #3749
Huntington Beach, CA 92605

TEST CONDUCTED AT:
Ramtech Laboratories
14104 Orange Avenue
Paramount, CA 90723

APPROVED BY:

STEVEN BERGGREN
LABORATORY ADMINISTRATOR

DATE ISSUED: November 30, 2017

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BODY OF REPORT

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Introduction:

In accordance with the client's request, Ramtech Laboratories conducted a Roof Classification Test on "Roof Deck Assemblies" fabricated and assembled by Ramtech personnel.

The purpose of this testing was to evaluate the client's "Roof Deck Assembly" (See Section 2 of this report) for compliance to the applicable requirements of a Class "A" Roof Covering as described in ASTM E-108 and the International Building Code (IBC) Section 1505

The following Summary of Results and test data is presented in accordance with the general reporting requirements of ISO 17025. Ramtech's Accreditation under TL-167 (See Appendix 2)

Summary of Results:

Test Name	Test Class	Number of Test	Conditions of Acceptance	Test Results
Burning Brand	A	4	No Sustained Flaming of Underside	Pass
Intermittent-Flame	A	2	No Sustained Flaming of Underside	Pass
Spread-of Flame	A	2	Flame Spread less than 72 inches	Pass

Note: No ignition occurred on the surface of the Roof Tile during the Burning Brand or Intermittent or Spread-of-Flame tests

1 The identification of the test method used:

1.1 Fire Classification "A" in accordance with ASTM E-108

2 A description of the roof-deck assembly tested:

2.1 The "Roof Deck Assemblies" were fabricated by the client using the following components:

- 2.1.1 **Test Deck Framing:** 2" x 4" (Nominal) Douglas fir.
- 2.1.2 **Sheathing:** 1/2 inch (Nominal) Plywood Sheathing
- 2.1.3 **Underlayment:** Type 30, (ASTM D226-97a)
- 2.1.4 **Roof Tile:**
 - 2.1.4.1 Type Low-Rise Concrete Roofing Tile (See Appendix 1—Photos 4 & 5)
 - 2.1.4.2 Length: 17 inches (Nominal)
 - 2.1.4.3 Width: 12-1/2 inches (Nominal)
 - 2.1.4.4 Weight: 10 lbs / ea (Nominal)
- 2.1.5 **Wood Battens:** 2" x 2" (Nominal) Douglas fir
- 2.1.6 **Foam Boards-- Expanded Polystyrene (EPS):**
 - 2.1.6.1 Product Name: Wedge-It
 - 2.1.6.2 Manufacturer: Insulfoam (ICC-ES Evaluation Report ESR-1788)
 - 2.1.6.3 Foam: EPS Type One (1)
 - 2.1.6.4 Density: One-Pound / Cubic Foot (Nominal)
 - 2.1.6.5 Dimensions: See Appendix 1

3 Sampling:

- 3.1 Ramtech Laboratories independently sampled the components of the roof-deck assembly described in Section 2.1.1 through Section 2.1.5 of this report at various independent building-material suppliers
- 3.2 The EPS Foam was delivered to Ramtech Laboratories with proper labeling as described in the ICC-ES Evaluation Report (ESR-1788)

4 The date of receipt of the test items:

4.1 Ramtech Laboratories received the components of the roof-deck assembly in October, 2017

5 The date of performance of the test:

5.1 Testing was conducted in November, 2017

6 Clarification of any deviations, additions and exclusions from the test method:

6.1 Ramtech Laboratories tested the submitted samples in general accordance with the prescribed test methods.

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TEST RESULTS

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A Fire Test of Roof Coverings (Class A):

A1 General:

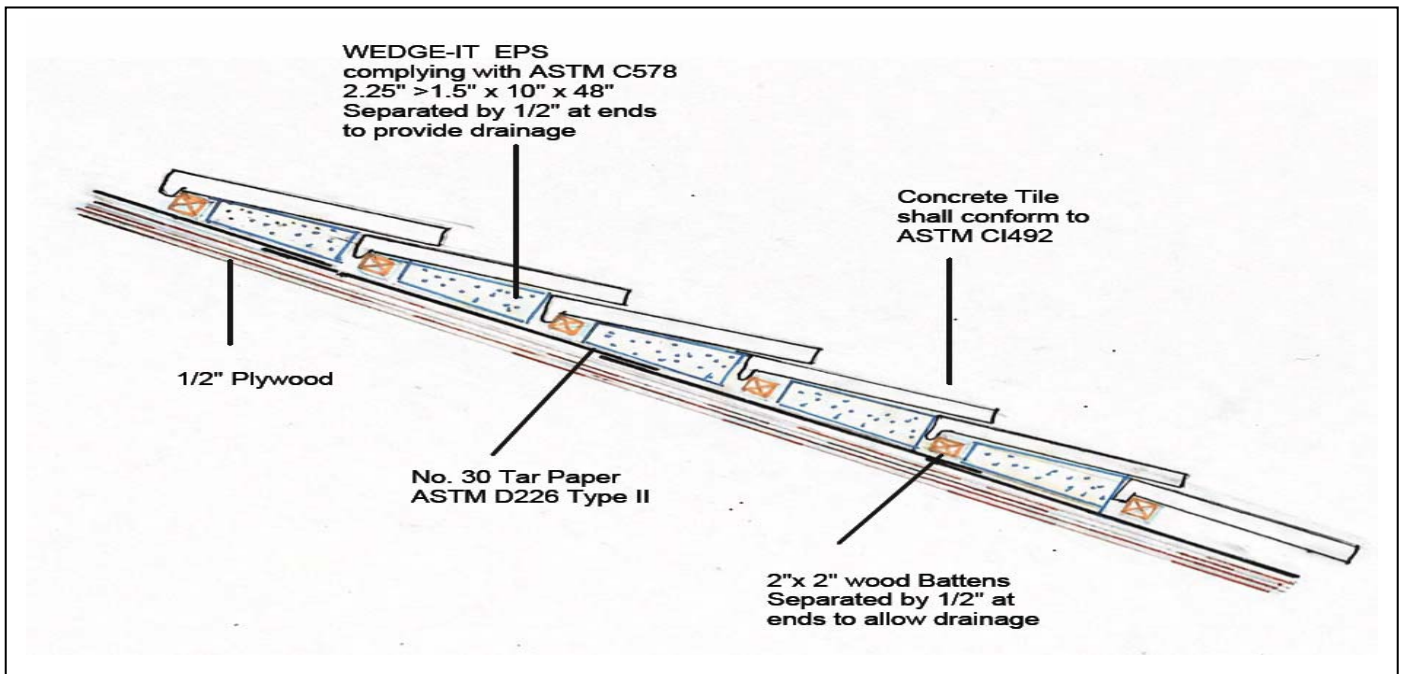
In accordance with the client's request Ramtech Laboratories conducted the following tests as prescribed in ASTM E-108 on the submitted "Roof Deck Assemblies" described in Section 2 of this report:

- A1.1 Class "A" Burning Brand (4-Test)
- A1.2 Class "A" Intermittent Flame (2-Test)
- A1.3 Class "A" Spread-of-Flame (2-Test)

The purpose of the above tests was to evaluate the performance of the client's roof assembly as described in section 2.1 of this report and tested at a slope of 5 / 12.

A2 Preparation of the Test Deck Assembly:

The test decks were constructed in accordance with ASTM E-108 using the material presented in the sketch below



A3 The results of the Class "A" Burning-Brand and Intermittent & Spread-of-Flame tests outlined below:

- A4.1 At no time during the test did the deck-covering material blow or fall off the test deck in the form of flaming or glowing brands.
- A4.2 At no time during the test was the deck exposed by breaking, sliding, or warping of the deck covering material.
- A4.3 At no time during the test did portions of the decking material fall away in the form of glowing particles.
- A4.4 At no time during the test was there sustained burning on the underside of the deck.
- A4.5 At no time during the test did the roofing surface exhibit ignition.

A4 Conclusions

To the extent tested, the client's roof-deck assembly meets the conditions of acceptance as described in ASTM E-108 for a Class "A" Roof Assembly when constructed with the building components described in Section 2.1 of this report

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APPENDIX 1
(Fire Testing Photographs)

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Photo-1 showing the most heat affected area on the surface of the Concrete Roof Tile

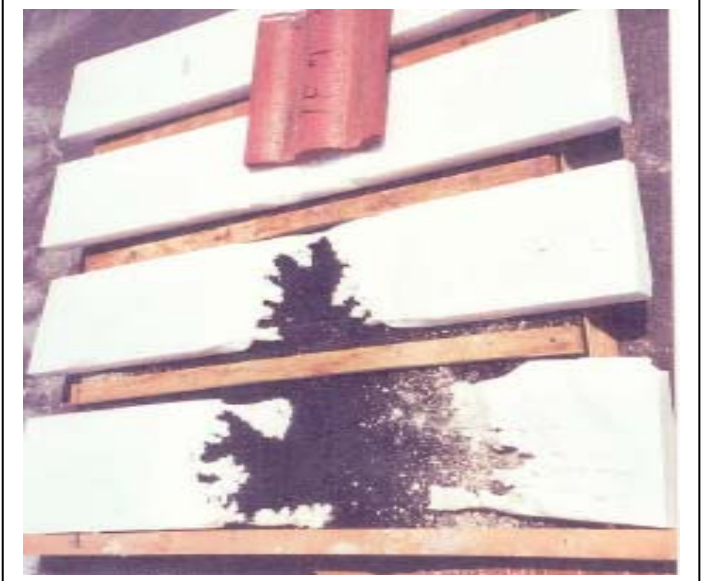


Photo-2 showing the most heat affected area of the EPS Foam with the concrete tiles removed

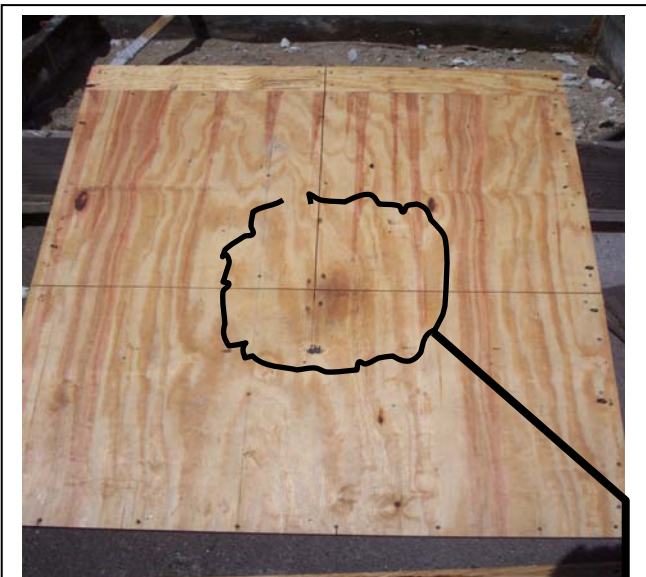


Photo-3 showing the condition of the plywood deck after the test with the concrete tiles, wedge-it foam, wood battens and underlayment removed.

- Special Notes:**
1. The EPS Foam did not ignite
 2. The wood battens did not ignite
 3. The EPS Foam receded at the most heat affected area
 4. The underlayment did not ignite
 3. The plywood deck showed very little charring

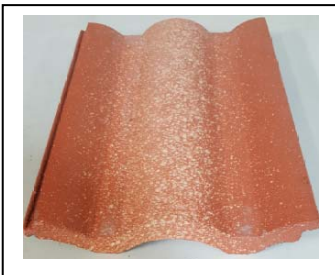


Photo-4
Concrete Tile--Top View



Photo 5
Concrete Tile—Bottom View

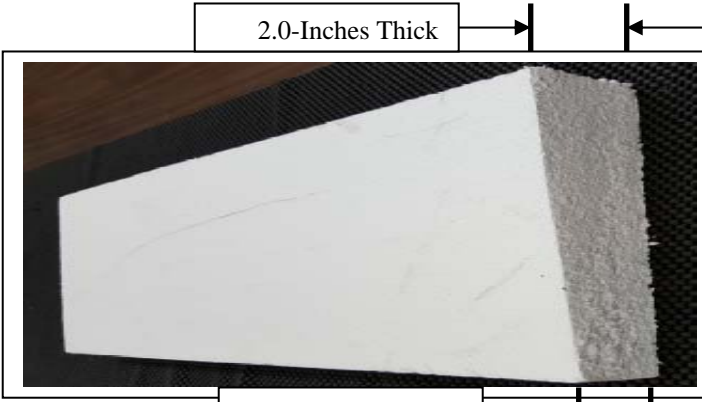


Photo-6 EPS Foam—(Product Name Wedge-It)

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1st DRAFT APPENDIX 2
 (Ramtech's Accreditation ASTM E-108)

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INTERNATIONAL
 ACCREDITATION
 SERVICE®



SCOPE OF ACCREDITATION

IAS Accreditation Number	TL-167
Company Name	Ramtech Laboratories, Inc.
Address	14104 Orange Avenue Paramount, CA 90723
Contact Name	Steven M. Berggren, Laboratory Administrator
Telephone	(562) 633-4824
Effective Date of Scope	August 5, 2015
Accreditation Standard	ISO/IEC 17025:2005

Fire

1994 UBC 2-1	Noncombustible material – tests
1994 UBC 15-2	Test standard for determining the fire retardancy of roof-covering materials
1994 UBC 26-5	Chamber method of test for measuring the density of smoke from the burning or decomposition of plastic materials
1994 UBC 26-6	Ignition properties of plastics
ASTM D635	Standard test method for rate of burning and/or extent and time of burning of plastics in a horizontal position
ASTM D1499	Standard practice for filtered open-flame carbon-arc exposures of plastics
ASTM D2843	Standard test method for density of smoke from the burning or decomposition of plastics
ASTM E108	Standard test methods for fire tests of roof coverings ←
ASTM E136	Standard test method for behavior of materials in a vertical tube furnace at 750°C
SFM 12-7A-2	Exterior windows