

**CLIENT:** **Jiangsu Tefute Building Materials**  
1520 E Francis St.  
Ontario, Ca 91761

<b>Test Report No: RJ51317F-1</b>	<b>Date: December 09, 2016</b>
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**SUBJECT:** Fire Classification Testing on Tefute Stone Coated Metal Roofing System.

**SAMPLING DETAIL:** Test samples were randomly selected by a QAI representative at the client's storage facility located at 1520 E Francis St. Ontario, CA on November 21, 2016. QAI documented the materials selected from inventory correlate to the product specifications in accordance with ICC-ES AC85, Section 3.1.

**SAMPLE ID:** Tefute Stone Coated Metal Roofing System. See Photograph Section of this report for more information on the profile and color tested.

**DATE OF RECEIPT:** Samples were received at QAI Laboratories on November 22, 2016.

**TESTING PERIOD:** December 6, 2016.

**AUTHORIZATION:** Testing authorized by Zhong Zhang under QAI Test Proposal # 16MB11042 dated on November 04, 2016.

**TEST REQUESTED:** Conduct a Modified Completion of Test Series on Class A Spread of Flame, roof fire tests on the customer supplied material in accordance with the methods and procedures outlined in ASTM Test Method E108-16, "*Standard Test Methods for Fire Tests of Roof Coverings*".

**TEST RESULTS:** Detailed test results are provided on subsequent pages of this report.

**Prepared By:**



**Victor Peinado**  
Laboratory Technician

**Signed for and on behalf of  
QAI Laboratories**



**Drew Mersereau**  
Laboratory Supervisor

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**FIRE CLASSIFICATION TEST PER ASTM E 108-16****STORAGE OF ASSEMBLED TEST DECKS**

All test deck assemblies were stored indoors at temperatures not lower than 60°F (16°C) nor higher than 90°F (32°C) for the period of time necessary to cure the assembly components prior to testing. The test decks were stored in such a manner to assure that each deck was surrounded by free circulating air.

**ROOF SYSTEM AND TEST DECK ASSEMBLY CONSTRUCTION DETAILS**

The test decks were constructed by QAI personnel following the construction details outlined in ASTM E108-16 specification standard for deck construction.

- Lumber: Nominal 2" x 4" Douglas Fir, moisture content between 8-12%.
- Deck: 15/32" AC Exterior grade plywood, moisture content not greater than 8%.
- Underlayment: One layer of Tigerpaw Synthetic roofing underlayment compliant with ICC-ESR-3286 was fastened to the substrate at 18" intervals and incorporated a 2" overlap
- Roof Covering: The Stone Coated Roofing shingle was installed on the test deck following the manufacture's installation instructions, consisting of a (36mm x 45mm) wood batten frame spaced at 370mm on center. The roof tile was fastened through the front downturned flange into the side of the batten with four nailing point. See Photograph Section of this report and Appendix for more details of the test assembly.

**SPREAD OF FLAME TEST – CLASS A (TWO TEST DECK)**

**TEST PARAMETERS:**

Wind Velocity: 1056 ft/min ± 44 ft/min  
 Flame Temperature: 1400 ± 50° F  
 Test Deck Slope: 5” per Horizontal Foot  
 Flame Application: 10 Minutes

**TEST RESULTS:**

Spread of Flame Details					
Test Deck Assembly	Ignition Time (MM/SS)	Maximum Spread of Flame (ft)	Lateral Spread of Flame (ft)	Flame Front Recession (ft)	Pass/Fail
1	1:08	3FT	None	1FT	Pass
2	00:59	3FT	None	1FT	Pass

**OBSERVATIONS:**

Both Spread of Flame test performed in a similar manner. After the ignition of the test sample surface the flame front progressed steadily to the maximum spread distance, until the test was terminated at 10 minutes.

**RESULT:** The tested assembly **meets** the Class A requirements for Spread of flame Testing as Per ASTM E108-16.

**CONDITIONS OF ACCEPTANCE FOR CLASSIFICATION BY ASTM E108-16**

At no time during or after the intermittent flame, spread of flame or burning brand tests shall:

1. Any portion of the roof covering material be blown or fall off the test deck in the form of flaming or glowing brands that continue to glow after reaching the floor, or
2. The roof deck be exposed, or
3. Portions of the roof deck fall away in the form of particles that continue to glow after reaching the floor.
4. At no time during the Class A intermittent flame or burning brand tests shall there be sustained flaming of the underside of the deck.
5. At the conclusion of the spread of flame tests, the flaming shall not have spread beyond 6 feet for Class A, and there shall have been no significant lateral spread of flame from the path directly exposed to the test flame.

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**Photographs**



**Photo 1: Spread of Flame test deck assembly with Tigerpaw Underlayment.**



## Photographs



**Photo 2: (Tefute Stone Coated Roofing System) Spread of Flame test deck assembly.**

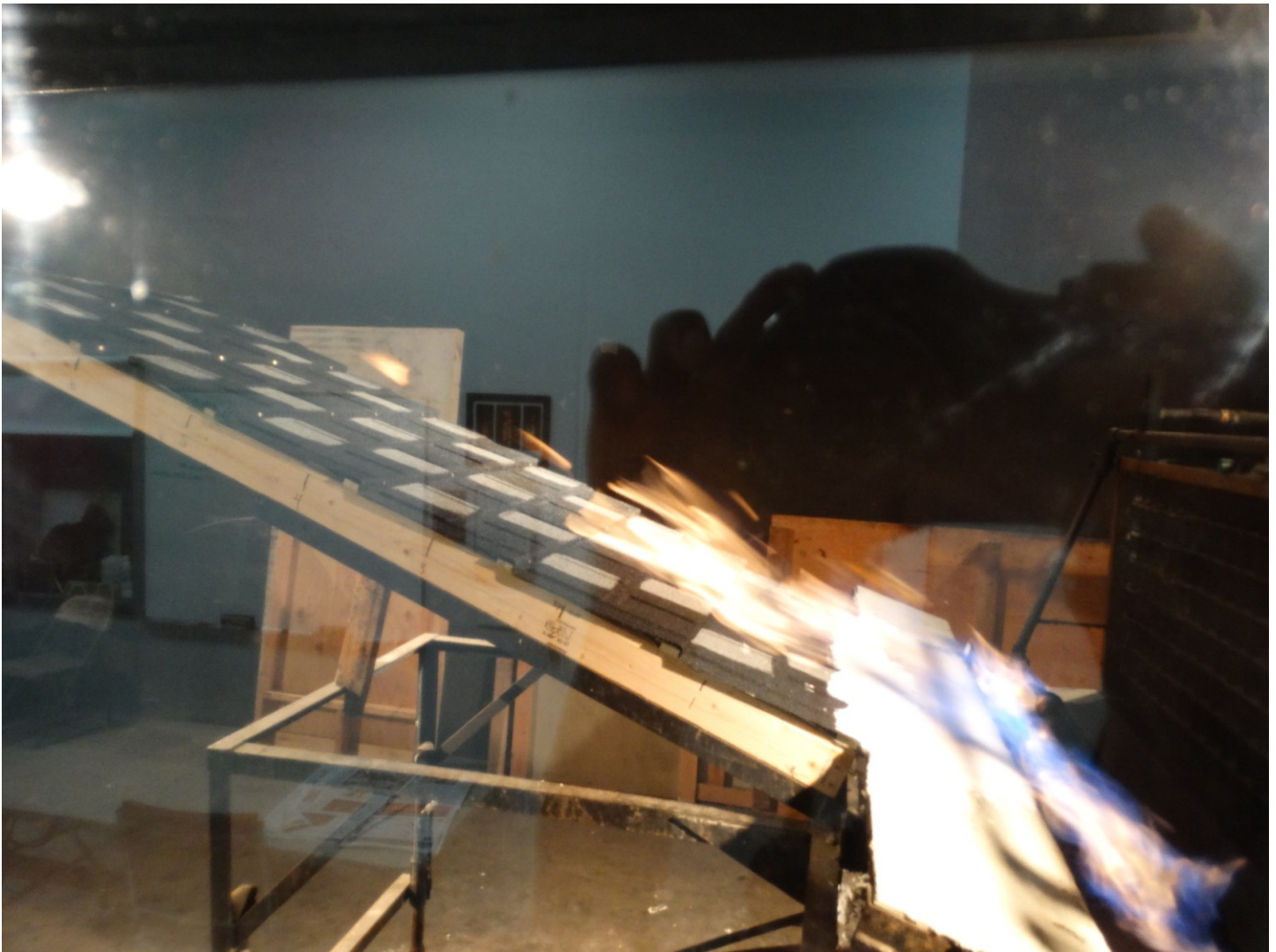
## Photographs



**Photo 3:** Spread of flame Test deck assembly from the top.



## Photographs



**Photo 4:** Spread of Flame test deck assembly during flame exposure.



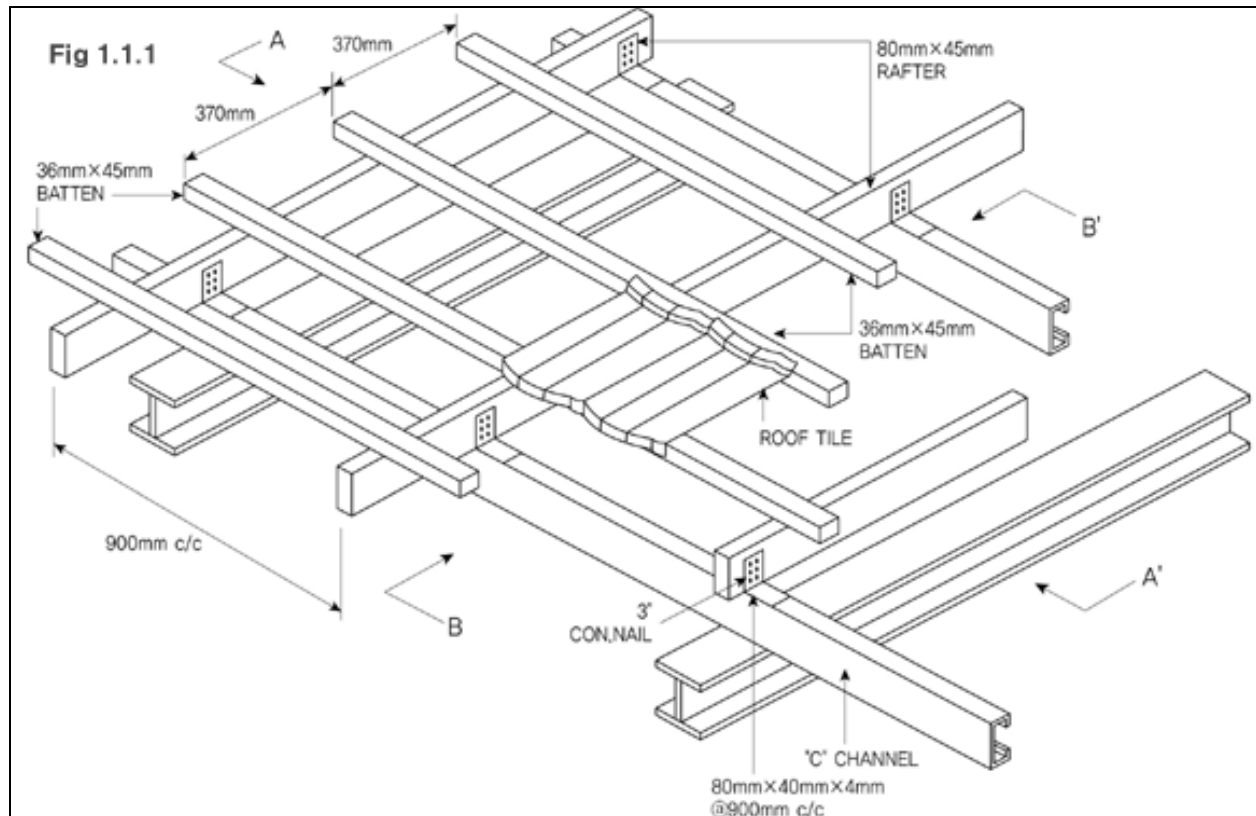
## Photographs



**Photo 5:** Spread of Flame test deck assembly after flame exposure.

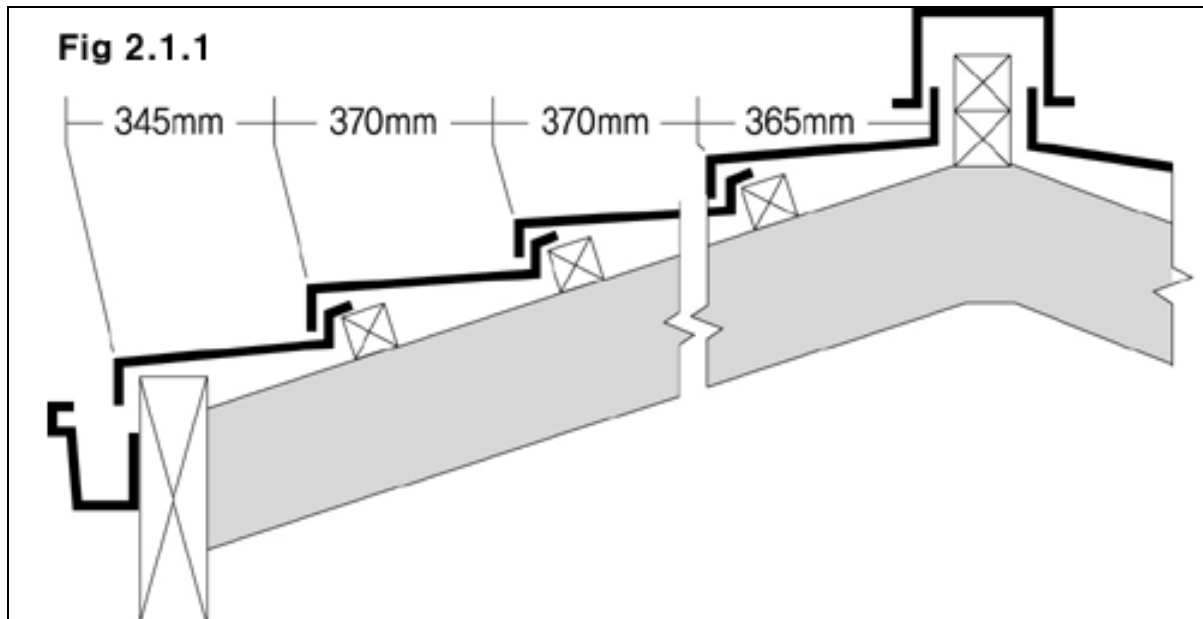


**Appendix**



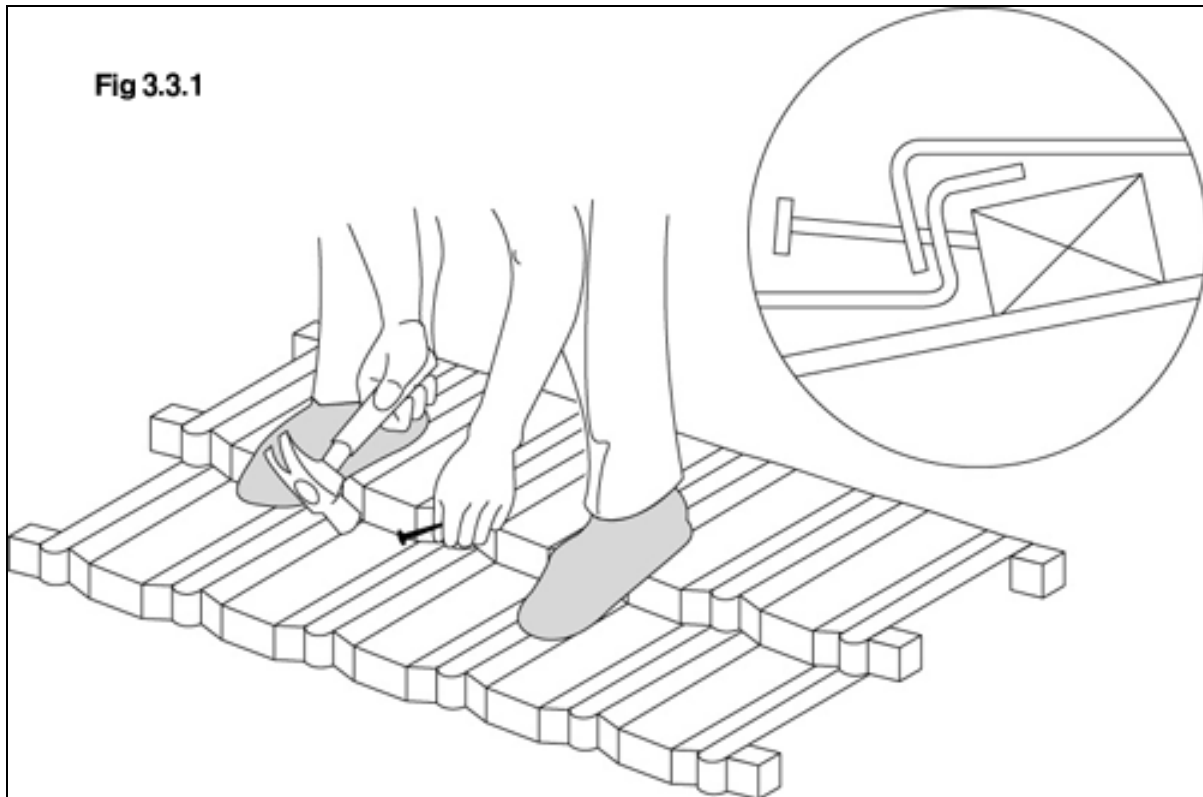
**Diagram 1.** Installation Batten Spacing test assemblies followed from “Tefute Stone Coated Metal Roofing System” Installation Procedure provided by the client. Note, Sheathing and underlayment were used in the test frames as mentioned in the assembly details section of this report.

## Appendix



**Diagram 2.** Installation Batten Spacing test assemblies followed from “Tefute Stone Coated Metal Roofing System” Installation Procedure provided by the client. Note, Sheathing and underlayment were used in the test frames as mentioned in the assembly details section of this report.

**Appendix**



**Diagram 3.** Fastener driving installation method used to attach roofing surface to the test assemblies followed from “Tefute Stone Coated Metal Roofing System” Installation Procedure provided by the client.

**\*\*\*\*\*End of Report\*\*\*\*\***