



8385 White Oak Avenue  
Rancho Cucamonga, CA 91730  
909.483.0250 ph. | 909.483.0336 fx.

**CLIENT: TILE TECH PAVERS**  
2021 East 48<sup>th</sup> Street  
Vernon, CA 90058

|                                 |                                 |
|---------------------------------|---------------------------------|
| <b>Test Report No: RJ3515-1</b> | <b>Date: September 23, 2014</b> |
|---------------------------------|---------------------------------|

**SAMPLE ID:** The following test material was identified as Ipe Deck Boards.

**SAMPLING DETAIL:** Test samples were submitted to the laboratory directly by the client. No special sampling conditions or sample preparation were observed by QAI.

**DATE OF RECEIPT:** Samples were received at QAI on September 15, 2014.

**TESTING PERIOD:** September 23, 2014.

**AUTHORIZATION:** Testing authorized by Ronnie Tabibnia.

**TEST REQUESTED:** Perform standard flame spread and smoke density developed classification tests on the sample supplied by the Client in accordance with ASTM Designation E84-14, "Standard Method of Test for Surface Burning Characteristics of Building Materials". The foregoing test procedure is comparable to UL 723, ANSI/NFPA No. 255, and UBC No. 8-1.

|                      |                            |                               |
|----------------------|----------------------------|-------------------------------|
| <b>TEST RESULTS:</b> | <b><u>Flame Spread</u></b> | <b><u>Smoke Developed</u></b> |
|                      | 20                         | 400                           |

Detailed test results are presented in the subsequent pages of this report

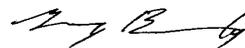
**CONCLUSION:** The submitted material meets the requirements for a "Class A" Flame Spread. See classification requirements on page 2.

**Prepared By**



Brian Ortega  
Test Technician

**Signed for and on behalf of  
QAI Laboratories, Inc.**



Greg Banasky  
Senior Test Technician

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**PREPARATION:** Sufficient sample material was submitted to conform to tunnel test dimensions, 22" wide by 24' feet long.

**CONDITIONING:** The test specimen was conditioned to a constant weight at a temperature of 73.4 ± 5° F (23 ± 2.8° C) and a relative humidity of 50 ± 5 %.

**CEMENT BOARD PLACEMENT:** The 1/4" cement boards were placed between the test specimen and the chamber lid

**E 84 TEST DATA SHEET:**

**CLIENT:** TILE TECH PAVERS **DATE:** 09/23/14

**SAMPLE:** Ipe Deck Boards

**FLAME SPREAD:**

**IGNITION:** 1 minute, 15 seconds.

**FLAME FRONT:** 9 feet maximum.

**TIME TO MAXIMUM SPREAD:** 9 minutes, 47 seconds

**TEST DURATION:** 10 minutes.

**CALCULATION:** 38.35 x 0.515 = 19.75

**OBSERVATIONS:** Charring.

**SUMMARY: FLAME SPREAD:** 20

**SMOKE DEVELOPED:** 400

**SUMMARY OF ASTM E84 RESULTS:** Because of the possible variations in reproducibility, the results are adjusted to the nearest figure divisible by 5. Smoke Density values over 200 are rounded to the nearest figure divisible by 50. In order to obtain the Flame Spread Classification, the above results should be compared to the following table:

| <u>NFPA CLASS</u> | <u>IBC CLASS</u> | <u>FLAME SPREAD</u> | <u>SMOKE DEVELOPED</u>    |
|-------------------|------------------|---------------------|---------------------------|
| A                 | A                | 0 through 25        | Less than or equal to 450 |
| B                 | B                | 26 through 75       | Less than or equal to 450 |
| C                 | C                | 76 through 200      | Less than or equal to 450 |

**BUILDING CODES CITED:**

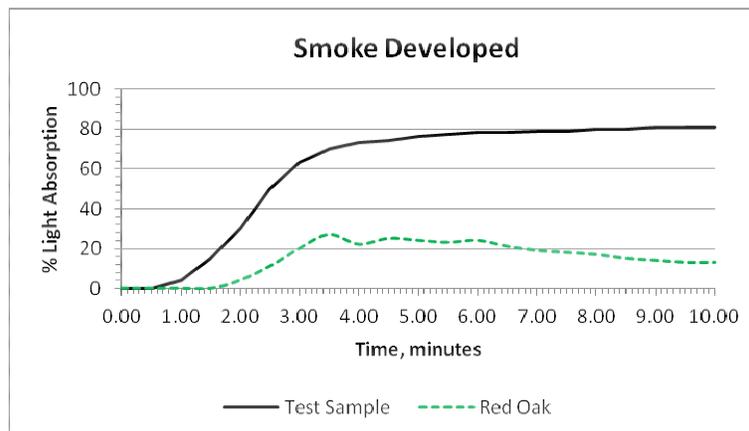
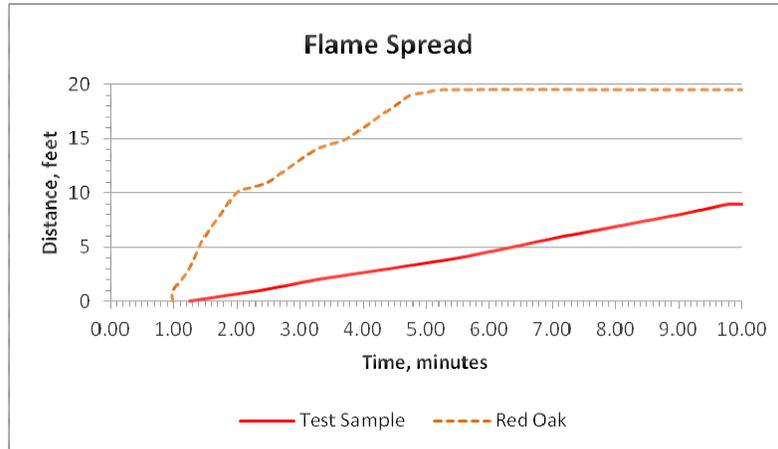
1. National Fire Protection Association, ANSI/NFPA No. 101, "Life Safety Code".
2. International Building Code, Chapter 8, Interior Finishes, Section 803.

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**DEPARTMENT OF BUILDING INSPECTION**

City and County of San Francisco  
1660 Mission Street, San Francisco, California 94103-2414

APR 17 2000

April 6, 2000

Ms. Jane Martin  
Shift Design Studio  
337 Shotwell Street  
San Francisco, CA 94110

Subject: Use of IPE (Ironwood) South American Hardwood for Roof Decks

Dear Ms. Martin:

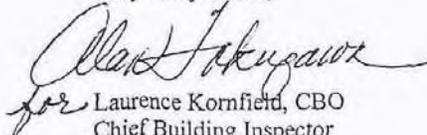
I have reviewed the technical data you sent me regarding Ipe (Ironwood), a sustainable South American hardwood. You have requested that this material be allowed for use in rooftop decks in lieu of a fire-retardant treated wood or all-heart redwood as required by Section 1511.5 of the San Francisco Building Code (SFBC). Based on the data produced by the USDA Forest Service Forest Products Laboratory and the ASTM E-84 test data from Shimel and Sor Testing Laboratories, Inc., I find that Ipe (Ironwood) meets the intent of the SFBC for rooftop decks.

Originally, roof decks were considered to be similar to roof coverings such as shakes and shingles. The redwood was even tested under a standard roof covering fire ignition test. Current intent regards a roof deck as a separate roof structure constructed atop a fire-retardant roof covering of Class B or better. The ASTM E-84 Surface Burning Characteristics Test (Steiner Tunnel Test) performed on this material shows that it is equivalent to a Class I material. This rating, and Ipe's natural resistance to decay fungi or insect attack and its weathering characteristics, allows its installation as equivalent to the requirements of the SFBC.

The roof deck must comply with the requirements of Section 1511.5, and since Ipe is a combustible material, it must be installed in accordance with the requirements of other code sections, such as maintaining a clear distance of three feet from the property line for R-3 Occupancies.

If you have any questions, please call Alan Tokugawa, Code Analyst, at (415) 558-6004.

Very Truly Yours,



for Laurence Kornfield, CBO  
Chief Building Inspector  
Technical Services Division



DEPARTMENT OF BUILDINGS

EXECUTIVE OFFICES  
60 HUDSON STREET, NEW YORK, NY 10013-3394  
Satish K. Babbar, R.A., Acting Commissioner  
(646) 248-8000, TTY: (646) 248-8188  
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DEC 13

Siun Derkhidam  
Assistant Mechanical Engineer  
Materials and Equipment  
Acceptance Division  
(646) 248-8333  
Fax (646) 248-8065/8319

MR. Donald Fisher  
575 8th Ave 22<sup>nd</sup> fl  
N.Y. N.Y 10018

Date: NOV/26/01

Dear Applicant:

Enclosed is a final official signed copy of MEA acceptance of your product(s).  
MEA 220-01-M which you may use as proof of your product(s) acceptance in  
New York City.

This document together with proper labeling and installation in accordance with New  
York City Building Code will enable the inspector to know that the product(s) installed is (are)  
legal.

All shipments and deliveries of accepted materials to the job site are required to be  
labeled or tagged in accordance with the format below:

|  |
|--|
| Accepted For Use<br>City of New York<br>Department of Buildings<br>MEA     -     - |
|--|

Company Name

Very truly yours,

*Siun Derkhidam*  
Siun Derkhidam  
Assistant Mechanical Engineer  
Materials and Equipment Acceptance

CITY OF NEW YORK  
DEPARTMENT OF BUILDINGS

Pursuant to Administrative Code Section 27-131, the following equipment or material has been found acceptable for use in accordance with the Report of Materials and Equipment Acceptance (MEA) Division.

MEA 220-01-M

Report of Material and Equipment Acceptance Division

Manufacturer - Timber Holding, Ltd., 2400 West Cornell Street, Milwaukee, Wisconsin 53209.

Trade Name - Ironwood.

Product - Naturally fire retardant wood.

Pertinent Code Section(s) - 27-328.

Test(s) - RS 5-5 (ASTM E84).

Laboratory - Shimel and Sor Testing Laboratories, Inc.

Test Report(s) - Report No. 89-8007 dated December 18, 1989.

Description - Naturally fire retardant wood identified as "Tabebuï SPP" was tested in Shimel and Sor Testing Laboratories, Inc. for the following:

Strength Properties: ASTM-D143

Surface Burning Characteristics: ASTM-E84

Specific Gravity and Unit Weight: ASTM-D143

TEST RESULTS

1. Physical Properties

| <u>Property</u>                         | <u>Results (*)</u> |
|---|--------------------|
| Bending Strength, psi                   | 10,309             |
| Compression parallel to grain, psi      | 12,100             |
| Compression perpendicular to grain, psi | 2,981              |
| Shear Parallel to grain, psi            | 1,245              |
| Modulus of Elasticity, psi              | 3,312,000          |
| Unit Weight, as received, pcf           | 66.4               |
| Unit Weight, after oven drying, pcf     | 60.5               |

(\*) Each test result is the average of three specimens.

2. Surface Burning Characteristics

| <u>Type of Test</u>                 | <u>Results</u> |
|-------------------------------------|----------------|
| Flame Spread (10 minutes)           | 0              |
| Flame Spread (30 minutes)           | 5              |
| Smoke Developed Values (10 minutes) | 3              |
| Fuel Contribution (10 minutes)      | 0              |

Note: Toxicity test was not performed.

Recommendation - That the above described naturally fire retardant wood be accepted as complying with the requirements of Code Section 27-328 as fire retardant wood with a flame spread rating of 25 or less, classification of "A", with a smoke developed rating of 25 or less, for outdoor installation, under the following conditions:

1. Use of described materials shall be in conformance with Code Section 27-328 and the additional Code Sections covering the specific intended use.
2. The materials shall bear the identification of a testing laboratory or agency certifying to conformance with the production and performance requirements enumerated in the prescribed Code Reference Standard.
3. The acceptance of these materials is limited to combustible classification in accordance with flame spread and smoke developed only but does not include fire resistance rating. Structural and other requirements shall be in compliance with code provisions applicable to the specific application.
4. All shipments and deliveries of such materials shall be accompanied by a certificate or label, certifying that the materials shipped or delivered are equivalent to those tested and acceptable for use, as provided for in Article 27-131 of the Building Code.

Final Acceptance NOV/26/01

Examined By S. Decker