



APPROVALS AND TESTING

**TEST DATA: Polydeck® 400
Pedestrian Deck System**

Summary of Test Report Conducted by Ramtech Laboratories on the Polydeck 400 Decking System

1. Weathering Test: ASTM G-23, Atlas Twin Arc Weatherometer Type DH 2000 hours (equivalent to approximately 6 years of natural weathering).

Visual Examinations: No signs of chalking, crazing, cracking, blistering, delaminating, spalling, softening or any other deleterious effects.

ASTM-D 751, Five specimens weathered and five specimens aged per AC39 Sec. IV A & B., Stretch rate 12 ± 0.5 in./min.

<u>With Aggregate</u>	<u>Tensile Strength(lb./in.)</u>	<u>Elongation(%)</u>
Control	16.2	35
Weathered	13.6	26 %
Change Weathered	16	16
Aged	20.6	17
% Change Aged	25.7	51.4
<u>Without Aggregate</u>	<u>Tensile Strength(lb./in.)</u>	<u>Elongation(%)</u>
Control	50.3	129
Weathered	30	108
% Change Weathered	40.3	16.3
Aged	54.4	109
% Change Aged	7.5	15.5

2. Aging Test: ASTM D-412, Stretch rate 20 ± 0.5 in./min. Procedure D & E. Six cycles of each procedure. Material tested without aggregate

Visual Examination after Aging Test: No sign of chalking, crazing, cracking, blistering, delamination, or any other deleterious effects.

	<u>Tensile Strength (psi)</u>	<u>Elongation (%)</u>
	<u>ASTM D-412</u>	<u>ASTM D-412</u>
Control	1165	179
Weathered	797	169
% Change Weathered	-31.58	-5.59
Aged	1040	147
% Change Aged	-10.7	-34.7

Bond Strength (psi), ASTM C-297:

<u>Polyprime 21</u>	<u>Plywood</u>	<u>Metal</u>	<u>Concrete</u>
Control	110	411	298
Aged	115	331	304
% Change	+4.3	-19.5	+2.01
Mode of Failure		Cohesive failure of Polydeck 400	Cohesive failure of concrete

<u>Polyprime 2140</u>	<u>Plywood</u>	<u>Metal</u>	<u>Concrete</u>
Control	113	387	279
Aged	125	383	277
% Change	+9.6	-1.03	-0.72
Mode of Failure	failure failure	Cohesive failure of Polydeck 400	Cohesive failure of concrete

3. Percolation Test: ICC-ES Evaluation Svc., Inc. AC 39 Sect. IV-G. Loss due to Percolation after the 1000 cycles abrasion test (% of original head, max. allowed 1%): 0%

4. Absorption Test: ASTM D 570, 24 hour immersion in distilled water: Weight % of water absorption (max. allowed 5.0%): 1.62%

5. Water Vapor Transmission (WVT) Test: ASTM E-96 Desiccant Method: WVT: 0.0000000175 grams/Pa · sec · m². WVT: 0.306 grains/ft² · hr · in. Hg

6. Abrasion Test: ASTM D-1242 Method A as modified by ICC-ES Evaluation Svc., Inc. AC 39 Sect. IV-F (1000 cycles, 1000 grams, No. 80 TP Aluminum Oxide Grit). Thickness lost (max. allowed 20 mils): 0.017 in.

7. Concentrated Load Test: AC 39, Sec. IV L. One inch diameter steel plate with rounded corners.

<u>Load [lbs]</u>	100	200	300
<u>Deflection [inches]</u>	0.018	0.031	0.039

8. Impact Resistance: A two pound steel ball dropped eight feet onto decking system. Test was performed three times with an average indentation of 0.035 in.

9. Crack Resistance (Crack Bridging): Top coat showed signs of cracking, while bottom coat maintained its integrity.

10. Chemical Resistance Tests: ASTM D-2299 Determine Relative Stain Resistance of Plastics by immersing specimens in 18 reagents @ 122°F (50°C) for 16 hours.

	<u>Non-Abraded</u>	<u>Abraded</u>
Heavy duty detergent sol.	1	1
Sulfuric acid - 3%	1	1
Ammonia solution - 5%	1	1
Sulfuric acid, concentrated	3	3
Anti-Freeze	1	1
Hydraulic Fluids	1	1
Kerosene	1	1
Toluene	1	1
Diesel fuel	1	1
Paint thinner	1	1
Transformer oil	1	1
Lubricating oil	1	1
Turpentine	1	1
Soap Solution - 1%	1	1
Gasoline	1	1
Chlorine solution - 10%	1	1
Salt Solution - 10%	1	1
Muriatic Acid - 10%	1	1

NUMBER CODE: 1. Unaffected 2. Superficially Affected 3. Considerably Affected

Note: a) Of the 18 reagents used in the chemical resistance test, only sulfuric acid concentrate caused a deterioration of the decking system.

b) Wearing surface revealed no cracking, crazing, delamination, or any other deleterious effects.

c) The test specimens which were coded "No. 3 - Considerably Affected" could not be restored to their original surface condition by normal cleaning methods.

11. Low Temperature Flexibility: AC 39 Sec. K. 5°F. No cracking or crazing upon visual examination under 5x magnification in the bent condition.

12. Fire Resistance Test Class "A": U.B.C. Standard 32-7, ASTM E-108, U.L.790, N.F.P.A. No. 256, on ¾" (1.9 cm) plywood.

A) Intermittent Flame Exposure Test (2 decks): Both of the decks met the requirements for Class "A" Intermittent Flame Exposure Test. There was no evidence of displacement, sliding, spalling, or flames underneath these decks during or after the test.

B) Spread of Flame Test (2 decks):

	Base (in.)	Length (in.)
Deck 1	21	54
Deck 2	18	43
Max. Flame Spread Allowed	40	72

C) Burning Brand Test (4 decks): All passed. The heat areas were confined to the immediate area of brand placement. There was no displacement of the Polydeck 400 System observed during or after the test. Material flaming underneath the decks did occur, but all self extinguished within the allotted testing time.

Polydeck 400 will satisfactorily withstand the three methods of tests for a Class A rating on concrete substrates and Class A Rating on ¾" plywood in UBC STD #32-7, ASTM E108, UL 790 and NFPA No. 256, when constructed, installed and tested as described herein.

3. One-Hour Fire-Resistive Construction: Based on the performance of the test assembly, Polydeck 400 Walking Deck System installed on ¾" thick C-D plywood as a substitute for the double wood floor described in Construction No. 13, Item 13-1.1, Table No. 7-C of the 1994 U.B.C. Standard No. 7-1. The assembly was tested with 2 x 10 floor joists spaced at 16 inches on center.

The average room temperature rise on the unexposed face was 260°F and the maximum single thermometer reading was 310°F after 65 minutes. The acceptance limit is 250°F average temperature rise with no single reading over 350°F above ambient after 60 minutes. The area under the test time v. temperature curve equals the standard time-temperature E-119 curve at 60.56 minutes.

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