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TEST REPORT

Report Number: 2505-18003 **Project No.:** 29544

Report Issued: May 3, 2018

Client: Daldorado, LLC
4327 Arnold Avenue
Naples, Florida 34104

Contact: Mr. Jeff Steuber

Source of Samples: The samples were sent by Daldorado, LLC and received by IAPMO R&T Lab in good condition on December 15, 2017.

Date of Testing: February 5, 2018 through May 1, 2018

Sample Description: Suction fittings model no. DMD-FG-2424 (24" by 24" frame) installed in a field built sump with dimension shown in Figure 2 connected to 8" diameter pipe.

See figures for sample construction and test configurations.

Scope of Testing: The purpose of the testing was to determine if the sample tested suction fitting met Section 3.7 requirements of APSP 16-2011 entitled, "Suction Fittings for use In Swimming Pools, Wading Pools, Spas, and Hot Tubs."

CONCLUSION: **See test section for details.**

Tested by,

Jason Tsan, Test Engineer

Reviewed by,

Tony Zhou, VP-Electrical Engineering

Primary Standard: **APSP 16-2011**

Sections tested/evaluated:

3.2 UV Light Exposure Test
3.7 Pressure Differential and Point Impact Test

Test Results: All tests and evaluations were conducted per the written procedures in the specified standard.

APSP 16-2011

3 Physical Testing

3.1 General – FOLLOWED

All specimens were conditioned and inking procedures followed.

3.2 Ultraviolet Light Exposure Test – COMPLIED

Test Method 2 was utilized to evaluate the material. Samples of the fitting polymeric materials were exposed to ultraviolet light in accordance with ASTM G 154, using the Common Exposure condition, Cycle 1, found in Table X2.1 of ASTM G 154 for a period of 750 hr. Samples of the material shall retain at least 70 percent of the unconditioned value when evaluated for Tensile Strength and Izod Impact in accordance with ASTM D638 and ASTM D256, respectively.

Finding: The white samples of the material retained 86% and 90% of the unconditioned value for the tensile strength test and the Izod Impact test, respectively. The higher K factor was selected as the intensification factor and determined to be 1.16. The results were obtained from CRT Laboratories, Inc., Report #20448.

3.7 Pressure Differential and Point Impact – **DID NOT COMPLY**

The same six fittings used in the Shear Load Test (Clause 3.6) were used. The fitting were mounted on a horizontal surface and covered with a 20 mil (0.5 mm) plastic material or other suitable material. The fitting outlet shall be connected to a pressure and subjected to a 28.5 in. (724 mm) Hg × K pressure within 60 sec ±5 sec. The pressure was sustained for 5 min ±10 sec.

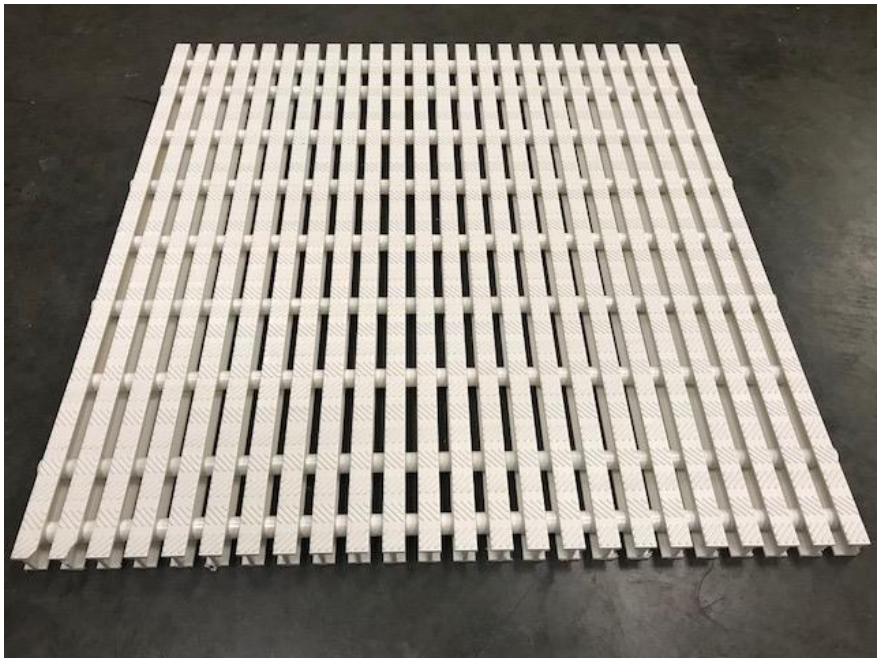
The pressure was then stopped, the plastic film removed, and the fitting was impacted at 15 ft-lbf x 1.16 using the test method in ASTM D 2444, with a 5 lb, 2 inch diameter, 2 inch radius nose steel tup. The fitting shall be again connected to the pressure system and again it shall be subjected to the 28.5 in. (724 mm) Hg × K differential pressure within 60 sec ±5 sec.

After removal from the test fixture, water-soluble contrasting ink shall be applied in accordance with paras. 3.1.6 and 3.1.6.1 and the fitting shall be inspected for cracks, breaks, or fractures in accordance with para. 3.1.6.2.

Findings: The cover did not remain in place. The fitting did have permanently deformation, crack, and lose of material from the fitting. Before the differential pressure of 16.2 psi,

equivalent of 28.5 in. Hg x K (1.16) = 33.06 in. Hg. was reached, the unit begin to deform and cracked with lose of material. See Figure 2 for test results details.

Photograph of tested samples.



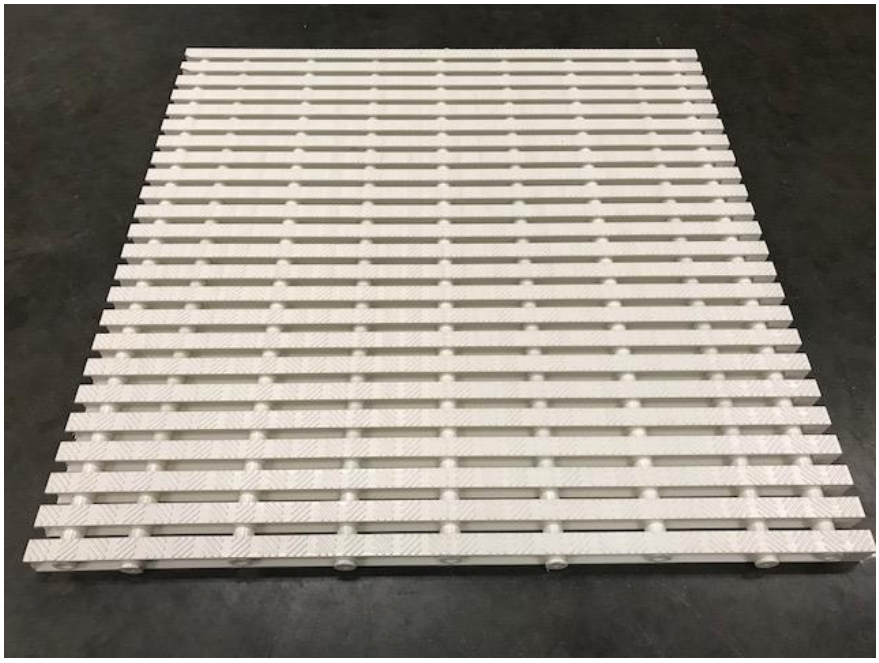
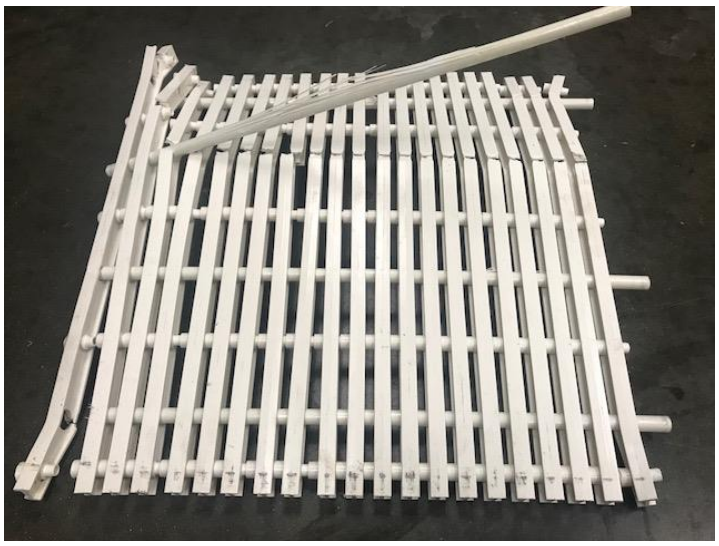


Fig. 1 - Suction fittings model no. DMD-FG-2424 (24” by 24” frame)



Pressure Differential and Point Impact Test Result for Suction fittings model no. DMD-FG-2424 (24” by 24” frame)