# CHAVES ASSOCIATES, INC.

STRUCTURAL ENGINEERS

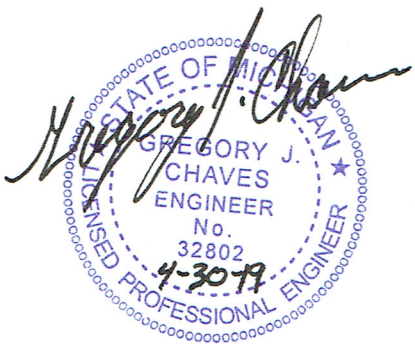

**PERFORMANCE TEST REPORT**

**Rendered to:**

**Advanced Architectural Products**

**Product Type: GREENGirt**

**ASTM D2990**





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**PERFORMANCE TEST REPORT**

Rendered to:

Advanced Architectural Products

959 Industrial Dr.

Allegan, MI 49010

**Test Date:** 1/2/19-3/31/19

**Report Date:** 4/30/19

**Project Summary:** Chaves Associates, Inc. was contracted by Advanced Architectural Products to perform testing on GREENGirt specimens at its own facility. Test specimen description and results are reported herein. The sample was selected by Chaves Associates from inventory at Advanced Architectural Products.

**Test Methods:** The test specimen was evaluated in accordance with the following:

ASTM D2990-17. *Standard Test Methods for Tensile, Compressive, and Flexural Creep and Creep-Rupture of Plastics*

**Test Specimen Description:**

**Series/Model:** GREENGirt

**Product Type:** Specimen cut from GREENGirt

**Overall Size:** 1.68" x ½" x .105"

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**Test Specimen Description:**

Eighteen rectangular specimens were cut from GREENGirt, with dimensions of 1.68" x ½" x .105". The specimens were conditioned in a laboratory environment of 75° F (+/- 2°F) and 50% relative humidity (+/-5%) for 40 hours. The specimens were then preconditioned in the test environment for 48 hours prior to testing.

**Test Method:**

Rigid test racks were placed in two rooms – one kept at 73.4° F (+/- 2.6° F) and 50% (+/- 5%) relative humidity, and one kept at 122° F (+/- 2.6° F) and 50% (+/- 10%). Nine test specimens were placed in each test rack, three for each weight (2 LB, 8 LB, and 19 LB). A stirrup was fit over each specimen, and a dial gage was placed at mid-span.

A full load of 2, 8, or 19 pounds was rapidly and smoothly applied to each specimen, with the process taking less than 5 seconds. Deflection readings were taken at 1, 6, 12, and 30 minutes, and 1, 2, 5, 20, 50, 100, 200, 500, 700, and 1,000 hours. After the 1,000-hour mark, readings were taken twice weekly until 2,000 hours was reached. Temperature and relative humidity were recorded alongside deflection.

**Test Results:**

Unloaded control specimens tested alongside test specimens recorded .0003" of deflection for 122° F and no deflection at 73.4° F at 2,000 hours. No correction is needed for the test specimens.

No test specimens ruptured at 2,000 hours at 73.4° F or 122° F. The log strain percent versus log time graph for each test is shown below:

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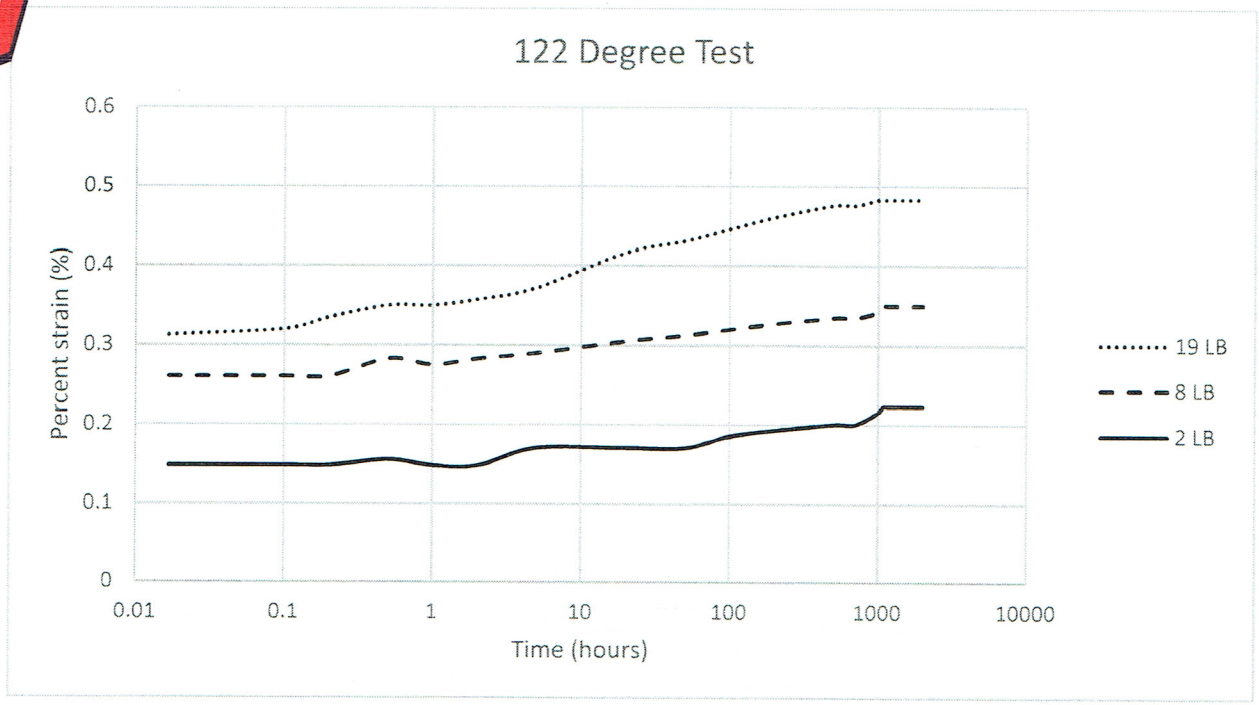


**Figure 1: Creep Strain Percent Curves at Various Times for 122 Degree Test**

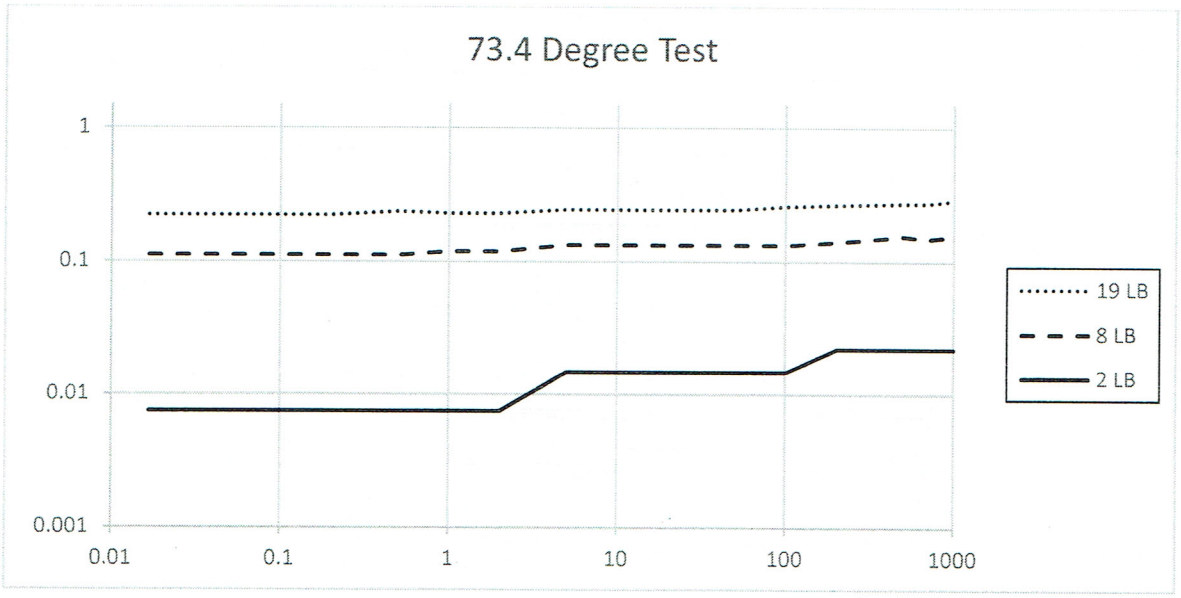


**Figure 2: Creep Strain Percent Curves at Various Times for 73.4 Degree Test**

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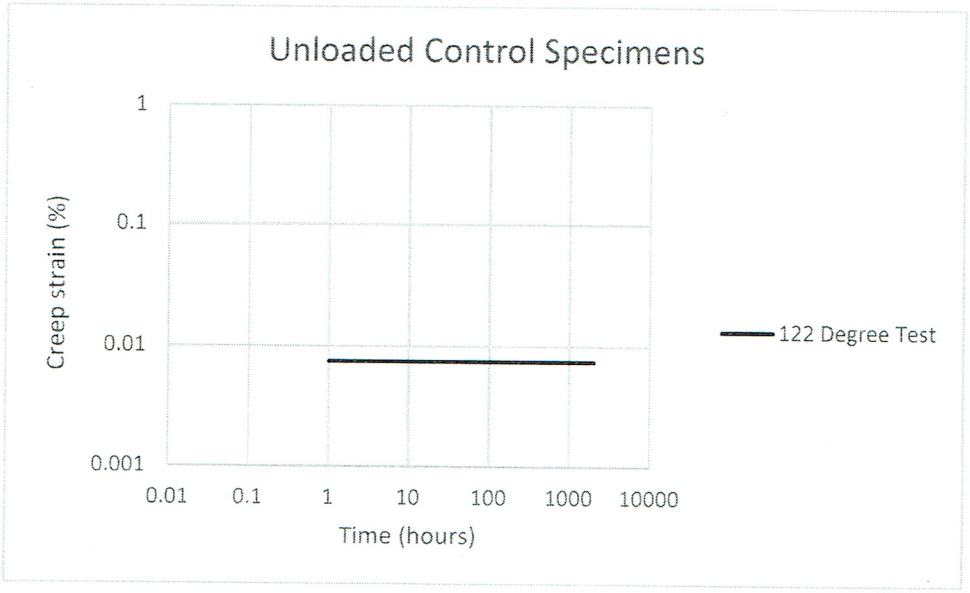


**Figure 3: Creep Strain Percent Curve at Various Times for Unloaded Control Specimens for 122 Degree Test**

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