BIFMA OF-2025

Outdoor Furniture Whitepaper

July 14, 2025

Suggestions for the improvement of this Guideline are welcome. The suggestions should be sent to email@bifma.org or BIFMA, 678 Front Avenue NW, Suite 150, Grand Rapids, MI 49504. Suggestions will be reviewed by leaders of the BIFMA Engineering Committee.

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This whitepaper should not be used, quoted or in any way referenced in a contract or bid specification.

Foreword and Acknowledgements

The material presented in this whitepaper was developed as a result of the efforts of members of the BIFMA Outdoor Furniture Subcommittee. This document was made available to BIFMA membership on July 14, 2025 for use and consideration for evaluating products that will be used in outdoor settings.

The information in this document is informative only and has not been approved by any formal vote, nor any consensus body.

Users of this whitepaper do so at their own risk.

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1 Introduction

During the 2020 global Coronavirus outbreak, offices were closed and in some instances the only way to meet people to work or socialize was in outdoor settings. BIFMA's member companies were tasked with developing products that could withstand harsh environmental conditions such as direct UV exposure, high heat and humidity, cold, and moisture. In 2021, the BIFMA Technical Leaders met, and consensus was reached that BIFMA should work to develop a standard to address exterior tables and chairs. A subcommittee was formed to develop a standard which could combine the BIFMA Safety and Performance standards with the accelerated weathering tests to evaluate the durability and structural integrity of exterior furnishings.

This whitepaper encompasses over 3 years of meetings with manufacturers, accelerated weathering experts, and other stakeholders.

BIFMA safety and performance standards have traditionally been developed such that they do not determine product design or material(s) used. When the subcommittee developed the scope of this project, the goal was to be able to develop a standard that was material-agnostic.

In consultation with the experts, it became apparent that at this time, it would not be possible to develop a standard that would be material-agnostic and provide a bridge between the accelerated weathering and safety and performance testing. Instead, the subcommittee has developed this whitepaper as guidance to manufacturers who wish to develop and evaluate products that will be used in exterior applications.

2 Understanding Accelerated Weathering

Accelerated weathering simulates severe outdoor exposure conditions in a manner to artificially increase the rate of material degradation to learn how a product responds to the outdoor environment. The BIFMA Exterior Furnishings subcommittee consulted with experts in this field and their expertise, findings, and guidance is captured within this whitepaper. Those discussions centered around UV, heat and humidity, cold/freezing, water, wind, and corrosion exposures. Testing could be used to simulate varying climates and seasonal changes.

3 Assessing Structural Integrity

Because there is no direct correlation between the accelerated weathering testing and the safety and performance standards, users of this whitepaper are encouraged to use the applicable ANSI/BIFMA safety and performance standard that would best fit the use of their product along with the appropriate accelerated weather tests in section 4. If the weathering tests indicate a loss of performance in the materials used in the product, that needs to be taken into consideration by the manufacturer. The following is a list of current ANSI/BIFMA Standards:

ANSI/BIFMA X5.1-2017(R2022) General-Purpose Office Chairs – Tests

ANSI/BIFMA X5.4-2020 Public and Lounge Seating

ANSI/BIFMA X5.41-2021 Large Occupant Public and Lounge Seating

ANSI/BIFMA X5.5-2021 Desk and Table

ANSI/BIFMA X5.6-2016(R2021) Panel Systems

ANSI/BIFMA X5.9-2019 Storage Units

ANSI/BIFMA X5.11-2015(R2020) General-Purpose Large Occupant Office Chairs

ANSI/BIFMA X6.1-2018 Educational Seating

ANSI/BIFMA X6.4-2021 Occasional-Use Seating

ANSI/BIFMA X6.5-2022 Home Office and Occasional-Use Desk, Table and Storage Products

4 Accelerated Weathering Tests

The following chart is a list of accelerated weathering tests, what types of materials they are applicable to, and the recommendations of the BIFMA Outdoor Furniture subcommittee for the evaluation of the sample.

Test Standard / Component				Notes/Guidance	Post test evaluation
Polymer	Metal	Wood	Fabric		
ASTM D4329 Standard Practice for Fluorescent Ultraviolet (UV) Lamp Apparatus Exposure of Plastics	N/A	N/A	N/A	Test specimens shall be 0.125 +/- 0.01 -in. (3.2 +/- 0.03mm) thick Type 1 tensile test bars injection molded from the same material used in the finished parts or cut from the finished part as described in Test Method ASTM D638. Parts shall be tested to 2000 hr. in accordance with cycle A using UVA-340 bulb. Member experience shows that darker colors typically have worst case performance.	The test specimen must retain 70% of the original Tensile Strength. Tensile Test in accordance with ASTM D638 at a Test rate of 2 in. (51mm)/min.
ASTM D6944 Determining the Resistance of Cured Coatings to Thermal Cycling (Full product)				Thermocycles for coating or coated systems. A full sample shall be used and shall undergo 30 cycles as specified in a modified Method B. Method B) 50 ±3C for 8Hr, -18 ±3C for 16Hr (1 cycle) Note: cold cycle has been modified After 30 cycles, allow the product to return to room temperature.	There shall be no cracking of joints, welds, or bonds. Seating products shall withstand the Proof load for the Dynamic Drop Test. Desks and Tables shall withstand the Concentrated and Distributed proof loading tests.

Test Standard / Component				Notes/Guidance	Post test evaluation
Polymer	Metal	Wood	Fabric		
UL 588 19th Ed Section 89 (modified) Hydrothermal (Full product)				A cycle shall consist of: -Rain spray - using UL 588 19th Ed Section 89 (modified) subject a full sample to 120 ± 2 minutes of exposure to water under the rain spray apparatus. The water pressure is to be maintained at 5 pounds per square inch (34.5 kPa) at each head. The water spray is to be applied to the product from above to all four sides for 30 minutes on each side (2 hours total). The water temperature is to be 21 +/- 7 degrees C (70+/-20 °F). -Within 30 minutes use a towel or equivalent to remove standing water on the surfaces and place in a preconditioned freezer / chamber at -18 ±3 °C for 3 hr. minimum. -Remove from the chamber. If there is any deterioration, describe it and record location. Allow the product to return to room temperature.	There shall be no cracking of joints, welds, or bonds. Seating products shall withstand the Proof load for the Dynamic Drop Test. Desks and Tables shall withstand the Concentrated and Distributed proof loading tests.
N/A	ASTM B117 Standard Practice for Operating Salt Spray (Fog) Apparatus	N/A	N/A	A portion of the product shall be subjected to 72 hours in a 5% salt spray (fog). Selected portion shall include features such as welds, and/or fasteners. Cuts shall be covered in wax sealant.	Visual evaluation using ASTM D 610 Standard Practice for Evaluating Degree of Rusting on Painted Steel Surfaces, there shall be no corrosion pits or area worse than shown in Figure 1, using the Rust Grade 9 in table 1 of ASTM D610. Zinc coating components with surface oxidation is in compliance, but red rust is not.