

# General-Purpose Office Chairs - Tests American National Standard for Office Furniture



### **American National Standard**

Approval of an American National Standard requires verification by ANSI that the requirements for due process, consensus, and other criteria have been met by the standards developer.

Consensus is established when, in the judgment of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made toward their resolution.

The use of American National Standards is completely voluntary; their existence does not in any respect preclude anyone, whether he has approved the standards or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standards.

The American National Standards Institute does not develop standards and will in no circumstances give an interpretation of any American National Standard. Moreover, no person shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute. Requests for interpretations should be addressed to the secretariat or sponsor whose name appears on the title page of this standard.

**CAUTION NOTICE:** This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken periodically to reaffirm, revise, or withdraw this standard. Parties interested in American National Standards, may receive current information on all standards by calling or writing the American National Standards Institute.

**NOTICE ON FORMAT AND STYLE:** The format and style of this document differs form ANSI style as specified in the ANSI Style Manual for Preparation of Proposed American National Standards. This style and format exception has been permitted to ensure technology accuracy.

Published by



Copyright ® 2003 All rights reserved

No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without prior written permission of the publisher.

Printed in the United States of America



### American National Standard for Office Furniture

### **General-Purpose Office Chairs - Tests**

### **Sponsor**

BIFMA International 2680 Horizon Drive SE Suite A1 Grand Rapids, MI 49546-7500 Phone: (616) 285-3963 FAX: (616) 285-3765 email@bifma.org

Approved December 31, 2002 American National Standards Institute



### **ANSI/BIFMA X5.1-2002**

#### **Foreword**

The material presented in this standard was developed as a result of the efforts of the members of BIFMA International and reviewed by a broad representation of interested parties, government organizations and commercial testing and procurement and interior design organizations.

This standard defines specific tests, laboratory equipment, conditions of test, and recommended minimum levels to be used in the test and evaluation of the performance, durability, and structural adequacy of general-purpose office chairs.

The original work on this standard was completed in May 1974 by the BIFMA Engineering Committee and, particularly by its Subcommittee on Chair Standards. During the periods from February 1983 through January 1984, March 1990 through April 1993, and again from September 1997 to October 2002, the Subcommittee on Chair Standards conducted reviews of the standard to ensure that the tests accurately describe the proper means of evaluating the safety, durability, and structural adequacy of general-purpose office chairs. The reviews produced revisions and/or additions to the various test procedures that improve the procedures and provide consistency. The revisions were submitted to the membership of BIFMA International and approved in December 2001. A canvass of interested parties and stakeholders was conducted in accordance with the requirements of an ANSI accredited standards developer. After completion of the canvass process, the standard was subsequently submitted to the American National Standards Institute for approval as an American National Standard. Approval by ANSI was given on December 31, 2002.

Suggestions for the improvement of this standard are welcome. The suggestions should be sent to BIFMA, International, 2680 Horizon SE, Suite A1, Grand Rapids, MI 49546.



### Contents

Section		Page
1	Scope	5
2	Definitions	6
3	General 3.1 Types of Tests 3.2 Manufacturer's instructions 3.3 Figures 3.4 Figure Symbols 3.5 Measurements 3.6 Tolerances 3.7 Recommended Test Report Format	8 9 10 10
4	Types of Chairs	13
5	Backrest Strength Test - Static - Type I	18
6	Backrest Strength Test - Static- Type II & III	23
7	Base Test - Static	27
8	Drop Test - Dynamic	29
9	Swivel Test - Cyclic	33
10	Tilt Mechanism Test - Cyclic	35
11	Seating Durability Tests - Cyclic	37
12	Stability Tests	41
13	Arm Strength Test - Vertical - Static	47
14	Arm Strength test - Horizontal - Static	49
15	Backrest Durability Test - Cyclic - Type I	53
16	Backrest Durability Test - Cyclic - Type II and Type III	61
17	Caster/Chair Base Durability Test - Cyclic	67
18	Leg strength Test - Front and Side Application	72
19	Footrest Durability Test - Vertical - Cyclic	75
20	Arm Durability Test - Cyclic	77
21	Out Stop Tests for Chairs with Manually Adjustable Seat Depth	79
22	Tablet Arm Static Load Test.	81
23	Tablet Arm Load Ease Test - Cyclic	83



# DOCKET

## Explore Litigation Insights



Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

### **Real-Time Litigation Alerts**



Keep your litigation team up-to-date with **real-time** alerts and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

### **Advanced Docket Research**



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

### **Analytics At Your Fingertips**



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

### API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

### **LAW FIRMS**

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

### **FINANCIAL INSTITUTIONS**

Litigation and bankruptcy checks for companies and debtors.

### **E-DISCOVERY AND LEGAL VENDORS**

Sync your system to PACER to automate legal marketing.

