Healthcare Seating: Is it Safe?

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Continuing Education Information

Architects -
- Have your conference badge scanned by the room monitor at the start of each session you attend.
- Complete the AIA verification form (be sure to check off the sessions you attend) and retain it for your records. CE credits will be uploaded to the AIA transcript system within 6-8 weeks of the close of the conference.

Interior Designers -
- Have your IDCEC verification form STAMPED by the room monitor at the start of each session you attend. This is the ONLY proof of attendance that will be accepted.
- You will self-submit your credits to the IDCEC system at the conclusion of the conference.
- If you have questions about reporting your credits, contact the interior design association that is responsible for monitoring mandatory continuing education to fulfill membership requirements.

EDAC -
- Complete the EDAC verification form and retain it for your records
- You will self-submit your CE credits to Castle Worldwide at the time of your EDAC renewal. Renewal notices with login instructions will be sent from Castle Worldwide six months and three months prior to the candidate’s renewal date.
- The verification form is your proof of attendance in case of an audit.
Session Evaluation – HCD Mobile App
All session evaluations will be done through the new HCD Mobile App. If you have not done so already please download the app through your device’s app store. If you have any questions or need assistance please visit the help desk.

Individual Session Evaluation Instructions –

• On the home screen, click Show Schedule
• Find the session you are attending
• After selecting an individual session, a navigation bar will appear on the left. Click the clipboard icon and evaluation/survey will begin.
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Strength
Stability
Durability

Photo by Slava Bowman on Unsplash
Agenda

• Characteristics of safe seating – strength, stability, & durability
• Flammability
• Anthropometrics
• Address cleaning guides

• Discuss!!!
BIFMA

• Founded in 1973
• Over 300 members are producers, suppliers, and other service providers of office and institutional furniture
• Develops voluntary product and industry standards
• Advocates on behalf of the industry with legislators and regulators
• Publishes key industry statistics
What are ‘Standards’?

• Standards are set by the American National Standards Institute (ANSI)
• Characterized by consensus, openness, balance, and due process
• BIFMA is an ANSI-accredited Standards Developer
Think Standards, Not Weight Ratings!

• Putting a static load in a seat and claiming a weight rating is inappropriate

• BIFMA encourages conformance to the ANSI/BIFMA standards rather than generic ‘weight ratings’ for seating products

(BIFMA Website FAQ)
Drop Shock Test
ANSI/BIFMA Seating Standards

ANSI/BIFMA X5.1
General Seating

- ‘normal office environment’
- workhouse of NA seating tests
- basis of tests: 95th percentile male at 275 lbs. (125 kg) with a 10-year life at single shift usage

ANSI/BIFMA X5.4
Lounge/Public

- indoor public spaces, like waiting, reception; not adjustable
- the standard (253 lbs.) is now undergoing revision proposals and will likely increase the basis to 400 lbs. (181 kg)
ANSI/BIFMA X5.11 Standards Development

• Study Characteristics:
  – Ten male and ten female participants
  – Anthropometric measurements were made for each of the participants.
  – One stationary ‘lounge’ unit and one adjustable ‘office’ unit.
  – Load cells and strain gages attached to all major components of the seating units.

The tests were developed in conjunction with Mississippi State University. (2012-2014).
275 lb. is the Basis for General Seating??

ANSI/BIFMA X5.11 Large Occupant

- similar to ANSI/BIFMA X5.1 ‘normal office’, **BUT**
- basis is **400 lbs.** (181 kg.) male, **AND**
- seat width must be **22 in.** (560 mm) or greater

The tests were developed in conjunction with Mississippi State University. (2012-2014).
ANSI/BIFMA X5.11 Testing

- MSU Stationary Chair
- Office ‘Task’ Chair
- Abdominal Extension Depth
There is **NO** Healthcare Standard – yet.

- BIFMA created a Healthcare Furniture Subcommittee in 2012
- Healthcare Professionals recommended top two priorities:
  - **Healthcare Patient Seating Standard**: under development
Large Occupant / Healthcare (in development)

• Considering a new Healthcare Seating Standard at 401 – 600 lbs.

• For 401 – 600 lbs. minimum seat width is expected to be 26.0 in.
strength

stability

durability

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STRENGTH
Strength: Seat

• The chair must withstand a weighted bag dropped from a height of 6” into the chair for the functional requirement and a heavier bag for the proof requirement
Strength: Backrest

- The chair must withstand a force for one minute for the functional requirement and a greater force for the proof requirement.
Strength: **Arm Test**

- The chair must withstand a force for one minute in the vertical direction for the functional requirement.
- The chair must withstand a force for one minute in the horizontal direction for the functional requirement.
Strength: Leg Test

- The chair must withstand a force for one minute in the horizontal direction at the front leg the functional requirement and a greater force for the proof requirement

- Repeat for a side application
Tablet Arm Test

Tablet Arm tests:
• static loading
• repeated loading
Footrest Test

Footrest tests:
- static loading
- repeated loading
Stability: Rear

- Numerous disks representing a person leaning back are placed along the backrest.
- The chair must not tip over.
Stability: Front

- Test loads representing a person sitting on the front edge are applied very near the front of the seat pan.

- The chair must not tip over.
DURABILITY
Seat Durability

• The chair must withstand a weighted bag set into the center of the seat pan for 100,000 cycles; and again for 20,000 cycles each front corner.
Durability: Tilting Back

- The chair must withstand a force applied to the seat back for 120,000 cycles.

- Locations vary depending upon the size of the backrest.
Durability: Angular Armrest

- The chair must withstand forces applied to the armrests (each simultaneously) for 60,000 cycles.
Durability: Caster

• The chair must withstand cycling a certain distance for 100,000 cycles including a specified number of cycles over obstacles.
Upholstered Furniture Flammability

- Most widely used specification for seating fire safety
- In line with the BIFMA industry position.
BIFMA G1 Ergonomics Guideline

• For furniture used in office work spaces designed for computer use.
• Uses principles and design considerations from ISO.
• Focused on North America with data from the Civilian American and European Surface Anthropometry Resource (CAESAR).
• Intended to be recommendations, not requirements.
Anthropometric Guidelines

Popliteal Height

Buttock-Popliteal Length
Anthropometric Guidelines

Sitting Hip Breadth

10th Rib Midspine
Key Points to Remember!

- Ask for basis tests of strength, durability, and stability (or the ANSI/BIFMA standard)

- Static and dynamic ‘rating’ is incorrect
So Dave....

..... the chair I’m buying says it meets the ANSI/BIFMA standard – I now know this is 275lbs.

Does this mean a 300 lb. person can’t sit in it?
So Dave....

..... my hospital specifies a 350 lb. dynamic load weight capacity for all standard seating.

Is this going to meet all aspects of safety – strength, stability, and durability?
So Dave....

..... my hospital specified a side chair on casters that supports a minimum of 500 lb.

How will we know we are getting what we need?
So Dave....

..... my hospital specifies a **750 lb.** dynamic load weight capacity for all bariatric seating....

Is this going to meet all aspects of safety – strength, stability, and durability?
So Dave....

.....my hospital wants flame resistance to meet UFAC Class I, California 117 Section E, FMVSS 302, NFPA 260.

Are we following BIFMA recommendations?
So Dave...

.....I have some ideas about testing, methods, and ways to make this process better.

How can I get involved?
Measuring Humans for Heavy Duty Chair Testing and Design

Final Report

J. Zhang, B. Tackett, and B. Martin

MEMO

To: Whom It May Concern
From: Dave Panning (dpanning@bifma.org)
Date: February 3, 2016

Subject: BIFMA Position – Chair Weight Limits / Load Ratings

Chair manufacturers often make claims of the weight capacity or a load rating. BIFMA Seating Subcommittee cautions against weight limit claims that are stated in ways that do not represent actual use conditions and do not encompass dynamic ANSUI/BIFMA standards are based on user behaviors (including dynamic factors) not solely on the weight of users. Because of these reasons, there is not a BIFMA methodology.

The Scope of BIFMA Seating Standards indicates that a certain percentile has been used in the development of the various standards. This does not mean that all percentiles referenced in the standards cannot safely or comfortably use a chair.

BIFMA standards. As users get very large, however, the size of the chair also increases. Users with weights above the listed percentile may affect the life of the chair and may be compromised.

Some BIFMA members have recently tested general-purpose chairs with static loads. Although the test support the load, they found that a dynamic force could be catastrophic. Responsible manufacturers would never make a recommendation of 1,500 lbs. for a General-Purpose Chair based solely on the limitations of dynamic use.

BIFMA strongly supports eliminating fire retardant chemicals in upholstered furniture products. The State of California, and many other specifiers, have moved away from the open-flame requirements of Technical Bulletin 117 (TB-117) to the smolder requirements of TB 117-2013 for upholstered furniture. We support this change and urge adoption of TB 117-2013 as a national standard. We encourage all regulators, legislators, code officials and specifiers to replace existing flammability requirements, including the open-flame TB-133 standard, with the new California smolder standard.

Given the increasing body of evidence that indicates the presence, bio-accumulation and potential health concerns of many fire retardants, we believe the risks associated with the use of these chemicals is great than the fire risk from furniture without fire retardants. This is especially true given fire safety trends towards today’s fire prevention technologies. The increased use of smoke detectors, sprinkler systems, and smokeless chimneys, as well as societal changes that include fewer smokers, have all diminished the potential fires. In addition, all states and Canada require fire-safe cigarettes, which are designed to extinguish for not in use. Furniture purchasers are requesting safer, more environmentally friendly products that do not contain fire retardant chemicals.

In addition to the environmental and health concerns of flame retardant chemicals, our industry is concerned with the performance and cost implications of open-flame regulations. An open-flame requirement limits furniture design, negatively affects comfort, and reduces longevity of the products.

September 9, 2015

Fire Safety of Upholstered Furniture Products

The Business and Institutional Furniture Manufacturers Association (BIFMA) is the not-for-profit trade association for business and institutional furniture manufacturers. Since 1973, BIFMA has been the voice of the commercial furniture industry and currently has over 250 member companies.

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September 9, 2015
More Questions?

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