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## **Outdoor Furniture**

We are frequently asked - mostly by purchasers of such furniture - whether or not there exist standards for outdoor furniture. The simple answer is yes and no. To elaborate - not all product types are covered. However, there are standards available which apply to a fairly significant range of items. Two of these are outlined below and will be the subject of the discussion that follows:

- EN 581 Outdoor furniture - Seating and tables for camping, domestic and contract use.
- AS/NZS 3813 Plastic monobloc chairs.

Both are performance based standards. Environmental issues such as recycle-ability or biodegradability etc are not addressed by either of the standards or this bulletin.

### **EN581**

EN 581 comes in 3 parts. Part 1 covers *general safety requirements*, part 2 *mechanical safety requirements and test methods for seating* and part 3 as for part 2 but for tables. It specifies three levels of test viz., Camping, Domestic and Contract (in order of ascending severity). Part 4 of the standard - *requirements and test methods for durability under the influence of climatic conditions* - currently exists as a draft due for full release mid 2005.

The standard was written and designed around a wider range of products than

its titles indicate. It specifically includes in its coverage items such as folding stools, camping stools, folding and non folding garden chairs, fixed and folding armchairs, multiposition armchairs, 'producer/director' seats, benches, 'fixed' and mobile lounge chairs, foot-rests, deck chairs, outdoor tables, camping tables, coffee tables and serving trolleys.

The *Camping* test level is defined as intended for private continuous use for extended periods of up to a month or more and then perhaps not used for

the rest of the year. Products are typically foldable for transport and storage, stackable, light weight and may be used on less than ideal surfaces e.g. rough ground etc.

The *Domestic* level is defined as intended for private use in places like gardens, wintergardens, terraces balconies etc.

*Contract* level is defined as intended for non-private use in places with public access like restaurants, swimming pools, vocational and leisure sites and where products are subjected to extreme stresses.

In addition to the range of design features typically particular to outdoor furniture an essential difference between the requirements for indoors and outdoors lies in the need for outdoor furniture to be more or less resistant to degradation due to exposure to the environment, wind, widely variable humidity and temperature, rain and sunlight etc., in which it is used and may be "stored". Part 2 of this standard addresses temperature variation but the other climatic factors are embodied in part 4 which currently exists as a draft in development.

Given that limitation, the standard nonetheless provides clear user guidelines for manufacturers or suppliers to help ascertain appropriate test levels for their products and also includes wide ranging strength, durability and safety checks applicable to an equally wide range of outdoor furniture products.

In summary there is quite a bit on offer for the supplier or manufacturer who wishes to provide a tested and proven product to the market using this standard.

### **AS/NZS 3813**

AS/NZS 3813 is a standard that was developed here in Australia. It is based on ISO 7173 and 7174 with changes consid-

ered necessary to address the specific issues required to properly test plastic monobloc chairs. It has two levels of testing severity - domestic and commercial. Broadly speaking these align with 'domestic' and 'contract' as described under EN 581 above.

The 'specific issues' referred to include climate, UV weathering, the material properties of plastics (including dye or pigment colouration), the typically light weight of plastic monobloc chairs and smooth and slippery floor surfaces which can contribute to leg splaying under load.

To elaborate a little, climate, mainly temperature, has a significant affect on the durability and strength of most plastics. Colouring can also have an affect on the strength properties of plastic (for a given base formulation). To this end when testing is undertaken on a given chair design produced in a range of colours, each colour variation is individually tested. The approach undertaken is to fully test one sample and perform only static tests on the remaining colours. The process is known as 'colour validation'. Essentially it is a compromise position between that which is technically desirable on the one hand and prohibitively expensive on the other.

UV weathering is another important factor influencing the strength of exposed items. Amongst other things its action is time and exposure dependent. Consequently it is best to attempt to reduce exposure to direct sunlight during periods of non-use by storage or by moving objects to less exposed positions. It was concluded by the committee preparing AS/NZS 3813 that in regard to UV weathering there weren't 'any known failures from UV radiation on Australian produced monobloc chairs' and that as such, and because the required testing would require approx 3 yrs under 'standard weather rack conditions', they would not in-

clude such a requirement in the standard. Regardless of the veracity of this statement there are few Australian manufactured chairs on the market at present. In short it is best to look for chairs that are both marked as compliant to AS/NZS 3813 and that have UV inhibitors in their formulation. Also keep them out of direct sunlight as much as possible.

There is overlap between EN 581 and AS/NZS 3813. A plastic monobloc chair could be tested against both standards. We would recommend that the Australian Standard take precedence in this instance. But if export to Europe is being considered EN 581 as a European Standard would be the obvious choice.

One difficulty in attempting to draft standards to test for outdoor performance lies in defining a standard environment, or environments, under which items can be tested, which adequately represent the environments in which the items might be used, given the very wide range that this will encompass, particularly in a country as diverse in climatic conditions as Australia.

Another difficulty is the cost of such testing, given that it is generally agreed that accelerated tests for exposure to such things as ultra violet light are not always a good indicator of how any particular item will behave under long term lower intensity exposure, hence the need for long term testing. It is yet to be seen whether part 4 of EN 581 - test methods for durability under the influence of climatic conditions - will bridge those difficulties and be appropriate and affordable in the Australian context. In the meantime both of the above standards define high performance requirements for safety, stability, strength and durability, for a reasonably wide range of products and conditions.

## General Guidance

Some guidance to the possible 'weathering' performance of outdoor furniture might be obtained by assessing the properties of individual materials, wood species, coatings etc. used in their construction. This does however require caution. A considerable body of knowledge is available regarding the behaviour of a wide range of materials under conditions of exposure to various extreme environmental conditions, although this may not always provide a complete picture of how the material will behave under any particular combination of conditions.

Manufacturers of materials such as adhesives and coatings are sometimes reluctant to publish 'weathering data' on the grounds that they have no control over the conditions of application or the condition or combination of materials which an end product may involve. From the point of view of the furniture manufacturer and the end user, it is the performance of the combination rather than the individual parts in isolation which are of primary interest. The rapid deterioration of only one critical component, for example the adhesive in wooden furniture (built in an otherwise weather resistant species), could result in the disintegration of the whole item in a relatively short period.

Furntech-AFRDI has an environmental chamber in which temperature and humidity conditions can be programmed to cycle between predetermined environments. Wooden furniture is especially susceptible to conditions of changing relative humidity. Timber expands and contracts as a result of absorbing and desorbing moisture in line with changes in the relative humidity of the environment surrounding it. This can result, amongst other undesirable effects, in warped panels, loosening of joints and the jamming of moving parts. Testing product samples through a range of environments is an



easy and relatively inexpensive way to check design robustness prior to sale. The results of a well defined experiment will give a good indication of likely in field service and will certainly be a lot cheaper than dealing with problems after products are already out in the marketplace. We are happy to share our experience in helping to determine an appropriate range of environments based on the particular requirements of a product and its intended end use. Please contact us directly if interested.



## Labelling of Office Chairs

Office chairs which comply with the requirements of 'AS/NZS 4438:1997 Height adjustable swivel chairs' must be appropriately marked and supplied with full operating instructions. Without this any claim that a chair complies with the standard cannot be valid. The marking and instruction requirements for such chairs are clearly stated in Section 6 of the Standard but it is an area in which we experience frequent problems when chairs are submitted to us for assessment.

This article gives an explanation of the requirements.

**Clause 6.1** of Section 6 contains a statement on the requirement for *marking and instructions* referred to in the introduction and does not require any further explanation. It references Clauses 6.2 and 6.3 which contain more details of the specific requirements.

**Clause 6.2** covers *instructions for use*. This information may be provided on a swing tag, booklet or by any other suitable means, the requirement is that they be "with the chair". Diagrams and photographs are usually helpful, but they are not part of the requirement. The instructions should at least address the five separate items listed as follows:

(a) Instructions for use of the adjusting mechanisms

Our understanding of this requirement is that the information supplied should address the "How to" questions e.g. How to adjust the seat height or depth?; how to raise the armrest? etc.

(b) Instructions on the upkeep and maintenance of the chair

Many chair manufacturers see their products as not requiring maintenance - in which case no instructions need be provided. Otherwise instructions for any maintenance actions e.g. routine inspection, tightening, cleaning, lubricating etc must be provided.

(c) An outline of ergonomic seat, back and height setting

Our understanding of this requirement is that it provides information in relation to optimising the adjustments of the chair using the procedures outlined in Clause 6.2(a). The purpose being to obtain the appropriate ergonomic setting of the chair for any particular individual user. Something along the following lines would be appropriate, but should always be tailored to address the particular features of a given chair.

- Sit normally on the chair and adjust the seat height so your thighs are approximately horizontal when your feet are flat on the floor
- Adjust the height of the backrest so that the lumbar support roll in the backrest of the chair is level with the lumbar region of your spine
- Height adjustable arms (if fitted) should be set to a level where it is possible to rest both forearms approximately horizontally on the rests without straining your shoulders upwards or downwards

This need not be an essay writing competition, diagrams can be very helpful;

what matters is that the information supplied be correct, clear and useful.

- (d) The manufacturer's or importer's name and address

The intent is for the manufacturer or importer to be contactable, and while we have traditionally interpreted this requirement for an address to mean a mail delivery address, e-mail addresses or telephone/fax numbers are probably acceptable. Our preference is for all four contact details to be given as it is recognised that although these will probably change over time it is less likely that all will change during the life of the chair.

- (e) Care, flammability, and summarised operating details

The care information required is the statutory fabric care labelling defined for the particular fabric/s in AS 1957 as required in Australia under 'Consumer Protection Notice No 16 of 2003 Care labelling for clothing and textile products'.

Regarding *flammability* there should be a statement that the fabric and fillings used in the chair meet the requirements of 'AS/NZS 4088.1 Specification for burning behaviour of upholstered furniture Part 1: Upholstery materials for domestic furniture – smouldering ignitability'.

We have normally interpreted the requirement for *summarised operating instructions* as redundant, if effective instructions are supplied under items (a) and (c) above.

**Clause 6.3** addresses *marking requirements*. This refers to information which must be supplied "permanently" marked on the chair (a well bonded sticker is regarded as sufficient to fulfil this requirement).

Three separate items are addressed as follows:

- (a) The manufacturer's or importer's name and address

Effectively the same contact information as required under 6.2(d).

- (b) The year of manufacturer. This needs no explanation

- (c) A label stating: "Hard-tyred castors are unsuitable for use on hard floors or firm chair mats in which case soft-tyred castors should be used. Soft tyred castors are distinguishable by the tyre being a different colour to the body of the castor"

A detailed explanation of the intention of this clause would probably not be particularly helpful, it is fairly self explanatory. Suffice to say that this is the form of words to be used and we expect to find them marked on each chair. It is surprising how often they are not there.



## Blue Tick Audits

We wish to draw attention to the clause on our Blue Tick Certification agreement covering "Sample for Quality Monitoring" and "Improper Use of Logos"

As a result of various information that has come to our notice, and to protect the correct use of our 'marks', it is AFRDI's intention to increase surveillance of products and our logo use in the market.

Users or potential users of the AFRDI logos are reminded that if you are unsure or want clarification on the use of a logo to please contact the Institute on:

phone: 03 6326 6155

fax: 03 6326 3090

e-mail: [info@furntech.org.au](mailto:info@furntech.org.au)



## Office Chairs Discount

From January 2005 Furntech-AFRDI will offer additional discounts on full testing of office chairs.

This follows comment from members regarding the opportunity to have more chairs from their range AFRDI Blue Tick Certified.

A 33% discount will apply to the third and subsequent chairs submitted by a Company simultaneously for full testing to AS/NZS 4438. AFRDI member discounts and 10% CFIAA/FIAA discounts still apply.

This makes the package even more attractive for companies wishing to submit a number of chairs together.



## Office Chair Components Standard AFRDI 109

AFRDI 109 is to be adopted as a new Australian Standard. We are inviting our members to have input into this process, and provide comments back to us. Any comments need to be returned to Ian Burton by 28 February 2005.



## Discounts to FIAA Members

Furntech are now offering a 10% discount on most testing to FIAA members in addition to CFIAA and INPAA members. Further discounts can be attained by becoming an AFRDI Member. Please contact the Institute on 03 6326 6155 or [info@furntech.org.au](mailto:info@furntech.org.au) if you would like more information or wish to become an AFRDI Member.

The combination of industry association and AFRDI membership can yield discounts of up to 30%.



## Standards Update

The following new or revised or draft standards have recently been issued:

DR 04564CP	Methods of Test for Veneer or Plywood – Part 11. Determination of formaldehyde emissions.
DR 04563CP	Structural Laminated Veneer Lumbar – Part 4. Determination of formaldehyde emissions.
DR 04519CP	Methods of Test for Textiles – Part 4.BO1: Colourfastness Tests.
DR 04526	Methods of Test for Textiles – Part 4.EO4 Colourfastness Tests.
AS/NZS ISO 14001:2004	Environmental Management Systems

Copies of these standards may be purchased through the Institute.

### What is Furntech-AFRDI Blue Tick?

Blue Tick is an undertaking where manufacturers or suppliers of furniture or components submit their products for testing and quality certification to recognised Standards. Companies whose products meet these requirements are listed on the Furntech-AFRDI website ([www.furntech.org.au](http://www.furntech.org.au)) which is used by many specifiers, manufacturers, buyers and sellers of furniture. Further details on Blue Tick may be found on our website or by contacting the Institute.



Blue Tick  
Product  
Certification



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Standards, Testing and Product Certification for Commercial, Domestic and Nursery Furniture in Australia and New Zealand