A guide for fit-out professionals from AFRDI*

How to specify the correct office chair

One of the most difficult choices facing the specifier, architect or interior designer is how to choose the most appropriate type of office seating.

Seating has to satisfy aesthetic requirements, it must be robust and durable, ergonomically sound, yet at the same time represent good value for money.

Putting aside the question of style for later consideration, but rather, concentrating on performance, it is possible to find many of these apparently conflicting qualities in a single chair. Such a chair will probably have been tested and certified to national and international standards by Furntech-AFRDI for commercial use, meaning that its durability, mechanical strength and potential longevity are assured, for its type will have typically endured in excess of 200-thousand full-load duty cycles during testing.

Chairs not certified and tested may also be satisfactory, but practical testing is left to the customer in the field – their strength and durability is an unknown quantity.

Furntech-AFRDI has also introduced a standard for sustainability, AFRDI Standard 150, rounding out a fully comprehensive suite of tests, so that qualifying chairs meet not only strength and durability standards, but also provide quantifiable performance levels for sustainability. They have also been designed and manufactured with responsible refurbishment or recycling in mind, to avoid used chairs simply being dumped in landfill.

Specifying a chair with these qualifications is 'ticking the boxes', meeting most if not all of the many new requirements being made by government and industry tender boards to satisfy the desire for responsible and environmentally sound manufacturing practices.

AFRDI™

Blue Tick Product Certification

AFRDI™

Green Tick Product Certification

*AFRDI is a not-for-profit technical organisation that writes standards, and tests and certifies a wide range of furnishings, consulting on the world market.

How an office chair works
It wasn't very long ago that a chair was considered sophisticated if it had a gas lift to facilitate height adjustment. Now it is common for a chair to have a control or adjustment^ for:
•reclining 'tension' – allows the operator to adjust the reclining resistance of the chair to their individual body mass or preference
•seat tilt – allows the operator to set the seat to the correct angle for the task
•seat height – allows the operator to adjust the seat height according to their leg length *(the aim is to sit with the feet flat on the floor, but in any case, to ensure that the area just behind the knee is not under compressive pressure*)
•lumbar support – a projection on the backrest that supports the lumbar region of the back. Can be adjusted up and down and sometimes can be adjusted in curvature. The compression resistance, and therefore the degree of support, of some lumbar mechanisms can also be adjusted.
•armrest* height and width

^chair adjustment mechanisms are many and varied – ***choose one that is easy and quick to adjust***
**armrests are useful in minimising wrist and forearm strain, leading to repetitive strain injury (but always ensure that the chair has been tested and certified with arms: it's not always the case)*

NOTE: Select chairs that are appropriate for the user's height and weight *(see section at end for heavy people)*. Standard chairs should suit people who fall within a range from 151 cm to 192 cm (just under five feet to nearly six feet four inches). Some manufacturers are able to offer chairs which can cater for people outside this range.

Furntech-AFRDI also tests and certifies fixed height chairs, tables and workstations for commercial office use, and use in public spaces.

Chair mechanisms
1 Lever generally operates gas lift only, although sometimes may combine other functions – these can be tricky to use in a single lever
2 Lever first lever operates gas lift
second lever releases and locks both seat tilt and backrest tilt. Sometimes may only actuate a single function
3 Lever first lever operates gas lift
second lever operates independent seat tilt
third lever operates independent backrest tilt

There is another class of mechanism, referred to as **synchro**, in which the seat and backrest both tilt, but in a ratio where the backrest generally rotates at twice the rate of the seat. In this type of chair, the first lever operates the gas lift, the second releases the seat and backrest to tilt in a pre-determined ratio to one another. There may also be a knob beneath the seat that varies '**tension'** – this creates resistance to the synchronized movement of the seat and backrest.

Despite the multiplicity of chair mechanisms, individual chair design and quality variables mean that no one type of chair is necessarily superior to another. It is really a matter of testing a sample for ease of use in the intended location, then ensuring that it has been properly tested and certified to ensure durability.

More on chair testing

The tests Furntech-AFRDI uses are designed to identify potential design weaknesses or material flaws which could lead to premature chair failure. The severity of the testing regime varies according to the intended use of the chair, from domestic duty through to normal commercial, up to 24/7 severe commercial duty, the kind that would be experienced in a police station or fire station.

As a general rule of thumb, any chair rated at Level 4 by AFRDI will meet most office needs, with only those offices where more severe operating conditions are anticipated needing Level 5 or Level 6.

Normally, chairs are tested for operator weight falling between a maximum of 100kg to 110kg. However, as the instance increases of individuals falling outside the normal population weight and height range, some manufacturers are seeking higher ratings for their chairs – **see chairs for heavy people.**

Furntech-AFRDI is flexible in its approach to specific problems and can accommodate special user testing requirements. From the standpoint of the person specifying, ensuring that chairs have been tested and certified is a practical way of minimizing the risk of future litigation if a chair should fail, or be implicated in causing injury to an operator.

Chair shape

It is beyond the scope of this short discussion to talk about the shape of chairs, or their style – suffice to say that it is important to choose a chair where the leading edge of the seat has a so-called **waterfall edge**, an edge which rolls downwards, to avoid placing pressure on the legs behind the knees, and in so doing, restricts circulation. Many manufacturers also make chairs with variable seat width to accommodate a range of user sizes, similarly different height backrests are commonly available, and some manufacturers also give a choice in the style of armrests, and in their adjustability – this can be backwards and forwards, but also may include an option to turn from side to side or move in and out to more naturally accommodate the resting arm.

The after-life of the chair

While you do not necessarily specify a chair with recycling in mind, perhaps you should. As community expectations change, manufacturers are starting to indicate how readily a chair may either be recycled into its base components, or refurbished to complete another life cycle. There is an imperative —to be reinforced through forthcoming sustainability laws and already required in many tender documents - to actively take steps to avoid used chairs simply becoming more wasteful landfill. Many positive initiatives to improve environmental and sustainability outcomes are encompassed in AFRDI Standard 150, and the resultant Green Tick product certification.

The chair of the very near future
Say, after five to ten years, when the chair's upholstery has become either shabby or its colour is out of fashion, a technician can remove it – along with the arms and arm pads – with just a handful of tools, and replace the worn parts.
The aim is to achieve this task – in the field – in 10 minutes or less. Under such a scenario, a chair may have a potential life of perhaps 20 or more years. It will not be sustainable in absolute terms, but it will be a quantum leap over the average five year life span of many current designs.

The chair for heavy people
AFRDI has for some time suggested a nominal maximum user mass of 110 kg for chairs tested to the severe commercial level. But gains in human sizing and weight mean that a worker who falls outside this range is no longer unusual.
Under the new testing procedures contained in the draft AFRDI Standard 142 Office Chairs for Heavy People, AFRDI will soon be able to test at two additional testing points – chairs for people up to 135 kilos (21 stone) and 160 kilos (25 stone). Each of these points has two durability options, one for typical 8/5 usage, the other for severe multi-shift operations.
The new standard encourages manufacturers to rethink the way they make chairs for heavy people, and also gives specifiers some protection against the possibility of damages claims should a chair fail in use. AFRDI is also preparing another new standard, AFRDI Standard 151, covering rated loads for fixed height chairs suitable for heavy people.

AFRDI cautions, however, that the new standards should not be sought in every chair. Chairs tested and certified to the normal standards suit better than 90% of the population – a higher rated chair is possibly a waste of money if it's intended for normal use.

On the other hand, chairs tested and certified at the higher rating will carry extended warranties, so the potential for greater longevity may offset higher initial pricing.

In Summary
Look for chairs carrying the AFRDI Blue Tick for strength, durability, flammability and ergonomics, AFRDI Green Tick product certification for all the above plus sustainability. If you need an office chair for a heavy person, enquire about product tested to AFRDI Standard 142.

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