

Adjusting for Comfort:
Ushering in a New Age
for Australian Ergonomics





In recent years, Australia has established itself as a leader in commercial design. Around the world, we've earned a reputation as innovators when it comes to office furniture, lighting, interiors, and architecture. We're known early adapters to new technology and the ABW model, and are future-oriented when it comes to our taste and tendencies in design. Crucially, the Australian design industry has wholeheartedly embraced the inclusion in workplace design of ergonomics, the science of adjusting the task to the worker (and not the other way around) to maximise productivity and reduce discomfort, fatigue, and injury.

Yet our position at the vanguard of commercial design is at odds with the Australian Standards pertaining to ergonomics – the paramount national guidelines in this respect – which have not been updated in 20 years. The original Australian Standard concerning ergonomics was the 11-page AS 3590.2-1990 Screen-based workstations;

Part 2: Workstation Furniture, which in 1997 was superseded by the significantly heavier AS/NZS 4443:1997 Office panel systems – workstations ('the Standard'). This in turn is bolstered by AS/NZS 4442: 1997 Office Desks and AS/NZS 4438: 1997 Height adjustable swivel chairs. The Standard "specifies minimum requirements...leaving designers and manufacturers the maximum opportunity to develop suitable products".¹

Although a one-size-fits-all approach goes against the flexibility that is at the core of ergonomics, the Australian Standards remain valuable guidelines that are in need of updating. Significant changes in the workplace in the past two decades have rendered much of the content of the Standard irrelevant or obsolete. In this whitepaper, we look at the leading ergonomic concepts and principles that the Australian Standards fail to cover, and discuss ways to bridge this gap.

Keep it Simple

The Standard needs to be kept simple in two key ways: in terms of style and in terms of content. Firstly, the Standard identifies its target audience as “purchasing authorities, specifiers, users, retailers, and manufacturers”.² This audience is notably broad, and the language of the Standard itself must be simplified to make it accessible and engaging for such a diverse range of stakeholders. The use of more images and less technical jargon is also recommended. In particular, the Standard should seek to engage purchasing authorities and users, who are central to encouraging companies to implement ergonomics strategies.

Secondly, the content of the Standard itself should not be prescriptive and should encourage design that is simple, efficient, and easy to use. The Standard writers should learn by example: the American National Standards Institute (ANSI) Standard 100 (2007) requires task chairs to include adjustable features for: seat pan height, tilt, and depth; lumbar support; and backrest recline. Yet studies have shown that excessive adjustability controls on chairs only cause confusion for users, 50% of whom do not know how to operate the controls.³ In short, users favour efficient solutions that adjust automatically or intuitively, and the Standards should respond and regulate accordingly.

Understand that Ergonomics is an Attitude

In addition to keeping things simple, the Standard should explain why measures should be implemented: it should not suggest technical solutions without explaining how these correlate with real world problems, and how they are beneficial. Again, this recommendation goes to the style of the Standard, which should rely on less assumed knowledge and adopt an explanatory tone that clearly states the requirement and also summarises its benefits.

Moving forward, the Standard must also recognise that no single product – or selection of products – will in itself be the perfect ergonomic solution. Rather, it should encourage the viewing of ergonomics as a guiding principle of office design and culture. “Good ergonomic workplace design will increase productivity by an average of 12 percent”, Cornell University Professor and leading global ergonomist Dr Alan Hedge told Design Quarterly in 2014.⁴ “If the design of a workplace cannot promote movement then over time employees will become less healthy and productivity will suffer.” Beyond setting minimum requirements for product and system design, the Standard should mandate staff training programs to encourage healthy, ergonomic behaviour in all office activities and clearly explain to staff the reasons for implementing an ergonomics program.

“Good ergonomic workplace design will increase productivity by an average of 12 per cent.”

– Dr Alan Hedge in Design Quarterly (2014).



Recognise that Work Habits Have Changed

The workplace is continually evolving. Today, the workplace and the way we work has shifted drastically from what it was 10 – and certainly 20 – years ago. The way that we work is different, in terms of our reliance on technology and preference for collaboration, and the places in which we work have also changed. Offices are becoming busier and denser to accommodate higher workloads and expanding workforces, causing workspaces to contract. Since 1994, there has been an average 17% reduction in square footage of workspace per worker.⁵

Contrary to the contents of the Standard, today's workers are no longer spending their whole days in task chairs and cubicles. Instead, they are dividing their days between boardrooms, breakout areas, and working on the go. The Standard – which explicitly excludes mobile workstations – must reconceptualise office furniture as more than just a desk, task chair, and monitor. Rather, it should respond to a shifting paradigm that has seen the advent of collaborative workspaces and mobile work habits, as well as outline ergonomic requirements for more contemporary forms of office furniture such as stools, lounges, and pods. The Standard writers should also carefully navigate the complexity of working in group settings, where the one-size-fits-all approach becomes even more starkly inappropriate.

Embrace the Tech Age

In large part, our work habits have changed so dramatically because of the cementing of technology as the backbone of the contemporary office. Today, offices are more reliant than ever on technology in all its many and varied forms. The Standard needs to be updated to include not just desktop monitors but also tablets, mobile devices, AV equipment, and lighting. In this regard, the health imperative behind stronger ergonomics guidelines is clear: incorrect use of screens is doing workers serious damage, with 90% of computer users experiencing computer vision syndrome,⁶ which causes chronic eyestrain and pain.

As well as establishing clear minimum requirements with respect to screen use and environmental conditions within the workplace, the Standard must pay specific attention to laptops. Research published in the Wall Street Journal in 2016 shows that globally, laptops are catching up to desktop computers as the device of choice amongst businesses. Yet since they do not allow adjustable keyboards and monitors, laptops pose a unique ergonomic risk that is not covered in the Standard. To curb the risk of trunk and neck flexion and shoulder sagging, it is advisable for the Standard to endorse the use of adjustable ergonomic solutions such as laptop stands and separate keyboards and mice.

Humanscale

Since 1983, Humanscale has been recognised as a global thought leader in ergonomic design for improving health and comfort at work. Availing of the expertise of their in-house team of designers and ergonomists, Humanscale's broad catalogue of ergonomic solutions includes self-adjusting seating, monitor arms, task lighting, and sit/stand desks. The range of products has garnered significant acclaim worldwide, evidenced in over 200 design awards since 2007 and the inclusion of selected products in New York's MoMA.

Driven by a desire to devise new, innovative answers to old questions, Humanscale puts user needs first. By championing a simple, attitudinal approach to ergonomics that embraces technology and collaboration in the workplace, the company ensures the design of healthy, productive, future-proof workspaces. Humanscale recognises the importance of developing holistic ergonomics schemes and offering workplace ergonomics training, and as such does not promote their products as a total ergonomics solution. Instead, Humanscale encourages companies to design 'The Active Workspace', which incorporates movement at various points throughout the workday and underscores the importance of adjustability and flexibility.

Humanscale is keenly attuned to the unique demands of the contemporary workplace, as evidenced in their range of adjustable task chairs. Responding intuitively to the

weight and size of individual users, the meticulously designed task chairs bring a much-needed element of ergonomic management to increasingly popular hot-desking and flexible work arrangements. Task chairs from Humanscale combine comfort, safety, and clear, uncluttered design, allowing comprehensive adjustability without complex buttons, levers, or switches.

This attitude of simple, effortless efficiency is evident throughout the Humanscale range, particularly in its computer stands and worktops. Designed to target the risks of today's largely sedentary, tech-driven workplaces, the company's extensive range of sit/stand products provides unrivalled flexibility and adjustability. Streamlined technology allows for the fast, responsive adjustment of worktop heights at the push of a button, granting workers new freedom to customise their workspace to best suit their individual requirements.

In 2002, Humanscale bolstered their diverse product offering with the establishment of Humanscale Consulting, an in-house ergonomics service. Formed with the goal of enhancing effective ergonomics programs implementation within the commercial sector, the consultancy has improved ergonomic work efficiency for over 2000 organisations, including a number of government agencies and Fortune 500 companies.





¹ Standards Australia. Australian/New Zealand Standard 4443:1997 Office panel systems - Workstations. Standards Australia, 1997. p 6.

² Ibid.

³ Hedge, Alan. "What Am I Sitting On? User Knowledge of Their Chair Controls." Proceedings of the Human Factors and Ergonomics Society 2016 Annual Meeting, 2016, 455-59.

⁴ Amodeo, Leanne. "Dr. Alan Hedge." Design Quarterly,

Winter 2014. p 77.

⁵ Angerer, Kirsty. Designing healthy work environments. Sydney, NSW: Humanscale Ergonomics, 2006.

⁶ Ibid.

⁷ Olivarez-Giles, Nathan. "Which Devices Rule the Workplace?" The Wall Street Journal. March 13, 2016. Accessed January 11, 2018. <https://www.wsj.com/articles/which-devices-rule-the-workplace-1457921547>.