

AS/NZS 4443:1997

Australian/New Zealand Standard®

**Office panel systems —
Workstations**



*Australasian Furnishing Research
and Development
Institute*

AS/NZS 4443:1997

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Australia Post
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PREFACE

This Standard was developed under a Memorandum of Understanding (MoU) between Standards Australia and the Australian Furniture Research and Development Institute Limited (AFRDI) and is published as a Joint Australian/New Zealand Standard.

Under the Memorandum, AFRDI acts as an agency for the development of the text of the Standard which is then reviewed by an appropriate Joint Standards Australia/New Zealand Committee.

The technical content of this Standard was developed by the AFRDI Commercial Furniture working group which based the testing on ANSI/BIFMA X5.6 *Panel Systems – tests* and will supersede any corresponding parts of AS 3590.2 – 1990 *Workstation Furniture*.

The Joint Standards Australia/Standards New Zealand Committee CS/88 on Commercial Furniture then reviewed its content and endorsed its adoption as a Joint Australian/New Zealand Standard.

The objective of this Standard is to provide purchasing authorities, specifiers, users, retailers and manufacturers with a Standard for office panel systems that specifies function, durability, stability and performance characteristics and enables use of these criteria to assist in selection and evaluation.

The term ‘normative’ has been used in this Standard to define the application of the appendix to which it applies. A ‘normative’ appendix is an integral part of a Standard.

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Originated as part of AS 3590.2— 1990.
Jointly revised and redesignated in part as AS/NZS 4443:1997.

FOREWORD

The strength and durability of workstations is determined by the application of forces simulating normal functional use.

The types of tests fall into the general categories of static load, dynamic load and endurance or life test cycling. Particular attention should be paid to tests that anticipate conditions that could result in injury. The stability of load bearing panels is determined by application of horizontal forces.

The section entitled 'Work Surface Resistance' specifies tests for agents that may be expected to be encountered in normal use.

The appropriate design of workstation furniture depends on the functions to be performed at the workstation. Screen-based tasks vary in aspects such as input rates, emphasis on use of documents and screen, need for writing space and control over work space.

Selection of the appropriate furniture should be made on the following basis:

- (a) Typical tasks performed at the workstation, such as —
 - (i) data processing;
 - (ii) word processing;
 - (iii) typing;
 - (iv) typesetting;
 - (v) counter operations, e.g. travel reservations or banking;
 - (vi) programming; and
 - (vii) clerical.
- (b) Duration and intensity of the tasks.
- (c) Equipment and materials to be located at the workstation.
- (d) Environment in which workstation is located.
- (e) Method of operation of equipment.
- (f) Changing nature of function of workstation.
- (g) Whether workstation is single or multiple user.
- (h) Privacy required, both visual and audible.

For keyboard tasks the adjustable workstation height should be set such that, when the operator is sitting with feet flat on the floor, the home row of the keyboard is positioned at, or slightly below, elbow height. A slightly higher, inclinable workstation is generally preferred for clerical work. Operators seated at fixed height workstations may require a footrest in order to adjust the chair to an appropriate height and maintain support for feet.

As an alternative, a dedicated keyboard operator's workstation may be a fixed height workstation with an adjustable keyboard platform. Whilst this approach is acceptable, it is not recommended because of the intrusion of the mechanism into the knee well area and the fact that the workstation surface is interrupted by the platform, severely restricting the placement of input devices.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard
Office panel systems – Workstations

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE This Standard sets out the requirements for the evaluation, design, and selection of office panel systems/workstations. It specifies minimum requirements for function, strength, durability and stability of workstations, leaving designers and manufacturers the maximum opportunity to develop suitable products.

This Standard does not apply to mobile workstations or special cases such as schools, where the height of counters or benches, for example, might vary from those specified in this Standard.

1.2 OBJECTIVE To provide purchasing authorities, specifiers, users, retailers and manufacturers with a Standard that specifies function, durability, stability and performance characteristics for office panel systems and enables use of these criteria to assist in selection and evaluation.

1.3 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS	
1045	Acoustics — Measurement of sound absorption in a reverberation room
1191	Acoustics — Method for laboratory measurement of airborne sound transmission loss of building partitions
1192	Electroplated coated — Nickel and chromium
1276	Methods for determination of sound transmission class and noise isolation class of building partitions
1580	Paints and related materials — Methods of test
1580.4	Part 408.4: Adhesion (crosscut)
2924	Decorative thermosetting laminated sheet
3100	Approval and test specification — General requirement for electrical equipment
AS/NZS	
1859	Reconstituted wood-based panels
1859.3	Part 3: Decorative overlaid wood panels
4088	Burning behaviour of upholstered furniture
4088.1	Upholstery materials for domestic furniture — Smouldering ignitability
BS	
3962	Finishes for wooden furniture
3962.2	Part 2: Assessment of surface resistance to wet heat
3963.3	Part 3: Assessment of surface resistance to dry heat
3962.4	Part 4: Assessment of surface resistance to cold liquids
3962.5	Part 5: Assessment of surface resistance to cold oils and fats
3962.6	Part 6: Assessment of resistance to mechanical damage

IEC

447 Man machine interface — Actuating principles

AFRDI

104 Performance of furniture and furniture components under various climatic conditions

108 Requirements for surface finishes used on timber furniture

Building Code of Australia

(AUBRCC — Australian uniform building regulations coordinating council)

ASTM

D523 Test method for specular gloss

National Occupational Health and Safety Commission (1991) *Ergonomic Principles and Checklists for the Selection of Office Furniture and Equipment. Checklist for Ergonomic Design of Office Desks*. AGPS Press, Canberra.

1.4 DEFINITIONS For the purpose of this Standard the definitions below apply.

1.4.1 Adjustable keyboard surface — a moveable surface which is occupied primarily by the keyboard.

1.4.2 Importer — the persons or corporate body assuming legal responsibility for the product under relevant State or Federal laws if the product is not manufactured in Australia or New Zealand.

1.4.3 Manufacturer — the persons or corporate body assuming legal responsibility for the product under relevant State or Federal laws, if the product is manufactured in Australia or New Zealand.

1.4.4 Modular systems furniture — modular furniture made up of independent work surface and storage units with panels used as end panels or space dividers. Includes all modular furniture components that collectively are required to complete a workstation.

1.4.5 Non-load-bearing panel or screen — all freestanding screens that provide visual or acoustical separations, or both and are intended to be used to divide space, but not to be used to support furniture items physically.

1.4.6 Panel system products — the freestanding, non-load bearing panels, panel-supported systems, modular systems and various hang-on components used in conjunction with panel systems.

1.4.7 Panel-supported — individually connected panels and work surface, filing, storage, and shelving components and accessories that receive their primary support from the panels and that, when combined, form complete workstations.

1.4.8 Shall — indicates that a statement is mandatory.

1.4.9 Should — indicates a recommendation.

1.4.10 Workstation — a grouping of furniture items and components either fixed or adjustable in height that, when assembled designates where a person performs work in an office and facilitates the performance of tasks.

1.5 FUNCTION Selection of the appropriate furniture should be made on the following basis:

- (a) Typical tasks performed at the workstation, such as —
 - (i) data processing;
 - (ii) word processing;

- (iii) typing;
 - (iv) typesetting;
 - (v) counter operations, e.g. travel reservations, banking;
 - (vi) programming; and
 - (vii) clerical.
- (b) Duration and intensity of the tasks.
 - (c) Equipment and materials to be located at the workstation.
 - (d) Environment in which workstation is located.
 - (e) Method of operation of equipment.
 - (f) Changing nature of function of workstation.
 - (g) Whether workstation is single or multiple user.
 - (h) Privacy required, both visual and audible.

Functional requirements are specified in Section 2.

1.6 STRENGTH AND DURABILITY Strength and durability requirements are specified in Section 3.

1.7 STABILITY Stability requirements are specified in Section 4.

1.8 WORK SURFACE RESISTANCE The work surface requirements for resistance to mechanical damage, liquids, heat and impact are specified in Section 5.

1.9 COMPONENTS AND MATERIALS Material, adhesive and finish requirements are specified in Section 6.

1.10 TOLERANCE Unless otherwise stated all forces and masses shall be measured to an accuracy of $\pm 5\%$ and all dimensions to an accuracy of ± 2 mm.

SECTION 2 FUNCTIONAL REQUIREMENTS

2.1 SAFETY The following safety requirements apply:

- (a) Electrically operated workstations shall comply with AS 3100.
- (b) Motors should not cause interference or damage to equipment memory.
- (c) The corners of the working surface support structure and keyboard platform, if fitted, shall have no sharp edges and shall be well rounded. A minimum radius of 2 mm is recommended.
- (d) All surfaces of the workstation including the underside of the workstation top shall be free of projection and pinch points that could cause personal injury or damage to clothing.
- (e) All adjustable mechanisms accessible from the seated position shall be constructed to prevent finger or hand entrapment or cause other injuries to the user.
- (f) Wiring and cabling shall comply with relevant standards.

2.2 CABLE MANAGEMENT Facilities should be incorporated within the workstation design to accommodate the cables required for power, data transmission, and telephone demands of the workstation. Provision should also be made to stow excess cable and allow for cable and equipment maintenance.

Switches which are used regularly should be readily accessible.

Cable and ducting systems shall comply with relevant standards.

2.3 STORAGE FACILITIES Storage facilities for frequently used items should be provided at each workstation and should—

- (a) be stable and not present a hazard when fully loaded;
- (b) be constructed so that they can be opened, closed, and locked (when lockable) from the normal operating position; and
- (c) when located under an adjustable work surface, should be of a height so that full work surface adjustment is not impeded.

2.4 DIMENSIONAL REQUIREMENTS — SEATED WORKSTATIONS (see Figure 1)

2.4.1. Work surface area The following requirements apply:

- (a) The work surface area should be adequate for the tasks to be performed at the workstation (see Clause 1.5). It should be large enough to accommodate a screen, keyboard and associated equipment, and leave enough room for writing and for the resting of hands and arms*. The workstation should also be large enough to permit items used regularly to be within easy reach of the operator from the normal operating position (see Figure 1(a)).
- (b) For single task operations (e.g. keyboard work), the work surface shall have minimum dimensions of 1200 mm × 800 mm.
- (c) For mixed tasks (e.g. keyboard and clerical work), the work surface shall have minimum dimensions of 1600 mm × 800 mm.

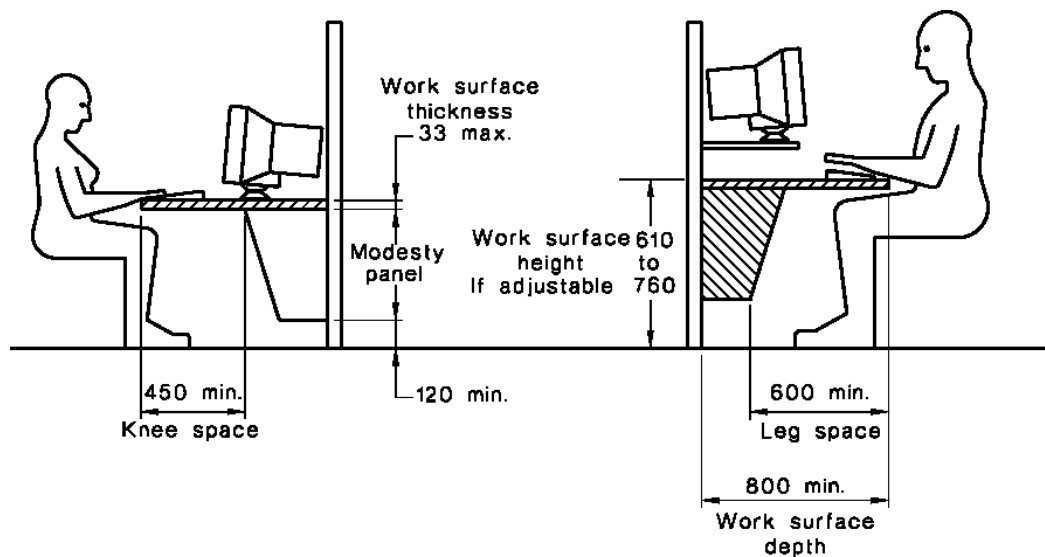
* Large VDU units may require a deeper work surface than 800 mm.

- (d) Under the work surface there shall be ample knee space, sufficient room to prevent a mobile storage unit from protruding beyond the front of the work surface and sufficient height to not impede full work surface adjustment if storage facilities are located under an adjustable work surface.

2.4.2 Height adjustable work surfaces The following requirements apply:

- (a) Work surfaces with height adjustment capability in the vertical direction shall have a minimum travel of 150 mm.
- (b) Where adjustable, the top of the work surface shall include a range of movement between 610 and 760 mm from the floor (see Figure 1(a)).
- (c) If the workstation height adjustment is provided in steps, they shall be not more than 25 mm.

NOTE: Continual adjustment of the desktop is preferable.



DIMENSIONS IN MILLIMETRES

FIGURE 1(a) DIMENSIONS FOR SEATED WORKSTATION

2.4.3 Mechanically assisted controls The following requirements apply:

- (a) All controls should be easily operated from the seated position without requiring excessive physical effort or any special tools or equipment, and without risk of trapping the fingers.
- (b) The control mechanism should be smooth and quiet in operation, and be stable when the control is released, e.g. the height control should not wind down under gravity alone.
- (c) Control knobs, buttons or handles should be smooth and comfortable to the hand and positioned to avoid personal injury and damage to clothing. They should also be placed or shielded to avoid accidental operation. Knobs and handles should not be easily removable.
- (d) The function and direction of movement of each control should be clearly marked or otherwise obvious. Mechanical and electrical controls should comply with the conventions for directions of movement set out in IEC 447.

- (e) Indicators should also be provided so that the operator can readily see the position of the work surface within the adjustment range.

2.4.4 Fixed height work surfaces

NOTE: A fixed height workstation with an adjustable keyboard platform is an alternative to the preferred option of a height adjustable workstation.

For fixed height work surfaces, the height of the work surface shall be not less than 680 mm and not greater than 735 mm with the keyboard platform being vertically adjustable within a range of 120 mm below the work surface. The height should preferably be 700 mm to 720 mm.

2.4.5 Work surface thickness The maximum thickness of the work surface over the leg space including any supporting structure shall be 33 mm (recommended thickness = 25 mm or thinner).

2.4.6 Work surface finish The following requirements apply:

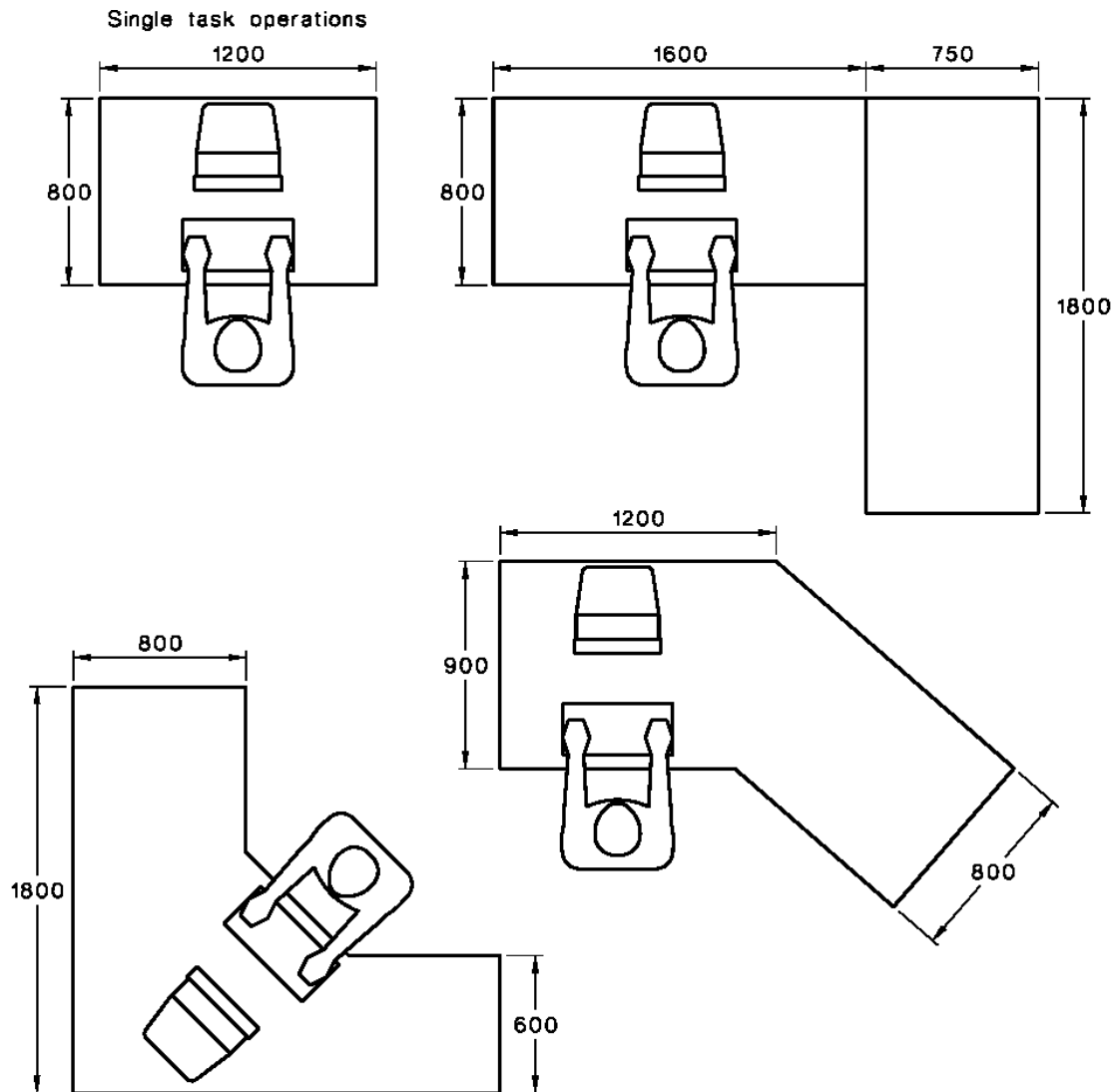
- (a) The work surface should be a light colour and have a satin or matt finish.
- (b) The specular reflectance of gloss for furniture surfaces shall be 50% or less when measured with a 60° gloss instrument in accordance with ASTM D523 standard test method for specular gloss greater than 0.50.
- (c) The work surface finish should also be easy to clean and enable the user to write on a single sheet of paper without backing.

2.4.7 Leg Space The following requirements apply:

- (a) Sufficient space should be provided under the work surface to allow free leg movement without obstruction.
- (b) The minimum knee space shall be 650 mm wide and 450 mm deep. For fixed height work surfaces the minimum height of the knee space shall be 645 mm.
- (c) Leg space depth front to back measured at a distance above the floor of 120 mm shall be a minimum of 600 mm (see Figure 1(b)). Leg space depth should be available over the full 650 mm width.

NOTES:

- 1 Leg space depth is measured horizontally from front to back. This ensures that users are able to sit at the desk without encountering restriction at knee level.
 - 2 Leg space width is measured horizontally with any fixed or mobile drawer, storage unit or any other equipment in place. This minimum requirement is necessary to allow changes in leg posture and to facilitate chair swivel for reaching to the side or getting on and off the chair.
- (d) When an adjustable keyboard platform is fitted, the 650 mm wide unobstructed knee space should be maintained. Where this is not possible the mechanism supporting the platform shall not protrude into the knee space by more than 80 mm at any setting. The mechanism shall be free of sharp edges, protrusions and entrapment hazards that could cause injury to the seated user.
 - (e) Work surface, supports, cables and other equipment should not encroach into leg space.



DIMENSIONS IN MILLIMETRES

FIGURE 1(b) EXAMPLES OF WORKSTATION LAYOUTS FOR SBE AND MIXED TASKS

2.4.8 Modesty panel When a modesty panel is fitted it should provide operator privacy under the work surface. The modesty panel should finish no greater than 400 mm from the floor when the work surface is in its highest position, and should not interfere with work surface height adjustment.

NOTE: It is recommended that there be a minimum gap of approximately 120 mm from the floor.