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Australian STANDARD®

STANDARDS Australia

Work in compressed air and hyperbaric facilities

Part 1: Work in tunnels, shafts and caissons



AS 4774.1:2026

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Engineers Australia
Engineers Australia / Australian Tunnelling Society
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Australian Standard®

Work in compressed air and hyperbaric facilities

Part 1: Work in tunnels, shafts and caissons

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How to read this Standard

This page explains the meaning of the language and structure of this Standard.

Refer to Standards Australia's Standardisation Guide 006 for more details about drafting rules.

Australian and Australian/New Zealand Standards are voluntary unless they are referenced in legislation or called up in contracts.

Requirements

To conform to a Standard, all requirements in the Standard need to be met.

A requirement is any statement in the Standard which uses the word "shall".

Recommendations, permissions and possibilities

The following words are commonly used in Standards, but statements using them do not have to be followed to conform to the Standard:

(a) "should" means that something is recommended.

(b) "may" means that something is permitted.

(c) "can" means that something is possible.

Structure of Standards

A Standard always has the following parts:

(i) The Preface states who developed the Standard, what the Standard is aiming to do, and how it relates to other documents.

(ii) The Scope states what the Standard is about, what it covers and what it does not cover.

(iii) The Normative references clause lists other documents that are referenced in the Standard as part of requirements.

(iv) The Terms and definitions clause defines important terms to help with understanding the Standard.

A Standard may also include other parts, such as the following:

(1) A normative appendix sets additional requirements that need to be conformed to.

(2) An informative appendix provides additional information or guidance. They usually do not contain requirements. If an informative appendix does contain requirements, the Standard will explain when those requirements apply.

(3) A Bibliography lists documents referenced in the Standard but not as part of requirements.

Many Standards include notes. Notes provide recommendations and/or guidance only. They never contain requirements.

Preface

This Standard was prepared by Standards Australia Committee SF-046, Non-diving Work in Compressed Air and Hyperbaric Treatment Facilities, to supersede AS 4774.1:2003.

The objective of this document is to specify requirements to ensure safe working conditions for people entering and working under increased ambient pressure (excluding diving operations and hyperbaric treatment operations (refer to AS 4774.2), and to promote uniformity of practice in relation to the health and safety of persons working in or entering shafts, tunnels, tunnelling machines and compressed air caissons pressurized above atmospheric pressure.

The major changes in this edition are as follows:

(a) A reduction in the maximum pressure for work undertaken breathing compressed air to 3.5 bar.

(b) Addition of requirements for work undertaken using mixed gasses other than air as the breathing medium, and saturation techniques.

The terms “normative” and “informative” are used in Standards to define the application of the appendices to which they apply. A “normative” appendix is an integral part of a document, whereas an “informative” appendix or annex is only for information and guidance.

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Part 1: Work in tunnels, shafts and caissons

1 Scope and general

1.1 Scope

This document specifies requirements to ensure safe working conditions for people entering and working under increased ambient pressure (excluding diving operations and hyperbaric treatment operations (refer to AS 4774.2), and to promote uniformity of practice in relation to the health and safety of persons working in or entering shafts, tunnels, tunnelling machines and compressed air caissons pressurized above atmospheric pressure.

Appendices include medical standards and examination reports, instructions for persons working in compressed air, and information on decompression illness for hyperbaric workers.

This document applies to operations pressurized to a maximum of 3.5 bar using compressed air as the breathing medium for routine planned works. This document may be used for operations pressurized to a maximum of 4 bar in exceptional circumstances.

This document applies to operations pressurized to greater than 3.5 bar (using mixed gasses other than air as the breathing medium for routine planned works.

1.2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document.

NOTE Documents referenced for informative purposes are listed in the Bibliography.

AS 1210, *Pressure vessels*

AS 1345, *Identification of the contents of pipes, conduits and ducts*

AS 1657, *Fixed platforms, walkways, stairways and ladders—Design, construction and installation*

AS 1680.1, *Interior lighting, Part 1: General principles and recommendations*

AS 2030.1, *Gas cylinders, Part 1: General requirements*

AS 2187.2, *Explosives — Storage, transport and use, Part 2: Use of explosives*

AS 2815.4, *Training and certification of occupational divers, Part 4: Closed bell diving*

AS 2896, *Medical gas systems—Installation and testing of non-flammable medical gas pipeline systems*

AS 3600, *Concrete structures*

AS 3848.2, *Filling of portable gas cylinders Part 2: Filling of portable cylinders for self-contained underwater breathing apparatus (SCUBA) and non-underwater self-contained breathing apparatus (SCBA)—Safe procedures*

AS 4332, *The storage and handling of gases in cylinders*

AS 4484, *Gas cylinders for industrial, scientific, medical and refrigerant use—Labelling and colour coding*

AS/NZS 1715, *Selection, use and maintenance of respiratory protective devices*

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