AS 2316.1—2009

Australian Standard®

Artificial climbing structures and challenge courses

Part 1: Fixed and mobile artificial climbing and abseiling walls

This Australian Standard® was prepared by Committee SF-047, Artificial Climbing Structures.
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The following are represented on Committee SF-047:

- Association for Challenge Course Technology Australia
- Australian Amusement Association
- Australian Camps Association
- Christian Camping International Australia
- Engineers Australia
- Indoor Rockclimbing Gyms of Australia Association
- Outdoor Council of Australia
- Scouts Australia
- Sport Climbing Australia
- WorkSafe Victoria

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Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

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PREFACE

This Standard was prepared by Committee SF-047, Artificial Climbing Structures.

The objective of this Standard is to provide designers, manufacturers, proprietors and operating personnel with requirements and guidance specific to the design, construction, operation and maintenance of artificial climbing walls used for climbing, bouldering and abseiling in order to maximize the protection of health and safety for both operating personnel and participants.

In general, the performance requirements of this Standard are based on EN 12572-1:2007, *Artificial climbing structures*—Part 1: *Safety requirements and test methods for ACS with protection points* and prEN 12572-3:2007, *Artificial climbing structures*—Part 3: *Safety requirements and test methods for climbing holds*. Changes have been made to reflect different terminology used in Australia and to address artificial climbing structures used for a wide range of climbing, abseiling and bouldering activities.

The Committee also acknowledge the assistance provided by the following publications during preparation of this Standard:

Health and safety for artificial climbing structures and operations, WorkCover NSW, 2002.

Adventure Activity Standards, Artificial Climbing Structures (ACS), Outdoor Recreation Centre, Edition 1 (April 2003).

Adventure Activity Standards, Abseiling, Outdoor Recreation Centre, Edition 2 (April 2005).

This Standard is the first of a proposed series on artificial climbing structures and challenge courses. The Committee has identified other possible topics such as flying foxes and various components of high ropes courses.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

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FOREWORD

This Standard is concerned with the design, construction, testing and operation of artificial climbing and abseiling walls. Artificial climbing and abseiling walls originated from the desire to simulate the climbing and belaying challenges encountered in the recreational pursuit of rock climbing in a manner accessible to the general public. Climbing and abseiling solely on artificial walls is now considered to be a recreational pursuit in its own right, as well as being recognized internationally as a sport and as a valuable training or learning tool by education institutions and employers.

Climbing and abseiling, for many participants, introduces stressors (e.g. height) to increase perceived and real personal risk, forcing people and teams outside their 'comfort zone' in order to maximize the recreational experience to develop their maximum potential. These challenges can be pivotal tools for training or learning outcomes such as developing self-confidence, trust, honesty, teamwork, responsibility, humility, fear management and loyalty.

Artificial climbing and abseiling walls can provide a training and recreational activity that, when compared to a similar activity in a natural setting (i.e. bushland) provides—

(a) a more cost effective option;

(b) a more controlled environment with more predictable hazards and risks;

(c) local, easier and more frequent access, reducing transport costs;

(d) on-site logistic and medical support;

(e) a less abrasive environment to consumable equipment, maximizing the serviceable life of equipment;

(f) flexibility of training and learning outcomes;

(g) tailored learning simulations for workplace exercises such as team-building and corporate training; and

(h) reduced environmental damage.

Use of an artificial climbing wall involves two activities—climbing and belaying. Climbing is the act of an individual, under his or her own power, ascending or traversing an essentially vertical or near vertical surface by holding or standing on natural or installed surface projections, indents or aids. Belaying can be defined as affording a safeguard to a moving climber.

A belay system is used to protect a falling climber from a high velocity impact with the ground or another structure. Typically, this relies on a belayer managing a belay rope and belay device during the climber's progress. Other non-manned methods of belay (protection) can also be utilized, namely automatic mechanical belay systems.

The risk associated with climbing without a means of protection (belay) is considered to be unacceptable, except for where the climber is said to be bouldering, i.e. in circumstances where the climber remains close to the ground and climbs without a belay rope but impact attenuating surfaces, spotters or both act as the protection system.

In an artificial setting, climbers typically support themselves during progress along the climbing route by using handholds and footholds. The holds may be integral to the structure or may be removable. Commonly, removable holds are used to allow changes to the nature and difficulty of the climbing route.

Abseiling is an act of self-descent on a fixed rope (as opposed to being lowered by a belayer). Abseilers may have limited contact with the wall during the descent.