Technical Specification

ISO/TS 22359-2

First edition
2026-03

Security and resilience — Hardened protective shelters —

Part 2: Requirements for shelter protective equipment

Securité et résilience — Abris durcis —

Partie 2: Exigences pour les équipements de protection des abris

Reference number
ISO/TS 22359-2:2026(en)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 292, *Security and resilience*.

A list of all parts in the ISO 22359 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document is a part of the ISO 22359 series on hardened protective shelters, which comprises:

— ISO 22359: the document gives an overview of hardened protective shelters and presents guidelines for their design, construction, use and maintenance;

— ISO/TS 22359-2 (this document): this document presents the minimum requirements for shelter protective equipment, i.e. various equipment that makes a shelter safe and secure to maximize the chances that the occupants stay alive and unharmed during their time in the shelter during a crisis.

A hardened protective shelter is a purpose-built structure, which is blast resistant (designed to withstand the effects of a blast with a predefined force) and gastight (so completely closed that no gases can get in or out), and which protects occupants against the effects of disasters by isolating them from the hazardous environment. A shelter can sustain the lives of the occupants even for an extended period of time if the anticipated threat so requires, by maintaining a sufficient internal overpressure and using purified filtered air to prevent entry of all possible toxic substances that the ambient air can contain.

Completely isolated from the surrounding environment during a crisis, a shelter is expected to be well equipped to protect occupants against hazards and to keep them alive and unharmed until it is safe to leave the shelter. For these purposes, a shelter is outfitted with several types of shelter protective equipment, which are devices specifically designed to shield and protect the enclosed shelter space, the ventilation and air conditioning systems, as well as other installations against the effects of hazards to the shelter and its occupants.

Security and resilience — Hardened protective shelters —

Part 2: Requirements for shelter protective equipment

1 Scope

This document provides functional requirements and methods for verification of performance for protective equipment and systems necessary to guarantee a desired protection level of hardened protective shelters.

The document covers six functional categories of protective equipment available for the protection of a hardened protective shelter:

— blast protection;

— gas tightness;

— tightness of penetrations;

— ground shock isolation;

— CBRN (chemical, biological, radiological, nuclear) protection; and

— carbon dioxide (CO_2) removal and oxygen (O_2) addition.

The document is intended for use by the owners of the hardened protective shelters, architects and engineers designing them, industries producing the targeted equipment, and procurement organizations in the construction industry sourcing such equipment.

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. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 22300, *Security and resilience — Vocabulary*

ISO 22359:2024, *Security and resilience — Guidelines for hardened protective shelters*

ISO 12944-2, *Paints and varnishes — Corrosion protection of steel structures by protective paint systems — Part 2: Classification of environments*

ISO 16890-1, *Air filters for general ventilation — Part 1: Technical specifications, requirements and classification system based upon particulate matter efficiency (ePM)*

ISO 2135:2024, *Anodizing of aluminium and its alloys — Accelerated test of light fastness of coloured anodic oxidation coatings using artificial light*

ISO 29463-1, *High efficiency filters and filter media for removing particles in air — Part 1: Classification, performance, testing and marking*