BS 6164:2019

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Health and safety in tunnelling in the construction industry – Code of practice

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Contents

Summary of pages
This document comprises a front cover, and inside front cover, pages i to viii, pages 1 to 205, an inside back cover and a back cover.

Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 October 2019. It was prepared by Technical Committee B/513, *Construction equipment and plant, and site safety*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This British Standard supersedes BS 6164:2011, which is withdrawn.

Information about this document

This is a full revision of the standard, and introduces the following principal changes:

- reference to the current versions of European Standards relating to tunnelling machinery and manlocks;
- reference to the ITA guidelines for refuge chambers in tunnelling;
- setting out formal procedures for design checking including the resolution of differences between a designer and a design checker;
- Clauses 23 and 24 have been extensively restructured and extended, particularly in respect of fire, MEWPs, use of plant underground and rail operations;
- recommendations for undertaking high pressure compressed air exposures;
- material on SCL and exclusion zones; and
- information on real time dust monitoring.

This publication can be withdrawn, revised, partially superseded or superseded. Information regarding the status of this publication can be found in the Standards Catalogue on the BSI website at bsigroup.com/standards, or by contacting the Customer Services team.

Where websites and webpages have been cited, they are provided for ease of reference and are correct at the time of publication. The location of a webpage or website, or its contents, cannot be guaranteed.

Use of this document

This British Standard takes into account the advances in technology and equipment that are available to the tunnelling industry. It also takes account of new techniques and the effect of changes in legislation and guidance relating to health and safety and environmental matters. These changes include the Construction (Design and Management) Regulations 2015 [1] and the guidance in the Work in Compressed Air Regulations 1996 [2]. The document is written for all involved in tunnelling projects and addresses the safety of both those engaged in the tunnelling process and those who could be affected by it.

The text follows the pattern established by BS 6164:2011. Clauses contain recommendations for and guidance on health and safety practices in shaft sinking and tunnelling. However, the text has been extensively updated to reflect current and developing best practices.

The International System of Units (SI) is followed in this British Standard, with the exception of the unit used for pressure, which is the bar.

NOTE $1\ bar = 10^5\ N/m^2 = 10^5\ Pa$.

It has been assumed in the preparation of this British Standard that the execution of its provisions will be entrusted to appropriately qualified and competent people, for whose use it has been produced.

As a code of practice, this British Standard takes the form of guidance and recommendations. It should not be quoted as if it were a specification and particular care should be taken to ensure that claims of compliance are not misleading.

Any user claiming compliance with this British Standard is expected to be able to justify any course of action that deviates from its recommendations.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is “should”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Where words have alternative spellings, the preferred spelling of the Shorter Oxford English Dictionary is used (e.g. "organization" rather than "organisation").

The word “should” is used to express recommendations of this standard. The word “may” is used in the text to express permissibility, e.g. as an alternative to the primary recommendation of the Clause. The word “can” is used to express possibility, e.g. a consequence of an action or an event.

Notes and commentaries are provided throughout the text of this standard. Notes give references and additional information that are important but do not form part of the recommendations. Commentaries give background information.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

1 Scope

This British Standard makes recommendations for and gives guidance on health and safety practices in shaft sinking and tunnel construction.

The standard includes health and safety recommendations that are also relevant to cut-and-cover tunnelling, immersed tube tunnels and other forms of underground construction as well as to the construction aspects of maintenance, renovation and repair of shafts and tunnels.

The recommendations in this British Standard are not intended to apply to the construction of shafts or tunnels for the purpose of mineral extraction.

NOTE 1 The design, manufacture and use of plant and machinery are referred to only where safety considerations are affected. Various European Standards relating to the design of tunnel boring machines (TBMs) and machinery for use underground are currently under development or revision.

NOTE 2 Current legislation relating to occupational health and safety can be found at www.legislation.gov.uk.

2 Normative references

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

Standards publications

BS 476-4, *Fire tests on building materials and structures – Part 4: Non-combustibility test for materials*

BS 476-20, *Fire tests on building materials and structures – Part 20: Method for determination of the fire resistance of elements of construction (general principles)*

BS 476-21, *Fire tests on building materials and structures – Part 21: Methods for determination of the fire resistance of loadbearing elements of construction*

BS 476-22, *Fire tests on building materials and structures – Part 22: Methods for determination of the fire resistance of non-loadbearing elements of construction*

BS 638-4, *Arc welding power sources equipment and accessories – Part 4: Specification for welding cables*

BS 638-5, *Arc welding power sources equipment and accessories – Part 5: Specification for accessories*

BS 638-7, *Arc welding power sources equipment and accessories – Part 7: Specification for safety requirements for installation and use*

BS 1129, *Specification for portable timber ladders, steps, trestles and lightweight stagings*

BS 4211, *Specification for permanently fixed ladders*

BS 4363, *Specification for distribution assemblies for reduced low voltage electricity supplies for construction and building sites*

BS 4727-1, *Group 01:1983, Glossary of electrotechnical, power, telecommunication, electronics, lighting and colour terms – Part 1: Terms common to power, telecommunications and electronics – Group 01: Fundamental terminology (now withdrawn)*

BS 5045 (all parts), *Transportable gas containers*

BS 5306-3, *Fire extinguishing installations and equipment on premises – Part 3: Commissioning and maintenance of portable fire extinguishers – Code of practice*

