Maritime works –

Part 1-1: General – Code of practice for planning and design for operations

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Foreword

Publishing information

This part of BS 6349 is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 30 September 2013. It was prepared by Technical Committee CB/502, *Maritime works*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

Together with BS 6349-1-2, BS 6349-1-3 and BS 6349-1-4, this part of BS 6349 supersedes BS 6349-1:2000, which will be withdrawn when all four of the new subparts have been published.

Relationship with other publications

BS 6349 is published in the following parts ¹:

- Part 1-1: General Code of practice for planning and design for operations;
- Part 1-2: General Code of practice for assessment of actions; 2)
- Part 1-3: General Code of practice for geotechnical design;
- Part 1-4: General Code of practice for materials;
- Part 2: Code of practice for the design of quay walls, jetties and dolphins;
- Part 3: Design of dry docks, locks, slipways and shipbuilding berths, shiplifts and dock and lock gates;
- Part 4: Code of practice for design of fendering and mooring systems;
- Part 5: Code of practice for dredging and land reclamation;
- Part 6: Design of inshore moorings and floating structures;
- Part 7: Guide to the design and construction of breakwaters;
- Part 8: Code of practice for the design of Ro-Ro ramps, linkspans and walkways.

Information about this document

A full revision of BS 6349-1:2000 has been undertaken and the principal change is to split the document into four smaller parts:

- BS 6349-1-1: Code of practice for planning and design for operations;
- BS 6349-1-2: Code of practice for assessment of actions;
- BS 6349-1-3: Code of practice for geotechnical design;
- BS 6349-1-4: Code of practice for materials.

The principal changes in respect of the planning and design content are:

- reduction of informative content, with informative guidance separated from recommendations;
- general updating of reference documents to reflect latest practice;

¹⁾ A new part 9, covering port surfacing, is in preparation.

²⁾ In preparation.

- normative referencing of specific PIANC documents;
- general updating in respect of survey and data acquisition methods in line with latest technical developments of best practice, including the adoption of IHO Standards for Hydrographic Surveys for navigation;
- increased emphasis on environmental, safety and operational matters in planning and design;
- updating of recommendations and guidance on use of physical and numerical modelling and in ship simulation for design purposes in line with latest practice;
- inclusion of additional information on key ship dimensions for preliminary design and planning.

Copyright is claimed on Figure 2, Figure 3, Figure 4, Table E.1 and Table E.3. The copyright holder is PIANC General Secretariat, Boulevard du Roi Albert II 20, Box 3, B-1000 Brussels, Belgium.

Use of this document

As a code of practice, this part of BS 6349 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 in 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.

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.

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Section 1: General

1 Scope

This part of BS 6349 gives recommendations and guidance on general criteria relevant to the planning, design, construction and maintenance of structures and facilities set in the maritime environment. It also gives recommendations and guidance in respect of environmental and operational matters that need to be considered in planning and design of maritime works.

It includes a description of the various physical environmental conditions that need to be considered for investigation at a coastal site, and gives information and guidance on methods of survey and data collection.

It is applicable to coastal, nearshore, estuarine and inland marine facilities for safe navigation, berthing, mooring, loading, unloading and servicing of ships, barges and other forms of waterborne transport and the associated infrastructure, equipment and works at the ship-shore interface. It is also applicable to other civil infrastructure works at the waterfront or coastal margin such as dredging, reclamation, shoreline and coastal management works and to recreational infrastructure such as marinas.

This part of BS 6349 does not cover offshore structures for the petroleum and natural gas industries, which are specified in BS EN ISO 19900 and BS EN ISO 19901.

It does not cover recommendations for ground investigation, which are given in BS 6349-1-3.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 6349-1:2000, Maritime structures – Part 1: Code of practice for general criteria

BS 6349-1-3, Maritime works – Part 1-3: General – Code of practice for geotechnical design

BS 6349-4, Maritime structures – Part 4: Code of practice for design of fendering and mooring systems

BS 6349-8, Maritime structures – Part 8: Code of practice for the design of Ro-Ro ramps, linkspans and walkways

BS EN 1990, Eurocode – Basis of structural design ³⁾

BS EN ISO 14001, Environmental management systems – Requirements with guidance for use

Other publications

[N1]INTERNATIONAL HYDROGRAPHIC ORGANISATION. *IHO standards for hydrographic surveys*. Special Publication No. 44. Fifth edition. Monaco: International Hydrographic Bureau, 2008.

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³⁾ This part of BS 6349 also gives an informative reference to BS EN 1990:2002+A1:2005.

- [N2]LOWE, J. A., HOWARD, T. P., PARDAENS, A., TINKER, J., HOLT, J., WAKELIN, S., MILNE, G., LEAKE, J., WOLF, J., HORSBURGH, K., REEDER, T., JENKINS, G., RIDLEY, J., DYE, S., and BRADLEY, S. UK Climate Projections science report: Marine and coastal projections. UKCP09. Exeter: Met Office Hadley Centre, 2009.
- [N3]ICS, OCIMF and IAPH. International oil tanker and terminal safety guide (ISGOTT). Fifth edition. Livingston: Witherby Seamanship International Ltd., 2006.
- [N4]PIANC. Safety aspects affecting the berthing operations of tankers to oil and gas terminals. MarCom Report WG116. Brussels: PIANC, 2012.
- [N5]INTERNATIONAL MARITIME ORGANISATION. International ship and port facility security code (ISPS code). London: IMO, 2003.
- [N6]PIANC-IAPH. Approach channels A guide for design. Final report of the joint Working Group PIANC and IAPH in cooperation with IMPA and IALA. PTC II Report WG30. Brussels: PIANC, 1997.⁴⁾
- [N7]INTERNATIONAL ASSOCIATION OF MARINE AIDS TO NAVIGATION AND LIGHTHOUSE AUTHORITIES (IALA-AISM). *Vessel traffic services manual*. Fourth edition. St Germain-en-laye: IALA, 2008. ⁵⁾
- [N8]OIL COMPANIES INTERNATIONAL MARINE FORUM. *Mooring equipment guidelines*. Third edition (MEG3). London: OCIMF, 2007.

3 Terms, definitions, symbols and abbreviations

3.1 Terms and definitions

For the purposes of this part of BS 6349, the terms and definitions given in BS EN 1990 and the following apply.

NOTE Where possible, definitions of meteorological and oceanographic terms are harmonized with BS EN ISO 19901, although some modifications are made to reflect the particular characteristics of the coastal environment within the scope of this part of BS 6349.

3.1.1 accidental operating condition

condition for a design situation when a facility is considered to be in operational use by ships berthing, de-berthing or in a moored condition consistent with the operating limits for the facility, but exceptional conditions occur due to deviation from facility operational procedures, or equipment malfunction

3.1.2 asset lifecycle

whole life of the maritime works, structure or facilities from inception to decommissioning

3.1.3 chart datum

local reference datum used to define water depths on a navigation chart or tidal heights over an area

NOTE Chart datum is usually an approximation to the level of the lowest astronomical tide.

⁵⁾ Available at www.iala-aism.org [last accessed 23 September 2013].

⁴⁾ This document will be superseded by PIANC-IAPH. *Harbour approach channels – design guidelines*. PIANC Report No. 121. Brussels: PIANC, 2013, due to be published in late 2013.