### BS 6349-1-2:2016+A1:2017

Incorporating Corrigendum No.1



# **BSI Standards Publication**

# Maritime works -

Part 1-2: General — Code of practice for assessment of actions



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### Summary of pages

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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 June 2016. 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**

BS 6349-1-2:2016+A1:2017 supersedes BS 6349-1-2:2016, which is withdrawn.

#### **Relationship with other publications**

BS 6349 is published in the following parts:

- Part 1-1: General Code of practice for planning and design for operations;
- Part 1-2: General Code of practice for assessment of actions;
- 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: Code of practice for the design of shipyards and sea locks;
- 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 actions content are:

- incorporation of information regarding partial factors for limit state design approaches and actions previously covered in other parts of the BS 6349 series;
- substantial changes to content relating to sea-state and loads, movements and vibrations, to reflect scientific and technological advances since preparation of the previous version of BS 6349-1.

This revision also updates and replaces the recommendations given in BS 6349-2:2010, **5.1**, **5.2**, <u>Annex A</u> and <u>Annex B</u>, which will be removed from BS 6349-2 at its next revision.

The start and finish of text introduced or altered by Corrigendum No. 1 and Amendment No. 1 is indicated in the text by tags  $(C_1)$   $(C_1)$  and  $(A_1)$   $(A_1)$ .

#### 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.

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

#### **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 for the assessment of actions for the planning and design of maritime works.

#### 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.

BS 6349-1-1:2013, Maritime works — Part 1-1: General — Code of practice for planning and design for operations

BS 6349-4:2014, Maritime works — Part 4: Code of practice for design of fendering and mooring systems

BS EN 1990:2002+A1:2005, Eurocode — Basis of structural design

BS EN 1991 (all parts), Eurocode 1 - Actions on structures

BS EN 1992 (all parts), Eurocode 2 – Design of concrete structures

BS EN 1993 (all parts), Eurocode 3 – Design of steel structures

BS EN 1994 (all parts), Eurocode 4 – Design of composite steel and concrete structures

BS EN 1995 (all parts), Eurocode 5 – Design of timber structures

BS EN 1996 (all parts), Eurocode 6 – Design of masonry structures

BS EN 1997 (all parts), Eurocode 7 - Geotechnical design

BS EN 1998 (all parts), Eurocode 8 – Design of structures for earthquake resistance

BS EN 1999 (all parts), Eurocode 9 - Design of aluminium structures

ISO 21650:2007, Actions from waves and currents on coastal structures

NA to BS EN 1990:2002+A1:2005, UK National Annex for Eurocode – Basis of structural design

NA to BS EN 1991-1-3, UK National Annex to Eurocode 1 – Actions on structures – Part 1-3: General actions – Snow loads

[N1] AMERICAN SOCIETY OF CIVIL ENGINEERS. *Seismic design of piers and wharves*. ASCE 61-14. Reston, VA: ASCE, 2014.

[N2] OIL COMPANIES INTERNATIONAL MARINE FORUM. *Mooring equipment guidelines*. Third edition (MEG 3). London: OCIMF, 2008.

#### 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 1990:2002+A1 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 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.

#### 3.1.3 concept design

design and engineering of the maritime works and preliminary planning for execution, in which sitespecific data acquisition requirements are established and acquisition commences, and the level of definition is sufficient to select preferred technical options as the basis for detailed design

#### 3.1.4 deadweight tonnage (DWT)

total mass of cargo, stores, fuels, crew and reserves with which a vessel is laden when submerged to the summer loading line

*NOTE* Although this represents the load-carrying capacity of the vessel, it is not an exact measure of the cargo load.

#### 3.1.5 design stage operating limits (DSOL)

preliminary assessment of environmental operating limits established and developed in the planning and design stages for the purposes of design of berths, channels, turning areas and other such works, and for making design-stage estimates of weather downtime

#### 3.1.6 design working life

assumed period for which a structure or part of it is to be used for its intended purpose with anticipated maintenance but without major repair being necessary

[SOURCE: BS EN 1990:2002+A1:2005, 1.5.2.8]

#### 3.1.7 detailed design

design and engineering of maritime works including site-specific data acquisition and detailed planning for execution, in which the level of definition is sufficient for construction

*NOTE* In some industries, including the oil, gas and petrochemical industries, this phase can commence with front end engineering design (FEED) with detailed engineering completed within an engineering, procurement and construction (EPC) contract.