

Australian Standard[®]

**Boat and ship design and
construction**

Part 1: Design loadings

This Australian Standard was prepared by Committee ME/59, Shipbuilding. It was approved on behalf of the Council of Standards Australia on 23 March 1993 and published on 17 May 1993.

The following interests are represented on Committee ME/59:

American Bureau of Shipping
Australian Maritime Safety Authority
Australian National Maritime Association
Australian Shipbuilders Association
Bureau Veritas
Department of Defence
Department of Transport, Qld
Det Norske Veritas
Institute of Marine Engineers
Lloyds Register of Shipping
Royal Institution of Naval Architects
University of New South Wales

Additional interests participating in preparation of Standard:

Curtin University of Technology
Department of Marine and Harbors, S.A.
Department of Marine and Harbours, W.A.
Maritime Services Board of New South Wales

Review of Australian Standards. To keep abreast of progress in industry, Australian Standards are subject to periodic review and are kept up to date by the issue of amendments or new editions as necessary. It is important therefore that Standards users ensure that they are in possession of the latest edition, and any amendments thereto.

Full details of all Australian Standards and related publications will be found in the Standards Australia Catalogue of Publications; this information is supplemented each month by the magazine 'The Australian Standard', which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn Standards.

Suggestions for improvements to Australian Standards, addressed to the head office of Standards Australia, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

This Standard was issued in draft form for comment as DR 91043.

AS 4132.1—1993

Australian Standard[®]

**Boat and ship design and
construction**

Part 1: Design loadings

First published as AS 4132.1—1993.

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
1 THE CRESCENT, HOMEBUSH, NSW 2140

ISBN 0 7262 8137 9

 **Documents**
Document Sharing Hub

PREFACE

This Standard was prepared by Standards Australia Committee on Shipbuilding following a request by the Australian Transport Advisory Council to replace the relevant specification in the *Uniform Shipping Laws Code*.

It is Part 1 of a series of Standards on ship design and construction, the other Parts being—
Part 2: Aluminium construction; and
Part 3: Reinforced plastics construction.

CONTENTS

	<i>Page</i>
1 SCOPE	3
2 DEFINITIONS	3
3 NOTATION	4
4 DESIGN PRESSURES	6
5 LONGITUDINAL STRENGTH	11

© Copyright — STANDARDS AUSTRALIA

Users of Standards are reminded that copyright subsists in all Standards Australia publications and software. Except where the Copyright Act allows and except where provided for below no publications or software produced by Standards Australia may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing from Standards Australia. Permission may be conditional on an appropriate royalty payment. Requests for permission and information on commercial software royalties should be directed to the head office of Standards Australia.

Standards Australia will permit up to 10 percent of the technical content pages of a Standard to be copied for use exclusively in-house by purchasers of the Standard without payment of a royalty or advice to Standards Australia.

Standards Australia will also permit the inclusion of its copyright material in computer software programs for no royalty payment provided such programs are used exclusively in-house by the creators of the programs.

Care should be taken to ensure that material used is from the current edition of the Standard and that it is updated whenever the Standard is amended or revised. The number and date of the Standard should therefore be clearly identified.

The use of material in print form or in computer software programs to be used commercially, with or without payment, or in commercial contracts is subject to the payment of a royalty. This policy may be varied by Standards Australia at any time.

STANDARDS AUSTRALIA

Australian Standard

Boat and ship design and construction

Part 1: Design loadings

1 SCOPE This Standard specifies the loads to be used in the determination of scantling sizes for vessels not exceeding 35 m in length. It includes multi-hull vessels but excludes novel types of vessels such as hydrofoils, hovercraft and small-waterplane-area twin hull (SWATH) vessels.

The design loadings set out are those which a given structure must withstand for operation in normal service afloat in unprotected waters and handled with good seamanship having regard to loading, stability, safety and speed. There are no factors of safety accounting for uncertainty in material characteristics, structural calculation methods or quality of workmanship.

It does not cover loadings for special operating procedures and conditions, e.g. docking and tug operations.

2 DEFINITIONS For the purpose of this Standard, the definitions below apply.

2.1 Deckhouse—any weathertight structure above the freeboard deck that is not a superstructure.

2.2 Depth—the distance measured at the middle of the waterline length from the moulded keel line to the top of the freeboard deck (main weather deck) beams at the side of the vessel (see Figure 1).

2.3 Baseline—the line projected by a horizontal plane passing through the lowest point of the keel of a vessel.

2.4 Bulkhead deck—the deck to which the watertight bulkheads extend.

2.5 Freeboard deck—the uppermost continuous deck having permanent means of closing all openings in its weather positions and below which all openings in the vessel's side are equipped with permanent means for watertight closure.

2.6 Heavy-weather craft—craft intended for operations in extreme environmental conditions, e.g. search and rescue craft.

2.7 Superstructure—a decked structure on the freeboard deck extending from side to side of the vessel or with the side plating of the structure not being inboard of the shell plating by more than 4 percent of the breadth of the vessel.

2.8 Watertight—capable of preventing the passage of water under a head through the structure of a vessel or a fitting.

2.9 Weather deck—the uppermost continuous deck exposed to the weather.

2.10 Vessel—any ship or boat used in navigation.

2.11 Yacht—a vessel designed for, and capable of, completing a passage under sail alone.

2.12 Shall—indicates that a statement is mandatory.