

AS 1170.4—1993

Australian Standard®

---

**Minimum design loads on  
structures**

**Part 4: Earthquake loads**

---

This Australian Standard was prepared by Committee BD/6, Loading on Structures. It was approved on behalf of the Council of Standards Australia on 21 April 1993 and published on 16 August 1993.

---

The following interests are represented on Committee BD/6:

Association of Consulting Engineers, Australia  
Association of Consulting Structural Engineers, N.S.W.  
AUBRCC  
Australian Clay Brick Association  
Australian Construction Services—Department of Administrative Services  
Australian Federation of Construction Contractors  
Australian Institute of Steel Construction  
AUSTROADS  
Bureau of Meteorology  
Bureau of Steel Manufacturers of Australia  
CSIRO, Division of Building, Construction and Engineering  
Electricity Supply Association of Australia  
Engineering and Water Supply Department, S.A.  
James Cook University of North Queensland  
Master Builders Construction and Housing Association, Australia  
Monash University  
Public Works Department, N.S.W.  
University of Melbourne  
University of Newcastle

Additional interests participating in preparation of this Standard:

Australian Geological Survey Organization  
Cement and Concrete Association of Australia  
Department of Housing and Construction, S.A.  
Department of Mines and Energy, S.A.  
Department of Resource Industries, Qld.  
Institution of Engineers, Australia  
Insurance Council of Australia  
Phillip Institute of Technology, Vic.  
Steel Reinforcement Institute of Australia  
University of Adelaide  
University of Queensland

---

**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which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn Standards.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 91094..*

AS 1170.4—1993

Australian Standard<sup>®</sup>

---

**Minimum design loads on  
structures (known as the  
SAA Loading Code)**

**Part 4: Earthquake loads**

---

First published as part of AS 2121—1979.  
Revised and redesignated in part as AS 1170.4—1993.

Incorporating:  
Amdt 1—1994.

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

ISBN 0 7262 8297 9

## PREFACE

This Standard was prepared by the Standards Australia Committee for Loading on Structures to supersede [AS 2121—1979](#), *SAA Earthquake Code* and [AS 2121M—1979](#) *Seismic Zone map of Australia*.

This edition incorporates the following major changes to the previous edition:

- (a) The Standard is now in a *limit states format*.
- (b) New earthquake maps of Australia and of each State/Territory, defined in terms of an acceleration coefficient, are included.
- (c) Domestic structures are now included (Section 3).
- (d) [AS 2121—1979](#) contains provisions for earthquake loads and in addition, design and detailing requirements for some of the major structural materials. This Standard contains only loading requirements.

In preparing this Standard, the Committee referred to the documents listed in the Commentary, [AS 1170.4 Supplement 1](#).

Acknowledgment is made of the Australian Geological Survey Organization's copyright of the earthquake acceleration coefficient maps of Australia, States and Territory, and appreciation is recorded for permission to include the maps in this Standard.

### © 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.

## CONTENTS

	<i>Page</i>
FOREWORD .....	5
 SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE .....	8
1.2 REFERENCED DOCUMENTS .....	8
1.3 DEFINITIONS .....	8
1.4 NOTATION .....	10
1.5 METHODS OF DETERMINATION OF EARTHQUAKE LOADS .....	12
1.6 EARTHQUAKE LOAD COMBINATIONS .....	12
 SECTION 2 GENERAL REQUIREMENTS	
2.1 GENERAL .....	13
2.2 STRUCTURE CLASSIFICATION .....	13
2.3 ACCELERATION COEFFICIENT .....	13
2.4 SITE FACTOR .....	23
2.5 IMPORTANCE FACTOR .....	24
2.6 EARTHQUAKE DESIGN CATEGORY .....	24
2.7 REQUIREMENTS FOR GENERAL STRUCTURES .....	24
2.8 STRUCTURAL SYSTEMS OF BUILDINGS .....	26
2.9 CONFIGURATION .....	27
2.10 DEFLECTION AND DRIFT LIMITS .....	28
 SECTION 3 DOMESTIC STRUCTURES	
3.1 GENERAL .....	29
3.2 REQUIREMENTS FOR EARTHQUAKE DESIGN CATEGORIES .....	29
3.3 STRUCTURAL DETAILING REQUIREMENTS FOR DOMESTIC STRUCTURES .....	29
3.4 STATIC ANALYSIS FOR NON-DUCTILE DOMESTIC STRUCTURES OF EARTHQUAKE DESIGN CATEGORY H3 .....	29
3.5 NON-STRUCTURAL COMPONENTS .....	30
 SECTION 4 STRUCTURAL DETAILING REQUIREMENTS FOR GENERAL STRUCTURES	
4.1 GENERAL .....	31
4.2 STRUCTURAL DETAILING REQUIREMENTS FOR STRUCTURES OF EARTHQUAKE DESIGN CATEGORY A .....	31
4.3 STRUCTURAL DETAILING REQUIREMENTS FOR STRUCTURES OF EARTHQUAKE DESIGN CATEGORY B .....	31
4.4 STRUCTURAL DETAILING REQUIREMENTS FOR STRUCTURES OF EARTHQUAKE DESIGN CATEGORIES C, D AND E .....	31
 SECTION 5 REQUIREMENTS FOR NON-STRUCTURAL COMPONENTS	
5.1 GENERAL REQUIREMENTS .....	33
5.2 REQUIREMENTS FOR ARCHITECTURAL COMPONENTS .....	35
5.3 REQUIREMENTS FOR MECHANICAL AND ELECTRICAL COMPONENTS .....	36
5.4 AMPLIFICATION FACTOR .....	37

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

- 
- Looking for additional Standards? Visit Intertek Inform Infostore
  - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-