
**Basis for design of structures — Seismic
actions on structures**

Bases du calcul des constructions — Actions sismiques sur les structures



Reference number
ISO 3010:2001(E)

© ISO 2001

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

© ISO 2001

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.ch
Web www.iso.ch

Printed in Switzerland

Contents

	Page
1 Scope	1
2 Normative reference	1
3 Terms and definitions	1
4 Symbols and abbreviated terms	3
5 Bases of seismic design	3
6 Principles of seismic design	4
7 Principles of evaluating seismic actions	5
8 Evaluation of seismic actions by equivalent static analysis	7
9 Evaluation of seismic actions by dynamic analysis	9
10 Estimation of paraseismic influences	11

Annexes

A Load factors as related to the reliability of the structure, seismic hazard zoning factor and representative values of earthquake ground motion intensity.....	12
B Structural factor.....	15
C Normalized design response spectrum.....	17
D Seismic force distribution factor and seismic shear distribution factor	19
E Components of seismic action	22
F Torsional moments	24
G Dynamic response	26
H Damping ratio.....	30
I Response control systems	31
J Paraseismic influences	35
Bibliography.....	36

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 3010 was prepared by Technical Committee ISO/TC 98, *Bases for design of structures*, Subcommittee SC 3, *Loads, forces and other actions*.

This second edition cancels and replaces the first edition (ISO 3010:1988), which has been technically revised.

Annexes A, B, C, D, E, F, G, H, I and J of this International Standard are for information only.

Introduction

This International Standard presents basic principles for the evaluation of seismic actions on structures. The seismic actions described are fundamentally compatible with ISO 2394.

It also includes principles of seismic design, since the evaluation of seismic actions on structures and the design of the structures are closely related.