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Office ergonomics — An application standard for workplace ergonomics

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The Technical Committee would like to thank the individuals who participated in the acoustic working group for their valuable contributions to the development of this Standard.

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Preface

This is the third edition of CSA Z412, *Office ergonomics — An application standard for workplace ergonomics*. It supersedes previous editions published as guidelines in 2000 and 1989 under the title *Guideline on Office Ergonomics*. The present edition includes updates to reflect new technology and work practices, and is now presented in the form of a standard rather than a guideline.

The objective of this Standard is to apply ergonomics to enhance user health, safety, and well-being and to optimize system performance in order to prevent occupational injuries and illnesses or to reduce the severity of harm related to occupational activities in offices.

This Standard was prepared by the Technical Committee on Office Ergonomics, under the jurisdiction of the Strategic Steering Committee on Occupational Health and Safety, and has been formally approved by the Technical Committee.

Notes:

1) *Use of the singular does not exclude the plural (and vice versa) when the sense allows.*
2) *Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.*
3) *This Standard was developed by consensus, which is defined by* CSA Policy governing standardization — Code of good practice for standardization *as "substantial agreement. Consensus implies much more than a simple majority, but not necessarily unanimity". It is consistent with this definition that a member may be included in the Technical Committee list and yet not be in full agreement with all clauses of this Standard.*
4) *To submit a request for interpretation of this Standard, please send the following information to* ***inquiries@csagroup.org*** *and include "Request for interpretation" in the subject line:*
   a) *define the problem, making reference to the specific clause, and, where appropriate, include an illustrative sketch;*
   b) *provide an explanation of circumstances surrounding the actual field condition; and*
   c) *where possible, phrase the request in such a way that a specific "yes" or "no" answer will address the issue.*

   Committee interpretations are processed in accordance with the CSA Directives and guidelines governing standardization *and are available on the current* Standards Activities *page at* ***standardsactivities.csa.ca****.*
5) *This Standard is subject to review within five years from the date of publication. Suggestions for its improvement will be referred to the appropriate committee. To submit a proposal for change, please send the following information to* ***inquiries@csagroup.org*** *and include "Proposal for change" in the subject line:*
   a) *Standard designation (number);*
   b) *relevant clause, table, and/or figure number;*
   c) *wording of the proposed change; and*
   d) *rationale for the change.*

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0 Introduction

0.1 General

Ergonomics (or human factors) is a discipline concerned with the interactions among humans and other elements of a system, and the application of theories, principles, data, and methods of design to enhance user well-being and to optimize system performance. For the purposes of this Standard, the term "ergonomics" is considered interchangeable with the term "human factors". This Standard provides requirements for applying ergonomics in office work systems.

Ergonomics
a) enhances user health, safety, and well-being;
b) enhances workspace usability by improving ease of use and ease of learning;
c) facilitates user performance by encouraging task proficiency and error recovery;
d) accommodates users of various physical sizes, capabilities, skills, knowledge, and experience;
e) maintains user performance by minimizing excessive or awkward loads and postures; and
f) optimizes the interaction between the user and the workspace environment.

Ergonomics provides the greatest benefit when it is applied early in the design of a work system rather than as a solution to problems discovered after the design is complete. It is also most beneficial when applied early in the redesign of an existing work system. The user-centred approach of the Ergonomics Process ensures that a broad range of user characteristics and needs are accommodated.

This Standard adopts the approach outlined in CSA Z1004 to effect the integration of ergonomics into an occupational health and safety system and into the design or redesign of office work systems.

0.2 Structure of this Standard

The description of the Ergonomics Process in Clause 4 is followed in Clause 5 by a description of the Application of Ergonomics in an office work system, which is the "front line" implementation of the Ergonomics Process.

Most of this Standard (Clause 6 and Annex A) provides normative (mandatory) requirements for the Application of Ergonomics in an office workspace and include requirements for
a) furniture;
b) accessories;
c) equipment;
d) layout and use of furniture, accessories, and equipment;
e) environmental conditions;
f) manual materials handling; and
g) psychosocial workplace factors and psychological health factors.

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1 Scope

1.1

This Standard specifies requirements for the Application of Ergonomics in offices. It applies to all office users in office workspaces in new and existing buildings, and includes some requirements for non-traditional workspaces (i.e., vehicles and home offices). Whenever "office" is used in this Standard, it refers to users in one or more of these settings.

1.2

This Standard does not apply to medical management programs or to practices that could be considered part of a medical management program, such as therapeutic or clinical interventions.

This Standard does not contain information pertaining to the design of software or information technology devices and displays.

This Standard does not contain requirements pertaining to electromagnetic forces (EMFs).

This Standard is not a product compliance standard and therefore does not address safety, durability, and structural adequacy of products.

This Standard does not contain information on acoustics related to the construction of building shells or exterior noise sources.

Notes:

1) *Design and presentation of software can play a large role in promoting efficient and healthy office work. ISO 9241, Parts 11 to 16, Part 110, and Part 143 provide guidance in this area.*
2) *Requirements for the safety, durability, and structural adequacy of furniture products are provided in ANSI/BIFMA X5.5, ANSI/BIFMA X5.6, ANSI/BIFMA X5.9, CAN/CGSB-44.227, and CAN/CGSB-44.229.*

1.3

This Standard is intended for those who are involved in health, safety, ergonomics, and the design/build and operations of office workspaces, including

a) employer representatives;
b) office users and their representatives;
c) architects, designers, facility planners, building service providers, and purchasing personnel involved in the design of new office work systems, the renovation of existing office work systems, or the procurement of new furniture, accessories, and equipment;
d) professional groups (ergonomists, industrial hygienists, engineers, and related specialists); and
e) designers and manufacturers of products.

This Standard may be used as a reference by health and safety agencies and regulatory agencies.

1.4

In this Standard, "shall" is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with the Standard; "should" is used to express a recommendation or that which is advised but not required; and "may" is used to express an option or that which is permissible within the limits of the Standard.

Notes accompanying clauses do not include requirements or alternative requirements; the purpose of a note accompanying a clause is to separate from the text explanatory or informative material.

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Notes to tables and figures are considered part of the table or figure and may be written as requirements.

Annexes are designated normative (mandatory) or informative (non-mandatory) to define their application.

2 Reference publications

This Standard refers to the following publications, and where such reference is made, it shall be to the editions listed below, including all amendments published thereto.

CSA Group

CAN/CSA-Z1000-14
Occupational health and safety management

CAN/CSA-Z1001-13
Occupational health and safety training

CAN/CSA-Z1002-12 (R2017)
Occupational health and safety — Hazard identification and elimination and risk assessment and control

Z1004-12 (R2017)
Workplace ergonomics — A management and implementation standard

Z1006-16
Management of work in confined spaces

Z1007-16
Hearing loss prevention program (HLPP) management

CAN/CSA-ISO 9241-5:00 (R2016)
Ergonomic requirements for office work with visual display terminals (VDTs) — Part 5: Workstation layout and postural requirements

CAN/CSA-ISO 19011:12 (R2017)
Guidelines for auditing management systems

CSA Group and BNQ (Bureau de normalisation du Québec)

CAN/CSA-Z1003-13/BNQ 9700-803/2013
Psychological health and safety in the workplace — Prevention, promotion, and guidance to staged implementation

ANSI/BIFMA (American National Standards Institute/Business and Institutional Furniture Manufacturers Association)

X5.1-2017
General Purpose Office Chairs — Tests

X5.5-2014
Desk Products

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