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CSA D500:20
National Standard of Canada

Ergonomic design for ambulances and related equipment

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Standards Council of Canada
600-55 Metcalfe Street
Ottawa, Ontario, K1P 6L5
Canada

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Preface

This is the first edition of CSA D500, *Ergonomic design for ambulances and related equipment*.

This Standard sets out requirements and provides guidance for the design, layout, and procurement of ambulances and related equipment with a focus on the application of ergonomics. In addition, this Standard provides infection prevention and control guidelines for consideration in the design of ambulances and equipment.

The objective of this Standard is to provide minimum design requirements and guidance to ensure the correct application of ergonomic principles to ambulance design. Applying ergonomic principles to ambulance design serves to enhance user health, safety, and well-being, and to optimize system performance in order to prevent occupational injuries and illnesses and maximize the ability to provide safe and effective patient care.

This Standard was prepared by the Technical Committee on Paramedic Ground Emergency Response Vehicles and Equipment, under the jurisdiction of the Strategic Steering Committee on Public Safety, and has been formally approved by the Technical Committee.

This Standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

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:*
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   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.*

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   a) *Standard designation (number);*
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   c) *wording of the proposed change; and*
   d) *rationale for the change.*

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Ergonomic design for ambulances and related equipment

0 Introduction

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 terms “human factors” and “human factors/ ergonomics (HFE)”. This Standard provides requirements for applying ergonomics in ambulance design and procurement.

The application of ergonomic principles into ambulance design

a) ensures, enhances, and sustains paramedic performance and patient outcomes under all expected operating conditions;
b) enhances user interfaces and workspace layout to reduce the incidence and impact of paramedic error; and
c) eliminates and controls hazards associated with acute injuries (e.g., slips, trips, and falls), musculoskeletal disorders (MSD), and infection-control-related concerns that can affect the health and safety of paramedics and patients.

1 Scope

1.1 General

This Standard specifies requirements to facilitate the application of ergonomics into ambulance design and describes a user-centred design (UCD) process for establishing additional ergonomic requirements, as necessary. The objective of applying ergonomics is to optimize overall system performance by ensuring human performance and safety requirements are balanced with engineering and design requirements.

Note: *It is the user’s responsibility to determine how applicable legislative requirements relate to this Standard.*

1.2 Applicability

This Standard is intended for those who are involved in design, procurement, use, and maintenance of ambulances and related paramedic equipment, including, but not limited to,

a) ambulance manufacturers and distributors;
b) equipment manufacturers and distributors;
c) ambulance procurement administrators;
d) emergency medical service (EMS) managers;
e) paramedics;
f) paramedic organizations;
g) fleet managers;
h) government and regulatory authorities; and
i) the scientific community.

