

TECHNICAL SPECIFICATION

Electrostatics –
Part 6-2: Electrostatic control in healthcare, commercial and public facilities –
Public spaces and office areas

iTeh Standards
(standards.itih.ai)
Document Preview

[IEC TS 61340-6-2:2023](https://standards.itih.ai/catalog/standards/sist/bebfa1f9-269a-489c-be67-f25596dcf785/iec-ts-61340-6-2-2023)

<https://standards.itih.ai/catalog/standards/sist/bebfa1f9-269a-489c-be67-f25596dcf785/iec-ts-61340-6-2-2023>



THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2023 IEC, Geneva, Switzerland

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 IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

IEC Secretariat
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, ...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch

Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 300 terminological entries in English and French, with equivalent terms in 19 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

International Standards
standards.iteh.ai
Document Preview

[IEC TS 61340-6-2:2023](https://standards.iteh.ai/catalog/standards/sist/bebfa1f9-269a-489c-be67-f25596dcf785/iec-ts-61340-6-2-2023)

<https://standards.iteh.ai/catalog/standards/sist/bebfa1f9-269a-489c-be67-f25596dcf785/iec-ts-61340-6-2-2023>



TECHNICAL SPECIFICATION

**Electrostatics –
Part 6-2: Electrostatic control in healthcare, commercial and public facilities –
Public spaces and office areas**

iTeh Standards
(<https://standards.itih.ai>)
Document Preview

[IEC TS 61340-6-2:2023](https://standards.itih.ai/catalog/standards/sist/bebfa1f9-269a-489c-be67-f25596dcf785/iec-ts-61340-6-2-2023)

<https://standards.itih.ai/catalog/standards/sist/bebfa1f9-269a-489c-be67-f25596dcf785/iec-ts-61340-6-2-2023>

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 17.220.99; 29.020

ISBN 978-2-8322-7624-2

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope.....	6
2 Normative references	6
3 Terms and definitions	7
4 Static electricity	9
4.1 General.....	9
4.2 Triboelectrification	9
4.3 Retention of charge	9
4.4 Induction.....	9
4.5 Charge transfer by conduction	10
4.6 Electrostatic discharge (ESD)	10
5 Electrostatic hazards and nuisances.....	10
5.1 General.....	10
5.2 Electrostatic shocks to people.....	10
5.3 Electrostatic discharge and electromagnetic compatibility	10
5.4 Electrostatic attraction and repulsion	11
5.5 Ignition of flammable substances	11
6 Electrostatic control	11
6.1 General.....	11
6.2 Passive control methods	11
6.2.1 Material selections.....	11
6.2.2 Grounding or equipotential bonding	12
6.2.3 Passive ionization.....	12
6.3 Active control methods.....	12
6.3.1 Humidity	12
6.3.2 Active ionization	13
6.4 Design of facilities.....	13
6.4.1 Incorporating electrostatic control into building design	13
6.4.2 Responsibility for selecting and operating electrostatic control measures	13
6.4.3 Qualification and verification.....	14
6.5 Technical requirements and recommendations.....	14
6.5.1 Electrical safety	14
6.5.2 Material classification	14
6.5.3 Selection of materials for electrostatic control.....	16
Bibliography.....	18

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTROSTATICS –

**Part 6-2: Electrostatic control in healthcare, commercial
and public facilities – Public spaces and office areas**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at <https://patents.iec.ch>. IEC shall not be held responsible for identifying any or all such patent rights.

IEC TS 61340-6-2 has been prepared by IEC technical committee 101: Electrostatics. It is a Technical Specification.

The text of this Technical Specification is based on the following documents:

Draft	Report on voting
101/682/DTS	101/695/RVDTS

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this Technical Specification is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 61340 series, published under the general title *Electrostatics*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[IEC TS 61340-6-2:2023](#)

<https://standards.iteh.ai/catalog/standards/sist/bebfa1f9-269a-489c-be67-f25596dcf785/iec-ts-61340-6-2-2023>

INTRODUCTION

This document provides guidance on how to control static electricity in office areas and public places. Static electricity can be the source of the following hazards and nuisances:

- electrostatic shocks to people;
- electromagnetic interference (EMI) or electrostatic discharge (ESD) disruption or damage to electronic equipment, audiovisual systems, computers and mobile devices such as telephones, tablet computers, laptop computers;
- contamination caused by electrostatic attraction (ESA) or electrostatic repulsion (ESR) of airborne pathogens;
- ignition of flammable gases, vapours, liquids, aerosols, combustible flyings, powders and dusts.

Adequate electrostatic control can eliminate these hazards and nuisances, or at least reduce involved risk to tolerable levels. Electrostatic controls can be established in many different ways.

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[IEC TS 61340-6-2:2023](https://standards.iteh.ai/catalog/standards/sist/bebfa1f9-269a-489c-be67-f25596dcf785/iec-ts-61340-6-2-2023)

<https://standards.iteh.ai/catalog/standards/sist/bebfa1f9-269a-489c-be67-f25596dcf785/iec-ts-61340-6-2-2023>

ELECTROSTATICS –

Part 6-2: Electrostatic control in healthcare, commercial and public facilities – Public spaces and office areas

1 Scope

This part of IEC 61340 applies to the interior design of public places, retail and office areas such as, but not limited to staircases, offices, meeting rooms, auditoriums, airports, train stations, shopping centres, restaurants and theatres. This document includes guidelines for architects, interior designers and facility managers.

Hazards, nuisances and other problems associated with electrostatic phenomena and the principles of their control are outlined. This document includes requirements and recommendations for materials, and products used to control static electricity.

The handling of electrostatic sensitive components is described in IEC 61340-5-1 [1]¹ and the avoidance of hazards due to static electricity in explosive atmospheres is presented in IEC TS 60079-32-1 [2]. The requirements for electrostatic control in healthcare facilities are specified in IEC 61340-6-1 [3]. The guidance in this document is not intended to replace or supersede the requirements of the aforementioned standards and technical specification, but can be used in association with them to establish appropriate electrostatic control measures.

These guidelines do not replace or supersede any requirements for personnel safety specified in other standards or codes of practice.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61340-2-1, *Electrostatics – Part 2-1: Measurement methods – Ability of materials and products to dissipate static electric charge*

IEC 61340-2-3, *Electrostatics – Part 2-3: Methods of test for determining the resistance and resistivity of solid materials used to avoid electrostatic charge accumulation*

IEC 61340-4-1, *Electrostatics – Part 4-1: Standard test methods for specific applications – Electrical resistance of floor coverings and installed floors*

IEC 61340-4-5, *Electrostatics – Part 4-5: Standard test methods for specific applications – Methods for characterizing the electrostatic protection of footwear and flooring in combination with a person*

ISO 18080-2, *Textiles – Test methods for evaluating the electrostatic propensity of fabrics – Part 2: Test method using rotary mechanical friction*

¹ Numbers in square brackets refer to the Bibliography.

ISO 18080-3, *Textiles – Test methods for evaluating the electrostatic propensity of fabrics – Part 3: Test method using manual friction*

ISO 18080-4, *Textiles – Test methods for evaluating the electrostatic propensity of fabrics – Part 4: Test method using horizontal mechanical friction*

EN 1149-3:2004, *Protective clothing – Electrostatic properties – Part 3: Test methods for measurement of charge decay*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1

acceptance testing

testing used to determine if systems or products meet specified requirements when installed or before first use

Note 1 to entry: Acceptance testing can be the same as testing used for qualification or can be simpler testing more appropriate for use in a facility rather than a controlled testing laboratory.

3.2

conductor

object providing a sufficiently high conductivity so that potential differences over any parts of it are not sufficiently large as to be of practical significance

<https://standards.iteh.ai/catalog/standards/sist/bebfa1f9-269a-489c-be67-f25596dcf785/iec-ts-61340-6-2-2023>

3.3

electromagnetic compatibility

EMC

ability of an equipment or system to function satisfactorily in its electromagnetic environment without introducing intolerable electromagnetic disturbances to anything in that environment

3.4

electromagnetic interference

EMI

degradation of the performance of a device, equipment or system caused by an electromagnetic disturbance

Note 1 to entry: Disturbance and interference are cause and effect respectively.

3.5

electrostatic attraction

ESA

effect of the force on charged or polarized particles caused by an electrostatic field

Note 1 to entry: The electrostatic force between oppositely charged objects or between charged objects and polarized objects can cause the objects to move towards each other, which can result in the increased deposition of particles onto charged surfaces.

3.6

electrostatic conductive material

material providing a sufficiently high conductivity so that potential differences over any parts of it are not sufficiently large as to be of practical significance

3.7
electrostatic discharge
ESD

transfer of electric charge between bodies of different electric potential in proximity or through direct contact

3.8
electrostatic dissipative material

material which allows charge to migrate over its surface or through its volume, or both, in a time that is short compared to the timescale of the actions creating the charge or that will cause an electrostatic problem

3.9
electrostatic insulating material

material with very low mobility of charge so that any charge on the surface will remain there for a long time

3.10
ESD ground

terminal used to connect parts to ground for ESD control purposes

Note 1 to entry: Protective earth or functional ground can be used as ESD ground.

Note 2 to entry: Equipment ground is one form of protective earth.

3.11
electrostatic repulsion
ESR

movement of charged particles away from objects charged to the same polarity

Note 1 to entry: Charged particles repelled from one surface can cause contamination of nearby surfaces.

3.12
functional ground

terminal used to connect parts to ground for reasons other than safety

Note 1 to entry: A functional ground can be a ground rod, stake or a separate wiring system that is bonded to the AC ground at the main service panel.

Note 2 to entry: In the absence of a dedicated functional ground, a protective earth can be used as a functional ground.

3.13
grounding

electrical connection of conductors, usually with ESD ground, to allow dissipation of charge and eliminate the possibility of voltage build-up

Note 1 to entry: In this document grounding means either equipotential bonding or grounding.

Note 2 to entry: In this document ground and grounding are synonymous with earth and earthing.

3.14
isolated conductor

non-grounded conductor

3.15
low charging material

material with a tendency to minimize charge generation when contacting and rubbing against other materials