

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Household and similar electrical appliances – Safety –
Part 2-30: Particular requirements for room heaters**

[\(https://standards.iteh.ai/\)](https://standards.iteh.ai/)

**Appareils électrodomestiques et analogues – Sécurité –
Partie 2-30: Règles particulières pour les appareils de chauffage des locaux**

[IEC 60335-2-30:2002](https://standards.iteh.ai/standards/iec/8cd3403fe-b000-4b0c-b19b-de41914f730b/iec-60335-2-30-2002)

<https://standards.iteh.ai/standards/iec/8cd3403fe-b000-4b0c-b19b-de41914f730b/iec-60335-2-30-2002>

WITNESS



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2007 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.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de la CEI ou du Comité national de la CEI du pays du demandeur.

Si vous avez des questions sur le copyright de la CEI ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de la CEI de votre pays de résidence.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland
Email: inmail@iec.ch
Web: 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 corrigenda or an amendment might have been published.

- Catalogue of IEC publications: www.iec.ch/searchpub

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 It also gives information on projects, withdrawn and replaced publications.

- IEC Just Published: www.iec.ch/online_news/justpub

Stay up to date on all new IEC publications. Just Published details twice a month all new publications released. Available on-line and also by email.

- Electropedia: www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing more than 20 000 terms and definitions in English and French, with equivalent terms in additional languages. Also known as the International Electrotechnical Vocabulary online.

- Customer Service Centre: www.iec.ch/webstore/custserv

If you wish to give us your feedback on this publication or need further assistance, please visit the Customer Service Centre FAQ or contact us:

Email: csc@iec.ch
Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00

A propos de la CEI

La Commission Electrotechnique internationale (CEI) est la première organisation mondiale qui élabore et publie des normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications CEI

Le contenu technique des publications de la CEI est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

- Catalogue des publications de la CEI: www.iec.ch/searchpub/cur_fut-f.htm

Le Catalogue en-ligne de la CEI vous permet d'effectuer des recherches en utilisant différents critères (numéro de référence, texte, comité d'études,...). Il donne aussi des informations sur les projets et les publications retirées ou remplacées.

- Just Published CEI: www.iec.ch/online_news/justpub

Restez informé sur les nouvelles publications de la CEI. Just Published détaille deux fois par mois les nouvelles publications parues. Disponible en-ligne et aussi par email.

- Electropedia: www.electropedia.org

Le premier dictionnaire en ligne au monde de termes électroniques et électriques. Il contient plus de 20 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans les langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International en ligne.

- Service Clients: www.iec.ch/webstore/custserv/custserv_entry-f.htm

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions, visitez le FAQ du Service clients ou contactez-nous:

Email: csc@iec.ch
Tél.: +41 22 919 02 11
Fax: +41 22 919 03 00

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Household and similar electrical appliances – Safety –
Part 2-30: Particular requirements for room heaters**

**Appareils électrodomestiques et analogues – Sécurité –
Partie 2-30: Règles particulières pour les appareils de chauffage des locaux**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX

CN

CONTENTS

FOREWORD.....	5
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references	8
3 Definitions	8
4 General requirement.....	9
5 General conditions for the tests	9
6 Classification.....	10
7 Marking and instructions.....	10
8 Protection against access to live parts.....	13
9 Starting of motor-operated appliances	14
10 Power input and current	14
11 Heating	14
12 Void	17
13 Leakage current and electric strength at operating temperature.....	17
14 Transient overvoltages	17
15 Moisture resistance	17
16 Leakage current and electric strength.....	17
17 Overload protection of transformers and associated circuits	17
18 Endurance.....	17
19 Abnormal operation	17
20 Stability and mechanical hazards	21
21 Mechanical strength.....	22
22 Construction.....	22
23 Internal wiring.....	25
24 Components.....	25
25 Supply connection and external flexible cords	25
26 Terminals for external conductors.....	25
27 Provision for earthing.....	26
28 Screws and connections.....	26
29 Clearances, creepage distances and solid insulation	26
30 Resistance to heat and fire.....	26
31 Resistance to rusting.....	26
32 Radiation, toxicity and similar hazards.....	26
Annexes	53
Bibliography.....	53
Figure 101 – Examples of immediate surrounds of air-outlet grilles.....	27
Figure 102 – Examples of the immediate surrounds of fireguards	28
Table 101 – Temperature rises for surfaces.....	16

INTERNATIONAL ELECTROTECHNICAL COMMISSION

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-30: Particular requirements for room heaters

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 provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEC Publication.
- 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) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

This part of International Standard IEC 60335 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

This consolidated version of IEC 60335-2-30 consists of the fourth edition (2002) [documents 61/2166/FDIS and 61/2246/RVD], its amendment 1 (2004) [documents 61/2689/FDIS and 61/2721/RVD] and its amendment 2 (2007) [documents 61/3229/FDIS and 61/3243/RVD].

The technical content is therefore identical to the base edition and its amendments and has been prepared for user convenience.

It bears the edition number 4.2.

A vertical line in the margin shows where the base publication has been modified by amendments 1 and 2.

This part 2 is to be used in conjunction with the latest edition of IEC 60335-1 and its amendments. It was established on the basis of the fourth edition (2001) of that standard.

NOTE 1 When "Part 1" is mentioned in this standard, it refers to IEC 60335-1.

This part 2 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert that publication into the IEC standard: Safety requirements for electric room heaters.

When a particular subclause of Part 1 is not mentioned in this part 2, that subclause applies as far as is reasonable. When this standard states "addition", "modification", or "replacement", the relevant text in Part 1 is to be adapted accordingly.

NOTE 2 The following numbering system is used:

- subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
- unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;
- additional annexes are lettered AA, BB, etc.

NOTE 3 The following print types are used:

- requirements: in roman type;
- *test specifications: in italic type;*
- notes: in small roman type.

Words in **bold** in the text are defined in Clause 3. When a definition concerns an adjective, the adjective and the associated noun are also in bold.

The following differences exist in the countries indicated below.

- 3.105: The immediate surround of a fireguard is extended to 50 mm (Austria, Germany and United Kingdom).
- 7.1: All heaters, except those for mounting at high level, are to be marked with a warning against covering (Norway).
- 7.1: All heaters, except those for permanent connection to fixed wiring, are to be marked with the minimum distances to combustible surfaces (Norway).
- 7.1: Appliances are not required to be marked "Do not cover" (USA).
- 7.12: Some of the instructions specified are to be marked on the heater (Norway and USA).
- Clause 11: The test methods are different (USA).
- 11.8: For other metal surfaces accessible to the test rod, the limit is 95 K (Australia).
- 11.8: For all fixed heaters, other than those for mounting at high level, the limit is 115 K for metallic air-outlet grilles and their surrounds (France).
- 11.8: For heaters used in hygiene rooms of dwellings, nurseries or after-school centres, the temperatures of surfaces accessible to test probe B of IEC 61032 are not to exceed 60 °C (Sweden).
- Clause 19: The tests are different (Canada and USA).
- 19.103: Visibly glowing radiant heaters, other than those for mounting at high level, have to withstand the test of this subclause (Sweden).
- 20.1: The test is different (USA).
- 22.7: The test is different (USA).
- 22.24: The test is different (USA).
- 22.101: The requirement is different (Canada and USA).
- 22.102: The requirement is different (Canada and USA).
- 22.103: The requirement is different (Canada and USA).

- 22.105: The requirement is different (USA).
- 22.108: The requirement is different (USA).
- 24.1.3: The number of cycles of operation is 6 000 (USA).
- 24.1.4: Thermal cut-outs that protect heating elements against overheating, incorporated in fan heaters and in stationary heaters intended to be mounted on or near to a wall, other than those for mounting at high level, are to be of the non-self-resetting type (Sweden).
- 25.3: Fixed appliances are to be appliances intended to be permanently connected to fixed wiring (France).

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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

WITHDRAWN

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

[IEC 60335-2-30:2002](https://standards.iteh.ai/standards/iec/8dc408fe-b000-4b0c-b19b-de41914f730b/iec-60335-2-30-2002)

<https://standards.iteh.ai/standards/iec/8dc408fe-b000-4b0c-b19b-de41914f730b/iec-60335-2-30-2002>

INTRODUCTION

It has been assumed in the drafting of this International Standard that the execution of its provisions is entrusted to appropriately qualified and experienced persons.

This standard recognizes the internationally accepted level of protection against hazards such as electrical, mechanical, thermal, fire and radiation of appliances when operated as in normal use taking into account the manufacturer's instructions. It also covers abnormal situations that can be expected in practice and takes into account the way in which electromagnetic phenomena can affect the safe operation of appliances.

This standard takes into account the requirements of IEC 60364 as far as possible so that there is compatibility with the wiring rules when the appliance is connected to the supply mains. However, national wiring rules may differ.

If an appliance within the scope of this standard also incorporates functions that are covered by another part 2 of IEC 60335, the relevant part 2 is applied to each function separately, as far as is reasonable. If applicable, the influence of one function on the other is taken into account.

When a part 2 standard does not include additional requirements to cover hazards dealt with in Part 1, Part 1 applies.

NOTE 1 This means that the technical committees responsible for the part 2 standards have determined that it is not necessary to specify particular requirements for the appliance in question over and above the general requirements.

This standard is a product family standard dealing with the safety of appliances and takes precedence over horizontal and generic standards covering the same subject.

NOTE 2 Horizontal and generic standards covering a hazard are not applicable since they have been taken into consideration when developing the general and particular requirements for the IEC 60335 series of standards. For example, in the case of temperature requirements for surfaces on many appliances, generic standards, such as ISO 13732-1 for hot surfaces, are not applicable in addition to Part 1 or part 2 standards.

An appliance that complies with the text of this standard will not necessarily be considered to comply with the safety principles of the standard if, when examined and tested, it is found to have other features that impair the level of safety covered by these requirements.

An appliance employing materials or having forms of construction differing from those detailed in the requirements of this standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be considered to comply with the standard.

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-30: Particular requirements for room heaters

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electric room heaters for household and similar purposes, their **rated voltage** being not more than 250 V for single-phase appliances and 480 V for other appliances.

NOTE 101 Examples of appliances that are within the scope of this standard are

- convector heaters;
- **fan heaters**;
- heaters for use in greenhouses.
- liquid-filled radiators;
- panel heaters;
- radiant heaters;
- tubular heaters;
- **ceiling mounted heat lamp appliances**.

For extraction fans of **ceiling mounted heat lamp appliances**, IEC 60335-2-80 is applicable as far as is reasonable.

Appliances not intended for normal household use but which nevertheless may be a source of danger to the public, such as appliances intended to be used by laymen in the shops, in light industry and on farms, are within the scope of this standard.

As far as is practicable, this standard deals with the common hazards presented by appliances which are encountered by all persons in and around the home. However, in general, it does not take into account

- persons (including children) whose
 - physical, sensory or mental capabilities; or
 - lack of experience and knowledgeprevents them from using the appliance safely without supervision or instruction;
- children playing with the appliance.

NOTE 102 Attention is drawn to the fact that

- for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements may be necessary;
- in many countries additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour and similar authorities;
- for appliances intended to be used in the presence of combustible dust, for example in barns or stables, additional requirements may be necessary.

NOTE 103 This standard does not apply to

- appliances intended exclusively for industrial purposes;
- appliances intended to be used where special conditions prevail, such as the presence of a corrosive or explosive atmosphere (dust, vapour or gas);
- heaters that are built into air conditioners (IEC 60335-2-40);
- clothes dryers and towel rails (IEC 60335-2-43);
- heaters for saunas (IEC 60335-2-53);
- thermal-storage room heaters (IEC 60335-2-61);
- heating appliances for breeding and rearing animals (IEC 60335-2-71);
- foot warmers and heating mats (IEC 60335-2-81);
- flexible sheet heating elements for room heating (IEC 60335-2-96);
- heated carpets;
- central heating systems;
- heating cables (IEC 60800).

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

IEC 60335-2-43, *Household and similar electrical appliances – Safety – Part 2-43: Particular requirements for clothes dryers and towel rails*

IEC 60335-2-80, *Household and similar electrical appliances – Safety – Part 2-80: Particular requirements for fans*

ISO 2758, *Paper – Determination of bursting strength*

ISO 3864-1, *Graphical symbols – Safety colours and safety signs – Part 1: Design principles for safety signs in workplaces and public areas*

3 Definitions

This clause of Part 1 is applicable except as follows.

3.101

visibly glowing radiant heater

heater incorporating at least one **visibly glowing heating element**

3.102

fan heater

heater in which the movement of the air over the heating element is assisted by a fan

3.103

heater for mounting at high level

heater intended to be fixed at a height of at least 1,8 m above the floor

3.104

fireguard

that part of the enclosure of a **visibly glowing radiant heater** through which the heating element is normally visible and which is intended to guard against direct access to the heating element

3.105

immediate surround

any surface within 25 mm of the boundary of an air-outlet grille or within 50 mm of the boundary of a **fireguard**

NOTE Details of the way in which this distance is determined are shown in Figure 101 for air-outlet grilles and Figure 102 for **fireguards**.

3.106

ceiling mounted heat lamp appliance

heater for recessed mounting at high level into a ceiling and incorporating one or more heat lamps. It may also incorporate an extraction fan and an illumination lamp. The fan may be installed separately in ducting or may be an integral part of the heater

NOTE The heat lamp is not considered to be a **visibly glowing heating element**.

4 General requirement

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable except as follows.

5.2 Addition:

NOTE 101 If heaters are intended to be installed adjacent to each other, a sufficient number are required in order to determine the effects of adjacent heaters on the appliance under test.

5.3 Addition:

The appliance that is used for the tests of Clause 19 is also used for the test of 22.24. The test of 22.24 is carried out after the tests of Clause 29 if it is carried out on the same appliance.

5.6 Addition:

***Thermostats** sensitive to the room air temperature, such as those having a sensing element located in the air inlet, are short-circuited. However, if the **thermostat** can be set so that it does not cycle, it is not short-circuited.*

NOTE 101 For electronic controls it may be necessary to render the sensing element inoperative instead of short-circuiting the **thermostat**.

5.10 Addition:

Heaters intended to be installed adjacent to each other are installed in accordance with the instructions.

5.101 *Heaters intended to be used as both **portable appliances** and **fixed appliances** are subjected to the tests applicable to both types of appliances.*

5.102 *If the heater is a combination of two or more types, it is subjected to the tests relevant for each type, unless the tests for one type cover the other.*

Heaters for wall-mounting are tested both as **heaters for mounting at high level** and as heaters for mounting other than at high level, unless the installation instructions state that the heater has to be installed at least 1,8 m above the floor.

6 Classification

This clause of Part 1 is applicable except as follows.

6.2 Addition:

Heaters intended for use in greenhouses or building sites shall be at least IPX4.

7 Marking and instructions

This clause of Part I is applicable except as follows.

7.1 Addition:

Heaters intended to be filled with liquid by the user shall be marked with the maximum and minimum liquid levels.

Heaters shall be marked with symbol IEC 60417-5641(DB:2002-10) combined with the prohibition sign of ISO 3864-1, except for colours, or with the substance of the following:

WARNING: Do not cover.

This marking is not required for

- **heaters for mounting at high level;**
- **visibly glowing radiant heaters;**
- heaters constructed so that they cannot be covered;
- heaters also intended to dry clothes and which comply with IEC 60335-2-43;
- heaters for mounting under benches.

Heaters having a **fireguard** that is intended to be removed for transportation or storage shall be marked to state that the heater must not be operated without this guard in place.

For **ceiling mounted heat lamp appliances**, the maximum rated wattage and type of each lamp shall be marked.

7.6 Addition:



Do not cover

NOTE 101 This symbol incorporates symbol IEC 60417-5641(DB:2002-10) combined with the prohibition sign of ISO 3864-1, except for colours.

7.12 Addition:

If the “Do not cover” symbol is marked on the appliance, its meaning shall be explained.

The instructions for heaters marked “Do not cover” or with the “Do not cover” symbol shall contain the substance of the following:

WARNING: In order to avoid overheating, do not cover the heater.

The instructions shall state that the heater must not be located immediately below a socket-outlet.

The instructions for heaters with heating elements that are in direct contact with panels made of glass, ceramic or similar material that are **accessible parts** shall include the substance of the following warning:

WARNING: The heater must not be used if the glass panels are damaged.

NOTE 101 This warning must be modified appropriately if the panels are of ceramic or similar material.

The instructions for **visibly glowing radiant heaters**, other than **heaters for mounting at high level**, shall include the substance of the following:

Do not use this heater with a programmer, timer, separate remote-control system or any other device that switches the heater on automatically, since a fire risk exists if the heater is covered or positioned incorrectly.

The instructions for **visibly glowing radiant heaters** having a **fireguard** that can be partly removed without the aid of a **tool** shall include the substance of the following:

- the fireguard of this heater is intended to prevent direct access to heating elements and must be in place when the heater is in use;
- the fireguard does not give full protection for young children and for infirm persons.

The instructions for **portable heaters** shall include the substance of the following:

Do not use this heater in the immediate surroundings of a bath, a shower or a swimming pool.

Instructions shall be provided for cleaning the reflector of **visibly glowing radiant heaters**, if appropriate.

Instructions shall be provided for replacing the lamps of fuel-effect heaters.

The instructions for oil-filled radiators shall include the substance of the following:

- this heater is filled with a precise quantity of special oil. Repairs requiring opening of the oil container are only to be made by the manufacturer or his service agent who should be contacted if there is an oil leak;
- when scrapping the heater, follow the regulations concerning the disposal of oil.

Instructions shall be provided for routine cleaning of **ceiling mounted heat lamp appliances** including removal of covers if applicable.

7.12.1 Addition:

The installation instructions for heaters intended to be fixed by screws or other means shall give details on the method of fixing.

The installation instructions for **stationary visibly glowing radiant heaters** and **ceiling mounted heat lamp appliances** shall warn about the possible danger of installation close to curtains and other combustible materials.

The instructions for **heaters for mounting at high level** shall state that the heater must be installed at least 1,8 m above the floor.

The instructions for **fixed heaters** likely to be used in a bathroom shall state that the heater is to be installed so that switches and other controls cannot be touched by a person in the bath or shower.

If rollers or feet are supplied separately with the heater, the installation instructions shall state how they have to be fixed to the heater.

The installation instructions for heaters intended to be installed in wardrobes or ceilings shall give details for proper installation in a wardrobe or in the ceiling.

The installation instructions for **ceiling mounted heat lamp appliances** that are recessed into a ceiling space or cavity shall give details for proper installation in the ceiling and shall state the substance of the following:

The appliance shall, under no circumstances, be covered with insulating material or similar material.

Regulations concerning the discharge of air have to be fulfilled.

Joists, beams and rafters shall not be cut or notched to install the appliance.

The installation instructions for heaters for mounting under church benches shall state

- that the heater is intended for installation under benches that are fixed in position;
- the minimum distance between the underside of the installed heater and the floor;
- the minimum distances of the relevant surfaces of the heaters to the front and rear edge of the underside of the bench which shall be not less than 50 mm.