



UL 50

STANDARD FOR SAFETY

Enclosures for Electrical Equipment,
Non-Environmental Considerations

UL Standard for Safety for Enclosures for Electrical Equipment, Non-Environmental Considerations, UL 50
Thirteenth Edition, Dated October 16, 2015

Summary of Topics

The revision of ANSI/UL 50 dated October 15, 2020 includes the following changes in requirements:

Junction and Pull Boxes for Use in Air Handling Spaces; [10.1.1](#), [10.1.2](#), Section [10.7](#)

Adhesives Used to Secure Observation Windows; [6.2.1](#), [6.2.5](#), [6.2.6](#), [6.6.1.5](#), [6.6.1.6](#), Annex [B](#)

Add Definitions: Cabinet, Cutout Box, Junction Box, and Pull Box; [5.3.1](#), [5.4.1](#), [5.9.1](#), Annex [B](#)

Restrictions on Use of Sheet Metals Screws; [10.4.12](#), Annex [B](#)

Junction and Pull Boxes Less Than 100 Cubic Inches; [10.6.5](#), Sections [10.8](#), [10.9](#), Figure [14](#) and Figure [15](#)

Clarification of Annex [C](#) for Components

Clarification of Closure Opening for Polymeric Materials; [6.6.1.3](#)

New Annex [E](#) for Adhesives, Enclosures, Non-mechanical Means of Securement; Annex [B](#)

Requirements for Encapsulated Enclosures; Annex [F](#)

Exemption of Crush and Impact Tests if Using Safety or Wire Mesh Glass in Large Openings; [6.2.2](#), [6.2.3](#)

Text that has been changed in any manner or impacted by UL's electronic publishing system is marked with a vertical line in the margin.

The revised requirements are substantially in accordance with Proposal(s) on this subject dated July 12, 2019, February 14, 2020 and May 8, 2020.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form by any means, electronic, mechanical photocopying, recording, or otherwise without prior permission of UL.

UL provides this Standard "as is" without warranty of any kind, either expressed or implied, including but not limited to, the implied warranties of merchantability or fitness for any purpose.

In no event will UL be liable for any special, incidental, consequential, indirect or similar damages, including loss of profits, lost savings, loss of data, or any other damages arising out of the use of or the inability to use this Standard, even if UL or an authorized UL representative has been advised of the possibility of such damage. In no event shall UL's liability for any damage ever exceed the price paid for this Standard, regardless of the form of the claim.

Users of the electronic versions of UL's Standards for Safety agree to defend, indemnify, and hold UL harmless from and against any loss, expense, liability, damage, claim, or judgment (including reasonable

attorney's fees) resulting from any error or deviation introduced while purchaser is storing an electronic Standard on the purchaser's computer system.



Association of Standardization and Certification
NMX-J-235/1-ANCE-2015
Third Edition



CSA Group
CSA C22.2 No. 94.1-15
Second Edition



Underwriters Laboratories Inc.
UL 50
Thirteenth Edition

Enclosures for Electrical Equipment, Non-Environmental Considerations

October 16, 2015

(Title Page Reprinted: October 15, 2020)



ANSI/UL 50-2020

This is a preview. [Click here to purchase the full publication.](#)

Commitment for Amendments

This standard is issued jointly by the Association of Standardization and Certification (ANCE), Canadian Standards Association (operating as "CSA Group"), and Underwriters Laboratories Inc. (UL). Comments or proposals for revisions on any part of the standard may be submitted to ANCE, CSA Group, or UL at any time. Revisions to this standard will be made only after processing according to the standards development procedures of ANCE, CSA Group, and UL. CSA Group and UL will issue revisions to this standard by means of a new edition or revised or additional pages bearing their date of issue. ANCE will incorporate the same revisions into a new edition of the standard bearing the same date of issue as the CSA Group and UL pages.

Copyright © 2015 ANCE

Rights reserved in favor of ANCE.

ISBN 1-55397-629-0 © 2015 Canadian Standards Association

All rights reserved. No part of this publication may be reproduced in any form whatsoever without the prior permission of the publisher.

This standard is subject to review within five years from the date of publication, and 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: Standard designation (number); relevant clause, table, and/or figure number; wording of the proposed change; and rationale for the change.

To purchase CSA Group Standards and related publications, visit CSA Group's Online Store at store.csagroup.org or call toll-free 1-800-463-6727 or 416-747-4044.

Copyright © 2020 Underwriters Laboratories Inc.

UL's Standards for Safety are copyrighted by UL. Neither a printed nor electronic copy of a Standard should be altered in any way. All of UL's Standards and all copyrights, ownerships, and rights regarding those Standards shall remain the sole and exclusive property of UL.

This ANSI/UL Standard for Safety consists of the Thirteenth Edition including revisions through October 15, 2020. The most recent designation of ANSI/UL 50 as an American National Standard (ANSI) occurred on October 15, 2020. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page (front and back), or the Preface.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at <https://csds.ul.com>.

To purchase UL Standards, visit UL's Standards Sales Site at <http://www.shopulstandards.com/HowToOrder.aspx> or call toll-free 1-888-853-3503.

CONTENTS

Preface	5
1 Scope	7
2 Units of Measurement	7
3 Components	7
4 References	8
5 Definitions	8
6 Construction	11
6.1 General	11
6.2 Observation windows	12
6.3 Openings	13
6.4 Sheet metal enclosures	14
6.5 Cast metal enclosures	15
6.6 Polymeric materials	16
6.7 Covers and doors	18
6.8 Hinges	21
6.9 Latches and handles	22
6.10 Connections for wiring systems	23
6.11 Conduit hubs	24
6.12 Field-installed accessories/kits	24
7 Marking	25
7.1 Enclosures and accessories/kits	25
7.2 Cast metal enclosure	25
7.3 Cast-aluminum enclosure	25
7.4 Extension	25
7.5 Insulating material	25
7.6 Polymeric enclosure	25
7.7 Conduit hubs, closure plates, and other equipment	26
7.8 Ventilated Type 1, 2, 3R, or 3RX enclosures	26
8 Tests	26
8.1 Comparative deflection test (enclosure)	26
8.2 Deflection test (doors and covers)	26
8.3 Hinge strength test	26
8.4 Multiple knockouts test	27
8.5 Polymeric enclosures – bonding test	27
8.6 Polymeric enclosures – rigid metallic conduit connection test	27
8.7 Metallic enclosure threaded opening test	29
8.8 Metallic enclosure conduit hub test	29
8.9 Rod entry test	29
8.10 Crushing resistance test	29
8.11 Mold stress relief test	30
9 Cabinets and Cutout Boxes	30
9.1 General	30
9.2 Sheet metal cabinets	30
10 Junction and Pull Boxes	31
10.1 General	31
10.2 Covers and doors	31
10.3 Conduit openings	31
10.4 Equipment grounding	32
10.5 Removable sides	33
10.6 Marking details	33
10.7 Air handling spaces	33
10.8 Volume	34