



CAN/ULC-S540-13-R2018 (Reaffirmed 2018)

STANDARD FOR RESIDENTIAL FIRE AND LIFE SAFETY WARNING SYSTEMS: INSTALLATION, INSPECTION, TESTING AND MAINTENANCE



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CORPORATE HEADQUARTERS

Underwriters Laboratories of Canada
7 Underwriters Road
Toronto, Ontario M1R 3A9
Telephone: (416) 757-3611
Fax: (416) 757-9540

REGIONAL OFFICES

PACIFIC OFFICE

13775 Commerce Parkway, Suite 130
Richmond, British Columbia V6V 2V4
Telephone: (604) 214-9555
Fax: (604) 214-9550

EASTERN OFFICE

6505, Rte Transcanadienne, Suite 330
St-Laurent, Québec H4T 1S3
Telephone: (514) 363-5941
Fax: (514) 363-7014

For further information on ULC standards, please contact:

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171 Nepean Street, Suite 400
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Telephone: (613) 755-2729

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Standard for Residential Fire and Life Safety Warning Systems: Installation, Inspection, Testing and Maintenance, CAN/ULC-S540-13-R2018

Second Edition, Dated March 2013

Summary of Topics

The Second Edition of CAN/ULC-S540 is being issued to update the title page to reflect the reaffirmation of this Second Edition National Standard of Canada. No changes in requirements are involved.

The revised requirements are substantially in accordance with Proposal(s) on this subject dated January 4, 2018.

PLEASE NOTE THAT CERTAIN CODES MAY REFER TO A SUPERSEDED VERSION OF THIS STANDARD. IN THOSE INSTANCES, THE RELEVANT VERSIONS ARE AVAILABLE FOR PURCHASE.

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STANDARD FOR RESIDENTIAL FIRE AND LIFE SAFETY WARNING SYSTEMS: INSTALLATION, INSPECTION, TESTING AND MAINTENANCE

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TABLE OF CONTENTS

ULC STANDARDS COMMITTEE ON FIRE ALARM AND LIFE SAFETY EQUIPMENT AND SYSTEMS	I
ULC STANDARDS SUBCOMMITTEE ON INSTALLATION, INSPECTION AND TESTING, AND VERIFICATION OF FIRE ALARM SYSTEMS	II
ULC STANDARDS WORKING GROUP ON RESIDENTIAL FIRE AND LIFE SAFETY WARNING SYSTEMS	III
PREFACE	IV
1 SCOPE	1
2 REFERENCE PUBLICATIONS	1
3 GLOSSARY	3
4 REQUIREMENTS FOR RESIDENTIAL FIRE WARNING SYSTEMS	5
4.1 GENERAL	5
4.2 ELECTRICAL SUPERVISION	6
4.3 TROUBLE SIGNALS	7
4.4 POWER SUPPLY	7
4.4.1 General	7
4.4.2 Primary Power Supply	7
4.4.3 Emergency Power Supply - Batteries	7
4.5 WIRING	7
4.6 PLANS AND SPECIFICATIONS	8
5 INSTALLATION	9
5.1 CONTROL UNITS / PANEL	9
5.2 DISPLAY	9
5.3 FIELD DEVICES	9
5.4 FIRE DETECTORS	10
5.4.1 General	10
5.4.2 Mounting of Fire Detectors	10
5.5 SMOKE DETECTORS	10
5.5.1 General	10
5.5.2 Air Duct Type Smoke Detectors	11
5.6 HEAT DETECTORS	11
5.7 MANUAL STATIONS	12
5.8 CARBON MONOXIDE ALARMS	12
5.9 OTHER FIRE DETECTORS, INCLUDING INTEGRATED OR COMBINATION TYPE	12
5.10 ALARM INITIATING AND SUPERVISORY DEVICES FOR EXTINGUISHING SYSTEMS	12
5.11 AUDIBLE AND VISIBLE SIGNAL APPLIANCES	13
5.11.1 General	13
5.11.2 Audible Signal Appliances	13
5.11.3 Visible Signal Appliances	14

5.11.4 Combination Audible / Visible Signal Appliances	14
5.12 CONNECTION TO THE FIRE SIGNAL RECEIVING CENTRE	15
6 INSPECTION, TESTING AND MAINTENANCE	15
6.1 GENERAL	15
6.2 INSPECTION AND TESTING	15
6.3 MAINTENANCE	16
TABLES	17
FIGURES	28
APPENDIX A (INFORMATIVE) - EXPLANATORY NOTES	25
APPENDIX B (INFORMATIVE) - ENHANCEMENT OF FIRE SAFETY IN THE HOME	31
APPENDIX C (INFORMATIVE) – SUGGESTED WIRING AND INSTALLATION GUIDE	33
APPENDIX D (INFORMATIVE) – FIRE DETECTOR APPLICATIONS	34
APPENDIX E (INFORMATIVE) – SOUND LEVEL MEASUREMENTS	36

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NAME	AFFILIATION	REGION	CATEGORY
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T. Espejo (Project Manager)	ULC Standards	Canada	Non-Voting

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ULC STANDARDS SUBCOMMITTEE ON INSTALLATION, INSPECTION AND TESTING, AND VERIFICATION OF FIRE ALARM SYSTEMS

MEMBER

REPRESENTING

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K. Lefebvre	Canadian Association of Fire Chiefs, Canada
I. MacDonald	R. J. Bartlett Engineering Ltd., Canada
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M. Murray	Technical Safety BC, British Columbia
B. Paterson	Office of the Ontario Fire Marshal, Ontario
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T. Zhong	Underwriters Laboratories of Canada, Canada
T. Espejo (Standards Coordinator)	ULC Standards, Canada

ULC STANDARDS WORKING GROUP ON RESIDENTIAL FIRE AND LIFE SAFETY WARNING SYSTEMS

MEMBER

REPRESENTING

B. Paterson (Chair) Office of the Ontario Fire Marshal, Ontario
K. Baird Leber/Rubes Inc., Canada
R. Brown Fahrenheit 451 Fire & Security, Alberta
J. Chaudhry Underwriters Laboratories of Canada Inc., Canada
L. Durand Saskatoon Fire and Protective Services, Saskatchewan
T. Espejo ULC Standards, Canada
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R. Jagmohan Honeywell Security and Communications, Canada
K. Jess Alberta Municipal Affairs, Alberta
R. de Launay Human Resources and Skills Development Canada, Canada
W. Liang QPS Evaluation Services, Inc., Canada
B. Nagy System Sensor Canada, Canada
D. Nita Digital Security Controls Ltd., Canada
D. Rydall Town of The Blue Mountains, Ontario



STANDARD FOR RESIDENTIAL FIRE AND LIFE SAFETY WARNING SYSTEMS: INSTALLATION, INSPECTION, TESTING AND MAINTENANCE

PREFACE

This is the Second Edition of the Standard for Residential Fire and Life Safety Warning Systems: Installation, Inspection, Testing and Maintenance, CAN/ULC-S540.

This Edition of the Standard was developed by the ULC Standards Working Group on Residential Fire and Life Safety Warning Systems, reviewed by the ULC Standards Subcommittee on Installation, Inspection and Verification of Fire Alarm Systems, and was formally approved by the ULC Standards Committee on Fire Alarm and Life Safety Equipment and Systems.

The requirements in this Standard have been developed in consideration of the requirements of the National Building Code of Canada and the National Fire Code of Canada.

This Standard is intended to provide for the regulation of the installation of residential fire warning and life safety systems and is not intended to detract from the requirements of CAN/ULC-S524, Standard for the Installation of Fire Alarm Systems. It differs from the requirements of CAN/ULC-S553, Standard for the Installation of Smoke Alarms and CAN/ULC-S552, Standard for the Maintenance and Testing of Smoke Alarms, in that it is not intended to apply to the installation, maintenance and testing of single station or multiple station smoke alarms.

This Standard has been developed in compliance with the requirements of Standards Council of Canada (SCC) for accreditation of a Standards Development Organization.

Only metric SI units of measurement are used in this Standard. If a value for measurement is followed by a value in other units in parentheses, the second value may be approximate. The first stated value is the requirement.

Appendices A, B, C, D and E, identified as informative, are for informational purposes only.

In Canada, there are two official languages, English and French. All safety warnings must be in French and English. Attention is drawn to the possibility that some Canadian authorities may require additional markings and/or installation instructions to be in both official languages.

This Second Edition National Standard of Canada was based on the First Edition, and has now been reaffirmed.

Attention is drawn to the possibility that some of the elements of this Canadian standard may be the subject of patent rights. ULC Standards shall not be held responsible for identifying any or all such patent rights.

Requests for interpretation of this Standard should be sent to ULC Standards. The requests should be worded in such a manner as to permit a “yes” or “no” answer based on the literal text of the requirement concerned.

This CAN/ULC-S540 Standard is under continuous maintenance, whereby each revision is approved in compliance with the requirements of SCC for accreditation of a Standards Development Organization. In the event that no revisions are issued for a period of four years from the date of publication, action to revise, reaffirm, or withdraw the standard shall be initiated.

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

This Standard is intended to be used for conformity assessment.

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1 SCOPE

1.1 This Standard sets forth the minimum requirements for the design, installation, inspection, testing and maintenance of *residential fire warning systems* for use within *dwelling units* and *care occupancies* not requiring fire alarm systems conforming to CAN/ULC-S524, Installation of Fire Alarm Systems. (See Appendix A, Explanatory Notes, Clause A1.1).

NOTE: This Standard is intended to apply to both required and voluntary *residential fire warning system* installations. (See Appendix A, Explanatory Notes, Clause A1.1-Note)

1.2 This Standard specifies how such *residential fire warning systems* shall be installed to perform their intended function. (See Appendix A, Explanatory Notes, Clause A1.2 and Appendix B, Enhancement of Fire Safety in the Home.)

1.3 This Standard is not intended to specify the type and extent of *residential fire warning systems*.

1.4 The installation of fire detection and alarm devices not covered by the requirements in this Standard shall be in accordance with good engineering practice and the manufacturer's published installation instructions.

2 REFERENCE PUBLICATIONS

2.1 The documents shown below are referenced in the text of this Standard. Unless otherwise stated elsewhere in this Standard such reference shall be considered to indicate the edition and/or revisions of the document available at the date on which the Committee approved this ULC Standard. All undated references shall be interpreted as referring to the latest edition of that document.

Document Published by the Acoustical Society of America
35 Pinelawn Road, Suite 114E, Melville, NY 11747
Telephone: (631) 390-0215

- ANSI/S1.40–1984 (R2001), Specification for Acoustical Calibrators

Documents Published by CSA Group
178 Rexdale Boulevard, Toronto, Ontario M9W 1R3 Canada
Telephone: (416) 747-4000 or 1-800-463-6727
www.csagroup.org

- CAN/CSA-C6.19-01, Residential Carbon Monoxide Alarming Devices
- CSA C22.1-12, Canadian Electrical Code, Part I, Safety Standard for Electrical Installations

Documents Published by the International Organisation for Standardization (ISO) available from:

ISO Central Secretariat: International Organisation for Standardization (ISO)
BIBC II, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland
Telephone: +41 22 749 01 11; Fax: +41 22 733 34 30
www.iso.ch

Standards Council of Canada (SCC)

55 Metcalfe Street, Suite 600
Ottawa, ON, K1P 6L5
Telephone: (613) 238-3222; Fax: (613) 569-7808
www.scc.ca

- ISO 8201-1987 (R2002), Acoustics – Audible Emergency Evacuation Signal

Document published by National Fire Protection Association
1 Batterymarch Park, Quincy, MA 02169-7471 U.S.A.
Telephone: (617) 770-3000
www.nfpa.org

- NFPA 13D-2010 (Amd4-2012), Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes

Documents Published by the National Research Council Canada (NRC)
1200 Montreal Road, Bldg. M-58, Ottawa, ON K1A 0R6 Canada
Telephone: (613) 993-9101 or 1-877-672-2672
www.nrc-cnrc.gc.ca

- National Building Code of Canada 2010
- National Fire Code of Canada 2010

Documents Published by ULC Standards (prior to May, 2010, identified as Underwriters Laboratories of Canada)
171 Nepean Street, Suite 400, Ottawa, ON K2P 0B4 Canada
Telephone: (613) 755-2729
www.ulc.ca/ulcstandards

- CAN/ULC-S525, Standard for Audible Signal Devices for Fire Alarm Systems, Including Accessories;
- CAN/ULC-S526, Standard for Visible Signal Devices for Fire Alarm Systems, Including Accessories
- CAN/ULC-S528, Standard for Manual Stations for Fire Alarm Systems, Including Accessories
- CAN/ULC-S529, Standard for Smoke Detectors for Fire Alarm Systems
- CAN/ULC-S530, Standard for Heat Actuated Fire Detectors for Fire Alarm Systems
- CAN/ULC-S531, Standard for Smoke Alarms
- CAN/ULC-S533, Standard for Egress Door Securing and Releasing Devices
- ULC-S545, Standard for Residential Fire Warning System Control Units
- CAN/ULC-S548, Standard for Alarm Initiating and Supervisory Devices for Water Type Extinguishing Systems
- CAN/ULC-S561, Standard for Installation and Services for Fire Signal Receiving Centres and Systems

3 GLOSSARY

Note: Terms used in this Standard that are in *italic* print are defined as follows:

AIR DUCT TYPE SMOKE DETECTOR(S) — A *fire detector* designed to activate when the concentration of airborne combustion products in an air duct exceeds a predetermined level.

AMBIENT NOISE LEVEL — The background sound or noise in an area or environment, being composite of sounds from many sources, including *building* HVAC (heating, ventilating, air conditioning). *Ambient noise level* measurements should be recorded when temporary sound sources are absent or are at their lowest level.

ANCILLARY CIRCUIT(S) — A *circuit* which connects a *residential fire warning control unit* and/or transponder to *ancillary devices (residential application)*, located within the protected premises.

ANCILLARY DEVICE(S) (RESIDENTIAL APPLICATION) — A device which has a life safety application, and is activated by the *residential fire warning system*, but is not part of the *residential fire warning system* (may include other warning devices, i.e., bed shakers, etc.).

AUDIBLE SIGNAL APPLIANCE(S) (RESIDENTIAL APPLICATION) — A device to indicate, by means of sound output, the actuation of the *residential fire warning system*.

AUTHORITY HAVING JURISDICTION — The governmental body responsible for the enforcement of any part of this Standard or the official or agency designated by that body to exercise such a function.

BUILDING(S) — Any structure used or intended for supporting or sheltering any use or occupancy.

CARBON MONOXIDE ALARM — A device consisting of an assembly of electrical and mechanical components including a sensor or sensors, an audible alarm, and an optional visual alarm, constructed to detect the presence of carbon monoxide gas. It is powered either from an external source by means of splice leads or a cord and plug arrangement, or from an integral battery or batteries. It may have terminals for connection to a remote *audible signal appliance (residential application)* or accessory and it may also contain an integral transmitter for energizing a remote *audible signal appliance (residential application)*.

CARE - Means the provision of services other than treatment by or through *care* facility management to residents who require these services because of cognitive, physical or behavioural limitations.

CARE OCCUPANCY / OCCUPANCIES - The occupancy or use of a *building* or part thereof where *care* is provided to residents. (See Appendix A, Clause A3)

CIRCUIT(S) — Conductors connected directly to *field devices* which provide a *residential fire warning control unit* and/or *transponder* with *field device* status information, alarm signalling or other functions.

COMPATIBLE — The correct electrical, electronic or mechanical interaction between a series of system components that depend on individual unique characteristics that are connected together to meet the requirements of this Standard (e.g. *residential fire warning control unit* and/or *transponder* and *field devices*).

DETECTOR SPACING — A horizontally measured dimension relating to the allowable coverage of detectors.

DWELLING UNIT(S) — A *suite* operated as a housekeeping unit, used or intended to be used as a domicile by one or more persons and usually containing cooking, eating, living, sleeping and sanitary facilities.