

**STANDARD FOR INSTALLATION AND SERVICES FOR FIRE
SIGNAL RECEIVING CENTRES AND SYSTEMS**



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This Standard is dedicated to the memory of **G. Richard Morris**, Chair, 1989–2011 and member, 1976–2012, of the ULC Standards Committee on Fire Alarm and Life Safety Equipment and Systems.

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STANDARD FOR INSTALLATION AND SERVICES FOR FIRE SIGNAL RECEIVING CENTRES AND SYSTEMS

PREFACE

This is the Second Edition of CAN/ULC-S561-13, Standard for Installation and Services for Fire Signal Receiving Centres and Systems. This Second Edition of the Standard was developed by the ULC Standards Working Group on Installation and Services for Fire Signal Receiving Centres and Systems, reviewed by the ULC Standards Subcommittee on Installation, Inspection and Verification of Fire Alarm Systems, and was formally approved by the ULC Committee on Fire Alarm and Life Safety Equipment and Systems.

The First Edition of CAN/ULC-S561 was based on ULC/ORD-C693-1994, Requirements of Central Station Fire Protective Signalling Systems and Services. This Second Edition of the Standard has been extensively revised based on Amendment 1 and Amendment 2 of the First Edition and to harmonize with requirements contained in CAN/ULC-S301, Signal Receiving Centre Burglar Alarm Systems and Operations; CAN/ULC-S304, Signal Receiving Centre and Premise Burglar Alarm Control Units; and CAN/ULC-S559, Standard for Equipment for Fire Signal Receiving Centres and Systems; and to reflect requirements in other *fire alarm system* standards.

This Standard recognizes that a fire *signal receiving centre* system and service may have additional features or functions differing from those detailed in these requirements which may be accepted, together with the requirements of this Standard, provided that they enhance the life safety of the occupants of the protected premises as well as the fire *signal receiving centre*.

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 and D 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 fact that some Canadian authorities may require markings and/or installation instructions to be in both official languages, except as may be stated elsewhere in this Standard.

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 Standard is intended to be used for conformity assessment.

1 SCOPE

1.1 This Standard covers the:

- A Construction, operation, installation, *inspection* and *tests* applicable to fire *signal receiving centres* for fire protective signalling services utilizing fire *signal receiving centre* facilities and *satellite centres* and *bridging centres*;
- B Construction and operation of a *proprietary fire signal receiving centre*; and
- C Installation, *inspection* and *tests* applicable to a fire *signal transmitting unit* and its *field device* inputs at the protected premises.

1.2 The requirements of this Standard do not apply to the *test*, *inspection*, maintenance, installation and service of the building *fire alarm system* at the protected premises, as required in CAN/ULC-S524, Standard for the Installation of Fire Alarm Systems; CAN/ULC-S536, Standard for the Inspection and Testing of Fire Alarm Systems; and CAN/ULC-S537, Standard for the Verification of Fire Alarm Systems.

1.3 Equipment used in fire *signal receiving centre* systems is intended to be installed in accordance with the applicable sections of the following:

- A CAN/ULC-S524, Standard for Installation of Fire Alarm Systems;
- B CSA C22.1, Canadian Electrical Code, Part I, Safety Standard for Electrical Installations or where applicable, a Provincial Electrical Code;
- C NFPA-13, Standard for the Installation of Sprinkler Systems; and
- D NFPA-20, Standard for the Installation of Stationary Pumps for Fire Protection.

1.4 Existing premises installations shall be deemed compliant with this Standard provided that all of the following are met:

- A They were in compliance with the First Edition CAN/ULC-S561, Installation and Services for Fire Signal Receiving centres and Systems, inclusive of Amendments 1 and 2;
- B Relocation of the equipment within the protected premises shall be permitted provided that the equipment is in accordance with the applicable sections of CAN/ULC-S527-M87, Standard for Control Units for Fire Alarm Systems, and the re-installation of the equipment is in compliance with this standard; and
- C The equipment meets the requirements of Clauses 12.1.3 and 12.1.4.

1.5 Fire *signal receiving centres* required to relocate shall be permitted to move and re-install receiving equipment required to service customers utilizing protected premises equipment in accordance with the applicable sections of CAN/ULC-S527-M87, Standard for Control Units for Fire Alarm Systems.

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.

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- CSA C22.1-12, Canadian Electrical Code, Part I, Safety Standard for Electrical Installations
- CSA C22.2 No. 141-10, Emergency Lighting Equipment
- CAN/CSA-C282-09, Emergency Electrical Power Supply for Buildings

Document published by the National Fire Protection Association
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- NFPA 13-2010, Standard for the Installation of Sprinkler Systems
- NFPA 20-2010, Standard for the Installation of Stationary Pumps for Fire Protection

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

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- ULC/ORD-C693, Central Station Fire Protective Signalling Systems and Services
- CAN/ULC-S301, Standard for Signal Receiving Centre Burglar Alarm Systems and Operations
- CAN/ULC-S304, Standard for Signal Receiving Centre and Premise Burglar Alarm Control Units
- ULC-S332, Standard for Burglary Resistant Glazing Material
- CAN/ULC-S524, Standard for Installation of Fire Alarm Systems
- CAN/ULC-S527, Standard for Control Units for Fire Alarm Systems
- CAN/ULC-S536, Standard for Inspection and Testing of Fire Alarm Systems
- CAN/ULC-S537, Standard for Verification of Fire Alarm Systems

- CAN/ULC-S548, Standard for Devices and Accessories for Water Type Extinguishing Systems
- CAN/ULC-S559, Standard for Equipment for Fire Signal Receiving Centres and Systems

3 GLOSSARY

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

ACCESSIBLE OPENING — An opening that is:

- A 5500 mm, or less, above either the ground or the roof of an adjoining building;
- B 4300 mm, or less, from directly or diagonally opposite windows, fire escapes, or roofs; or
- C 900 mm, or less, from openings, fire escapes, etc., either in or projecting from the same adjacent wall, leading to other premises.

(See Appendix B, Accessible and Inaccessible Openings.)

ACTIVE COMMUNICATION — A method of communication in which the integrity of the *communications channel* is continuously monitored so as to identify to the fire *signal receiving centre* any fault or failure that could affect signal transmission and reception.

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.

BRIDGING CENTRE(S) — A normally unattended physical location where *communications channels* from multiple protected premises are connected together for transmission on a *communications channel* to subsequent bridging centres, or *satellite centres* without being processed or modified in any way.

CENTRE OPERATIONS AREA — The area of the fire *signal receiving centre*, which is used for the receipt, and acting upon fire alarm and *supervisory signals*.

CLEARING HOUSE — A third party communication service provider facility where signals from protected premises are received and processed prior to being forwarded to a fire *signal receiving centre*.

COMMUNICATIONS CHANNEL(S) — A facility or service extending from a protected premises for the purpose of transmitting alarm, trouble and *supervisory signals* from a protected premises to a fire *signal receiving centre*.

COMMUNICATION SYSTEM — A *communications channel* or channels and associated equipment utilized to transmit signals to a fire *signal receiving centre*.

DATE-TIME STAMP — A means whereby an event, together with the date and time of its occurrence, is permanently recorded either by a mechanical date-time device on paper or in a digital storage format.

ELECTRICAL SUPERVISION — A means whereby a fault condition, which would interfere with the operation of a circuit, connected to a *signal transmitting unit*, is detected.

EMERGENCY ELECTRICAL POWER SUPPLY — A power supply or supplies under the control of the fire *signal receiving centre* operating company sufficient for continuous fire *signal receiving centre* operation and protected premises equipment in the event of a failure of the *normal electrical power supply*.

FIELD DEVICE(S) — A device located remotely from, but connected electrically to, a *fire alarm control unit* or a *signal transmitting unit* to provide status change information.

FIRE ALARM CONTROL UNIT — A unit, which provides the power supply, control and logic processing for the *fire alarm system*.

FIRE ALARM INITIATING DEVICE(S) — A *field device* that provides an electrical signal to indicate a fire condition.

FIRE ALARM SYSTEM — A combination of devices consisting of at least a *control unit*, a *manual station* and an *audible signal device*, designed to warn the building occupants of an emergency fire condition.

GROUND FAULT — A circuit impedance to ground sufficient to prevent normal operation.

INSPECT — A visual examination to determine that the device or system will apparently perform in accordance with its intended function.

METALLIC CONDUIT — As used herein, refers to flexible metallic conduit, rigid conduit or electrical metallic conduit.

NORMAL ELECTRICAL POWER SUPPLY — A source of power for the fire *signal receiving centre* from the building electrical service, which may be provided by an electrical utility company.

OPEN CIRCUIT FAULT — A circuit impedance increase sufficient to prevent normal operation.

PASSIVE COMMUNICATION — A method of communications that is not continuously monitored to detect failures or faults but rather incorporates dual or multiple *communication systems*.

PREMISES VERIFICATION — A procedure utilized in an attempt to determine that an emergency condition does not exist at the protected premises by means of a telephone call to the protected premises.

PROPRIETARY FIRE SIGNAL RECEIVING CENTRE — A facility, operated by the *owner* of the protected premises in which services encompassed in this Standard are monitored at all times by *trained personnel*.

PUBLIC FIRE SERVICE COMMUNICATION CENTRE — The location from which a public municipal fire service is dispatched.

SATELLITE CENTRE(S) — A remote fire *signal receiving centre*, which is connected to a fire *signal receiving centre* or another *satellite centre* by means of a *communication system*.

SECURITY VESTIBULE / VESTIBULE — A walled enclosure with at least two doors arranged such that one door must be closed and locked before a second door can be opened and is used to limit and control access to the *centre operations area*.

SHORT CIRCUIT FAULT — A circuit impedance decrease sufficient to prevent normal operation.

SIGNAL RECEIVING CENTRE — A facility that receives alarm signals and at which *trained personnel* and service persons are on duty at all times.

SIGNAL RECEIVING CENTRE SERVICE — A service in which the operations of electrical protection circuits and devices are signalled automatically to, recorded in, maintained, and supervised, from a fire *signal receiving centre*.

SIGNAL TRANSMITTING UNIT(S) — A communication device that transmits signals from the protected premises to the fire *signal receiving centre*.

SMOKE DETECTOR(S) — A fire detector designed to operate when the concentration of airborne combustion products exceeds a pre-determined level.

SUBSCRIBER / OWNER — The recipient of contractual signal receiving service(s). In case of multiple non-contiguous properties having single ownership, the term refers to each protected premises or its local management.

SUPERVISORY DEVICE(S) — A device to signal a condition that could prevent proper operation of a fire protection system.

SUPERVISORY SIGNAL — A signal indicating the need of action in connection with the supervision of watchmen, sprinkler and other extinguishing systems or equipment, or with the maintenance features of other protective systems.

NOTE: This definition is applied for the purposes of this Standard, which is different from its application on the protected premises.

TAMPER DEVICE(S) — A device used to detect the removal or opening of a protective cover.

TANDEM — One behind the next.

TEST(S) — Operation of a device or system to ensure that it will perform in accordance with its intended operation or function.

TRAINED PERSONNEL — A person who has received suitable formal training and/or sufficient experience.

TRANSMITTED / RECEIVED SIGNAL — The signal transmitted from the protected premises and received by the fire *signal receiving centre* equipment that could be of the following types: fire alarm, trouble or supervisory.

WATERFLOW (DETECTING) DEVICE(S) — A device used to detect the flow of water through a water based fire protection system, that will provide a corresponding signal output.

4 BUILDING REQUIREMENTS

4.1 GENERAL

4.1.1 A fire *signal receiving centre* shall not be located within a building classified as a Group F, Division 1 Major Occupancy, as defined by the National Building Code of Canada. (Refer to Appendix A, Explanatory Notes, Clause A-4.1.1)

4.1.2 The *centre operations area* shall be located in a building area which is separated from the remainder of the building by a fire separation having a fire resistance rating of a minimum of 2 h.

4.1.3 The electrical distribution panel, standby power panels or supplies and the telephone interconnecting panel shall be located in the *centre operations area* or a locked electrical / utility room. *Communications channel* receiving equipment shall be located within the *centre operations area* unless functional requirements or technical limitations require other mounting installations.

4.1.4 Where two or more operators are maintained on duty at all times, the washroom and kitchen facilities may be located outside the *centre operations area*.

4.1.5 Where a fire *signal receiving centre* is located below grade level, means shall be provided to protect against flooding.

NOTE: It is recommended that a fire *signal receiving centre* be located on grade level or not more than one level below or above grade.

4.2 PROTECTION AGAINST ENTRY

4.2.1 The *centre operations area* shall have a *security vestibule* to protect against entry by unauthorized persons.

4.2.2 Where an access control token is used for the *security vestibule* doors, a means of personal identification shall be used in addition to the access control token to gain access to the inner door.

4.2.3 The *security vestibule* shall have at least two doors, one outer door leading into the *security vestibule* and one inner door leading to the *centre operations area*. Doors shall be kept locked at all times, except during entry to, and exit from, the *centre operations area*, and interlocked so that two or more doors cannot be opened simultaneously during normal entry.

4.2.4 The interlocked doors shall be provided with means to allow them to be opened from the interior side of the *centre operations area* in an emergency situation.

4.2.5 An intercom and a closed circuit television (CCTV) camera shall be located on the exterior side of the *centre operations area* to provide for the positive identification of any person seeking admittance to the *centre operations area*.

4.2.6 *Trained personnel* shall be provided with means to command a view of any person within the *security vestibule*, regardless of where the person is standing in the *security vestibule* area.

4.2.7 The fire *signal receiving centre* shall be arranged such that persons outside cannot command a view of the interior of the *centre operations area*.

4.2.8 *Accessible openings* in the *centre operations area* except those required for fire department access, and *trained personnel* room shall be covered with iron bars, woven wire-mesh guards, or equipped with wired glass, glass blocks or recognized burglary resistant glazing material in accordance with ULC-S332, Standard for Burglary Resistant Glazing Material. (See Appendix B, Accessible and Inaccessible Openings.)

4.2.9 A fire *signal receiving centre* shall be connected to another fire *signal receiving centre* that is manned on a 24 h basis for calling for help in the event of an emergency, a fire alarm or the operator becoming disabled.

4.2.10 Automatic timing and transmission equipment shall be provided to transmit an emergency signal to the location described in Clause 4.2.9 if the centre operator fails to reset the equipment once every 30 min.

4.2.11 Mechanical locks for each *vestibule* door shall be used as an emergency override.

5 SIGNAL RECEIVING EQUIPMENT

5.1 Signal receiving equipment shall comply with the construction and performance requirements of the following:

- A This Standard;
- B CAN/ULC-S527-M87, Standard for Control Units for Fire Alarm Systems, provided that the equipment and/or device remain in continuous service and meets the requirements of Clauses 12.1.3 and 12.1.4 of this Standard; or
- C CAN/ULC-S559, Standard for Equipment for Fire Signal Receiving Centres and Systems, .

5.2 Signal receiving equipment shall be installed in accordance with this Standard and the applicable sections of CAN/ULC-S524, Standard for Installation of Fire Alarm Systems, for control units.

5.3 Equipment and field wiring shall be installed in accordance with the applicable Electrical Safety Code, and in its absence, CSA C22.1, Canadian Electrical Code, Part I, Safety Standard for Electrical Installations. Installation wire shall have current-carrying capacity and insulation adequate for the service to which it may be subjected.

5.4 Wires and cables to protective equipment shall be connected through distribution panels with marked terminals to facilitate the transfer from defective alarm receiving units to reserve units when necessary.

5.5 Ample reserve units, spare equipment and parts shall be kept at each fire *signal receiving centre*, and arranged so that they can be placed in service within 30 min.

5.6 Installation wiring connections shall be made to terminals and shall be mechanically fastened and secured.

6 CENTRE EQUIPMENT

6.1 FIRE PROTECTION

6.1.1 Each fire *signal receiving centre* shall be equipped with at least two portable fire extinguishers rated a minimum of 2-A, 10-BC. Additional extinguishers shall be provided so that the travel distance from any point on the floor of the fire *signal receiving centre* to an extinguisher does not exceed 9 m. Additional extinguishers shall be located near cable or electronic service rooms.

6.1.2 Extinguishers shall be installed and maintained in accordance with applicable building and/or fire codes, regulations and manufacturer's recommendations.

6.1.3 Signal receiving equipment shall be provided with watershed/guards permanently installed if there is possibility of flooding or water damage from sprinklers or water pipes located above the equipment, or alternatively protected where needed, by non-combustible hoods or shields so arranged as to not interfere with the sprinkler protection.

6.1.4 Where a building sprinkler system is installed in accordance with NFPA 13, Standard for the Installation of Sprinkler Systems, in effect at the time the building was constructed, and there is no building *fire alarm system*, the building sprinkler system shall be supervised in accordance with CAN/ULC-S561, Standard for Installation and Services for Fire Signal Receiving Centres and Systems.

6.1.5 Where there is no building *fire alarm system* or building sprinkler system provided, the following devices shall be provided as a local early fire warning system:

- A Fire detectors throughout the *centre operations area* and in all rooms having electronic equipment; and
- B Audible signal devices installed so as to be clearly audible throughout the fire *signal receiving centre*.

NOTE: Such provided devices shall not be considered a *fire alarm system*.

6.1.6 Any alarm or trouble signal from these devices shall be transmitted to another fire *signal receiving centre* as required in Clause 4.2.9.

6.2 ALARM SIGNAL NOTIFICATION

6.2.1 A means of multi-line communications shall be provided for signal notification. An operator shall have access to an outgoing line at all times.

6.2.2 Except where redundant *communication systems* are provided, operators shall have access to alternate methods of communication at all times in the event of a primary communications failure.

6.3 CLOCKS

6.3.1 The fire *signal receiving centre* shall be equipped with at least one battery type clock and at least one electrical clock as well as one or more *date-time stamps*, which shall include the year. *Date-time stamps* are not required when redundant automation systems are used.

6.3.2 Clocks and *date-time stamps* shall be checked daily against the National Research Council of Canada Institute for National Measurement Standards (NRC-INMS) official time signal, or equivalent, and adjusted as necessary. Records shall be kept.

6.4 GAS DETECTION

6.4.1 Each fire *signal receiving centre* shall be equipped with gas detection device(s) as required by the applicable Building and/or Fire Code. Any alarm or trouble signal from these devices shall be transmitted to another fire *signal receiving centre* as required in Clause 4.2.9.

6.5 SIGNAL RECEIVING CENTRE CONTINGENCY PLAN

6.5.1 There shall be a written plan of action for the restoration of service by a fire *signal receiving centre*. The plan shall include the following:

- A Foreseeable disasters: Possible natural and man-made disaster threats, national and local, that could affect the fire *signal receiving centre*;
- B Emergency names list: A notification list that includes the names and the telephone numbers at work, home, vacation home, and the like, and home addresses of management, technical, operators, and other relevant personnel;
- C Equipment vendor contacts: The 24 h telephone and fax numbers of the vendors, technical assistance providers, and maintenance contractors of the equipment used in the fire *signal receiving centre*;
- D Municipal agency contacts: Emergency telephone numbers for local municipal agencies, such as the fire and police departments, to be called for help;