



Changes to ULC Fire Alarm Standards

Louis-Philippe (Phil) Gagnon
May 30, 2023

CAN/ULC-S524 – CAN/ULC- S537 – CAN/ULC-S536

Significant Alignment of the 3 Fire Alarm Standards

Standards were developed together for consistency

- National Building Code 2020 to reference the 2019 editions of S524, S537
- National Fire Code 2020 to reference the 2019 edition of CAN/ULC-S536

Here is how it is supposed to work:

- I. how a fire alarm system is supposed to be installed (S524)*
- II. how to confirm it actually is done correctly (S537)*
- III. how to regularly test it to confirm it still works properly (S536)*

CAN/ULC-S524-2019

- I. Updated and simplified drawings;
- II. Use of wireless (short-range radio frequency) devices;
- III. Circuit fault tolerance requirements and the installation of fault isolators;
- IV. Data communication link style N (DCLN) circuits and ethernet wiring;
- V. Allowing a FAS to also function as a mass notification system;
- VI. Uninterruptible power supplies (UPS); Standby power
- VII. The use of smoke detectors in lieu of smoke alarms in suites of residential occupancy;
- VIII. Requirements for carbon monoxide or gas and vapour detectors connected to the fire alarm system; and
- IX. Use of carbon monoxide detectors in lieu of carbon monoxide alarms.

Fault Isolators

Since the 2001 edition of S524, more clauses were added in future editions to describe different types of fault isolators:

10.2 FAULT ISOLATORS...

10.2.1 Field Device Data Fault Isolators...

10.2.2 Network Data Fault Isolators...

10.2.3 Audio Buss Fault Isolators...

10.2.4 Field Device Power Buss Fault Isolators...

10.2.5 Equipment Power Buss Fault Isolators...

10.2.6 Suite Fault Isolators...

Fault Isolators

- S524- 01 up until 2019 edition recognized fire alarm zone as an area up to 2000 sq. metres
- 2019 to define zones as National Building Code zones to avoid confusion .
- Any fault on one NBC zone will not affect another zone from operating.

- 2019 Edition
- fault tolerance requirements encompass ALL CIRCUITS leaving a fire alarm control panel. It doesn't matter if the circuit is an addressable loop or conventional zone or power riser, etc. The common requirement which applies to **all circuits** is that a fault on that circuit cannot affect other zones.

CAN/ULC-S524-2019

18 Circuit Fault Tolerance

NOTE: Refer to Annex A (Informative) Explanatory Materials, A.18, Circuit Fault Tolerance.

18.1 Except as permitted in 18.3, where any type of fire alarm circuit serves more than one National Building Code of Canada required fire alarm zone, a single fault (open circuit fault, short circuit fault or ground fault) shall not prevent the normal operation of input or output field devices in more than one National Building Code of Canada required fire alarm zone.

33.4 Circuit Fault Tolerance Test Sheets

NOTE: Refer to [6.4.4](#), [6.4.5](#), [6.4.6](#), [23.4\(c\)](#).

Building name: _____			Date (M/D/Y): _____			Page ____ of ____
Circuit fault test location	Type of fault (Record response time or indicate N/A.)			Isolation results	Non-faulted circuit location	
Identify device location where <i>circuit</i> fault was introduced and description of affected NBC fire alarm zone or area	Short	Open	Ground	Identify NBC fire alarm zone or area location where devices failed due to fault condition	Identify individual device tested for operation located in non faulted NBC fire alarm zone or area	Pass/Fail

Resounding Feature

- Conventional vs Addressable Devices- previous editions of the standards did not align.
- Conventional – activate one device on a zone and signals are silenced- no other alarm will sound on that zone. Resounding will only happen if the smoke travels to another zone
- Addressable- activate one device on a zone and the signals are silenced – another device on that zone can be activated and an alarm will sound.

Resounding Feature – S524 - 2019

The new edition of the standard confirms that re-sounding of signals is based on the spread of fire to **new fire zones** – just as annunciation of fire conditions is based on the status of fire zones, rather than individual detectors.

8.1.4 One active (“active” means “addressable”) field device in each zone shall be operated to confirm appropriate output circuit operation. Other active field devices within the zone may be tested with the output circuits inhibited. A printout of the input to output software correlation report shall be provided as part of the verification documentation.

NOTE: When testing the system to confirm proper resound operation, a single fire alarm device is to be operated, then the fire alarm control unit is to have its signals silenced, and then another fire alarm device is to be operated within the same zone to confirm that alarm signal resound DOES NOT occur. [See 8.3.1(o)].



CAN/ULC-S537 – CAN/ULC-S536

Forms and Documentation

CAN/ULC- S536 and S537 Forms

- In past editions of S537 & S536, the fire alarm system testing report was always a “suggested format” as it was found in the Appendix section of the Standard. Companies were permitted to deviate from the report format because it was “just an Appendix” suggestion and was not contained in the main body of the Standard.
- That non-standard type of Inspection Report is **no longer acceptable**.
- Test Report format has been embedded **within the body of the Standard** instead of just the Appendix. In result, every test report must reflect the format of the version shown in the 2019 standards – or the report will not comply.
- **CAN/ULC-S537 and CAN/ULC-S536 Forms are Mandatory- All sections are required**

Report Forms - S537 and S536

For Annual Inspections per S536-2019, the same requirement applies:

4.10 The inspection and test records required by this Standard and this Section, shall follow a tabular format as shown. Tests or inspections may not be reworded or revised in order or format. Companies may recreate these required reports for their use, which may contain additions such as a corporate logo as an example.

4.11 The forms in Section 20, Annual Fire Alarm System Test and Inspection Records, shall be utilized to create the Annual Inspection and Test Records.

4.12 The forms in the Section for Monthly Fire Alarm System Test and Inspection Record, shall be utilized to create the Monthly Inspection and Test Records.

Deficiencies vs Recommendations

- Need for clarification when documenting deficiencies versus recommendations.
- CAN/ULC-S537 and CAN/ULC- S536
- To help technicians properly identify fire alarm system issues and concerns, the new version of S537 includes more detailed explanations of how to document a **Deficiency** vs a **Recommendation** or **Remark**. The term “**Remark**” has been **deleted** and replaced with the “**Comments**”.

Deficiencies

28.2 Deficiencies

28.2.1 For the purposes of this Standard, deficiency refers to a device or function that:

- a) Does not operate as intended;
- b) Is installed in a location which is not readily accessible for service, testing, maintenance purposes due to safety considerations;
- c) Is installed in an environment which is not compatible with the documented operating conditions of the specific device; or
- d) Is installed in an orientation or location not specifically indicated by the Installation Instructions of the specific device.

NOTE: System and device installation locations may differ from those described in CAN/ULC-S524 if a performance based design and alternate solution documents were submitted and approved by the *authority having jurisdiction* for the system under test.

To be completed by primary individual who conducted the Fire Alarm System Verification – page 2

Item #	Device type	Device location	Deficiency	CAN/ULC-S537 Standard reference clause	Date corrected (M/D/Y)	Work order or reference no.	Company which corrected deficiency	Technician name & certificate no.

I understand that all Deficiencies noted in the table above have been corrected:

Building Owner / Owner's Representative Name: _____

Building Owner / Owner's Representative Signature: _____

Date of Signature: _____.

NOTE: Only the above table needs to be updated on correction of deficiencies. The entire report does not have to be reissued.

Recommendations

28.3 Recommendations

28.3.1 For the purposes of this standard, Recommendation is a proposal or suggestion as to the best course of action for improvement of system components or system operation / installation, including safety considerations, such as:

- a) Identifying antiquated or obsolete equipment;
- b) Availability of newer cost effective technology; or
- c) Alternate methods of detection.

Recommendations – page 3

33.3 Subsequent Alarm (Alarm Resound) Control Panel Test Sheet

NOTE: Refer to [8.3.1\(o\)](#).

Initial fire alarm input zone test location	Field device label	Subsequent alarm activation test (following <i>alarm signal</i> silence)	Field device label	Alarm signals remain silent		Note: If signals re-activated following signal silence - in result of fire alarm device located in same NBC zone, deficiency note required.
				Yes	No	
Identify NBC zone designation where initial fire alarm condition was activated	Identify fire alarm device used to initiate fire alarm signals activation	Identify NBC zone designation where subsequent fire alarm device was activated following <i>alarm signal</i> silence	Identify subsequent fire alarm device activated in same NBC zone following signal silence.			Record system deficiency in Section 28.2 , Deficiencies
First Floor Main Lobby -Zone 1	1st FL Lobby - Manual Station	First Floor Main Lobby- Zone 1	1st FL Lobby Smoke Detector	<input type="checkbox"/>		
		<input type="checkbox"/>	<input type="checkbox"/>			
		<input type="checkbox"/>	<input type="checkbox"/>			
		<input type="checkbox"/>	<input type="checkbox"/>			
		<input type="checkbox"/>	<input type="checkbox"/>			
		<input type="checkbox"/>	<input type="checkbox"/>			
		<input type="checkbox"/>	<input type="checkbox"/>			
		<input type="checkbox"/>	<input type="checkbox"/>			
		<input type="checkbox"/>	<input type="checkbox"/>			
		<input type="checkbox"/>	<input type="checkbox"/>			
NOTE : Where devices are added to an existing system which was designed and approved with a different sequence of re-sounding operation and the operation of the new devices conform to the original sequence of operation, this may not be considered a <i>deficiency</i> . If system modification is executed in accordance with Section 27 , System Modifications, a <i>recommendation</i> can be made to improve an existing system in the appropriate section.						

32.8 Emergency Power Supply Verification

APRIL 5, 2021

CAN/ULC-S537:2019-REV1

59

<i>Emergency power supply location:</i>				
<i>Emergency power supply identification:</i>				
<i>Emergency power supply provided by:</i>				
Batteries <input type="checkbox"/>	Generator <input type="checkbox"/>	UPS <input type="checkbox"/>	Combination <input type="checkbox"/>	
NBC required full load alarm operation time	2 h <input type="checkbox"/>	1 h <input type="checkbox"/>	30 min <input type="checkbox"/>	5 min <input type="checkbox"/>
Installed batteries Qty.: _____ V dc : _____ A·h : _____				
<i>Emergency power supply location:</i>				

BATTERY TESTS (Reference: 10.4)				
A	Correct battery type as recommended by manufacturer.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
B	Correct battery rating as determined by battery calculations based on full system load.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
C	Battery voltage with <i>main power supply</i> 'ON'.	Voltage: _____ V dc Current: _____ A		
D	Battery voltage and current with <i>main power supply</i> 'OFF' and <i>fire alarm system</i> in supervisory condition.	Voltage: _____ V dc Current: _____ A		
E	Battery voltage and current with <i>main power supply</i> 'OFF' and <i>fire alarm system</i> in full load alarm condition.	Voltage: _____ V dc Current: _____ A		
F	Free of physical damage.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
G	Terminals cleaned and lubricated.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
H	Terminals clamped tightly.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>

Emergency Power Supply Verification Cont...

I	Correct electrolyte level.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
J	Specific gravity of electrolyte is within manufacturer's specifications.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
K	Free of Electrolyte leakage.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
L	Adequately ventilated.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
M	Battery manufacturer's date code.	Date: _____		
N	Disconnection of battery causes <i>trouble signal</i> at the fire alarm control unit.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
O	Indicate type of battery tests performed:			
	i) Required supervisory load for 24 h followed by the required full load operation; or	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
	ii) Silent accelerated test. (Refer to Annex C1, New Silent Accelerated Test Method); or	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
	iii) Battery manufacturer's method. (Refer to Annex C1), Specify: _____	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
P	Record calculated battery capacity (Refer to Annex C2.1(c)).	_____ A·h		
Q	Record battery terminal voltage after completion of tests.	_____ V dc		
R	Confirm battery voltage not less than 85% of its rating after the tests.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
S	Battery Charging Current	_____ A		
EMERGENCY POWER GENERATOR TESTS (Reference: 10.5)				
A	Generator provides power to the AC circuit serving the fire alarm system.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
B	Trouble condition at the emergency generator shall result in an audible common <i>trouble signal</i> and a visual indication at the required annunciator.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>

Emergency Power Supply Verification Cont...

C	Generator Run condition at the emergency generator shall result in an audible common <i>trouble signal</i> and a visual indication at the required <i>annunciator</i> .	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
<i>Emergency power supply identification:</i>				
D	Testing coordinated with emergency power generator tests.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
E	Low Fuel Level trouble results in an audible trouble signal and a visual indication at the required annunciator.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Generator fueled by: <input type="checkbox"/> Diesel <input type="checkbox"/> Natural Gas <input type="checkbox"/> Other:				
Fuel level	% of full capacity:	_____ %	Estimat- ed run time:	Hours: _____
Low Fuel Level Set-point: _____ <input type="checkbox"/> % of full capacity <input type="checkbox"/> Gallons <input type="checkbox"/> Litres				



Fire alarm system certification — Why ?

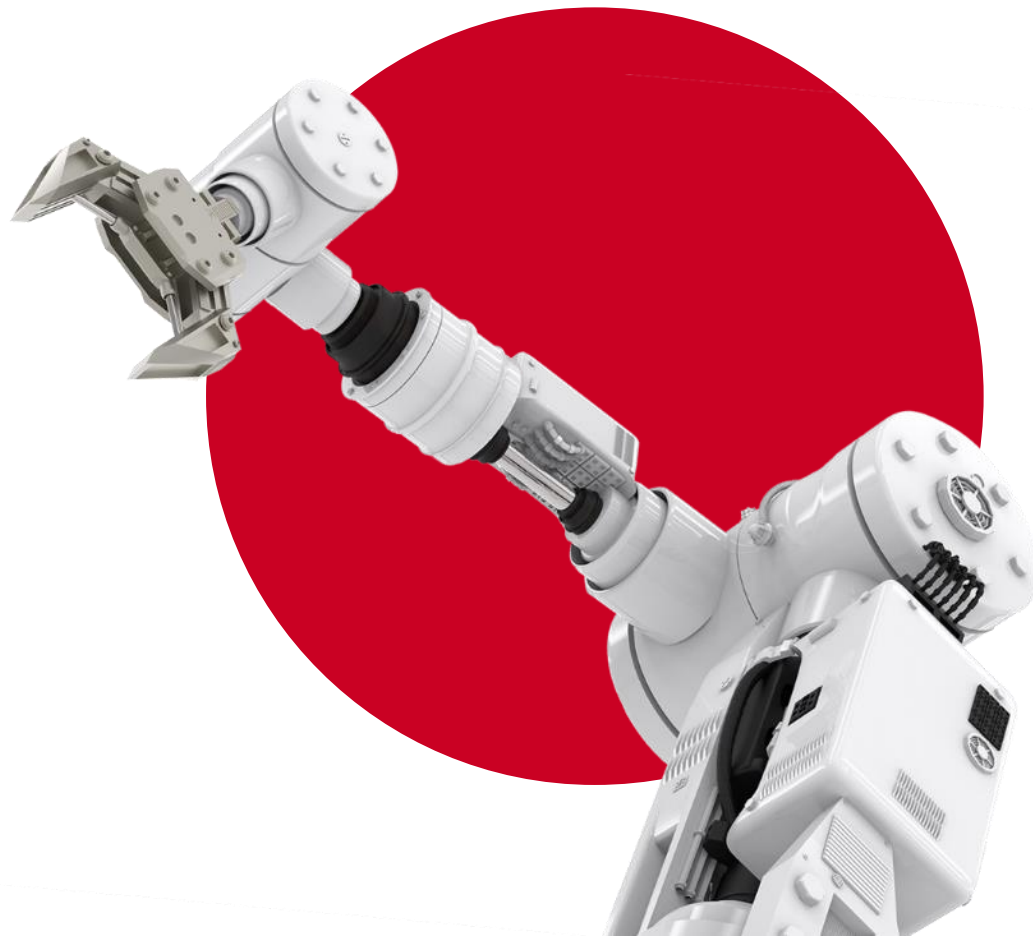


We are now UL Solutions

New brand. Same mission.

Evolving safety science, exploring the world's pressing challenges and continuing to empower our customers to innovate with confidence.

Safety. Science. Transformation.™



Agenda

- Code references to fire alarm systems
- Process of implementation of a fire alarm system
- Most common and critical items of nonconformance
- Fire alarm system in relation to CAN/ULC-S1001
- Certification: What does it mean and why is it so critical?
- What are we exposed to when there is no certification?

Code references



NBC

3.2.4.5. Installation and Verification of Fire Alarm Systems

- 1) Fire alarm systems, including the voice communication capability where provided, shall be installed in conformance with CAN/ULC-S 524, the Standard for Installation of Fire Alarm Systems.
- 2) Fire alarm systems shall be verified in conformance with CAN/ULC-S 537, the Standard for Verification of Fire Alarm Systems, to ensure that they are operating satisfactorily.



NFC

6.3.1.2. Inspection and Testing

Fire alarm systems shall be inspected and tested in conformance with CAN/ULC-S 536, the Standard for Inspection and Testing of Fire Alarm Systems.

Process of implementing a fire alarm system

- Designed by a professional designer in accordance with applicable building code requirements
- Installed by a qualified installer in accordance with design, Canadian Electrical Code, manufacturer's installation instructions and CAN/ULC-S 524, the Standard for Installation of Fire Alarm Systems
- Verified by fire alarm technician, electrician or engineer

CAN/ULC-S 524:2014-AMD1

STANDARD FOR INSTALLATION OF FIRE ALARM SYSTEMS

1 SCOPE

1.1 This Standard describes the requirements for the design and installation of a fire alarm system with or without voice communication capability, as defined in Section 3, Glossary.

4.7 PLANS AND SPECIFICATIONS

4.7.1 The plans and specifications for the fire alarm system shall include a complete and detailed description of the following:

- a) Sequence of operation
- b) Installation instructions
- c) Description of each type of field device
- d) Details of input to programmed output functions for programmed systems
- e) Connection to a fire signal receiving centre, if required by the National Building Code of Canada

NATIONAL
STANDARD
OF CANADA

CAN/ULC-S524:2014-AMD1
(Including Amendment 1)

STANDARD FOR INSTALLATION OF FIRE ALARM SYSTEMS

Prepared and Published by:



Approved by:



4.7.2 The plans of the building shall show the fire alarm zoning, device address and the location of each field device of the fire alarm system, including fault isolators, ancillary devices and annunciators, or display and control centres.

4.7.3 In addition to the plans required by Clause 4.7.2, a separate wiring block diagram (i.e., schematic and riser diagram) shall be provided showing the interconnection of field devices, control units, transponders, annunciators, ancillary devices, and power supplies external to control units or transponders.



4.7.4 Documentation for the fire alarm system shall include the following description of the fire alarm system:

- a) Instructions for resetting the system and silencing alarm signals
- b) Instructions for silencing the trouble signal and action to be taken when the trouble signal sounds
- c) Description of the function of each operating control and indicator on the fire alarm unit
- d) Description of the area of fire zone protected by each alarm detection circuit (this may be in the form of a list or plan drawing)
- e) Description of the sequence of operation
- f) Description of ancillary devices controlled by the fire alarm system
- g) Equipment operating instructions or manuals
- h) Equipment maintenance or testing instructions
- i) Optical Time Domain Reflectometer (OTDR) report for fibre optical circuits
- j) Name and contact information of the installing and servicing company of the fire alarm system

4.7.5 Documentation for a fire alarm system that provides logical control of a smoke control system shall:

- a) Include a sequence of operation of the smoke control system
- b) Include a building diagram that clearly indicates the type and location of all smoke control equipment (fans, dampers, etc.)
- c) Identify the building areas that the smoke control system serves as either
 - i) A part of the fire smoke control system (FSCS), or
 - ii) A separate drawing with instructions to mount adjacent to the FSCS

NOTE: Refer to the National Building Code of Canada for the smoke control system controls required to be provided.

4.7.6 Documentation for a fire alarm system that provides logical control of a smoke venting system shall include a sequence of operation and identify building areas and equipment (fans, dampers, etc.) where building exhaust systems serve as a means for smoke venting.

4.7.7 The documentation required by Clauses 4.7.1 to 4.7.6 shall be maintained on site.

CAN/ULC-S 537-13

Verified by fire alarm technician, electrician or engineer

APPENDIX A (INFORMATIVE) — QUALIFIED PERSONNEL

Any person who performs the verification of a fire alarm system should be familiar with this Standard and have received suitable formal training or sufficient experience acceptable to the authority having jurisdiction.

Standards bulletin 2006-03

Interpretation: Fire alarm system verification — number of organizations/companies (parties) required



June 29, 2006

STANDARDS BULLETIN 2006-03

INTERPRETATION: FIRE ALARM SYSTEM VERIFICATION — NUMBER OF ORGANIZATIONS/COMPANIES (PARTIES) REQUIRED

CAN/ULC-S537-04, Verification of Fire Alarm Systems

The following is an interpretation by the ULC Subcommittee on Installation, Inspection and Testing, and Verification of Fire Alarm Systems, on CAN/ULC-S537-04 (Verification of Fire Alarm Systems) with regards to the verification of fire alarm systems.

This interpretation is being issued to provide guidance and clarification for the authority having jurisdiction (AHJ) and the fire alarm industry in general.

The request for interpretation originates from the Preface of CAN/ULC-S537-04, which states:

“...The requirements of this Standard contemplates that the verification procedure described herein will be conducted by an organization other than the installing contractor and designer, and that the verification will be carried out by qualified personnel in the employ of an organization acceptable to the authority having jurisdiction. Refer to Appendix A, Qualified Personnel...”

Specifically, this relates to the portion of the Preface statement that recommends that the verification procedure should be conducted by an organization other than the installing contractor and designer.

It is important to note that the normative (mandatory) part of CAN/ULC-S537-04 (and all ULC Standards) starts from the Scope (Section 1) up to and including all Figures. Appendices may be either normative or informative and are stated as such.

All ULC standards contain a Preface, which provides informative (non-mandatory) elements about the contents of the standard. In the case of CAN/ULC-S537-04, the Preface paragraph quoted above would be considered “administrative”. Administrative requirements are not permitted in the body of a “technical” Standard. The AHJ may enforce some or all portions of the Preface or any informative appendix. Consequently, it is conceivable that the AHJ may, at their option, enforce the portion of the Preface in CAN/ULC-S537-04 that relates to verification of fire alarm systems.

1 of 3



This Standards Bulletin is being issued in order to provide guidance to the AHJ such that the enforcement of the intent of this Preface statement is consistent with the Subcommittee interpretation (recommended approach). The approach takes into consideration that there are recognized provincial and territorial qualification requirements regarding those who design, install, verify, test and maintain fire alarm systems.

Other than the Preface, there is no other requirement in CAN/ULC-S537-04 that states that an organization other than the installing contractor and designer shall conduct the fire alarm system verification. Since this is not addressed in the mandatory portions of CAN/ULC-S537-04, the following is the Subcommittee's recommended approach with regards to fire alarm system verifications, which is based on best practice and what the Subcommittee had intended:

- A fire alarm system is designed by, and/or reviewed and signed by a professional engineer (i.e. Party 1). Refer to Appendix C1 (Fire Alarm System Verification Report), of the Standard. The designer is independent from the installing contractor and fire alarm company.
- A licensed electrician who is preferably also a fire alarm technician installs the fire alarm system (i.e. Party 2). Refer to Appendix C1 (Fire Alarm System Verification Report), of the Standard. The installing contractor is independent from the designer and the fire alarm company.
- A fire alarm technician who has received factory training on the specific fire alarm system conducts the verification (i.e. Party 3). Refer to Appendix C1 (Fire Alarm System Verification Report), of the Standard. The fire alarm technician is independent from the designer and the installing contractor.
- All verification forms required by CAN/ULC-S537-04 are to be fully completed.

Refer to the accompanying Table that illustrates possible fire alarm system verification scenarios as examples of those that comply and those that do not comply with the Preface statement.

The above process is outlined as Scenario #1 in the Table. In this scenario, the intent of Preface is met and there would be no need to have an additional organization to conduct the verification.

Scenarios #2 and #3 in the Table outline processes where an additional organization (Party 4) would be required to conduct the verification based on the intent of the Preface.

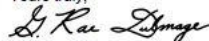
Scenario #4 in the Table would not meet the intent of the Preface.

Should you require any additional information, please contact Mahendra (Mike) Prasad at 416-757-5250 Ext. 61242 or email: mahendra.prasad@ca.ul.com



This Standard can be ordered through our website at www.ulc.ca and selecting ULC Online Store. Next, enter "S537" in Search box and click Search.

Yours truly,



G. Rae Dulmage
Director, Standards Department

FIRE ALARM SYSTEM VERIFICATION PROCESS EXAMPLE SCENARIOS	(Party 1) FIRE ALARM SYSTEM DESIGN AND SIGN-OFF (i.e. by a professional engineer)	(Party 2) FIRE ALARM SYSTEM INSTALLATION AND SIGN-OFF (i.e. by a licensed electrician)	(Party 3) FIRE ALARM SYSTEM VERIFICATION* (i.e. by a fire alarm company technician)	IS A 4 TH PARTY REQUIRED FOR THE FIRE ALARM SYSTEM VERIFICATION** (i.e. a knowledgeable, recognized company, or person)	DOES THIS SCENARIO MEET THE INTENT OF THE PREFACE OF CAN/ULC-S537?
Scenario #1	By an Independent Designer***	By an Electrical Contractor	By Fire Alarm Company No. 1 Technician	NOT REQUIRED	YES
Scenario #2	By an Independent Designer***	By Fire Alarm Company No. 1	By Fire Alarm Company No. 1 Technician	REQUIRED	YES
Scenario #3	By Fire Alarm Company No. 1	By an Electrical Contractor	By Fire Alarm Company No. 1 Technician	REQUIRED	YES
Scenario #4	By Fire Alarm Company No. 1	By Fire Alarm Company No. 1	By Fire Alarm Company No. 1 Technician	THIS SCENARIO DOES NOT MEET THE INTENT OF THE PREFACE OF CAN/ULC-S537	NO
* This verification can be done by the same fire alarm company that provided the equipment and programming.					
**4 th Party: This party is independent from Party 1 and Party 2.					
***Independent designer: Designer that is independent from the electrical contractor and the fire alarm company.					



CAN/ULC-S 537-13

STANDARD FOR VERIFICATION OF FIRE ALARM SYSTEMS

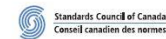
1 SCOPE

1.1 This Standard prescribes inspection and test procedures for the purpose of verifying that the fire alarm system is installed in conformance with the design and CAN/ULC-S 524, the Standard for Installation of Fire Alarm Systems, and performs all of its intended functions as designed.



CAN/ULC-S537-13-R2018
(Reaffirmed 2018)

STANDARD FOR VERIFICATION OF FIRE ALARM SYSTEMS



4.2 DOCUMENTATION

4.2.1 The verification inspections and tests required by this Standard shall be documented in a report similar to that shown in Appendix C, Fire Alarm System Verification Records.

4.2.3 A description of the fire alarm system as installed, including the sequence of operation and operating instructions, **shall be available on site and documented**. (Refer to Appendix C2, Documentation, for an example of a documentation form.)

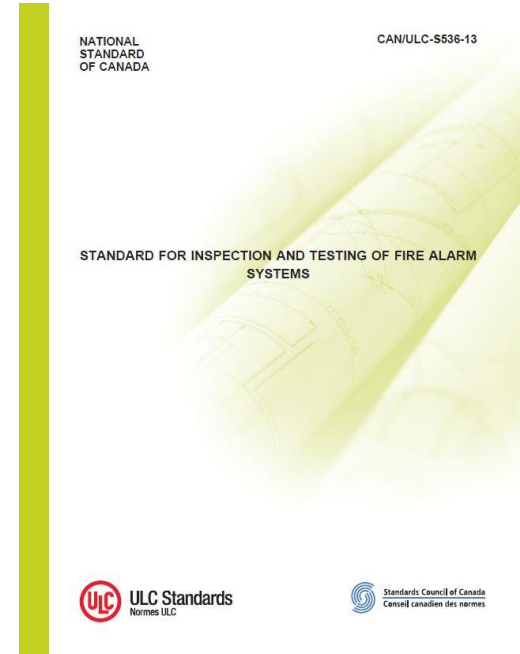
4.2.8 A copy of the verification report shall be given to the owner or the owner's representative for the building and be **kept available on site**.

CAN/ULC-S 536-13

THE STANDARD FOR INSPECTION AND TESTING OF FIRE ALARM SYSTEMS

APPENDIX A (INFORMATIVE) — QUALIFIED PERSONNEL

Any person who performs the annual test and inspection of a fire alarm system should be knowledgeable about this Standard and have received suitable formal training or sufficient experience acceptable to the authority having jurisdiction.



1. SCOPE

1.1 This Standard provides requirements for the inspection and testing of fire alarm systems and specifies the devices and functions to be inspected, tested and documented for the periodic inspection and test.

4.8 A description of the system, as installed at the time of the annual inspection and test, including the sequence of operation of the system, shall be available on site and documented as detailed in Appendix E, Description of Fire Alarm System for Inspection and Test Procedures.

5.1 DAILY

5.2 MONTHLY

6 YEARLY

APPENDIX E (INFORMATIVE) — DESCRIPTION OF FIRE ALARM SYSTEM FOR INSPECTION AND TEST PROCEDURES

E1 Manufacturer name and model number

E2 System operation (zoned, non-coded, single- or two-stage) — supervised circuits

E3 Location of control unit or transponders, display and control centres, annunciators, and remote trouble signal units

E4 Description of degraded mode capability operation, if applicable

E5 Sequence of operation, including but not limited to the following briefly described:

- a) Alert signal and alarm signal sequence (i.e., second stage on fire floor, floor above and floor below, and first stage throughout remainder)
- b) Procedure for resetting alarm system, silencing alarm signals and acknowledging trouble conditions
- c) Identifying function of each operable switch or push button on the control unit or transponder
- d) Smoke control system or fan shutdown connections present
- e) Elevator homing activated by fire alarm
- f) Magnetic door lock release activated by fire alarm
- g) Door holder release activated by fire alarm
- h) Extinguishing system activated by fire alarm
- i) Transmission of signals to remote monitoring connection

E6 General description of location of devices connected to *control unit* or *transponder*, i.e.:

- a) Sprinkler flow and valve supervisory switches on a floor-by-floor basis
- b) *Manual pull stations* at exits
- c) *Smoke detectors* in stairwells and corridors
- d) *Heat detectors* at the top of elevator shafts and in service and storage rooms
- e) Duct type *smoke detectors* in air handling systems
- f) Ancillary systems (kitchen extinguishing, tenant computer, etc.)
- g) Bells, horns or speakers throughout
- h) Emergency telephones at exits
- i) *Visible signal devices* in public areas

E7 Voice communication equipment and operation

E8 Emergency telephone equipment and operation

E9 *Emergency power supply* (i.e., batteries in one central location or distributed in *control units* or *transponders*, an emergency generator, or a combination of both) — Description of battery type, charging procedure and maintenance

E10 System battery load calculations

Most common and critical items of nonconformance

- On-site fire alarm system description document missing
- On-site fire alarm system verification report(s) missing
- On-site fire alarm system periodic inspection report(s) missing
- Equipment not installed per manufacturer's installation instructions
- Inspection reports incorrectly and inaccurately filled out



CAN/ULC-S1001-11-REV2
(Including Revision 2)

STANDARD FOR INTEGRATED SYSTEMS TESTING OF
FIRE PROTECTION AND LIFE SAFETY SYSTEMS



Fire alarm system in relation to CAN/ULC-S 1001

STANDARD FOR INTEGRATED SYSTEMS TESTING OF FIRE PROTECTION AND LIFE SAFETY SYSTEMS

1 SCOPE

1.1 This Standard prescribes the methodology for verifying and documenting that all *interconnections* between systems provided for fire protection and life safety functions are installed and operating in conformance with their *design criteria*. Refer to Appendix [A1.1](#).

5.2 INTEGRATED SYSTEMS TESTING PLANNING PHASE

5.2.1 During this phase of a project, the *design professional(s)* shall provide documentation detailing each *interconnection* between *fire protection and life safety systems* to the *integrated testing coordinator*. Such documentation shall include but not be limited to the following, as applicable:

- a) *Building* floor plan(s)
- b) *Fire protection and life safety system* design documentation (drawings and specifications), including:
 - i. Sequencing descriptions (showing coordination between mechanical and electrical systems)
 - ii. Mechanical and electrical riser diagrams
- c) Manufacturer's operating and *testing* instructions, as requested by the *integrated testing coordinator*
- d) Documentation of any *alternative solutions* and/or deviations from the requirements of codes and Standards

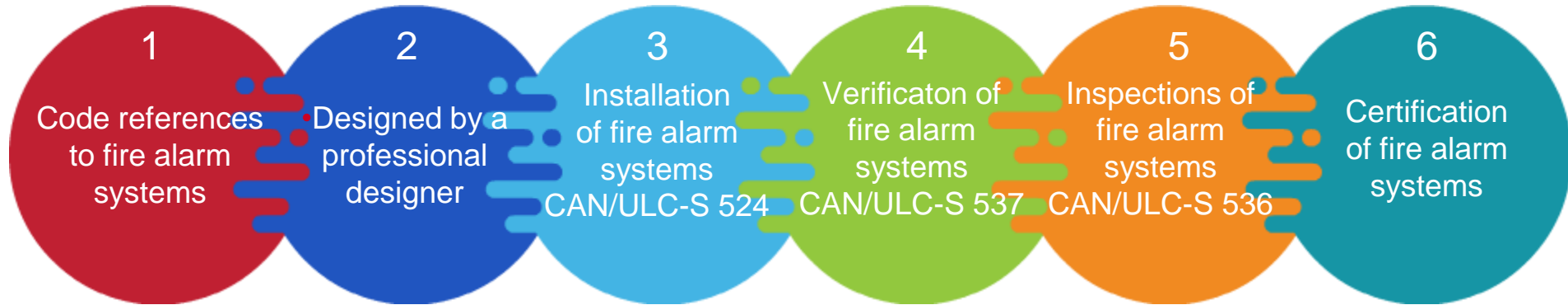
Certification: What does it mean and why is it so critical?

- Certification is the confirmation by an independent certification organization that a product or service meets a requirement. Certification of a product, process or system entails physical examination, testing as specified in the appropriate standards, site examination and follow-up audits.
- This procedure leads to the issuing of a formal assurance or declaration by means of a certificate that the system is in full conformity with specified provisions.

Benefits of a certificate

- Certificates are utilized by code authorities, government bodies, the insurance industry and other stakeholders to verify appropriate levels of protection, performance and ongoing maintenance of the relevant fire alarm, security or integrated fire protection and life safety systems.
- A certificate on a property indicates compliance with the applicable standard.
- Third-party auditing of companies results in unbiased review for all participants and provides a level of confidence.
- Audits also serve as education and training opportunities as applicable standards are updated from time to time.

Ideal scenario



When there is no certification,
what are we exposed to ?

Missing visual AC
power indicator



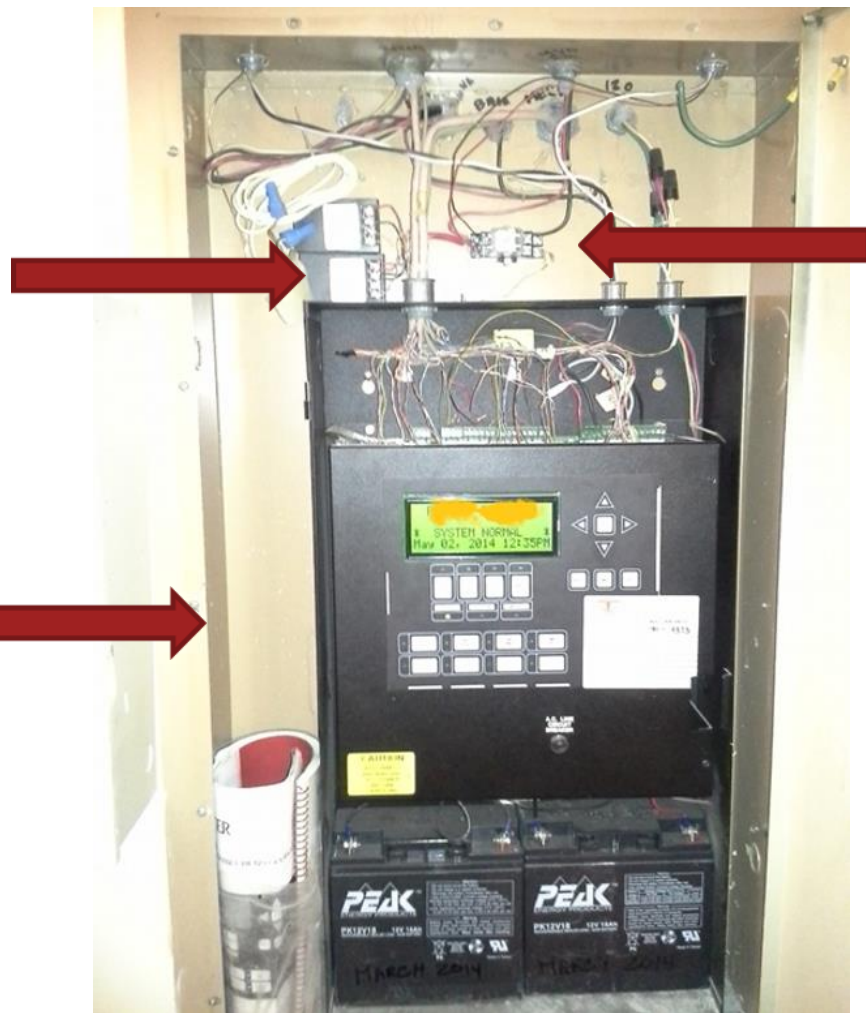
Inappropriate
cabinet



Modules not installed in accordance with manufacturer's instructions

Noncompliant fire-monitoring connections

Inappropriate cabinet





Incorrect fire-
monitoring
connections

Additional foreign transformer



Additional foreign relay





Annunciator not listed to be installed outside

AC power indicator is off

Inappropriate cabinet

Modules not installed
in accordance with
manufacturer's
instructions



Inappropriate cabinet

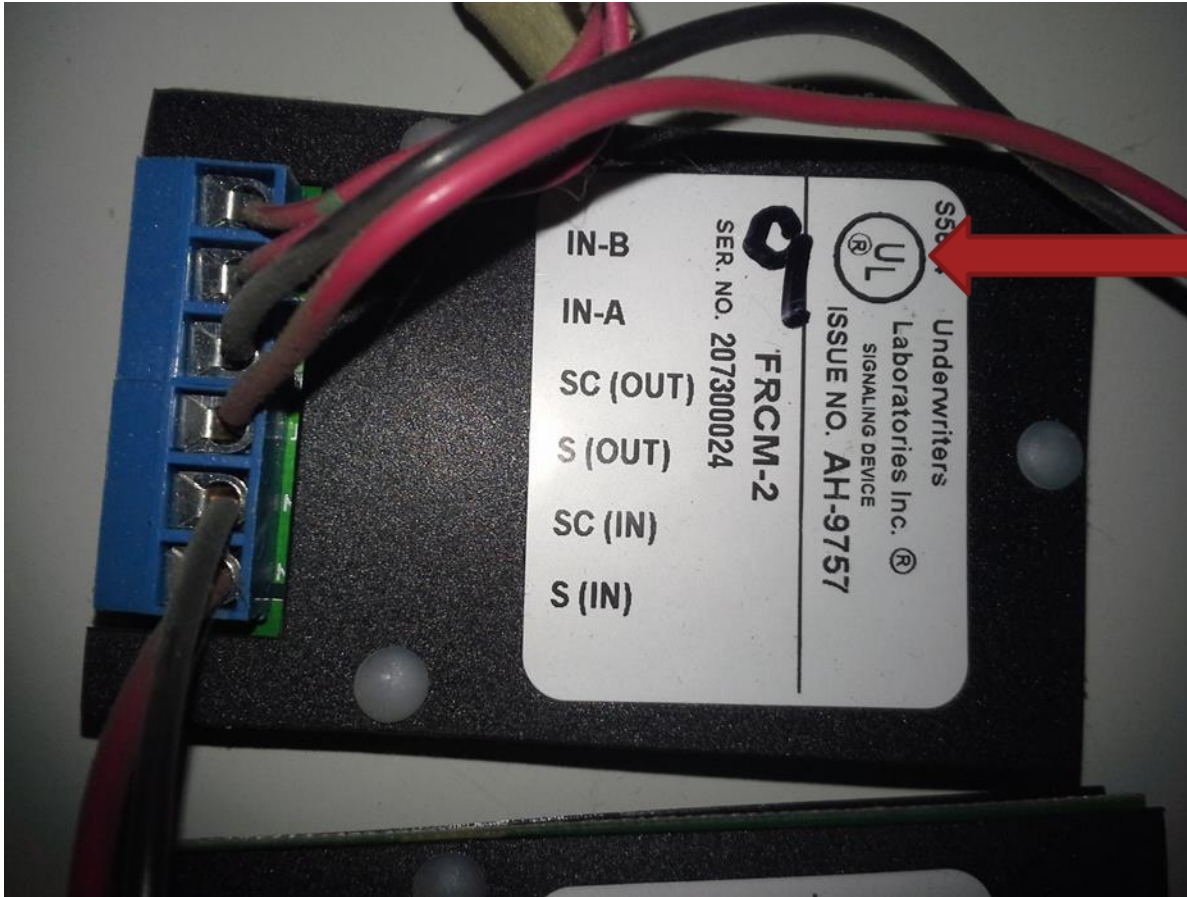


Additional foreign relays



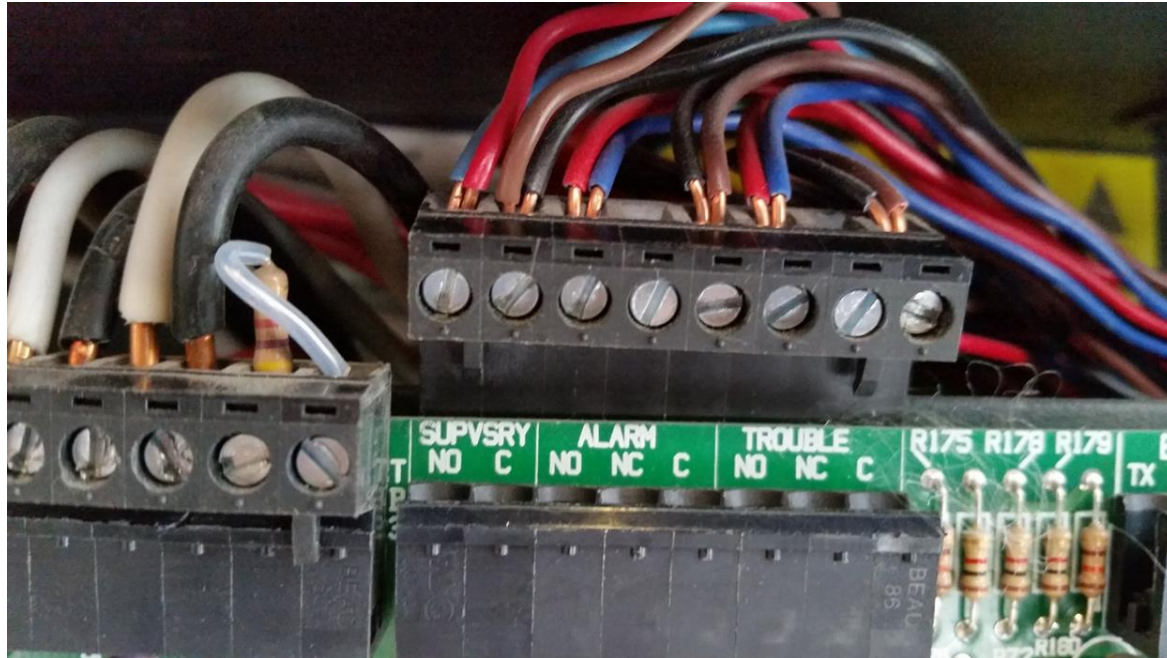
Modules not installed in accordance with manufacturer's instructions





Not listed for use in Canada

Non-supervised monitoring connections



Manual station in alarm
with no mounting box





Incorrect zone identification

Inappropriate cabinet

No AC power indicator

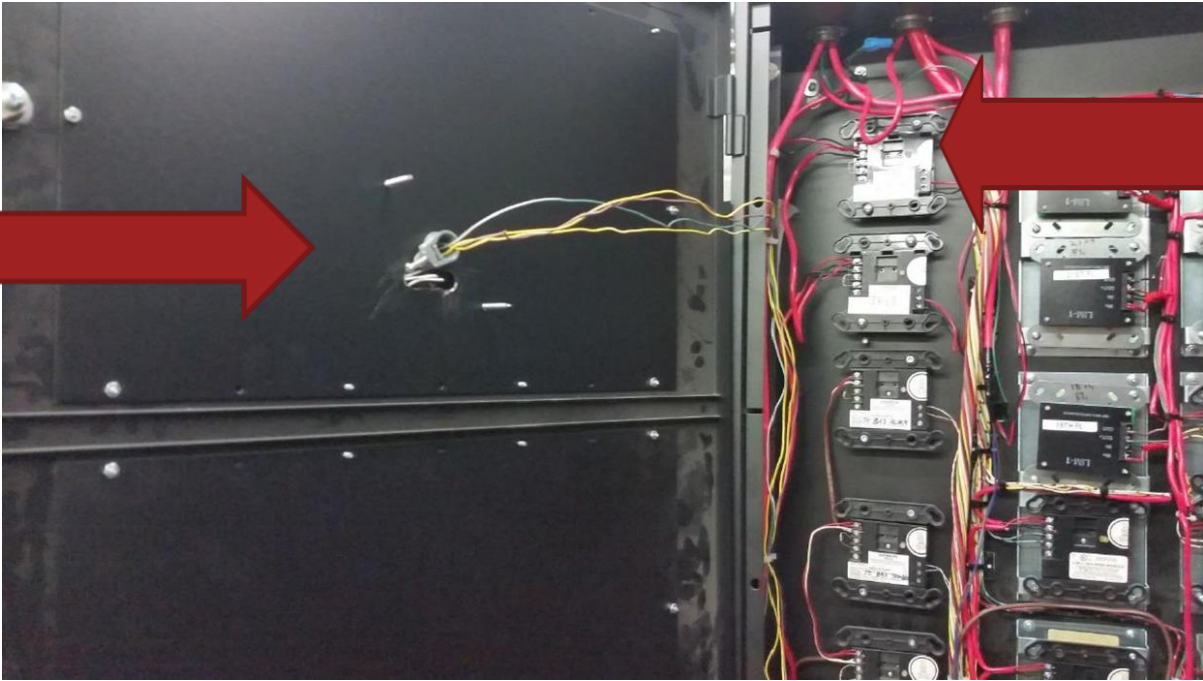


Missing lock



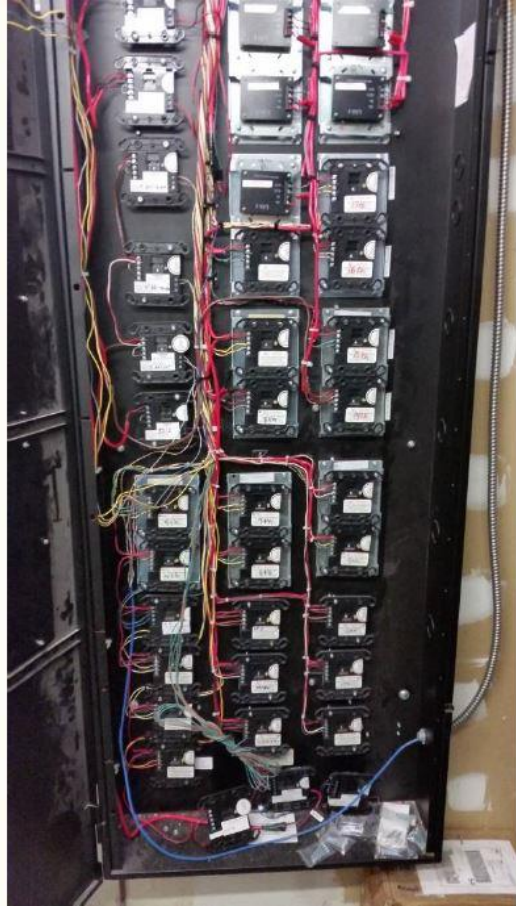
Incorrectly installed
module

Two foreign
transformers



Not in accordance with CEC and manufacturer's installation instructions

Modules not installed in accordance with manufacturer's installation instructions



Keypad mounted on signal transmitter control unit cabinet

Signal transmitter installed in fire alarm cabinet



CA38A phone line jack

Cellular transmitter








C1. ANNUAL FIRE ALARM SYSTEM TEST AND INSPECTION RECORDS

(Reference: Clause 4.7., 6.1.1, 6.1.2)

YES = Tested Correctly

No = Did not test correctly

N/A = Not Applicable
(Function or Feature not provided
on this Fire Alarm System)

Building Name:						Date:			
Address:									
System Manufacturer:		Model Number:							
A	System provides single-stage operation.	YES	✓	NO		N/A			
B	System provides two-stage operation.	YES		NO		N/A	✓		
C	The entire Fire Alarm System has been tested and inspected in accordance with CAN/ULC-S536, Inspection of Fire Alarm Systems	YES	✓	NO		N/A			
D	Fire alarm system documentation is on site and includes a description of the system.	YES		NO	✓	N/A			
E	The fire alarm system is fully functional	YES	✓	NO		N/A			
F	The fire alarm system has deficiencies noted on the pages attached.	YES		NO	✓	N/A			
G	Comments: 								
H	A Copy of this report has been given to: _____								
	Who is the owner or owner's representative for this building.						YES	✓	NO

This is to certify that the information contained in this Fire alarm System Inspection Report is correct and complete.

Printed Name of Primary or Supervising
Technician Conducting the Inspection_____
Company Name_____
Telephone Number_____
Signature of Primary or Supervising
Technician Conducting the Inspection_____
Identification Number of Primary or Supervising
Technician Conducting the Inspection_____
Date_____
Printed Name of Technician Conducting
the Inspection_____
Company Name_____
Telephone Number_____
Signature of Technician Conducting
the Inspection_____
Identification Number of Technician
Conducting the Inspection_____
Date

C2 - CONTROL UNIT OR TRANSPONDER TEST RECORD

C2.1 CONTROL UNIT OR TRANSPONDER TEST

(Reference: Clauses 6.1.3, 6.2.2.1)

Control Unit or transponder location:	Main Entrance
Control Unit or transponder identification:	

A	Power "On" Visual Indicator.	YES	✓	NO	N/A
B	Common Visual Trouble Signal operates.	YES	✓	NO	N/A
C	Common Audible Trouble Signal operates.	YES	✓	NO	N/A
D	Trouble Signal Silence Switch operates.	YES	✓	NO	N/A
E	Main Power Supply Failure Trouble Signal operates	YES	✓	NO	N/A
F	Ground Fault Tested on Positive and Negative Initiates a Trouble Signal.	YES	✓	NO	N/A
G	Alert Signal Operates.	YES		NO	N/A ✓
H	Alarm Signal Operates.	YES	✓	NO	N/A
I	Automatic transfer from Alert Signal to Alarm Signal operates.	YES		NO	N/A ✓
J	Manual transfer from Alert Signal to Alarm Signal operates.	YES		NO	N/A ✓
K	Automatic transfer from Alert Signal to Alarm Signal cancel (acknowledge) feature operates on a two-stage system.	YES		NO	N/A ✓
L	Alarm Signal Silence Inhibit function operates.	YES		NO	N/A
M	Alarm Signal Manual Silence Operation.	YES	✓	NO	N/A
N	Alarm Signal Silence Visual Indication operates.	YES	✓	NO	N/A
O	Alarm Signal, when silenced, automatically reinitiates upon Subsequent Alarm.	YES	✓	NO	N/A
P	Alarm Signal Silence Automatic Cut-Out Timer.	TIME: <u>Not Tested</u>			
Q	Audible and Visual Alarm Signals Programmed and operate per design and specification.	YES	✓	NO	N/A
R	Input Circuit, Alarm and Supervisory Operation, including visual indicator operates.	YES	✓	NO	N/A
S	Input Circuit supervision fault causes a Trouble indication.	YES	✓	NO	N/A
T	Output Circuit Alarm Indicators Operate.	YES	✓	NO	N/A
U	Output Circuit supervision fault causes a Trouble Indication.	YES	✓	NO	N/A
V	Visual Indicator Test (Lamp Test) operates.	YES	✓	NO	N/A
W	Coded Signal Sequences operate not less than the required number of times and the correct alarm signal operates thereafter.	YES		NO	N/A ✓

C2.1 CONTROL UNIT OR TRANSPONDER TEST RECORD CONTINUED

X	Coded Signal Sequences are not interrupted by subsequent alarms.	YES		NO		N/A	✓
Y	Ancillary device control circuit is rated for the intended purpose.	YES	✓	NO		N/A	
Z	Input circuit to output circuit operation, including ancillary Device Circuits, for Correct Programme Operation, as per Design and Specification.	YES	✓	NO		N/A	
AA	Fire Alarm System reset operates.	YES	✓	NO		N/A	
BB	Main Power Supply to Emergency Power supply Transfer operates.	YES	✓	NO		N/A	
CC	Status Change Confirmation Feature (Smoke Detectors Only) Verified. Refer to 6.7.4.3	YES		NO		N/A	✓

NOTE: One page is required for each Control Unit or Transponder in a networked system.

C2.2 VOICE COMMUNICATION TEST

(Reference: Clauses 6.1.3, 6.2.3.1)

A	Power "On" Indicator operates.	YES		NO		N/A	✓
B	Common Visual Trouble Signal operates.	YES		NO		N/A	✓
C	Common Audible Trouble Signal operates.	YES		NO		N/A	✓
D	Trouble Signal Silence Switch operates	YES		NO		N/A	✓
E	All-Call Voice Paging, including visual indicator, operates.	YES		NO		N/A	✓
F	Output Circuits for Selective Voice Paging, including visual indication operates.	YES		NO		N/A	✓
G	Output Circuits for Selective Voice Paging Trouble Operation Including visual indication, operates.	YES		NO		N/A	✓
H	Microphone including press to talk switch, operates.	YES		NO		N/A	✓
I	Operation of Voice Paging Does not interfere with initial Time of Alert Signal and Alarm Signal.	YES		NO		N/A	✓
J	All-Call Voice Paging operates (on Emergency Power Supply?).	YES		NO		N/A	✓
K	Upon Failure of one Amplifier, System Automatically Transfers to Backup Amplifier(s).	YES		NO		N/A	✓
L	Circuits for Emergency Telephones call-in operation including Audible and Visual Indication operates.	YES		NO		N/A	✓
M	Circuits for Emergency Telephones for Operation including Two-Way Voice Communication, operates.	YES		NO		N/A	✓
N	Circuits for Emergency Telephone Trouble Operation including Visual Indication, operates.	YES		NO		N/A	✓
O	Emergency Telephone Verbal Communication, operates.	YES		NO		N/A	✓
P	Emergency Telephone Operable or In-Use Tone at Handset, operates.	YES		NO		N/A	✓
Q	While in standby mode, voice communication busses used for paging, alert signal, and emergency telephone communication circuits, an open circuit fault, or short circuit fault, or operation of an overcurrent protective device provided for the purpose, shall result in a specific trouble indication specific to the faulty buss.	YES		NO		N/A	✓

C2.3 CONTROL UNIT OR TRANSPONDER INSPECTION

(Reference: Clause 6.1.3, 6.2.4.1)

Control Unit or Transponder Location:	Main Entrance
Control Unit or Transponder Identification	

A	Input Circuit Designation Correctly identified in relation to Connected Field Devices.	YES	✓	NO	N/A
B	Output Circuit Designations correctly identified in relation to Connected Field Devices.	YES	✓	NO	N/A
C	Correct designations for common control functions & indicators.	YES	✓	NO	N/A
D	Plug-in Components and modules securely in place.	YES	✓	NO	N/A
E	Plug-in Cables securely in place.	YES	✓	NO	N/A
F	Record the Date, Revision and version of Firmware and Software program.	YES		NO	N/A
	Date:				
	Rev:			Ver:	
G	Control unit or transponder is clean and free of dust & dirt.	YES	✓	NO	N/A
H	Fuses in Accordance with Manufacturer's Specification.	YES	✓	NO	N/A
I	Control unit or transponder lock functional.	YES	✓	NO	N/A
J	Termination Points from Wiring to Field Devices Secure.	YES	✓	NO	N/A

C2.4 POWER SUPPLY INSPECTION

(Reference: Clause 6.1.3, 6.3.1)

Control Unit or Transponder Location:	Main Entrance
Control Unit or Transponder Identification	

A	Fused in accordance with the manufacturers marked rating of the system.	YES	✓	NO	N/A
B	Adequate to meet the requirements of the system.	YES	✓	NO	N/A
C	Where power isolation modules are installed in a power distribution riser serving field devices, wiring shall be shorted on the isolated side, annunciation of the fault confirmed, and then a device on the source side shall be operated, and activation confirmed at the control unit and transponder.	YES		NO	N/A ✓

C.2.5 EMERGENCY POWER SUPPLY TEST & INSPECTION

(Reference: Clause 6.1.3, 6.3.2, 6.3.3)

Control unit or transponder location:		Main Entrance			
Control unit or transponder identification:					
AC Breaker Location: Electrical Rm Panel A Brk# 53					
A	Correct battery type as recommended by Manufacturer.	YES	✓	NO	N/A
B	Correct battery rating as determined by battery calculations based on full system load.	YES	✓	NO	N/A
C	Battery Voltage with Main Power Supply "On" is:	Voltage:	27.72	V dc	
D	Battery Voltage & Current with Main Power supply "OFF" and Fire Alarm System in Supervisory Condition is:	Voltage:	27.17	V dc	
		Current:	110	mA dc	
E	Battery Voltage and Current with Main Power Supply "Off" and System Fire System in Full Load alarm condition is:	Voltage:	25.28	V dc	
		Current:	2.04	A dc	
F	The charging current is:	Current:	1.42	A dc	
G	Inspected for Physical Damage:	YES	✓	NO	N/A
H	Terminals cleaned and lubricated.	YES	✓	NO	N/A
I	Terminals clamped tightly.	YES	✓	NO	N/A
J	Correct Electrolyte Level.	YES		NO	N/A
K	Specific gravity of the electrolyte is within Manufacturer's specifications.	YES	✓	NO	N/A
L	Free of Electrolyte leakage.	YES	✓	NO	N/A
M	Adequately ventilated.	YES	✓	NO	N/A
N	Record manufacturer's date code or in-service date:	Date:	V10V2ALX1RT-2021		
O	Disconnection Causes Trouble Signal.	YES	✓	NO	N/A
P	Indicate type of battery test performed:	Battery Size:	2x12V18Ah		
(i)	Required supervisory load for 24 h followed by the required full load operation: or	YES		NO	N/A
(ii)	A silent test by using the load resistor method may be used for the full duration test(Refer to appendix F1, Silent Test):or	YES		NO	N/A
(iii)	Silent, accelerated test. (Refer to Appendix F2, Silent Accelerated Test)	YES		NO	N/A
(iv)	A battery capacity meter test.	YES	✓	NO	N/A
	Battery #1 - 100% Battery #2 - 100%				
(v)	In lieu of the above battery tests, replace the battery	YES		NO	N/A
Q	Record calculated battery capacity (Refer to Appendix D3.1-C)		4.57	A.h	
R	Record battery terminal voltage after completion of tests		25.2	V dc	
S	Battery voltage less than 85% of its rating after tests	YES	✓	NO	N/A
T	Generator provides power to AC circuit serving the fire alarm system.	YES		NO	N/A
U	Trouble condition at the emergency generator results in an audible common trouble signal and a visual indication at the required annunciator.	YES		NO	N/A

C2.6 ANNUNCIATOR AND REMOTE TROUBLE UNIT TEST AND INSPECTION

(Reference: Clause 6.1.4, 6.4.1)

Annunciator or remote trouble signal unit location:	N/A
Annunciator or remote trouble signal unit identification	N/A

A	Power "ON" line indicator operates.	YES	NO	N/A	✓
B	Individual Alarm and Supervisory input zone clearly indicated and separately designated.	YES	NO	N/A	✓
C	Individual Alarm and Supervisory Zone designation labels are properly identified.	YES	NO	N/A	✓
D	Where active and supporting field devices are utilized, device labels shall be confirmed to correspond with actual field location	YES	NO	N/A	✓
E	Common Trouble Signal operates.	YES	NO	N/A	✓
F	Visual Indicator test (Lamp Test) operates.	YES	NO	N/A	✓
G	Input wiring from control unit or transponder is supervised.	YES	NO	N/A	✓
H	Alarm signal silence visual indicator operates.	YES	NO	N/A	✓
I	Switches for ancillary functions operate as per design and specification.	YES	NO	N/A	✓
J	Ancillary functions visual indicators operate.	YES	NO	N/A	✓
K	Manual activation of Alarm Signal and Indication operates.	YES	NO	N/A	✓
L	Displays are visible in installed location.	YES	NO	N/A	✓
M	Operates on emergency power.	YES	NO	N/A	✓
N	Multi-line sequential display operates as per Clause 6.4.1 (N), where utilized	YES	NO	N/A	✓

C2.7 ANNUNCIATORS OR SEQUENTIAL DISPLAYS

(Reference: Clause 6.1.4, 6.4.2)

Annunciator or sequential display location:	N/A
Annunciator or sequential identification:	N/A

A	Power "ON" indicator operates.	YES	NO	N/A	✓
B	Individual Alarm and Supervisory zone Indication operates	YES	NO	N/A	✓
	Exception: Operation of each individual alarm and supervisory zone indication gives the identical indication, or lights the identical indicators at the other Annunciators) and sequential display(s)	YES	NO	N/A	✓
	Specify Method of confirmation: _____				
	Minimum of one alarm zone and one supervisory zone tested per annunciator or sequential display to confirm operation	YES	NO	N/A	✓
C	Individual alarm and supervisory zone designation labels are properly identified.	YES	NO	N/A	✓
D	Where active and supporting field devices are utilized, device labels shall be confirmed to correspond with actual field location.	YES	NO	N/A	✓
E	Common trouble signal operates.	YES	NO	N/A	✓
F	Visual indicator test (lamp test) operates.	YES	NO	N/A	✓
G	Input wiring from control unit is supervised.	YES	NO	N/A	✓
H	Alarm signal silence visual indicator operates.	YES	NO	N/A	✓
I	Switches for ancillary functions operates as per design and specification.	YES	NO	N/A	✓
J	Ancillary function visual indicators operate.	YES	NO	N/A	✓
K	Manual activation of alarm signal and indication operates.	YES	NO	N/A	✓
L	Displays are visible in installed location.	YES	NO	N/A	✓

C2.8 REMOTE TROUBLE SIGNAL UNIT TEST AND INSPECTION

(Reference: Clause 6.1.4,6.4.3)

Remote trouble signal unit location	N/A
Remote trouble signal unit identification:	N/A

A	Input Wiring from Control Unit Is Supervised.	YES	NO	N/A	✓
B	Visual Trouble Signal operates.	YES	NO	N/A	✓
C	Audible Trouble Signal operates.	YES	NO	N/A	✓
D	Audible Trouble Signal Silence operates.	YES	NO	N/A	✓

C2.9 PRINTER TEST


(Reference Clause 6.1.4, 6.5.1)

Printer location:	N/A
Printer identification:	N/A

A	Operates as per design and specification.	YES	NO	N/A	✓
B	Zone of Each Alarm Initiating device is correctly printed.	YES	NO	N/A	✓
C	Rated Voltage is present.	YES	NO	N/A	✓

C2.10 DATA COMMUNICATION LINK TEST

(Reference: Clause 6.1.5, 6.6-Note)

Control Unit or transponder location:	Main Entrance
Control Unit or transponder identification:	
Data communication link identification:	

A	Confirm that a trouble signal is received at the control unit or transponder under an open loop fault for each data communication link.	YES	✓	NO	N/A	
B	Where fault isolation modules are installed in data communication links serving field devices, wiring shorted on the isolated side annunciation of the fault confirmed, and then a device on the source side operated, and activation confirmed at the control unit or transponder.	YES		NO	N/A	✓
C	Where fault isolation in data communication links is provided between control units or transponders, introduce a short circuit fault and confirm annunciation of the fault annunciation of the fault confirmed and operation outside the and operation outside the shorted section between each pair of:					
	(i) Control unit to control unit	YES		NO	N/A	✓
	(ii) Control unit to transponder	YES		NO	N/A	✓
	(iii) transponder to transponder	YES		NO	N/A	✓

C2.11 INTERCONNECTION TO THE FIRE SIGNAL RECEIVING CENTRE

(Reference: Clause 6.2.2.1)

A	The fire signal receiving centre transmitter is integral to the fire alarm control unit.	YES	<input checked="" type="checkbox"/>	NO		N/A		
B	An interconnection between the fire alarm control unit and a separate fire signal receiving centre transmitter is provided.	YES	<input checked="" type="checkbox"/>	NO		N/A		
C	Tested and confirmed operation of alarm relay.	YES	<input checked="" type="checkbox"/>	NO		N/A		
D	Tested and confirmed operation of trouble relay	YES	<input checked="" type="checkbox"/>	NO		N/A		
E	Tested and confirmed operation of supervisory relay	YES	<input type="checkbox"/>	NO		N/A	<input checked="" type="checkbox"/>	
F	Confirm receipt of the alarm transmission to the fire signal receiving centre is received.	YES	<input checked="" type="checkbox"/>	NO		N/A		
G	Confirm receipt of the supervisory transmission to the fire signal receiving centre is received.	YES	<input type="checkbox"/>	NO		N/A	<input checked="" type="checkbox"/>	
H	Confirm receipt of the trouble transmission to the fire signal receiving centre is received	YES	<input checked="" type="checkbox"/>	NO		N/A		
I	Operation of the fire signal receiving centre disconnect means results in a specific trouble indication at the control unit or transponder and transmits a trouble signal to the fire signal receiving centre.	YES	<input checked="" type="checkbox"/>	NO		N/A		
J	If connected, record the name and telephone number of the fire signal receiving centre.	Name: Telephone:						

C2.12 ANCILLARY DEVICE CIRCUIT TEST

(Reference: Clauses 6.2.2.1-2)

RECORD SPECIFIC TYPE OF ANCILLARY CIRCUIT	Operation of Ancillary Circuit Confirmed			
	YES	<input checked="" type="checkbox"/>	NO	N/A
Monitoring	YES	<input type="checkbox"/>	NO	N/A
	YES	<input type="checkbox"/>	NO	N/A
	YES	<input type="checkbox"/>	NO	N/A
	YES	<input type="checkbox"/>	NO	N/A

Note: The tests reported on this Form do not include the actual operational test of ancillary devices.

C3. FIELD DEVICE RECORD
(Reference: Clauses 3.2.7, 5.1.1)

C3.1 FIELD DEVICE TESTING - LEGEND AND NOTES
(Reference: 6.7.4.1.3, 6.7.4.1.4, 6.7.4.1.5, 6.7.4.3.1, 6.7.4.5.1, 6.7.8.1.1, 6.7.8.2.2, 6.7.8.2.4)

<i>Device</i>	<i>Description</i>	<i>Type</i>	<i>Model No.</i>
M	Manual Pull Station	EDWARDS	SIGC-270B
RHT	Heat Detector, Restorable	EDWARDS	SIGA-HRS
FHT	Heat Detector, Non-restorable		
	Smoke Detector		
S	Sensitivity Test Method or Test Equipment: Model/Method: Manufacturer sensitivity range: Sensitivity range:	EDWARDS	SIGA-PS
RI	Remote Indicator Unit		
DS	Duct Smoke Detector		
--	Other Type of Detector		
--	Other Type of Detector		
SFD	Supporting Field Device (Monitor)		
FS	Sprinkler Flow Switch		
SS	Sprinkler Supervisory Device		
--	Other supervisory Devices (Low Pressure, Low Water, Low Temperature, Power Loss, etc.)		
SA	Smoke Alarm, Single Station Type		
ISO	Fault Isolation Module		
B	Bell		
H	Horn	Edwards	MGIR-HDWM
H/S	Horn Strobe		
V	Visual Signal Appliance		
SP	Cone Type Loudspeaker		
HSP	Horn Type Loudspeaker		
ET	Emergency Telephone		
AD	Ancillary Devices		
EDL	End-of-line device	EDWARDS	EDL-P1
PH	Piezo Horn		

The following notes refer to Appendix C3.2 Individual Device Record

- | | |
|--|--|
| Note 1. Smoke detector sensitivity confirmation or measurement should be recorded in the remarks column. | Note 10. Identify date field device changed in the remarks column. |
| Note 2. Smoke detector cleaning or replacement date should also be recorded in the remarks column. | Note 11. FA trouble, supervisory, annunciation indication) |
| Note 3. Status change, including time delay, should be recorded in the remarks column. | Note 12. Identify zone, circuit number, or address |
| Note 4. Duct smoke detector pressure differential should be confirmed and recorded in the remarks column. | Note 13. Identify conventional field device locations. |
| Note 5. Time delay setting of water flow switch should be recorded in the remarks column. | Note 14. Identify active field device and supporting field device, data communication link (DCL), address and location |
| Note 6. Sprinkler supervisory switches cause trouble condition to be annunciated but not an alarm condition. | Note 15. Test and confirm conventional field device supervision of wiring. |
| Note 7. Upper & lower pressure settings of supervisory devices should be written in the remarks column. | Note 16. Confirm field device free of damage. |
| Note 8. Low temperature setting should be recorded in the remarks column. | Note 17. Confirm field device free of foreign substance (e.g. paint). |
| Note 9. Identify specific ancillary devices in the remarks column. | Note 18. Confirm field device mechanically supported independently of the wiring. |
| | Note 19. Confirm field device protective dust shields or covers removed |

Caution: The tests reported on these forms do not include the actual operational test of Ancillary Devices.

INDIVIDUAL DEVICE RECORD

Date: _____

	LOCATION	Device	Address	Correctly Installed	Missing Device	Requires Service	Alarm Confirmed	Annunciator Confirmed	Supervision Confirmed	REMARKS
	<i>Main Area</i>									
1	Front Entrance	M	3	✓			✓			
2	Front Entrance	S	3	✓			✓			
3	Front Entrance	H/S	NAC	✓			✓			
4	Front Entrance	EOL	NAC 2	✓			✓			
5	At Front Vestibule	S	3	✓			✓			
6	Supervisor's Office (Front)	S	3	✓			✓			
7	Supervisor's Office (Front)	H/S	NAC	✓			✓			
8	Eating Area	S	3	✓			✓			
9	Eating Area	H/S	NAC	✓			✓			
10	Eating Area	EOL	NAC 1	✓			✓			
11	High Ceiling at Preschool Coats	S	3	✓			✓			
12	Coat Check by Preschool Rm 1	S	3	✓			✓			
13	Coat Check by Preschool Rm 1	H/S	NAC	✓			✓			
14	Coat Check by Preschool Rm 2	S	3	✓			✓			
15	Coat Check by Preschool Rm 2	H/S	NAC	✓			✓			
16	Preschool Room 1	S	2	✓			✓			
17	By Center Hall Washroom	H/S	NAC	✓			✓			
18	Play Area Room 1	S	2	✓			✓			
18	Play Area Room 1	H/S	NAC	✓			✓			
19	Storage Closet	RHT	2	✓			✓			
20	Storage Closet	H/S	NAC	✓			✓			
21	Preschool Room 2 by Sinks	S	2	✓			✓			
22	Preschool Room 2 Play Area	S	2	✓			✓			
23	Preschool Room 2 Play Area	H/S	NAC	✓			✓			
24	Preschool Room 2 Play Area	H/S	NAC	✓			✓			
25	Preschool Room 2 Washroom	S	2	✓			✓			
26	Preschool Rm 2 Storage Room	RHT	2	✓			✓			
27	Preschool Rm 2 Storage Room	H/S	NAC	✓			✓			
28	Center Hallway Rear	S	0	✓			✓			
29	Center Hallway Rear	H/S	NAC	✓			✓			
30	Janitor's Closet	S	2	✓			✓			
31	Janitor's Closet	H/S	NAC	✓			✓			
32	Toddler Coat Check	S	3	✓			✓			
33	Center Hallway Washroom	S	2	✓			✓			
34	Center Hallway Washroom	H/S	NAC	✓			✓			
35	Rear Exit - Right	M	3	✓			✓			
36	Rear Exit - Left	M	3	✓			✓			
37	Rear Vestibule Storage	RHT	2	✓			✓			

INDIVIDUAL DEVICE RECORD

Date: _____

	LOCATION	Device	Address	Correctly Installed	Missing Device	Requires Serv/iz.	Alarm Confirmed	Annunciator Confirmed	Supervision Confirmed	REMARKS
38	Rear Vestibule Storage	H/S	NAC	✓			✓			
39	Toddler Room - Sink Area	S	1	✓			✓			
40	Toddler Room - Sink Area	H/S	NAC	✓			✓			
41	Toddler Room by Washroom	S	1	✓			✓			
42	Toddler Room in Washroom	H/S	NAC	✓			✓			
43	Sleepy Time Room	S	1	✓			✓			
44	Sleepy Time Room	S	1	✓			✓			
45	Sleepy Time Room	H/S	NAC	✓			✓			
46	Sleepy Time Room	H/S	NAC	✓			✓			
47	Sleepy Time Room Storage	RHT	1	✓			✓			
48	Sleepy Time Room Storage	H/S	NAC	✓			✓			
49	Laundry Room	RHT	3	✓			✓			
50	Laundry Room	H/S	NAC	✓			✓			
51	Kitchen	RHT	3	✓			✓			
52	Kitchen	H/S	NAC	✓			✓			
53	Dish Pit	RHT	3	✓			✓			
54	Kitchen Exit	RHT	3	✓			✓			
55	Kitchen Exit	M	3	✓			✓			
56	Staff Washroom	H/S	NAC	✓			✓			
57	By Staff Washroom	S	3	✓			✓			
58	By Staff Washroom	H/S	NAC	✓			✓			
59	Staff Lounge	RHT	3	✓			✓			
60	Staff Lounge	H/S	NAC	✓			✓			
61	Staff Lounge	M	3	✓			✓			
62	Staff Room Storage	RHT	3	✓			✓			
63	Staff Room Storage	H/S	NAC	✓			✓			
64	Utility Room	H/S	NAC	✓			✓			
65	Utility Room	M	3	✓			✓			
66	Utility Room	RHT	3	✓			✓			
67	Electrical Room	RHT	3	✓			✓			
68	Zone Description									EOL Location
69	Toddler Side	EOL	1	✓			✓			Addressable Class A SLC 1
70	Pre School Side	EOL	2	✓			✓			Addressable Class A SLC 1
71	Centre Corridor	EOL	3	✓			✓			Addressable Class A SLC 2
72	Signal Circuits									
73	NAC A	EOL	A	✓				✓		Outside Main Office
74	NAC B	EOL	B	✓				✓		Main Entrance Above Pull
75	NAC C-Spare	EOL	C							Spare
76	NAC D-Spare	EOL	D							Spare

Recap



- Code references to fire alarm systems
- Process of implementation of a fire alarm system
- Most common and critical items of nonconformance
- Fire alarm system in relation to CAN/ULC-S 1001
- Certification: What does it mean and why is it so critical?
- What are we exposed to when there is no certification?



Thank you

[UL.com/Solutions](https://www.ul.com/Solutions)

Safety. Science. Transformation.™