
BULLETIN 2000-021-BU/EL

Revised November 23, 2016

VERIFICATION OF FIRE ALARM SYSTEMS

The intent of this bulletin is to clarify the requirements for verification of fire alarm systems.

Sentence 3.2.4.5.(2) of Division B of the Vancouver Building By-law requires fire alarm systems (FAS) installed in buildings shall be verified in conformance with CAN/ULC-S537 (Standard). Upon completion of the verification procedure, a verification report must be submitted to the City's Building / Electrical Inspection. The FAS verification report must be provided with the Appendix C Form (C1 FIRE ALARM SYSTEM VERIFICATION REPORT) completed and signed by the organization and persons responsible for the verification. The referenced Appendix C Form is a part of the Standard; and it has been amended for use in the City of Vancouver (see attachment). When a FAS is connected to a ULC listed fire signal receiving facility, a ULC Certificate (Fire Protective Signalling Service) must be completed as a part of verification report (see Bulletin 2000-019-BU/EL for sample of the ULC certificates).

The PREFACE of the Standard describes the FAS verification to be carried out by the qualified personnel of an organization other than the installing contractor and designer. Furthermore, the Appendix A of Standard describes qualified personnel perform the verification of a FAS to be familiar with this Standard and have received suitable formal training or sufficient experience acceptable to the authority having jurisdiction. It is important to note, qualified persons involved in a verification procedure must have sufficient technical knowledge of the FAS components, their function and performance, and must have necessary electrical qualification for evaluating conformance of these devices with installation provisions mandated by the CAN/ULC-S524 and Section 32 of the Canadian Electrical Code, Part I. It is also important to note, the FAS design and field review are covered by the Registered Professional's Schedule B, item 6.3 of this Schedule lists the functional testing of electrical related fire emergency systems and devices which covers the FAS verification, it is the responsibility of the Registered Professional to ensure and determine that the FAS is verified by the qualified persons.

FAS MODIFICATIONS

When an existing FAS in the building that is subjected to an addition or alteration (deletion or replacement of components, addition, modification or software change), then the extent of the FAS verification must be provided as follows:

1. When an existing control unit, transponder or annunciator has been replaced with a new control unit, transponder or annunciator, the entire FAS must be verified in accordance with the applicable sections of the Standard.
2. When an existing control unit or transponder has been modified, the control unit or transponder and those affected circuits must be verified in accordance with the Standard.
3. In an existing control unit or transponder, when a unit assembly of electrical parts or module has been replaced, it must be functioning according to the intent of its design; and must be verified in accordance with the Standard.
4. When an existing single-zone FAS has been subjected to an addition or alteration, the entire FAS must be verified.

5. When field devices, water flow devices, audible signal devices or components of voice communication have been added or modified in a FAS circuit, the entire fire alarm zone/circuit must be verified (see Note for Conventional Field Device).
6. When an existing FAS component has been replaced with a different manufacturer's component, all components in the FAS must be compatible in conformance with CAN/ULC-S524. The ULC Test Report for such compatibility must be accompanied with the completed Appendix C Form.

NOTES

1. The Standard provides specific verification requirements for FAS modifications. Clause 6.2 of the Standard requires where a conventional field device is added; or modifications or deletions are made to an existing input circuit or output circuit and the new or altered wiring is extended from an existing field device, the new devices, the devices connected on either side of the addition or alteration as well as at the end-of-line device for that circuit shall be verified in accordance with the Standard. For the purpose of foregoing item 5, Clause 6.2 of the Standard is deemed to be acceptable to the City's Electrical Inspection when only a minor modification is made to an existing fire alarm circuit (i.e. replacement, relocation or addition of not more than 10% of conventional field devices in the circuit).

Conventional Field Device is defined by both CAN/ULC-S537 and CAN/ULC-S524 standards.

2. Devices and equipment used in a fire alarm system must comply with the Standards listed in Section 3.1.3. of the CAN/ULC-S524-06.
 - a) Where a remote annunciator is intended to be installed outdoor, the annunciator must be approved and marked for the condition of use with respect to the listed installation environment (i.e. ambient temperature and relative humidity) and location (i.e. indoor or outdoor) marked on the product.
 - b) Where the outdoor annunciator is provided with the environmental protection by the enclosure (i.e. type 3R) and equipment heater, because there is no (ULC or CSA) standard for such assembly, this assembly could be accepted as being approved only under provisions of a Special Inspection performed to the CSA SPE-1000. Appendix B of Section 0 of the CE Code explains it.

(Original signed by)

W. White
Deputy City Electrician
Manager, Trades Inspection

(Original signed by)

P. Ryan, M.Sc., P.Eng.
Chief Building Official
Director, Building Code and Policy

Attachment

APPENDIX C VERIFICATION OF FIRE ALARM SYSTEMS (FAS)

CAN/ULC-S537-04 - APPENDIX C (INFORMATIVE) - FIRE ALARM SYSTEM VERIFICATION REPORTS
(Amended for use in the City of Vancouver) (Reference: Subsection 3.1-Note, Clause 3.2.1, 3.2.2)

C1. FIRE ALARM SYSTEM VERIFICATION REPORT
(Reference: Clause 3.1.6, 3.1.7, 3.2.2)

Electrical Permit #:	Building Permit #	Date:
Address:		
New FAS: <input type="checkbox"/> Existing FAS: <input type="checkbox"/> (See Note 1)		
System Manufacturer:		Model Number:

A: FA System provides single-stage operation.	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
B: FA System provides two-stage operation.	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
C: The FA System has been verified in accordance with CAN/ULC-S537, standard for Verification of Fire Alarm Systems; and FAS has been verified by qualified persons.	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
D: This is a partial verification for a partial occupancy.	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
E: Components of the existing FAS have been modified or replaced with components from a different manufacturer and are compatible with the existing FAS components. (see Note 2)	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
F: This is a partial verification for a FA System that has been replaced in stages.	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
G: This is a verification of a portion of an existing FAS verified in accordance with Section 6, System Modifications by the qualified persons.	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
H: Installed in accordance with the design and CAN/ULC-S524, Standard for the Installation of Fire Alarm Systems.	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
I: The FAS documentation is on site and includes a description of the system.	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
J: The outdoor annunciator assembly bears approval - CSA SPE-1000 (see Note 4)	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
K: The FA System is fully functional without deficiencies. (see Note 3)	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
L: The FAS is connected to a ULC-listed fire signal receiving centre via a supervised circuit of a ULC-listed signal transmitting unit approved for the purpose. If "Yes", specify the name and location of the ULC Listed Alarm Company: _____; and provide a copy of ULC "Fire Protective Signalling Service" Certificate No. _____ issued for the address above. (Note: A sample of the ULC Certificates is shown on Attachments 1 and 2 of Bulletin 2000-019-BU/EL.)	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
M: Comments: _____				
N: A copy of this report will be given to the following, who is the owner or owner's representative for this building: _____				
			Yes	<input type="checkbox"/>
			No	<input type="checkbox"/>

This is to certify the information contained in this fire alarm system Verification Report is correct and complete.

Printed Name and Signature of Qualified Person(s) conducting the Verification. _____ Company _____ Telephone _____
E-mail: _____

Notes:

1. Please, elaborate on the extent of verification of the existing FAS: _____
2. If "Yes", ULC Test Report must be attached in conformance with Item 6 of Bulletin 2000-021-BU/EL (Revised).
3. Identified deficiencies relate to:
 - (a) The existing portion of the FAS is not covered by the scope of work under electrical permit EP- _____ Yes No
 - (b) The newly installed FAS (or modified/added portion of the existing FAS). Yes No
4. Where a remote annunciator is intended to be installed outdoor, the annunciator must be approved and marked for the condition of use with respect to the listed installation environment (i.e. ambient temperature and relative humidity) and location (i.e. indoor or outdoor) marked on the product. Also see note 2 of Bulletin 2000-021-BU/EL.