Fire Alarm Systems (FAS) - Frequently Asked Questions

1. Why do I need a Building Permit for a fire alarm system?

A fire alarm system is an electrical system and subject to building code requirements.

New or upgraded FAS will need to meet present-day standards:

- BCBC 2018 Article 3.2.4
- ULC S524 (installation)
- ULC-S536 (inspection & testing)
- ULC-S537 (verification)
- BC Electrical Code

The basic requirements for a fire alarm system are covered in the BC Building Code 2018 DIV B 3.2.4

- Decipher if FAS is required *Article 3.2.4.1*
- Extent of FAS coverage *Article 3.2.4.2*
- Type and location of FAS *Article 3.2.4.3*
- Type of fire detector required *Article 3.2.4.11 & 3.2.4.12*
- Location of annunciator panel *Article 3.2.4.9*
- Zones *Article 3.2.4.9*
- Electrical supervision *Article 3.2.4.10*
- Audibility levels *Article 3.2.4.19*

Requirements for:

- penetrations of fire separations, and
- emergency lighting & exit signage

2. When do I need a Permit?

Building and Electrical Permits are required if:

- a new or upgraded fire alarm system is installed,
- annunciator panels are installed,
- field devices are installed,
- replacement of a control panel or annunciator panel, or
- field devices are relocated.

Building Permit only (no Electrical Permit) is required if:

- there is straight replacement of six or more similar field devices (no new wiring); or
- there is a straight replacement of any dissimilar field devices (e.g., heat detector for a smoke detector with no new wiring).

Building and Electrical Permits are **NOT** required if five for less field devices are replaced (e.g., existing heat detector is replaced with a new heat detector).

3. What are the costs for Building & Electrical Permits?

Permit fees are found on our Fee Schedule

4. What documents need to be submitted to the City for a Building Permit?

Please review the appropriate Application Checklist for your project and refer to CAN/ULC S524 and BCBC for plans and document submission requirements.

Most Building Permit applications that include a fire alarm system will contain the following information:

- Basic floor plans showing exits, fire separations, zones, etc.,
- Location of annunciator, control panel & field devices,
- Electrical engineering drawings will include, riser diagrams, wiring drawings,
- Manufacturer information on equipment specified.

Replacement of control unit, annunciator or similar field devices do not require engineering input if manufacturers' literature on new products demonstrates compatibility with other FAS equipment including all existing devices.

5. When is a Fire Alarm System Verification report required?

Any modification to a fire alarm system requires verification as specified in CAN/ULC S537 even if there is no Building Permit required.

If a Building Permit is not required, the verification report is submitted to the owner for their records and to update the fire safety plan.

When a Building Permit is required, the verification report is submitted during the course of inspection.

6. What are the steps in the typical Fire Alarm permit process?

1. Make an application for Building and / or Electrical Permits.
2. Applications are reviewed for compliance with the BCBC 2018, ULC S524 standard and Canadian Electrical Code.
3. Upon issuance of permit(s), periodic field reviews are conducted.
4. Prior to date of final inspection, the fire alarm verification report, schedules B and C's are submitted.
5. A fire alarm demonstration is scheduled, arranged and attended by inspection staff.

7. When does the City want a Fire Alarm demonstration?

Demonstrations are required when there is a Building Permit required to complete the work. Generally, the level of demonstration is as follows:

- Full demonstration if new or upgraded FAS
- Full demonstration if replacing control pane
- Partial demonstration for replacement or additional annunciator pane
- Partial demonstration or no demonstration at the discretion of the City inspectors considering the disruption to the occupants and extent of added field devices

8. Who typically attends a Fire Alarm demonstration?

- Registered coordinating professional and involved design professionals
- General contractor and electrical contractor
- Fire alarm technician, or fire alarm installation electrician
- Sprinkler fitter if the building is sprinklered
- City Building, Electrical and Fire Inspectors as witnesses only to the demonstration

9. What equipment is to be supplied by the applicant for the fire alarm demonstration?

- Equipment for activating devices communication equipment

10. What is the typical Fire Alarm demonstration procedure?

1. Initial meet and greet, and review procedure and specific individual tasks
2. Live demonstration of FAS:
   - Fire Department (FD) Inspector notifies the FD dispatch of the demonstration;
   - A random field device is activated to verify if the FD is notified within 90 seconds by the monitoring agency (a failure of the live test & the demonstration will be halted & will conducted another day).

3. Off-Line demonstration of FAS devices are correctly functioning:

Signalling Device Activations

- manual stations
- fire detectors
- water flow switches
- any supervisory device (tamper devices, air or water pressure loss & power loss)

Responding Device Outputs

- correct display on the annunciator panel
- adequate audibility of sirens and visibility of strobes
- release of electromagnetic locks
- ancillary devices (such as closing of dampers)
- ventilation shut down (or exhaust start-up if provided)
- elevator recall operation & alternate floor recall
- on power shut down, a transfer of emergency power to the FAS operation

4. Review of voice communication systems
5. Review of performance of any alternate solution involving the fire alarm system

This procedure will vary from project to project and be adapted to suit the site conditions and equipment being demonstrated.