

CAN/ULC-S1001 Integrated Systems Testing

This bulletin is to provide information about the Building Code requirements for integrated systems testing under the CAN/ULC-S1001 standard (the standard) and the City of Cambridge requirements under this standard.

Code Requirement

The building code identifies in Division B, 3.2.10.1.(1) and 9.10.18.10.(1) the requirement for buildings to have an integrated testing plan in place for all interconnected fire and life safety systems within a building. The plan, and the requirements for implementation of the plan are identified in the CAN/ULC-S1001 standard.

Note: An Integrated Testing Plan is required for all new buildings where an interconnection of 2 or more fire and life safety systems occurs within a building. The plan is also required for renovations and additions. If you have specific questions about your project, please contact our office at building@cambridge.ca.

Examples of fire and life safety systems are:

- Fire alarm system
- Fire signal monitoring system
- Emergency power/lighting generator
- Fire pump
- Standpipe and hose system
- Sprinkler system
- NFPA 96 hood
- Emergency pressurization system
- Motorized smoke and fire dampers
- Smoke control system
- Smoke ventilation system
- Elevator
- Audio/visual and/or lighting control system
- Notification system
- Water supply pumps (not a fire pump)
- Fixed fire suppression system (other than an NFPA 96 system or sprinkler system)
- Hold open devices
- Electromagnetic locking devices
- Hazardous protection monitoring system
- Buildings with an interconnected smoke alarm system, other than a system serving a *house*, a *house* with up to two accessory residential units, or an individual dwelling unit
- Mass notification systems (as defined in S1001)

Please refer to the CAN/ULC-S1001 standard for further clarification of the above systems.

Qualification Requirements

The standard requires that an Integrated Testing Coordinator prepare the Integrated Testing Plan. This person shall possess the knowledge and understanding as identified in 4.2.2. of the standard. For compliance with this requirement, the following qualifications will be required for any individual acting as the Integrated Testing Coordinator.

- Licensed Professional Engineer, or
- Certified Integrated Testing Service Provider from UL's Integrated Systems Testing Program

Documentation Required

The standard requires that the following information be prepared and submitted to the Authority Having Jurisdiction.

- Integrated Testing Plan (ISP), and
- Integrated Testing Report (ITR)

The Integrated Testing Plan must be submitted to the Site Inspector within 3 months of permit issuance, but no less than 30 days before the ITP is implemented.

The Integrated Testing Report must be submitted to the Site Inspector prior to any occupancy being granted to the building. For any building where an occupancy inspection is not required, the ITR must be submitted prior to the Final Inspection.

Please contact your site inspector for the email address to submit the Plan or Report.

Integrated Testing Plan Requirements

The ITP are instructions for how to ensure that all interconnected fire and life safety systems are working as designed and required. The plan identifies all the possible interconnections and how to test these interconnections. While the standard does not require a specific form to be completed, appendices in the standard provides a sample form. As a minimum, the Integrated Testing Plan must include the following:

- Name of *Integrated Testing Coordinator* and the Company/Organization.
- Signature of *Integrated Testing Coordinator*.
- Date the plan was created.
- Address of the project.
- Permit Number.
- Description of the building (number of storeys, occupancy type, construction type).
- Owner's name and contact information.
- Name and contact information for all Prime Consultants involved (Architect, Engineers, Qualified Designers).
- Name and contact information for the General Contractor involved.
- Name and contact information for all subcontractors involved in the installation of the integrated systems.
- Explanation of the responsibilities of all parties listed in the Integrated Testing Plan.

- The plan shall identify all fire and life safety systems included within the building and clearly identify **every** *interconnection* involved.
- The plan shall identify the testing that needs to be performed to confirm the *interconnection* has successfully been completed.

- The plan shall identify all verification reports/documents that must be submitted before implementing the plan, such as
 - Fire alarm system verification report
 - Emergency generator test report
 - Contractors' material and test certificate for fire pumps
 - Fire pump field acceptance test report
 - Standpipe system contractors' material and test certificate for above ground piping
 - Sprinkler system contractors' material and test certificate for above ground piping
 - NFPA 96 suppression system verification and test report
 - Emergency pressurization system verification report
 - Smoke control system verification report
 - ESA approvals
 - TSSA approvals for elevators

The Integrated Testing Plan may need to be updated during the construction process. Where the ITP is updated, a copy of the updated plan must be provided to the site Inspector.

Integrated Testing Report Requirements

The ITR is the final report submitted to the City of Cambridge confirming that the building is in conformance with the CAN/ULC-S1001 standard. While the standard does not require a specific form to be completed, appendices in the standard provides a sample form. As a minimum, the Integrated Systems Report must include the following:

- The original Integrated Testing Plan.
- Any updates to the Integrated Testing Plan (if applicable).
- The initial integrated testing results report.
- Any retest reports showing compliance where initial test failed.
- All conformance letters and sign off documents listed in the ITP as being required.
- Written confirmation from Design Professionals that they have provided *Integrated Testing Coordinator* with all required documents for system integration.
- Written confirmation from Installers of the systems that they have installed the systems, and they are ready for integrated testing.

The report must have the following information included for reference:

- Name of *Integrated Testing Coordinator* and the Company/Organization.
- Signature of *Integrated Testing Coordinator*.
- Date the report was prepared.
- Address of the project.
- Permit Number.
- Description of the building (number of storeys, occupancy type, construction type).
- Owner's name and contact information.
- Name and contact information for all Prime Consultants involved (Architect, Engineers, Qualified Designers).
- Name and contact information for the General Contractor involved.
- Name and contact information for all subcontractors involved.

For more information on these requirements please contact your site inspector.

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For accessibility accommodations, please contact accessibility@cambridge.ca.