COMMISSIONING OF LIFE SAFETY AND FIRE PROTECTION SYSTEMS: WHAT, WHERE AND HOW?

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(1) Fire alarm systems, including the voice communication capability where provided, shall be installed in conformance with CAN/ULC-S524, "Installation of Fire Alarm Systems."

(2) Fire alarm systems shall be verified in conformance with CAN/ULC-S537, "Verification of Fire Alarm Systems," to ensure they are operating satisfactorily.
(1) Where life safety and fire protection systems are installed to comply with the provisions of this Code or the NFC, the commissioning of these integrated systems must be performed as a whole to ensure the proper operation and inter-relationship between the systems. (See Appendix A.)
(1) The systems for control of smoke movement and mechanical venting required by Articles 3.2.6.2. and 3.2.6.6. shall be tested to ensure satisfactory operation. (See Appendix B.)
When commissioning a building, the owner must ensure that the life safety systems and their components (i.e. fire alarm systems, sprinklers, standpipes, smoke control, ventilation, pressurization, door hold-open devices, elevator recalls, smoke and fire shutters and dampers, emergency power, emergency lighting, etc.) are functioning according to the intent of their design. The commissioning provides the documented confirmation that building systems satisfy the intent of the Code.

Ultimately, someone will have to ensure that the interconnected operation of all life safety systems within the building has been confirmed: this responsibility may fall on the designer, owner, contractor or a commissioning body. The NBC does not specify who must fulfill this role as this is an administrative issue.
• The efficiency of a smoke control system may be checked by measuring pressure differences and the directions of airflow around doors and through separating walls of compartments. A pressure meter can be used to measure pressure differences on either side of a door or partition. Where this is impracticable, a punk stick held near a crack will indicate the direction of airflow.

• Measurements of airflow may be taken on the intake side of supply fans or in supply ducts to determine whether the specified airflow is being provided. In general, airflow should be from the spaces which may be occupied for various lengths of time during a fire emergency (e.g., vestibules, stair shafts, and elevator hoistways) toward the space in which the fire is assumed to have occurred. Measurements may be taken at certain critical locations to check the overall efficiency of the smoke control system.
In buildings where protection is obtained by venting corridors or vestibules to the outdoors, inspection of the building to determine whether the requirements have been met should be sufficient. Where service shafts are vented to the outdoors at the top, a check may be made of the wall between the shaft and the uppermost occupied floor areas, to ensure that the direction of flow is from each floor area into the shaft, when the vent to the outside is open and the outdoor air temperature is significantly less than that indoors. Where mechanically pressurized vestibules are used, a check may be made to ensure that the pressure in each vestibule or area of refuge is greater than that in the adjacent floor areas at each floor level.
Doors to stair shafts, elevator hoistways and vestibules in locations subject to pressure differences that may interfere with normal opening should be checked when the outdoor temperature is near the January design temperature, with the air injection system operating and a number of windows open to the outdoors on each floor in turn.
## Electrical Supervision of Fire Alarm System Devices

<table>
<thead>
<tr>
<th>Input</th>
<th>Interface</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire alarm initiating devices</td>
<td>CPU</td>
<td>Audible signal devices (pills, horns)</td>
</tr>
<tr>
<td></td>
<td>Communicator</td>
<td>Visual signal devices (strobe lights)</td>
</tr>
<tr>
<td></td>
<td>CACP</td>
<td>Voice communication devices (speakers, emergency phones)</td>
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</tbody>
</table>

**Central Station**
- Transmitter
- Communication systems
- Protective receiving central monitoring station

**Installation of equipment, monitoring function and electrical supervision is req'd by ULC 561**

**Ancillary devices**
- Smoke control
- Smoke venting
- Elevator hoisting
- Hold open devices
- Electromagnetic locks
- Other similar equipment

Electrical supervision of fire alarm system devices is not req'd by ULC 539. Description of ancillary equipment controlled by the fire alarm system is req'd by ULC 537.
Questions?