



FM ENGINEERING INC.

Engineering ■ Project Management ■ Design Build ■ Mission Critical Facilities



ROOM INTEGRITY TESTING



retrotec
fire & enclosure test applications 



Professional Engineers
Ontario





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GET THE FACTS!

- Fire suppressing agents are designed to protect rooms in addition to using traditional sprinkler methods.
- 59% of Clean Agent systems FAILED to keep out fire and smoke.*
- Agents MUST remain in room for a specified period time in order for proper suppression to be made.
- Room Integrity Testing is the ONLY National Fire Protection Association (NFPA) recognized test to determine agent retention time and room leakage.
- **FM Engineering Inc.** is the ONLY company in Ontario that employs a Retrotec Level 3 and 4 Certified Technician authorized to perform Room Integrity Tests.

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*Study By Factory Mutual Group





Frequently Asked Questions

Q: Is it true that my room needs to be tested every year?

A: NFPA regulations state that a Room Integrity Test or inspection must be done annually or whenever renovations or adjustments have been made to your room. (Refer to page 6 of this brochure)

Q: What circumstances could cause a room to fail a test?

A: Some issues are, enclosure leaks, A/C shutdown, wind losses, room having a size increase after install, or the height change of equipment inside a room.

Q: How are these factors addressed?

A: All these problems are addressed by a Room Integrity Test upon initial installation and annual re-testing.

Q: If my room fails, could I just add more gas/agent to the room?

A: every room is different, the solution depends on how the room was designed. In most cases, adding more agent could result in a lower retention time.

Q: Why do I need a test if my room's suspended ceiling keeps the agent in?

A: Suspended ceilings are not actually recommended to be used when clean agents are installed as the fire suppressant. Suspended ceilings are often a large factor in a room's failure and are known to increase agent loss.

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Frequently Asked Questions

Q: How do I benefit from having this test done?

A: There are several benefits to having the test done. Not only would the test predict a retention time for the agent, it would also control dust, noise and humidity. It also gives the opportunity to create a more energy efficient room.

Q: How can Room Integrity Tests make my room more energy efficient?

A: By performing a Room Integrity Test, we identify all the leaks that not only would cause the suppression agent to escape, but also improve the effectiveness and efficiency of the A/C unit used to cool the room. This would result in an improved energy consumption of the A/C unit and reduction of energy cost.

Q: How long does the test take to complete?

A: After having the door fan set in place, the test itself can take as little as 15 minutes. It is necessary to be thorough and seek out all issues that may cause the room to fail.

Q: Does my room need to be shutdown to do the test?

A: Room Integrity Tests can be done in live rooms. Depending on the original design, we may require that A/C units be shutdown for a short period, which in most cases should not exceed a few minutes.

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Frequently Asked Questions

Q: How much does a Room Integrity Test cost?

A: The cost to conduct a test can vary and is evaluated on a room to room basis. FM Engineering Inc., does however offer competitive pricing and discounts for long term contracts on annual testing.

Q: What other services does FM Engineering Inc. offer?

A: In addition to Room Integrity Testing, FM Engineering Inc. offers yearly maintenance programs for all types of rooms. These programs usually consist of an annual Room Integrity Tests, with 24hr service for Mission Critical Facilities, CRAC units, UPS Systems, and Backup Generators. We can customize maintenance programs specific to each company and each room.

In the result of a failed Room Integrity Test, FM Engineering Inc. offers specialized sealing and repairs to neutralize issues and ensure proper procedures to get the highest possible retention time.

FM Engineering Inc.'s key specialization is in full service data centre development and management. This extensive experience ensures that no issues are overlooked when designing and/or maintaining your data room. In the event that your company should consider using FM Engineering Inc. to create your next project, all precautions are taken so that preventable situations do not arise.

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NFPA on Room Integrity Testing

Compliance with NFPA 2001 (2008 ED.) requires:

- 7.4 The enclosure protected by the clean agent shall be thoroughly inspected at least every 12 months to determine if penetrations or other changes have occurred that could adversely affect agent leakage or change volume of hazard, or both. Where the inspection indicates conditions that could result in the inability to maintain the clean agent concentration, the conditions shall be corrected.
- 7.2.3 Where external visual inspection indicates the container has been damaged, additional strength tests shall be required.
- 7.6.1 All persons who could be expected to inspect, test, maintain, or operate fire systems shall be thoroughly trained...
- 7.7.2.3 All total flooding systems shall have the enclosure examined and tested to locate and effectively seal any significant air leaks that could result in a failure of the enclosure to hold the specified agent concentration level for the specified holding period. The current preferred method is using a blower door fan unit and smoke pencil.
- “Experience has shown that the primary cause of discharge test failure is the inability to hold the specified concentration for the entire holding period. “

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Contact Us

If you have any questions concerning Room Integrity Testing, Design Build, Consulting or our Maintenance programs, please contact:

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