CONSIGLI
Est. 1905

Via email to: cpp@portlandmaine.gov

April 8, 2013

Captain Chris Pirone
Portland Fire Department
380 Congress Street
Portland, ME 04101

Re: Unum HO1
Third Party Inspection of NOVEC 1230 System

Dear Captain Pirone:

Please let this letter serve as formal notice that the Third Party Inspection of the Unum HO1 NOVEC 1230 fire suppression system was completed on Saturday March 30th, 2013. See attached letter from Mark Cummings of Fire Risk Management, Inc. and testing sheets from Hiller of New England. Unless we are notified by the City of Portland Fire Department by 4/12/2013 we will assume no additional inspections and/or testing will be required.

Please contact me directly if you have any questions or concerns.

Respectfully,

Chris Grimaldi
207-205-1491

CC: M. Cummings (Fire Risk Management, Inc.), D. Narvaez (Dean & Allyn Inc.)

FIRE RISK MANAGEMENT, INC
1 Front St., Bath, ME 04530
207/442-7200 [-7272 (fax)]
FRM@fireriskmgt.com

Date: 1 April, 2013

Memo Report

From: W. Mark Cummings, P.E.

To: Mr. Chistopher Grimaldi, Consigli

CC:

Subject: Clean Agent Fire Suppression Systems Testing at UNUM Building

As requested, Fire Risk Management, Inc. (FRM) witnessed a series of tests associated with the commissioning of two (2) clean agent (NOVEC 1230) fire suppression systems installed within the UNUM building located at 2211 Congress Street in Portland, ME. In this capacity, FRM was acting as an independent technical reviewer in lieu of having a representative from the City of Portland's Fire Prevention Office present. The testing was performed on Saturday, 30 March 2013.

Prior to the test date, FRM had received copies of the systems' design documentation; along with the results of the room pressurization (fan) testing that had previously been performed to verify the integrity of the barriers surrounding each of the rooms provided with the clean agent systems. Prior to commencing testing, all questions regarding the specific design parameters used for the two UNUM spaces were addressed; either by the suppression system designer's (Hiller New England) onsite technician or one of the design engineers at their corporate location. Questions regarding the overall systems design and installation, along with the manner in which the control system was specifically designed and programmed were addressed by the systems installer's (Dean & Allyn, Inc.) onsite technician. All questions regarding the design and installation of both the suppression and control systems were satisfactorily answered.

The testing performed included the various sequences of operations, both automatic and manual, for the NOVEC 1230 fire suppression systems that are installed in the LAN and Telephone Switch Rooms of the UNUM building (H01). Each room is provided with a separate fire suppression system, but both systems are monitored and operated by a single control panel. The fire suppression systems control panel is also monitored by, and reports to, the building's main fire alarm control panel (FACP).

During the testing, the manipulation of the systems' control panel and initiation devices was performed by the two technicians from Hiller and Dean & Allyn. Automatic operation of each system was verified by operation of the respective smoke detectors, with manual operation being verified by the use of the manual pull stations installed adjacent to the inside of each access door. The proper operation of all individual devices was verified; including all smoke detectors, horn/strobes, abort buttons, manual pull stations, fan control (shutdown) relay modules, system disable (key) switches, and the electric actuator on each agent storage cylinder.

Proper operation of the system control panel was also verified, including the ability to identify and report a number of system faults that were induced during the testing, such as shorts within the wiring of both the initiating and notification circuits. The proper displays were noted as reporting on both the local system control panel and the remote annunciator and main fire alarm panels in the building's Security Office. It was also verified that an alarm signal received at the local system control panel did result in the actuation of the building's fire alarm/notification system.

During the course of the testing/commissioning evolution, all system functions and features were tested. In all areas of operation and design, both fire suppression systems were demonstrated to be in proper working order, per the design documents and in compliance with the requirements of NFPA 2001, the *Standard on Clean Agent Fire Extinguishing Systems*. If you have any questions or would like additional details regarding the requirements for the systems' commissioning, please do not hesitate to contact me.

W. Mark Cummings, P.E.
Principal Engineer

SERVICE@HILLERNE.COM Tel: 1-800-510-9621 Fax: (978) 657-0016

Hiller New England Fire Protection

a division of The Hiller Companies, Inc.
240 Ballardvale St.
Wilmington, MA 01887

1 OF 1 MA CR-241 DATE: 3/2/2013

RI PERMIT # 54-19A-B

FIRE SUPPRESSION SYSTEM CERTIFICATE OF INSPECTION

CUSTOMER:	APPROVAL AGENCY:
UNUM 2211 CONGRESS ST. PORTLAND, ME. HOME OFFICE BUILDING 1	PORTLAND ME FIRE DEPARTMENT TYPE OF SYSTEM: ANSUL NOVEC 1230 TYPE OF HAZARD: LAN & TELEPHONE SWITCH ROOMS
JOB/E TICKET: NE-2576	

TYPE OF DETECTION/ACTUATING SYSTEM:

MANUFACTURER.:	NOTIFIER	SMOKE:	X	LINK:	
THERMAL:		TEMPERATURE:		SET RANGE:	OK
QUANTITY:	10	DETECTOR MODEL:	FSP-851	BASE MODEL:	B210LP
REMARKS:	CHECKED AND TESTED EACH OK				

AUXILIARY EQUIPMENT:

1. BATTERY DATE:	2-2-2013	7. EMER. POWER:	12V 18AH	13. REM. ELEC.:	2 OK
2. SOLENOID REL.:	2 NOVEC OK	8. EXT. RELAYS:	2 FRM'S OK	14.SUPER. LIGHTS.:	OK
3. AUTOMAN:		9. ZONE TYPE:	CROSS	15. M/R SWITCH:	
4. PRES. GAUGE:	2 OK	10. CONTROL PANEL:	NFS-320	16. TIME DELAY:	20 SEC. OK
5. DISCH. HOSES:		11. GRAPHIC ANN.:		17. CARTRIDGE:	
6. ACT. HOSES:		12. ABORT SWITCH:	2 OK	18. MANUAL PULL:	
19. PRES. SW.:	NONE				
20. HVAC SD:	2ND ALARM SELF RESETS OK	21. EQUIP. SD:	NONE		
22. OTHER:	2 HORN STROBES, 2 DISCHARGE STROBES, AND 2 SOLENOID DISCONECT SWITCHES ALL OK				

REPAIRS:

REQUIRED:		MADE:	

AGENT QTY.:	378 & 268	M/R:	2 MAIN	HYDRO. DATE:	2012	LOCAL ALARM ONLY:	NO
FIRE ALARM TIE IN	TIED TO BUILDING FIRE ALARM FOR ALARM, TROUBLE, AND SUPERVISORY TESTED OK						

REMARKS & RECOMMENDATIONS:

SYSTEM HAS 2 DISCHARGE ZONES

OWNERS REP:	Chris Grimaldi	SERVICE TECHNICIAN:	JAMES WALSH 5062

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MA CR-241
RI PERMIT # 54-19A-B

DATE: 3/2/2013

CYLINDER INSPECTION RECORD

CUSTOMER:	UNUM	HAZARD:	LAN & TELEPHONE SWITCH ROOMS
JOB/E TICKET:	NE-2576	SERVICE TECH:	JAMES WALSH 5062

SERIAL NO.	TYPE OF AGENT	TARE WEIGHT	GROSS WT. OR CU. FT.	NET WEIGHT	TEMP.	PRES.	LIQUID LEVEL	HYDRO. TEST DATE	COMMENTS
21977	NOVEC	504	882	378	70*	360	18in	8-12	LAN ROOM NOVEC TANK
48450	NOVEC	227	495	268	70*	360	53IN	9-12	TELEPHONE SWITCH ROOM

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MA CR-241
RI PERMIT # 54-19A-B

DATE: 3/2/2013

TESTED DEVICES INSPECTION RECORD

CUSTOMER:	UNUM	HAZARD:	LAN & TELEPHONE SWITCH ROOMS	
JOB/E TICKET:	NE-2576	SERVICE TECH:	JAMES WALSH 5062	
ADDRESS OR ZONE	LOCATION	VISUAL INSPECTION	PASS / FAIL	COMMENTS
L 1 D 001	LAN ROOM CEILING	OK	PASS	
L 1 D 002	LAN ROOM CEILING	OK	PASS	
L 1 D 003	LAN ROOM CEILING	OK	PASS	
L 1 D 004	LAN ROOM CEILING	OK	PASS	
L 1 D 005	LAN ROOM CEILING	OK	PASS	
L 1 D 006	LAN ROOM CEILING	OK	PASS	
L 1 D 007	TELEPHONE ROOM CEILING	OK	PASS	
L 1 D 008	TELEPHONE ROOM CEILING	OK	PASS	
L 1 D 009	TELEPHONE ROOM CEILING	OK	PASS	
L 1 D 010	TELEPHONE ROOM CEILING	OK	PASS	
L 1 D 011				
L 1 D 012				
L 1 M 001	LAN ROOM KEY SWITCH MONITOR	OK	PASS	
L 1 M 002	TELEPHONE ROOM KEY SWITCH MONITOR	OK	PASS	
L 1 M 003	LAN ROOM SOLENOID	OK	PASS	
L 1 M 004	TELEPHONE ROOM SOLENOID	OK	PASS	
L 1 M 005	LAN ROOM HVAC SHUT DOWN RELAY	OK	PASS	
L 1 M 006	TELEPHONE ROOM HVAC SHUT DOWN RELAY	OK	PASS	
L 1 M 007	LAN ROOM ABORT BOTTON	OK	PASS	
L 1 M 008	LAN ROOM PULL STATION	OK	PASS	
L 1 M 009	TELEPHONE ROOM ABORT BOTTON	OK	PASS	
L 1 M 010	TELEPHONE ROOM PULL STATION	OK	PASS	
B 001	LAN ROOM HORN	OK	PASS	
B 002	LAN ROOM DISCHARGE STROBE	OK	PASS	
B 003	TELEPHONE ROOM HORN	OK	PASS	
B 004	TELEPHONE ROOM DISCHARGE STROBE	OK	PASS	
	ALARM RELAY TO BFA	OK	PASS	
	TROUBLE RELAY TO BFA	OK	PASS	
	SUPPERVISORY RELAY TO BFA	OK	PASS	

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Wilmington, MA 01887
MA CR-241
RI PERMIT # 54-19A-B

DATE: 3/2/2013

BATTERY INSPECTION RECORD

CUSTOMER:	UNUM	HAZARD:	LAN & TELEPHONE SWITCH ROOMS
JOB/E TICKET:	NE-2576	SERVICE TECH:	JAMES WALSH 5062

LOCATION	INSTALL DATE	SIZE	VISUAL CHECK	LOAD TEST (YES/NO)	AMP READ LEFT / RIGHT	COMMENTS
IN PANEL	2-2-2013	12V 18AH	OK	NEW	NEW	PANEL JUST STARTED UP

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240 Ballardvale St.
Wilmington, MA 01887
www.hillerne.com

AUTHORITY HAVING JURISDICTION (AHJ) ACCEPTANCE DOCUMENT

CUSTOMER:	UNUM	ADDRESS:	2211 CONGRESS ST. PORTLAND, ME. HOME OFFICE BUILDING 1
HAZARD:	LAN & TELEPHONE SWITCH ROOMS	SYSTEM TYPE:	ANSUL NOVEC 1230
AUTHORITY HAVING JURISDICTION:	PORTLAND ME FIRE DEPARTMENT	AHJ REPRESENTITIVE: (PLEASE PRINT)	W. Mark Cummings, P.E.
DATE OF ACCEPTANCE TESTING:	3/2/2013	HILLER REPRESENTITIVE & LICENSE NUMBER: (PLEASE PRINT)	JAMES WALSH
PERMIT NUMBER:		ADDITONAL INFORMATION:	

	PRINT:	SIGN:
ACCEPTED:	W. Mark Cummings	

	PRINT:	SIGN:
ACCEPTED AS NOTED: (SEE COMMENTS BELOW)		

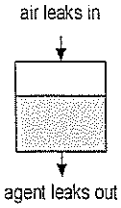
	PRINT:	SIGN:
NOT ACCEPTED: (SEE COMMENTS BELOW)		

COMMENTS:

JAMES Walsh - Tech at Hiller Performed testing. James Walsh 3-30-13

PASS/FAIL Enclosure Integrity Report

CleanAgent 2001 retention time prediction program revision 2.6.3. Complies with NFPA 2001 Appendix C, year 2000 edition.
By Retrotec, Inc, 2200 Queen Street, Bellingham, WA USA 98229 360-738-9835 www.retrotec.com
Software Licensed to: *Hiller New England Fire Protection Inc*



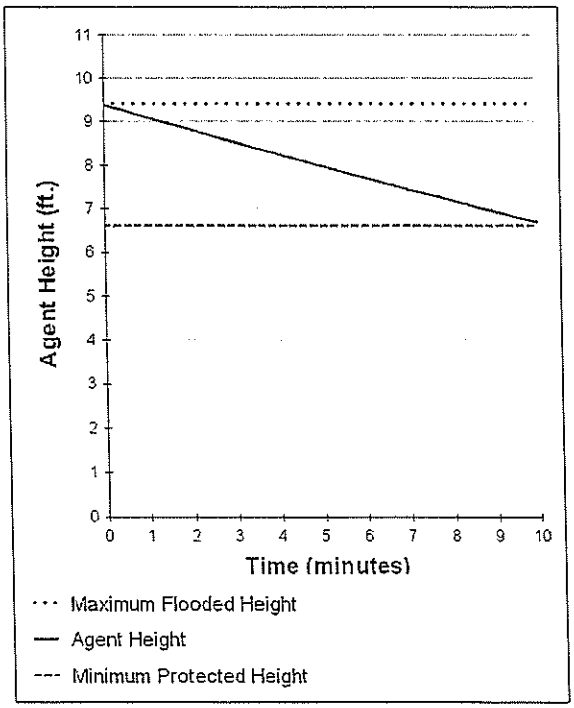
Building, Location *HOME OFFICE 1, PORTLAND, ME, USA*
Company, Contact *DEAN & ALLEN, ERIC ELKANICH*
Room name *TELEPHONE SWITCH ROOM* Test number *1*
Calibration Certificate # *5408* Certificate created *2010/06/04*

Test date/time	*2013/02/02 05:41*	Net Protected Volume, V	*6,636 ft^3*
Tester	*James Walsh*	Maximum Flooded Height, H_o	*9.40 ft.*
Certified to Level:	*2 - Single fan NFPA room test*	Minimum Protected Height, H	*6.60 ft.*
Signature		Static during retention, P_{SH}	*0.0 Pa*
Elevation above sea level	*751 ft.*	Operating temperature	*70 F*
Correction method	*NFPA 2001 (2000) Formula A-3-5.3.3*	Initial concentration, C	*4.92%*
Correction factor	*0.97*	Mixing during retention	*No*
Agent	*Novec 1230*	Agent quantity	*288 lb.*
Total room leakage, ELA	*1.02 ft^2*	Minimum concentration, C_F	*4.92%*
Lower Leakage, BCLA	*0.51 ft^2*	Minimum retention time	*10.0 minutes*

Below ceiling leakage defaulting to worst case -- 50% of total leakage.

This enclosure was tested in compliance with NFPA 2001 and 12A.
Assuming no continual mixing during the retention period, enclosure leakage could allow sufficient agent to be lost to cause an air/agent interface to descend from a Maximum Protected Height of 9.40 ft. to the Minimum Protected Height specified of 6.60 ft.
The retention time would then be 10.3 minutes which exceeds the minimum retention time of 10 minutes. The enclosure therefore passes this acceptance procedure.

Notes



Witnesses

DOOR FAN TEST -- Total Room Leakage Data

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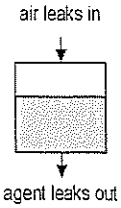

Building, Location ***HOME OFFICE 1, PORTLAND, ME, USA***
Company, Contact ***DEAN & ALLEN, ERIC ELKANICH***
Room name ***TELEPHONE SWITCH ROOM*** Test number ***1***
Calibration Certificate # ***5408*** Certificate created **2010/06/04**

Total Room Leakage

Operator In the room Smoke doesn't move Temperature during test (F)
Static pressure 0 Pa 70 inside 70 outside

Depressurization		Range for room pressures: -17.2 to -20.2
Blower range	Room pressure	-18.7
	Auto corrected RP	-18.7
Ring C8	Flow Pressure	112
	Auto corrected FP	112.9
	Corrected flow (ft^3/min.)	-864

Pressurization		Range for room pressures: 17.2 to 20.2
Blower range	Room pressure	19.2
	Auto corrected RP	19.2
Ring C8	Flow Pressure	59
	Auto corrected FP	59.6
	Corrected flow (ft^3/min.)	516

	ELA ft^2	@Pa	F_A
Depressurization	1.29	18.7	
Pressurization	0.76	19.2	
Average	**1.02**	19.0	0.50

Slope n	Intercept k_1	Correlation	Standard Error	ELAft^2		F
0.5000	199.72	NA	NA			
0.5000	117.71	NA	NA			
0.5000	158.71			1.03	10.0	0.50

Lower Leakage

Below ceiling leakage of 0.51 ft^2 @ 10.0 Pa is the worst case assumption of 50%

Technician: ***James Walsh*** Certified to Level: ***2 - Single fan NFPA room test***

Yes Level 1 - Fire enclosure design basics for improving agent retention and passive protection
Yes Level 2 - adds single door fan operation and NFPA clean agent retention time calculations
No Level 3 - adds double door fan operation for Lower Leak measurement
No Level 4 - adds multi-point ISO door fan operation and discharge pressure relief vent

DOOR FAN TEST -- Graph

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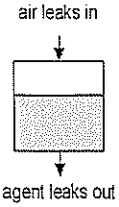
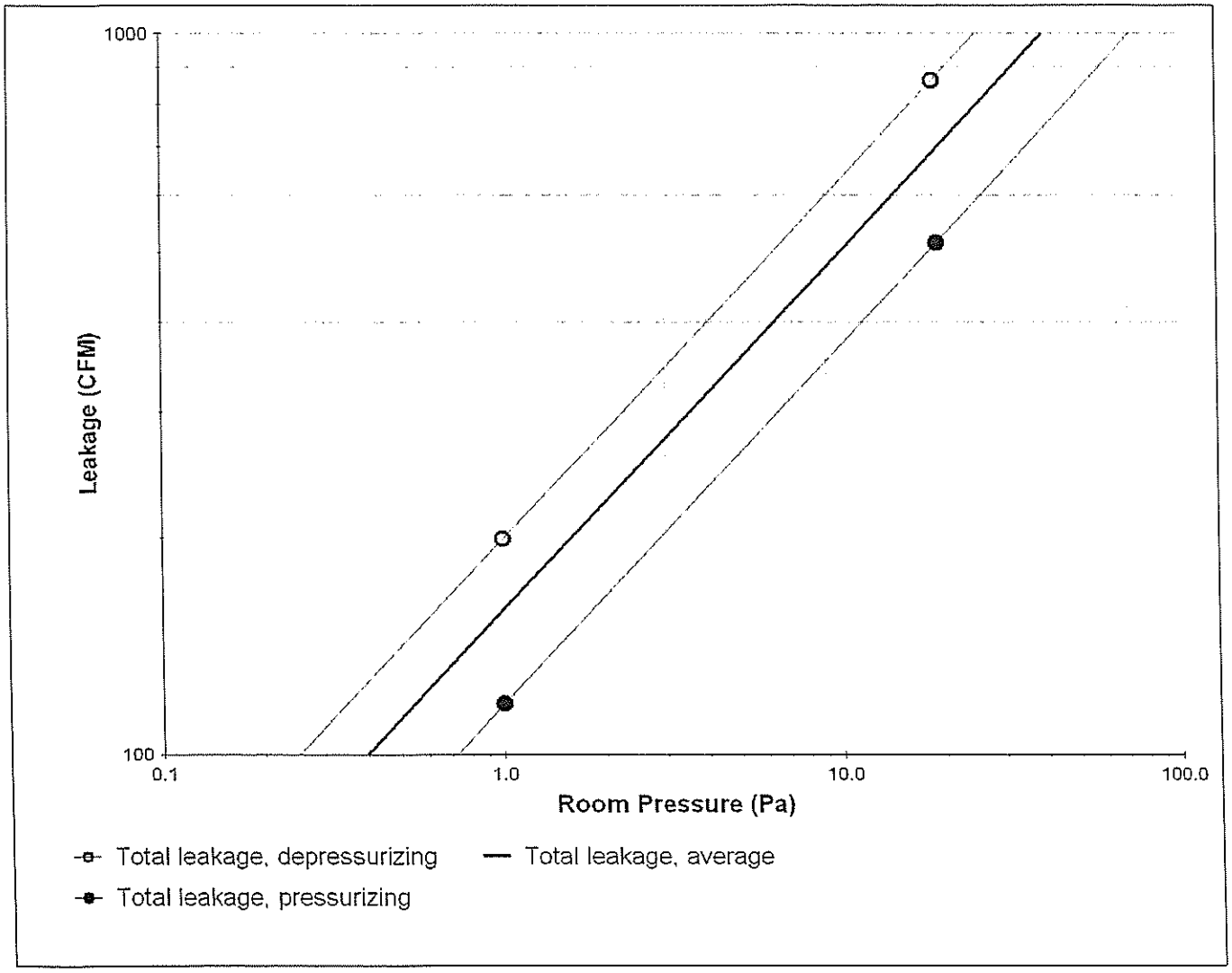


Building, Location *HOME OFFICE 1, PORTLAND, ME, USA*
Company, Contact *DEAN & ALLEN, ERIC ELKANICH*
Room name *TELEPHONE SWITCH ROOM* Test number *1*
Calibration Certificate # *5408* Certificate created 2010/06/04



PASS/FAIL Enclosure Integrity Report

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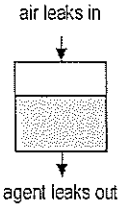


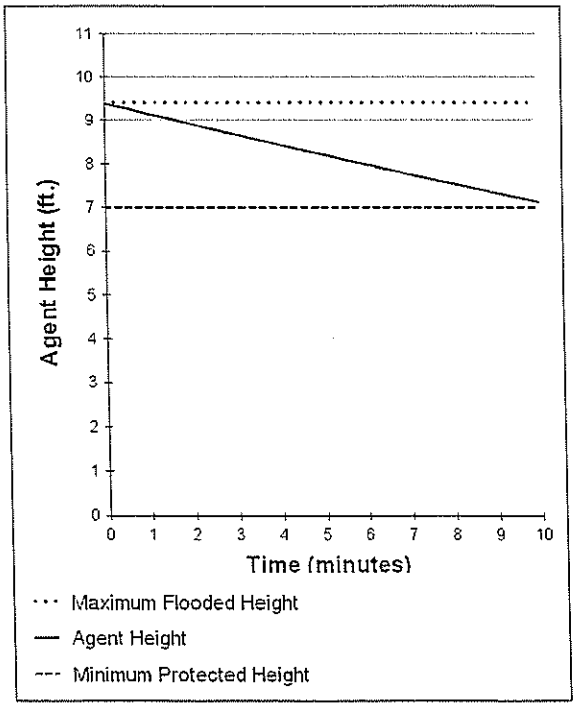
Building, Location *HOME OFFICE 1, PORTLAND, ME, USA*
Company, Contact *DEAN & ALLEN, ERIC ELKANICH*
Room name *LAN ROOM* Test number *1*
Calibration Certificate # *5408* Certificate created *2010/06/04*

Test date/time	*2013/02/02 06:25*	Net Protected Volume, V	*8,637 ft^3*
Tester	*James Walsh*	Maximum Flooded Height, H_o	*9.40 ft.*
Certified to Level:	*2 - Single fan NFPA room test*	Minimum Protected Height, H	*7.00 ft.*
Signature		Static during retention, P_{SH}	*0.0 Pa*
Elevation above sea level	*751 ft.*	Operating temperature	*70 F*
Correction method	*NFPA 2001 (2000) Formula A-3-5.3.3*	Initial concentration, C	*4.97%*
Correction factor	*0.97*	Mixing during retention	*No*
Agent	*Novec 1230*	Agent quantity	*379 lb.*
Total room leakage, ELA	*1.10 ft^2*	Minimum concentration, C_F	*4.97%*
Lower Leakage, BCLA	*0.55 ft^2*	Minimum retention time	*10.0 minutes*

Below ceiling leakage defaulting to worst case -- 50% of total leakage.

This enclosure was tested in compliance with NFPA 2001 and 12A.
Assuming no continual mixing during the retention period, enclosure leakage could allow sufficient agent to be lost to cause an air/agent interface to descend from a Maximum Protected Height of 9.40 ft. to the Minimum Protected Height specified of 7.00 ft.
The retention time would then be 10.6 minutes which exceeds the minimum retention time of 10 minutes. The enclosure therefore passes this acceptance procedure.

Notes



Witnesses

DOOR FAN TEST -- Total Room Leakage Data

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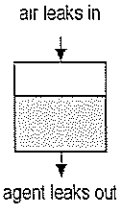

Building, Location ***HOME OFFICE 1, PORTLAND, ME, USA***
Company, Contact ***DEAN & ALLEN, ERIC ELKANICH***
Room name ***LAN ROOM*** Test number ***1***
Calibration Certificate # ***5408*** Certificate created **2010/06/04**

Total Room Leakage

Operator Out of the room Smoke doesn't move Temperature during test (F)
Static pressure 0 Pa 70 inside 70 outside

Depressurization Range for room pressures: -17.4 to -20.4

Blower range	Room pressure	-17.9
	Auto corrected RP	-17.9
Ring C8	Flow Pressure	165
	Auto corrected FP	166.1
	Corrected flow (ft^3/min.)	-991

Pressurization Range for room pressures: 17.4 to 20.4

Blower range	Room pressure	19.6
	Auto corrected RP	19.6
Ring C8	Flow Pressure	32.7
	Auto corrected FP	33.1
	Corrected flow (ft^3/min.)	467

	ELA ft^2	@Pa	F_A	Slope n	Intercept k_1	Correlation	Standard Error	ELAft^2		F
Pressurization	1.51	17.9		0.5000	234.31	NA	NA			
Depressurization	0.68	19.6		0.5000	105.54	NA	NA			
Average	1.10	18.8	0.50	0.5000	169.92			1.10	10.0	0.50

Lower Leakage

Below ceiling leakage of 0.55 ft^2 @ 10.0 Pa is the worst case assumption of 50%

Technician: ***James Walsh*** Certified to Level: ***2 - Single fan NFPA room test***

Yes Level 1 - Fire enclosure design basics for improving agent retention and passive protection
Yes Level 2 - adds single door fan operation and NFPA clean agent retention time calculations
No Level 3 - adds double door fan operation for Lower Leak measurement
No Level 4 - adds multi-point ISO door fan operation and discharge pressure relief vent

DOOR FAN TEST -- Graph

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Building, Location *HOME OFFICE 1, PORTLAND, ME, USA*
Company, Contact *DEAN & ALLEN, ERIC ELKANICH*
Room name *LAN ROOM* Test number *1*
Calibration Certificate # *5408* Certificate created *2010/06/04*