Public Input No. 2-NFPA 4-2020 [New Section after 3.3.12]

TITLE OF NEW CONTENT 3.3.12 Integrated System Definition

Integrated System. The connection of two separate systems. Connection types 1) Monitoring, 2) Controlling, 3) Monitor and Control (two-way).

Statement of Problem and Substantiation for Public Input

A definition was not provided.

Submitter Information Verification

Submitter Full Name: Tim Lincoln
Organization: Justice Engineering Corp
Street Address:
City:
State:
Zip:
Submittal Date: Thu Nov 12 13:58:04 EST 2020
Committee: CMI-AAA

Committee Statement

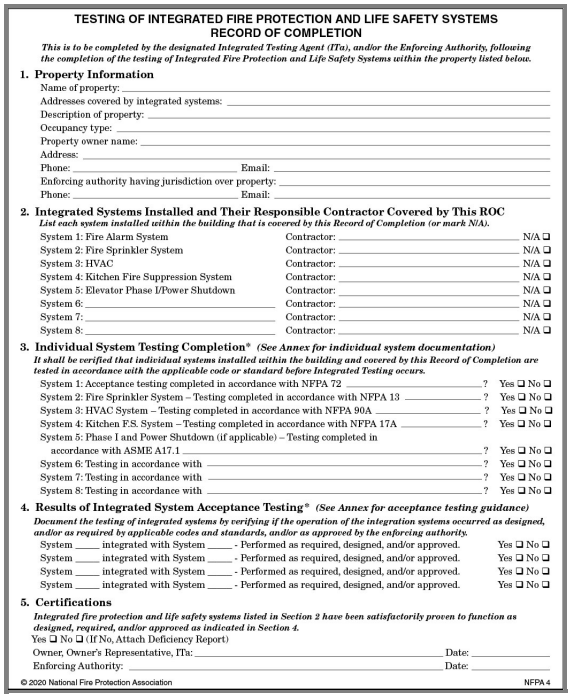
Resolution: The term is already defined in 3.3.26.4.

Public Input No. 1-NFPA 4-2020 [Section No. B.1]

B.1 Sample Forms.

See Figure B.1(a) through Figure B.1(f) for integrated system testing sample forms.

Figure B.1(a) Sample Record of Completion.



TESTING OF INTEGRATED FIRE PROTECTION AND LIFE SAFETY SYSTEMS
RECORD OF COMPLETION

This is to be completed by the designated Integrated Testing Agent (ITa), and/or the Enforcing Authority, following the completion of the testing of Integrated Fire Protection and Life Safety Systems within the property listed below.

1. Property Information

Name of property: _____
Addresses covered by integrated systems: _____
Description of property: _____
Occupancy type: _____
Property owner name: _____
Address: _____
Phone: _____ Email: _____
Enforcing authority having jurisdiction over property: _____
Phone: _____ Email: _____

2. Integrated Systems Installed and Their Responsible Contractor Covered by This ROC

List each system installed within the building that is covered by this Record of Completion (or mark N/A).

System 1: Fire Alarm System — Contractor: _____ N/A ❑
System 2: Fire Sprinkler System — Contractor: _____ N/A ❑
System 3: HVAC — Contractor: _____ N/A ❑
System 4: Kitchen Fire Suppression System — Contractor: _____ N/A ❑
System 5: Elevator Phase I/Power Shutdown — Contractor: _____ N/A ❑
System 6: _____ — Contractor: _____ N/A ❑
System 7: _____ — Contractor: _____ N/A ❑
System 8: _____ — Contractor: _____ N/A ❑

3. Individual System Testing Completion* ***(See Annex for individual system documentation)***

It shall be verified that individual systems installed within the building and covered by this Record of Completion are tested in accordance with the applicable code or standard before Integrated Testing occurs.

System 1: Acceptance testing completed in accordance with NFPA 72 _____? Yes ❑ No ❑
System 2: Fire Sprinkler System – Testing completed in accordance with NFPA 13 _____? Yes ❑ No ❑
System 3: HVAC System – Testing completed in accordance with NFPA 90A _____? Yes ❑ No ❑
System 4: Kitchen F.S. System – Testing completed in accordance with NFPA 17A _____? Yes ❑ No ❑
System 5: Phase I and Power Shutdown (if applicable) – Testing completed in accordance with ASME A17.1 _____? Yes ❑ No ❑
System 6: Testing in accordance with _____? Yes ❑ No ❑
System 7: Testing in accordance with _____? Yes ❑ No ❑
System 8: Testing in accordance with _____? Yes ❑ No ❑

4. Results of Integrated System Acceptance Testing* ***(See Annex for acceptance testing guidance)***

Document the testing of integrated systems by verifying if the operation of the integration systems occurred as designed, and/or as required by applicable codes and standards, and/or as approved by the enforcing authority.

System ____ integrated with System ____ - Performed as required, designed, and/or approved. Yes ❑ No ❑
System ____ integrated with System ____ - Performed as required, designed, and/or approved. Yes ❑ No ❑
System ____ integrated with System ____ - Performed as required, designed, and/or approved. Yes ❑ No ❑
System ____ integrated with System ____ - Performed as required, designed, and/or approved. Yes ❑ No ❑

5. Certifications

Integrated fire protection and life safety systems listed in Section 2 have been satisfactorily proven to function as designed, required, and/or approved as indicated in Section 4.

Yes ❑ No ❑ (If No, Attach Deficiency Report)
Owner, Owner's Representative, ITa: _____ Date: _____
Enforcing Authority: _____ Date: _____

 NFPA 4

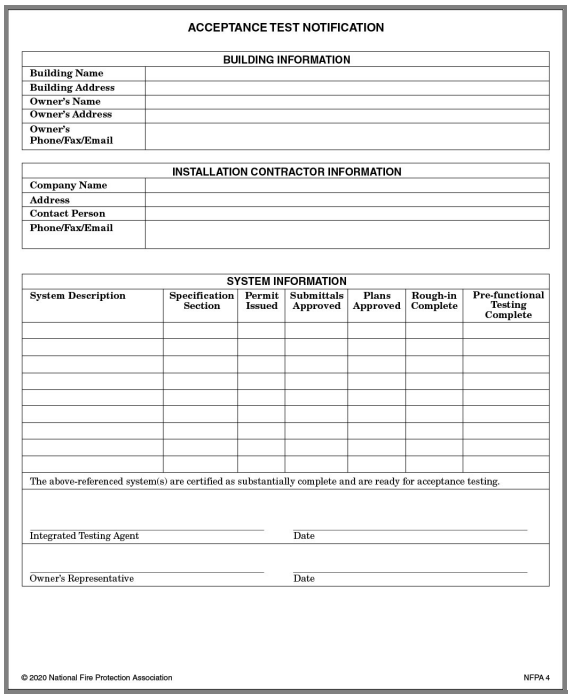
Unable to edit jpg above, suggest the following edits:

2. System 6: **ERRC System**

7: **Emergency Generator monitoring by Fire Alarm System**

System 8: **Fire Water Valve, BFP, Fire Pump monitoring by Fire Alarm System**

Figure B.1(b) Sample Acceptance Test Notification Form.



ACCEPTANCE TEST NOTIFICATION

BUILDING INFORMATION	
Building Name	
Building Address	
Owner's Name	
Owner's Address	
Owner's Phone/Fax/Email	

INSTALLATION CONTRACTOR INFORMATION	
Company Name	
Address	
Contact Person	
Phone/Fax/Email	

SYSTEM INFORMATION						
System Description	**Specification Section**	**Permit Issued**	**Submittals Approved**	**Plans Approved**	**Rough-in Complete**	**Pre-functional Testing Complete**

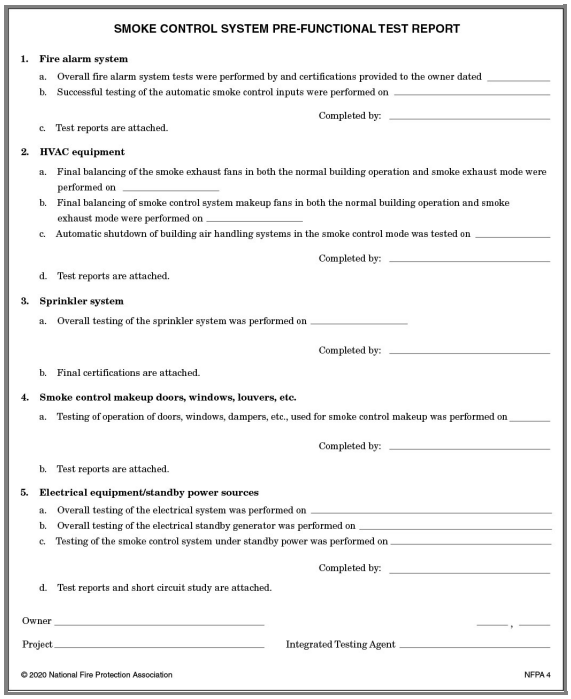
The above-referenced system(s) are certified as substantially complete and are ready for acceptance testing.

Integrated Testing Agent Date

Owner's Representative Date

© 2020 National Fire Protection Association NFPA 4

Figure B.1(c) Sample Smoke Control Pre-functional Test Form.



SMOKE CONTROL SYSTEM PRE-FUNCTIONAL TEST REPORT

1. **Fire alarm system**
   a. Overall fire alarm system tests were performed by and certifications provided to the owner dated _____
   b. Successful testing of the automatic smoke control inputs were performed on _____
   Completed by: _____
   c. Test reports are attached.
2. **HVAC equipment**
   a. Final balancing of the smoke exhaust fans in both the normal building operation and smoke exhaust mode were performed on _____
   b. Final balancing of smoke control system makeup fans in both the normal building operation and smoke exhaust mode were performed on _____
   c. Automatic shutdown of building air handling systems in the smoke control mode was tested on _____
   Completed by: _____
   d. Test reports are attached.
3. **Sprinkler system**
   a. Overall testing of the sprinkler system was performed on _____
   Completed by: _____
   b. Final certifications are attached.
4. **Smoke control makeup doors, windows, louvers, etc.**
   a. Testing of operation of doors, windows, dampers, etc., used for smoke control makeup was performed on _____
   Completed by: _____
   b. Test reports are attached.
5. **Electrical equipment/standby power sources**
   a. Overall testing of the electrical system was performed on _____
   b. Overall testing of the electrical standby generator was performed on _____
   c. Testing of the smoke control system under standby power was performed on _____
   Completed by: _____
   d. Test reports and short circuit study are attached.

Owner _____ _____, _____

Project _____ Integrated Testing Agent _____

© 2020 National Fire Protection Association NFPA 4

Figure B.1(d) Sample Acceptance Test Form.

SMOKE CONTROL SYSTEM ACCEPTANCE TESTS

1. Persons present for testing

a. SC Testing agent _____ _____
b. Owner _____ _____
c. Architect _____ _____
d. Engineer _____ _____
e. Code official _____ _____
f. Contractors
GC _____ _____
Fire alarm _____ _____
Mechanical _____ _____
Balancer _____ _____
Electrical _____ _____
Comm. agent _____ _____

2. Test measurements

a. Ambient conditions
(1) Wind speed _____
(2) Wind direction _____
(3) Outside temperature _____
(4) Ambient space temperature _____

b. System in normal mode
(1) Exhaust fan/damper status

	ON/OPEN	OFF/CLOSE
EF-1		
EF-1 Inlet damper		
EF-2		
EF-2 Inlet damper		
EF-3		
EF-3 Inlet damper		
M-1 Damper		
M-2 Damper		

(2) Main AC status

	ON/OPEN	OFF/CLOSE
AHU-1 Supply fan		
AHU-1 Vent OA damper		
AHU-1 Econ OA damper		
AHU-1 RA damper		
AHU-1 Steam valve		
AHU-2 Supply fan		
AHU-2 Return fan		
Smoke damper — 1st to 2nd		
MAD-1		
MAD-2		
MAD-3		
First floor NW return smoke damper		
First floor SE return smoke damper		
Second floor NW return smoke damper		
Second floor SE return smoke damper		
Third floor NW return smoke damper		
Third floor SE return smoke damper		
Fourth floor NW return smoke damper		
Fourth floor SE return smoke damper		

Owner _____ ____ , ____
Project _____ Integrated testing agent _____

(3) VAV box status

	ON/OPEN	OFF/CLOSE
First floor		
Second floor		
Third floor		
Fourth floor		

(4) Door opening forces

	Latch	Start	Full
Fourth floor stair – ST-A			
Fourth floor stair – ST-B			
Third floor stair – ST-A			
Third floor stair – ST-B			
Second floor stair – ST-A			
Second floor stair – ST-B			
First floor stair – ST-A			
First floor stair – ST-B			

(5) Pressure differentials

Fourth floor stair – ST-A	
Fourth floor stair – ST-B	
Third floor stair – ST-A	
Third floor stair – ST-B	
Second floor stair – ST-A	
Second floor stair – ST-B	
First floor stair – ST-A	
First floor stair – ST-B	

(6) Velocities at atrium perimeter

	North	East	South	West
Second floor				
Third floor				
Fourth floor				

c. Equipment in smoke exhaust mode — normal power

(1) Device used to initiate _____
(2) Time for system to full operation _____
(3) Total flow — exhaust _____ Makeup _____
(4) Exhaust fan/damper status

	ON/OPEN	OFF/CLOSE
EF-1		
EF-1 Inlet damper		
EF-2		
EF-2 Inlet damper		
EF-3		
EF-3 Inlet damper		
M-1 Damper		
M-2 Damper		

Owner _____ ____ , ____
Project _____ Integrated testing agent _____

(5) Main AC status

	ON/OPEN	OFF/CLOSE
AHU-1 Supply fan		
AHU-1 Vent OA damper		
AHU-1 Econ OA damper		
AHU-1 RA damper		
AHU-1 Steam valve		
AHU-2 Supply fan		
AHU-2 Return fan		
Smoke damper — 1st to 2nd		
MAD-1		
MAD-2		
MAD-3		
First floor NW return smoke damper		
First floor SE return smoke damper		
Second floor NW return smoke damper		
Second floor SE return smoke damper		
Third floor NW return smoke damper		
Third floor SE return smoke damper		
Fourth floor NW return smoke damper		
Fourth floor SE return smoke damper		

(6) VAV box status

	ON/OPEN	OFF/CLOSE
First floor		
Second floor		
Third floor		
Fourth floor		

(7) Door opening forces

	Latch	Start	Full
Fourth floor stair – ST-A			
Fourth floor stair – ST-B			
Third floor stair – ST-A			
Third floor stair – ST-B			
Second floor stair – ST-A			
Second floor stair – ST-B			
First floor stair – ST-A			
First floor stair – ST-B			

(8) Pressure differentials

Fourth floor stair – ST-A	
Fourth floor stair – ST-B	
Third floor stair – ST-A	
Third floor stair – ST-B	
Second floor stair – ST-A	
Second floor stair – ST-B	
First floor stair – ST-A	
First floor stair – ST-B	

(9) Velocities at atrium perimeter

	North	East	South	West
Second floor				
Third floor				
Fourth floor				

Owner _____ _____, _____

Project _____ Integrated testing agent _____

b. Equipment in smoke exhaust mode — transfer to emergency

(1) Time for system to transfer _____

(2) Total flow — exhaust _____ Makeup _____

(3) Exhaust fan/damper status

	ON/OPEN	OFF/CLOSE
EF-1		
EF-1 Inlet damper		
EF-2		
EF-2 Inlet damper		
EF-3		
EF-3 Inlet damper		
M-1 Damper		
M-2 Damper		

(4) Main AC status

	ON/OPEN	OFF/CLOSE
AHU-1 Supply fan		
AHU-1 Vent OA damper		
AHU-1 Econ OA damper		
AHU-1 RA damper		
AHU-1 Steam valve		
AHU-2 Supply fan		
AHU-2 Return fan		
Smoke damper — 1st to 2nd		
MAD-1		
MAD-2		
MAD-3		
First floor NW return smoke damper		
First floor SE return smoke damper		
Second floor NW return smoke damper		
Second floor SE return smoke damper		
Third floor NW return smoke damper		
Third floor SE return smoke damper		
Fourth floor NW return smoke damper		
Fourth floor SE return smoke damper		

(5) VAV box status

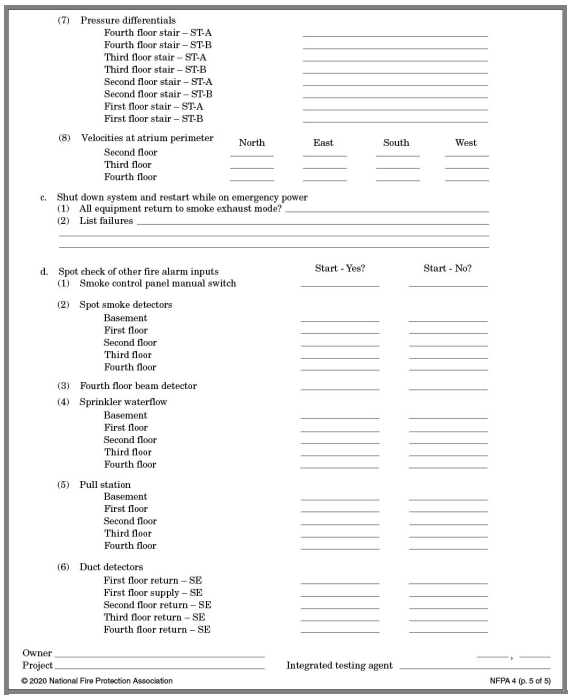
	ON/OPEN	OFF/CLOSE
First floor		
Second floor		
Third floor		
Fourth floor		

(6) Door opening forces

	Latch	Start	Full
Fourth floor stair – ST-A			
Fourth floor stair – ST-B			
Third floor stair – ST-A			
Third floor stair – ST-B			
Second floor stair – ST-A			
Second floor stair – ST-B			
First floor stair – ST-A			
First floor stair – ST-B			

Owner _____ _____, _____

Project _____ Integrated testing agent _____



(7) Pressure differentials

Fourth floor stair – ST-A	
Fourth floor stair – ST-B	
Third floor stair – ST-A	
Third floor stair – ST-B	
Second floor stair – ST-A	
Second floor stair – ST-B	
First floor stair – ST-A	
First floor stair – ST-B	

(8) Velocities at atrium perimeter

	North	East	South	West
Second floor				
Third floor				
Fourth floor				

e. Shut down system and restart while on emergency power
(1) All equipment return to smoke exhaust mode? _____
(2) List failures _____

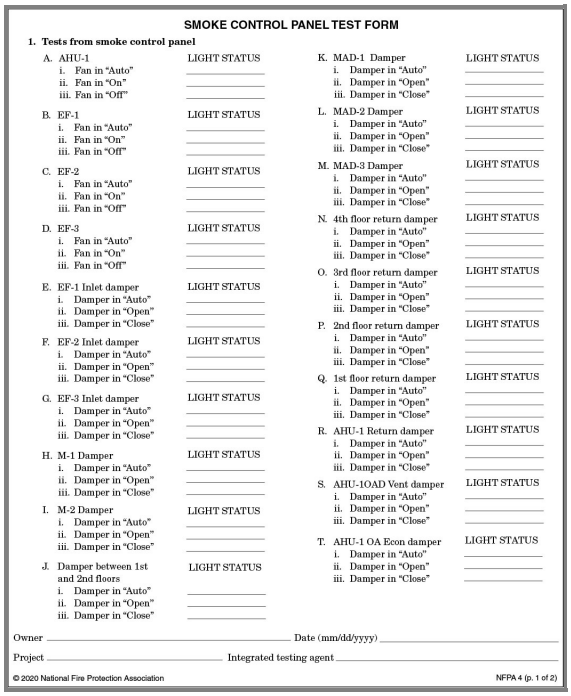
d. Spot check of other fire alarm inputs

	Start - Yes?	Start - No?
(1) Smoke control panel manual switch		
(2) Spot smoke detectors		
Basement		
First floor		
Second floor		
Third floor		
Fourth floor		
(3) Fourth floor beam detector		
(4) Sprinkler waterflow		
Basement		
First floor		
Second floor		
Third floor		
Fourth floor		
(5) Pull station		
Basement		
First floor		
Second floor		
Third floor		
Fourth floor		
(6) Duct detectors		
First floor return – SE		
First floor supply – SE		
Second floor return – SE		
Third floor return – SE		
Fourth floor return – SE		

Owner _____ _____, _____
Project _____ Integrated testing agent _____

 NFPA 4 (p. 5 of 5)

Figure B.1(e) Sample Smoke Control Panel Test Form.



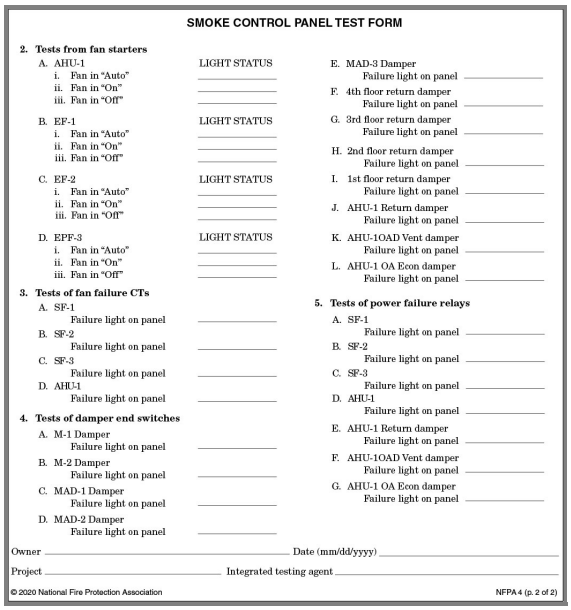
SMOKE CONTROL PANEL TEST FORM

1. Tests from smoke control panel

	LIGHT STATUS
A. AHU-1	
i. Fan in "Auto"	
ii. Fan in "On"	
iii. Fan in "Off"	
B. EF-1	
i. Fan in "Auto"	
ii. Fan in "On"	
iii. Fan in "Off"	
C. EF-2	
i. Fan in "Auto"	
ii. Fan in "On"	
iii. Fan in "Off"	
D. EF-3	
i. Fan in "Auto"	
ii. Fan in "On"	
iii. Fan in "Off"	
E. EF-1 Inlet damper	
i. Damper in "Auto"	
ii. Damper in "Open"	
iii. Damper in "Close"	
F. EF-2 Inlet damper	
i. Damper in "Auto"	
ii. Damper in "Open"	
iii. Damper in "Close"	
G. EF-3 Inlet damper	
i. Damper in "Auto"	
ii. Damper in "Open"	
iii. Damper in "Close"	
H. M-1 Damper	
i. Damper in "Auto"	
ii. Damper in "Open"	
iii. Damper in "Close"	
I. M-2 Damper	
i. Damper in "Auto"	
ii. Damper in "Open"	
iii. Damper in "Close"	
J. Damper between 1st and 2nd floors	
i. Damper in "Auto"	
ii. Damper in "Open"	
iii. Damper in "Close"	
K. MAD-1 Damper	
i. Damper in "Auto"	
ii. Damper in "Open"	
iii. Damper in "Close"	
L. MAD-2 Damper	
i. Damper in "Auto"	
ii. Damper in "Open"	
iii. Damper in "Close"	
M. MAD-3 Damper	
i. Damper in "Auto"	
ii. Damper in "Open"	
iii. Damper in "Close"	
N. 4th floor return damper	
i. Damper in "Auto"	
ii. Damper in "Open"	
iii. Damper in "Close"	
O. 3rd floor return damper	
i. Damper in "Auto"	
ii. Damper in "Open"	
iii. Damper in "Close"	
P. 2nd floor return damper	
i. Damper in "Auto"	
ii. Damper in "Open"	
iii. Damper in "Close"	
Q. 1st floor return damper	
i. Damper in "Auto"	
ii. Damper in "Open"	
iii. Damper in "Close"	
R. AHU-1 Return damper	
i. Damper in "Auto"	
ii. Damper in "Open"	
iii. Damper in "Close"	
S. AHU-1OAD Vent damper	
i. Damper in "Auto"	
ii. Damper in "Open"	
iii. Damper in "Close"	
T. AHU-1 OA Econ damper	
i. Damper in "Auto"	
ii. Damper in "Open"	
iii. Damper in "Close"	

Owner _____ Date (mm/dd/yyyy) _____
Project _____ Integrated testing agent _____

 NFPA 4 (p. 1 of 2)



SMOKE CONTROL PANEL TEST FORM

2. Tests from fan starters

A. AHU-1 — LIGHT STATUS
- i. Fan in "Auto" _____
- ii. Fan in "On" _____
- iii. Fan in "Off" _____

B. EF-1 — LIGHT STATUS
- i. Fan in "Auto" _____
- ii. Fan in "On" _____
- iii. Fan in "Off" _____

C. EF-2 — LIGHT STATUS
- i. Fan in "Auto" _____
- ii. Fan in "On" _____
- iii. Fan in "Off" _____

D. EPF-3 — LIGHT STATUS
- i. Fan in "Auto" _____
- ii. Fan in "On" _____
- iii. Fan in "Off" _____

3. Tests of fan failure CTs

A. SF-1 Failure light on panel _____

B. SF-2 Failure light on panel _____

C. SF-3 Failure light on panel _____

D. AHU-1 Failure light on panel _____

4. Tests of damper end switches

A. M-1 Damper Failure light on panel _____

B. M-2 Damper Failure light on panel _____

C. MAD-1 Damper Failure light on panel _____

D. MAD-2 Damper Failure light on panel _____

E. MAD-3 Damper Failure light on panel _____

F. 4th floor return damper Failure light on panel _____

G. 3rd floor return damper Failure light on panel _____

H. 2nd floor return damper Failure light on panel _____

I. 1st floor return damper Failure light on panel _____

J. AHU-1 Return damper Failure light on panel _____

K. AHU-1OAD Vent damper Failure light on panel _____

L. AHU-1 OA Econ damper Failure light on panel _____

5. Tests of power failure relays

A. SF-1 Failure light on panel _____

B. SF-2 Failure light on panel _____

C. SF-3 Failure light on panel _____

D. AHU-1 Failure light on panel _____

E. AHU-1 Return damper Failure light on panel _____

F. AHU-1OAD Vent damper Failure light on panel _____

G. AHU-1 OA Econ damper Failure light on panel _____

Owner _____ Date (mm/dd/yyyy) _____

Project _____ Integrated testing agent _____

 NFPA 4 (p. 2 of 2)

Figure B.1(f) Sample Smoke Control Test Readiness Form.

ATRIUM SMOKE CONTROL SYSTEM TESTING NOTIFICATION

BUILDING INFORMATION	
Building Name	
Building Address	
Owner's Name	
Owner's Address	
Owner's Phone/Fax/Email	

CONTRACTOR INFORMATION	
Company Name	
Address	
Contact Person	
Phone/Fax/Email	

SYSTEM INFORMATION

System Description	Specification Section	Permit Issued	Submittals Approved	Plans Approved	Rough-in Complete	Pre-functional Testing Complete
HVAC system						
Fire alarm system						
Sprinkler system						
Electrical system						
Standby power generator						
Makeup doors/windows/louvers						

The above-referenced system(s) are certified as substantially complete and are ready for acceptance testing.

Integrated Testing Agent _____ Date _____

Owner's Representative _____ Date _____

 NFPA 4

Additional Proposed Changes

File Name	Description	Approved
NFPA_4_B1.txt	For NFPA 4 Annex B.1	

Statement of Problem and Substantiation for Public Input

Additional common integrated systems not included on checklist.

Submitter Information Verification

Submitter Full Name: Tim Lincoln
Organization: Justice Engineering Corp

Street Address:
City:
State:
Zip:
Submittal Date: Wed Nov 11 18:29:25 EST 2020
Committee: CMI-AAA

Committee Statement

Resolution: The form has purposely limited the amount of items in Section 2 to keep the form to a single page. System 6, 7, 8 are left blank intentionally to add systems that are applicable to the building. The proposed items exceeds the intent of the smaller form that can be used on the majority of smaller buildings.