Public Comment No. 2-NFPA 318-2023 [Section No. 5.5.2 [Excluding any Sub-Sections]]

Hazardous chemicals in the fabrication area shall be limited to those needed for operations and maintenance and as required by 5.5.2.1 through 5.5.2.3, with quantities not exceeding the limitations specified in Table 5.5.2. The limits of Table 5.5.2 shall be permitted to be exceeded, provided a submittal using alternative methods and materials is approved by the authority having jurisdiction (AHJ).

Table 5.5.~~2 Quantity~~ 2* Quantity Limits for Hazardous Materials in a Single Fabrication Area

Hazard Category	Solids		Liquids		Gas				
	kg/m^2	lb/ft^2	L/m^2	gal/ft^2	m^3 @ NTP/m^2	ft^3 @ NTP/ft^2			
Physical Hazard Materials	-	-	-	-	-	-			
Class II and III liquids [FP ≥ 37.8°C (100°F)]	-	-	-	-	-	-			
Class II	-	-			0.8	0.02	- -		
Class IIIA	-	-			1.6	0.04	- -		
Class IIIB	-	-			Not limited	Not limited	- -		
Combination Class I, II, and IIIA	-	-			3.26	0.08	- -		
Cryogenic	-	-	-	-	-	-			
Flammable	-	-	-	-				Note b	Note b
Oxidizing	-	-	-	-				0.76	2.5
Flammable gas	-	-	-	-	-	-			
Gaseous	-	-	-	-				Note b	Note b
Liquefied	-	-	-	-				Note b	Note b
Class I liquid [FP < 37.8°C (100°F)]	-	-	-	-	-	-			
Class AIA	-	-			2.04	0.05	- -		
Class IB	-	-			2.04	0.05	- -		
Class IC	-	-			2.04	0.05	- -		
Combination Class IA, IB, and IC	-	-			2.04	0.05	- -		
Combination Class I, II, and IIIA	-	-			3.26	0.08	- -		
Flammable solid	0.032	0.002	-	-	-	-			
Organic peroxide	-	-	-	-	-	-			
Unclassified detonable	Note [a]	Note [a]	Note [a]	Note [a]	-	-			
Class I	Note [a]	Note [a]	Note [a]	Note [a]	-	-			
Class II	0.8	0.05	0.1	0.0025	-	-			
Class III	3.2	0.2	0.8	0.02	-	-			
Class IV	Not limited	Not limited	Not limited	Not limited	-	-			

Hazard Category	Solids		Liquids		Gas			
	kg/m^2	lb/ft^2	L/m^2	gal/ft^2	m^3 @ NTP/m^2	ft^3 @ NTP/ft^2		
Class V	Not limited	Not limited	Not limited	Not limited	-	-		
Oxidizing gas	-	-	-	-	-	-		
Gaseous	-	-	-	-			0.76	2.5
Liquefied	-	-	-	-			0.76	2.5
Combination of gaseous and liquefied	-	-	-	-			0.76	2.5
Oxidizer	-	-	-	-	-	-		
Class 4	Note [a]	Note [a]	Note [a]	Note [a]	-	-		
Class 3	0.096	0.006	2.44	0.06	-	-		
Class 2	0.096	0.006	2.44	0.06	-	-		
Class 1	Not limited	Not limited	Not limited	-	-	-		
Combination oxidizer Class 2, 3	0.096	0.006	2.44	0.06	-	-		
Pyrophoric	Note [a]	Note [a]	0.3	0.0075	Notes [b] and [c]	Notes [b] and [c]		
Unstable reactive	-	-	-	-	-	-		
Class 4	Note [a]	Note [a]	Note [a]	Note [a]	Note [a]	Note [a]		
Class 3	0.8	0.05	0.2	0.005	Note [a]	Note [a]		
Class 2	3.2	0.2	0.8	0.02	Note [a]	Note [a]		
Class 1	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited		
Water reactive	-	-	-	-	-	-		
Class 3	Note [b]	Note [b]	0.3	0.0075	-	-		
Class 2	8.0	0.5	2.04	0.05	-	-		
Class 1	Not limited	Not limited	Not limited	Not limited	-	-		
-	-	-	-	-	-	-		
Health Hazard Materials	-	-	-	-	-	-		
Carcinogens	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited		
Corrosives	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited		
Highly toxics	Not limited	Not limited	Not limited	Not limited	Note [b]	Note [b]		
Irritants	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited		
Sensitizers	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited		

Hazard Category	Solids		Liquids		Gas	
	kg/m^2	lb/ft^2	L/m^2	gal/ft^2	m^3 @ NTP/m^2	ft^3 @ NTP/ft^2
Other health hazards	Not limited	Not limited	Not limited	Not limited	Not limited	Not limited
Toxics	Not limited	Not limited	Not limited	Not limited	Note [b]	Note [b]

Note: Hazardous materials within piping not to be included in the calculated quantities.

[a]Quantity of hazardous materials in a single fabrication area not to exceed the maximum allowable quantities (MAQs) contained in NFPA 1, Table 60.4.2.1.1.3, including the 100 percent increases for sprinklers and/or approved cabinet increases where applicable.

[b]The aggregate quantity of flammable, pyrophoric, toxic, and highly toxic gases not to exceed a density limit of 0.66 m^3 per m^2 at NTP (0.2 ft^3 per ft^2 at NTP).

[c]The aggregate quantity of pyrophoric gases in the building limited to the amounts for which detached storage is not required as set forth in NFPA 1.

Additional Proposed Changes

File Name	Description	Approved
2022_NFPA_318_Table_5.2.2_-_New_Annex_Material.docx	Table 5.2.2 Proposed Annex Text	

Statement of Problem and Substantiation for Public Comment

When evaluating the aggregate quantity of flammable, pyrophoric, toxic, and highly toxic gases in a single fabrication area, a question arises on whether the gas quantity for a gas with multiple hazards contributes to each hazard class or not. This Annex note is intended to clarify that the quantity of a gas with multiple hazards only contributes once to the overall aggregate.

For example: For a single fabrication area with the following gas inventory, the aggregate quantity of flammable, pyrophoric, toxic and highly toxic gases is 5,000 m3. However, if a user misinterprets Note b and applies the gas quantity to each of the noted hazard classes for the individual gases, the aggregate quantity would incorrectly be calculated as 6,000 m3. This misinterpretation leads to over regulation of the quantity actually allowed in the fab.

Gas:	Quantity (m3):	Hazard Classes:
Phosphine	1000	Pyrophoric, Highly Toxic
Hydrogen	2000	Flammable
Silane	2000	Pyrophoric, Class 1 Unstable (reactive)

Related Item

-

Submitter Information Verification

Submitter Full Name: Lynne Kilpatrick
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Submittal Date: Fri Mar 31 07:24:28 EDT 2023

Committee: SCR-AAA

Committee Statement

Committee Action:	Rejected but see related SR
Resolution:	SR-5-NFPA 318-2023
Statement:	Revision made to clarify that in Table 5.5.2 the quantity of a gas with multiple hazards contributes just once to the overall aggregate.

Public Comment No. 1-NFPA 318-2023 [Section No. 5.5.2.2 [Excluding any Sub-Sections]]

Quantities of hazardous chemicals shall be limited to those in use within the tool or the daily (24-hour) supply of chemicals needed, with quantities not exceeding the limitations specified in Table 5.5.2.2 unless a risk assessment determines that a significant fire is unlikely to take place.

Table 5.5.2.2 Maximum Quantities of Hazardous Chemicals at a Workstation

Hazardous Chemical	State	Maximum Amount
Flammables, highly toxics, and pyrophorics and toxics combined[a]	Gas	Combined aggregate volume of all cylinders at a work station shall not exceed an internal cylinder volume of 150 L (39.6 gal, or 5.29 ft^3).
Hazardous chemical flammables	Liquid	56.8 L (15 gal)[a,b]
	Solid	2.3 kg (5 lb)[a,b]
Corrosives[a]	Gas	Combined aggregate volume of all cylinders at a work station shall not exceed an internal cylinder volume of 150 L (39.6 gal, or 5.29 ft^3).
	Liquid	378.5 L (100 gal)[a,b]
	Solid	~~9.1 kg (20 lb)~~ 181 kg (400 lb)b
Highly toxics	Liquid	56.8 L (15 gal)[a]
	Solid	2.3 kg (5 lb)[a]
Oxidizers[a]	Gas	Combined aggregate volume of all cylinders at a work station shall not exceed an internal cylinder volume of 150 L (39.6 gal, or 5.29 ft^3).
	Liquid	45.4 L (12 gal)[a,b]
	Solid	9.1 kg (20 lb)[a,b]
Pyrophorics	Liquid	2.0 L (0.5 gal)[c]
-	Solid	2.0 kg (4.4 lb)[c]
Toxics	Liquid	56.8 L (15 gal)[a,b]
	Solid	2.3 kg (5 lb)[a,b]
Unstable reactives Class 3	Liquid	20 L (5.3 gal)[a,b]
	Solid	2.3 kg (5 lb)[a,b]
Water reactives Class 3	Liquid	2.0 L (0.5 gal)[c]

[a]Quantities are allowed to be increased 100 percent for use-closed systems operations. When note b also applies, the increase for both requirements is allowed.

[b]Quantities are allowed to be increased 100 percent when tools are constructed of materials that are listed or approved for use without internal fire extinguishing or suppression or internally protected with an approved automatic fire-extinguishing or suppression system. When note a also applies, the increase for both notes is allowed.

[c]Quantities are allowed to be increased to 20 L (5.3 gal) of liquid and 20 kg (44 lb) of total liquids and solids where conditions are in accordance with Section 6.4.

Statement of Problem and Substantiation for Public Comment

MAQs for a number of HPMs have been updated through the years to address technology and safety advances in systems and facilities.
Corrosive solid MAQs have not previously been addressed due to their limited use up to this point in time.
Corrosive solids are being used more and more in the semiconductor manufacturing process.
Larger MAQs for corrosive solids are required to support the scale of today's semiconductor manufacturing operations.
Corrosive solids present a lower risk than liquid corrosives.
The MAQs for solid corrosives at a workstation vs. the MAQs for liquid corrosives at a workstation do not align with the associated risks:
Liquid MAQ – 3338 lbs
Solid MAQ – 40 lbs
Solid corrosives have a low vapor pressure that requires a vacuum to sublime the material in order to produce enough vapor for use in manufacturing.
As a result, the material needs to be located close to the point of use.
The current MAQ for solids in a workstation are not realistic for consistent operation of a manufacturing process.
In addition, the highest risk is during change out of the solid corrosive vessels.
Lower MAQs thus increase the risk at the workstation due to more frequent change outs of the vessel.
The SIA Code Committee is proposing a similar change to the IFC.
This change to NFPA 318 will keep the MAQs in alignment between the IFC and NFPA 318.

Related Item

- FR-14

Submitter Information Verification

Submitter Full Name:	John Velikoff
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Submittal Date:	Thu Mar 30 12:31:54 EDT 2023
Committee:	SCR-AAA

Committee Statement

Committee Action:	Rejected
Resolution:	The committee considers this to be new material and would like to see further background information beyond pointing to the current MAQ for corrosive liquids, to support the increase in the MAQ for corrosive solids.

Public Comment No. 4-NFPA 318-2023 [Section No. 11.1.3.5 [Excluding any Sub-Sections]]

~~Where smoke detection is installed below a waffle floor to detect smoke in the airstream passing from the cleanroom to the sub-fab, area of coverage of spot-type detector or sampling port shall be limited to 18.6 m² (200 ft²).~~ Design of smoke detection shall be carried out in accordance with Table 11.1.3.5 .1 or where a performance based design is carried out it shall be carried out based on the criteria in Table 11.1.3.5.

Statement of Problem and Substantiation for Public Comment

This PC is the result of the work of the Detection Task Group led by Al Brown. Recommendations are the result of CFD modeling using FDS.

Related Item

- CI 12

Submitter Information Verification

Submitter Full Name:	Scott Lang
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Submittal Date:	Tue May 30 11:38:29 EDT 2023
Committee:	SCR-AAA

Committee Statement

Committee Action:	Rejected
Resolution:	Public comment was rejected because Table 11.1.3.5.1 from PC-10 was added as guidance related to smoke detection in return air streams in specific cleanroom designs and configurations in Section A.11.1.3.1.

Public Comment No. 10-NFPA 318-2023 [New Section after 11.1.3.5.1]

Table 11.1.3.5.1

see separate file with table

Table 11.1.3.5.2

see separate file with table

Additional Proposed Changes

File Name	Description	Approved
NFPA_318_PC_-_table_11.1.3.5.1.docx	tables	

Statement of Problem and Substantiation for Public Comment

This PC is the result of the work of the Detection Task Group led by Al Brown. Recommendations are the result of CFD modeling using FDS.

Related Item

- CI 12

Submitter Information Verification

Submitter Full Name: Scott Lang
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Submittal Date: Tue May 30 12:59:18 EDT 2023
Committee: SCR-AAA

Committee Statement

Committee Action: Rejected but see related SR

Resolution: SR-13-NFPA 318-2023

Statement: Revision from the Task Group on Detection to provide additional guidance related to smoke detection in return air streams in specific cleanroom designs and configurations. Recommendations are the result of computational fluid dynamics (CFD) modeling using fire dynamics simulation (FDS).

Public Comment No. 6-NFPA 318-2023 [Section No. 11.1.3.5.2]

11.1.3.5.2

The minimum alarm sensitivity for a single sampling port or spot-type detector shall be ~~a maximum value of 3.2 percent/meter (1.0 percent/foot).~~ as set out in Table 11.1.3.5 . .

Statement of Problem and Substantiation for Public Comment

This PC is the result of the work of the Detection Task Group led by Al Brown. Recommendations are the result of CFD modeling using FDS.

Related Item

- CI 12

Submitter Information Verification

Submitter Full Name: Scott Lang

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Submittal Date: Tue May 30 11:53:32 EDT 2023

Committee: SCR-AAA

Committee Statement

Committee Action: Rejected

Resolution: Public comment was rejected because Table 11.1.3.5.1 from PC-10 was added as guidance related to smoke detection in return air streams in specific cleanroom designs and configurations in Section A.11.1.3.1.

Public Comment No. 8-NFPA 318-2023 [Section No. 11.1.3.6]

11.1.3.6*

In the absence of performance-based design criteria, where smoke detection is installed at the entry to the return air path, area coverage of spot-type detector or sampling port spacing shall be limited to 1. 0 ~~.4 m~~ m ^{2} (~~4~~ 10 ~~.3 ft~~ 8 ft ^{2}).

11.1.3.6.1

The minimum alert sensitivity for a single sampling port or spot-type detector shall be ~~a maximum value of 0.65 percent/meter (0.2 percent/foot).~~ as set out in 11.1.3.5.1.

11.1.3.6.2

The minimum alarm sensitivity for a single sampling port or spot-type detector shall be ~~a maximum value of 3.2 percent/meter (1.0 percent/foot).~~ as set out in 11.1.3.5.2.

Statement of Problem and Substantiation for Public Comment

This PC is the result of the work of the Detection Task Group led by Al Brown. Recommendations are the result of CFD modeling using FDS.

Related Item

- CI 12

Submitter Information Verification

Submitter Full Name:	Scott Lang
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Submittal Date:	Tue May 30 11:59:12 EDT 2023
Committee:	SCR-AAA

Committee Statement

Committee Action:	Rejected
Resolution:	Public comment was rejected because Table 11.1.3.5.1 from PC-10 was added as guidance related to smoke detection in return air streams in specific cleanroom designs and configurations in Section A.11.1.3.1.

Public Comment No. 11-NFPA 318-2023 [New Section after A.11.1.3.1]

Annex to Table 11.1.3.5.1

Option A:

Detection can be placed anywhere within recirculating airstream.

Small bay and chase cleanrooms are essentially rooms with recirculating air where the maximum distance between the fire and the detector is approximately 2 times the room height. Therefore, smoke should reach a detector at any position within the recirculating airstream within one minute.

Depending on the source of the fire, smoke will likely take around 10 to 20 seconds to reach a detector at the ceiling of the chase if a room height of 3m and air flow velocity of 0.3m/s is assumed, however detection will take longer accounting for time for smoke density to reach Alert or alarm level and transport time within detector).

It should be noted that in some circumstances detection may be delayed by the cleanroom airflow, in some circumstances by several minutes.

Option C:

CFD modelling of large ballroom cleanrooms demonstrated that installation of detection under the waffle slab enables alert threshold (0.65% obs/m) to be reached at the spot detector or sampling point located under the waffle slab approximately 10 to 20 seconds for a fire in the cleanroom, and up to 60 to 70 seconds for a fire in the sub-fab. Time excludes transport time to the detection chamber. Overall detection was achieved in the modelling at all alarm levels at between one and two minutes of ignition.

Detection at the RA Plenum entrance is dependent on the distance of the fire from the RA Plenum. Detection at the RA Plenum only registered limited levels of alarm, mostly in the smaller cleanroom. Alarm time to reach 0.65% obs/m varied between one and three minutes (excluding transport time to the detection chamber).

The effect of the sample point spacing for detection at the RA Plenum was observed to be small, due to the mixing of smoke and dilution air over the distance from the fire to the RA Plenum detection. The threshold of 3.5% was not reached for horizontal distances greater than 40m from the fire source.

Modelling therefore concludes that for ballroom fabs over 60m wide (i.e. 30m maximum distance from a fire to the RA plenum detection cannot detect some in less than 3 minutes (excluding transport time). In the modelling the first sprinkler operated at 210 seconds, 3 minutes and 30 seconds. Therefore, providing ASD at the RA only in a large ballroom fab, provides no significant increased life safety or property protection benefits over only having sprinklers installed.

On the otherhand , modelling demonstrated that installing detection under the waffle slab within the sub-fab, provides prompt detection together with and the associated life safety and property protection benefits.

Option D:

The facilities sub-fab or Dirty Sub-fab may be protected by smoke detection designed in accordance with NFPA 72 due to the limited airflow within the space.

The Cleanroom and Sub-fab should be protected in accordance with Table 11.1.3.5 Option C.

Statement of Problem and Substantiation for Public Comment

This PC is the result of the work of the Detection Task Group led by Al Brown. Recommendations are the result of CFD modeling using FDS.

Related Item

- CI 12

Submitter Information Verification

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Submittal Date:	Tue May 30 13:22:31 EDT 2023
Committee:	SCR-AAA

Committee Statement

Committee Action:	Rejected but see related SR
Resolution:	SR-13-NFPA 318-2023
Statement:	Revision from the Task Group on Detection to provide additional guidance related to smoke detection in return air streams in specific cleanroom designs and configurations. Recommendations are the result of computational fluid dynamics (CFD) modeling using fire dynamics simulation (FDS).

Public Comment No. 12-NFPA 318-2023 [New Section after A.11.1.3.1]

Annex to Table 11.1.3.5.2

(1) The performance based design should incorporate all necessary criteria to meet the life safety and/or property protection objectives. This should include consideration of:

(2) The ability of occupants of the cleanroom to detect or be alerted to a fire and effect their escape safely;

(3) The need to minimise property damage by detecting fires promptly so that damage from smoke entering the cleanroom airflow is able to be mitigated before it creates unacceptable levels of damage. The decision on what is unacceptable is a matter for the stakeholders including fab owners and insurers.

(4) Table 11.1.3.5.2 sets out typical criteria for the time to detection based on the thresholds set out in Table 1. Ultimately the decision on what is an acceptable time to detection is determined by the outcome from the fire being modelled and the circumstances that are present in the operating cleanroom. As a result, it is important that the modelling is robust and represents a realistic fire growth model. The use of a constant heat output from a fire would only be appropriate where there is no additional combustible material to become involved in a fire in the vicinity of the origin of the fire. This may be the case for an electrical fire with limited combustible wiring and enclosed in a metal cabinet, but would not be representative of a fire in equipment which was constructed of combustible plastics, or contained significant quantities of wiring with combustible wiring insulation.

(5) The development of a performance based design which relies on intervention of personnel, and/or on specific fire and safety management protocols may not be applicable if there are subsequent changes to the safety management approach or the resources that are available to respond to a fire alarm.

(6) Fire modeling by the Technical Committee Task Force incorporated the following assumptions:

(7) Sub-fab height 5m, Cleanroom Height 3m

(8) UWS detection installed at 4.3m above sub-fab floor

(9) The cleanroom floor was assumed to have a 44% of its surface area perforated;

(10) The FFU's were assumed to develop a downward air velocity of 0.4 m/s.

(11) The fire source was located on the floor of the cleanroom or sub-fab at the neutral plane, where air flows either to one air return plenum or the other. Modelling was carried out on cleanrooms of 60m, 100m and 150m wide, providing a maximum horizontal distance of 30m, 100m or 75m from the fire to the return air plenum entrance.

(12) Point detector coverage under the waffle slab (UWS) was modelled at 9m^2 and 16m^2;

(13) Point detector alarm times were determined by the threshold being reached by two spot detectors and adding a 10 second delay time to account for smoke entering the detection chamber. Detector spacings of 9m^2 and 16m^2 were modelled.

(14) Return Air detection was modelled with a point coverage of 0.4m^2 and 1m^2 for ASD. Detection times varied insignificantly with point coverage due to the mixing of smoke and dilution air between the fire and detection point. Transport times of up to 60 seconds need to be added to alert and alarm tome generated by the fire modelling ;

(15)

(a) ASD detection times were determined by the typical detector obscuration levels associated with the thresholds at the sampling points;

(16) 0.65% obs/m at the sampling point = 0.03% obs/m at the detection chamber;

(17) 1.5% obs/m at the sampling point = 0.05% obs/m at the detection chamber;

(18) 2.5% obs/m at the sampling point = 0.08% obs/m at the detection chamber; and

(19) 3.5% obs/m at the sampling point = 0.14% obs/m at the detection chamber.

Statement of Problem and Substantiation for Public Comment

This PC is the result of the work of the Detection Task Group led by Al Brown. Recommendations are the result of CFD modeling using FDS.

Related Item

- CI 12

Submitter Information Verification

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Submittal Date: Tue May 30 13:25:52 EDT 2023

Committee: SCR-AAA

Committee Statement

Committee Action: Rejected

Resolution: Public comment was rejected because Table 11.1.3.5.2 from PC-10 was not added as a requirement in Chapter 11.

Public Comment No. 5-NFPA 318-2023 [New Section after A.11.1.3.1]

A.11.1.3.5

CFD modelling conducted by the Fire Detection Task Group in 2020-2022 demonstrated that a fire located in the centre of a wide cleanroom (50m to 150m wide) can be detected by smoke detection, either point detection or aspirating smoke detection (air sampling detection) when it is installed in the sub-fab under the waffle slab. Detection times for a medium growth rate fire based on a polyethylene fuel shows that the fire can be detected approximately one minute for smoke density with an obscuration of 2.5%/m or less.

The modelling also demonstrated that detection located at the return air plenum (" RA ") entrance 30m away (i.e. a 60m wide cleanroom) can detect a fire at around 3 to 4 minutes after ignition. However, assuming medium growth rate fire it is likely that by this time the fire will have grown to a heat release rate of 380 kW and that sprinkler activation would occur at three and a half minutes. Detection at the RA located 50 and 75m away is unable to detect the smoke within 3 to 4m at smoke obscuration levels greater than 1.5%.

The table below shows " earliest responses " to various smoke obscuration levels(% obs/m). The times do not take into account transport time to the detector in aspirating systems, not any delays in sounding an alarm inherent in the fire detection and alarm system.

A.11.1.3.5.1

The minimum alert sensitivity is the smoke obscuration level at which smoke would be present at the spot-detector resulting in activation of the detector and initiation of an alert signal, typically use to indicate that the presence of smoke has been detected, but at levels where only an investigation into the cause of the alert signal is necessary.

For an aspirating smoke detection system, the minimum alert sensitivity represents the smoke present at the sampling port and not the detection chamber, sometimes referred to as the hole sensitivity.

Additional Proposed Changes

File Name	Description	Approved
A.11.1.3.5_table.PNG	table	

Statement of Problem and Substantiation for Public Comment

This PC is the result of the work of the Detection Task Group led by Al Brown. Recommendations are the result of CFD modeling using FDS.

Related Item

- CI 12

Submitter Information Verification

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Submittal Date: Tue May 30 11:46:06 EDT 2023
Committee: SCR-AAA

Committee Statement

Committee Action:	Rejected
Resolution:	Public comment was rejected because Table 11.1.3.5.2 from PC-10 was not added as a requirement in Chapter 11.

Public Comment No. 7-NFPA 318-2023 [New Section after A.11.1.3.1]

A.11.1.3.5.2

The minimum alarm sensitivity is the smoke obscuration level at which smoke would be present at the spot-detector resulting in activation of the detector and initiation of a fire alarm signal.

For an aspirating smoke detection system, the minimum alarm sensitivity represents the smoke present at the sampling port and not the detection chamber, sometimes referred to as the hole sensitivity.

Statement of Problem and Substantiation for Public Comment

This PC is the result of the work of the Detection Task Group led by Al Brown. Recommendations are the result of CFD modeling using FDS.

Related Item

- CI 12

Submitter Information Verification

Submitter Full Name: Scott Lang
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Submittal Date: Tue May 30 11:55:30 EDT 2023
Committee: SCR-AAA

Committee Statement

Committee Action: Rejected but see related SR
Resolution: SR-12-NFPA 318-2023
Statement: Revision made to add new annex material which clarifies how spot-type detector sensitivity is defined and clarifies that the sensitivity of an aspiration detection system is at the sampling port.

Public Comment No. 9-NFPA 318-2023 [Section No. A.11.1.3.6]

A.11.1.3.6

—

~~Entry to the return air path would be at the cooling coils or filters prior to axial fans or the return air plenum~~

CFD modelling demonstrated that the difference in time to reach the obscuration levels at the sampling hole did not vary significantly between a sample point hole spacing of 0.4m ^{2} and 1m ^{2} , It was therefore concluded that a spacing of 1m ^{2} would provide a satisfactory design criteria.

A.11.1.3.6.1

The minimum alert sensitivity is the smoke obscuration level at which smoke would be present at the spot-detector resulting in activation of the detector and initiation of an alert signal, typically use to indicate that the presence of smoke has been detected, but at levels where only an investigation into the cause of the alert signal is necessary.

For an aspirating smoke detection system, the minimum alert sensitivity represents the smoke present at the sampling port and not the detection chamber, sometimes referred to as the hole sensitivity.

A.11.1.3.6.2

The minimum alarm sensitivity is the smoke obscuration level at which smoke would be present at the spot-detector resulting in activation of the detector and initiation of a fire alarm signal.

For an aspirating smoke detection system, the minimum alarm sensitivity represents the smoke present at the sampling port and not the detection chamber, sometimes referred to as the hole sensitivity .

Statement of Problem and Substantiation for Public Comment

This PC is the result of the work of the Detection Task Group led by Al Brown. Recommendations are the result of CFD modeling using FDS.

Related Item

- CI 12

Submitter Information Verification

Submitter Full Name: Scott Lang
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Street Address:
City:
State:
Zip:
Submittal Date: Tue May 30 12:55:01 EDT 2023
Committee: SCR-AAA

Committee Statement

Committee Action:	Rejected
Resolution:	Public comment was rejected because the committee decided not to change the spacing for sample ports and detectors.