2.3.6 ASTM Publications.

ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959. www.astm.org


ASTM E2404, Standard Practice for Specimen Preparation and Mounting of Textile, Paper or Polymeric (Including Vinyl) and Wood Wall or Ceiling Coverings, Facings and Veneers, to Assess Surface Burning Characteristics, 2015a.


Committee Statement

Committee Statement: The SR corrects several of the submitted updates.

Response Message:

Public Comment No. 119-NFPA 101-2016 [Section No. 2.3.6]
4.2.4 Physical Violence Mitigation.
Where buildings are designed to mitigate physical violence against occupants, such measures shall not compromise compliance with other requirements of this Code.
4.2.3* Hazardous Materials Emergencies Protection.
Fundamental safeguards shall be provided to reasonably prevent or mitigate events involving hazardous materials as addressed in 4.1.3 4.1.4 to allow the time needed to evacuate, relocate, or defend in place occupants who are not intimate with the initial emergency incident.

Submitter Information Verification
Submitter Full Name: SAF-FUN
Organization: [ Not Specified ]
Street Address: 
City: 
State: 
Zip: 
Submittal Date: Wed Jun 22 08:54:02 EDT 2016

Committee Statement
Committee Statement: NOTE: This Public Comment appeared as CC Note No. 2 in the First Draft Report. The Correlating Committee directs the TC on Fundamentals (FUN) to revise the reference embedded within 4.2.3 from “4.1.4” to “4.1.3”.
This action will be considered as a public comment.

Public Comment No. 6-NFPA 101-2016 [Section No. 4.2.3]
4.5.1 Multiple Safeguards.

The design of every building or structure intended for human occupancy shall be such that reliance for safety to life does not depend solely on any single safeguard. An additional safeguard(s) shall be provided for life safety in case any single safeguard is ineffective due to inappropriate human actions or system failure rendered ineffective.
A material shall be considered a limited-combustible material where all the one of the following is met:


(2) The conditions of 4.6.14.5 shall be met.

4.6.14.1
The material shall not comply with the requirements for noncombustible material in accordance with 4.6.13.

4.6.14.2
The material, in the form in which it is used, shall exhibit a potential heat value not exceeding 3500 Btu/lb (8141 kJ/kg) where tested in accordance with NFPA 259.

4.6.14.3
The material shall have the structural base of a noncombustible material with a surfacing not exceeding a thickness of 1⁄8 in. (3.2 mm) where the surfacing exhibits a flame spread index not greater than 50 when tested in accordance with ASTM E84, Standard Test Method for Surface Burning Characteristics of Building Materials, or ANSI/UL 723, Standard for Test for Surface Burning Characteristics of Building Materials.

4.6.14.4
The material shall be composed of materials that, in the form and thickness used, neither exhibit a flame spread index greater than 25 nor evidence of continued progressive combustion when tested in accordance with ASTM E84, Standard Test Method for Surface Burning Characteristics of Building Materials, or ANSI/UL 723, Standard for Test for Surface Burning Characteristics of Building Materials, and shall be of such composition that all surfaces that would be exposed by cutting through the material on any plane would neither exhibit a flame spread index greater than 25 nor exhibit evidence of continued progressive combustion when tested in accordance with ASTM E84 or ANSI/UL 723.

4.6.14.5
Materials shall be considered limited-combustible materials where tested in accordance with ASTM E2965, Standard Test Method for Determination of Low Levels of Heat Release Rate for Materials and Products Using an Oxygen Consumption Calorimeter, at an incident heat flux of 75 kW/m² for a 20-minute exposure and both of the following conditions are met:

(1) The peak heat release rate shall not exceed 150 kW/m² for longer than 10 seconds.

(2) The total heat released shall not exceed 8 MJ/m².

4.6.14.6
Where the term limited-combustible is used in this Code, it shall also include the term noncombustible.

Submitter Information Verification

Submitter Full Name: SAF-FUN
Organization: [ Not Specified ]
Street Address: 
City: 
State: 
Zip: 

Committee Statement

Committee Statement: The technical committee has stated that it would like to see more data and would perhaps consider a lower heat release rate threshold once it understands what the criteria are based on. I attach information on tests conducted on a variety of materials with the equipment (and with slight variations in testing which will not make a significant difference for limited combustible materials). The proposed test (ASTM E2965) is a variation of the cone calorimeter (ASTM E1354) with a much larger test specimen (150 mm x 150 mm instead of 100 mm x 100 mm), a larger radiant heat source and a slower duct flow rate. This test has been developed specifically to identify materials that are of very low levels of heat release. If a material has very low levels of heat release it will have very low levels of combustibility. The scope of ASTM E2965 includes the following: "This test method differs from ASTM E1354 in that it prescribes a different specific test specimen size, specimen holder, test specimen orientation, and volumetric flow rate for analyses via oxygen consumption calorimetry. It is intended for use on material and products that contain only small amounts of combustible ingredients or components e.g. test specimens that yield a total heat release of less than 15 MJ/m²."
significance and use states as follows: "This test method is used primarily to determine the heat evolved in, or contributed to, a fire involving materials or products that emit low levels of heat release. The recommended use for this test method is for materials with a total heat release rate measured of less than 10 MJ over the first 20 min test period, and which do not give peak heat release rates of more than 200kW/m2 for periods extending more than 10 seconds. Also included is a determination of the effective heat of combustion, mass loss rate, the time to sustained flaming, and (optionally) smoke production. These properties are determined on small size test specimens that are representative of those in the intended end use."

In this public comment I also propose a lower threshold, of 150 kW/m2, as this would be the first cycle where the proposed approach would be used. I don’t want to repeat all the information provided earlier, during the public input, as this information is clearly already available to the committee. Please note that this is not intended to replace the NFPA 259 test for the assessment of limited combustibility but is an alternate approach and will, thus, have no influence on any material or product assessed in the traditional way in the past.

Information in terms of the abstract from a study made with the cone calorimeter before developing ASTM E2965 by J. Urbas (2002) and from a follow-up study by M. Janssens and K. Carpenter (2005) follows.

Attached tables from Urbas indicate that (out of 16 materials assessed) 1 material would qualify easily under the criteria shown, namely SPRF (sprayed fire resistant material on non-combustible backing), and that 5/8" Type X Gypsum Board would most likely qualify (in 3 out of 4 labs) while several other materials would fail primarily on total heat released (the most severe property). On the other hand paper-faced glass wool would fail on peak heat release rate and not on total heat released.

Attached tables from Carpenter & Janssens (one of the labs used by the Urbas study) indicates similar types of results as above. This shows that the criteria used are consistent with what would happen for limited combustible materials under the present criteria and that nothing unacceptable would "sneak" in. The data in the attached tables was taken at exposures to 75 kW/m2 for 20 min, just like the proposed new criteria.

BDMC interlaboratory cone calorimeter test programme by Joe Urbas (Fire Mater. 2002; 26: 29–35)

Abstract: In the spring of 1997, seven companies and industry associations from the USA and Canada decided to sponsor the cone calorimeter interlaboratory test programme. Reproducibility and repeatability were determined for the scalar variables measured in the cone calorimeter (ASTM E1354) according to the protocol developed by the Board for the Coordination of the Model Codes. The main requirement of the protocol was that the sample irradiance should be 75kW/m2. The purpose of the project was to assist the model building code organizations, NFPA and various other groups in the development of a system to determine degrees of combustibility of building materials. Three US and one Canadian laboratory agreed to conduct tests on 16 materials.

The results of this round robin show that the cone calorimeter, following the Board for the Coordination of the Model Codes protocol, can provide precision similar to that cited in the current cone calorimeter standards. It is recommended that further improvements of the standards are pursued and provisions are made to improve the quality of operation of the cone calorimeter in commercial laboratories to maintain and possibly improve its repeatability and reproducibility.

Using Heat Release Rate to Assess Combustibility of Building Products in the Cone Calorimeter by Karen Carpenter and Marc Janssens (Fire Technology 41 – 79-92, 2005)

Abstract: Building codes generally permit unlimited use of materials that contribute negligible quantities of heat in the event of a fire. These materials are referred to as non-combustible. Whether a material qualifies as being non-combustible is generally based on performance in a small-scale furnace test, or on its potential heat content measured in an oxygen bomb calorimeter. However, furnace and oxygen bomb methods to assess combustibility have serious limitations. The most significant limitations are that materials cannot be evaluated in their end use configuration, that test conditions are not representative of real fire exposure conditions, and that the test results do not provide a realistic measure of the expected heat release rate.

These limitations lead to the idea of exploring the use of small-scale heat release calorimeters to assess material combustibility. The Cone Calorimeter has emerged in recent years as the most widely used apparatus for this application.

In this paper, an overview is presented of past efforts to assess combustibility based on heat release rate measurements. The main results of the most recent Cone Calorimeter round robin conducted in North America are discussed. It is concluded from the results of this round robin that the Cone Calorimeter is indeed suitable for measuring heat release rate from materials and products with low heat content. Limitations due to Cone Calorimeter specimen size can be alleviated by using a larger calorimeter, such as the Intermediate Scale Calorimeter or ICAL (ASTM E 1623.) However, more research is needed to extend the correlation between Cone Calorimeter and ICAL data to a wider range of materials.

The biggest challenge is perhaps the implementation of a system to assess combustibility on the basis of heat release rate in the building codes. Implementation could consist of a classification system that is accepted as an alternative to the present prescriptive requirements and/or promoting the use of heat release rate data in performance-based design.

The SR editorially revises PC-132 for consistency with NFPA 101 formatting.
11.8.2.1 Reserved.

Emergency lighting in accordance with Section 7.9 shall be provided.

Submitter Information Verification

Submitter Full Name: SAF-FUN
Organization: [ Not Specified ]
Street Address: 
City: 
State: 
Zip: 

Committee Statement

Committee Statement: This requirement was taken from the emergency and standby power section since it is really a means of egress requirement and not an emergency power requirement.
Response Message: 

Public Comment No. 67-NFPA 101-2016 [Section No. 11.8.2.1]
11.8.4.3
For high-rise buildings with a total occupant load of 5000 or more persons, or where the floor of an occupiable story is greater than 420 ft (128 m) above the lowest level of fire department vehicle access, a risk analysis for mass notification systems shall be provided in accordance with Section 9.14.

Submitter Information Verification
Submitter Full Name: SAF-FUN
Organization: [ Not Specified ]
Street Address: 
City: 
State: 
Zip: 
Submittal Date: Wed Jun 22 10:25:09 EDT 2016

Committee Statement
Committee Statement: The thresholds (5000 occupants and 420 ft building height) are intended to correlate with information from NFPA 5000, A.4.2.1. The building height measurement is consistent with the definition of 'high rise building'.

See the submitter's statement on PC-164.

Response
Message:
Public Comment No. 164-NFPA 101-2016 [New Section after 11.8.4.2]
### 11.8.5.1

Emergency lighting in accordance with Section 7.9 shall be provided.

---

#### Submitter Information Verification

<table>
<thead>
<tr>
<th>Submitter Full Name:</th>
<th>SAF-FUN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization:</td>
<td>[ Not Specified ]</td>
</tr>
<tr>
<td>Street Address:</td>
<td></td>
</tr>
<tr>
<td>City:</td>
<td></td>
</tr>
<tr>
<td>State:</td>
<td></td>
</tr>
<tr>
<td>Zip:</td>
<td></td>
</tr>
<tr>
<td>Submittal Date:</td>
<td>Wed Jun 22 14:06:01 EDT 2016</td>
</tr>
</tbody>
</table>

#### Committee Statement

**Committee Statement:**

Emergency Lighting was removed from the title at the first correlating revision. Emergency lighting is referenced to 7.9 which is a section that addresses emergency lighting for the means of egress. The section for emergency lighting is relocated to the means of egress section of 11.8, specifically 11.8.2.1.

**Response Message:**

Public Comment No. 66-NFPA 101-2016 [Section No. 11.8.5.1]
11.8.9 Integrated Fire Protection and Life Safety System Testing

11.8.9.1 For high-rise buildings, integrated fire protection and life safety system testing shall be in accordance with 9.11.4.

11.8.9.2 The integrated fire protection and life safety system test shall be performed prior to issuance of a certificate of occupancy and at intervals not exceeding 10 years, unless otherwise specified by the integrated system test plan in accordance with NFPA 4.

11.8.9.3 Where an equipment failure is detected during integrated testing, either a full integrated test shall be executed following the repair or replacement of equipment, or a limited integrated test(s) shall be executed to address only that equipment which was either repaired or replaced.

Submitter Information Verification

Submitter Full Name: SAF-FUN
Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jun 22 14:20:21 EDT 2016

Committee Statement

Committee Statement: To address integrated fire protection and life safety system testing in high-rise buildings, a new Section 11.8.9 has been proposed. New Section 11.8.9.1 states testing shall be in accordance with Section 9.11.4 and provides specifics when such testing shall occur which is based on a similar International Fire Code proposed change that was approved by the ICC Fire Code Technical Committee in April 2016.

The SR editorially revises PC-209 for clarity.

A.4.8.2.1(3)
It is assumed that a majority of buildings will use a total evacuation strategy during a fire. It should be noted that evacuation from a building could occur for reasons other than a fire, but such other reasons are not the primary focus of the Code. As used herein, total evacuation is defined as the process in which all, or substantially all, occupants leave a building or facility in either an unmanaged or managed sequence or order. An alternative to total evacuation is partial evacuation, which can be defined as the process in which a select portion of a building or facility is cleared or emptied of its occupants while occupants in other portions mostly carry on normal activity. In either case, the evacuation process can be ordered or managed in accordance with an established priority in which some or all occupants of a building or facility clear their area and utilize means of egress routes. This is typically done so that the more-endangered occupants are removed before occupants in less-endangered areas. Alternative terms describing this sequencing or ordering of evacuation are staged evacuation and phased evacuation.

Table A.4.8.2.1(3) illustrates options for extent of management and extent of evacuation. Some of the options shown might not be appropriate. As noted in Table A.4.8.2.1(3), either total or partial evacuation can include staged (zoned) evacuation or phased evacuation, which is referred to as managed or controlled evacuation. It should also be noted that the evacuation process might not include relocation to the outside of the building but might instead include relocation to an area of refuge or might defend the occupants in place to minimize the need for evacuation.

Table A.4.8.2.1(3) Occupant Evacuation Strategies

<table>
<thead>
<tr>
<th>Managed Sequence</th>
<th>Unmanaged Sequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shelter in place</td>
<td>No movement — Shelter in place upon direction</td>
</tr>
<tr>
<td>Relocation or partial evacuation</td>
<td>Managed or controlled partial evacuation</td>
</tr>
<tr>
<td>Total evacuation</td>
<td>Managed or controlled total evacuation</td>
</tr>
<tr>
<td>No movement — Shelter in place per prior instruction</td>
<td>Unmanaged movement</td>
</tr>
<tr>
<td>• In-building relocation on same floor</td>
<td></td>
</tr>
<tr>
<td>• In-building relocation to different floors</td>
<td></td>
</tr>
<tr>
<td>• Occupants of some floors leave building</td>
<td></td>
</tr>
</tbody>
</table>

The different methods of evacuation are also used in several contexts throughout the Code. Though most of the methods of evacuation are not specifically defined or do not have established criteria, various sections of the Code promulgate them as alternatives to total evacuation. The following sections discuss these alternatives in more detail:

1. Section 4.7 — Provides requirements for fire and relocation drills
2. 7.2.12 — Provides requirements for area of refuge
3. 7.2.4 — Provides requirements for horizontal exits
4. 9.6.3.6 — Provides the alarm signal requirements for different methods of evacuation
5. 9.6.3.9 — Permits automatically transmitted or live voice evacuation or relocation instructions to occupants and requires them in accordance with NFPA 72
6. 14.3.4.2.3 (also Chapter 15) — Describes alternative protection systems in educational occupancies
7. 18.1.1.2/18.1.1.3/Section 18.7 (also Chapter 19) — Provide methods of evacuation for health care occupancies
8. Chapters 22 and 23 — Provide methods of evacuation for detention and correctional occupancies, including the five groups of resident user categories
9. Chapters 32 and 33 — Provide methods of evacuation for residential board and care occupancies
10. 32.1.5/33.1.5 — For residential board and care occupancies, state that “no means of escape or means of egress shall be considered as complying with the minimum criteria for acceptance, unless emergency evacuation drills are regularly conducted”
11. 40.2.5.2.2 — For industrial occupancies, states that “ancillary facilities in special-purpose industrial occupancies where delayed evacuation is anticipated shall have not less than a 2-hour fire resistance–rated separation from the predominant industrial occupancy and shall have one means of egress that is separated from the predominant industrial occupancy by 2-hour fire resistance–rated construction”

The method of evacuation should be accomplished in the context of the physical facilities, the type of activities undertaken, and the provisions for the capabilities of occupants (and staff, if available). Therefore, in addition to meeting the requirements of the Code, or when establishing an equivalency or a performance-based design, the following recommendations and general guidance information should be taken into account when designing, selecting, executing, and maintaining a method of evacuation:

1. When choosing a method of evacuation, the available safe egress time (ASET) must always be greater than the required safe egress time (RSET).
2. The occupants’ characteristics will drive the method of evacuation. For example, occupants might be incapable of evacuating themselves because of age, physical or mental disabilities, physical restraint, or a combination thereof. However, some buildings might be staffed with people who could assist in evacuating. Therefore, the method of evacuation is dependent on the ability of occupants to move as a group, with or without assistance. For more information, see the definitions under the term Evacuation Capability in Chapter 3.
3. An alternative method of evacuation might or might not have a faster evacuation time than a total evacuation. However, the priority of evacuation should be such that the occupants in the most danger are given a higher priority. This prioritization will ensure that occupants more intimate with the fire will have a faster evacuation time.
4. Design, construction, and compartmentation are also variables in choosing a method of evacuation. The design, construction, and compartmentation should limit the development and spread of a fire and smoke and reduce the need for occupant evacuation. The fire should be limited to the room or compartment of fire origin. Therefore, the following factors need to be considered:
Overall fire resistance rating of the building
Fire prevention policies or procedures, or both, should be implemented that reduce the chance of a fire (e.g., limiting smoking or
Contingency plans should be established in the event the fire alarm and communication
Individuals
One of the most important fire safety systems is the fire alarm and communication system, particularly the notification system. The fire alarm system should be in accordance with NFPA 72 and should take into account the following:
(a) Initial notification of only the occupants in the affected zone(s) (e.g., zone of fire origin and adjacent zones)
(b) Provisions to notify occupants in other unaffected zones to allow orderly evacuation of the entire building
(c) Need for live voice communication
(d) Reliability of the fire alarm and communications system
The capabilities of the staff assisting in the evacuation process should be considered in determining the method of evacuation.
The ability of the fire department to interact with the evacuation should be analyzed. It is important to determine if the fire department can assist in the evacuation or if fire department operations hinder the evacuation efforts.
Evacuation scenarios for hazards that are normally outside of the scope of the Code should be considered to the extent practicable. (See 4.3.1.)
Consideration should be given to the desire of the occupants to self-evacuate, especially if the nature of the building or the fire warrants evacuation in the minds of the occupants. Self-evacuation might also be initiated by communication between the occupants themselves through face-to-face contact, mobile phones, and so forth.
An investigation period, a delay in the notification of occupants after the first activation of the fire alarm, could help to reduce the number of false alarms and unnecessary evacuations. However, a limit to such a delay should be established before a general alarm is sounded, such as positive alarm sequence, as defined in NFPA 72.
Consideration should be given to the need for an evacuation that might be necessary for a scenario other than a fire (e.g., bomb threat, earthquake).
Contingency plans should be established in the event the fire alarm and communication system fail, which might facilitate the need for total evacuation.
The means of egress systems should be properly maintained to ensure the dependability of the method of evacuation.
Fire prevention policies or procedures, or both, should be implemented that reduce the chance of a fire (e.g., limiting smoking or providing fire-safe trash cans).
The method of evacuation should be properly documented, and written forms of communication should be provided to all of the occupants, which might include sign postings throughout the building. Consideration should be given to the development of documentation for an operation and maintenance manual or a fire emergency action plan, or both.
Emergency egress drills should be performed on a regular basis. For more information, see Section 4.7.
The authority having jurisdiction should also be consulted when developing the method of evacuation.
Measures should be in place and be employed to sequence or control the order of a total evacuation, so that such evacuations proceed in a reasonably safe, efficient manner. Such measures include special attention to the evacuation capabilities and needs of occupants with disabilities, either permanent or temporary. For comprehensive guidance on facilitating life safety for such populations, go to www.nfpa.org. For specific guidance on emergency stair travel devices, see ANSI/RESNA ED-1, Emergency Stair Travel Devices Used by Individuals with Disabilities.
In larger buildings, especially high-rise buildings, it is recommended that all evacuations — whether partial or total — be managed to sequence or control the order in which certain occupants are evacuated from their origin areas and to make use of available means of egress. In high-rise buildings, the exit stairs, at any level, are designed to accommodate the egress flow of only a very small portion of the occupants — from only one or a few stories, and within a relatively short time period — on the order of a few minutes. In case of a fire, only the immediately affected floor(s) should be given priority use of the means of egress serving that floor(s). Other floors should then be given priority use of the means of egress, depending on the anticipated spread of the fire and its combustion products and for the purpose of clearing certain floors to facilitate eventual fire service operations. Typically, this means that the one or two floors above and below a fire floor will have secondary priority immediately after the fire floor. Depending on where combustion products move — for example, upward through a building with cool-weather stack effect — the next priority floors will be the uppermost occupied floors in the building.
Generally, in order to minimize evacuation time for most or all of a relatively tall building to be evacuated, occupants from upper floors should have priority use of exit stairs. For people descending many stories of stairs, this priority will maximize their opportunity to take rest stops without unduly extending their overall time to evacuate a building. Thus, the precedence behavior of evacuees should be that people already in an exit stair should normally not defer to people attempting to enter the exit stair from lower floors, except for those lower floors most directly impacted by a fire or other imminent danger. Notably, this is contrary to the often observed behavior of evacuees in high-rise building evacuations where lower floor precedence behavior occurs. (Similarly, in the most
commonly observed behavior of people normally disembarking a passenger airliner, people within the aisle defer to people entering the aisle, so that the areas closest to the exit typically clear first.) Changing, and generally managing, the sequence or order in which egress occurs will require effectively informing building occupants and evaluating resulting performance in a program of education, training, and drills.

When designing the method of evacuation for a complex building, all forms of egress should be considered. For example, consideration could be given to an elevator evacuation system. An elevator evacuation system involves an elevator design that provides protection from fire effects so that elevators can be used safely for egress. See 7.2.13 and A.7.2.12.2.4 for more information.

For further guidance, see the following publications:

1. *SFPE Engineering Guide to Human Behavior in Fire*, which provides information on occupant characteristics, response to fire cues, decision making in fire situations, and methods for predicting evacuation times

2. *NFPA Fire Protection Handbook*, 20th edition, Section 1, Chapter 9, which provides good methodology for managing exposures and determining the method of evacuation

3. *NFPA Fire Protection Handbook*, 20th edition, Section 20, which provides further commentary on methods of evacuation for different occupancies

4. *SFPE Handbook of Fire Protection Engineering*, Section 3 Volume II, Chapters 11–13 58–61, which provide an overview of some of the research on methods of evacuation and methods for predicting evacuation times
D.1.1 NFPA Publications.
National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.


Submitter Information Verification

Submitter Full Name: SAF-FUN
Organization: [ Not Specified ]
Street Address: [ Not Specified ]
City: [ Not Specified ]
State: [ Not Specified ]
Zip: [ Not Specified ]
Submittal Date: Wed Jun 29 10:36:54 EDT 2016

Committee Statement

Committee Statement: The SFPE Handbook is no longer published by NFPA and is no longer an NFPA document. A second revision was added to place this document under SFPE documents.
Response Message: Public Comment No. 127-NFPA 101-2016 [Section No. D.1.1]
D.1.2.13 SFPE Publications.


Submitter Information Verification

Submitter Full Name: SAF-FUN
Organization: [ Not Specified ]
Street Address: 
City: 
State: 
Zip: 
Submittal Date: Wed Jun 29 10:39:45 EDT 2016

Committee Statement

Committee Statement: The document was previously listed as an NFPA document. The 5th edition is now an SFPE document. SR also incorporates PC-129 (revises "Society of Fire Protection Engineers" to "SFPE," as requested by SFPE staff).

Response Message: 

Public Comment No. 128-NFPA 101-2016 [Section No. D.1.2.13]
Public Comment No. 129-NFPA 101-2016 [Section No. D.1.2.13]