Public Input No. 4-NFPA 130-2019 [Global Input]

1. Revise 6.3.3.6 to read as follows:
6.3.3.6 Guards shall not be required along the trainway side of walkways where the bottom of the trainway is
closed by a deck or grating.

2. Revise 6.3.3.7 to read as follows:
6.3.3.7 Guards shall not be required on walkways that are located between two trainways.

3. Revise 6.3.3.9 to read as follows:
6.3.3.9 Walkways that are greater than 1120 mm (44 in.) wide and located between two trainways shall not be required to have a handrail.

4. Revise A.6.3.3.5 to read as follows:
A.6.3.3.5 It is important that guards be configured so that they do not interfere with either the vehicle dynamic envelope or with egress from the train onto the walkway. For that reason, guards are not required on the trainway side of walkways, provided that the bottom of the trainway is closed by deck or grating so that persons could not fall through the bottom of the guideway.

5. Revise A.6.3.3.8 to read as follows:
A.6.3.3.8 It is important that handrails be configured so that they do not interfere with either the vehicle dynamic envelope or with egress from the train onto the walkway. For that reason, handrails are not required on the trainway side of raised walkways. Likewise, walkways located between trainways are not required to have handrails, provided they are a minimum width of 1120 mm (44 in.).

Additional Proposed Changes

File Name	Description	Approved
TIA_130_20_1.pdf	NFPA 130_TIA_20-1	

Statement of Problem and Substantiation for Public Input

NOTE: This public input originates from Tentative Interim Amendment No. 20-1 (Log 1354) issued by the Standards Council on August 6, 2019 and per the NFPA Regs., needs to be reconsidered by the Technical Committee for the next edition of the Document.

Substantiation: In the A2013 ROP, a revision to remove the term “raised” was accepted (130-120 Log #214). However, this revision was never incorporated into the 2014 edition of the Standard. This TIA is intended to correct this error by removing the term “raised” from the 2017 and proposed 2020 editions of NFPA 130.

Submitter Information Verification

Submitter Full Name: TC on FKT-AAA

Organization: NFPA

Street Address:

City:
State:
Zip:
Submittal Date: Mon Oct 28 10:13:14 EDT 2019
Committee:

Committee Statement

Resolution: Revisions per PI-4 (arising from TIA_130_20_1) were incorporated in the 2020 edition of NFPA 130. Revisions proposed by the TC for the A2022 cycle do not conflict with this TIA.

Tentative Interim Amendment

NFPA® 130

Standard for Fixed Guideway Transit and Passenger Rail Systems

2020 Edition

Reference: 6.3.3.6, 6.3.3.7, 6.3.3.9. A.6.3.3.5, and A.6.3.3.8
TIA 20-1
(SC 18-4-7 / TIA Log #1354)

Note: Text of the TIA was issued and approved for incorporation into the document prior to printing.

1. *Revise 6.3.3.6 to read as follows:*
   6.3.3.6 Guards shall not be required along the trainway side of ~~raised~~ walkways where the bottom of the trainway is closed by a deck or grating.

2. *Revise 6.3.3.7 to read as follows:*
   6.3.3.7 Guards shall not be required on ~~raised~~ walkways that are located between two trainways.

3. *Revise 6.3.3.9 to read as follows:*
   6.3.3.9 ~~Raised~~ <u>W</u>~~w~~alkways that are greater than 1120 mm (44 in.) wide and located between two trainways shall not be required to have a handrail.

4. *Revise A.6.3.3.5 to read as follows:*
   A.6.3.3.5 It is important that guards be configured so that they do not interfere with either the vehicle dynamic envelope or with egress from the train onto the walkway. For that reason, guards are not required on the trainway side of ~~raised~~ walkways, provided that the bottom of the trainway is closed by deck or grating so that persons could not fall through the bottom of the guideway.

5. *Revise A.6.3.3.8 to read as follows:*
   A.6.3.3.8 It is important that handrails be configured so that they do not interfere with either the vehicle dynamic envelope or with egress from the train onto the walkway. For that reason, handrails are not required on the trainway side of ~~raised~~ walkways. Likewise, ~~raised~~ walkways located between trainways are not required to have handrails, provided they are a minimum width of 1120 mm (44 in.).

Issue Date: August 6, 2019

Effective Date: August 26, 2019

(Note: For further information on NFPA Codes and Standards, please see www.nfpa.org/docinfo)

Public Input No. 88-NFPA 130-2020 [Global Input]

For facilities that utilize a supervisory control and data acquisition (SCADA) system to monitor and control facility sub-systems as part of an integrated emergency response system (i.e., ventilation, fire protection, traffic control, emergency communications systems, etc.), the fire alarm control panel (FACP) should interface with the SCADA system for the purpose of reporting alarm signals from the automatic fire detection system directly to the SCADA system. The number of data points exported from the FACP to the SCADA system should be sufficient to provide notifications, alarms, and status
conditions to the SCADA system necessary to allow the initiation of an appropriate sub-system response by the SCADA system to the alarms and conditions received from the automatic fire detection system.

Statement of Problem and Substantiation for Public Input

The revisions are necessary to direct users of the standard that the FACP is to be used to receive alarms from the fire detection system and that the FACP sends those alarms to the facility monitoring and control sub-systems such that these sub-systems are empowered to implement an integrated emergency response to the alarms.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 87-NFPA 130-2020 [Section No. 5.4.2.1]	Annex Material for change in main body.

Submitter Information Verification

Submitter Full Name: Justin Edenbaum
Organization: Never Gray
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 29 15:41:02 EDT 2020
Committee:

Committee Statement

Resolution: Proposed text related to Scada systems is not ready to be incorporated into the standard. The PI does not put forward any proposed language for revision.

Public Input No. 90-NFPA 130-2020 [Global Input]

The monitoring and control of sub-systems can vary, depending on the level of supervision provided. For example, for tunnels without 24-hour supervision, the activation of sub-systems in response to a fire emergency can be directly initiated from the FACP, whereas for facilities where sub-systems are monitored and controlled through an approved SCADA system, the SCADA system is utilized to initiate sub-system activation.

Statement of Problem and Substantiation for Public Input

NFPA 72 issues

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 89-NFPA 130-2020 [New Section after 5.4.2.2]	Annex Language

Submitter Information Verification

Submitter Full Name: Justin Edenbaum
Organization: Never Gray
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 29 15:48:03 EDT 2020
Committee:

Committee Statement

Resolution: Proposed text related to Scada systems is not ready to be incorporated into the standard. The PI does not put forward any proposed language for revision.

Public Input No. 164-NFPA 130-2020 [Section No. 1.1.3]

1.1.3

This standard shall not cover requirements for the following:

(1) Conventional freight systems

(2) Buses and trolley coaches

(3) Circus trains

(4) Tourist, scenic, historic, or excursion operations

(5) Any other system of transportation not included in the definition of *fixed guideway transit system(see 3.3.64.1)* or *passenger rail system(see 3.3.64.2)*

(6)* ~~Shelter stops~~

Statement of Problem and Substantiation for Public Input

Proposed revisions are necessary to address application of NFPA 130 to Passenger Rail and Light Rail Transit Systems. Existing requirements do not adequately address differences in those systems from typical rapid transit systems relative to fire-life safety hazards. Refer to related proposed revisions to A.1.1.3, new definition for "stop" and associated annex language, new annex language associated with the definition for "station", proposed new sections 5.6 and 5.7, and proposed new sections 6.6 and 6.7.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 165-NFPA 130-2020 [New Section after 3.3]	
Public Input No. 167-NFPA 130-2020 [Section No. 3.3.57]	
Public Input No. 168-NFPA 130-2020 [Section No. 5.1.1]	
Public Input No. 169-NFPA 130-2020 [Section No. 6.1.1]	
Public Input No. 166-NFPA 130-2020 [Section No. A.1.1.3(6)]	
Public Input No. 165-NFPA 130-2020 [New Section after 3.3]	
Public Input No. 166-NFPA 130-2020 [Section No. A.1.1.3(6)]	
Public Input No. 167-NFPA 130-2020 [Section No. 3.3.57]	
Public Input No. 168-NFPA 130-2020 [Section No. 5.1.1]	
Public Input No. 169-NFPA 130-2020 [Section No. 6.1.1]	

Submitter Information Verification

Submitter Full Name: Katherine Fagerlund
Organization: JENSEN HUGHES Consulting Canad
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 30 18:02:00 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: FR-70-NFPA 130-2020

Statement: This revision supports other revisions in Chapters 3 and 5 to include requirements for Stops within the scope of the standard and to clarify application of NFPA 130 to various ‘station’ and ‘stop’ configurations relative to fire-life safety hazards.

Public Input No. 5-NFPA 130-2019 [Section No. 1.1.3]

1.1.3

This standard shall not cover requirements for the following:

(1) Conventional freight systems

(2) Buses and trolley coaches

(3) Circus trains

(4) Tourist, scenic, historic, or excursion operations

(5) Any other system of transportation not included in the definition of *fixed guideway transit system(see 3.3.64.1)* or *passenger rail system(see 3.3.64.2)*

(6) * Shelter stops

(7) Vehicle maintenance facilities

Statement of Problem and Substantiation for Public Input

While I agree the code does not apply to vehicle maintenance facilities, this addition will serve to clarify 100% that his standard does not cover these facilities.

Submitter Information Verification

Submitter Full Name: Daniel Ford
Organization: WSP Middle East
Affiliation: WSP Middle East
Street Address:
City:
State:
Zip:
Submittal Date: Thu Nov 07 10:27:14 EST 2019
Committee: FKT-AAA

Committee Statement

Resolution: Exclusion of vehicle maintenance facilities from the scope of the standard is addresses in existing A.1.1.1 as well as the 'Origin and Development' information at the beginning of the standard. Also, the proposed location for the suggested addition is not consistent.

Public Input No. 6-NFPA 130-2019 [Section No. 1.1.4]

1.1.4

To the extent that a system, including those listed in 1.1.3(1) through 1.1.3(~~6~~ 7), introduces hazards of a nature similar to those addressed herein, this standard shall be permitted to be used as a guide.

Statement of Problem and Substantiation for Public Input

Subject to committee agreement of my previous PI, this figure should be changed to address points 1 through to 7.

Submitter Information Verification

Submitter Full Name: Daniel Ford
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City:
State:
Zip:
Submittal Date: Thu Nov 07 10:33:03 EST 2019
Committee: FKT-AAA

Committee Statement

Resolution: This proposal involves renumbering tied to acceptance of changes in section 1.1.3. No action is required on this section as PI-5 was resolved.

Public Input No. 7-NFPA 130-2019 [Section No. 2.2]

2.2 NFPA Publications.

National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 2, Hydrogen Technologies Code

NFPA 4, *Standard for Integrated Fire Protection and Life Safety System Testing,* 2018 edition.

NFPA 10, *Standard for Portable Fire Extinguishers,* 2018 edition.

NFPA 13, *Standard for the Installation of Sprinkler Systems,* 2019 edition.

NFPA 14, *Standard for the Installation of Standpipe and Hose Systems,* 2019 edition.

NFPA 22, *Standard for Water Tanks for Private Fire Protection,* 2018 edition.

NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems,* 2020 edition.

NFPA 70®, National Electrical Code®, 2020 edition.

NFPA 72®, National Fire Alarm and Signaling Code®, 2019 edition.

NFPA 91, *Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Particulate Solids,* 2015 edition.

NFPA *101®, Life Safety Code®,* 2018 edition.

NFPA 110, *Standard for Emergency and Standby Power Systems,* 2019 edition.

NFPA 220, *Standard on Types of Building Construction,* 2018 edition.

NFPA 241, *Standard for Safeguarding Construction, Alteration, and Demolition Operations,* 2019 edition.

NFPA 253, *Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source,* 2019 edition.

NFPA 262, *Standard Method of Test for Flame Travel and Smoke of Wires and Cables for Use in Air-Handling Spaces,* 2019 edition.

NFPA 275, *Standard Method of Fire Tests for the Evaluation of Thermal Barriers,* 2017 edition.

NFPA 286, *Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth,* 2019 edition.

NFPA 703, *Standard for Fire Retardant–Treated Wood and Fire-Retardant Coatings for Building Materials,* 2018 edition.

NFPA 1221, *Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems,* 2019 edition.

Statement of Problem and Substantiation for Public Input

The committee should give due regard to reference NFPA 2 for hydrogen systems, or establish a working group to address this. New technology and sustainability requirements across the world are looking at hydrogen technology for rail vehicles.

Submitter Information Verification

Submitter Full Name: Daniel Ford

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Affiliation: N/A
Street Address:
City:
State:
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Submittal Date: Thu Nov 07 10:36:56 EST 2019
Committee: FKT-AAA

Committee Statement

Resolution: The reference to NFPA 2 is unnecessary in the current standard.

Public Input No. 48-NFPA 130-2020 [Section No. 2.3.4]

2.3.4 ASTM Publications.

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

ASTM C1166, *Standard Test Method for Flame Propagation of Dense and Cellular Elastometric Gaskets and Accessories,* 2006 (2016).

ASTM D2724, *Standard Test Methods for Bonded, Fused, and Laminated Apparel Fabrics*, ~~2007 (2015)~~ 2019 .

ASTM D3574, *Standard Test Methods for Flexible Cellular Materials — Slab, Bonded, and Molded Urethane Foams*, 2017.

ASTM D3675, *Standard Test Method for Surface Flammability of Flexible Cellular Materials Using a Radiant Heat Energy Source*, ~~2017~~ 2019 .

ASTM D7568, *Standard Specification for Polyethylene-Based Structural-Grade Plastic Lumber for Outdoor Applications*, 2017.

ASTM E84, *Standard Test Method for Surface Burning Characteristics of Building Materials*, ~~2018a~~ 2020 .

ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, ~~2018a~~ 2020 .

ASTM E136, *Standard Test Method for ~~Behavior~~ Assessing Combustibility of Materials ~~in a~~ Using a Vertical Tube Furnace at 750°C*, ~~2016a~~ 2019a .

ASTM E162, *Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source*, 2016.

ASTM E648, *Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source*, ~~2017a~~ 2019a e1 .

ASTM E662, *Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials*, ~~2017a~~ 2019 .

ASTM E814, *Standard Test Method for Fire Tests of Penetration Firestop Systems*, 2013a (2017).

ASTM E1354, *Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter*, 2017.

ASTM E1537, *Standard Test Method for Fire Testing of Upholstered Furniture*, 2016.

ASTM E1590, *Standard Test Method for Fire Testing of Mattresses*, 2017.

ASTM E2061, *Standard Guide for Fire Hazard Assessment of Rail Transportation Vehicles*, ~~2018~~ 2020 .

ASTM E2652, *Standard Test Method for ~~Behavior of Materials in a~~ Assessing Combustibility of Materials Using a Tube Furnace with a Cone-shaped Airflow Stabilizer, at 750°C*, ~~2016~~ 2018 .

Statement of Problem and Substantiation for Public Input

updates

Submitter Information Verification

Submitter Full Name: Marcelo Hirschler
Organization: GBH International
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 16 18:08:30 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-76-NFPA 130-2020
Statement: Reference Updates to Chapter 2

Public Input No. 47-NFPA 130-2020 [Section No. 2.3.9]

2.3.9 UL Publications.

Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.

~~ANSI/~~ UL 44, ~~*Standard for Safety Thermoset*~~ *Thermoset -Insulated Wires and Cables*, ~~2014~~ 2018 .~~ANSI/~~

UL 83, ~~*Standard for Safety Thermoplastic*~~ *Thermoplastic -Insulated Wires and Cables*, ~~2014~~ 2017 .

~~ANSI/~~ UL 263, ~~*Standard for Fire*~~ *Fire Tests of Building Construction and Materials*, ~~2015.ANSI/UL 1685, Standard for~~ 2019.

UL 723, Test for Surface Burning Characteristics of Building Materials, 2018

UL 1479, Fire Tests of Penetration Firestops, 2015

UL 1685, *Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables*, 2015.

UL 1724, *Outline of Investigation for Fire Tests for Electrical Circuit Protective Systems*, 2006.

~~ANSI/~~ UL 2196, ~~*Standard*~~ *Tests for* ~~*Safety for Tests for*~~ *Fire Resistive Cables*, ~~2001, revised 2012~~ 2017 .

Statement of Problem and Substantiation for Public Input

Reason: Many years ago, UL preferred the ANSI/UL reference because there was a transition of traditional UL standards towards an ANSI standards development process.

Now, years later, a large majority of UL Standards are ANSI approved and follow the ANSI development and maintenance process. However, sometimes readers are confused because they don't understand the standards are actually UL standards, not developed by ANSI. There are many other references to standards promulgated by other standards development organizations where they are considered ANSI approved but do not include ANSI in the reference.
UL 1479 is equivalent to ASTM E814 for fire testing penetration fire stops. These standards are referenced throughout NFPA standards and codes such as NFPA 101 and NFPA 5000 wherever fire stop ratings are required.
UL 723 is an equivalent standard to ASTM E 84. Both standards are used to determine flame spread and smoke development ratings of different materials. These standards are referenced throughout NFPA standards and codes such as NFPA 101 and NFPA 5000wherever these ratings are required.

Update of existing references.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 119-NFPA 130-2020 [Section No. 5.2.5.1]	
Public Input No. 120-NFPA 130-2020 [Section No. 6.2.7.2]	
Public Input No. 121-NFPA 130-2020 [Section No. 6.2.8.2]	
Public Input No. 122-NFPA 130-2020 [Section No. 8.4.1.15]	
Public Input No. 123-NFPA 130-2020 [Section No. 8.5.1.3]	
Public Input No. 125-NFPA 130-2020 [Section No. 12.4.4]	

Public Input No. 126-NFPA 130-2020 [Section No. 12.5]

Submitter Information Verification

Submitter Full Name: Kelly Nicolello
Organization: UL LLC
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 16 12:16:57 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-76-NFPA 130-2020
Statement: Reference Updates to Chapter 2

Public Input No. 9-NFPA 130-2019 [Section No. 2.3.11]

2.3.11 Other Publications.

Merriam-Webster's Collegiate Dictionary, 11th edition, Merriam-Webster, Inc., Springfield, MA, 2003.

EN 45545 Railway Applications - Fire protection on Railway Vehicles

Statement of Problem and Substantiation for Public Input

The committee should consider the inclusion of EN standards for rail vehicles to ensure the standard can be applied worldwide. On a recent project this standard was determined by a third party to be equivalent or superior to NFPA 130 Chapter 8.

Submitter Information Verification

Submitter Full Name:	Daniel Ford
Organization:	WSP Middle East
Affiliation:	NA
Street Address:	
City:	
State:	
Zip:	
Submittal Date:	Thu Nov 07 10:44:46 EST 2019
Committee:	FKT-AAA

Committee Statement

Resolution: This standard is unnecessary as it is not referenced in the standard.

Public Input No. 8-NFPA 130-2019 [Section No. 2.4]

2.4 References for Extracts in Mandatory Sections.

NFPA 72®, National Fire Alarm and Signaling Code®, 2019 edition.

NFPA 92, *Standard for Smoke Control Systems,* 2018 edition.

NFPA *101®, Life Safety Code®,* 2018 edition.

NFPA 253, *Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source,* 2019 edition.

NFPA 270, *Standard Test Method for Measurement of Smoke Obscuration Using a Conical Radiant Source in a Single Closed Chamber,* 2018 edition.

NFPA 402, *Guide for Aircraft Rescue and Fire-Fighting Operations,* 2019 edition.

NFPA 472, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents,* 2018 edition.

~~NFPA 502, *Standard for Road Tunnels, Bridges, and Other Limited Access Highways,* 2020 edition.~~

NFPA 921, *Guide for Fire and Explosion Investigations,* 2017 edition.

NFPA 1994, *Standard on Protective Ensembles for First Responders to CBRN Terrorism Incidents,* 2018 edition.

Statement of Problem and Substantiation for Public Input

I propose reference to NFPA 502 is removed. My experience dealing with projects in the Middle East region is clients are looking for the design to meet with both NFPA 130 & 502, due to the inclusion of this reference [NFPA 502] within section 2.4. Clearly the codes and different.
The only reference to NFPA 502 is 3.3.20. This cross reference can be removed and NFPA 130 committee adopt there own definition.

Submitter Information Verification

Submitter Full Name: Daniel Ford
Organization: WSP Middle East
Affiliation: NA
Street Address:
City:
State:
Zip:
Submittal Date: Thu Nov 07 10:40:04 EST 2019
Committee: FKT-AAA

Committee Statement

Resolution: Removing this reference is against NFPA Manual of Style. NFPA 502 is used for the definition of Fire Emergency (3.3.20) in the current standard.

Public Input No. 165-NFPA 130-2020 [New Section after 3.3]

TITLE OF NEW CONTENT

Type your content here ...

3.3.XX Stop

A place located within a public way designated for the purpose of loading and unloading passengers.

Statement of Problem and Substantiation for Public Input

Proposed revisions are necessary to address application of NFPA 130 to Passenger Rail and Light Rail Transit Systems. Existing requirements do not adequately address differences in those systems from typical rapid transit systems relative to fire-life safety hazards. Refer to related proposed revisions to A.1.1.3, new annex language associated with the definition for "station", proposed new sections 5.6 and 5.7, and proposed new sections 6.6 and 6.7.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 164-NFPA 130-2020 [Section No. 1.1.3]	
Public Input No. 167-NFPA 130-2020 [Section No. 3.3.57]	
Public Input No. 168-NFPA 130-2020 [Section No. 5.1.1]	
Public Input No. 169-NFPA 130-2020 [Section No. 6.1.1]	
Public Input No. 166-NFPA 130-2020 [Section No. A.1.1.3(6)]	
Public Input No. 164-NFPA 130-2020 [Section No. 1.1.3]	
Public Input No. 166-NFPA 130-2020 [Section No. A.1.1.3(6)]	
Public Input No. 167-NFPA 130-2020 [Section No. 3.3.57]	
Public Input No. 168-NFPA 130-2020 [Section No. 5.1.1]	
Public Input No. 169-NFPA 130-2020 [Section No. 6.1.1]	

Submitter Information Verification

Submitter Full Name: Katherine Fagerlund

Organization: JENSEN HUGHES Consulting Canad

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jun 30 18:06:51 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: FR-71-NFPA 130-2020

Statement: This revision supports other revisions in Chapters 1, 3 and 5 to include requirements for Stops within the scope of the standard

Public Input No. 63-NFPA 130-2020 [New Section after 3.3.3]

Automatic Fire Detection System

A fire detection system that senses the presence of fire, smoke, or heat and provides automatic alarm signals

Statement of Problem and Substantiation for Public Input

This term is used in NFPA 130 and does not necessarily have an ordinarily accepted meaning

Submitter Information Verification

Submitter Full Name: Jonathan Redding

Organization: FOGTEC Fire Protection

Street Address:

City:

State:

Zip:

Submittal Date: Fri Jun 26 07:47:28 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: The definition is unnecessary as the phrase is not used in the current standard.

Public Input No. 50-NFPA 130-2020 [Section No. 3.3.32.2]

3.3.32.2* Fire Heat Release Rate.

Rate of energy release for a given fire scenario or fire test~~, expressed as a function of time~~ .

Statement of Problem and Substantiation for Public Input

Rate is always a property per unit of time. The present definition talks about rate as a function of time but that would not be a rate but an acceleration. The annex note already describes the typical units.

Submitter Information Verification

Submitter Full Name: Marcelo Hirschler
Organization: GBH International
Street Address:
City:
State:
Zip:

Submittal Date: Tue Jun 16 18:24:10 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-28-NFPA 130-2020

Statement: The revised definition provides a better alignment with the explanatory material in the Annex.

Public Input No. 161-NFPA 130-2020 [Section No. 3.3.37]

3.3.37 Occupancy.

3.3.37.1 Incidental ~~Occupancies Within Stations~~ Occupancy .

~~The use of a portion of~~ An occupancy within the station operated by others who are ~~neither transit~~ not system employees ~~nor passengers and~~ where ~~such~~ the space remains under the control of the system ~~-operating~~ authority.

A. 3.3. 61.1

Incidental occupancies include leased areas used for mercantile and other business purposes such as concessions and information booths. Incidental occupancies refer to premises that are accessed from within the station only.

3.3. 37.2 Nonsystem Occupancy.

An occupancy not under the control of the system ~~-operating~~ authority.

A.3.3.62.2

Nonsystem occupancies include areas within or adjacent to stations and have access and egress that is independent of the station. Nonsystem occupancies may have pedestrian connections to the station but such connections would be subject to requirements of the applicable building code for connections between buildings.

Statement of Problem and Substantiation for Public Input

Proposed revisions are necessary to clarify which occupancies these definitions are intended to include. The revisions support better application of requirements in Section 5.2.4 as well as proposed revisions to Section 5.4.4.1.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 156-NFPA 130-2020 [Sections 5.4.4.1, 5.4.4.2]	
Public Input No. 160-NFPA 130-2020 [Section No. A.5.4.4.1]	
Public Input No. 156-NFPA 130-2020 [Sections 5.4.4.1, 5.4.4.2]	
Public Input No. 160-NFPA 130-2020 [Section No. A.5.4.4.1]	

Submitter Information Verification

Submitter Full Name: Katherine Fagerlund
Organization: JENSEN HUGHES Consulting Canad
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 30 17:09:45 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-18-NFPA 130-2020

Statement: Proposed revisions are necessary to clarify which occupancies these definitions are intended to address. The revisions support better application of requirements in Chapter 5.

Public Input No. 64-NFPA 130-2020 [New Section after 3.3.37.2]

On-board fire suppression system

A firefighting system that is installed on a rail vehicle to control and suppress fire. Typically activated from an automatic fire detection system

Statement of Problem and Substantiation for Public Input

This term is used in a proposed annex section on fire detection and fire suppression systems and does not necessarily have an ordinarily accepted meaning.

Submitter Information Verification

Submitter Full Name: Jonathan Redding
Organization: FOGTEC Fire Protection
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jun 26 07:55:38 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: The definition is unnecessary as the phrase is not used in the current standard.

Public Input No. 106-NFPA 130-2020 [Section No. 3.3.42]

3.3.42* Point of Safety.

An

3.3.40 Point of Safety - - - **A point of safety is one of the following: (1) an enclosed exit that leads to a public way or safe location outside the**

structure,

station, trainway, or vehicle; (2) an at-grade point beyond

any

the vehicle, enclosing

structure

station , or trainway; (3) any other approved location . A location that

(a) is exterior to and away from a building; or

(b) is within a building of any construction type protected throughout by an approved automatic sprinkler system and that is either (1) within an exit enclosure meeting the requirements of this Code, or (2) within another portion of the building that is separated by smoke barriers in accordance with Section 8.5 having a minimum 1⁄2-hour fire resistance rating, and that portion of the building has access to a means of escape or exit that conforms to the requirements of this Code and does not necessitate return to the area

that affords adequate protection for evacuating passengers.

of fire involvement; or

(c) is within a building of Type I, Type II(222), Type II(111), Type III(211), Type IV, or Type V(111) construction (see 8.2.1.2) and is either (1) within an exit enclosure meeting the requirements of this Code, or (2) within another portion of the building that is separated by smoke barriers in accordance with Section 8.5 having a minimum 1⁄2-hour fire resistance rating, and that portion of the building has access to a means of escape or exit that conforms to the requirements of this Code and does not necessitate return to the area of fire involvement. (SAF-BCF)

Statement of Problem and Substantiation for Public Input

This language is out of the building code and is provided to allow the 130 technical committee an opportunity to study the differences between definitions of a point of safety. 130 relies on ventilation in some areas to protect passengers from smoke (heat, toxic gases, loss of visibility) and allows the point of safety to be on the platform if approved. This approach is fundamentally different than building/fire codes which require a physical barrier between the occupants and fire and does not rely on ventilation. Two challenges occur without a physical barrier, 1) although ventilation can control heating air in many conditions, ventilation has no effect on radiant heat, 2) reliance on ventilation assumes the ventilation system will always be fully functional, yet 130 now requires acknowledgment of one fan failures. If a fan failure occurs during emergencies, portions of the station areas may not be fully protected from smoke and convective heat, whereas physical barriers provide a 'less prone to failure' protection. Physical barriers are required in 101 and International building codes.

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Submittal Date: Tue Jun 30 00:12:34 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: (Withdrawn by proponent). Proposed language is prescriptive and therefore not suitable as a definition.

Public Input No. 84-NFPA 130-2020 [Section No. 3.3.56]

3.3.56* Speech Interference Level ~~(SIL)~~ .

A calculated quantity providing a guide to the interfering effect of noise on speech intelligibility; measured in decibels.

Statement of Problem and Substantiation for Public Input

SIL acronym is used much more for Safety Integrity Level in railway industry. Therefore SIL is in this context confusing for professionals in railway industry. E.g. following standards are used for in railway applications for SIL (Safety Integrity Level).

- EN 50128 (railway applications – software for railway control and protection)
- EN 50129 (railway applications – safety related electronic systems for signalling)
- IEC 61508 (Functional safety of electrical/electronic/programmable electronic safety related systems)

Submitter Information Verification

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Submittal Date: Mon Jun 29 05:05:39 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-29-NFPA 130-2020

Statement: The definition (and Annex note) is not used within the current standard.

Public Input No. 40-NFPA 130-2020 [New Section after 3.3.57]

3.3.5.7.3 Elevated Station

A station that is constructed such that the guideway and platforms are wholly or in part elevated above the local at-grade elevation, and where emergency egress routes require vertical circulation, other than for crossing the guideways to traverse between platforms, to reach a point of safety.

Statement of Problem and Substantiation for Public Input

NFPA 130 contains specific requirements applicable to elevated stations. However the standard lacks a definition of an elevated station and the NFPA Glossary does not contain any definition. The proposed addition would clarify the applicability of "Elevated Station" requirements.

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Submittal Date: Fri Jan 17 13:59:51 EST 2020
Committee: FKT-AAA

Committee Statement

Resolution: The term 'elevated station' is not used in the standard. Additionally, 'elevated' is difficult to quantify. The standard previously deleted 'elevated', 'at grade' and 'underground' station descriptions in favor of 'open' and 'enclosed'.

Public Input No. 167-NFPA 130-2020 [Section No. 3.3.57]

3.3.57* Station.

A place designated for the purpose of loading and unloading passengers, including patron service areas and ancillary spaces associated with the same structure.

3.3.57.1* Enclosed Station.

A station or portion thereof that does not meet the definition of an open station.

3.3.57.2* Open Station.

A station that is constructed such that it is directly open to the atmosphere and smoke and heat are allowed to disperse directly into the atmosphere.

A.3.3.57

The term station refers to a structure having walls or other barriers that separate the area within the station from the surrounding area and that restrict passenger movement in and out of the station.

Statement of Problem and Substantiation for Public Input

Proposed revisions are necessary to address application of NFPA 130 to Passenger Rail and Light Rail Transit Systems. Existing requirements do not adequately address differences in those systems from typical rapid transit systems relative to fire-life safety hazards. Refer to related proposed revisions to 1.1.3, A.1.1.3, new definition for "stop" and associated annex language, proposed new sections 5.6 and 5.7, and proposed new sections 6.6 and 6.7.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 164-NFPA 130-2020 [Section No. 1.1.3]	
Public Input No. 165-NFPA 130-2020 [New Section after 3.3]	
Public Input No. 168-NFPA 130-2020 [Section No. 5.1.1]	
Public Input No. 169-NFPA 130-2020 [Section No. 6.1.1]	
Public Input No. 166-NFPA 130-2020 [Section No. A.1.1.3(6)]	
Public Input No. 164-NFPA 130-2020 [Section No. 1.1.3]	
Public Input No. 165-NFPA 130-2020 [New Section after 3.3]	
Public Input No. 166-NFPA 130-2020 [Section No. A.1.1.3(6)]	
Public Input No. 168-NFPA 130-2020 [Section No. 5.1.1]	
Public Input No. 169-NFPA 130-2020 [Section No. 6.1.1]	

Submitter Information Verification

Submitter Full Name: Katherine Fagerlund
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Submittal Date: Tue Jun 30 18:15:55 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-72-NFPA 130-2020
Statement: The revision recognizes that a station is a building as opposed to a place.

Public Input No. 168-NFPA 130-2020 [Section No. 5.1.1]

5.1.1 Applicability.

5.1.1.1

This chapter shall apply to all portions of stations, except as provided in Sections 5 .6 and 5.7.

5.6 Passenger Rail Stations.

5.6.1 Applicability.

Passenger rail stations shall comply with Sections 5.1 through 5.5 except as provided in this Section.

5.6.2 Relationship to Local Codes

Where platforms and track areas are located outside of the passenger rail station building, the station building shall be designed in accordance with the requirements of the locally applicable building code.

5.6.3* Means of Egress

Passenger rail station platforms shall be permitted to egress though the station building.

A.5.6.3 Provisions for egress from the platform should consider both egress from a fire on the platform and in the event of a fire in the station building. For egress from the platform during a station building fire, platform occupant loads may not need to account for train evacuation and it may be reasonable to consider temporary areas of refuge on the platform.

5.7 Stops.

5.7.1 Applicability.

This section shall apply to loading and unloading locations that are designed as stops.

5.7.2* Means of Egress

The means of egress serving a stop shall comply with this section.

5.7.2.1 The design of ramps and stairs serving the loading area shall be in accordance with the requirements of the locally applicable code.

5.7.2.1 For loading areas that are raised above surrounding grade, guards shall be provided in accordance with the requirements of the locally applicable code, except guards shall not be required adjacent to the track.

A.5.7.2 The determination of occupant load is not required for a stop in consideration that stops do not significantly restrict passenger movement and are open to the atmosphere.

Statement of Problem and Substantiation for Public Input

Proposed revisions are necessary to address application of NFPA 130 to Passenger Rail and Light Rail Transit Systems. Existing requirements do not adequately address differences in those systems from typical rapid transit systems relative to fire-life safety hazards. Refer to related proposed revisions to A.1.1.3, new definition for "stop" and associated annex language, new annex language associated with the definition for "station", and proposed new sections 6.6 and 6.7.

Related Public Inputs for This Document

Related Input	Relationship

Public Input No. 164-NFPA 130-2020 [Section No. 1.1.3]
Public Input No. 165-NFPA 130-2020 [New Section after 3.3]
Public Input No. 166-NFPA 130-2020 [Section No. A.1.1.3(6)]
Public Input No. 167-NFPA 130-2020 [Section No. 3.3.57]
Public Input No. 169-NFPA 130-2020 [Section No. 6.1.1]
Public Input No. 164-NFPA 130-2020 [Section No. 1.1.3]
Public Input No. 165-NFPA 130-2020 [New Section after 3.3]
Public Input No. 166-NFPA 130-2020 [Section No. A.1.1.3(6)]
Public Input No. 167-NFPA 130-2020 [Section No. 3.3.57]
Public Input No. 169-NFPA 130-2020 [Section No. 6.1.1]

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Submittal Date: Tue Jun 30 18:21:22 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-83-NFPA 130-2020

Statement: These revisions are in addition to other revisions in Chapters 1, 3 and 5 to include requirements for Stops within the scope of the standard. The revisions to Chapter 5 are intended to clarify application of NFPA 130 to various ‘stop’ configurations. Existing requirements do not adequately address differences in the configurations of stops from typical rapid transit systems relative to fire-life safety hazards.

Public Input No. 10-NFPA 130-2019 [Section No. 5.1.2]

5.1.2* Relationship to Local Codes.

5.1.2.1

The requirements in this chapter shall supplement the requirements of the locally applicable codes for the design and construction of stations.

5.1.2.2

Where the requirements in this chapter do not address a specific feature of fire protection or life safety, the requirements of the local codes shall be considered applicable.

5.1.2.4

Where areas of a station are not normally accessible to passenger, the design of such areas shall meet with the locally applicable codes.

Statement of Problem and Substantiation for Public Input

The addition of this clause clarifies that the non public areas of the station shall meet with local building code requirements. Appendix material can be added to refer the reader to NFPA 101 as a suitable standard for such a design.

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Submittal Date: Thu Nov 07 11:32:55 EST 2019
Committee: FKT-AAA

Committee Statement

Resolution: This requirement is already addressed in Section 5.1.2.1.

Public Input No. 133-NFPA 130-2020 [New Section after 5.1.2.1]

TITLE OF NEW CON

*5.1.2.1 Appendix note (separate from previous comment).

Great savings in time money and energy can be realized by drafting a Building Code Analyses. A Buiding Code Analyses is not a subordinate standards compliance matrix. If Employer wants to minimize bid spread and maximize likelihood of intended delivery, then example BCAs should be included in the specifications / tender for prototypical buildings. Update the BCA as design progresses. One of the goals of the BCA is to find early in the design process, gaps, inconsistencies and questions, when it costs 1/100th the energy to resolve issues than waiting until 60% design. Particular attention should be paid towards interface items (elevators, fuel tanks, parking structures, carriage emergency, exit disharges onto public ways, shopping mall openings, airport, harbor facilties, even building insultations systems.

Statement of Problem and Substantiation for Public Input

This helps resolve problem that the referenced section in the main body of the standard addresses: confusion over which design guide to use, and confusion created by interfaces existant with and without the added complexity of not working with the agreed upon alpha design guide-which usually is the adopted local building code.

Submitter Information Verification

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Submittal Date: Tue Jun 30 12:36:50 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-1-NFPA 130-2020

Statement: The first revision retains the advice to consider building code analyses but does not repeat suggestions that are outside the scope of the standard.

Public Input No. 129-NFPA 130-2020 [Section No. 5.1.2.1]

5.1.2.1

The requirements in this chapter shall supplement the requirements of the locally adopted (or if not, then applicable) codes for the design and construction of stations.

Statement of Problem and Substantiation for Public Input

This is a seminal, ground-zero problem with huge repercussions that are not overstated. Use of the word " applicable" allows NFPA 500 to slide in under the radar, when many 'organized' jurisdications enact (i.e. legally adopt) their own local building code. We want to sell NFPA 5000, but we first should respect a sovereign jurisdiction's decision when it adopts its own local building code. The local building code hopefully has guidance tuned to local climate, construction practices and risk tolerance which is not possible or even envisioned by NFPA 5000, or any other building code imported 100% from a foreign nation. Witness the confusion overseas where NFPA is trying to sell NFPA 5000, tyro designers try to use NFPA 5000 as the locally " applicable" code, only to get told by offcials years into a Metro project, " should we not be following our own government ordained, decreed, funded and authorized Building Code? Should we not be following our own Building Code that we have so much confidence in, we patronized an updated revision for?" It is one thing to sell Building Codes, but it is going a bridge too far to leave even the faintest doubt in a designer or AHJs mind, that they can use an 'applicable code' other than their locally adopted building code. There are no unique features in the NFPA 5000 or NFPA 101 that make it particularly suited for station design. In fact, NFPA 101 is particularly ill suited, due to its focus on life and not property safety. And sending user to NFPA 220, is a punishment not befitting an organization so respected as the NFPA. To its discredit, the USA does not set the example with this NFPA 130 and local building code interface; but we should. The local building code is the IBC, but it has not stepped up and owned its responsibility. Chris.Reeves@iccsafe.org has rejected my question three times--as to the purpose of Section 405.1.E3. Why does IBC clearly reject liability for design of stations deeper than 9.1 m, but IBC is not standing up and admitting that it retains responsibility for design of stations shallower than 9.1 m? This line in the sand at 9.1 meters deep, is an irresponsibly unresolved interface; NFPA and ICCsafe need work it out-- together. It is costing taxpayers millions in inefficiency and confusion (one simple example, 'how to interface tunnel safety systems between a DUS [ICC won't touch DUS design due to Section 405.1E3] and an At-Grade station where IBC without a doubt--is legally bound and retains responsibility in black-and-white of Section 405.1 since it is shallower than 9.1 m]? Resolving this interface will save person-months of design time in many disciplines, not just fire. I have asked old-timers with the BOCA to help me understand why BOCA retained design responsibility for stations shallower than 9.1 m; it is obvious why BOCA does not want the increased liability for deep stations---in light of the purposefully framed obsfucation in NFPA 130 sprinkler guidance. Slowly, the old timers are dying. I asked <wayne.jewell@greenoaktwp.com> an old-time building code official to help with this problem, and he said he would get around to it. Our contact in that 'tuit, has since died. Time slips by and this interface gap sucks up time and money like a black hole. I know why code consultants don't want to fix this gap... 'chaos creates cash.' Enough cash has been createed. It is time to organize, not pilfer from the taxpayers more. If NFPA 130 and ICC would get together and harmonize their respective guidance on this issue of locally "adopted' building code, you will be doing the sustainable thing, which is not to waste precious resources. And, a more organized design guide will help NFPA sell more subordinate standards, planet-wide. IBC is a great Building Code, there is nothing in it (as Chris.Reeves@iccsafe.org claims) that makes IBC or any other Building Code for that matter, inherently unsuited to the unique environment of Metro stations. If a Building Code were ill-suited for station design, why would NFPA 130 finally agree that the major responsibility for station design IS the local code, after trying to do the bulk of the station design guidance by itself for 20 years? And legally, though it was not admitted, but legally IBC retains design responsibility unquestionably for design of all Metro property higher than 9.1 m underground (except where NFPA 130 guidance is more specific, and even then, in the instance of conflict with the IBC, IBC retains the option of deciding in case of conflict). NFPA 130 and ICC need to harmonize this interface gap because inefficiencies on projects costing tens of billions of dollars, are not what responsible organizations like NFPA or ICCsafe should be noted for.

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Submittal Date: Tue Jun 30 11:25:36 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: This concept is already addressed in the Disclaimer section of the Standard.

Public Input No. 110-NFPA 130-2020 [New Section after 5.1.3]

TITLE OF NEW CONTENT

Type your content here ... **5.1.2.3** Where provisions of this standard and the local codes conflict, the language which provides the greatest safety will be used.

Statement of Problem and Substantiation for Public Input

Conflicts between this standard and local codes occur without clear guidance on which should be used. Although the local codes often take precedence as they are adopted under the state authority, for safety reasons there needs to be clear language on which takes precedence when they conflict.

Submitter Information Verification

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Affiliation: NFPA 130 technical committee alternate

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Submittal Date: Tue Jun 30 00:37:41 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: ‘Greatest safety’ is a judgement call. NFPA 130 requirements are intended as a systemwide approach. Specific requirements should be looked at within that context.

Public Input No. 115-NFPA 130-2020 [Section No. 5.2.3]

5.2.3 ~~Flammable and Combustible Liquids Intrusion.~~

~~5.2.3.1~~ – ~~General.~~

~~Protection of belowgrade system structures against the accidental intrusion of flammable and combustible liquids shall be provided in accordance with 5.2.3 .~~

~~5.2.3.2~~ – ~~Vehicle Roadway Terminations.~~

~~Vent or fan shafts utilized for ventilation of belowgrade system structures shall not terminate at grade on any vehicle roadway.~~

~~5.2.3.3~~ – ~~Median and Sidewalk Terminations.~~

~~Vent and fan shafts shall be permitted to terminate in the median strips of divided highways, on sidewalks designed to accept such shafts, or in open space areas, provided that the grade level of the median strips, sidewalk, or open-space meets the following conditions:~~

(1) ~~It is at a higher elevation than the surrounding grade level.~~

(2) ~~It is separated from the roadway by a concrete curb at least 150 mm (6 in.) in height.~~

Statement of Problem and Substantiation for Public Input

The requirements in Subsection 5.2.3 are specific to ventilation openings and the scope of the standard addresses emergency ventilation these requirements would be applicable to the considerations in Subsection 7.6 for ventilation openings. Ventilation structures can be integrated into a station or a standalone structure and the considerations in Subsection 5.2.3 will apply to the ventilation shaft opening irrespective of on how it is integrated. As such, specifics separated into Chapter 5 or Chapter 6 are not required. Move Subsection 5.2.3 to a new section 7.6.3.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 116-NFPA 130-2020 [Section No. 7.6]	
Public Input No. 117-NFPA 130-2020 [Section No. 6.2.3]	

Submitter Information Verification

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Submittal Date: Tue Jun 30 02:08:57 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-85-NFPA 130-2020

Statement: Revisions made to relocate and augment existing text from 5.2.3 to 4.7 to indicate that the existing requirement is intended to apply for more than just vent and fan shafts as currently prescribed in the referenced Section 5.2.3. Refer also to related changes in Sections 6.2.3 and 7.6.

Public Input No. 162-NFPA 130-2020 [Section No. 5.2.3]

5.2.3 Flammable and Combustible Liquids Intrusion.

5.2.3.1* General.

~~Protection of belowgrade system structures against the accidental~~ Ventilation openings and fan shafts shall be positions or designed to prevent acidental intrusion of flammable ~~and combustible liquids shall be provided in accordance with 5.2.3~~ . or combustible liquids into belowgrade system structures.

A.5.3.2.1

Protection as required by 5.2.3.

~~2 Vehicle Roadway Terminations.~~

~~Vent or fan shafts utilized for ventilation of belowgrade system structures shall 1 can be achieved as follows:~~

~~(1) Ventilation openings or fan shafts should not terminate at grade on any vehicle roadway.~~

~~**5.2.3.3** Median and Sidewalk Terminations.~~

~~Vent and fan shafts shall be permitted to (2) Where ventilation openings or fan shafts terminate in the median strips of divided highways, on sidewalks designed to accept such shafts, or in open space areas, provided that the grade level of the median strips, sidewalk, or open-space meets the following conditions: It is surface level of that area should be at a higher elevation than the surrounding grade level .It is separated or should be s eparated from the roadway by a concrete curb at least 150 mm (6 in.) in height .~~

Statement of Problem and Substantiation for Public Input

Proposed revisions are necessary to indicate the performance intent of the requirements, with potential design solutions more appropriately relocated to Annex language. Refer also to related changes to 7.6.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 163-NFPA 130-2020 [Section No. 7.6]	
Public Input No. 163-NFPA 130-2020 [Section No. 7.6]	

Submitter Information Verification

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Submittal Date: Tue Jun 30 17:47:23 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-85-NFPA 130-2020

Statement: Revisions made to relocate and augment existing text from 5.2.3 to 4.7 to indicate that the existing requirement is intended to apply for more than just vent and fan shafts as currently prescribed in the referenced Section 5.2.3. Refer also to related changes in Sections 6.2.3 and 7.6.

Public Input No. 14-NFPA 130-2019 [Section No. 5.2.4.1]

5.2.4.1 Interconnected Floor Levels.

Interconnection between floor levels in stations shall be permitted as follows:

(1) * Stairs and escalators used by passengers shall not be required to be fire-separated.

(2) Public areas on different levels in open stations shall be permitted to be interconnected.

(3) Public areas on different levels in enclosed stations shall be permitted to be interconnected, provided fire separation is not required for smoke control or other fire protection purposes.

(4) <u>Linear joints in enclosed stations, which only connect non fire seperated interconnecting public spaces, shall not require fire seperation when subjected to a fire hazard analysis.</u>

Statement of Problem and Substantiation for Public Input

Typically in enclosed stations the concourse and platform are located directly above/ below each other. This clause serves to clarify that the linear expansion joint does not require a fire resistance rating as they are interconnected.

Submitter Information Verification

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Submittal Date: Thu Nov 07 11:57:52 EST 2019
Committee: FKT-AAA

Committee Statement

Resolution: The intent is adequately addressed by existing language in this section. The proposed revision is too case specific.

Public Input No. 12-NFPA 130-2019 [Section No. 5.2.4.5]

5.2.4.5 Rooms solely used for the dispending of system tickets shall not require seperation from public areas.

5.2.4.6 * Separation Between System and Nonsystem Occupancies.

All station public areas shall be fire separated from adjacent nonsystem occupancies.

Statement of Problem and Substantiation for Public Input

This addition clarifies that ticking rooms do not require fire separation from public spaces. These spaces typically have glazing to protect the operator which cannot be provided with fire rating due to openings in the glazing to allow for transactions. The counter is typically at different heights to allow for mobility impaired occupant use.

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Submittal Date: Thu Nov 07 11:49:20 EST 2019

Committee: FKT-AAA

Committee Statement

Resolution: FR-27-NFPA 130-2020

Statement: The proposed new language in A.5.2.4.4 provides clarity that, although the front of the booths may require fire separation, fire separation from adjacent non-public or non-system spaces should be provided to prevent fire extension into adjacent spaces. The size limitation value is derived from requirements of the Singapore Standard for Fire Safety in Rapid Transit Systems and the Ontario Building Code (Canada).

Public Input No. 119-NFPA 130-2020 [Section No. 5.2.5.1]

5.2.5.1

Materials used as interior wall and ceiling finish in enclosed stations shall comply with one of the following requirements:

(1) The materials shall be noncombustible in accordance with Section 4.6.

(2) The materials shall be limited-combustible in accordance with 4.6.2.

(3) The materials shall comply with the following requirements when tested in accordance with NFPA 286:

   (4) Flames shall not spread to the ceiling during the 40 kW (135 kBtu/hr) exposure.

   (5) Flames shall not spread to the outer extremities of the sample on any wall or ceiling.

   (6) Flashover, as described in NFPA 286, shall not occur.

   (7) The peak heat release rate shall not exceed 800 kW (2730 kBtu/hr).

   (8) The total smoke released throughout the test shall not exceed 1000 m^2 (10,764 ft^2).

(9) The materials shall comply with a flame spread index not exceeding 25 and a smoke development index not exceeding 450 when tested in accordance with ASTM E84 or UL 723 , except that the materials in 5.2.5.2 shall be required to be tested in accordance with NFPA 286.

Statement of Problem and Substantiation for Public Input

UL 723 is an equivalent standard to ASTM E 84. Both standards are used to determine flame spread and smoke development ratings of different materials. These standards are referenced throughout NFPA standards and codes such as NFPA 101 and NFPA 5000 wherever these ratings are required.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 47-NFPA 130-2020 [Section No. 2.3.9]	
Public Input No. 120-NFPA 130-2020 [Section No. 6.2.7.2]	
Public Input No. 121-NFPA 130-2020 [Section No. 6.2.8.2]	

Submitter Information Verification

Submitter Full Name: Kelly Nicolello
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Submittal Date: Tue Jun 30 10:04:14 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: FR-2-NFPA 130-2020

Statement: Proposed change is consistent with NFPA 101 convention to allow equivalent testing.

Public Input No. 45-NFPA 130-2020 [Section No. 5.2.5.1]

5.2.5.1

Materials used as interior wall and ceiling finish in enclosed stations shall comply with one of the following requirements:

(1) The materials shall be noncombustible in accordance with Section 4.6.

(2) The materials shall be limited-combustible in accordance with 4.6.2.

(3) The materials shall comply with the following requirements when tested in accordance with NFPA 286:

- (4) Flames shall not spread to the ceiling during the 40 kW (135 kBtu/hr) exposure.
- (5) Flames shall not spread to the outer extremities of the sample on any wall or ceiling.
- (6) Flashover, as described in NFPA 286, shall not occur.
- (7) The peak heat release rate shall not exceed 800 kW (2730 kBtu/hr).
- (8) The total smoke released throughout the test shall not exceed 1000 m^2 (10,764 ft^2).

(9) The materials shall comply with a flame spread index not exceeding 25 and a smoke development index not exceeding 450 when tested in accordance with ASTM E84, except that the materials in 5.2.5.2 shall be required to be tested in accordance with NFPA 286.

(10) Materials used an interior walls and ceiling finish in enclosed stations, which are fully sprinkler protected throughout in accordance with NFPA 13 shall comply with a flame spread index not exceeding 75 and a smoke development index not exceeding 450 when tested in accordance with ASTM E84, except that the materials in 5.2.5.2 shall be required to be tested in accordance with NFPA 286.

Statement of Problem and Substantiation for Public Input

The code requires Class A finish; however does not state whether the structure needs to be fully sprinkler protected. NFPA 101 permits the interior finish for fully sprinkler protected buildings to have a Class B finish. This edit it proposed to align with NFPA 101 for fully sprinkler protected structures. Note that new materials are being proposed for stations, such as LED screens, which are not able to be Class A but are used in stations fully sprinkler protected.

Submitter Information Verification

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Submittal Date: Wed Jun 10 03:43:17 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: This concept is already captured in A.4.2.1. The standard should remain predicated on noncombustible construction.

Public Input No. 55-NFPA 130-2020 [Section No. 5.2.6]

5.2.6 ~~Exposed Insulation~~ _ Insulation .

5.2.6.1

In public circulation areas, ~~exposed~~ insulation shall ~~be protected~~ be protected by a thermal barrier complying with NFPA 275 or by ½ in. (12.7 mm) gypsum board or ½ in. (12.7 mm) concrete.

5.2.6.2

Where thermal barriers are required by 5.2.6.1, penetrations shall be firestopped in accordance with ASTM E814.

Statement of Problem and Substantiation for Public Input

If the insulation is protected by a thermal barrier (as it should be) it is not exposed.

Submitter Information Verification

Submitter Full Name: Marcelo Hirschler

Organization: GBH International

Street Address:

City:

State:

Zip:

Submittal Date: Thu Jun 18 18:07:14 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: FR-47-NFPA 130-2020

Statement: If the insulation is protected by a thermal barrier it is not exposed. An exception for noncombustible insulation is added by referring specifically to "combustible insulation".

Public Input No. 127-NFPA 130-2020 [Section No. 5.2.6.1]

5.2.6.1

In public circulation areas, ~~exposed~~ foam plastic insulation shall be

~~protected by a thermal barrier complying with NFPA 275 or by 1/2 in. (12.7 mm) gypsum board or 1/2 in. (12.7 mm)~~

separated from the interior of a building by an approved thermal barrier of 1/2-inch (12.7 mm) gypsum wallboard, heavy timber (Type IV) or a material that is tested in accordance with and meets the acceptance criteria of both the Temperature Transmission Fire Test and the Integrity Fire Test of NFPA 275. Combustible concealed spaces shall comply include fireblocking and draftstopping as required by the locally enforced building code.

5.2.6.2 A thermal barrier is not required for foam plastic insulation installed in a masonry or concrete wall, floor or roof system where the foam plastic insulation is covered on each face by not less than 1-inch (25 mm) thickness of masonry or concrete.

Statement of Problem and Substantiation for Public Input

This proposal provides better explains the NFPA 275 performance test criteria and is consistent with International Building Code requirements

Submitter Information Verification

Submitter Full Name: Kelly Nicolello
Organization: UL LLC
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 30 10:34:22 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: If the insulation is protected by a thermal barrier it is not exposed. The committee decided to add an exception for noncombustible insulation in section 5.2.6.1. NFPA 130 does not consider heavy timber to be an acceptable thermal barrier material.

Public Input No. 13-NFPA 130-2019 [Section No. 5.2.6.1]

5.2.6.1

~~In public circulation areas, exposed~~ Exposed insulation shall be protected by a thermal barrier complying with NFPA 275 or by ½ in. (12.7 mm) gypsum board or ½ in. (12.7 mm) concrete.

Statement of Problem and Substantiation for Public Input

This requirement should be applied throughout the station.

Submitter Information Verification

Submitter Full Name: Daniel Ford
Organization: WSP Middle East
Street Address:
City:
State:
Zip:
Submittal Date: Thu Nov 07 11:55:30 EST 2019
Committee: FKT-AAA

Committee Statement

Resolution: The section should refer to public circulation areas and not other areas where insulations on ducts and pipes are present and exposed.

Public Input No. 53-NFPA 130-2020 [Section No. 5.2.7.2]

5.2.7.2 * – Rubbish containers

5.2.7.2.1 Permanent rubbish containers in the station shall be manufactured of noncombustible materials.

5.2.7.2.2 Rubbish containers that are used in the station on a temporary basis (e.g., during cleaning operations) shall be manufactured of noncombustible materials or of materials that comply with a peak heat release rate not exceeding 300 kW/m^2 (26.4 $Btu/ft^2 \cdot sec$) when tested in accordance with ASTM E1354 at an incident heat flux of 50 kW/m^2 (4.4 $Btu/ft^2 \cdot sec$), in the horizontal orientation.

Statement of Problem and Substantiation for Public Input

The standard recommends that temporary use rubbish containers be constructed of noncombustible materials or of materials meeting low heat release but does not mandate it. This PI mandates that they be low heat release (or noncombustible) and an associated PI deletes the annex material. This does not affect permanent rubbish containers which will still have to be noncombustible but improves fire safety for temporary rubbish containers.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 54-NFPA 130-2020 [Section No. A.5.2.7.2]	

Submitter Information Verification

Submitter Full Name: Marcelo Hirschler
Organization: GBH International
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 18 17:56:28 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: The proposal is to relocate annex language as text thereby making it a mandatory requirement. That approach was rejected in a previous cycle as being outside of the scope of the standard as it addresses operational practices. Also, it was perceived to be unworkable in some instances.

Public Input No. 15-NFPA 130-2019 [Section No. 5.3.1.1]

5.3.1.1

The provisions for means of egress for public spaces in a station shall comply with NFPA 101 Chapters 7 and 12 ~~of NFPA~~ *~~101~~* .2 , except as herein modified.

5.3.1.2

The provisions for means of egress for non-public spaces in a station structure shall comply with the provisions of the relevant occupancy chapter of NFPA 101.

Statement of Problem and Substantiation for Public Input

This edit services to clarify that NFPA 101 Chapter 7 applies in full and only NFPA 101 12.2 shall be applied. This is required due to the inconsistencies of not applying NFPA 5000 for construction types (for example a 3 level elevated station with more than 1,000 occupants would require Type II (111) whereas NFPA 5000 would require Type II (222).
The second clause clarifies that other occupancy chapters of NFPA 101 should be applied. This clarifies that the stations can be mixed occupancy.

Submitter Information Verification

Submitter Full Name: Daniel Ford
Organization: WSP Middle East
Street Address:
City:
State:
Zip:
Submittal Date: Thu Nov 07 12:04:04 EST 2019
Committee: FKT-AAA

Committee Statement

Resolution: FR-4-NFPA 130-2020

Statement: Language in PI-15, relative to non-public spaces is already addressed by 'except as herein modified'—i.e., NFPA 130 does not address non- public spaces so NFPA 101 applies.

NFPA 130 identifies the means of egress requirements appropriate to station buildings such that the reference to Chapter 12 is not required.

Term "Public spaces" introduces a new term that is undefined, and it doesn't correlate with occupancy spaces that are defined in NFPA 101. A requirement for an undefined occupany cannot be made.

Public Input No. 17-NFPA 130-2019 [Section No. 5.3.2.2]

5.3.2.2*

For station(s) servicing areas such as civic centers, sports complexes, malls, and convention centers, the peak ridership figures shall consider events that establish occupant loads not included in normal passenger loads.

Statement of Problem and Substantiation for Public Input

The addition of malls requires the user to consider additional ridership due to the mall. It is the experience in the Middle East that malls are used as places to socialise, especially during religious holidays. This mean public transport links become very congested and potentially dangerous.
With the increased push towards sustainable transportation, the use of public transport to such venue need to be considered.

Submitter Information Verification

Submitter Full Name: Daniel Ford
Organization: WSP Middle East
Street Address:
City:
State:
Zip:
Submittal Date: Thu Nov 07 12:14:23 EST 2019
Committee: FKT-AAA

Committee Statement

Resolution: FR-5-NFPA 130-2020
Statement: The presence of malls adjacent to a train station requires the user to consider additional ridership.

Public Input No. 159-NFPA 130-2020 [New Section after 5.3.2.4]

TITLE OF NEW CONTENT

For the purposes of determining the number of levels for triggering elevators for evacuation of mobility challenged, a level will be counted as 3.6 m in height, regardless if a level is present or not.

Statement of Problem and Substantiation for Public Input

to avoid installing ADA elevators, GC are not counting technical levels as levels. This subverts the intent of preventing firefighter fatigue. This prescription would over-rule the IBC building code guidance.

Submitter Information Verification

Submitter Full Name:	Scot Deal
Organization:	Excelsior Fire Engineering
Street Address:	
City:	
State:	
Zip:	
Submittal Date:	Tue Jun 30 16:57:19 EDT 2020
Committee:	FKT-AAA

Committee Statement

Resolution: The standard does not currently address accessibility, deferring to other codes for such requirements. Additionally, this would presuppose a solution that may not be relevant for all station configurations.

Public Input No. 152-NFPA 130-2020 [Section No. 5.3.2.5]

5.3.2.5* Calculation of Platform Occupant Load.

The platform occupant load for each platform in a station shall be the maximum peak period occupant load calculated according to the following:

(1) The peak period occupant load for each platform shall be based on the simultaneous evacuation of the entraining load and the train load for that platform in the peak period.

(2) The entraining load for each platform shall be the sum of the entraining loads for each track serving that platform.

(3) * The entraining load for each track shall be based on the entraining load per train headway factored to account for service disruptions and system reaction time.

(4) * Where a platform serves more than one line on one track, the calculation of entraining load shall consider the combined effect of accumulation for each of the lines served.

(5) The train load for each platform shall be the sum of the train loads for each track serving that platform.

(6) * The train load for each track shall be based on the train load per train headway factored to account for service disruptions and system reaction time.

(7) The maximum train load at each track shall be the maximum passenger capacity for the largest capacity train operating on that track during the peak period.

(8) <u>The major design details (e.g. occupant load, principals design engineers and stakeholders, design fire, fan operation, exit time, etc) shall be memorialized onto a metal plaque mortared into the wall at eye level for all to clearly read from a widely noticeable and accessable location on the platform.</u>

Statement of Problem and Substantiation for Public Input

Often: the simple overall concept of a platform exit design is lost what for all the details (HVACs fans off, underplatform make up air on, trainway exhaust fans on, opposite platform fans reverse dampers, fan reverse direction, escalators stope-then-reverse-under-load, elevators recall, makeup-air doors open, evacuees obstruct makeup air while filling exit passageways, roll-down vertical doors descend onto platform with makeshift personnel doors operable for 'emergencies', etc. Any intelligent fool can make a system bigger and more complicated, but it takes a touch of genius and a lot of courage to go in the opposite direction[1]. There needs to be some simple summary of the exit assumptions, for life safety professionals to assess as they scan the facility for safe operating conditions. And these operating conditions will hopefully exend through a 100-year service life.

There are three variables in exit design of Metro stations platforms: design fire, occupant load and exit capacity. We get to pick two. We should convey all three to future fire safety inspectors. Often, plan reviewers have barely have the ability to remember what these three variables are, for all the other details. A simple summary of the design should be provided. Obsfucation with egress in high-occupancy assembly areas should be avoided

[1]. Einstein

Submitter Information Verification

Submitter Full Name: Scot Deal

Organization: Excelsior Fire Engineering

Street Address:

City:
State:
Zip:
Submittal Date: Tue Jun 30 16:12:57 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: The proposed language is not relevant to Section 5.3.2.5 in that it provides no direction regarding the calculations that are used to determine platform occupant load. With regard to the suggestion for a plaque memorializing certain design parameters, this information would typically be included in design documentation and reporting, which can be retrieved by owners and AHJs if and when required

Public Input No. 107-NFPA 130-2020 [New Section after 5.3.3]

TITLE OF NEW CONTENT

Type your content here ... **5.3.2.5** Enclosed fixed guideway transit and passenger rail stations shall be posted with the occupancy load

Statement of Problem and Substantiation for Public Input

Posting occupant load will allow the rail agency and authorities having jurisdiction the necessary information to address overcrowding. For example of the design occupant load for a station is 2000 (e.g. a skipped train load and the detraining load of an arriving train), and the actual load is 2500, this could exceed the available exits capacity resulting in exit time longer than the specified times in 130. In buildings where occupant load has been exceeded, the building operator prevents additional additional people to enter the building, until the load has been reduced.

Submitter Information Verification

Submitter Full Name: Gary English
Organization: Underground Command And Safety
Affiliation: NFPA 130 technical committee alternate
Street Address:
City:
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Zip:

Submittal Date: Tue Jun 30 00:18:29 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: Platform occupant loads are based on dynamic parameters (ridership, train headways and train loads) that are not constant—i.e., for a suburban station, AM peak hour typically involves high entraining loads while PM peak hour involves high train loads. Further, considering that the platform occupant load calculation is based on headway intervals as an accumulation time factor, alterations in headway intervals can have a dramatic effect on the calculated occupant load. Accordingly, determination of the actual occupant load at any one time and assessment of that count against a posted load would be extremely difficult and valid for only a short period of time. Instead, NFPA 130 A.5.3.2.1 and A 5.3.2.2 suggest operational means to assess and control occupant loads. Occupant loads that are used as a basis of design would typically be included in design documentation and reporting, which can be retrieved by owners and AHJs if and when required.

Public Input No. 155-NFPA 130-2020 [Section No. 5.3.3.6]

5.3.3.6 Alternate Egress.

At least two means of egress remote from each other shall be provided from each station platform as follows:

(1) * A means of egress used as a public circulation route shall be permitted to provide more than 50 percent of the required egress capacity from a station platform or other location.

(2) Means of egress from separate platforms shall be permitted to converge.

(3) Where means of egress routes from separate platforms converge, the subsequent capacity of the egress route shall be sufficient to maintain the required evacuation time from the incident platform.

(4) Back of house shall not be used as means-of-egress from the platorm.

Statement of Problem and Substantiation for Public Input

The back of house are being used as egress, because they are not explicitly verboten.

The intention is to avoid counting as an exit, a door that management will be highly motivated to lock at some point in the future service life of the station. It is undesireable for three reasons to use back-of-house as an exit. 1). access from the platform will probably (Pb > 0.7) be locked by managment eventually, as the utility of this exit capacity will fade from memory, 2). evacuees should not be exposed to a non-sterile exit (unless local risk tolerances explicitly permit). 3). Rail system power and control rooms should not be exposed to potential access from person able to simply enter the area from the platform.

Submitter Information Verification

Submitter Full Name: Scot Deal
Organization: Excelsior Fire Engineering
Street Address:
City:
State:
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Submittal Date: Tue Jun 30 16:31:32 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: NFPA 130 does not seek to limit access to exits via protected corridors through ancillary and service areas, which would be consistent with building/fire code principles. Back of house is not a defined term.

Public Input No. 18-NFPA 130-2019 [Section No. 5.3.3.6]

5.3.3.6 Dead End Distance

The maximum permitted dead-end distance on a platform shall be limited to 6.1 m.

5.3.3.6 Alternate Egress.

At least two means of egress remote from each other shall be provided from each station platform as follows:

(1) * A means of egress used as a public circulation route shall be permitted to provide more than 50 percent of the required egress capacity from a station platform or other location.

(2) Means of egress from separate platforms shall be permitted to converge.

(3) Where means of egress routes from separate platforms converge, the subsequent capacity of the egress route shall be sufficient to maintain the required evacuation time from the incident platform.

Statement of Problem and Substantiation for Public Input

This addition clarifies that the dead-end distance limitation on platform is limited to 6.1 m. This is consistent with NFPA 101.

Submitter Information Verification

Submitter Full Name: Daniel Ford
Organization: WSP Middle East
Street Address:
City:
State:
Zip:
Submittal Date: Thu Nov 07 12:23:39 EST 2019
Committee: FKT-AAA

Committee Statement

Resolution: Maximum common path of travel distance is already established in NFPA 130 (5.3.3.5). The introduction of dead end potentially introduces a contradictory requirement which is not intended by the standard. Dead end refers to conditions in corridors only as per NFPA 101.

Public Input No. 85-NFPA 130-2020 [Section No. 5.3.3.7]

5.3.3.7* Engineering Analysis.

Modification of the evacuation times and travel distances shall be permitted based on an engineering analysis by evaluating material heat release rates, station geometry, ~~and~~ automatic fire detection systems, fire suppression systems and emergency ventilation systems.

Statement of Problem and Substantiation for Public Input

The use of fire detection or fire suppression systems can have an impact on the engineering analysis concerning evacuation times and design heat release rates. The detection system is potentially needed for starting emergency actions like ventilation system.

Submitter Information Verification

Submitter Full Name: Max Lakkonen
Organization: IFAB - Institute for Applied Fire Safety Research
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 29 05:30:36 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-8-NFPA 130-2020

Statement: Revised language clarifies the performance objective of the engineering analysis and that the effects of all fire protection systems should be considered in the analysis.

Public Input No. 19-NFPA 130-2019 [Section No. 5.3.5.5]

5.3.5.5

Escalators shall be permitted to account for more than one-half of the required egress capacity at any one level where the following criteria are met:

(1) The escalators are capable of being remotely brought to a stop in accordance with the requirements of 5.3.5.7(3)(b), 5.3.5.7(4), and 5.3.5.7(5).

(2) A portion of the egress capacity from each station level is stairs.

(3) For enclosed stations, at least one enclosed exit per non-interconnected platform provides continuous access from the platforms to the public way.

Statement of Problem and Substantiation for Public Input

This edit clarifies that an enclosed exit is required per platform, which are not interconnected. It is often unsafe for occupants to cross the track to reach an emergency exit.

Submitter Information Verification

Submitter Full Name: Daniel Ford
Organization: WSP Middle East
Street Address:
City:
State:
Zip:
Submittal Date: Thu Nov 07 12:28:37 EST 2019
Committee: FKT-AAA

Committee Statement

Resolution: FR-24-NFPA 130-2020

Statement: Section is updated to clarify that each platform requires an enclosed exit and annex language is added to clarify that center platform can have a single exit.

Public Input No. 20-NFPA 130-2019 [Section No. 5.3.5.9]

5.3.5.9

Escalators exposed to the outdoor environment shall be provided with slip-resistant landing and floor plates~~, and if they are~~ .

- Escalators exposed to freezing temperatures, the landing and floor plates and the steps shall be heated to prevent the accumulation of ice and snow.

- Escalators exposed to elevated temperatures, handrails shall remain touchable without discomfort due to excess heat.

Statement of Problem and Substantiation for Public Input

This edit clarifies that where escalators are used in hot environment shall remain usable in an emergency.

Submitter Information Verification

Submitter Full Name: Daniel Ford

Organization: WSP Middle East

Street Address:

City:

State:

Zip:

Submittal Date: Thu Nov 07 12:32:55 EST 2019

Committee: FKT-AAA

Committee Statement

Resolution: The proposal is beyond the scope of the standard. There is a presumption in the standard that all equipment should be functional in its particular application.

Public Input No. 21-NFPA 130-2019 [Section No. 5.3.7.1]

5.3.7.1

The egress capacity for doors and gates in a means of egress serving public areas shall be computed as follows:

(1) 60 people per minute (p/min) for single leaf doors and gates

(2) 0.0819 p/mm-min (2.09 p/in.-min) for double leaf doors without mullion

(3) * 0.0819 p/mm-min (2.08 p/in.-min) for bi-parting multileaf doors and gates measured for the clear width dimension.

Statement of Problem and Substantiation for Public Input

This change clarifies that double doors without mullion can use the same value as bi-folding doors. This aligns with the sample calculation in Appendix C.

Submitter Information Verification

Submitter Full Name: Daniel Ford

Organization: WSP Middle East

Street Address:

City:

State:

Zip:

Submittal Date: Thu Nov 07 12:42:13 EST 2019

Committee: FKT-AAA

Committee Statement

Resolution: FR-25-NFPA 130-2020

Statement: The proposed concept is already addressed in Annex A language. However, the proposed revision eliminates “bi-parting”, which is considered an inappropriate term and clarifies the potential misunderstanding raised.

Public Input No. 22-NFPA 130-2019 [Section No. 5.3.10.2]

5.3.10.2

Horizontal sliding platform screen or platform edge doors shall be permitted to separate the platform from the trainway in stations, provided that the following criteria are met:

(1) The doors permit emergency egress from the train to the platform regardless of the stopping position of the train.

(2) The doors provide egress when a force not exceeding 220 N (50 lb) is applied from the train side of the doors.

(3) The doors are designed to withstand positive and negative pressures caused by passing trains.

5.3.12.3

In stations where platform is longer that the stationary train, openable platform screen or platform edge doors shall not be required to extent the whole length of the platform where all the following are met:

(1) Evacuation remains possible through the stationary train in all possible scenarios via an open gangway.

(2) The maximum permitted distance without openable platform screen or platform edge doors shall not exceed one-half carriage.

(3) The configuration is supported by fire hazard analysis.

Statement of Problem and Substantiation for Public Input

It is experienced with the increased use of public transport platforms are being congested, hence the platforms are made larger. The size of the rolling stock is not possible to change. Therefore this clause servers to clarify that operable platform edge doors do not need to extend the whole length of the platform when evacuation can be demonstrated from the rolling stock.

Submitter Information Verification

Submitter Full Name: Daniel Ford
Organization: WSP Middle East
Street Address:
City:
State:
Zip:
Submittal Date: Thu Nov 07 12:50:09 EST 2019
Committee: FKT-AAA

Committee Statement

Resolution: FR-26-NFPA 130-2020

Statement: The proposed revision addresses a concern that some portions of longer platforms (beyond the normal stopping position of the train) may not be equipped with platform edge doors. The revision confirms that openable platform edge doors do not need to extend the whole length of the platform where the ability to egress from any train stopping location can be demonstrated. Door opening force updated as per global change to synchronize with NFPA 101 requirements.

Public Input No. 23-NFPA 130-2019 [Section No. 5.3.11]

5.3.11 Means of Egress Lighting.

5.3.11.1

Illumination of the means of egress in stations, including escalators that are considered a means of egress, shall be in accordance with Section 7.8 of NFPA *101*.

5.3.11.2

Means of egress, including escalators considered as means of egress, shall be provided with a system of emergency lighting in accordance with Section 7.9 of NFPA *101*.

5.3.11.3

In addition to the requirements of 5.3.11.1 and 5.3.11.2:

(1) Lighting for stairs and escalators shall be designed to emphasize illumination on the top and bottom steps and landings.

(2) Where newel- and comb-lighting is provided for escalator steps, such lighting shall be on emergency power circuits.

<u>5.3.12 Accessible Means of Egress</u>

<u>5.3.12.1 Stations shall be designed to meet accessible means of egress requirements in accordance with NFPA 101 7.5.4.</u>

Statement of Problem and Substantiation for Public Input

This change serves to clarify the remind the user to provide accessible means of egress within stations. This is especially important for rail systems as they are designed for full inclusion of the population. With fully automatic rolling stock this is the only place occupants can evacuate safely in case of a fire. The trainway is not currently required to meet with accessible means of egress requirements.

Submitter Information Verification

Submitter Full Name:	Daniel Ford
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Street Address:	
City:	
State:	
Zip:	
Submittal Date:	Thu Nov 07 13:00:03 EST 2019
Committee:	FKT-AAA

Committee Statement

Resolution: Section 5.3.1.1 already requires compliance with NFPA 101 Chapter 7 “except as herein modified”. Chapter 5 does not specifically address requirements for accessibility and those requirements are subject to local statute.

Public Input No. 87-NFPA 130-2020 [Section No. 5.4.2.1]

5.4.2.1

Enclosed stations shall be protected by an addressable fire alarm system that is ~~designed and installed~~ installed, inspected, and maintained in accordance with Chapters 12, 14, and 23 of *NFPA 72*, *or other equivalent international standards* .

Statement of Problem and Substantiation for Public Input

There are unintended consequences from linking a standard for the surface built, occupied environment to underground transit infrastructure. Many systems us 24-hour supervision with computer controlled SCADA systems.

The revisions are necessary to direct users of the standard that the FACP is to be used to receive alarms from the fire detection system and that the FACP sends those alarms to the facility monitoring and control sub-systems such that these sub-systems are empowered to implement an integrated emergency response to the alarms.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 88-NFPA 130-2020 [Global Input]	
Public Input No. 89-NFPA 130-2020 [New Section after 5.4.2.2]	

Submitter Information Verification

Submitter Full Name: Justin Edenbaum
Organization: Never Gray
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 29 15:31:18 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: The existing language in 5.4.2.1 and 5.4.2.6 already addresses inspection, testing and maintenance. Section 5.1.2 addresses the relationship to other codes.

Public Input No. 89-NFPA 130-2020 [New Section after 5.4.2.2]

FACP Monitoring

The FACP shall be used to receive signals from the facilities' automatic fire detection system and to initiate alarms.

Statement of Problem and Substantiation for Public Input

The revisions are necessary to direct users of the standard that the FACP is to be used to receive alarms from the fire detection system and that the FACP sends those alarms to the facility monitoring and control sub-systems such that these sub-systems are empowered to implement an integrated emergency response to the alarms.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 87-NFPA 130-2020 [Section No. 5.4.2.1]	Follow-on requirement
Public Input No. 90-NFPA 130-2020 [Global Input]	

Submitter Information Verification

Submitter Full Name: Justin Edenbaum
Organization: Never Gray
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 29 15:45:31 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: The function of the FACP (FACU) is already addressed by reference to NFPA 72. Regarding transmission of alarms to a supervising facility, refer to First Revisions for Section 5.4.2.5 and new annex language A.5.4.2.5

Public Input No. 108-NFPA 130-2020 [New Section after 5.4.3]

TITLE OF NEW CONTENT

Type your content here ...5.4.2.7 The location of the fire alarm annunciating panel or fire alarm panel shall not be in a means of egress, or in a ventilation path, and must be approved.

Statement of Problem and Substantiation for Public Input

Stations which have local fire alarm panels and/or fire alarm annunciator panels which are located in the mean of egress create a necessary can create an exit impediment as the responding agency and fire personnel must access the panel and stand in the way of passenger egress. Also, when located in a ventilation path, this places agency personnel and responders in either the exhausting smoke/heat exhaust which is dangerous or in the supply make up air which can be very cold when exterior temperature are low. This is exacerbated by the wind chill factor.

Submitter Information Verification

Submitter Full Name: Gary English
Organization: Underground Command And Safety
Affiliation: NFPA 130 technical committee alternate
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 30 00:25:50 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: The proposed language was added to new 5.4.2.2.

Public Input No. 24-NFPA 130-2019 [Section No. 5.4.4]

5.4.4 Automatic Fire Suppression Systems.

5.4.4.1*

An automatic sprinkler protection system shall be provided in areas of non-enclosed stations used for concessions, in storage areas, in trash rooms, and other similar areas with combustible loadings~~, except trainways~~ .

5.4.4.2

Sprinkler protection shall be permitted to be omitted in areas of open stations remotely located from public spaces.

5.4.4.3

~~Where required, sprinkler systems~~ Enclosed stations shall be provided with a sprinkler system designed and installed in accordance with NFPA 13.

5.4.4.4

Automatic sprinkler protection within stations shall be excempt for the trainway section of the station.

5.4.4.5

A sprinkler system waterflow alarm and supervisory signal service shall be installed.

5.4.4.5 6

Other fire suppression systems, if approved, shall be permitted to be substituted for automatic sprinkler systems in the areas listed in 5.4.4.1.

5.4.4.6 7

Automatic fire sprinkler systems shall be tested and maintained in accordance with NFPA 25.

Statement of Problem and Substantiation for Public Input

This change serves to clarify an inconsistency with the application of NFPA 130 and NFPA 101. This clarifies that enclosed stations are required to be fully protected with a sprinkler system per NFPA 13 requirements except the trainway.
In lieu of this, the committee is required to clarify of the existing text would classify an enclosed station as fully sprinkler protected.

Submitter Information Verification

Submitter Full Name: Daniel Ford
Organization: WSP Middle East
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Submittal Date: Thu Nov 07 13:06:44 EST 2019
Committee: FKT-AAA

Committee Statement

Resolution: Public circulation areas and trainways do not need to be sprinklered as clarified in sections 5.4.4.1 and A.5.4.4.1

Public Input No. 109-NFPA 130-2020 [Section No. 5.4.4.1]

5.4.4.1*

An automatic sprinkler protection system shall be provided in all areas of stations ~~used for concessions, in storage areas, in trash rooms, and other similar areas with combustible loadings, except trainways.~~ per NFPA 13 including the trainways.

Statement of Problem and Substantiation for Public Input

NFPA prescribes sprinklers in all areas except in nonpublic areas with no combustible loads. Fire sprinklers are already required in all areas of the station where there is a combustible load, except the public areas. Therefore the fire sprinkler supply water, most valves and controls are already required. Lack of fire sprinklers in public areas discounts the probability of a fire occurring in materials brought into the station. The public areas combustible load can be significant with baggage, baby carriages, backpacks, etc. many of which are hydrocarbon based and therefore burn readily. NFPA 13 does not require under carriage sprinklers which would need to be addressed elsewhere in 130.
Also, rail agencies generally specify that, where possible, a burning train shall be moved from a tunnel into a station or open air to allow safest evacuation. Without sprinklers in underground stations, the arriving train could present a significant fire and ignite carried on combustibles. Fire sprinklers above trainways would usually prevent extension of fire between exterior of cars and platform combustibles from catching fire. Note a burning train could arrive at the station without warning to the waiting passengers (crush load?) on the platform and their luggage. A deluge type system located above the trainway in stations could be remotely activated before arrival of the burning train which would need coordination with evacuation messages. NFPA 13 does not specify under train sprinklers. This language would not trigger retroactive requirements.

Submitter Information Verification

Submitter Full Name:	Gary English
Organization:	Underground Command And Safety
Affiliation:	130 Technical Committee alternative
Street Address:	
City:	
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Submittal Date:	Tue Jun 30 00:30:39 EDT 2020
Committee:	FKT-AAA

Committee Statement

Resolution: The committee does not agree with the proposal. Public circulation areas and trainways do not need to be sprinklered as clarified in sections 5.4.4.1 and A.5.4.4.1.

Public Input No. 156-NFPA 130-2020 [Sections 5.4.4.1, 5.4.4.2]

Sections 5.4.4.1, 5.4.4.2

5.4.4.1*

~~An automatic~~ Automatic sprinkler protection ~~system~~ shall be provided in areas of enclosed stations used ~~for concessions, in storage~~ as ancillary areas, ~~in trash rooms, and other similar areas with combustible loadings, except trainways.~~

~~**5.4.4.2**~~

~~Sprinkler protection shall be permitted to be omitted in areas of open stations remotely located from public spaces.~~

incidental occupancies and nonsystem occupancies.

Statement of Problem and Substantiation for Public Input

Proposed revisions are necessary to clarify the intended provision of sprinkler protection in stations relative to the fire hazard. Refer also to proposed revisions to the definitions for occupancy types in Chapter 3 and to proposed revisions to associated annex language.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 161-NFPA 130-2020 [Section No. 3.3.37]	
Public Input No. 160-NFPA 130-2020 [Section No. A.5.4.4.1]	
Public Input No. 160-NFPA 130-2020 [Section No. A.5.4.4.1]	
Public Input No. 161-NFPA 130-2020 [Section No. 3.3.37]	

Submitter Information Verification

Submitter Full Name: Katherine Fagerlund
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Street Address:
City:
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Submittal Date: Tue Jun 30 16:35:58 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-21-NFPA 130-2020

Statement: The revisions are necessary to clarify the intended provision of sprinkler protection in stations relative to the fire hazard.

Public Input No. 150-NFPA 130-2020 [New Section after 5.4.4.6]

TITLE OF NEW CONTENT

Appendix note: In many building codes, lucrative construction reduction features are offered for sprinklered-throughout status. That status is not often common knowledge; one definition is found in NFPA 13 at Appendix Note A.81.1. The intent of NFPA 13 is to install sprinklers to mitigate many unforeseen occupancy and operational fire risks. Sprinkler effectiveness is proven, especially in high density assembly occupancies...unless those occupancies are kept almost free of combustibles. Over the 100-year service life of a rail system, there can be drift in the focus on fire prevention. Rooms with electrical gear can safety be protected with wet pipe sprinkler. This not only has proven effective in terms of property protection for large employers, it saves 5%+ on construction costs because in rooms protected with "alternate agents" in place of sprinklers, the lucrative construction reductions awarded for sprinkler throughout status, may be forfeited.

Statement of Problem and Substantiation for Public Input

self-stated

Submitter Information Verification

Submitter Full Name: Scot Deal
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Street Address:
City:
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Zip:
Submittal Date: Tue Jun 30 15:53:47 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: There is no proposed language. The language is not formatted to be included in the annex section.

Public Input No. 37-NFPA 130-2019 [Section No. 5.4.5.1]

5.4.5.1*

Class I standpipes shall be installed in enclosed stations in accordance with NFPA 14 except as modified herein for a mininum water supply for 1 hour .

Statement of Problem and Substantiation for Public Input

This change clarifies that a minimum 1 hour water supply should be provided for the standpipe system. Note that NFPA 130 clauses 6.4.5.5 and 6.4.5.6 contain extensive requirements; however this not stated within this section.

Submitter Information Verification

Submitter Full Name: Daniel Ford
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Submittal Date: Mon Dec 09 04:49:27 EST 2019
Committee: FKT-AAA

Committee Statement

Resolution: FR-23-NFPA 130-2020

Statement: The requirements for duration of water supply for trainways are equally applicable for enclosed stations. The requirement is introduced as a separate section (new 5.4.5.2).

Public Input No. 140-NFPA 130-2020 [Section No. 5.4.5.2]

5.4.5.2

Standpipe systems shall not be required to be enclosed in fire-rated construction provided the following conditions are met:

(1) The system is cross-connected at fire pump room, riser room or other location of grouped mains with the intention to facilitate ITM and RAM. The intent is for all FDCs to fed ~~from two locations~~ all station standpipes systems, realizing limitations may exist where freezing standpipes is possible.

(2) Upon approval of the local fire department, only one indepedent FDC may be provided. The intention is to prevent the fire department from having to lay hose where it obstructs evacuation or firefighter ingress or road traffic .

(3) Isolation valves are installed not more than 245 m (800 ft) apart and be readily identifiabe as to their location .

(4) Isolation valves will be at the ends of platforms rather than inside trainways, to increase safety for operators.

Statement of Problem and Substantiation for Public Input

The intention is not to tell the Owner or designer how to design in detail, but to offer details that support RAM intentions. In the pressure of an emergency, there is more reliability when every FDC feeds every internal standpipe; there is less chance for mistakenly charging the unintended standpipe. There is more reliability of the hose lays are short and avoiding heavy traffic areas. If there are outside standpipes, these can be joined to inside standpipes when freezing is not a concern.

Submitter Information Verification

Submitter Full Name: Scot Deal
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City:
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Submittal Date: Tue Jun 30 13:54:35 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: The proposed language is not appropriate in the body of the standard. Sentences (3) and (4) are potentially in conflict.

Public Input No. 157-NFPA 130-2020 [New Section after 5.4.5.7]

TITLE OF NEW CONTENT

With approval from the fire department, standpipes may be designed with static pressure of 175 psig at the hose valve connection, so long as under full-open valve conditions, the hydraulic pressure-flow rate prescriptions from the local building code or standpipe standard are met.

Statement of Problem and Substantiation for Public Input

With the insertion of static, orifice plates or a run of reduced diameter pipe, there is potential to save time, money, space and improve RAM.

In DUS with office buildings above, it is possible for fire pump to see a wide range of hydraulic demand points. Pressure reducing valves are often used to meet these multiple demand points, but they compromise RAM. As the static 175 will drop to a residual pressure required once the initial transient pressure wave is released, the fire department need exercise some physical prowess for the benefit of all of us. This design in some instances, allows a second set of pumps from being specified, and thus instead of four pumps, 2 for low rise, 2 pumps for high-rise, one can use three pumps with two backups realizing a theoretical 100% increase in relibility. If all pumps are the same duty point, it is easier to maintain and repair parts: increase in RAM. Pressure reducing valves at the hose outlet can be eliminated, much to some manufacturer's chagrin: increase in RAM.

Submitter Information Verification

Submitter Full Name: Scot Deal
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Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 30 16:40:57 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: Covered by existing language in NFPA 14.

Public Input No. 169-NFPA 130-2020 [Section No. 6.1.1]

6.1.1* Applicability.

This chapter applies to all portions of the trainway, including pocket storage and tail tracks not intended for occupancy by passengers, except as provided in Sections 6 .6 and 6.7 for trainways serving passenger rail and light rail systems.

6.6 Passenger Rail Trainways.

6.6.1 Applicability.

Passenger rail trainways shall comply with Sections 6.1 through 6.5 except as provided in this Section.

6.6.1.1 The requirements of Sections 6.2.2, 6.2.5, 6.2.6, 6.2.7 and 6.2.8 for construction types and combustibility of materials shall not apply to at grade, open trainways.

6.6.1.2* Provisions for egress from at grade, open trainways shall comply with Section 6.3.1.1.

A.6.6.1.2 The intent is that other requirements for provision of egress within trainways as described throughout Section 6.3 do not apply for at grade, open trainways.

6.6.1.3 Emergency access to at grade, open trainways shall be provided as deemed necessary by the authority having jurisdiction.

A.6.6.1.3 The intent is that other requirements for provision of emergency access to trainways as described in Section 6.4.1 do not apply for at grade, open trainways except where required by the local fire department.

6.7 Light Rail Vehicle System Trainways.

6.7.1 Applicability.

Light rail vehicle system trainways shall comply with Sections 6.1 through 6.5 except as provided in this Section.

6.7.1.1 The requirements of Sections 6.2.2, 6.2.5, 6.2.6, 6.2.7 and 6.2.8 for construction types and combustibility of materials shall not apply to at grade light rail system trainways that are located within a street right of way.

6.7.1.2* Provisions for egress from at grade light rail trainways shall comply with Section 6.3.1.1.

A.6.7.1.2 The intent is that other requirements for provision of egress within trainways as described throughout Section 6.3 do not apply for at grade light rail trainways.

Statement of Problem and Substantiation for Public Input

Proposed revisions are necessary to address application of NFPA 130 to Passenger Rail and Light Rail Transit Systems. Existing requirements do not adequately address differences in those systems from typical rapid transit systems relative to fire-life safety hazards. Refer to related proposed revisions to A.1.1.3, new definition for "stop" and associated annex language, new annex language associated with the definition for "station", and proposed new sections 5.6 and 5.7.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 164-NFPA 130-2020 [Section No. 1.1.3]	

Public Input No. 165-NFPA 130-2020 [New Section after 3.3]
Public Input No. 166-NFPA 130-2020 [Section No. A.1.1.3(6)]
Public Input No. 167-NFPA 130-2020 [Section No. 3.3.57]
Public Input No. 168-NFPA 130-2020 [Section No. 5.1.1]
Public Input No. 164-NFPA 130-2020 [Section No. 1.1.3]
Public Input No. 165-NFPA 130-2020 [New Section after 3.3]
Public Input No. 166-NFPA 130-2020 [Section No. A.1.1.3(6)]
Public Input No. 167-NFPA 130-2020 [Section No. 3.3.57]
Public Input No. 168-NFPA 130-2020 [Section No. 5.1.1]

Submitter Information Verification

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Street Address:
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Submittal Date: Tue Jun 30 18:27:03 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: The intent of this PI was to “address differences in <these> systems from typical rapid transit systems relative to fire-life safety hazards.” This intent has been partially addressed in other proposed first revisions that amend application of 6.2 for enclosed versus open trainways.

Public Input No. 25-NFPA 130-2019 [Section No. 6.2.1]

6.2.1 Safeguards During Construction.

A standpipe system shall be installed in enclosed trainways 30 m in length or more under construction in accordance with NFPA 241.

Statement of Problem and Substantiation for Public Input

This edit seeks to clarify that tunnels over a certain length require a standpipe during construction. A small tunnel say 10 m in length would not require a standpipe.
30 m is selected back upon a hose reels with 30 m coverage.

Submitter Information Verification

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Street Address:
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Submittal Date: Thu Nov 14 09:31:59 EST 2019
Committee: FKT-AAA

Committee Statement

Resolution: NFPA 241 already states length requirements therefore added text is redundant.

Public Input No. 26-NFPA 130-2019 [Section No. 6.2.2.6]

6.2.2.6 Surface.

Construction materials shall be materials or assemblies permitted for use in Type I or Type II construction, in accordance with NFPA 220, unless otherwise permitted by a fire hazard analysis of potential fire exposure hazards to the structure.

Statement of Problem and Substantiation for Public Input

This edit seek to confirm that Type II material can also be used. Type II is permitted for elevated sections, so the same should apply for at grade systems.

Submitter Information Verification

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Submittal Date: Thu Nov 14 09:35:45 EST 2019

Committee: FKT-AAA

Committee Statement

Resolution: FR-9-NFPA 130-2020

Statement: Elevated trainways are already allowed by the standard to be constructed as Type I and Type II therefore the standard should not be more stringent for surface trainways.

Public Input No. 117-NFPA 130-2020 [Section No. 6.2.3]

~~**6.2.3** – Flammable and Combustible Liquids Intrusion.~~

~~**6.2.3.1** – General.~~

~~Protection of belowgrade system structures against the accidental intrusion of flammable and combustible liquids shall meet the requirements of 5.2.3 .~~

Statement of Problem and Substantiation for Public Input

Refer to PI 115 for problem input

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 115-NFPA 130-2020 [Section No. 5.2.3]	Delete text
Public Input No. 116-NFPA 130-2020 [Section No. 7.6]	Move 5.2.3 to new Subsection 7.6.3

Submitter Information Verification

Submitter Full Name: Andrew Coles
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Submittal Date: Tue Jun 30 02:19:04 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-86-NFPA 130-2020

Statement: Proposed revisions relocating and augmenting existing text from 5.2.3 to 4.7 are necessary to indicate that the existing requirement is intended to apply for more than just vent and fan shafts as currently prescribed in the referenced Section 5.2.3, requires related change in Sections 6.2.3. See also changes to 7.6.

Public Input No. 105-NFPA 130-2020 [Sections 6.2.5.1, 6.2.5.2, 6.2.5.3]

Sections 6.2.5.1, 6.2.5.2, 6.2.5.3

6.2.5.1

~~Where combustible components not specifically addressed in this standard are installed in a trainway, a fire hazard analysis shall be conducted to determine that~~ Non-structural combustible and composite materials can be used in or along a trainway, where otherwise required by this standard to be noncombustible, when supported by a fire hazard analysis that determines the level of occupant fire safety is not adversely affected by the contents.

6.2.5.~~2~~ 3

The fire hazard analysis required by 6.2.5.1 ~~shall meet the following criteria:~~

- ~~It shall include, as a minimum, an examination of peak heat release rate for combustible elements, total heat released, ignition temperatures, radiant heating view factors, and behavior of the component during internal or external fire scenarios.~~

~~It shall determine~~ shall verify that, if a fire propagates beyond involving the ~~component~~ compo nent of fire origin, a level of fire safety is provided ~~within an enclosed~~ along the trainway commensurate with this standard.

6.2.5.~~3~~

~~Computer~~

2

The fire hazard analysis required by 6.2.5.1 shall use appropriate engineering methods, such as computer modeling, material fire testing, or full-scale fire testing ~~shall be conducted~~ , to assess the performance in potential fire scenarios commensurate with the proposed location and trainway environment . It shall include an examination of peak heat release rate for combustible elements, total heat released, ignition temperatures, radiant heating view factors, and behavior of the component during internal or external fire scenarios.

Statement of Problem and Substantiation for Public Input

The proposed change provides more specific wording to the application of the requirement to nonstructural elements, connects the two paragraphs that were about analytical methods, adds composite materials, and separates the paragraph that defines acceptance criteria. Renumbering is also provided to combine the analytical section as sentence 2 and the acceptance criteria as sentence 3.

The first instance of the requirement was in the 2003 Edition of NFPA 130 and was specific to underground subways. The substantiation for the change indicated was intended for any non-structural tunnel components such as signalling devices, communication equipment and lighting systems, all of which would otherwise be required to be noncombustible by the standard. This addressed a gap in the standard where flexibility was needed to allow for variations in the use of materials while maintaining a level of protection in consideration of the tunnel as a “means of egress” from a train fire in the tunnel. The substantiation also included a performance criteria for combustible materials based on the performance requirements permitted for combustibles on trains. The Committee accepted the change, in part, keeping the general requirements, but not keeping the performance criteria. This is explained in the Committee Statement as follows,"The fire safety performance submitted in the original proposal was eliminated due to lack of justification in applying vehicle component test criteria to tunnel construction and components. The proposed change provides criteria to evaluate impact of the components on the fire safety of combustible components not currently addressed ... "

It can be inferred from the documentation that the concern with the combustible components was primarily intended to address enclosed trainways (i.e., tunnels) addressing the risks of egress associated with the tunnel. However, in the 2006/2007 version of the standard, a further change was made that altered its application to all trainways and not just tunnels. The Committee initiative appears to have been intended for renumbering, but the editorial changes altered its application to apply to any trainway component, thereby extending its application to at-grade and elevated trainways. This aspect of the change is not addressed in the Committee documentation,

A final change occurred in the 2014 edition of NFPA 130, where the appendix note for the combustible components paragraph was adopted into the text of the standard and the appendix note was eliminated. The 2017 version of the standard is identical to the 2014 version, as is the 2020 version of NFPA 130 even though it is not being applied to this Project. Therefore, in reviewing the documentation supporting the change to the standard, it can be concluded that:

1. The requirement is intended to allow for the use of non-structural combustible components on elements otherwise required by the standard to be noncombustible.
2. The requirement was originally intended for subway tunnels that are used as a means of egress and therefore pose a risk of exposure to combustible components. Its subsequent application to all trainways, including elevated and at-grade components, appears to be editorial.

Reworking of the requirements is intended to update the context to reflect its application to all trainways, clarify that it is for nonstructural elements, include composite materials, and align performance analysis while separating the criteria.

Submitter Information Verification

Submitter Full Name: Peter Senez

Organization: Senez Consulting Ltd.

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Submittal Date: Tue Jun 30 00:03:36 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: FR-33-NFPA 130-2020

Statement: Proposed revisions to 6.2.5.1 are consistent with earlier editions of NFPA 130, where applicability of these requirements was limited to underground trainways. This revision proposes that most of the language in 6.2.5.1 reverts to existing text as this section needs to address “combustible contents not specifically addressed in this standard”. Where an exemption is sought for components that are already addressed in the standard, the provisions of Section 1.4 already permit equivalency based on “sufficient technical data”. Revisions to 6.2.5.2 and 6.2.5.3 are consistent with the re-organization intent of PI-105.

Public Input No. 120-NFPA 130-2020 [Section No. 6.2.7.2]

6.2.7.2

Coverboard or protective material tested in accordance with ASTM E84 or UL 723 shall have a flame spread index of not more than 25 and a smoke developed index not exceeding 450.

Statement of Problem and Substantiation for Public Input

UL 723 is an equivalent standard to ASTM E 84. Both standards are used to determine flame spread and smoke development ratings of different materials. These standards are referenced throughout NFPA standards and codes such as NFPA 101 and NFPA 5000 wherever these ratings are required.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 47-NFPA 130-2020 [Section No. 2.3.9]	
Public Input No. 119-NFPA 130-2020 [Section No. 5.2.5.1]	
Public Input No. 121-NFPA 130-2020 [Section No. 6.2.8.2]	

Submitter Information Verification

Submitter Full Name: Kelly Nicolello
Organization: UL LLC
Street Address:
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Submittal Date: Tue Jun 30 10:07:02 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-35-NFPA 130-2020
Statement: ASTM E84 and UL 723 are deemed equivalent.

Public Input No. 51-NFPA 130-2020 [Section No. 6.2.8]

6.2.8 Rail Ties.

6.2.8.1

Rail ties used in enclosed locations shall be noncombustible materials in accordance with Section 4.6.

6.2.8.2

Rail ties used outdoors at switch or crossover locations shall be made of materials that comply with one of the following:

(1) ~~Materials that comply with 6.2.8.1~~ Noncombustible materials in accordance with Section 4.6.

(2) Fire retardant–treated wood in accordance with NFPA 703

(3) Pressure-treated wood materials that exhibit a flame spread index of not more than 75 when tested in accordance with ASTM E84

(4) Plastic composite materials that comply with the requirements of ASTM D7568 and exhibit a flame spread index of not more than 75 in accordance with ASTM E84

(5) Limited-combustible materials in accordance with 4.6.2

(6) Wood encased in concrete such that only the top surface is exposed

6.2.8.3

Rail ties used outdoors at locations other than switch or crossover locations shall comply with one of the following:

(1) Materials that comply ~~with~~ with 6.2.8.~~1 or 6.~~ 2.8.2

(2) Pressure treated wood materials

(3) Plastic composite materials that comply with the requirements of ASTM D7568

Statement of Problem and Substantiation for Public Input

This makes the section easier to follow because it sends directly to the relevant sections. At present 6.2.8.2 sends you to 6.2.8.1 which then sends you to 4.6, while the PI recommends going directly to 4.6. At present 6.2.8.3 sends you to 6.2.8.2 which sends you to 6.2.8.1 or gives other options; sending to 6.2.8.1 from 6.2.8.3 is unnecessary as it is already covered in 6.2.8.2.

Submitter Information Verification

Submitter Full Name: Marcelo Hirschler

Organization: GBH International

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Submittal Date: Thu Jun 18 17:48:17 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: FR-36-NFPA 130-2020

Statement: ASTM E84 and UL 723 are deemed equivalent. The referenced sections are updated accordingly.

Public Input No. 121-NFPA 130-2020 [Section No. 6.2.8.2]

6.2.8.2

Rail ties used outdoors at switch or crossover locations shall be made of materials that comply with one of the following:

(1) Materials that comply with 6.2.8.1

(2) Fire retardant–treated wood in accordance with NFPA 703

(3) Pressure-treated wood materials that exhibit a flame spread index of not more than 75 when tested in accordance with ASTM E84

(4) Plastic composite materials that comply with the requirements of ASTM D7568 and exhibit a flame spread index of not more than 75 in accordance with ASTM E84 or UL 723

(5) Limited-combustible materials in accordance with 4.6.2

(6) Wood encased in concrete such that only the top surface is exposed

Statement of Problem and Substantiation for Public Input

UL 723 is an equivalent standard to ASTM E 84. Both standards are used to determine flame spread and smoke development ratings of different materials. These standards are referenced throughout NFPA standards and codes such as NFPA 101 and NFPA 5000 wherever these ratings are required.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 47-NFPA 130-2020 [Section No. 2.3.9]	
Public Input No. 119-NFPA 130-2020 [Section No. 5.2.5.1]	
Public Input No. 120-NFPA 130-2020 [Section No. 6.2.7.2]	

Submitter Information Verification

Submitter Full Name: Kelly Nicolello
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Street Address:
City:
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Zip:
Submittal Date: Tue Jun 30 10:08:33 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-34-NFPA 130-2020
Statement: ASTM E84 and UL 723 are deemed equivalent.

Public Input No. 101-NFPA 130-2020 [Section No. 6.3.1.4]

6.3.1.4*

Within enclosed trainways, the maximum distance between exits shall not exceed ~~762 m~~ 244m (~~2500 ft~~ 800 ft). _ .

Statement of Problem and Substantiation for Public Input

Recommended change to provide equivalent level of safety between tunnels with and without cross passages. From a safety perspective, requiring a path to safety at 800 feet in tunnels with a cross passage while allowing a distance three times greater in a tunnel without cross passages places passengers at considerably higher risk in the tunnel for the same fire scenario.

For example a realistic example of a tunnel just under 2500 feet, with longitudinal ventilation and a train stopped and unable to move just before exiting the portal. Adding a fire in the rear portion of the train presents the following scenario. Operator would request ventilation towards rear of train (to protect most passengers). Passengers would be directed to evacuate in clean air towards safety of nearby portal, i.e. front of train. However, passengers downstream of the fire may not be able to move past the fire and would be exposed to heat, smoke, toxic gases. They would either wait for rescue or self-evacuate downwind toward the closest exit, in this case the portal, roughly 2000? feet away (distance from rear portion of train to the opposite portal)

At 2000? ft the travel time for the first person evacuating from rear of train and walking in clear air would be just over 16 minutes. (2020 130 5.3.4.4 maximum egress travel speed along…corridors… shall be computed at 37.7m/min (124 ft/,min). However, evacuees will tend to walk in single file along the narrow walkway, meaning they will be moving at speed of the slowest person, so the corridor calculation may be too fast.

Walking in smoke with reduced visibility, exposed to gas and heat, will result in even slower walking speed. Following example provide results from several studies yielding a very slow walking speed in smoke of 40ft/min vs the 124 ft/min., resulting in an expected walking time to portal safety increased time from 16 minutes to roughly 48 minutes. This walking speed in based on following (which is used as an one example of walking in tunnels in smoke.)

“Method 3: The representation is done individually
Each individual’s walking speed in smoke-free conditions is randomised, and is then assumed to reduce linearly as for method 1 and 2 in smoke. Practically, method 3 means that:
· Visibility levels > 3 meter: Peoples’ walking speed is represented by a randomised value from a normal distribution with mean 1,35 m/s and standard deviation 0,25 m/s (based on Fruin [15]) with minimum and maximum thresholds of 0,85 and 1,85 m/s.
· Visibility levels ≤ 3 meter: Peoples’ walking speed is represented by a relative reduction of 0,34 m/s per meter visibility down to the minimum speed of 0,2 m/s.” (40ft / min) (1)

Some individuals will possibly just stop given the distance, possibly difficulty breathing, reduced visibility, or physical limits. This effectively stops the orderly evacuation of everyone following them in single file. Slow or stopped evacuation could result in some individuals moving to the invert (taking the risk of third rail exposure) to evacuate.

For comparison tunnels with cross passages, and assuming a distance of 250 ft evacuation distance to reach a cross passage, the time would be 2 minutes without smoke. Same challenge with slow walkers, reduced visibility exist albeit exposure time would be less.

If the expectation the local fire responders will be able to assist evacuees at those distances, this is incorrect. Firefighters lack the necessary air supply in the air bottles they wear to walk to the train, and safely return. The air supply will last approximately 15-20 minutes while walking. This would allow them to walk from the either portal to reach evacuees who need assistance, but their air supply would be inadequate to perform search and perform rescues.

For firefighters, the lack of air supply could be addressed by installing Firefighter Air Replenishment System (FARS) now required in some high rise buildings. However this is NOT available for evacuees.

(1) "WALKING SPEED IN SMOKE: REPRESENTATION IN LIFE SAFETY" Karl Fridolf, WSP Sverige AB

Submitter Information Verification

Submitter Full Name: Gary English

Organization: Underground Command And Safety

Affiliation: NFPA 130 technical committee alternate

Street Address:

City:

State:

Zip:

Submittal Date: Mon Jun 29 23:31:41 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: FR-38-NFPA 130-2020

Statement: The Revisions introduces a recommendation to consider the emergency response capabilities. Research is planned to evaluate fire fighter capabilities and consideration of exit spacing and reconciliation of travel distance requirements.

Public Input No. 111-NFPA 130-2020 [Section No. 6.3.2.1]

6.3.2.1*

The means of egress within the trainway shall be provided with an unobstructed clear width graduating ~~from 610 mm (24 in.)~~ from ~~610 mm (24 inches~~) 914 mm (36”) at the walking surface to ~~760 mm~~ ~~760mm~~ ~~(30 in.) at 1575 mm (62 in.~~ ~~30 inches)~~ 1067 mm (42 inches) at 1575 mm (62”) above the ~~walking surface to 430 mm (17 in.) at 2025 mm (80 in.~~ walkway surface to ~~430 mm (17 inches)~~ 737mm (29 inches) at ~~2025mm~~ 2032 mm (80”) above the walking surface.

Statement of Problem and Substantiation for Public Input

Current language at 24” is a very narrow pathway and is not allowed for public egress in any adopted standards (NFPA 101, IBC, etc., other than staff access to utility equipment) The proposed increase partially addresses the larger physical size of today’s population than earlier Fruin analysis. The 36” walkway width would allow some people to squeeze past each other which might occur when someone is walking slowly, thus improving egress times. In addition the emergency gurneys used to evacuate passengers who cannot walk, has a wheel width of 23”. The 24” width allows the gurney wheels to readily fall off the walkway. For very large patients who cannot fit on a gurney, a low friction ‘solid membrane’ flexible skid with handles is used. The wider width would make it possible to move most people at the walkway width on this skid. 36" is allowed in some new construction under NFPA 101. IF this is adopted, corresponding changes in Annex 6.3.2.1 would be necessary.

Submitter Information Verification

Submitter Full Name: Gary English

Organization: Underground Command And Safety

Affiliation: NFPA 130 technical committee alternate

Street Address:

City:

State:

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Submittal Date: Tue Jun 30 00:49:47 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: Recommend further research to substantiate any change to passenger clearance envelope sizing. Research statement to be developed.

Public Input No. 153-NFPA 130-2020 [Sections 6.3.3.5, 6.3.3.6, 6.3.3.7, 6.3.3.8, 6.3.3.9]

Sections 6.3.3.5, 6.3.3.6, 6.3.3.7, 6.3.3.8, 6.3.3.9

6.3.3.5*

Walkways that are more than 760 mm (30 in.) above the floor or grade below shall be provided with a continuous guard to prevent falls over the open side .

6.3.3.6 –

except at the following locations.

(1) Guards shall not be required along the trainway side of walkways where the bottom of the trainway is closed by a deck or grating.

6.3.3.7 –

(2) Guards shall not be required on walkways that are located between two trainways where the bottom of the trainway is closed by a deck or grating .

6.3.3.

8

6 * _

Handrails for walkways shall be provided as follows:

(1) Walkways that are more than 760 mm (30 in.) above the floor or grade below shall be provided with a continuous handrail along the side opposite the trainway.

6.3.3.9 –

(2) Walkways that are greater than 1120 mm (44 in.) wide and located between two trainways shall not be required to have a handrail.

Statement of Problem and Substantiation for Public Input

Proposed re-organization of this section is intended to provide better grouping of related requirements. Proposed revision to 6.3.3.7 (now 6.3.3.5(2)) is to address similar conditions to those applicable for 6.3.3.6 (now 6.3.3.5(1)). Proposed revisions to related annex language are to more adequately address intended application for conditions that are commonly found in transit system trainways.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 154-NFPA 130-2020 [Sections A.6.3.3.5, A.6.3.3.8]	
Public Input No. 154-NFPA 130-2020 [Sections A.6.3.3.5, A.6.3.3.8]	

Submitter Information Verification

Submitter Full Name: Katherine Fagerlund

Organization: JENSEN HUGHES Consulting Canad

Street Address:

City:

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Zip:

Submittal Date: Tue Jun 30 16:14:33 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: FR-39-NFPA 130-2020

Statement: Re-organization of sections to provide clarity.

Public Input No. 28-NFPA 130-2019 [Sections 6.3.3.5, 6.3.3.6, 6.3.3.7, 6.3.3.8, 6.3.3.9]

Sections 6.3.3.5, 6.3.3.6, 6.3.3.7, 6.3.3.8, 6.3.3.9

6.3.3.5*

Walkways that are more than 760 mm (30 in.) above the floor or grade below shall be provided with a continuous guard, in accordance with NFPA 101 Chapter 7 except as modified herein, to prevent falls over the open side. The guard shall provide consist of a continious handrail along the side opposite of the trainway.

6.3.3.6

Guards shall not be required along the trainway side of walkways where the bottom of the trainway is closed by a deck or grating.

6.3.3.7

Guards shall not be required on walkways that are located between two trainways.

6.3.3.8*

Walkways that are ~~more than 760 mm (30 in.) above the floor or grade below shall be provided with a continuous handrail along the side opposite the trainway.~~

~~**6.3.3.9**~~

~~Walkways that are~~ greater than 1120 mm (44 in.) wide and located between two trainways shall not be required to have a handrail.

Statement of Problem and Substantiation for Public Input

This change serves to send the designer to NFPA 101 for guard requirements. As it stands, the code requires a guard however does not state how the guard should be designed and the height. requirement of the guard.
In addition, the handrail clause of 6.3.3.8 is merged within the edit, as this information is duplication and could lead to confusion within an environment where NFPA 101 is not applied.

Submitter Information Verification

Submitter Full Name: Daniel Ford
Organization: WSP Middle East
Street Address:
City:
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Submittal Date: Thu Nov 21 09:38:16 EST 2019
Committee: FKT-AAA

Committee Statement

Resolution: Reference to 101 is broad and does not provide specific guidance.

Public Input No. 148-NFPA 130-2020 [Sections 6.3.3.10, 6.3.3.11, 6.3.3.12, 6.3.3.13]

Sections 6.3.3.10, 6.3.3.11, 6.3.3.12, 6.3.3.13

6.3.3.10*

Exit stairs and doors shall comply with Chapter 7 of NFPA *101*, except as herein modified.

A. 6.3.3.

11

Doors in the means of egress, except cross-passageway doors, shall open in the direction of exit travel. **10**

Section 6.3.3.10 is not intended to apply to stairs within the trainway that facilitate transition from trainway walkways where space constraints limit strict compliance--e.g., at track crossings or at ends of station platforms. Where such transition are required, steps should be as uniform as possible and additional markings may be required where design varies considerably from NFPA 101 criteria.

6.3.3.12 11

Doors in the means of egress, except cross-passageway doors, shall comply with the following:

Open (1) They shall open in the direction of exit travel.

(2) They shall o pen fully when a force not exceeding 220 N (50 lb) is applied to the latch side of the door

Be adequate to

.

(3) They shall withstand positive and negative pressures caused by passing trains and the emergency ventilation system .

6.3.3.13 12

Cross-passageway doors shall comply with the following:

(1) Horizontal sliding doors shall be permitted in cross-passageways. .

(2)* The force required to slide the doors to an open position shall not exceed 220 N (50 lb).

(3) They shall return to a closed position when the opening force is removed.

(4) They shall withstand positive and negative pressures caused by passing trains and the emergency ventilation system.

A.6.3.3.12(2)

The intent is that the required force may be applied as an action to horizontally slide the door to an oopen position.

Statement of Problem and Substantiation for Public Input

Proposed revisions are to clarify intended application of NFPA 101 and NFPA 130 requirements for egress components in trainways.

Submitter Information Verification

Submitter Full Name: Katherine Fagerlund
Organization: JENSEN HUGHES Consulting Canad
Street Address:
City:
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Submittal Date: Tue Jun 30 15:50:29 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: CI-80-NFPA 130-2020

Statement: Proposed revisions are to:

• clarify intended application of NFPA 101 and NFPA 130 requirements for egress components in trainways

• address the functional considerations for horizontal sliding doors in cross passageways.

Public Input No. 112-NFPA 130-2020 [Section No. 6.3.3.11]

6.3.3.11

Doors in the means of egress, except cross-passageway doors immediately adjacent to the trainway , ~~shall~~ shall open in the direction of exit travel.

Statement of Problem and Substantiation for Public Input

Only door swing adjacent to the trainway which could impede the emergency walkway needs to swing in the opposite direction of travel. For cross passages where the doors are recessed far enough away from the walkway, the doors can swing in the direction of travel.

Submitter Information Verification

Submitter Full Name: Gary English
Organization: Underground Command And Safety
Affiliation: NFPA 130 technical committee alternate
Street Address:
City:
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Submittal Date: Tue Jun 30 00:57:18 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: PI retracted by submitter.

Public Input No. 113-NFPA 130-2020 [Section No. 6.3.3.12]

6.3.3.12

Doors in the means of egress shall comply with the following:

(1) Open fully when a force not exceeding ~~220 N~~ 133 N (~~50 lb~~ 30 lb) is applied to the latch side of the door

(2) Be adequate to withstand positive and negative pressures caused by passing trains and the emergency ventilation system

Statement of Problem and Substantiation for Public Input

For individuals with limited strength, or physical disabilities, the allowance of a 50lb swing force is difficult or impossible. This also conflicts with standard building code language where 30lbs is the maximum allowed. Pressure relief vents and power assisted doors have been used successfully to overcome ventilation pressures

Submitter Information Verification

Submitter Full Name: Gary English

Organization: Underground Command And Safety

Affiliation: NFPA 130 technical committee alternate

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City:

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Submittal Date: Tue Jun 30 01:05:50 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: FR-81-NFPA 130-2020

Statement: NFPA 101 identifies a maximum force of 30 lbs to set the door into motion, and 15 lbs to open to minimum required width therefore section is updated to be consistent with building code and NFPA 101.

Public Input No. 170-NFPA 130-2020 [Sections 6.4.1.2, 6.4.1.3, 6.4.1.4, 6.4.1.5, 6.4.1.6, 6.4.1...]

Sections 6.4.1.2, 6.4.1.3, 6.4.1.4, 6.4.1.5, 6.4.1.6, 6.4.1.7, 6.4.1.8

6.4.1.2

If Where security fences are used along the trainway, access gates shall be provided in security fences, as deemed necessary by the authority having jurisdiction.

6.4.1.3

(2) Access gates shall be a minimum 1120 mm (44 in.) wide and shall be of the hinged or sliding type.

6.4.1.4

(1) Access gates shall be placed as close as practicable to the portals to permit easy access to enclosed trainways.

6.4.1.5

(3) Information that clearly identifies the route and location of each gate shall be provided on the gates or adjacent thereto.

6 6 .4.1.6 3

Access to the elevated trainway trainways shall be from stations or by mobile ladder equipment from roadways adjacent to the trackway trainway .

A. 6.4.1. 7 3

If no adjacent or crossing roadways exist for the elevated trainway, access roads at a maximum of 762 m (2500 ft) intervals shall be required. additional crossings may be required where access from adjacent stations is deemed insufficient by the authority having jurisdiction.

6.4.1.4

Access to open-cut trainways shall be from stations or by mobile ladder equipment from roadways adjacent to the trainway.

A. 6.4.1.8 4

Where the configuration of an open-cut trainway prevents or impedes access for firefighting, additional provisions shall may be made required to permit facilitate fire fighter access to that section of trainway at intervals not exceeding 762 m (2500 ft) where access from adjacent stations is deemed insufficient by the authority having jurisdition .

Statement of Problem and Substantiation for Public Input

Proposed re-organization of this section is intended to provide better grouping of related requirements. Proposed revisions to requirements in 6.4.1.6 through 6.4.1.8 (now 6.4.1.3, 6.4.1.4 and associated annex language) are to differentiate between performance requirements versus potential design solutions, and to delete references to specific distances that are not substantiated by technical rationale.

Submitter Information Verification

Submitter Full Name: Katherine Fagerlund

Organization: JENSEN HUGHES Consulting Canad
Street Address:
City:
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Submittal Date: Tue Jun 30 19:23:27 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-41-NFPA 130-2020

Statement: Re-organization of this section is intended to provide better grouping of related requirements and additional annex language to guide the application of requirements.

Public Input No. 29-NFPA 130-2019 [Section No. 6.4.1.3]

6.4.1.3

Access gates shall be a minimum ~~1120 mm~~ 810mm (~~44 in~~ 31 .9 in.) wide and shall be of the hinged swing out of the trainway, or sliding type.

Statement of Problem and Substantiation for Public Input

The code provides no guidance as to this requirements.
The proposed change clarifies the route can be used for evacuation purposes, as well as fire department access.

Submitter Information Verification

Submitter Full Name: Daniel Ford
Organization: WSP Middle East
Street Address:
City:
State:
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Submittal Date: Thu Nov 21 10:04:56 EST 2019
Committee: FKT-AAA

Committee Statement

Resolution: Basis for change is unclear.

Public Input No. 30-NFPA 130-2019 [Section No. 6.4.2.1]

6.4.2.1*

Blue light stations shall be provided at the following locations:

(1) At the ends of station platforms

(2) At cross-passageways

(3) At emergency access points

(4) At emergency entry points

(5) At traction power substations

(6) In enclosed trainways as approved

Statement of Problem and Substantiation for Public Input

BLS is designed for cut power to the traction power, hence this change clarifies the BLS is required at emergency entry points to ensure this functionally.

Submitter Information Verification

Submitter Full Name: Daniel Ford
Organization: WSP Middle East
Street Address:
City:
State:
Zip:
Submittal Date: Thu Nov 21 10:10:11 EST 2019
Committee: FKT-AAA

Committee Statement

Resolution: "Emergency Entry Points" is already covered by "emergency access points".

Public Input No. 86-NFPA 130-2020 [Section No. 6.4.2.1]

6.4.2.1*

Blue light stations shall be provided at the following locations:

(1) At the ends of station platforms

(2) At cross-passageways

(3) At emergency access ~~points~~ gates

(4) At traction power substations

(5) In enclosed trainways as approved

Additional Proposed Changes

File Name	Description	Approved
Proposed_coce_change_to_6.4.2.1.docx		

Statement of Problem and Substantiation for Public Input

This use of the term emergency access point (EAP) is undefined and occurs only the reference to blue light stations; and is not otherwise referred to, defined or elaborated up. This leaves it open for interpretation as to whether or where it is intended to apply. Elsewhere in the standard, there are many other terms that are used in reference to access. Clause 6.4.1 requires "Emergency Access," but does not further clarify which should be considered as EAPs. Instead, it uses "emergency access routes," "access gates," and "access to the elevated trainway," "access roads," and "access for firefighting." It is not forthright that all or any of these are intended to be EAP's.
Therefore, it is reasonable to interpret that none of these are EAP's. Blue light stations are only therefore required on elevated and at-grade trainways at the stations, which are also designated "emergency access routes," which is the closest equivalent to the use of the EAP term within NFPA 130.

The need for blue light stations on elevated and at-grade sections is becoming a dated concept. Workers and fire fighters depend on the OCC for control of power and frequently don't have the expertise needed to disable power and confidently proceed with emergency operations. NFPA 130 doesn't requried two-way communication on at-grade or elevated. Coordinating the language and terminology of Chapter 6 access requirements and blue lights is therefore needed to establish where blue light stations are required on at-grade and elevated sections.

Submitter Information Verification

Submitter Full Name: Peter Senez
Organization: Senez Consulting Ltd.
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 29 11:08:37 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: Not all access points are gates.

6.4 Fire Protection and Life Safety Systems.

insert "emergency"

6.4.1 Emergency Access.

6.4.1.1 Except as described herein, means of egress and exits from the guideway shall serve as emergency access routes.

6.4.1.2 If security fences are used along the trainway, access gates shall be provided in security fences, as deemed necessary by the authority having jurisdiction.

6.4.1.3 Access gates shall be a minimum 1120 mm (44 in.) wide and shall be of the hinged or sliding type.

6.4.1.4 Access gates shall be placed as close as practicable to the portals to permit easy access to enclosed trainways.

6.4.1.5 Information that clearly identifies the route and location of each gate shall be provided on the gates or adjacent thereto.

6.4.1.6 Access to the elevated trainway shall be from stations or by mobile ladder equipment from roadways adjacent to the trackway.

6.4.1.7 If no adjacent or crossing roadways exist for the elevated trainway, access roads at a maximum of 762 m (2500 ft) intervals shall be required.

6.4.1.8 Where the configuration of an open-cut trainway prevents or impedes access for firefighting, provisions shall be made to permit fire fighter access to that section of trainway at intervals not exceeding 762 m (2500 ft).

6.4.2 Blue Light Stations.

6.4.2.1* Blue light stations shall be provided at the following locations:

(1) At the ends of station platforms
(2) At cross-passageways
(3) At emergency access ~~points~~gates
(4) At traction power substations
(5) In enclosed trainways as approved

Public Input No. 103-NFPA 130-2020 [Section No. 6.4.3]

~~**6.4.3** – Emergency Communications System.~~

~~Enclosed trainways shall be provided with an emergency communications system in accordance with Chapter 10.~~

Statement of Problem and Substantiation for Public Input

Section 6.4.3 applying only to "Enclosed Trainways" is in conflict with 10.1 which applies "throughout fixed guideway transit and passenger rail systems," and 10.4.1 which applies to "Enclosed stations and ALL trainways." It is therefore proposed that 6.4.3 be deleted in its entirety to eliminate confusion..

Submitter Information Verification

Submitter Full Name: Peter Senez
Organization: Senez Consulting Ltd.
Street Address:
City:
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Zip:

Submittal Date: Mon Jun 29 23:44:40 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-42-NFPA 130-2020

Statement: Change provides consistency with Chapter 10 which has requirements applicable to different types of guideways (open and enclosed).

Public Input No. 36-NFPA 130-2019 [Section No. 6.4.5]

6.4.5 Standpipe and Hose Systems.

6.4.5.1

An approved fire standpipe system shall be provided in enclosed trainways where physical factors prevent or impede access to the water supply or fire apparatus, where required by the authority having jurisdiction.

6.4.5.2

A fire standpipe system is not required in open trainways.

6.4.5.3 *

Class I standpipe systems shall be installed in enclosed trainways in accordance with NFPA 14 except as modified herein.

6.4.5.3 4

Standpipe systems shall not be required to be enclosed in fire-rated construction, provided the following conditions are met:

(1) The system is cross-connected or fed from two locations.

(2) Isolation valves are installed not more than 244 m (800 ft) apart.

6.4.5.4 5

Standpipes shall be permitted to be of the dry type with the approval of the authority having jurisdiction provided the following conditions are met:

(1) * Standpipes shall be installed so that the water is delivered to all hose connections on that standpipe in 10 minutes or less.

(2) Combination air relief–vacuum valves shall be installed at each high point on the standpipe.

6.4.5.5 6

Standpipe systems shall be provided with an approved water supply capable of supplying the system demand for a minimum of 1 hour.

6.4.5.6 7

Acceptable water supplies shall include the following:

(1) Municipal or privately owned waterworks systems that have adequate pressure, flow rate, and level of integrity

(2) Automatic or manually controlled fire pumps that are connected to water source

(3) Pressure-type or gravity-type storage tanks that are installed in accordance with NFPA 22

6.4.5.7 8

Identification numbers and letters conforming to the system sectional identification numbers and letters shall be provided at each surface fire department connection and at each hose valve on the standpipe lines.

6.4.5.8 9

Identifying signs shall be affixed to enclosed trainway walls at each hose outlet valve or shall be painted directly on the standpipe in white letters next to each hose outlet valve.

6.4.5.~~9~~ 10

Exposed standpipe lines and identification signs shall be painted as required by the authority having jurisdiction.

6.4.5.~~10~~ 11

A fire department access road shall extend to within 30.5 m (100 ft) of the fire department connection.

Statement of Problem and Substantiation for Public Input

This proposed change highlights that a fire standpipe is not required for non enclosed trainways.

Submitter Information Verification

Submitter Full Name: Daniel Ford
Organization: WSP Middle East
Street Address:
City:
State:
Zip:

Submittal Date: Mon Dec 09 04:41:54 EST 2019
Committee: FKT-AAA

Committee Statement

Resolution: FR-43-NFPA 130-2020
Statement: Clarification of potential applicability of standpipes to open trainways.

Public Input No. 142-NFPA 130-2020 [New Section after 6.4.5.10]

Standpipe Capacity

Requirement for standpipes on both sides of a fixed guideway is not intended; the AHJ shall justify need for more than one standpipe.

*Appendix Note: Reliability of one standipipe is better than simultaneous degradation of two standpipes. Galvanized piping is good on paper, but not as productive in practice, some large organizations ban Zn-coated pipe due to lower RAM.

Statement of Problem and Substantiation for Public Input

Safety is a balance between tolerated risk and expense of time, money and energy. Rarely do standpipes on both sides of a single fixed guideway provide beneficial risk reduction equal to the expense in time, money or energy.

Submitter Information Verification

Submitter Full Name: Scot Deal

Organization: Excelsior Fire Engineering

Street Address:

City:

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Submittal Date: Tue Jun 30 14:42:19 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: Proposed language is ambiguous, intended application is unclear.

Public Input No. 31-NFPA 130-2019 [Section No. 6.4.8.2]

6.4.8.2

The following systems shall be connected to the emergency power system:

(1) Emergency lighting

(2) Emergency tunnel ventilation system

(3) Protective signaling systems

(4) Emergency communication system

(5) Fire command center

Statement of Problem and Substantiation for Public Input

This change clarifies that emergency power is required for the tunnel ventilation system in emergency mode.

Submitter Information Verification

Submitter Full Name:	Daniel Ford
Organization:	WSP Middle East
Street Address:	
City:	
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Zip:	
Submittal Date:	Thu Nov 21 10:15:10 EST 2019
Committee:	FKT-AAA

Committee Statement

Resolution: Chapter 7 Ventilation addresses power supply requirements.

Public Input No. 61-NFPA 130-2020 [Section No. 6.4.8.3]

6.4.8.3

The emergency lighting and communications circuits shall be kept entirely independent from all other none emergency circuits and protected from physical damage by system vehicles or other normal system operations and from fire as described in 12.4.4.

Statement of Problem and Substantiation for Public Input

The only way to prevent failure in both circuits during a fault condition will be to isolated the normal circuits from the emergency circuits.
Additionally, In a fire event, the non-emergency circuits are not designed to survive a fire and will likely fail during a fire. This type of event can cause the emergency circuits to fail. Therefore, the normal and emergency circuits shall not share the same raceway.

Submitter Information Verification

Submitter Full Name: Gilad Shoshani

Organization: RSCC Wire & Cable

Street Address:

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Submittal Date: Mon Jun 22 15:21:28 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: Chapter 12 addresses wiring and cables.

Public Input No. 137-NFPA 130-2020 [Section No. 7.3.2.1]

7.3.2.1

The fan inlet airflow ~~hot~~ design temperature shall be determined by an engineering analysis, however, this temperature shall not be less than 150°C (302°F).

Statement of Problem and Substantiation for Public Input

Incorrect grammar - temperature is a measure of heat. A body or fluid can be 'hot', have a 'high temperature' or a 'design temperature'. A temperature can be 'high' or 'low' relative to some datum.

Submitter Information Verification

Submitter Full Name: Conor Fleming

Organization: Coanda Research and Development Corporation

Street Address:

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Submittal Date: Tue Jun 30 13:23:42 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: FR-48-NFPA 130-2020

Statement: Terminology correction with respect to incorrect use of term “hot”, and lack of clarity with respect to internal and external exposures, fix style book issue w/r/t one “shall” per clause.

Public Input No. 138-NFPA 130-2020 [Section No. 7.3.2.2]

7.3.2.2*

The fan inlet airflow ~~hot~~ design temperature shall be determined using the design fire at a location in the immediate vicinity of the emergency ventilation system track/station inlet(s), as applicable. Airflow rates shall be based upon the rates needed to achieve the critical velocity in enclosed trainways or station tenability requirements, as applicable.

Statement of Problem and Substantiation for Public Input

Incorrect grammar - temperature is a measure of heat. A body or fluid can be 'hot', have a 'high temperature' or a 'design temperature'. A temperature can be 'high' or 'low' relative to some datum.

Submitter Information Verification

Submitter Full Name: Conor Fleming

Organization: Coanda Research and Development Corp

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Zip:

Submittal Date: Tue Jun 30 13:27:52 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: FR-48-NFPA 130-2020

Statement: Terminology correction with respect to incorrect use of term “hot”, and lack of clarity with respect to internal and external exposures, fix style book issue w/r/t one “shall” per clause.

Public Input No. 43-NFPA 130-2020 [Section No. 7.5]

7.5 Testing.

7.5.1 *

Equipment used for emergency ventilation (including fans, dampers, and airflow control devices) shall ~~be listed for~~ be designed for the application or shall be approved by the authority having jurisdiction in accordance with the requirements of a recognized standard for the type of equipment to be installed.

7.5.2 *

The no-fire (or cold) airflows provided by the installed mechanical ventilation system shall be measured during commissioning to confirm that the airflows meet the requirements determined by the engineering analysis.

Statement of Problem and Substantiation for Public Input

there have been some job specifications issued, where the designer saw that dampers had to be "listed"; and went out to look for a listing agent to put into the specifications. In one case, the specification called for tunnel vent dampers to be UL Listed. These dampers have many different configurations, many different types of actuators and are generally much larger than UL tests can accommodate. Therefore, tunnel vent dampers are not "listed" by any 3rd party body like UL or others.

Submitter Information Verification

Submitter Full Name: William Lampkin
Organization: Greenheck Fan Corporation
Street Address:
City:
State:
Zip:
Submittal Date: Mon Mar 02 11:24:51 EST 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-50-NFPA 130-2020

Statement: Decoupled this application from term listed or certified (for which new definition means same as listing), as large equipment has no listing support. The information has been presented that no recognized standard exists.

Public Input No. 116-NFPA 130-2020 [Section No. 7.6]

7.6 Emergency Ventilation Openings.

7.6.1

Emergency ventilation openings shall be positioned or designed to minimize recirculation of smoke into the station or enclosed trainway through any openings, such that a tenable environment is maintained along the path of egress for the time of tenability and as required for designated points of safety.

7.6.2

Adjacent structures and property uses also shall be considered.

7.6.3 Flammable and Combustible Liquids Intrusion.

7.6.3.1 General.

Protection of belowgrade system structures against the accidental intrusion of flammable and combustible liquids shall be provided in accordance with 7.6.3.

7.6.3.2 Vehicle Roadway Terminations.

Vent or fan shafts utilized for ventilation of belowgrade system structures shall not terminate at grade on any vehicle roadway.

7.6.3.3 Median and Sidewalk Terminations.

Vent and fan shafts shall be permitted to terminate in the median strips of divided highways, on sidewalks designed to accept such shafts, or in open space areas, provided that the grade level of the median strips, sidewalk, or open-space meets the following conditions:

(1) It is at a higher elevation than the surrounding grade level.

(2) It is separated from the roadway by a concrete curb at least 150 mm (6 in.) in height.

Statement of Problem and Substantiation for Public Input

Refer to PI#115. This moves the text from Subsection 5.2.3 to Section 7.6

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 115-NFPA 130-2020 [Section No. 5.2.3]	
Public Input No. 117-NFPA 130-2020 [Section No. 6.2.3]	

Submitter Information Verification

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Submittal Date: Tue Jun 30 02:14:46 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: FR-87-NFPA 130-2020

Statement: Proposed revisions relocating and augmenting existing text from 5.2.3 to 4.7 are necessary to indicate that the existing requirement is intended to apply for more than just vent and fan shafts as currently prescribed in the referenced Section 5.2.3, make reference to them from other Chapters and to combine them with other related design requirements. Refer also to related changes in Sections 5.2.3 and 6.2.3.

Public Input No. 163-NFPA 130-2020 [Section No. 7.6]

7.6 Emergency Ventilation Openings.

7.6.1

Emergency ventilation openings shall be positioned or designed to minimize recirculation of smoke into the station or enclosed trainway through any openings, such that a tenable environment is maintained along the path of egress for the time of tenability and as required for designated points of safety.

7.6.2

Emergency ventilation openings shall be positioned or designed to prevent the accidental intrusion of flammable or combustible liquids into belowgrade system structures.

A.7.6.2

Refer also to A.5.2.3.1.

7.6.3

Adjacent structures and property uses also shall be considered.

Statement of Problem and Substantiation for Public Input

Proposed revisions are necessary to indicate the performance intent of the requirements, with potential design solutions more appropriately relocated to Annex language. Refer also to proposed revisions to Section 5.2.3.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 162-NFPA 130-2020 [Section No. 5.2.3]	
Public Input No. 162-NFPA 130-2020 [Section No. 5.2.3]	

Submitter Information Verification

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Committee: FKT-AAA

Committee Statement

Resolution: FR-87-NFPA 130-2020

Statement: Proposed revisions relocating and augmenting existing text from 5.2.3 to 4.7 are necessary to indicate that the existing requirement is intended to apply for more than just vent and fan shafts as currently prescribed in the referenced Section 5.2.3, make reference to them from other Chapters and to combine them with other related design requirements. Refer also to related changes in Sections 5.2.3 and 6.2.3.

Public Input No. 62-NFPA 130-2020 [Section No. 7.8.1]

7.8.1

The design of the power for the emergency ventilation system shall comply with the requirements of Article 700 of *NFPA 70*. The emergency ventilation circuits shall be kept entirely independent from all other none emergency citcuits.

7.8.1.1

Alternatively, the design of the power for the emergency ventilation system shall be permitted to be based upon the results of the electrical reliability engineering analysis according to 7.2.3(6), as approved.

7.8.1.2

The emergency ventilation circuits routed through the station public areas and trainway shall be protected from physical damage by fixed guideway transit or passenger rail vehicles or other normal operations and from fire as described in 12.4.4.

Statement of Problem and Substantiation for Public Input

The only way to prevent failure in both circuits during a fault condition will be to isolated the normal circuits from the emergency circuits.
Additionally, In a fire event, the non-emergency circuits are not designed to survive a fire and will likely fail during a fire. This type of event can cause the emergency circuits to fail. Therefore, the normal and emergency circuits shall not share the same raceway.

Submitter Information Verification

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Committee: FKT-AAA

Committee Statement

Resolution: The proposed text is redundant to requirements of NFPA 70, and provides no added clarity.

Public Input No. 96-NFPA 130-2020 [Section No. 8.4.1]

8.4.1*

The test procedures and minimum performance for materials and assemblies shall be as detailed in Table 8.4.1.

Table 8.4.1 Fire Test Procedures and Performance Criteria for Materials and Assemblies

Category	**Function of Material**	**Test Method**	**Performance Criteria**		
Cushioning	All individual flexible cushioning materials used in seat cushions, mattresses, mattress pads, armrests, crash pads, and grab rail padding[a–e]	ASTM D3675	I_S = 25		
		-	ASTM E662, IMO FTP Annex 1:Part 2	D_S (1.5) = 100, Pass	
			-	-	D_S (4.0) = 175
Fabrics	Seat upholstery, mattress ticking and covers, curtains, draperies, window shades, and woven seat cushion suspensions[a–c,f–h]	14 CFR 25, Appendix F, Part I (vertical test)	Flame time = 10 sec		
			-	Burn length = 6 in.	
		-	ASTM E662, IMO FTP Annex 1:Part 2	D_S (4.0) = 200, Pass	
Other vehicle components	Seat and mattress frames, wall and ceiling lining and panels, seat and toilet shrouds, toilet seats, trays and other tables, partitions, shelves, opaque windscreens, combustible signage, end caps, roof housings, articulation bellows, exterior shells, nonmetallic skirts, battery case material, and component boxes and covers[a,b,i–k]	ASTM E162	I_S = 35		
		-	ASTM E662, IMO FTP Annex 1:Part 2	D_S (1.5) = 100, Pass	
			-	-	D_S (4.0) = 200
	-	Thermal and acoustical insulation[a,b]	ASTM E162	I_S = 25	

Category	Function of Material	Test Method	Performance Criteria		
				ASTM E662, IMO FTP Annex 1:Part 2	D_s (4.0) = 100, Pass
		HVAC ducting[a,b]	ASTM E162	I_s = 25	
				ASTM E662, IMO FTP Annex 1:Part 2	D_s (4.0) = 100, Pass
		Floor covering[b,k,l]	ASTM E648	CRF = 5 kW/m^2	
				ASTM E662, IMO FTP Annex 1:Part 2	D_s (1.5) = 100 - , Pass
			D_s (4.0) = 200		
		Light diffusers, windows, and transparent plastic windscreens[b,i]	ASTM E162	I_s = 100	
				ASTM E662, IMO FTP Annex 1:Part 2	D_s (1.5) = 100 - , Pass
			D_s (4.0) = 200		
		Adhesives and sealants[a,b,p]	ASTM E162	I_s = 35	
				ASTM E662, IMO FTP Annex 1:Part 2	D_s (1.5) = 100D_s
, Pass					
			(4.0) = 200		
Elastomers[a,b,i,j]	Window gaskets, door nosings, intercar diaphragms, seat cushion suspension diaphragms, and roof mats	ASTM C1166	Flame propagation = 100 mm (4 in.)		
			ASTM E662, IMO FTP Annex 1:Part 2	D_s (1.5) = 100, Pass	

Category	Function of Material	Test Method	Performance Criteria
			D_s (4.0) = 200
Wire and cable	All	See 8.6.7.1.1.1 through 8.6.7.1.3.	See 8.6.7.1.1.1 through 8.6.7.1.3.
Structural components[m]	Flooring,[n] other[o]	ASTM E119	Pass

[a]See 8.4.1.1.

[b]See 8.4.1.2.

[c]See 8.4.1.3.

[d]See 8.4.1.4.

[e]See 8.4.1.5.

[f]See 8.4.1.6.

[g]See 8.4.1.7.

[h]See 8.4.1.8.

[i]See 8.4.1.9.

[j]See 8.4.1.10.

[k]See 8.4.1.11.

[l]See 8.4.1.12.

[m]See 8.4.1.13.

[n]See 8.4.1.14.

[o]See 8.4.1.15.

[p]See 8.4.1.16.

[q] See 8.4.1. 17

8.4. 1.1 *

Materials tested for surface flammability shall not exhibit any flaming running or flaming dripping.

8.4.1.2

The ASTM E662 maximum test limits for smoke emission (specific optical density) shall be based on both the flaming and the nonflaming modes.

8.4.1.3*

Testing of a complete seat assembly (including cushions, fabric layers, and upholstery) according to ASTM E1537 using the pass/fail criteria of California Technical Bulletin 133 and testing of a complete mattress assembly (including foam and ticking) according to ASTM E1590 using the pass/fail criteria of California Technical Bulletin 129 shall be permitted in lieu of the test methods prescribed herein, provided the assembly component units remain unchanged or new (replacement) assembly components possess fire performance properties equivalent to those of the original components tested.

8.4.1.3.1

A fire hazard analysis shall also be conducted that considers the operating environment within which the seat or mattress assembly will be used in relation to the risk of vandalism, puncture, cutting, introduction of additional combustibles, or other acts that potentially expose the individual components of the assemblies to an ignition source.

8.4.1.3.2

The requirements of 8.4.1.5 through 8.4.1.8 shall be met.

8.4.1.4

Testing shall be performed without upholstery.

8.4.1.5

The surface flammability and smoke emission characteristics shall be demonstrated to be permanent after dynamic testing according to ASTM D3574, Test I_2 or Test I_3, both using Procedure B, except that the test samples shall be a minimum of 150 mm (6 in.) × 450 mm (18 in.) × the thickness used in end-use configuration, or multiples thereof. If Test I_3 is used, the size of the indentor described in Section 96.2 of ASTM D3574 shall be modified to accommodate the specified test specimen.

8.4.1.6

The surface flammability and smoke emission characteristics shall be demonstrated to be permanent by washing, if appropriate, in accordance with the manufacturer's recommended procedure. If a washing procedure is not provided by the manufacturer, the fabric shall be washed in accordance with ASTM E2061, Annex A1.

8.4.1.7

The surface flammability and smoke emission characteristics shall be demonstrated to be permanent by dry cleaning, if appropriate, according to ASTM D2724.

8.4.1.8

Materials that cannot be washed or drycleaned shall be so labeled and shall meet the applicable performance criteria after being cleaned as recommended by the manufacturer.

8.4.1.9

Combustible operational and safety signage shall not be required to meet flame spread or smoke emission requirements if the combustible mass of a single sign does not exceed 500 g (1.1 lb) and the aggregate area of combustible signage does not exceed 1 ft^2 per foot of car length.

8.4.1.10

Materials used to fabricate miscellaneous, discontinuous small parts (such as knobs, rollers, fasteners, clips, grommets, and small electrical parts) where the surface area of any individual small part is less than 100 cm^2 (16 $in.^2$) in end use configuration and that will not contribute materially to fire growth in end use configuration shall comply with either 8.4.1.10.1 or 8.4.1.10.2.

8.4.1.10.1

The materials shall be exempt from flammability and smoke emission performance requirements, provided that an appropriate fire hazard analysis is conducted that addresses the location and quantity of the materials used and the vulnerability of the materials to ignition and contribution to flame spread.

8.4.1.10.2

The materials shall be tested in accordance with ASTM E1354, at an initial test heat flux of 50 kW/m^2 (4.4 Btu/sec·ft^2) in the horizontal orientation with a retainer frame, and shall meet the performance criteria of a 180-second average heat release rate not exceeding 100 kW/m^2 (8.8 Btu/sec·ft^2) and a test average smoke extinction area not exceeding 500 m^2/kg (2441.2 ft^2/lb).

8.4.1.11

Carpeting used as a wall or ceiling covering shall be tested according to ASTM E162 and ASTM E662 and shall meet the respective criteria of $I_S \leq 35$, D_S (1.5) ≤ 100, and D_S (4.0) ≤ 200. *(See 8.4.1.1 and 8.4.1.2.)*

8.4.1.12

If padding is used in the actual installation, floor covering shall be tested with padding in accordance with NFPA 253 or ASTM E648.

8.4.1.13

Penetrations (ducts, etc.) shall be designed against acting as passageways for fire and smoke, and representative penetrations of each type shall be included as part of test assemblies.

8.4.1.14*

See 8.5.1.

8.4.1.15*

Portions of the vehicle body that separate the major ignition source, energy sources, or sources of fuel load from vehicle interiors shall have fire resistance as determined by a fire hazard analysis acceptable to the authority having jurisdiction that addresses the location and quantity of the materials used, as well as vulnerability of the materials to ignition, flame spread, and smoke generation. These portions shall include equipment-carrying portions of a vehicle's roof and the interior structure separating the levels of a bi-level car but do not include a flooring assembly subject to Section 8.5. In those cases, the use of the ASTM E119 test procedure shall not be required.

8.4.1.16 Testing of Adhesives and Sealants.

8.4.1.16.1

Adhesives and sealants shall be tested in accordance with both ASTM E162 and ASTM E662 as a composite system, including a substrate, as shown in 8.4.1.16.2 through 8.4.1.16.3, as appropriate.

8.4.1.16.2

In the absence of a specified assembly or system, or if the adhesive or sealant is used on several different assemblies or systems, adhesives and sealants intended for application to combustible base materials shall comply with 8.4.1.16.2.1 and 8.4.1.16.2.2.

8.4.1.16.2.1

The adhesive shall be applied to the smooth face of 6.4 mm (¼ in.) thick tempered hardboard, nominal density 800 kg/m^3 to 960 kg/m^3 (50 lb/ft^3 to 60 lb/ft^3), using recommended (or practical) application techniques and coverage rates.

8.4.1.16.2.2

Tests shall also be conducted on the hardboard alone, and these values shall be recorded as supplemental to the measured values for the composite specimen.

8.4.1.16.3

Adhesives and sealants intended for application to noncombustible substrate materials shall be applied to the smooth face of 6.4 mm (¼ in.) thick inorganic reinforced cement board, nominal density 1762 kg/m^3 ± 160 kg/m^3 (110 lb/ft^3 ± 10 lb/ft^3), using recommended (or practical) application techniques and coverage rates.

Statement of Problem and Substantiation for Public Input

Table 8.4.1
For all materials in table that require ASTM E662 smoke emission testing, add toxicity testing requirement
Test Method: IMO FTP Annex 1:Part 2
Performance Requirement: Pass
Add note q : qSee 8.4.1.17

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 97-NFPA 130-2020 [New Section after 8.4.1.16.3]	

Submitter Information Verification

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Committee:	FKT-AAA

Committee Statement

Resolution: Toxicity is addressed by smoke production and flame spread. This change would result in utilizing a standard and an acceptance criteria that NFPA NFPA 130 does not have control over.

Public Input No. 95-NFPA 130-2020 [Section No. 8.4.1 [Excluding any Sub-Sections]]

The test procedures and minimum performance for materials and assemblies shall be as detailed in Table 8.4.1.

Table 8.4.1 Fire Test Procedures and Performance Criteria for Materials and Assemblies

Category	**Function of Material**	**Test Method**	**Performance Criteria**
Cushioning	All individual flexible cushioning materials used in seat cushions, mattresses, mattress pads, armrests, crash pads, and grab rail padding[a–e]	ASTM D3675	I_S = 25
		ASTM E662	D_S (1.5) = 100
			D_S (4.0) = 175
Fabrics	Seat upholstery, mattress ticking and covers, curtains, draperies, window shades, and woven seat cushion suspensions[a–c,f–h]	14 CFR 25, Appendix F, Part I (vertical test)	Flame time = 10 sec
			Burn length = 6 in.
		ASTM E662	D_S (4.0) = 200
Other vehicle components	Seat and mattress frames, wall and ceiling lining and panels, seat and toilet shrouds, toilet seats, trays and other tables, partitions, shelves, opaque windscreens, combustible signage, end caps, roof housings, articulation bellows, exterior shells, nonmetallic skirts, battery case material, and component boxes and covers[a,b,i–k]	ASTM E162	I_S = 35
		ASTM E662	D_S (1.5) = 100
			D_S (4.0) = 200
		ASTM E1354 @50KW/m ^{2}	Maximum Average Rate of Heat Emission (MAHRE) < 90 kW/m ^{2}
	Thermal and acoustical insulation[a,b]	ASTM E162	I_S = 25
		ASTM E662	D_S (4.0) = 100
		ASTM E1354 @50KW/m ^{2}	Maximum Average Rate of Heat Emission (MAHRE) < 90

Category	Function of Material	Test Method	Performance Criteria			
			kW/m 2			
	HVAC ducting[a,b]	ASTM E162	I_s = 25			
		-	-	ASTM E662	D_s (4.0) = 100	-
		ASTM E1354 @50KW/m 2	Maximum Average Rate of Heat Emission (MAHRE) < 90 kW/m 2			
	Floor covering[b,k,l]	ASTM E648	CRF = 5 kW/m^2			
		-	-	ASTM E662	D_s (1.5) = 100	
			-	-	-	D_s (4.0) = 200
	-	Light diffusers, windows, and transparent plastic windscreens[b,i]	ASTM E162	I_s = 100		
		-	-	ASTM E662	D_s (1.5) = 100	
			-	-	-	D_s (4.0) = 200
	-	Adhesives and sealants[a,b,p]	ASTM E162	I_s = 35		
		-	-	ASTM E662	D_s (1.5) = 100D_s	
			-	-	-	(4.0) = 200
Elastomers[a,b,i,j]	Window gaskets, door nosings, intercar diaphragms, seat cushion suspension diaphragms, and roof mats	ASTM C1166	Flame propagation = 100 mm (4 in.)			
		-	ASTM E662	D_s (1.5) = 100		

Category	Function of Material	Test Method	Performance Criteria		
			-	-	D_S (4.0) = 200
Wire and cable	All	See 8.6.7.1.1.1 through 8.6.7.1.3.	See 8.6.7.1.1.1 through 8.6.7.1.3.		
Structural components[m]	Flooring,[n] other[o]	ASTM E119	Pass		

[a]See 8.4.1.1.

[b]See 8.4.1.2.

[c]See 8.4.1.3.

[d]See 8.4.1.4.

[e]See 8.4.1.5.

[f]See 8.4.1.6.

[g]See 8.4.1.7.

[h]See 8.4.1.8.

[i]See 8.4.1.9.

[j]See 8.4.1.10.

[k]See 8.4.1.11.

[l]See 8.4.1.12.

[m]See 8.4.1.13.

[n]See 8.4.1.14.

[o]See 8.4.1.15.

[p]See 8.4.1.16.

Statement of Problem and Substantiation for Public Input

Analysis performed for the Federal Railroad Administration has shown that the ASTM E162 flame spread index requirement does not screen out all materials that may exhibit accelerated flame spread and potentially flashover when exposed to a plausible fire inside a railcar. This heat release rate requirement was demonstrated to screen out materials that may cause flashover. In addition, the requirement is in line with the EN 45545-2 material flammability requirement for similar materials in HL1/HL2 categories. The ASTM E162 requirement should be kept to ensure no flaming droplets. Technical basis is described in Ref. [1].

[1] Luo, C., Kraft, S., DiDomizio, M., McKinnon, M., Hodges, J., Yazdani, S., and Lattimer, B., “Heat Release Rate Requirements for Railcar Interior Finish,” Final Report, Department of Transportation, Federal Railroad Administration, 2018. DOT/FRA/ORD-19/39

Submitter Information Verification

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Submittal Date: Mon Jun 29 17:11:08 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: ASTM E1354 contains no information on how to determine MAHRE or average rate of heat emission. Although the committee agrees that heat release is important, the items chosen are not necessarily the most important ones. Insulation materials are often difficult to test in the cone calorimeter.

Public Input No. 72-NFPA 130-2020 [Section No. 8.4.1.12]

8.4.1.12

~~If padding is used in the actual installation, floor~~ The floor covering shall be tested as installed, with padding, if applicable, and adhesive, in accordance with NFPA 253 or ASTM E648.

Statement of Problem and Substantiation for Public Input

It has been found that both the padding and the adhesive can alter the critical radiant flux obtained from the ASTM E648 test and the ASTM standard explicitly states that "The test specimen shall be the floor-covering system" and that the "floor covering system" is "a single material, composite or assembly comprised of the floor covering and related installation components (adhesive, cushion, etc.), if any".

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 71-NFPA 130-2020 [Section No. 8.4.1.16]	

Submitter Information Verification

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Submittal Date: Fri Jun 26 15:00:33 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: FR-57-NFPA 130-2020

Statement: It has been found that both the padding and the adhesive can alter the critical radiant flux obtained from the ASTM E648 test and the ASTM standard explicitly states that "The test specimen shall be the floor-covering system" and that the "floor covering system" is "a single material, composite or assembly comprised of the floor covering and related installation components (adhesive, cushion, etc.), if any".

Public Input No. 122-NFPA 130-2020 [Section No. 8.4.1.15]

8.4.1.15*

Portions of the vehicle body that separate the major ignition source, energy sources, or sources of fuel load from vehicle interiors shall have fire resistance as determined by a fire hazard analysis acceptable to the authority having jurisdiction that addresses the location and quantity of the materials used, as well as vulnerability of the materials to ignition, flame spread, and smoke generation. These portions shall include equipment-carrying portions of a vehicle's roof and the interior structure separating the levels of a bi-level car but do not include a flooring assembly subject to Section 8.5. In those cases, the use of the ASTM E119 or UL 263 test procedure shall not be required.

Statement of Problem and Substantiation for Public Input

Reason: ASTM E119 and UL 263 are used to determine fire resistance ratings of different assemblies. These standards are referenced throughout NFPA standards and codes such as NFPA 101 and NFPA 5000 wherever fire resistance ratings are required.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 47-NFPA 130-2020 [Section No. 2.3.9]	
Public Input No. 123-NFPA 130-2020 [Section No. 8.5.1.3]	
Public Input No. 125-NFPA 130-2020 [Section No. 12.4.4]	
Public Input No. 126-NFPA 130-2020 [Section No. 12.5]	

Submitter Information Verification

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Submittal Date: Tue Jun 30 10:10:20 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-58-NFPA 130-2020

Statement: ASTM E119 and UL 263 are used to determine fire resistance ratings of different assemblies. These standards are referenced throughout NFPA standards and codes such as NFPA 101 and NFPA 5000 wherever fire resistance ratings are required.

Public Input No. 71-NFPA 130-2020 [Section No. 8.4.1.16]

8.4.1.16* Testing of Adhesives and Sealants.

8.4.1.16.1 –

Adhesives and sealants shall be tested in accordance with both ASTM E162 and ASTM E662

as a composite system, including a substrate, as shown in 8.4.1.16.2 through 8.4.1.16.3 , as appropriate.

8.4.1.16.2 –

In the absence of a specified assembly or system, or if the adhesive or sealant is used on several different assemblies or systems, adhesives and sealants intended for application to combustible base materials shall comply with 8.4.1.16.2.1 and 8.4.1.16.2.2 .

8.4.1.16.2.1 –

The adhesive shall be applied to

by applying the adhesive or sealant to the smooth face of 6.4 mm (1⁄4 in.) thick

tempered hardboard, nominal density 800 kg/m^3 to 960 kg/m^3 (50 lb/ft^3 to 60 lb/ft^3), using recommended (or practical) application techniques and coverage rates.

8.4.1.16.2.2 –

Tests shall also be conducted on the hardboard alone, and these values shall be recorded as supplemental to the measured values for the composite specimen.

8.4.1.16.3 –

Adhesives and sealants intended for application to noncombustible substrate materials shall be applied to the smooth face of 6.4 mm (1⁄4 in.) thick

inorganic reinforced cement board, nominal density 1762 kg/m^3 ± 160 kg/m^3 (110 lb/ft^3 ± 10 lb/ft^3), using recommended (or practical) application techniques and coverage rates.

Additional Proposed Changes

File Name	Description	Approved
ASTM_E662_data_on_adhesives_and_hardboard.pdf	ASTM E662 data on adhesives and hardboard	

Statement of Problem and Substantiation for Public Input

An input and comment were accepted at the previous edition of NFPA 130 (my mistake) to require testing of adhesives or sealants intended for use with combustible substrates by testing on a specific hardboard. This resulted in information being presented that identified problems with the testing procedure, as follows:

1. The thick tempered hardboard being identified for use (at least since the 1983 edition of the ASTM E662 test method), which had a nominal density 50 to 60 lb./ft3 and a thickness of 0.25 inches) appears no longer to be a reasonable substrate for two reasons: (a) because typical hardboard now (per ANSI/AHA A135.4 "Basic Hardboard", with a minimum density specification of 31 lb./ft3 and a thickness range of 0.21 to 0.265 inches) is more common and (b) because it no longer appears to be commercially available. Although the hardboard in the standard is within the parameters of the ANSI/AHA standard it is no longer typical, and may not even be available.

2. The hardboard referenced in the standard is not referenced in other standards that use the same

chamber, albeit with a different burner): ASTM E1995, NFPA 270 and ISO 5659-2.
3. The NFPA 130 standard uses ASTM E662 in combination with either ASTM E162 (for most materials) or ASTM D3675 (for plastics), for flame spread. Neither ASTM E162 nor ASTM D3675 reference that type of hardboard.
4. ASTM E162 does reference “thick tempered hardboard” (without any clarification) for use with “opaque sheet materials up to 1⁄16-in. (1.6-mm) thickness, and liquid films such as paints, etc. intended for application to combustible base materials” but not for adhesives. ASTM E162 also states that the hardboard shall have a “mean flame spread index of 130 to 180”, which indicates that this section has not been updated for many years, since the ASTM E162 standard does not determine flame spread index but a radiant panel index, so that clearly this section of ASTM E162 has been ignored for years.
5. NFPA 130 was revised for the 2020 edition to require the use of the thick tempered hardboard for testing adhesives in accordance with both ASTM E162 and ASTM E662. That was a mistake that is intended to be corrected by this public input. An informal survey of users of adhesives for trains and underground rail vehicles for smoke emission indicates that the actual testing of adhesives is done by applying them to a noncombustible substrate and not using a system.
6. An informal survey of some fire test labs indicates that none use the thick tempered hardboard for testing adhesives.
7. Much more important, tests conducted on two commercial adhesives a commercial hardboard fairly close to the one in the ASTM E662 standard showed that it produces such a large amount of smoke that the smoke generated by the adhesive itself is dwarfed by the smoke from the hardboard (a table is attached).

Consequently, the section on testing adhesives needs to be reworded as follows:
1. The specific thick tempered hardboard required needs to be eliminated and the requirement to test adhesives with any type of hardboard needs to be eliminated.
2. Adhesives should simply be tested on the cement board used in the ASTM E662 standard, which is the same board also used in ASTM E162 and ASTM E84.
3. In terms of smoke emission it is very likely that the adhesive will be a small contributor.
4. Adhesives or sealants should be tested as individual materials and not as composite systems because neither ASTM E662 nor ASTM E162 (or ASTM D3675) are fully suited to testing composite systems. Other fire test standards, such as ASTM E1354 would be more suitable for that.

The language is proposed to read as follows:
8.4.1.16* Testing of Adhesives and Sealants.
Adhesives and sealants shall be tested in accordance with both ASTM E162 and ASTM E662 by applying the adhesive or sealant to the smooth face of 6.4 mm (¼ in.) thick inorganic reinforced cement board, nominal density 1762 kg/m3 ± 160 kg/m3 (110 lb/ft3 ± 10 lb/ft3), using recommended (or practical) application techniques and coverage rates.

An annex note will be an added PI to explain that this reverts much of the 2002 edition.

This analysis brings into question whether other items in the table should clarify that adhesives need to be included and the clear product is floor coverings (carpets) and a parallel PI addresses that.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 72-NFPA 130-2020 [Section No. 8.4.1.12]	
Public Input No. 73-NFPA 130-2020 [New Section after A.8.4.1.15]	

Submitter Information Verification

Submitter Full Name: Marcelo Hirschler
Organization: GBH International
Street Address:
City:
State:

Zip:

Submittal Date: Fri Jun 26 14:47:19 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: FR-59-NFPA 130-2020

Statement: It was shown that testing adhesives or sealants on wood was inappropriate as the smoke production from the board impacts the smoke production from the adhesives. Annex added to clarify the change from 2020 to 2023 Edition.

ASTM E-662 BACKING BOARD & ADHESIVE TESTING SUMMARY						
Backing	ADHESIVE	ASTM E662 Mode Flaming or Non-flaming	D_s AVERAGE OF THREE			
			1.5 MIN	4.0 MIN	MAX	MAX CORR
CEMENT BOARD	NONE	F	0.0	1.0	4.7	4.0
CEMENT BOARD	NONE	NF	0.3	1.0	2.7	1.0
HARDBOARD	NONE	F	0.0	0.0	102.0	99.0
HARDBOARD	NONE	NF	0.0	26.0	363.7	361.0
CEMENT BOARD	Type A	F	0.0	2.0	10.3	9.0
CEMENT BOARD	Type A	NF	0.0	2.0	8.0	7.7
HARDBOARD	Type A	F	0.3	19.3	363.7	363.0
HARDBOARD	Type A	NF	0.3	17.7	363.3	362.7
CEMENT BOARD	Type B	F	3.3	21.3	43.0	42.0
CEMENT BOARD	Type B	NF	0.3	6.7	21.3	20.7
HARDBOARD	Type B	F	5.0	6.7	78.3	73.7
HARDBOARD	Type B	NF	2.0	30.0	268.3	268.0

CEMENT BOARD: 1/4 in USG Durock cement board from USG Company (approx. 62 pcf)
HARDBOARD : 1/4 in Wet Process Eucalyptus Hardboard from D&M Lumber Products Co., Inc. (approx. 51 pcf)

Public Input No. 97-NFPA 130-2020 [New Section after 8.4.1.16.3]

8.4.1.17

The toxicity testing shall be performed in accordance with IMO FTP Annex 1: Part 2 using an irradiance of 25 kW/m ^{2} with and without a pilot flame. Materials shall meet the concentration performance requirements in IMO FTP Annex1: Part2.

Statement of Problem and Substantiation for Public Input

The rail industry currently performs toxicity testing on rail car materials as part of many of its acquisition contracts, but there is no requirement currently in NFPA 130. The toxicity testing currently used in the acquisition contracts (BSS 7239 or SMP 800C) are industry standards. In the last cycle, it was stated that a standard developed by an independent standards organization was desired. The International Maritime Organization (IMO) toxicity test standard was selected after review of existing toxicity standards, performance requirements, and analysis of existing data in the literature.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 96-NFPA 130-2020 [Section No. 8.4.1]	

Submitter Information Verification

Submitter Full Name: Anil Kapahi
Organization: Jensen Hughes
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 29 17:24:26 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: Toxicity is addressed by smoke production and flame spread. This change would result in utilizing a standard and an acceptance criteria that NFPA NFPA 130 does not have control over.

Public Input No. 92-NFPA 130-2020 [Section No. 8.5.1.1.1.1]

8.5.1.1.1.1 ~~The size of the exposed portion of the floor assembly shall be at least 3.7 m (12 ft) long by~~

large enough to represent the full vehicle structural flooring design but need not exceed 3.7 m (12 ft) long and the normal width of the vehicle floor.

Statement of Problem and Substantiation for Public Input

Many railcar designs contain longitudinally repetitious structure or localized structural details. As a result, the ability of the structural flooring assembly to perform as a barrier against undervehicle fires could potentially be tested using a small subset of the assembly. Such a subset can be tested if the fire endurance of the full vehicle can be determined from such a test. If such a subset cannot be identified, the exposed portion of the floor assembly need not exceed 3.7 m (12 ft) in the longitudinal direction. Structural elements of the vehicle not part of the floor assembly but contributing to the floor assembly strength, such as parts of the vehicle superstructure directly above the assembly, may be included in the test assembly.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 93-NFPA 130-2020 [Section No. 8.5.1.3.1.2]	
Public Input No. 94-NFPA 130-2020 [Section No. A.8.4.1.14]	
Public Input No. 99-NFPA 130-2020 [New Section after A.8.4.2]	

Submitter Information Verification

Submitter Full Name: Anil Kapahi
Organization: Jensen Hughes
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 29 16:45:18 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: The requested change doesn't establish an appropriate minimum size requirement for the test specimen.

Public Input No. 123-NFPA 130-2020 [Section No. 8.5.1.3]

8.5.1.3 Test Details.

Fire resistance testing on assemblies shall be conducted in accordance with ASTM E119 or UL 263 .

8.5.1.3.1

Test assemblies shall be representative of the vehicle construction and shall be tested in a configuration to demonstrate that a fire will not extend into the passenger and crew areas during the fire exposure duration.

8.5.1.3.1.1

Unexposed side thermocouples shall be installed in accordance with or ASTM E119 or UL 263 .

8.5.1.3.1.2

The support of the test sample shall be limited to the transverse ends of the test sample only.

8.5.1.3.1.3

The test assembly shall contain one of each type of penetration included in the assembly construction.

(A)

Penetrations shall be installed in the test assembly in accordance with Section 7 of ASTM E814 or UL 1479 .

(B)

In cases in which there are multiple sizes of the same type of penetration, the penetration determined to be the most likely to allow hot gas or flame passage shall be included in the assembly.

(C)

No temperatures shall be required to be measured at the penetrations.

8.5.1.3.2

The minimum fire exposure duration shall be the greatest of the following:

(1)* Twice the maximum expected time period under normal circumstances for a vehicle to stop completely and safely from its maximum operating speed, plus the time necessary to evacuate a full load of passengers from the vehicle under approved conditions

(2)* 15 minutes for automated guideway transit (AGT) vehicles and low floor vehicles, 30 minutes for all other passenger-carrying vehicles

(3) 15 minutes for roof assemblies

8.5.1.3.3

During the entire fire exposure, the following parameters shall apply:

(1) Transmission of heat through the assembly shall not be sufficient to raise the temperature on its unexposed surface more than 139°C (250°F) average and 181°C (325°F) single point.

(2)* The assembly shall not permit the passage of flame or gases hot enough to ignite cotton waste on the unexposed surface of the assembly.

(3) The assembly shall support the representative loading.

Statement of Problem and Substantiation for Public Input

ASTM E119 and UL 263 are used to determine fire resistance ratings of different assemblies. These standards are referenced throughout NFPA standards and codes such as NFPA 101 and NFPA 5000 wherever fire resistance ratings are required.

UL 1479 is equivalent to ASTM E814 for fire testing penetration fire stops. These standards are referenced throughout NFPA standards and codes such as NFPA 101 and NFPA 5000wherever fire stop ratings are required.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 47-NFPA 130-2020 [Section No. 2.3.9]	
Public Input No. 122-NFPA 130-2020 [Section No. 8.4.1.15]	
Public Input No. 124-NFPA 130-2020 [Section No. 8.5.3.2]	
Public Input No. 125-NFPA 130-2020 [Section No. 12.4.4]	
Public Input No. 126-NFPA 130-2020 [Section No. 12.5]	

Submitter Information Verification

Submitter Full Name: Kelly Nicolello
Organization: UL LLC
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 30 10:12:10 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-60-NFPA 130-2020

Statement: ASTM E119 and UL 263 are used to determine fire resistance ratings of different assemblies. These standards are referenced throughout NFPA standards and codes such as NFPA 101 and NFPA 5000 wherever fire resistance ratings are required. UL 1479 is equivalent to ASTM E814 for fire testing penetration fire stops. These standards are referenced throughout NFPA standards and codes such as NFPA 101 and NFPA 5000wherever fire stop ratings are required.

Public Input No. 93-NFPA 130-2020 [Section No. 8.5.1.3.1.2]

8.5.1.3.1.2

The

~~support of the~~

test

~~sample~~

assembly shall be

~~limited to the transverse ends of the test sample only~~

supported in a manner representative of the full vehicle design .

Statement of Problem and Substantiation for Public Input

Floor assemblies should be supported by the members carrying the primary loads away from the assembly to the vehicle wheel trucks. Many designs contain primary structural members that carry load across the longitudinal span between the wheel trucks. These members within the test assembly should serve as the primary support locations while tertiary structural members are left unsupported.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 92-NFPA 130-2020 [Section No. 8.5.1.1.1.1]	
Public Input No. 100-NFPA 130-2020 [New Section after A.8.4.2]	

Submitter Information Verification

Submitter Full Name: Anil Kapahi
Organization: Jensen Hughes
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 29 16:48:08 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: The existing language provides a simpler and more stringent approach. The concept within the proposed change is already covered in the standard. The proposed language is not enforceable.

Public Input No. 124-NFPA 130-2020 [Section No. 8.5.3.2]

8.5.3.2

Penetrations and access panels located between the locker and the passenger and crew areas shall be tested in accordance with ASTM E814 or UL 1479 and shall have an F rating of 15 minutes.

8.5.3.2.1

The separation assembly shall not allow the passage of flame for the entire exposure duration.

Statement of Problem and Substantiation for Public Input

UL 1479 is equivalent to ASTM E814 for fire testing penetration fire stops. These standards are referenced throughout NFPA standards and codes such as NFPA 101 and NFPA 5000 wherever fire stop ratings are required.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 123-NFPA 130-2020 [Section No. 8.5.1.3]	
Public Input No. 126-NFPA 130-2020 [Section No. 12.5]	

Submitter Information Verification

Submitter Full Name: Kelly Nicolello
Organization: UL LLC
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 30 10:15:06 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-61-NFPA 130-2020

Statement: UL 1479 is equivalent to ASTM E814 for fire testing penetration fire stops. These standards are referenced throughout NFPA standards and codes such as NFPA 101 and NFPA 5000 wherever fire stop ratings are required.

Public Input No. 76-NFPA 130-2020 [Section No. 8.6.7.1.1 [Excluding any Sub-Sections]]

All wires and cables shall ~~be resistant to the spread of fire and shall have reduced smoke emissions by complying with~~ comply with APTA PR-E-RP-009-98 and 8.6.7.1.1.1 or 8.6.7.1.1.2.

Statement of Problem and Substantiation for Public Input

APTA PR-E-RP-009-98 title is “Ampacities for Wire and Cable Used on Passenger Rolling Stock with Flame, Smoke, and Toxicity Considerations “. APTA revised PR-E-RP-009-98 in 2020 to the new title and added the wires types that are used on rail cars in North America. The changes to APTA include adding thin wall wire, high temperature wires and Communication cables. APTA specifies the Flame, Smoke and Toxicity for all wire used in North America and the reference for this compliance needs to be in NFPA 130 and as part of “NFPA 130 compliant cable”.

Submitter Information Verification

Submitter Full Name: Gilad Shoshani
Organization: RSCC Wire & Cable
Street Address:
City:
State:
Zip:

Submittal Date: Sat Jun 27 17:15:28 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: The APTA standard is not available to be reviewed.

Public Input No. 78-NFPA 130-2020 [Section No. 8.6.7.1.2]

8.6.7.1.2

Low voltage power and control wires and cables (i.e., less than 100 V ac and 150 V dc) except of Communication and Data cables shall comply with 8.6.7.1.1 and either of the following:

(1) The physical, mechanical, and electrical performance requirements of ICEA S-95-658/NEMA WC-70 or ICEA S-73-532/NEMA WC-57, as applicable

(2) The physical, mechanical, and electrical performance requirements of ANSI/UL 44 for thermosetting insulation and ANSI/UL 83 for thermoplastic insulation as applicable

Statement of Problem and Substantiation for Public Input

The standards mentioned in section 8.6.7.1.2 do not apply to communication cables and an exception is needed. Car builders and authorities are requesting communication cables to comply with 8.6.7.1.2 which is not possible, these standards cover 600V and 2000V cables. Communication cables use thin insulation and jacket that do not comply with the thicknesses and performance of the standards listed in section 8.6.7.1.2. In addition, some communication cables use foam insulation that is not covered by these standards.
The titles of the standards,
ICEA S-95-658/NEMA WC-70 " POWER CABLES RATED 2000 VOLTS OR LESS FOR THE DISTRIBUTION OF ELECTRIC ENERGY"
ICEA S-73-532/NEMA WC-57 " Standard for Control, Thermocouple Extension, and Instrumentation Cables"
ANSI/UL 44 "Thermoset-Insulated Wires and Cables"
ANSI/UL 83 "Thermoplastic-Insulated Wires and Cables"

Submitter Information Verification

Submitter Full Name: Gilad Shoshani
Organization: RSCC Wire & Cable
Street Address:
City:
State:
Zip:
Submittal Date: Sat Jun 27 17:25:02 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: Exception for communication and data cables is covered by 8.6.7.1.3, see PI 79. Annex explanation will be inserted to clarify the cable terminology.

Public Input No. 79-NFPA 130-2020 [Section No. 8.6.7.1.3]

8.6.7.1.3*

Communication and data cables shall have stranded conductors only and comply with UL 444, 8.6.7.1.1 and ~~the~~ any other corresponding specifications.

Statement of Problem and Substantiation for Public Input

Stranded conductor perform better in vibration, torque and flexing applications than solid conductor. All the cables mentioned is A.8.6.7.1.3 are available with stranded conductor. The physical, mechanical and electrical performances referenced in 8.6.7.1.2 do not apply to communication and data cable. The correct standard for data and communication cables is UL 444.

Submitter Information Verification

Submitter Full Name: Gilad Shoshani

Organization: RSCC Wire & Cable

Street Address:

City:

State:

Zip:

Submittal Date: Sat Jun 27 17:33:10 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: FR-63-NFPA 130-2020

Statement: UL 444 is added to include a standard for communication cables. The reference to stranded conductors is not essential.

Public Input No. 81-NFPA 130-2020 [Section No. 8.6.7.1.4]

8.6.7.1.4

Wires and cables used for heat, smoke, or other detection system shall comply with 8.6.7.1.1 and one of the following:

(1) Be capable of having 15-minute circuit integrity when tested in accordance with IEC 60331-11

(2) ~~Demonstrate that, if circuit integrity is tested during the vertical flame test, a current continues operating for at least 5 minutes during the test~~

(3) Have circuit integrity cable in accordance with *NFPA 70*

Statement of Problem and Substantiation for Public Input

The test protocol is not defined with regard to which vertical flame test, existing standards, voltage and wiring configuration. There is no standard for this test and no lab is equipped to perform the test.

Submitter Information Verification

Submitter Full Name: Gilad Shoshani
Organization: RSCC Wire & Cable
Street Address:
City:
State:
Zip:
Submittal Date: Sat Jun 27 17:49:23 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-64-NFPA 130-2020

Statement: The test required in section (2) is no longer commonly available.

Public Input No. 82-NFPA 130-2020 [Section No. 8.6.7.2]

8.6.7.2 Minimum Wire Size.

In no case shall ~~single conductor~~ wire ~~(not part of multi-conductor cable)~~ smaller than the following sizes be used:

- ~~14 AWG (cross-section 2.1 mm ^{2}) for wire pulled through conduits or wireways or installed exposed between enclosures~~

~~22 AWG (cross-section 0.33 mm ^{2}) for all wires, including those used on electronic units, equipment within a rack, cards, card racks, and wire laid in wireways~~

Power and control cables 600V and 2000V

a) Single conductors pulled through conduits or wireways - AWG No. 16.

b) Multi-conductor cables -AWG No. 20.

c) All other wire, including that which is not pulled through wireways and conduits - AWG No. 16.

d) Wire within control compartments - AWG No. 20.

Instrumentation, Communication and Data cables

a) Ethernet cables for signal transmission for train backbone and equipment control - AWG No. 24.

b) Wire on and within electronic units, cards, and card racks - AWG No. 28.

Statement of Problem and Substantiation for Public Input

The new information in 8.6.7.2 is the common practice that is used in modern transit vehicles, It adds more options, is less restrictive and reflects current vehicle design.

Submitter Information Verification

Submitter Full Name: Gilad Shoshani

Organization: RSCC Wire & Cable

Street Address:

City:

State:

Zip:

Submittal Date: Sat Jun 27 17:51:40 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: FR-65-NFPA 130-2020

Statement: Typical use in cars means that lowering the size of single conductors is reasonable due to size, weight and bending radius restrictions. No justification was presented for the other changes.

Public Input No. 83-NFPA 130-2020 [Section No. 8.6.7.3.3]

8.6.7.3.3

~~Conductors shall be derated for grouping and shall be derated for ambient temperature greater than the manufacturer's design value in accordance with criteria specified by the authority having jurisdiction.~~ Selection of wire types, sizes and insulation ratings shall be based on current-carrying capacity, voltage drop, mechanical strengh, temperature, and flexibilty requirements in accordance with applicable AAR, ICEA, and APTA "Installation of Wire and Cable on Passenger Rolling Stock" (APTA PR-E-RP-002-98) and "Ampacities for Wire and Cable Used on Passenger Rolling Stock with Flame, Smoke and Toxicity Considerations" (APTA PR-E-RP-009-98).

Statement of Problem and Substantiation for Public Input

The current wording is not enforceable and is too generic. APTA PR-E-RP-009-98 and APTA RP-E-002-98 were recently revised, they have all the needed wire types, ampacities and temperature deratings information for cables that are installed on North America cars. This wording is common to most transit authority specifications.

Submitter Information Verification

Submitter Full Name: Gilad Shoshani
Organization: RSCC Wire & Cable
Street Address:
City:
State:
Zip:
Submittal Date: Sat Jun 27 18:02:01 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: The standard is currently not available as it is a draft standard. It cannot be referenced in the section.

Public Input No. 52-NFPA 130-2020 [Section No. 8.6.9]

8.6.9 Battery Installation.

Batteries and their associated circuitry shall be installed with the following requirements:

(1) Battery charging systems shall be designed to prevent overcharging of the battery.

(2) The battery shall be designed with an emergency cutoff system.

(3) The battery installation area shall be provided with a heat, smoke, or other fire detection system as appropriate for the environment in which it will operate.

(4) The battery installation area shall be separated from the car interior by the use of materials that are noncombustible, in accordance with ~~the requirements of ASTM E136.~~ Section 4.6.

(5) The battery installation area shall not use materials with hygroscopic properties.

(6) The battery installation area shall be provided with sufficient diffusion and ventilation of the gases from the battery to prevent the accumulation of an explosive mixture.

(7) Battery casing material shall comply with Table 8.4.1.

Statement of Problem and Substantiation for Public Input

consistency with other references within NFPA 130

Submitter Information Verification

Submitter Full Name: Marcelo Hirschler

Organization: GBH International

Street Address:

City:

State:

Zip:

Submittal Date: Thu Jun 18 17:54:24 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: FR-66-NFPA 130-2020

Statement: Editorial change to direct the user to a section of NFPA 130 as opposed to referenced standard.

Public Input No. 102-NFPA 130-2020 [New Section after 9.3]

TITLE OF NEW CONTENT

Type your content here ...* 15. Fires greater than the systems were designed to address

Statement of Problem and Substantiation for Public Input

Accidental or intentional acts which bring hazardous materials, or a failure of the ventilation system, or operator error can result in the fire ventilations system being unable to manage the smoke resulting in passenger exposure to heat, toxic gases, and decreased visibility to find their way to safety. Adding this language ensures the emergency management planning process will be aware of this possibility and make plans. (See proposed annex)

Submitter Information Verification

Submitter Full Name: Gary English
Organization: Underground Command And Safety
Affiliation: NFPA 130 technical committee alternate
Street Address:
City:
State:
Zip:

Submittal Date: Mon Jun 29 23:37:54 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: The intent of proposed new item is already covered by existing text.

Public Input No. 114-NFPA 130-2020 [New Section after 9.11.3]

TITLE OF NEW CONTENT

Type your content here ... **9.11.2.1** Exercises and drills shall be conducted with new mutual aid participating agencies prior to opening of additional stations, or rail extensions where they might be called to respond.

Statement of Problem and Substantiation for Public Input

Although regulations require response agency participation prior to opening within their response area, there is no requirement for adjacent response agencies to receive training if the rail system in not within their boundaries. Adjacent or nearby response agencies may be called upon in a mutual aid agreement and need to be trained prior this occurring.

Submitter Information Verification

Submitter Full Name: Gary English

Organization: Underground Command And Safety

Affiliation: NFPA 130 technical committee alternate

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jun 30 01:12:42 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: All participating agencies, including mutual aid, are covered by existing text in 9.5.

Public Input No. 33-NFPA 130-2019 [Section No. 10.1]

10.1* General.

10.1.1

An emergency communication system shall be provided throughout fixed guideway transit and passenger rail systems in accordance with this chapter.

10.1.

~~2~~

2

Stations shall be provided with emergency voice/ alarm system, in accordance with NFPA 72, where the occupant load exceeds 1,000 persons.

10.1. 3

Emergency voice/alarm communications systems (EVACS) shall be designed, installed, inspected, tested, and maintained in accordance with *NFPA 72*, except as modified herein.

10.1.~~3~~ 4

The design of the emergency communications systems shall consider background noise levels within the system resulting from the operation of emergency systems during various types of incidents.

10.1.~~4~~ 5

Where a mass notification system is provided, the system shall be designed, installed, inspected, tested, and maintained in accordance with *NFPA 72*, except as modified herein.

Statement of Problem and Substantiation for Public Input

This change clarifies NFPA 101 12.3.4.3.5 requirement for a voice alarm system to be provided for stations with 1,000 occupants or more.

Submitter Information Verification

Submitter Full Name: Daniel Ford
Organization: WSP Middle East
Street Address:
City:
State:
Zip:
Submittal Date: Wed Dec 04 10:50:03 EST 2019
Committee: FKT-AAA

Committee Statement

Resolution: The proposed change is already covered by existing text in 10.5; and it is unnecessary and potentially in conflict with 10.1.2.

Public Input No. 118-NFPA 130-2020 [Section No. 10.1.2]

10.1.2

~~Emergency voice/alarm communications~~ Emergency communications systems (~~EVACS~~ ECS) shall be designed, installed, inspected, tested, and maintained in accordance with *NFPA 72*, except as modified herein.

10.1.2.1 Emergency voice messages, where required by the applicable building code or the system operator, are permitted to be integrated into the notification system signals via other systems (such as the public address system).

10.1.2.2 Where voice messages are required, these should be integrated which provides a means to silence the alarm signals while the voice instructions are being transmitted, and re-activates the alarm signals after a pre-determined period.

Statement of Problem and Substantiation for Public Input

The three design and installation issues that need to be addressed are:
1. Why is voice notification required; and
2. If the standard deems this is the appropriate measure, can this be through other systems such as the public address system.
3. Terminology needs avoid implication of a requirement in other jurisdictions.

The proposed changes are to address the following three design and installation issues:
1. Why is voice notification required;
2. If the standard deems this is the appropriate measure, this should be permitted through other systems such as the public address system; and
3. Terminology needs avoid implication of a requirement.

#1: The standard is not clear on the intent as to why a voice component is required for emergency notification for all station configurations. Whilst voice messages do assist in emergency announcements specifically in complex integrated structures, providing voice notification in an elevated open station where egress points can be clearly identified, and the risk of exposure is lower, would not warrant a voice component. Suitable notification can be achieved through horns and strobes. The determination of the minimum requirement should be by the local building code or the operator. If voice messages are deemed a requirement, this can be supplemented with the public address (which was addressed in the 2014 edition), and requirements in the standard should not imply this is through the fire alarm system. the standard should specify the functional requirement and leave the design engineer to provide that functionality based on the jurisdictional design and installation standards.

#2: The reference to NFPA 72 can be interpreted to imply (moreso in jurisdictions outside of the US) that this required through the fire alarm system. While NFPA 72 provides flexibility in how this may be achieved (such as allowing other systems to interface with the fire alarm system), other fire alarm design standards are not which could result in duplicate speaker systems. The requirements should not impede integration of other systems (such as use of the public address) to achieve the functionality of voice messages whilst still permitting compliance with the local building codes.

#3: Further, terminology stated in the standard such as “emergency voice communication system” are defined terms in other codes and standards which can result in duplicate fire alarm and public address speakers to meet a requirement that wasn’t intended to mean dual systems. In the 2014 edition the wording existed that permitted the use of the Public Address system.

The proposed changes are to re-introduce functional requirements that permit other system to provide voice capability, provides flexibility on how this determined, and limits the potential of dual systems being provided.

Submitter Information Verification

Submitter Full Name: Andrew Coles
Organization: Senez Consulting Ltd.
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 30 02:37:55 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: The intent of the proposed change to allow PA systems is already covered by existing text reference to NFPA 72.

Public Input No. 32-NFPA 130-2019 [Section No. 10.2.6]

10.2.6

The OCC shall be located in an area separated from other occupancies by 2-hour fire resistance construction, or provided with dedicated fire seperated exit enclosures .

Statement of Problem and Substantiation for Public Input

This edit seeks clarification on this requirement for 2 hour separation of the OCC. An alternative is to provide a dedicated route to allow for evacuation of occupants within the OCC building.

Submitter Information Verification

Submitter Full Name: Daniel Ford

Organization: WSP Middle East

Street Address:

City:

State:

Zip:

Submittal Date: Thu Nov 21 10:22:58 EST 2019

Committee: FKT-AAA

Committee Statement

Resolution: The existing text requires the OCC to be protected from other occupancies; however, the proposed change lowers this protection. This is not a clarification.

Public Input No. 38-NFPA 130-2019 [Section No. 10.3.1]

10.3.1

Enclosed stations and enclosed trainways shall be provided with a public radio enhancement system.

Statement of Problem and Substantiation for Public Input

This change clarifies that public safety radio enhancement system is only required in enclosed trainway, not open trainways.

Submitter Information Verification

Submitter Full Name: Daniel Ford
Organization: WSP Middle East
Street Address:
City:
State:
Zip:
Submittal Date: Mon Dec 23 23:20:50 EST 2019
Committee: FKT-AAA

Committee Statement

Resolution: FR-30-NFPA 130-2020

Statement: A two-way radio communications enhancement system is a local AHJ issue, which needs to be determined by the participating emergency services. The proposed revision also makes allowance for alternative systems where radio coverage cannot be achieved. The change is consistent with NFPA 1.

Public Input No. 34-NFPA 130-2019 [Section No. 10.4]

10.4* Two-Way Wired Emergency Services Communication Systems.

10.4.1

Enclosed stations and all trainways shall be provided with a two-way wired emergency services communication system.

10.4.2

The system shall have a telephone network of fixed telephone lines and handsets capable of communication with all stations, fire command centers, ancillary structures, station master offices, traction power ~~stations and~~ substations, control towers, ancillary rooms and spaces, and ~~locations~~ first responders access points along the trainway.

10.4.3

Two-way wired emergency communications system telephone handsets shall be provided at the following locations:

(1) Fire command center, where provided

(2) Operations control center

(3) Traction power substations

(4) Blue light station locations

(5) First responder access points along the trainway

(6) Ventilation control plant rooms

(7) Ancillary rooms and spaces as determined by the authority having jurisdiction

(8) Other locations along the trainway as determined by the authority having jurisdiction

10.4.4

Telephones along the trainway shall have distinctive signs, lights, or both for identification.

Statement of Problem and Substantiation for Public Input

This change clarifies the required location of two-way communication system. The current text is very wide and generic, requiring 2-way communication with power stations which are not under the control of the trainway authority.
The edit also clarifies that two-way communication is required at access points to the trainway.

Submitter Information Verification

Submitter Full Name: Daniel Ford

Organization: WSP Middle East

Street Address:

City:

State:

Zip:

Submittal Date: Wed Dec 04 10:58:39 EST 2019

Committee: FKT-AAA

Committee Statement

Resolution: FR-51-NFPA 130-2020

Statement: These sections have been updated to clarify the locations for two-way wired systems.

A two-way wired emergency services communication system is a local AHJ issue, which needs to be determined by the participating emergency services.

Public Input No. 39-NFPA 130-2019 [Section No. 10.4.1]

10.4.1

~~Enclosed stations~~ Stations and ~~all~~ trainways shall be provided with a two-way wired emergency services communication system.

Statement of Problem and Substantiation for Public Input

This proposed change clarifies that all trainway and stations shall be provided with two-way communication systems. The code already requires open trainways & enclosed stations to be provided with 2-way communications, hence the requirement should extend to open stations too.

Submitter Information Verification

Submitter Full Name: Daniel Ford
Organization: WSP Middle East
Street Address:
City:
State:
Zip:
Submittal Date: Mon Dec 23 23:26:10 EST 2019
Committee: FKT-AAA

Committee Statement

Resolution: FR-51-NFPA 130-2020
Statement: These sections have been updated to clarify the locations for two-way wired systems.

A two-way wired emergency services communication system is a local AHJ issue, which needs to be determined by the participating emergency services.

Public Input No. 44-NFPA 130-2020 [Section No. 11.1.2]

11.1.2 Application.

These systems include the following:

(1) Train control (signaling systems) as described in 7.2.4 5 , 8.9.2.3, and in this chapter

(2) Emergency communication systems as described in 6.4.2, 8.9.2.1, 8.9.2.2, 9.8.4, and Section 9.9

(3) Traction power systems as described in 6.4.2, 7.2.4, 9.13.4, and 9.13.5

(4) Supervisory control and data acquisition (SCADA) systems as they apply to fire emergencies

Additional Proposed Changes

File Name	Description	Approved
Issued_TIA_130-20-2_Final.pdf	TIA Log No. 1475	

Statement of Problem and Substantiation for Public Input

NOTE: This public input originates from Tentative Interim Amendment No. 20-2 (Log 1475) issued by the Standards Council on Month/Day/Year and per the NFPA Regs., needs to be reconsidered by the Technical Committee for the next edition of the Document.

Substantiation: Section 11.1.2(1) has cross-referenced Section 7.2.4 incorrectly since the 2010 edition. The correct reference should be to Section 7.2.5.
Emergency Nature: The Standard contains an error or an omission that was overlooked during the regular revision process.

Submitter Information Verification

Submitter Full Name: TC on FKT-AAA
Organization: NFPA
Street Address:
City:
State:
Zip:
Submittal Date: Thu Mar 12 11:08:37 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-31-NFPA 130-2020

Statement: Section 11.1.2 has cross-referenced Section 7.2.4 incorrectly since the 2010 edition. The correct reference should be to Section 7.2.5.

Tentative Interim Amendment

NFPA® 130

Standard for Fixed Guideway Transit and Passenger Rail Systems

2020 Edition

Reference: 11.1.2(1)
TIA 20-2
(TIA Log #1475)

Pursuant to Section 5 of the NFPA *Regulations Governing the Development of NFPA Standards*, the National Fire Protection Association has issued the following Tentative Interim Amendment to NFPA 130, *Standard for Fixed Guideway Transit and Passenger Rail Systems*, 2020 edition. The TIA was processed by the Technical Committee on Fixed Guideway Transit and Passenger Rail Systems, and was issued by the Standards Council on February 20, 2020, with an effective date of March 11, 2020.

A Tentative Interim Amendment is tentative because it has not been processed through the entire standards development procedures. It is interim because it is effective only between editions of the standard. A TIA automatically becomes a public input of the proponent for the next edition of the standard; as such, it then is subject to all of the procedures of the standards development process.

1. Revise 11.1.2 item (1) to read as follows:

11.1.2 Application. These systems include the following:
(1) Train control (signaling systems) as described in ~~7.2.4~~ 7.2.5, 8.9.2.3, and in this chapter
…

Issue Date: February 20, 2020

Effective Date: March 11, 2020

(Note: For further information on NFPA Codes and Standards, please see www.nfpa.org/docinfo)

Public Input No. 91-NFPA 130-2020 [Section No. 11.1.2]

11.1.2 Application.

These systems include the following:

(1) Train control (signaling systems) as described in 7.2.5, 8.9.2.3, and in this chapter

(2) Emergency communication systems as described in 6.4.2, 8.9.2.1, 8.9.2.2, 9.8.4, and Section 9.9

(3) Traction power systems as described in 6.4.2, <u>7.2.</u> ~~4,~~ <u>5</u> 9.13.4, and 9.13.5

(4) Supervisory control and data acquisition (SCADA) systems as they apply to fire emergencies

Statement of Problem and Substantiation for Public Input

Correction to incorrect Chapter 7 Section reference.

Submitter Information Verification

Submitter Full Name: Katherine Fagerlund
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Street Address:
City:
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Zip:
Submittal Date: Mon Jun 29 16:14:35 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-31-NFPA 130-2020

Statement: Section 11.1.2 has cross-referenced Section 7.2.4 incorrectly since the 2010 edition. The correct reference should be to Section 7.2.5.

Public Input No. 131-NFPA 130-2020 [Section No. 12.1.1]

12.1.1 Scope.

This chapter ~~applies to~~ shall apply to wires and cables in all locations except in those vehicles addressed in Chapter 8.

Statement of Problem and Substantiation for Public Input

Clerical edit

Submitter Information Verification

Submitter Full Name: Andrew Coles

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City:

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Submittal Date: Tue Jun 30 12:10:42 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: FR-11-NFPA 130-2020

Statement: Editorial Revision

Public Input No. 35-NFPA 130-2019 [Section No. 12.1.2]

12.1.2

All wiring materials and installations other than for traction power shall conform to the requirements of *NFPA 70* except as modified herein. Where wiring is being used for both normal power and traction power, the wiring shall meet with with the requirements of this chapter.

Statement of Problem and Substantiation for Public Input

This change clarifies where the same cable(s) are being used for both normal power and traction power, the requirements of this chapter shall be applied.

Submitter Information Verification

Submitter Full Name: Daniel Ford
Organization: WSP Middle East
Street Address:
City:
State:
Zip:
Submittal Date: Wed Dec 04 11:12:16 EST 2019
Committee: FKT-AAA

Committee Statement

Resolution: The standard contains other sections that deal with normal power and traction power.

Public Input No. 134-NFPA 130-2020 [Sections 12.1.2, 12.1.3]

Sections 12.1.2, 12.1.3

12.1.2

All wiring materials and installations other than for traction power shall conform to the requirements of *NFPA 70* except as modified herein.

~~**12.1.3**~~ –

~~Traction power cables shall be listed and comply with the following:~~

(1) ~~All relevant requirements for the environment in which they are to be used, including, but not limited to, being rated for not less than 90°C (194°F) and for wet locations~~

(2) ~~The flame spread and smoke release requirements of Section 12.2~~

Statement of Problem and Substantiation for Public Input

This was added in the 2020 that should have been consilidated into 12.3. 12.1.2 states the requirement for installation, however, the requirements in 12.1.3 are a functioinal requirment for installation in wet environments that are already address in 12.3. This is addressed by edits to 12.3

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 135-NFPA 130-2020 [Section No. 12.3.1]	

Submitter Information Verification

Submitter Full Name: Andrew Coles

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Submittal Date: Tue Jun 30 12:37:26 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: FR-12-NFPA 130-2020

Statement: Traction power cables are already addressed elsewhere in the Standard (Sections 12.2 and 12.3). The proposed text retains the requirement that traction power cables be listed. The word “cables” was added to Section 12.1.2 for clarity.

Public Input No. 58-NFPA 130-2020 [Section No. 12.2]

12.2 Flame Spread and Smoke Release.

12.2.1

All wires and cables used in enclosed stations and trainways, including traction power cables, shall be listed as being resistant to the spread of fire and shall have reduced smoke emissions, by complying with one of the following:

(1) * All wires and cables shall comply with the requirements for char height [<1.5 m (5 ft) when measured from the lower edge of the burner face], total smoke released in 20 min [<150 m^2 (1615 ft^2)], and peak smoke release rate [<0.40 m^2/sec (4.3 ft^2/sec)] when tested to the FT4/IEEE 1202 exposure of ANSI/UL 1685 or UL 2556 .

(2) Wires and cables listed as having adequate fire-resistant and low-smoke-producing characteristics, by having a flame travel distance that does not exceed 1.5 m (5 ft) and generating a maximum peak optical density of smoke of 0.50 and a maximum average optical density of smoke of 0.15 when tested in accordance with NFPA 262, shall be permitted for use instead of the wires and cables specified in item (1).

Statement of Problem and Substantiation for Public Input

1202 was ommited as a typo from 2020 version. UL 1685 and UL 2556 are the same UL flame test FT4/IEEE 1202. UL standards referance UL 1685 or UL 2556. Example: UL 44 standard specify UL 2556.

Submitter Information Verification

Submitter Full Name: Gilad Shoshani
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Zip:
Submittal Date: Mon Jun 22 15:04:05 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-13-NFPA 130-2020

Statement: The reference to 1202 was erroneously omitted from the 2020 version. The language was revised to clarify that the FT4/IEEE1202 flame test is to be used for both UL standards. The reference to “ANSI” was deleted. The section was rewritten to provide improved clarity.

Public Input No. 139-NFPA 130-2020 [Section No. 12.2.1]

12.2.1

All Except as permitted in 12.2.2, all wires and cables used in enclosed stations and trainways, including traction power cables, shall be listed as being resistant to the spread of fire and shall have reduced smoke emissions, by complying with one of the following:

(1)* All wires and cables shall comply with the requirements for char height [<1Exhibit a char height less than 1 .5 m (5 ft) when measured from the lower edge of the burner face] , total smoke released in 20 min [less than <150 m^2 (1615 ft^2)] , and peak smoke release rate [less than <0.40 m^2/sec (4.3 ft^2/sec)] when tested when tested in accordance with ANSI/UL 1685 to the FT4/IEEE exposure of ANSI/UL 1685.

Wires and cables listed as having adequate fire-resistant and low-smoke-producing characteristics, by having a flame travel distance that

(2) criteira.

(3) Exhibit a flame travel distance that does not exceed 1.5 m (5 ft) and generating a

(4) generate a maximum peak optical density of smoke of

(5) density of 0.50 and a maximum average optical density of smoke of 0.15 when tested in accordance with NFPA 262, shall be permitted for use instead of the wires and cables specified in item (1).

12.2.2 The requirements of 12.2.1 are not applicable where wires and cables comply with one of the following:

(1) are protected in accordance with 12.4.4.(1) or (2).

(2) either enclosed in noncombustible conduit or enclosed non-combustible cable trays

(3) are located in open stations, open trainways or aboveground enclosed stations

Additional Proposed Changes

File Name	Description	Approved
chapter_12_information.pdf	Supporing information related to Chapter 12 requirements	

Statement of Problem and Substantiation for Public Input

Proposed changes to 12.2.1 are interrelated with changes to 12.4.4 and the new 12.2.2 to address minimum requirements of wires in cables in various configuration of stations and trainways. As noted in the attached additional information the requirements for wires in cables circa 2003 deviated from the original intent of the standard and application of flame and smoke performance began to be applied without consideration of the method it is installed. The key issues that should be considered are:

- What are the minimum design requirements that is been asked of the standard, in context to minimum building codes and standard requirements
- Cable exposure to the hazard and required performance, and
- Methods of protection/installation (for fire and mechanical damage)

The last two points are interrelated as the installation methods can provide the inherent exposure protection to the cable that would not require the char and low smoke performance requirements of 12.2.1. As such, installation methods need to be considered relative to the requirements for cable char and smoke performance.

The proposed changes are to address what are considered appropriate requirements for wires and cable performance based on the method of installation.
Similarly, application of the char and low smoke production in all enclosed applications may not be commensurate with the exposure hazard or the risk. As such, performance exemptions are provided that would align with minimum building code or standard requirements for a typical above ground assembly building where the risk is perceived to be lower than an underground environment.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 144-NFPA 130-2020 [Section No. 12.4.4]	
Public Input No. 145-NFPA 130-2020 [New Section after 12.4.4]	

Submitter Information Verification

Submitter Full Name: Andrew Coles
Organization: Senez Consulting Ltd.
Street Address:
City:
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Zip:
Submittal Date: Tue Jun 30 13:47:47 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: Enclosed above ground stations should retain the same requirements for wiring and cable. Technical substantiation to exclude above ground enclosed stations is insufficient.

The specific requirement in question is, as mentioned previously, Section 12.2.1 which states:

> *All wires and cables used shall be listed as being resistant to the spread of fire and shall have reduced smoke emissions, by complying with one of the following:**
>
> *(1) All wires and cables shall comply with the FT4/IEEE 1202 exposure requirements for cable char height, total smoke released, and peak smoke release rate of ANSI/UL 1685.*
>
> *(2) Wires and cables listed as having adequate fire-resistant and low-smoke producing characteristics, by having a flame travel distance that does not exceed 1.5 m (5 ft) and generating a maximum peak optical density of smoke of 0.50 and a maximum average optical density of smoke of 0.15 when tested in accordance with NFPA 262, shall be permitted for use instead of the wires and cables specified in item (1).*
>
> *The applicability of the requirement was revised in subsequent editions (2017 and 2020) to "wires and cables used in enclosed stations and trainways."

Equivalencies may seek relaxation on the smoke release requirements in consideration of cables being run in non-combustible conduits, whether surface-mounted or embedded/encased within concrete.

From a strict requirements traceability context, such equivalency appears to be problematic as, per Section 12.4.2:

> *All conductors, except radio antennas, shall be enclosed in their entirety in armor sheaths, conduits, or enclosed raceways, boxes, and cabinets except in ancillary areas.*

Taken together, it would appear that credit or equivalency owing to enclosure in conduit (notwithstanding embedment in concrete) cannot be taken as it is separately a requirement irrespective of the nature of the wire and cable used. However, it can be demonstrated that the intent of the requirement, especially that of Section 12.2.1 has been modified over years of standard development without specific substantiation. Therefore, it will be necessary to review the evolution of Section 12.2.1, 12.4.2, as well as 12.4.4 which states:

> *The emergency power, emergency lighting, and emergency communications circuits shall be protected from physical damage by system vehicles or other normal system operations and from fires in the system for at least 1 hour, but not less than the time of tenability, when exposed to fire conditions corresponding to the time-temperature curve in the ASTM E 119 fire resistance test by any of the following:*
>
> *(1) Circuits are embedded in concrete or protected by a fire barrier system in accordance with UL 1724. The cables or conductors shall maintain functionality at the temperature within the embedded conduit or fire barrier system.*
>
> *(2) Circuits are routed outside the underground portion of the system.*

(3) There is diversity in system routing (such as separate redundant circuits or multiple circuits separated by a fire barrier with a fire resistance rating so that a single fire or emergency event will not lead to a failure of the system).

(4) All circuits consist of listed fire-resistive cable systems with a fire resistance rating in accordance with 12.5.

The reason for the inclusion of Sections 12.4.2 and 12.4.4 is that these address the protection of wires and cables from fire exposure and the requirements for circuit integrity or reliability.

Historical Tracing of NFPA 130 Wire and Cable Requirements

The 2014 edition of NFPA 130 represents the first edition in which the wires and cables requirements were consolidated within a new Chapter 12. The principal motivation in this major re-organization of the standard was to assure consistency across requirements for stations, trainways, and emergency ventilation equipment (note: the application of many such requirements were clarified in the 2017 edition to be limited to enclosed stations and trainways). Aside from the consolidation, little if any substantive changes were made with respect to the statutory requirements for wire and cable in the 2014 edition.

In the development of the 2010 edition, two significant changes were made in the wire and cable requirements. This involved, firstly, the simplification of the testing requirements and criteria to that of the FT4/IEEE 1202 exposure requirements of ANSI/UL 1685 or specific criteria when tested in accordance to *NFPA 262 Standard Method of Test for Flame Travel and Smoke of Wires and Cables for Use in Air-Handling Spaces*. The simplifications involved deletion of reference to Canadian Standard CSA C22.2 to avoid confusion, specifically reference to 'LS' and 'ST1" requirements that had been removed from UL 1685 at the time of development of the 2010 edition. Also, it was acknowledged in the change that reference to UL 1685 carried both flame spread and smoke production criteria, thereby obviating the need for separate criteria within NFPA 130. Secondly, was the change in applicability in stations of the flame spread and smoke production requirements from "wire and cable constructions intended for use in operating train signal circuits, power circuits to emergency lights, and so forth" to "all wires and cables." The change was proposed as a 'simplification' and brought the requirements in stations in line with those that were established in the 2003 edition for tunnels. It will be demonstrated in following sections, that this marked a significant shift in intent in the wire and cable requirements, a shift and expansion in application that was arguably unintended and at least unsubstantiated based on the documentation of the committee proceedings.

The transition from the 2003 to 2007 edition was marked largely by minor editorial changes or corrections to the wordings related to wire and cable flame spread and smoke production requirements. What was added in this edition was alternative methods for the protection of emergency circuits (emergency lighting, communications, and ventilation fans and devices). In prior editions through 2003, "suitable embedment or encasement" or "routing of conductors exterior to the interior underground portions of the transit system facilities" were the only recognized options for the protection of critical emergency circuits. In the 2007 edition, "(d)iversity in system routing…so that a single fire or emergency event…will not lead to a failure of the system" and "listed fire-resistive cable system(s) with a minimum 1-hour rating" to ANSI/UL 2196 were added as options for critical emergency circuit protection.

The 2003 edition is significant in the development of the wire and cable flame spread and smoke production requirements. Critically, the introduction of UL 1581, CSA 222.2 No. 0.3, UL 1685, and NFPA 262 were a reaction to the pending withdrawal of *IEEE 383* (1974) *Standard for Qualifying Class 1E Electric Cables and Field Splices for Nuclear Power Generating Stations* by IEEE. While it was correct to substitute a current fire test standard for one that was likely to be withdrawn and no longer supported by testing facilities, it is contended that the original intent of the requirement was lost in the update – this will be argued in the following paragraphs. And, because the intent of the requirement with respect to IEEE 383 qualification became obscured, it can also be argued that the smoke production requirements were included as a 'rider' on the new flame spread requirements, rather than as a legitimate fire safety improvement.

Like the 2010 edition, the 2003 edition was marked by a subtle and seemingly innocuous change in the scope of applicability in the wire and cable flame spread (and now smoke requirements). At the 'Report on Proposal' stage of the standard development cycle, the word 'vital' was proposed to be removed and the word 'signal' was proposed to be added to Section 3-2.3.5 to read:

> *Wire and cable constructions intended for use in operating ~~vital~~ train circuits and power circuits to emergency <u>signal</u> lights and so forth shall…*

In deleting 'vital', an important descriptor was lost thereby obscuring the intent for the requirement. The addition of the word 'signal' simply resulted in confusion as evidenced by the ballot commentary:

> *The addition of the word "signal" makes the requirement less general and could be interpreted to not include other emergency lighting such as that for emergency walkway in underground trainways.*

Consequently, at the comment phase the committee sought to provide clarification with the following wording:

> *Wire and cable constructions intended for use in operating vital train circuits and power circuits to emergency lights and so forth shall be listed as being resistant to the spread of fire and shall have reduced smoke emissions.*

This wording emphasized the application to circuits fundamental to operating the trains and emergency circuits. However, the committee instead re-worded the section more broadly as:

> *All wire and cable constructions intended for use in trainways other than traction power cables shall be listed as being resistant to the spread of fire and shall have reduced smoke emissions in accordance with this section.*

with the substantiation that "refer(ring) to all wire in the trainways instead of trying to differentiate between specific wiring for ease in interpretation" was a clarification. As a result, the scope of the requirements was expanded, largely without substantiation, to hopefully eliminate confusion in interpretation of which wire or cable the requirement should apply. However, the broadening of the application can be argued to dilute the intent of the requirement, which will be clarified in the following sections. In its original form, the application to 'vital' or 'emergency' circuits illustrates that such circuits require a higher degree of protection given their critical function to the operation of the railroad and/or its emergency systems. Therefore, the integrity of the circuits is arguably the more essential performance outcome, not (necessarily) the flame spread characteristics and not the smoke production characteristics. Protection of circuits for their continued operation during a fire event are better addressed in recent NFPA 130 editions through Section 12.4.4 that lists multiple methods for protecting critical power and communications circuits.

Prior to the 2003 edition, there were limited if any changes to the wire and cable requirements. The most significant change came in the 1997 edition which introduced for the first time a dedicated chapter on Emergency Ventilation Systems. Relatedly, the requirements for "vital train circuits, power circuits to emergency lights, and so forth" were effectively copied over to control and power circuits for emergency ventilation fans and devices.

In summary:

- The wire and cable requirements of NFPA 130 were largely unchanged from 1983 through 2000. These will be explored in greater depth in the following section.
- The first major change in requirement originated in the 2003 edition in reaction to the pending withdrawal of IEEE 383-1974.
- The inclusion of smoke production requirements accompanied the changes in 2003 as an accompaniment to the flame spread requirements – rather than in consideration of the original intent of the section.
- Expansions of applicability of the wire and cable were, as interpreted by the reviewer, incrementally done in 2003 and 2010 for enclosed trainways and enclosed stations to 'simplify' interpretation.

The following section will focus on the requirements for wire and cable as originally developed for the 1983 edition of NFPA 130 to illustrate the intent and by which proposed equivalencies ought to be interpreted.

Wire and Cable Requirements for Enclosed Transit Facilities

The requirements for wire and cable and wiring methods are largely encapsulated by four clauses from the 1983 edition of NFPA 130. These include:

> 2-4.1.1 Materials manufactured for use as conduits, raceways, ducts, boxes, cabinets, equipment enclosures and their surface finish materials shall be capable of being subjected to temperatures up to 932 °F (500 °C) for one hour, and shall not support combustion under the same temperature condition. Other materials when encased in concrete are acceptable.
>
> 2-4.1.4 Wire and cable constructions intended for use in operating vital train circuits and power circuits to emergency fans, lights, etc. shall pass the flame-propagating criteria of

> IEEE Standard 383 and have a minimum short circuit time of five minutes in the IEEE Standard 383 flame test protected in accordance with the requirements of the authority having jurisdiction.
>
> 2-4.1.5 All conductors, except radio antennas, shall be enclosed in their entirety in armor sheaths, conduits, or enclosed raceways, boxes, and cabinets. Except in ancillary areas or other nonpublic areas. Conductors in conduits or raceways shall be permitted to be embedded in concrete or run in protected electrical duct banks, but shall not be installed exposed or surface-mounted in air plenums that might carry air at the elevated temperatures accompanying fire emergency conditions.
>
> 2-4.1.8 Conductors for emergency lighting, communications, and so forth shall be protected from physical damage by transit vehicles or other normal transit system operations and from fires in the transit system by suitable embedment or encasement, or by routing such conductors external to the interior underground portions of the transit system facilities.

The four clauses above can be grouped: 2-4.1.1 with 2-4.1.5 and 2-4.1.4 with 2-4.1.8. The former two relate to wire installation while the latter two refer to circuit integrity or protection (from physical or thermal damage).

Taking first Clauses 2-4.1.4 and 2-4.1.8, the principle is the criticality and maintenance of the functioning circuit. This is obvious and evident of Clause 2-4.1.8 given the stated objective of the suitable embedment or encasement: protection from physical damage and from fires. However, interpreting Clause 2-4.1.4 in this way requires an understanding of the origins and intent of IEEE 383.

IEEE 383 Standard for Qualifying Class 1E Electric Cables and Field Splices for Nuclear Power Generating Stations was largely developed prior to but first published in partial response to the fire at the Brown's Ferry nuclear site. Class 1E cables and equipment are defined in IEEE 308 as:

> *The classification of the electric equipment and systems that are essential to emergency reactor shutdown, containment isolation, reactor core cooling, and containment and reactor heat removal or that are otherwise essential in preventing significant release of radioactive material to the environment.*

Class 1E systems and equipment provide power to systems directly responsible for safety. Qualification for Class 1E duty means that it must be demonstrated that the cables perform their function(s) under postulated design-basis events. These tests include:

- Industry standard tests
    - UL requirements
- Tests to qualify for normal operation
    - Long-term aging
        - Thermal
        - Radiation exposure
    - Mechanical impact

- Test to qualify for design basis events
    - Loss of coolant accident (LOCA) – specifically reaction to steam
    - High energy line break (high temperature or operating pressures)
    - Fire

The key output from the tests is the availability, for at least a finite duration, to continue operation in order to allow nuclear reactors to be secured safely in the event of a design basis event. As stated in IEEE 383, "(t)ype tests are used primarily to indicate that the cables…can perform under the conditions of a design basis event."

The criterion adopted by IEEE 383 for fire events was a flame spread distance. While it is not the intention to argue the relative merits or exposure conditions resulting from the IEEE 383 fire tests (the IEEE 383-1974 fire tests have been superseded by IEEE 1202 or NFPA 262), the key point to be extracted is the objective of the tests: limit the impact of the fire event and the potential for fire spread along the cabling. While the evaluation does not include a specific circuit integrity or function test, the NFPA 130 requirement called for a minimum short circuit time of five minutes which implied a functional performance (e.g., circuit integrity) requirement when exposed to the IEEE 383 design basis event fire source. It is acknowledged that the short circuit requirement was removed from the 1986 edition of NFPA 130 on the basis that is was "not a currently recognized test procedure" and was thus "vague and difficult to interpret." Nevertheless, the committee substantiation for the change noted an authority having jurisdiction could still utilize a short circuit test of their own definition – with respect to what and how a voltage should be applied and measured. The substantiation noted that NFPA 130 is a "minimum standard", implying that the requirement for a short circuit time was above that minimum. In essence, the committee shifted the burden of identifying a circuit integrity or survivability criteria from the standard to the user/authority having jurisdiction. However, in deleting the short circuit requirement the intent of the requirement shifted subtly from one of functional performance to one only of flame spread.

Therefore, it is proffered that the purpose of referencing IEEE 383 and in incorporating a short circuit requirement was to provide a degree of circuit integrity, analogous to a fire-resistance rated cable pursuant to UL 2196. This is underscored by the applicability of the requirement to "vital train signal circuits and power circuits to emergency fans, lights, etc." Further, the requirement does not necessarily relate to the potential flame spread or production of smoke, rather the application to life safety systems implies a reliability or robustness requirement. This is underscored by the fact that, per previous editions of NFPA 130, an unqualified cable or multiple unqualified cables could be installed directly adjacent to an IEEE 383 qualified cable (all installed in non-combustible conduit pursuant to clause 2-4.1.5. Hence, the requirement for IEEE 383 qualified cables for design basis event fires is not necessarily one specific to flame spread (or smoke production) but of function and performance. The adoption of the fire test of IEEE 383 by the NFPA 130 committee in the development of the original version of the standard for the wire and cable qualification was likely due to the perception that it was a high standard as part of the specification for 1E nuclear certification.

The issue of fire performance – flame spread or fire development and smoke production – was addressed in NFPA 130 through the installation requirements. Specifically, the enclosure of all conductors within "armor sheaths, conduits, or enclosed raceways, boxes, and cabinets". Taken together with the requirement that all such enclosures effectively be non-combustible, the fire performance of the overall cable installation can be taken as represented by the conduit or raceway fire performance requirements. The analog to the conduit requirements can be found in requirements of NFPA 70 for wiring methods in spaces used for environmental air which includes:

> *Type MI cable without an overall nonmetallic covering, Type MC cable without an overall nonmetallic covering, Type AC cable, or other factory-assembled multiconductor control or power cable that is specifically listed for use within an air-handling space, or listed prefabricated cable assemblies of metallic manufactured wiring systems without nonmetallic sheath. <u>Other types of cables, conductors, and raceways shall be permitted to be installed in electrical metallic tubing, flexible metallic tubing, intermediate metal conduit, rigid metal conduit without an overall nonmetallic covering, flexible metal conduit, or, where accessible, surface metal raceway or metal wireway with metal covers</u>.*

The importance of conduit and raceway material in addressing cable insulation fire growth and smoke production requirements is underscored by the permissible use of other materials when encased in concrete – which has been carried forward in the 2014 edition of NFPA 130 in Section 12.4.1. This allowance indicates that the combustion properties of conduit are effectively negated if encased in concrete.

Because of the original limited application of IEEE 383 to "vital" circuits (a key distinction that was lost in subsequent revisions of NFPA 130) and the strict requirements for wiring installation requirements within non-combustible conduit or raceway it can be reasonably asserted that neither flame spread nor smoke production requirements were necessary for conductors within enclosed stations or trainways. A flame spread test with a short circuit criterion were imposed for "vital" circuits to allow operation of the safety systems during a "design basis event" on the premise that those were representative of a conductor 'qualified' for a design basis (fire) event for use in nuclear facilities.

Public Input No. 57-NFPA 130-2020 [Section No. 12.3]

12.3 Temperature, Moisture, and Grounding Requirements.

12.3.1

Wires and cables except for Fiber Optic communications cables shall comply with both of the following temperature and moisture resistance characteristics:

(1) All insulations shall be a moisture- and heat-resistant type carrying a temperature rating of 90°C (194°F).

(2) All ~~insulated conductors~~ wires and cables shall be listed and marked for wet locations.

12.3.2

Ground wires shall comply with the following:

(1) Ground wires installed in a metallic raceway shall be insulated.

(2) In enclosed stations and trainways, other ground wires shall be permitted to be bare.

Statement of Problem and Substantiation for Public Input

This exception should apply only to fiber optic cables. Fiber optic cables cannot have 90°C ratings. Fiber optic cables do not have wet listings. The fiber cladding buffer materials around the glass fiber core is not considered an insulation and therefore fiber optics should not be covered in 12.3.1. Communication cables with copper conductors are capable of complying with 12.3.1.
An insulated conductor assume to be only a single conductor cable, 12.3.1 handles single and multi-conductor cables and wire is the appropriate term. The wire should be clearly marked for wet rating because of the installation in a tunnel which is a wet location.

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Submittal Date: Mon Jun 22 14:21:18 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-14-NFPA 130-2020

Statement: This exception should apply only to optical fiber cables as optical fiber cables cannot have 90°C rating and do not have wet listings. The fiber cladding buffer materials around the glass fiber core is not considered an insulation and therefore fiber optics should not be covered in 12.3.1. Communication cables with copper conductors are capable of complying with 12.3.1. An insulated conductor assume to be only a single conductor cable, 12.3.1 handles single and multi-conductor cables and wire is the appropriate term. The wire should be clearly marked for wet rating because tunnel is considered a wet location. “Optical fiber” was chosen to be consistent with NFPA 70.

Public Input No. 135-NFPA 130-2020 [Section No. 12.3.1]

12.3.1

~~Wires and cables except~~ Except for communications cables, wires and cables, including traction power cables, shall comply with both of the following temperature and moisture resistance characteristics:

(1) All insulations shall be a moisture- and heat-resistant type carrying a temperature rating of 90°C (194°F).

(2) All insulated conductors and cables shall be listed for wet locations.

Statement of Problem and Substantiation for Public Input

Refer to PI# 134 realated to consilidation funcition requirment for traction power for installation in wet locations and temperature requirements.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 134-NFPA 130-2020 [Sections 12.1.2, 12.1.3]	Remove traction power functioinal requirments to the existing 12.3

Submitter Information Verification

Submitter Full Name: Andrew Coles
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City:
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Submittal Date: Tue Jun 30 12:41:11 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: Traction power cables are already addressed elsewhere in the Standard (Sections 12.2 and 12.3). The proposed text retains the requirement that traction power cables be listed. The word “cables” was added to Section 12.1.2 for clarity.

Public Input No. 59-NFPA 130-2020 [Section No. 12.4.3]

12.4.3

Within the emergency ventilation air distribution system, the following wiring methods are acceptable:

(1) Type MI cable with or without an overall protected nonmetallic covering complying with 12.4.1 and 12.4.2

(2) Type MC cable employing a smooth or corrugated impervious metal sheath or MC cable with or without an overall nonmetallic covering complying with 12.4.1 and 12.4.2

(3) Conductors in electrical metallic tubing, flexible metallic tubing, intermediate metal conduit, or rigid metal conduit all without an overall nonmetallic covering

Statement of Problem and Substantiation for Public Input

The option for MI and MC cables should read the same with or without an overall jacket. Both MI and MC are impervious sheath and a jacket should be optional.

Submitter Information Verification

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Submittal Date: Mon Jun 22 15:14:02 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-15-NFPA 130-2020

Statement: MC cable could have a cover that is combustible. The requirements for MI and MC cables should be the same. Term "protected" was removed because the meaning was unclear as the nonmetallic covering is intended to be protective.

Public Input No. 145-NFPA 130-2020 [New Section after 12.4.4]

12.4.5 The circuits in Section 12.4.4(1) and (2) shall be protected for a period of not less than 1-hour when exposed to fire conditions corresponding to the time-temperature curve in ASTM E119.

12.4.6* Emergency power, emergency lighting, and emergency communications circuits shall be protected from physical damage

A.12.4.6 The intent is to provide physical protection of the circuits from incidental damage such as rodents or the scrubbing effects of the ventilation system

12.4.7* Branch circuits of emergency power, emergency lighting, and emergency communications circuits need not conform to 12.4.4 or 12.4.6.

A.12.4.7 Where connection of branch circuits to the main feeds are configured such that the loss of the device does not result in failure of the main feed then the branch circuit does not require protection. However, consideration of appropriate protection of the branch circuit connection to the main feed is necessary to prevent failure.

Statement of Problem and Substantiation for Public Input

The proposed changes in PI# 144 removes the reasons why the system is protected as this cluttered the requirement for the methods of protection. The proposed new sections are to re-introduce/clarify the performance criteria (duration and test regime) for those that are protected, the rational why emergency circuits require protection of physical damage, and that branch circuits if connected to a main distribution feed to not need to be protected if the design of the circuit and loss of the device permits the circuit to operate as intended.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 144-NFPA 130-2020 [Section No. 12.4.4]	
Public Input No. 139-NFPA 130-2020 [Section No. 12.2.1]	

Submitter Information Verification

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Submittal Date: Tue Jun 30 15:16:34 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: The fire damage and physical damage is separated and the issue of diversity are both addressed in section 12.4 with FR-16.

Public Input No. 125-NFPA 130-2020 [Section No. 12.4.4]

12.4.4

The emergency power, emergency lighting, and emergency communications circuits shall be protected from physical damage by system vehicles or other normal system operations and from fires in the system for at least 1 hour, but not less than the time of tenability, when exposed to fire conditions corresponding to the time-temperature curve in the ASTM E119 or UL 263 fire resistance test by any of the following:

(1) Circuits are embedded in concrete or protected by a fire barrier system in accordance with UL 1724. The cables or conductors shall maintain functionality at the temperature within the embedded conduit or fire barrier system.

(2) Circuits are routed outside the enclosed portion of the system.

(3) There is diversity in system routing (such as separate redundant circuits or multiple circuits separated by a fire barrier with a fire resistance rating so that a single fire or emergency event will not lead to a failure of the system).

(4) All circuits consist of listed fire-resistive cable systems with a fire resistance rating in accordance with Section 12.5.

Statement of Problem and Substantiation for Public Input

Reason: ASTM E119 and UL 263 are used to determine fire resistance ratings of different assemblies. These standards are referenced throughout NFPA standards and codes such as NFPA 101 and NFPA 5000 wherever fire resistance ratings are required.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 47-NFPA 130-2020 [Section No. 2.3.9]	
Public Input No. 122-NFPA 130-2020 [Section No. 8.4.1.15]	
Public Input No. 123-NFPA 130-2020 [Section No. 8.5.1.3]	
Public Input No. 126-NFPA 130-2020 [Section No. 12.5]	

Submitter Information Verification

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Submittal Date: Tue Jun 30 10:28:02 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-16-NFPA 130-2020

Statement: The existing 12.4.4. is split into two sections to separate the requirements for protection from physical damage and protection from fire. The existing list is further divided to separate requirements for tested protection measures as compared to traditional ways of protection such as concrete encasing. This clarifies that fire barriers need to be tested.

The provisions for redundant circuits and multiple circuits were separated to address and clarify the concept of diversity in system routing.

Annex notes were added to provide a reference for methods involving encasement in concrete and to clarify the intent of redundant circuits using a diagram.

The section on circuits routed outside the enclosed portion of the systems was considered to be an unnecessary requirement therefore removed.

Public Input No. 128-NFPA 130-2020 [Section No. 12.4.4]

12.4.4

The emergency power, emergency lighting, and emergency communications circuits shall be protected from physical damage by system vehicles or other normal system operations and from fires in the system for at least 1 hour, but not less than the time of tenability~~, when exposed to fire conditions corresponding~~ . One of the following methods shall be used to achive the 1 hour fire protection when tested to the time-temperature curve in the ASTM E119 ~~fire resistance test by any of the following~~ :

(1) * Circuits are embedded in concrete or protected by a fire barrier system in accordance with UL 1724. The cables or conductors shall maintain functionality at the temperature within the embedded conduit or fire barrier system~~.~~

(2) ~~Circuits are routed outside the enclosed portion of the system.~~

(3) There is diversity in system routing (such as separate redundant circuits or multiple circuits separated by a listed or cercertified fire barrier with a fire resistance rating so that a single fire or emergency event will not lead to a failure of the system).

(4) All circuits consist of listed fire-resistive cable systems with a fire resistance rating in accordance with Section 12.5.

Statement of Problem and Substantiation for Public Input

Change wording in 12.4.4 - The ASTM E119 time temperature curve is the test method and not the actual fire condition. This change separates the requirements from the test conditions.
Add an Annex note to 12.4.4 (1) - In 2018 the NFPA Research Foundation published a report "Fire Resistance of Concrete For Electrical Conductors". This would be very helpful information.
Delete 12.4.4 (2) - the requirements in 12.4.4 are for circuits that are run within the transit system i.e. the tunnel. How would you test a circuit to ASTM E119 if it is not exposed to the actual fire conditions.
Add a listing or certified requirement to 12.4.4 (3) - if a fire barrier or some other method is used to protect critical circuits it should be tested the same as a fire resistive cable and either have a certified report or be listed.

Submitter Information Verification

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Submittal Date: Tue Jun 30 10:59:22 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: The fire barrier does not need to be certified but rather tested in accordance with ASTM E119 or UL 263. Further changes made in FR-16

Public Input No. 144-NFPA 130-2020 [Section No. 12.4.4]

12.4.4

~~The~~ Except as permitted in 12.4.7, the emergency power, emergency lighting, and emergency communications circuits shall be protected ~~from physical damage~~ by ~~system vehicles or other normal system operations and from fires in the system for at least 1 hour, but not less than the time of tenability, when exposed to fire conditions corresponding to the time-temperature curve in the ASTM E119 fire resistance test by~~ any of the following:

(1) Circuits are embedded in concrete ~~or protected by a fire barrier system in accordance with UL 1724. The cables or conductors shall maintain functionality at the temperature within the embedded conduit or fire barrier system.~~ .

(2) Circuits are routed through service rooms that are fire-separated from the station or trainway

(3) Circuits are routed outside the enclosed portion of the system.

(4) ~~There is diversity in system routing (such as separate redundant circuits or multiple circuits separated by a fire barrier with a fire resistance rating so that a~~ *Circuit routing provides diversity such that a single fire or emergency event will not lead to a failure of the ~~system)~~ circuit .

(5) ~~All circuits~~ Circuits consist of listed fire-resistive cable systems with a fire resistance rating in accordance with Section 12.5.

A.12.4.4.(4) Diversity in this case refers to provisions such as separate redundant circuits or multiple circuits separated by a fire barrier

Statement of Problem and Substantiation for Public Input

Refer to PI# 139 for additional rational.
Changes to 12.4.4 are to provide focus on the method of protection and installation, not the reason why. The reason for the protection is broken out as new Subsections for fire duration and mechnanical protection. The rational for the reason why it is protected can be provided as an annex note.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 139-NFPA 130-2020 [Section No. 12.2.1]	Proposed changes to support 12.2.2 changes
Public Input No. 145-NFPA 130-2020 [New Section after 12.4.4]	

Submitter Information Verification

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Submittal Date: Tue Jun 30 15:02:18 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: Intent of diversity has been clarified in FR-16 in section 12.4 with the rewrite of the section, the proposed new parenthesis (2) is not necessary.

Public Input No. 126-NFPA 130-2020 [Section No. 12.5]

12.5 Fire-Resistive Cables.

12.5.1

Fire-resistive cables shall be certified or listed as having been tested to the normal (ASTM E119 or UL 263) time-temperature curve in accordance with ANSI/UL 2196.

12.5.2

The cables shall comply with the requirements for no less than a 1-hour fire resistance rating when tested in accordance with ~~ANSI/~~ UL 2196.

12.5.3*

The cables and systems shall comply with the following:

(1) Be tested as a complete system, in both the vertical and horizontal orientation, of conductors, cables, and raceways, as applicable

(2) For fire-resistive cables intended for installation in a raceway, be tested in the type of raceway in which they are intended to be installed

(3) Have installation instructions that describe the tested assembly, with only the components included in the tested assembly acceptable for installation

Statement of Problem and Substantiation for Public Input

ASTM E119 and UL 263 are used to determine fire resistance ratings of different assemblies. These standards are referenced throughout NFPA standards and codes such as NFPA 101 and NFPA 5000 wherever fire resistance ratings are required.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 47-NFPA 130-2020 [Section No. 2.3.9]	
Public Input No. 122-NFPA 130-2020 [Section No. 8.4.1.15]	
Public Input No. 123-NFPA 130-2020 [Section No. 8.5.1.3]	
Public Input No. 124-NFPA 130-2020 [Section No. 8.5.3.2]	
Public Input No. 125-NFPA 130-2020 [Section No. 12.4.4]	

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Submittal Date: Tue Jun 30 10:30:55 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: ANSI is removed and UL 263 added in FR17 as it is accepted as an equivalent to ASTM E119

Public Input No. 136-NFPA 130-2020 [Sections 12.5.1, 12.5.2, 12.5.3]

Sections 12.5.1, 12.5.2, 12.5.3

12.5.1

Fire-resistive cables shall be certified or listed as having been tested to the ~~normal (~~ ASTM E119 (or similar) ~~time-temperature curve in accordance with ANSI/UL 2196.~~

~~**12.5.2**~~

~~The cables shall comply with the requirements for~~ time-temperature curve for no less than a 1-hour ~~fire resistance rating when tested in~~ duration in accordance with ANSI/UL 2196.

12.5.~~3~~ 2 *

~~The~~ Fire resistive cables and systems shall comply with the following:

(1) Be tested as a complete system, in both the vertical and horizontal orientation, of conductors, cables, and raceways, as applicable

(2) ~~For fire~~ Fire -resistive cables intended for installation in a raceway, shall be tested in the type of raceway in which they are intended to be installed

(3) ~~Have~~ Shall include installation instructions that describe the tested assembly, with only the components included in the tested assembly acceptable for installation

Statement of Problem and Substantiation for Public Input

12.5.2 is a redundant requirement and is consolidated into one requirement in 12.5.1. The term "normal" in reference to ASTM E119 is removed as that time temperature curve used for building material fire resistive compliance; stating normal is not required unless abnormal conditions are stated elsewhere. Specification of ASTM E119 is redundant, but has been retained for continuity. Clarification that "similar" time temperature curves are permissible as ULC S101 or ISO 834 are similar curves to avoid compliance verification issues.
Clerical changes in the new 12.5.2 dot points provided

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Submittal Date: Tue Jun 30 12:45:22 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: The word “normal” is not necessary. “or similar” is not incorporated as this is already addressed by the equivalency section (1.4) of NFPA 130. Other editorial changes are addressed in FR-17

Public Input No. 56-NFPA 130-2020 [Section No. 12.5.3]

12.5.3*

The cables and systems shall comply with the following:

(1) Be tested as a complete system and described in UL FHIT or ULC FHIT 7 , in both the vertical and horizontal orientation, of conductors, cables, splices and raceways, as applicable

(2) For fire-resistive cables intended for installation in a raceway, be tested in the type of raceway in which they are intended to be installed

(3) Have installation instructions that describe the tested assembly, with only the components included in the tested assembly acceptable for installation

Statement of Problem and Substantiation for Public Input

UL FHIT and ULC FHIT7 describe in detail the installation details. Splices are always part of a tunnel lighting wiring and should be part of the details in NFPA 130. The splices are also detailed in UL FHIT and ULC FHIT 7.

Submitter Information Verification

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Submittal Date: Mon Jun 22 14:15:15 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: The word “splice” was added and references to UL FHIT and ULC FHIT7 were added in annex section as they were not appropriate to be mandated in the main body of the section.

Public Input No. 60-NFPA 130-2020 [Section No. 12.5.3]

12.5.3*

The Fire Resistive cables and systems shall comply with the following:

(1) Be tested as a complete system ~~, in both the vertical and horizontal orientation, of conductors, cables, and raceways, as applicable~~ as described in UL 2196 including a minimum 1-hour fire resistive splice.

(2) For fire-resistive cables intended for installation in a raceway, be tested in the type of raceway in which they are intended to be installed

(3) Have installation instructions that describe the tested assembly, with only the components included in the tested assembly acceptable for installation

Statement of Problem and Substantiation for Public Input

Emergency lighting circuits are required to be protected from a fire within the system therefore fire resistive splices are needed to meet this requirement.

Submitter Information Verification

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Submittal Date: Mon Jun 22 15:16:53 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: FR-17 Is created to address concerns regarding fire resistive cable system splices.

Public Input No. 104-NFPA 130-2020 [New Section after A.1.1.1]

TITLE OF NEW CONTENT

Type your content here ... A 9.3.15

Larger and faster fires could occur due to prohibited materials brought onto train, either accidentally or intentionally, or incorrect design fire size, or incorrect activation of systems by operators. Modern testing has demonstrated even modern trains can have fires greater than previously used for design fires. Tunnel operators and responders should be aware of this potential and plan to address this type of incident.

Passenger may not be aware of prohibitions on hazardous materials and may accidentally (or intentionally) bring material which can create fires larger and faster than system was designed for. For example a portable and easily available container of gasoline could induce a flashover i.e. faster than the planned fire growth rate, thereby severely limiting passenger ability to safely evacuate and causing ignition of carried on fire loads. For tunnels shared with freight trains, consideration may be made to limited shared use of tunnels where credible arson threats have been made against rail agencies. Note this section should not drive changes in system designs, but ensure rail agencies and responders are aware of the potential and plan for this occurrence.

Statement of Problem and Substantiation for Public Input

Emergency management planning may not be aware of the potential for fires to occur larger than the design fire. Unintentional or illegal acts could bring on materials, such as gasoline, which could result in a larger and faster growing fire. In addition, operator delay or failure to activate the systems might result in a larger fire than ventilation was designed to handle. This language alerts emergency planners to this possibility.

Submitter Information Verification

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Submittal Date: Mon Jun 29 23:52:03 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: The intent of proposed new item is already covered by existing text.

Public Input No. 166-NFPA 130-2020 [Section No. A.1.1.3(6)]

A.~~1~~ 3 .~~1.3(6)~~ 3.XX

A ~~shelter~~ stop ~~is a location along a fixed guideway transit or passenger rail system~~ refers to a place for the loading and unloading of passengers ~~that is located in a public way and is designed for unrestricted movement of passengers. A shelter stop can have a cover but~~ from a light rail vehicle that is either at or slightly raised above grade. A stop may include a sheltered area but is not fully enclosed and has no walls or barriers that would significantly restrict passenger movement to and from the loading and unloading area .

Statement of Problem and Substantiation for Public Input

Proposed revisions are necessary to address application of NFPA 130 to Passenger Rail and Light Rail Transit Systems. Existing requirements do not adequately address differences in those systems from typical rapid transit systems relative to fire-life safety hazards. Refer to related proposed revisions to 1.1.3, new definition for "stop", new annex language associated with the definition for "station", proposed new sections 5.6 and 5.7, and proposed new sections 6.6 and 6.7.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 164-NFPA 130-2020 [Section No. 1.1.3]	
Public Input No. 165-NFPA 130-2020 [New Section after 3.3]	
Public Input No. 167-NFPA 130-2020 [Section No. 3.3.57]	
Public Input No. 168-NFPA 130-2020 [Section No. 5.1.1]	
Public Input No. 169-NFPA 130-2020 [Section No. 6.1.1]	
Public Input No. 164-NFPA 130-2020 [Section No. 1.1.3]	
Public Input No. 165-NFPA 130-2020 [New Section after 3.3]	
Public Input No. 167-NFPA 130-2020 [Section No. 3.3.57]	
Public Input No. 168-NFPA 130-2020 [Section No. 5.1.1]	
Public Input No. 169-NFPA 130-2020 [Section No. 6.1.1]	

Submitter Information Verification

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Submittal Date: Tue Jun 30 18:10:35 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-71-NFPA 130-2020

Statement: This revision supports other revisions in Chapters 1, 3 and 5 to include requirements for Stops within the scope of the standard

Public Input No. 11-NFPA 130-2019 [Section No. A.5.2.1.4]

A.5.2.1.4

See A.6.3.5.9.

A.5.2.2.2.

Reference to NFPA 5000 Chapter 7 for height and area limitations shoud be used to confirm construction type.

Statement of Problem and Substantiation for Public Input

The inclusion of this appendix material refers to used to NFPA 5000 to confirm height and area. NFPA 220 does not contain this height and area table.

Submitter Information Verification

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Submittal Date: Thu Nov 07 11:41:36 EST 2019

Committee: FKT-AAA

Committee Statement

Resolution: The requirements of Section 5.2.2.2 are specifically intended to explain application of the requirements of other ‘codes’ regarding applicable construction type for various station configurations.

Public Input No. 54-NFPA 130-2020 [Section No. A.5.2.7.2]

~~A.5.2.7.2~~ —

~~Rubbish containers that are used in the station on a temporary basis (e.g., during cleaning operations) should be manufactured of noncombustible materials or of materials that comply with a peak heat release rate not exceeding 300 kW/m ^{2} (26.4 Btu/ft ^{2} ·sec) when tested in accordance with ASTM E1354 at an incident heat flux of 50 kW/m ^{2} (4.4 Btu/ft ^{2} ·sec), in the horizontal orientation.~~

Statement of Problem and Substantiation for Public Input

PI 53 converts this section into a requirements and thus this annex material becomes superfluous.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 53-NFPA 130-2020 [Section No. 5.2.7.2]	

Submitter Information Verification

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Submittal Date: Thu Jun 18 18:02:03 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: The section belongs to annex section and the committee does not see the benefit in making mandatory.

Public Input No. 146-NFPA 130-2020 [Section No. A.5.3.1]

A.5.3.1

Where codes other than NFPA *101* are in effect, reference to NFPA *101* can be used as an Alternative Method to the lawful prescriptions in the adoped building code. replaced by reference to relevant requirements in the locally applicable building code.

Statement of Problem and Substantiation for Public Input

Problem is: with this advice we advocate breaking sovereign law... for the not too veiled intent of advancing its... Change is inevitable. Changing some nation's sovereign building code to NFPA 5000 may be possible. But for a process that claims inclusion and consensus, then let us at the NFPA start the change from an honest basis. Begin with the law, move to equivalencies and Alternative Methods after recognizing the baseline. This is international standard of practice, and law.   Imagine how a designer in New York would feel if a crack team of London Tube exit engineers came over with their best practices manual, and in their design guide, they said that, local New York designer might consider substitituting their local Building Code prescriptions for LU best practices, if they felt the need. The author of the book "Nudge" received a Nobel for a reason. The default condition is important because so few "think" to take alternatives. The default, baseline condition should be proper and justified, in this case on political truth, we we can not rest upon the laws of Mother Nature and absolute truth.

Submitter Information Verification

Submitter Full Name: Scot Deal
Organization: Excelsior Fire Engineering
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 30 15:31:40 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: As explained in the “Important Notices and Disclaimers” text at front of document, NFPA 130 standards are not intended to supersede local codes. Any such proposal would be subject to the ‘equivalency’ provisions in the applicable code documents, but the use of such an approach can’t be mandated in NFPA 130.

Public Input No. 143-NFPA 130-2020 [Section No. A.5.3.2.5]

A.5.3.2.5

The determination of maximum occupant load at a platform often requires comparison of calculations based on different peak periods. For example, to determine the maximum peak period platform occupant load for stations serving predominantly commuter ridership, the calculations described in 5.3.2.5(1) through 5.3.2.5(7) can be computed based on both the a.m. and the p.m. peak ridership for each platform and then compared to determine the maximum platform occupant load.

The designers and Employers do few a favor when value engineering exit capacity after sinking billions into Metro systems. Designers can use clairevoyance to downsize occupancy and/or exit capacity based on ridership predictions 15 years into the future, or they can apply the logic of: 1) 'if we build it they will come', 2). urban populations are growing, 3). design need consider the increasing embrace sustainable transportation holds for all generations, 4). increasing costs of private transportation, and 5). increasing population. Thus ridership has a clear bias for increase with aging stations. While the locally adopted Building Code may not apply to deep underground stations, the locally adopted Building Code legally works in tandem with NFPA 130 on egress design of shallow, at-grade and elevated stations . The Building Codes literally have millions of building-years of proven performance with their occupancy load tables. The Building Code wisdom bases occupancy on floor capacity, not punditry of passenger density twenty years into the future. A conscientious Employer will design egress capacity based on what many cities find to be an eventuality, fully occupied, even crush-capacity platforms. This platform occupancy load is in place, when loaded train arrives.

Additional Proposed Changes

File Name	Description	Approved
toronto_subway_2015.jpg	platform occupacy is a judgment every responsible stakeholder should weigh in on	

Statement of Problem and Substantiation for Public Input

problem is pound-wise, penny foolish. We build Metro systems worth tens of billions of euros in 2020, and waste substantial fraction of these sunk costs by value engineering exit capacity to save millions. Millions of euros is a lot of money, and worthy of directing towards causes of merit. But in building safety, exit capacity is a top tier merit. Cut costs on a 2nd standpipe along a fixed-guideway. Cut costs on excessive fire pumps. Cut costs on 3-hour fire separations between rooms of the same occupancy. Cut costs on EXCESSIVE tunnel exit stair shafts But exit capacity on the platform is not an area to be looking to value engineer.

Submitter Information Verification

Submitter Full Name: Scot Deal
Organization: Excelsior Fire Engineering
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 30 14:54:00 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: The concepts suggested in the proposal are already addressed in existing A.5.3.2.1.

Toronto, 2015

Public Input No. 172-NFPA 130-2020 [Section No. A.5.3.2.5(3)]

A.5.3.2.5(3)

For purposes of calculating simultaneous occupant loads on center platforms, the intent of 5.3.2.5(3) is that the service disruption factor be applied only in the direction that results in the highest platform occupant load for the peak periods. For side platform stations, it is necessary to evaluate service disruption for both peak periods at each platform, but for simultaneous station evacuation, the principles for center platforms would apply. However, the potential for a service disruption in one direction to cause a service disruption in the other direction should also be considered

Terminus stations require consideration of train operational procedures that may allow for additional trains to be stored during off peak periods to service peak demands, or alternating train arrivals to the different platform edges, and the compounding of missed inbound trains affecting outbound service should be evaluated for its credibility if these scenarios can be mitigated .

It is important that the passenger load and headway capture the potential buildup of passengers that might occur before an emergency event is recognized as requiring evacuation but recognizing that assumptions which exceed the systems service capacity may be remote occurrences that require multiple compounding events which are not credible . The determination of the appropriate accumulation factor should reflect system-specific characteristics such as the following:

(1) The type of system (e.g., automated/driverless vs. manually driven)

(2) The amount and type of surveillance

(3) The distance between stations

(4) Train headways

For systems with longer headways, a factor of two headways might be adequate to approximate accumulation and response time. For systems with very short headways, a fixed time (e.g., 5 minutes to 10 minutes) might be more appropriate to approximate the potential passenger buildup.

Consideration should also be given to whether the entraining and train loads should be subject to the same accumulation factor.

(1) Service demand operational characteristics

Statement of Problem and Substantiation for Public Input

The proposed revisions are intended to provide futher guidance on the application of the emergency occupant load calcuation methodology for terminus stations and to raise awareness that system service capacity and operational measures require consideration in these specific circumstances. End of line stations (terminus) may/may not have unique circumstances that warrant a different approach to the platform occupant load calcualtions which are not addressed in the current language. The assumptions made should consider how the system is intended to operate and that the assumptions and results are not over inflating the occupant load, specifically for stations with low ridership.

Current language related to missed headways does not providing guidance on how the requirments should be applied and that providng ranges is to ambiguous for the end user. The proposal is to remove this language and to sate a minimum requirment, 2 x headway. If futher conservatism is required that is upon the user or operator. Alternatively, if this is to remain it is suggesed the annex language is more detailed and a rational as to why more than two headways should be considered is provided.

Submitter Information Verification

Submitter Full Name: Andrew Coles
Organization: Senez Consulting Ltd.
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 30 21:59:52 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-75-NFPA 130-2020

Statement: The proposed revisions to Annex A are intended to provide clarification on application of the emergency occupant load calculation methodology based on industry experience that suggests the current language does not provide sufficient guidance on how the requirements should be applied. Revisions to A.5.3.2.5 provide better background information regarding the basis of the methodology. Revisions to A.5.3.2.5 (2) and (4) provide guidance for: more effective application of that criteria and the development of associated performance-based variations; application to terminus stations; and awareness that system service capacity and operational measures require consideration in specific circumstances. Revisions to A.5.3.2.5(4) assist in understanding calculations for multi-line platforms.

Public Input No. 151-NFPA 130-2020 [Section No. A.5.3.3.7]

A.5.3.3.7

Where automated spreadsheet calculations or computer-based software programs are used, the egress analysis should include documentation detailing all input parameters and algorithm(s).

When requested by the plan reviewer, the designe should release the input files which memorialize the boundary conditions in a manner not as opaque as prose. In matters of life safety, there is almost no conceivable explanation (either legal or ethical) for withholding baseline assumptions contained within engineering assumptions cast as simulation boundary conditions with input files.

Statement of Problem and Substantiation for Public Input

One major design firm has withheld input files and the engineering assumptions contained therein, from review for three years. This is not life safety, this is business impudence. Obviously the design firm would share liability with whomever reviewed their engineering assumptions. Would could motivate such behavior? Does might make right or do we right a wrong with the consensus process of fairness. Everyone makes mistakes. This note serves not to point fingers of blame, but to put an independent set of eyes on material directly linked to life safety.

Submitter Information Verification

Submitter Full Name: Scot Deal
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City:
State:
Zip:

Submittal Date: Tue Jun 30 16:02:03 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: Demanding what is required in a peer review is beyond the scope of the standard.

Public Input No. 160-NFPA 130-2020 [Section No. A.5.4.4.1]

A.5.4.4.1

Escalators constructed of combustible stairs should be protected with an approved automatic sprinkler or fire suppression system installed in the truss area and designed to control or extinguish a fire. Sprinkler protection is not required in station areas used for public circulation and in trainways. Fire protection for public circulation areas is provided by limitations on the permitted type of construction and on permitted interior finishes and furnishings. Protection in the event of a train fire in an enclosed station is provided by requirements for an emergency ventilation system. Refer also to A.4.2.1 regarding the potential for reconsideration of these requirements where sprinkler protection in addition to that specified in 5.4.4.1 is provided.

Statement of Problem and Substantiation for Public Input

Proposed revisions are necessary to clarify the intended provision of sprinkler protection in stations relative to the fire hazard. Refer also to related proposed revisions to Section 5.4.4.1.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 161-NFPA 130-2020 [Section No. 3.3.37]	
Public Input No. 156-NFPA 130-2020 [Sections 5.4.4.1, 5.4.4.2]	
Public Input No. 156-NFPA 130-2020 [Sections 5.4.4.1, 5.4.4.2]	
Public Input No. 161-NFPA 130-2020 [Section No. 3.3.37]	

Submitter Information Verification

Submitter Full Name: Katherine Fagerlund
Organization: JENSEN HUGHES Consulting Canad
Street Address:
City:
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Zip:
Submittal Date: Tue Jun 30 16:59:25 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-22-NFPA 130-2020

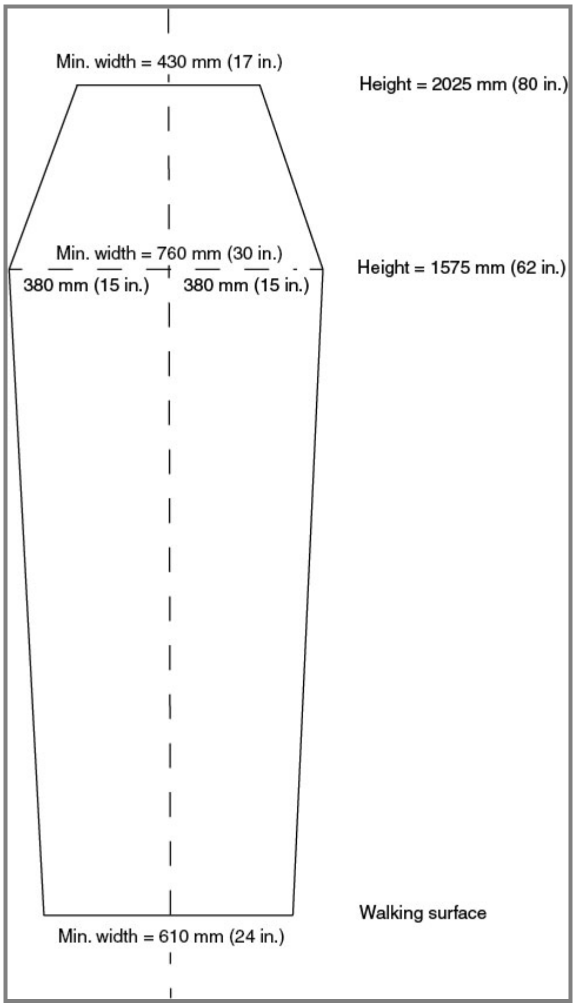
Statement: The revisions clarify the intended provision of sprinkler protection in stations relative to the fire hazard.

Public Input No. 27-NFPA 130-2019 [Section No. A.6.3.2.1]

A.6.3.2.1

Maintaining a clear space above the walking surface is important to ensure that projections do not encroach into the means of egress. The envelope created by the boundary limits defined by this paragraph is intended to change gradually and symmetrically from point to point. With respect to clearances to the vehicle, the measurements should be to the static vehicle envelope. *(See Figure A.6.3.2.1.)* *This dimension does not address accessible means of egress within the trainway. Should this be required by the applicable local codes, the width should be increased based upon a hazard analysis.*

Figure A.6.3.2.1 Unobstructed Clear Width for Trainway Walkway.



Statement of Problem and Substantiation for Public Input

This edit seeks to confirm that the dimension shown does not address accessible means of egress. Should this be required by the local applicable codes/ standards, the design should comply with the local standards.

Submitter Information Verification

Submitter Full Name: Daniel Ford
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Street Address:
City:
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Zip:
Submittal Date: Thu Nov 14 09:45:52 EST 2019
Committee: FKT-AAA

Committee Statement

Resolution: Walkways are designed for managed evacuations under the guidance of authorized trained system employees or other authorized personnel. See A.6.1.2.2.

Public Input No. 154-NFPA 130-2020 [Sections A.6.3.3.5, A.6.3.3.8]

Sections A.6.3.3.5, A.6.3.3.8

A.6.3.3.5

It is important that guards be configured so that they do not interfere with either the vehicle dynamic envelope or with egress from the train onto the walkway. For that reason, guards are not required on the trainway side of walkways, provided that the bottom of the trainway is closed by deck or grating so that persons could not fall through the bottom of the guideway.Small gaps in continuity of the guard--as may be required for expansion joints--may be considered acceptable provided the gaps do not exceeed the dimension that would be permitted for openings in guards by the locally applicable building code.

A.6.3.3. ~~8~~ **6**

Handrails along horizontal walkways are intended for guidance and support and should therefore be continuous to the exptent practicable, but gaps to facilitate access to emergency equipment and egress doors may be considered acceptable. It is important that handrails be configured so that they do not interfere with either the vehicle dynamic envelope or with egress from the train onto the walkway. For that reason, handrails are not required on the trainway side of walkways. Likewise, walkways located between trainways are not required to have handrails, provided they are a minimum width of 1120 mm (44 in.).

Statement of Problem and Substantiation for Public Input

Proposed revisions to annex language are to more adequately address intended application for conditions that are commonly found in transit system trainways. Refer also to related proposed revisions in Chapter 6.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 153-NFPA 130-2020 [Sections 6.3.3.5, 6.3.3.6, 6.3.3.7, 6.3.3.8, 6.3.3.9]	
Public Input No. 153-NFPA 130-2020 [Sections 6.3.3.5, 6.3.3.6, 6.3.3.7, 6.3.3.8, 6.3.3.9]	

Submitter Information Verification

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Submittal Date: Tue Jun 30 16:20:46 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-44-NFPA 130-2020

Statement: Revisions to A.6.3.3.5 and A.6.3.3.8 are to clarify application of guard and handrail requirements. Revisions to annex language are required to more adequately address intended application for conditions that are commonly found in transit system trainways.

Public Input No. 94-NFPA 130-2020 [Section No. A.8.4.1.14]

A.8.4.1.14

~~Only~~ A minimum of one specimen need be tested provided that the minimum fire endurance of the full vehicle can be determined . A proportional reduction can be made in the dimensions of the specimen, provided the specimen represents a true test of the ability of the structural flooring assembly to perform as a barrier against undervehicle fires.

Statement of Problem and Substantiation for Public Input

Rather then stating only one specimen need be tested, a statement should be added that a minimum of one specimen need be tested provided that the minimum fire endurance of the full vehicle can be determined.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 92-NFPA 130-2020 [Section No. 8.5.1.1.1.1]	

Submitter Information Verification

Submitter Full Name: Anil Kapahi
Organization: Jensen Hughes
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 29 16:50:25 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: There is no need to specify how many tests need to be conducted and the terminology of “fire endurance” is replaced with “fire resistance” amongst the NFPA documents. The related PI 92 was also resolved.

Public Input No. 73-NFPA 130-2020 [New Section after A.8.4.1.15]

A.8.4.1.16

The 2020 edition of NFPA 130 required adhesives and sealants tested to ASTM E162 or to ASTM E662 and intended for application on a generic combustible substrate to be tested on a dense hardboard. Subsequent investigation indicated that such hardboard produced copious amount of smoke and that the effect of the adhesive or sealant would not be able to be identified. This requirement was deleted for the 2023 edition.

Statement of Problem and Substantiation for Public Input

Explanation for the revised section 8.4.1.16.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 71-NFPA 130-2020 [Section No. 8.4.1.16]	

Submitter Information Verification

Submitter Full Name: Marcelo Hirschler
Organization: GBH International
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City:
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Zip:
Submittal Date: Fri Jun 26 15:12:15 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-59-NFPA 130-2020

Statement: It was shown that testing adhesives or sealants on wood was inappropriate as the smoke production from the board impacts the smoke production from the adhesives. Annex added to clarify the change from 2020 to 2023 Edition.

Public Input No. 100-NFPA 130-2020 [New Section after A.8.4.2]

A.8.5.1.3.1.2

Floor assemblies should be supported by the members carrying the primary loads away from the assembly to the vehicle wheel trucks. Many designs contain primary structural members that carry load across the longitudinal span between the wheel trucks. These members within the test assembly should serve as the primary support locations while tertiary structural members are left unsupported.

Statement of Problem and Substantiation for Public Input

Annex material to section 8.5.1.3.1.2

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 93-NFPA 130-2020 [Section No. 8.5.1.3.1.2]	

Submitter Information Verification

Submitter Full Name: Anil Kapahi
Organization: Jensen Hughes
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 29 18:00:39 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: The related PI-93 proposed language that wasn’t enforceable and was accordingly resolved. The existing text was retained as being simpler and more stringent. As a result the proposed annex note is not necessary due to the resolution of PI-93 .

Public Input No. 99-NFPA 130-2020 [New Section after A.8.4.2]

A.8.5.1.1.1.1

Many railcar designs contain longitudinally repetitious structure or localized structural details. As a result, the ability of the structural flooring assembly to perform as a barrier against undervehicle fires could potentially be tested using a small subset of the assembly. Such a subset can be tested if the fire endurance of the full vehicle can be determined from such a test. If such a subset cannot be identified, the exposed portion of the floor assembly need not exceed 3.7 m (12 ft) in the longitudinal direction. Structural elements of the vehicle not part of the floor assembly but contributing to the floor assembly strength, such as parts of the vehicle superstructure directly above the assembly, may be included in the test assembly.

Statement of Problem and Substantiation for Public Input

Annex material to section 8.5.1.1.1.1

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 92-NFPA 130-2020 [Section No. 8.5.1.1.1.1]	

Submitter Information Verification

Submitter Full Name: Anil Kapahi
Organization: Jensen Hughes
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City:
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Zip:
Submittal Date: Mon Jun 29 17:28:48 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: The recommended change from accompanying PI (PI-92) was not adopted. The requested change doesn't establish an appropriate minimum size requirement for the test specimen therefore the annex language is not necessary.

Public Input No. 65-NFPA 130-2020 [New Section after A.8.5.1.3.3(2)]

A.8.5.2.3

Design features may include an automatic fire detection system to control the vehicle ventilation and to activate an on-board suppression system

Statement of Problem and Substantiation for Public Input

The explanation is intended to help those that are not familiar with capabilities of automatic fire detection and on-board fire suppression systems

Submitter Information Verification

Submitter Full Name:	Jonathan Redding
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Street Address:	
City:	
State:	
Zip:	
Submittal Date:	Fri Jun 26 08:01:12 EDT 2020
Committee:	FKT-AAA

Committee Statement

Resolution: The standard is not a design guide, it’s a standard establishing minimum requirements, and the text is specific to one design feature.

Public Input No. 80-NFPA 130-2020 [Section No. A.8.6.7.1.3]

A.8.6.7.1.3

The electrical properties of data and communication cables should comply with requirements for category cable or local electrical requirements. Different system authorities specify data and communication cables that have specific electrical requirement other than voltage. Some examples of designations for cables potentially used in rail transportation vehicles include CAT 5, CAT 5E, CAT 6, CAT 6A, CAT 7, MVB, WTB, CANBUS, and RS-485. Flexible conductor is better in vibrations, torque and flexibilty than a solid conductor.

Statement of Problem and Substantiation for Public Input

CAT 6A is available and should be included in the annex.
Flexible conductors on communication cables shall be used on rolling stock because of vibrations, torque and flexing applications. AAR RP-585 covers flexible conductor for 600V and 2000V cables but not for communication cables.

Submitter Information Verification

Submitter Full Name: Gilad Shoshani
Organization: RSCC Wire & Cable
Street Address:
City:
State:
Zip:
Submittal Date: Sat Jun 27 17:37:23 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-68-NFPA 130-2020

Statement: The addition of Cat 6A cables is appropriate. The information about flexible conductors requires further justification.

Public Input No. 42-NFPA 130-2020 [New Section after A.12.5.3]

A.12.5 Fire-Resistive Cables

For clarification purposes, I recommend creating A12.5 as follows:

Fire resistive cables are intended for use to supply power to control panels, fans, dampers, etc during an emergency situation. However, within the damper scope of work, the dampers, actuators and position switches are rated to the max temperature of the ventilation equipment requirements (i.e. 250C for 1 hour). furthermore, it falls within the scope of the damper supplier to factory wire the actuators and position switches to a local junction box mounted on the damper for a single point connection for incoming electrical supply and monitoring wires. Within the damper boundary (between the junction box, actuators and position switches), a 2-hour fire rated cabling system is not required. However, a wriing system rated (or tested) to the same temperature requirements, or better, than the damper, actuator and position switches is required to meet.

Statement of Problem and Substantiation for Public Input

The problems is that many design engineers or municipalities are unsure if damper wiring should comply with the 2-hour fire rating. when discussing with NFPA, it sounds like the 2-hour fire rated cables were not intended to be included inside the damper boundary. This addition to the appendix A will help clarify that situation.

Submitter Information Verification

Submitter Full Name: William Lampkin

Organization: Greenheck Fan Corporation

Street Address:

City:

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Zip:

Submittal Date: Mon Mar 02 11:07:18 EST 2020

Committee: FKT-AAA

Committee Statement

Resolution: FR-17-NFPA 130-2020

Statement: Editorial clarifications. A reference to UL 263 has been added as it's deemed to be equivalent to ASTM E119. UL FHIT and ULC FHIT7 should not be in the body of the standard but have been added as an Annex note.

In the tunnel environment there are fewer areas to splice the fire resistive cable. Accordingly, the entire system should be tested including the splices.

Added section A.12.5 to clarify the fire resistance requirements for on-damper wiring between a local junction box, actuators, and position switches

Public Input No. 41-NFPA 130-2020 [Section No. B.3.5.1]

B.3.5.1

Air velocities in enclosed stations and trainways should be greater than or equal to 0.75 m/sec (150 fpm) ~~.~~ in the path of egress up to an Exit or Point of Safety

Statement of Problem and Substantiation for Public Input

This requirement could be applied to the non-incident tunnel which could be construed to already be a Point of Safety. Having this requirement imposes the need to having a minimum velocity in a location where it is not required. The additional words gives clarity that the minimum velocity requirement should only apply along the egress path.

Submitter Information Verification

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Street Address:	
City:	
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Zip:	
Submittal Date:	Thu Jan 30 13:45:07 EST 2020
Committee:	FKT-AAA

Committee Statement

Resolution: FR-54-NFPA 130-2020

Statement: Added clarity on minimum velocity that is applicable for egress paths

Public Input No. 66-NFPA 130-2020 [Section No. B.9.2.3]

B.9.2.3 Computational Fluid Dynamics.

Computational fluid dynamics modelling has been employed in some studies to estimate fire development. Computational analysis of fire development using material properties is complex, and the context of model parameter uncertainty and the limitations of the methodology that are employed should be fully understood and maintained within the evaluation of model results. The approaches that have been employed include a prescribed burning rate approach [13], [18], and [19], with model parameters for material burning characteristics derived from heat release testing with a cone calorimeter [35], and more advanced pyrolysis modelling approaches [20] and [21].

The ignition and potential fire development characteristics of modern transit materials have been further examined using a coupled CFD/pyrolysis model in conjunction with bench-scale and assembly-scale fire testing [20].

The following parameters are important considerations when conducting a CFD analysis of fire development:

(1) Initiating fire size and characteristics

(2) Fire characteristic of car interior materials

(3) Layout of the car interiors, including seating layouts, orientations, and dimensions

(4) Other fuel load, such as bags and luggage carried by passengers

(5) Overall thermal transmission value for vehicle body

(6) Openings and protectives, including windows and doors

(7) Oxygen levels

(8) Mechanical and natural ventilation interior and exterior to the vehicle

(9) On-board fire suppression system

Statement of Problem and Substantiation for Public Input

An on-board fire suppression system can have a significant effect on the fire development and is therefore an important parameter for the analysis

Submitter Information Verification

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City:
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Submittal Date: Fri Jun 26 08:05:50 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-53-NFPA 130-2020

Statement: Added new consideration recognizing the potential effects of on-board fire suppression systems.

Public Input No. 98-NFPA 130-2020 [New Section after B.9.2.4]

B.9.2.5 Reduced-Scale Vehicle Testing

An alternative to full-scale railcar testing is reduced-scale testing where the test conditions have been scaled according to scaling laws. Preliminary work on this was performed in Refs. [1-4] using Froude scaling laws; however, the heat release rate was not preserved across all scales. Recently, these scaling laws were modified based on conserving the burning rate per unit area of the material and the opening factor to conserve compartment fire dynamics behavior [5]. Results were shown to scale fire dynamics from full-scale to one-quarter scale [5].

References

[1] H. Ingason, "Model scale railcar fire tests," Fire Saf. J., vol. 42, no. 4, pp. 271–282, 2007.

[2] A. Lönnermark, J. Lindström, and Y. Z. Li, "Model-scale metro car fire tests," Fire Technol. SP Rep. 201133, p. 115, 2011.

[3] Y. Z. Li and H. Ingason, "Correlations between different scales of metro carriage fire tests," Fire Technol. SP Rep. 201313, p. 46, 2013.

[4] Y. Z. Li, H. Ingason, and A. Lönnermark, "Fire development in different scales of metro carriages," Fire Saf. Sci. Elev. Int. Symp., pp. 302–315, 2014.

[5] Yang, F., Hodges, J., Rippe, C., Kraft, S., and Lattimer, B., "Predicting Fully-Developed Railcar Fire Heat Release Rate," Final Report, Department of Transportation, Federal Railroad Administration, 2019.

Statement of Problem and Substantiation for Public Input

This section is being added to highlight that there is a more cost effective option to quantify the heat release rate of a railcar other than full-scale testing. This allows for the actual materials used in the railcar to be tested and is sufficiently small-scale that more than one test could be conducted to assess the impact of different parameters (e.g., incipient fire location, initial number of doors open, etc.) on the overall railcar heat release rate.

Submitter Information Verification

Submitter Full Name: Anil Kapahi
Organization: Jensen Hughes
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 29 17:26:23 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-55-NFPA 130-2020

Statement: Section was created to recognize an alternative approach for estimation of rail vehicle burning rates.

Public Input No. 171-NFPA 130-2020 [Section No. C.1]

C.1 ~~Station~~ **Occupant Load.**

The station platform dimensions are a function of the length of trains served and the train load. Thus the length of a platform at an outlying station might be equal to those of central business district transit stations where the train loads are significantly higher. Consequently, the platform and station occupant loads are a function of the train load and the simultaneous entraining load. This concept differs from that of NFPA *101*, in which the occupant load is determined by dividing the floor area by an occupant load factor assigned to that use. Applying the NFPA *101* approach to determine the station platform occupant load is inappropriate.

C.1.1 ~~Calculating Occupant Load~~ **Ridership .**

Projected ridership figures serve as the basis for determining transit system design. Per this standard, ~~the methodology used to determine~~ ridership ~~figures~~ must ~~also include~~ consider peak ridership figures for new transit systems and existing operating systems~~. Events~~ , as well as events at stations such as civic centers, sports complexes, and convention centers that establish occupant loads not included in normal passenger loads ~~must also be included~~ . These ridership figures serve as the basis for calculating train and entraining loads and the station occupant load. The methodology used for determining passenger ridership figures can vary by transit system. ~~The use of statistical methods for determining *calculated train loads* and *calculated entraining loads* will provide a more accurate indication of the required means of egress facilities within a station.~~

~~C.1.2~~

C.1.2 Train Operations and Maximum Train Load

Train headways will have a significant effect on the outcome of the occupant load calculations. For example, for the same ridership input, assumed train service of 20 trains per hour (3 minute headways) versus 30 trains per hour (2 minute headways) may increase the calculated platform occupant load by 50%.

The maximum train capacity acts as a "capping" factor when occupant load calculations consider link loads based on ridership. Care should be taken to use a realistic maximum train load that considers number of seats as well as standing capacity based on achievable pedestrian density (where standing is permitted).

C.1.3 Sample Occupant Load Calculations

The methodology described herein is intended only as examples of how to determine platform and station occupant loads for different station configurations. Inputs such assurge factors and service delays should be carefully considered for each system application, keeping in mind that small changes in those inputs can have a significant effect on the calculations results. Likewise,

C.1.3.1 Centre Platform

C.1.3.2 Side Platform

C.1.3.3 Multi-line Station

C.2 Calculating Egress Capacity and Evacuation Time

C.2.1 Calculating Evacuation Time.

The total evacuation time is the sum of the walking travel time for the longest egress route plus the waiting times at the various circulation elements. The trainway can be considered as an auxiliary egress from the station under certain fire scenarios.

The waiting time at each of the various circulation elements is calculated as follows:

(1) For the platform means of egress, by subtracting the walking travel time on the platform from the platform egress flow time

(2) For each of the remaining circulation elements, by subtracting the maximum of all previous element flow times

The symbols used in the sample calculations in this annex represent the walking times, flow times, and waiting times as follows:

T = total walking travel time for the longest egress route

T_p = walking travel time on the platform

T_X = walking travel time for the Xth segment of the egress route

F_p = platform egress flow time

F_{fb} = fare barrier flow time

F_c = concourse egress flow time

F_N = flow time for any additional circulation element

$W_p = F_p - T_p$ = waiting time at platform points of egress

$W_{fb} = F_{fb} - F_p$ = waiting time at fare barriers

$W_c = F_c - \max(F_p \text{ or } F_{fb})$ = waiting time at concourse points of egress

$W_N = F_N - \max(F_c, F_{fb}, \text{ or } F_p)$ = waiting time at any additional circulation element

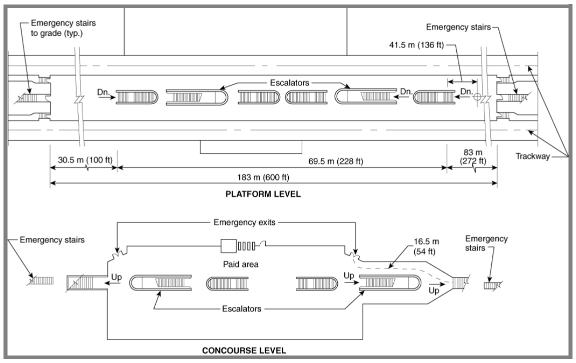
Note that the waiting time at any circulation element cannot be less than zero.

C. ~~1.3~~ **2.2 Sample Egress Capacity and Evacuation Time Calculations**

C.2.2.1 Center-Platform ~~Station Sample Calculation.~~ **Station**

The sample center-platform station is an elevated station with the platform above the concourse, which is at grade *(see Figure C.1.3)*. The platform is 183 m (600 ft) long to accommodate the train length. The vertical distance from the platform to the concourse is 9.1 m (30 ft).

Figure C.~~1~~ 2 ~~.3 Center~~ 2.1 Center -Platform Station.



The sample station has one paid area separated from the outside by a fare array containing four electronic fare gates and one 1220 mm (48 in.) handicapped/service gate. In addition, two 1830 mm (72 in.) wide emergency exits are provided. Six open wells communicate between the platform and the concourse. Each well contains one stair or one escalator. Station ancillary spaces are located at the concourse level.

Elevators (not shown in Figure C.1.3) are provided for use by handicapped persons or service personnel. Open emergency stairs are provided at each end of the platform and discharge directly to grade through grille doors with panic hardware.

Escalators are nominal 1220 mm (48 in.) wide. Stairs regularly used by patrons are 1830 mm (72 in.) wide, and emergency stairs are 1220 mm (48 in.) wide. Gates to emergency stairs are 1220 mm (48 in.) wide.

The station occupant load is 2314 persons.

Table C.1.3 lists the data for the egress analysis of the sample center-platform station.

Table C.1.3 Sample Calculations — Center-Platform Station

Egress Element	mm	in.	p/mm-min	pim	-	p/min	
Platform to concourse (downward)							
Stairs (4)	7320	288	0.0555	1.41	-	406	
Escalators (2*)	1220	48	0.0555	1.41	-	68	
Emergency stairs (2)	2440	96	0.0555	1.41	-	135	
Escalator test: 8.67% (Not > 50%)				-	-		609
-	-	-	-	-	-	-	
Through fare barriers							
Fare gates (4) (capacity = 50 per gate)					-	200	
Service gates (1)	1 gate	1 gate	60 p/gate/min	60 p/gate/min	-	60	
Emergency exit doors (2 × double doors)	3660	144	0.0819	2.08	-	300	
					- -	-	- - - 560
Fare barriers to safe area (fare barriers discharge to outside)							
Stairs	0	0	0.0555	1.41	-	0	
Escalators	0	0	0.0555	1.41	-	0	
Emergency stairs	0	0	0.0555	1.41	-	0	
Escalator test: 0.00% (Not > 50%)				-	-		0

Egress Element	mm	in.	p/mm-min	pim	-	p/min
Walking Time for Longest Egress Route	**m**	**ft**	**m/min**	**fpm**	-	**min**
Platform to safe area	-	-	-	-	- -	
On platform, T_1	41.5	136	37.7	124	-	1.09
Platform to concourse, T_2	9.1	30	14.6	48	-	0.62
On concourse, T_3	16.5	54	37.7	124	-	0.44
Concourse to grade, T_4	0	0	14.6	48	-	0
On grade to safe area, T_5	3.05	10	37.7	124	-	0.08
Total walking time, $T = T_1 + T_2 + T_3 + T_4 + T_5$				-	-	2.23

*One escalator discounted.

Test No. 1. Evacuate platform occupant load(s) from platform(s) in 4 minutes or less.

$$F_p \text{ (time to clear platform)} = \frac{\text{Platform occupant load}}{\text{Platform egress capacity}}$$

$$F_p = \frac{2314}{609} \quad \text{[C.1.3a]}$$

$$F_p = 3.80 \text{ minutes}$$

In Test No. 1, the time to clear the platform is found to be 3.80 minutes. This meets the requirement of 5.3.3.1.

Test No. 2. Evacuate platform occupant load from most remote point on platform to a point of safety in 6 minutes or less.

W_p (waiting time at platform points of egress) = $F_p - T_1$

$W_p = 3.80 - 1.09 = 2.71$ minutes

Concourse occupant load = Platform occupant load − (F_p × emergency stair capacity)

Concourse occupant load = 2314 − 513 = 1801 persons

W_{fb} (waiting time at fare barriers) = $F_f - F_p$

$$F_{fb} \text{ (fare barrier flow time)} = \frac{\text{Concourse occupant load}}{\text{Fare barrier egress capacity}} \quad \text{[C.1.3b]}$$

$$F_{fb} = \frac{1801}{560} = 3.22 \text{ minutes}$$

$W_c = F_{fb} - F_p$

$W_{fb} = 3.22 – 3.80 = 0.000$ minutes

W_c (waiting time at concourse points of egress) = [F_c − max (F_{fb} or F_p)]

$$F_c \text{ (concourse egress flow time)} = \frac{\text{Concourse occupant load}}{\text{Concourse egress capacity}} \quad \text{[C.1.3c]}$$

$$F_c = \frac{1801}{0} = 0.000 \text{ minutes}$$

$W_c = F_c - \max(F_{fb} \text{ or } F_p)$

W_c = 0.000 – 3.80 = 0.000 minutes

Total egress time = $T + W_p + W_{fb} + W_c$

Total egress time = 2.23 + 2.71 + 0.000 + 0.000

Total egress time = 4.94 minutes

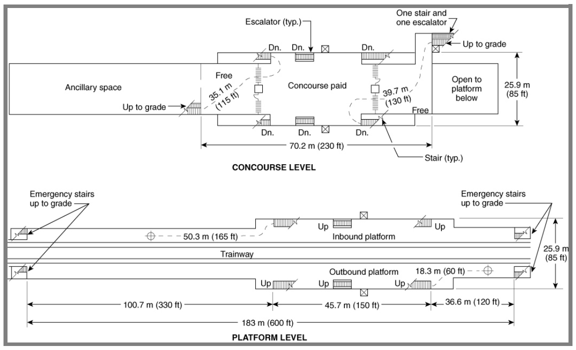
In Test No. 2, the time to reach a point outside any enclosing structure is found to be 4.94 minutes. This meets the requirement of 5.3.3.2.

If the concourse of this station is considered to meet the point of safety definition by the authority having jurisdiction, the calculation for Test No. 2 would be modified. The time to reach a point of safety would include the walking travel time from the remote point on the platform to the concourse only, plus the waiting time at the platform points of egress. The area of the concourse would have to be large enough to accommodate the concourse occupant load calculated in Test No. 2.

C.~~1~~ 2 .4 2.2 Side-Platform ~~Station Sample Calculation.~~ Station

The sample side-platform station is an enclosed station with a concourse above the platform level but below grade. *(See Figure C.1.4.)* The platform is 183 m (600 ft) long to accommodate the train length. The vertical distance from grade to concourse is 8 m (26 ft). The concourse is 5.5 m (18 ft) above the platform.

~~Figure C~~ Figure C .~~1.4 Side~~ 2.2.2 Side -Platform Station.



The sample station has two entrances normally used by patrons, each containing one escalator and one stair. The entrances are covered at grade level to a point 3.05 m (10 ft) beyond the top of the stairs.

The concourse is divided into two free areas and one paid area separated by fare arrays. Each fare array contains 12 fare gates of the turnstile type and one swinging service gate, 1220 mm (48 in.) wide, equipped with panic hardware for use by handicapped persons and service personnel.

Three open wells, containing two stairs and one escalator, communicate between each platform and the concourse.

Elevators are provided from grade level to concourse and from the concourse to each platform for use by handicapped persons and service personnel. Station ancillary spaces are located at concourse level.

Enclosed emergency stairs that discharge directly to grade are provided at both ends of each platform. Escalators are nominal 1220 mm (48 in.) wide. Stairs regularly used by patrons are 1830 mm (72 in.) wide. Emergency stairs are 1220 mm (48 in.) wide. Doors to emergency stairs are 1220 mm (48 in.) wide.

The station occupant load is 1600 persons, 228 on the outbound platform and 1372 on the inbound platform.

Table C.1.4 lists the data for the egress analysis of the sample side-platform station.

Table C.1.4 Sample Calculations — Side-Platform Station

Egress Element	mm	in.	p/mm-min	pim	p/min	
Inbound platform to concourse (upward)						
Stairs (2)	3660	144	0.0555	1.41	203	
Escalators (1*)	1220	48	0.0555	1.41	68	
Emergency stairs (2)	2440	96	0.0555	1.41	135	
					- -	- - - 406
Walking Time for Longest Egress Route	**m**	**ft**	**m/min**	**fpm**	**min**	
Inbound platform						
On platform, T_1	50.3	165	37.7	124	1.33	
Platform to concourse, T_2	5.5	18	14.6	48	0.38	
On concourse, T_3	35.1	115	37.7	124	0.94	
Concourse to grade, T_4	7.9	26	14.6	48	0.54	

Egress Element	mm	in.	p/mm-min	pim	p/min		
On grade to safe area, T_5	3.05	10	37.7	124	0.08		
Total walking time, $T = T_1 + T_2 + T_3 + T_4 + T_5$				–		3.26	
Element	**mm**	**in.**	**p/mm-min**	**pim**	**p/min**		
Outbound platform to concourse (upward)							
Stairs (2)	3660	144	0.0555	1.41	203		
Escalators (1*)	1220	48	0.0555	1.41	68		
Emergency stairs (2)	2440	96	0.0555	1.41	135		
					–	–	– – – 406
Walking Time for Longest Egress Route	**m**	**ft**	**m/min**	**fpm**	**min**		
Outbound platform							
On platform, T_1	18.2	60	37.7	124	0.49		
Platform to concourse, T_2	5.5	18	14.6	48	0.38		
On concourse, T_3	39.6	130	37.7	124	1.05		
Concourse to grade, T_4	7.9	26	14.6	48	0.54		
On grade to safe area, T_5	3.05	10	37.7	124	0.08		
Total walking time, $T = T_1 + T_2 + T_3 + T_4 + T_5$				–		2.54	
–	–	–	–	–	–		
–	–	–	–	–	–		
Concourse:	–	–	–	–	–		
Throughfare barriers							
Turnstiles (12) capacity = 25 p/min				–		300	
Service gate (1)	1 gate	1 gate	60 p/gate/min	60 p/gate/min	60		
					–	–	– – – 360
Fare barriers to safe areas							
Stairs (2)	3660	72	0.0555	1.41	204		
Escalator (2*)	1220	48	0.0555	1.41	68		
					–	–	– – – 272

*One escalator discounted *(See 5.3.6.)*

The egress capacity from platform to concourse meets the criteria of 5.3.3.1 in Test No. 1, where the time to clear the platform is found to be 3.38 minutes for the inbound platform and 0.56 minute for the outbound platform.

In Test No. 2, the total egress time (i.e., the maximum egress time for the two paths examined) is found to be 5.85 minutes. This meets the criteria of 5.3.3.2.

Evacuate platform occupant load(s) from platform(s) in 4 minutes or less.

Inbound platform:

$$F_{p-i}\left(\text{time to clear platform}\right) = \frac{\text{Platform occupant load}}{\text{Platform egress capacity}}$$

$$F_{p-i} = \frac{1372}{406} \quad \textbf{[C.1.4a]}$$

$$F_{p-i} = 3.38 \text{ minutes}$$

Outbound platform:

$$F_{p-o}\left(\text{time to clear platform}\right) = \frac{\text{Platform occupant load}}{\text{Platform egress capacity}}$$

$$F_{p-o} = \frac{228}{406} \quad \textbf{[C.1.4b]}$$

$$F_{p-o} = 0.56 \text{ minutes}$$

F_p for inbound and outbound occupant loads satisfies the criterion of 4 minutes.

Test No. 2. Evacuate platform occupant load from most remote point on platform to a point of safety in 6 minutes or less.

Inbound platform:

W_{p-i} (waiting time at platform egress elements) = $F_{p-i} - T1_{p-i}$

W_{p-i} = 3.38 − 1.33 = 2.05 minutes

Concourse occupant load = Platform occupant load - (F_{p-i} × emergency stair capacity)

Concourse occupant load = 1372 − 456 = 916 persons

Outbound platform:

W_{p-o} (waiting time at platform egress elements) = $F_{p-o} - T1_{p-o}$

W_{p-o} = 0.56 − 0.49 = 0.07 minute

Concourse occupant load = Platform occupant load − (F_{p-o} × emergency stair capacity)

Concourse occupant load = 228 − 76 = 152 persons

Total concourse occupant load = Concourse load (inbound) + Concourse load (outbound)

Total concourse occupant load = 916 – 152 = 1068 persons

Concourse:

W_{fb} (waiting time at fare barriers)

$$F_{fb} = \frac{\text{Concourse occupant load}}{\text{Fare barrier egress capacity}}$$

$$F_{fb} = \frac{1065}{360} \quad \textbf{[C.1.4c]}$$

F_{fb} = 2.96 minutes

$W_{fb} = F_{fb}$ − max (F_{p-i} or F_{p-o})

W_{fb} = 2.96 − 3.38 = 0.00 minutes

W_c (waiting time at concourse egress elements)

$$F_c\,(\text{concourse flow time}) = \frac{\text{Concourse occupant load}}{\text{Concourse egress capacity}}$$

$$F_c = \frac{1065}{272}$$

[C.1.4d]

F_c = 3.92 minutes

$W_c = F_c - \max(F_{fb} \text{ or } F_{p-i} \text{ or } F_{p-o})$

W_c = 3.92 − 3.38 = 0.54 minutes

$$F_c = (\text{concourse flow time}) = \frac{\text{Concourse occupant load}}{\text{Concourse egress capacity}}$$

$$F_c = \frac{533}{156}$$

[C.1.4e]

Total egress time = max $(T_{p-i} + W_{p-i} + \text{or } T_{p-o} + W_{p-o}) + W_{fb} + W_c$

Total = 3.26 + 2.05 + 0.00 + 0.54

Total = 5.85 minutes

C. ~~1.5~~ 2.2.3 Multilevel-Platform Stations.

The procedures for calculating egress times for multilevel platform stations are similar to the sample calculations in C.1.3 and C.1.4. The changes in the egress calculations are for multilevel-platform stations primarily a function of the concurrent occupant load determinations for the two platform levels.

The step-by-step procedure relating to the occupant load calculations generally is recommended as follows:

(1) Calculate the occupant load for each platform level as in the appropriate examples in C.1.3 and C.1.4 for the same assumed time(s) of day. Refer also to 5.3.2.3(2) and A.5.3.2.3(2).

(2) In a multilevel enclosed station, if the fire is on a platform that has routes that egress via another platform, an assumption can be made as to the percentage of occupants who might be expected to evacuate the lower level through the normal egress routes versus the percentage who might be expected to egress via emergency exit stairs. These assumptions will be unique for each system as a function of various parameters, including physical configuration of stations, means of egress, and location of emergency exits; communications facilities to advise passengers, both verbal and signing; level of transit personnel working in stations; and transit personnel emergency procedure responsibilities established for the transit operating authority.

(3) The upper-level occupant load is increased by the people evacuating from the lower level through the normal egress routes in accordance with C.1.5(2).

(4) For a fire on the lower level, appropriate assumptions relative to the distribution of the occupant loads to the available means of egress are calculated in a fashion similar to the procedures described above.

The remainder of the egress calculations essentially are unchanged from the other sample calculations in C.1.3 and C.1.4.

Statement of Problem and Substantiation for Public Input

NFPA 130 contains sample calculations for egress capacity and evacuation time, but not for occupant load. Given that the intent of NFPA 130 with respect to platform and station occupant load calculations is often misapplied, it is proposed that sample occupant load calculations be added to Appendix C.

The current proposal is intended as a place-holder and should be expanded to include the actual calculations. Additionally, Annex A should be reviewed and revised to eliminate explanatory text that is better addressed in Appendix C, in favour of cross-reference.

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Submittal Date: Tue Jun 30 20:16:34 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-73-NFPA 130-2020

Statement: NFPA 130 contains guidance and sample calculations for egress capacity and evacuation time, but not for occupant load. Given that the intent of NFPA 130 with respect to platform and station occupant load calculations is often misapplied, this revision expands the information in Annex C related to factors that influence occupant load calculations and adds sample calculations for example purposes.

Public Input No. 158-NFPA 130-2020 [New Section after C.1.5]

TITLE OF NEW CONTENT

Tenability simulation need present sentivity analyses with respect to fire size.

Statement of Problem and Substantiation for Public Input

Sensitivity analyses with respect to grid size is cute, but cliché ...sentivity analyses on the most influential independent variable (other than occupant load and the virtually immutalbe station geometry) cuts to the core. It is unimaginable that a fire-life safety engineer can be paid salary, without a sensitivity analyses on life subject to one of the most uncertain and most influential variables: the fire

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Submittal Date: Tue Jun 30 16:51:19 EDT 2020

Committee: FKT-AAA

Committee Statement

Resolution: The proposal does not provide sufficient information for development as a new revision to the standard.

Public Input No. 70-NFPA 130-2020 [New Section after E.3.4]

Automatic fire detection and on-board fire suppression

1. General

The purpose of this annex is to provide information about beneficial effects of automatic fire detection and on-board fire suppression systems in rail vehicles on fire life safety as well as on the holistic design of rail systems.

2. Automatic fire detection

2.1

The early detection of a fire on a rail vehicle is key to the effectiveness of mitigation measures intended to reduce the impact of the fire incident on fire life safety. A fire detection system can automatically detect a fire and communicate the information to initiate and facilitate emergency operational procedures.

2.2

A detection system can be used, not only to communicate the fire detection to personnel, but also to initiate other measures directly such as; turning on CCTV cameras in the affected areas for personnel to view the situation; controlling the vehicle ventilation system to stop smoke from spreading; automatically closing fire barrier doors; providing PA messages; cutting power to equipment enclosures where fire has been detected; activating an on-board fire suppression system.

2.3

The presence of an automatic fire detection system should be considered during the fire hazard analysis.

2.4

The performance of a smoke detection system on a rail vehicle is affected by vehicle parameters, in particular the vehicle heating, cooling and ventilation system. CFD modeling of the vehicle interior and air flows can aid the design of the smoke detection system. Smoke tests on the vehicle are used for design and verification of the detection performance.

3. On-board fire suppression

3.1 Design objective

The goal of an on-board fire suppression system is to slow or stop the fire growth rate or otherwise mitigate the impact of fire and in passenger areas to improve tenability for vehicle occupants during a fire condition until the vehicle is able to come to a safe stopping place where the occupants can egress the vehicle.

3.2

In compact enclosed areas such as diesel engine compartments, electrical cabinets and other equipment enclosures the systems are designed to extinguish the fire.

3.3

For passenger and crew areas a suppression system should be water mist based, intended to sharply reduce the heat release rate of a fire and prevent its growth.

3.4 Tenable environment

The tenability of the environment within a rail vehicle immediately after a fire has started until the vehicle is able to come to a safe stopping place where the occupants can egress the vehicle can be significantly improved with an on-board fire suppression system. Such systems typically improve thermal conditions in proximity to the fire, reduce the rate of smoke generation and its rate of spreading to other areas as well as keeping carbon monoxide levels well below critical levels.

3.5

The ability to suppress a fire on a rail vehicle at the fire´s incipient stage is essential to reduce the fire growth and control the fire. If approved by the AHJ, the design fire scenario can be reduced as well as the peak heat release rate.

3.6 Design impact on other systems

The use of an on-board fire suppression system may:

- Limit damage to the train, tunnel and the station which it has entered;
- Reduce or eliminate potential use of station sprinklers;
- Significantly reduce the impact of designing for fire emergencies on station architecture;
- Reduce tunnel ventilation capacity requirements
- Reduce the number and/or diameter of emergency ventilation fans required
- Decrease tunnel ventilation shaft and portal areas required
- Reduce the weight of vehicles by eliminating fire barrier doors
- Allow for improved vehicle design with open gangways

Statement of Problem and Substantiation for Public Input

On-board fire suppression system was previously included as annex G to NFPA 130 since the 2014 edition. In the 2020 revision it was intended to merge annex G with annex B. This however resulted in the entirety of annex G being omitted from annex B. The proposed text is based on the original text of the former annex G and now includes fire detection. Both fire detection and fire suppression can provide significant improvement on the fire life safety of rail and transit systems. These systems are already mentioned within the NFPA130 and this annex intends to provide information on aspects of these systems those that are not familiar with them on rail vehicles.

This proposal is the third of 3 alternative proposals:
1 Create a new annex with the proposed text
2 Restore the previous text from annex G from NFPA 130 2014 and 2017 in its entirety to a new annex
3 Add the proposed new text to Annex E Fire Hazard Analysis Process for Vehicle Assessment and Evaluation

For information the following is the original text from Annex G NFPA 130 2014 and 2017:

On-board fire suppression systems (e.g., mist systems), while relatively new in the passenger rail and rail transit fixed guideway industry have been successfully used on a number of passenger rail and diesel powered light rail systems outside of the United States. The applications for this type of system can range from protection of diesel engine compartments to the interior of passenger rail vehicles. The use of a fire suppression system may: save lives in the incident vehicle during a fire condition; minimize damage to the train, tunnel and the station which it has entered; reduce or eliminate potential use of station sprinklers; reduce or eliminate the need for downstands; significantly reduce the impact of designing for fire emergencies on station architecture; reduce tunnel ventilation capacities by approximately 40%; may reduce the number and/or diameter of emergency ventilation fans at each end of each station and within the tunnels, thus reducing structure sizes; decrease shaft airflow cross section areas by approximately 40%; and decrease tunnel ventilation shaft portal areas that correspond to the required fans sizes/velocities. When considering the addition of a fire suppression system, several design challenges should be met by the rail vehicle manufacturer. These challenges include: the type of extinguishing medium used; which all must be approved by the AHJ the size and number of medium canisters and where on the vehicle to place them for easy access for maintenance; the resultant increased energy consumption caused by the increase in weight of the suppression system; the maintenance intervals; the cost of the system; the testing and commissioning of the system; and the cost and difficulties associated with retrofitting vehicle

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 67-NFPA 130-2020 [New Section after G.3]	Alternative
Public Input No. 69-NFPA 130-2020 [New Section after G.3]	Alternative
Public Input No. 67-NFPA 130-2020 [New Section after G.3]	
Public Input No. 69-NFPA 130-2020 [New Section after G.3]	

Submitter Information Verification

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Submittal Date: Fri Jun 26 08:39:39 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: New annex was added to address on board fire protection systems for vehicles.

Public Input No. 75-NFPA 130-2020 [Chapter G]

Annex G – Informational References

G.1 – Referenced Publications.

The documents or portions thereof listed in this annex are referenced within the informational sections of this standard and are not

(this is a proposed new annex Current Annex G would become Annex H so is shown deleted here under Annex G)

Annex "G" – RECOMMENDED METHODS OF ENSURING COOPERATION BETWEEN RAIL AGENCIES (RA) AND THE AUTHORITY HAVING JURISDICTION (AHJ)

This annex is not a part of the requirements of this

document unless also listed in Chapter 2 for other reasons.

G.1.1 – NFPA Publications.

National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 72®, *National Fire Alarm and Signaling Code*®, 2019 edition.

NFPA 92, *Standard for Smoke Control Systems*, 2018 edition.

NFPA *101*®, *Life Safety Code*®, 2018 edition.

NFPA 472, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, 2018 edition.

NFPA 1006, *Standard for Technical Rescue Personnel Professional Qualifications*, 2017 edition.

NFPA 1670, *Standard on Operations and Training for Technical Search and Rescue Incidents*, 2017 edition.

NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, 2020 edition.

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ASTM E1354, *Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter* , 2017.

ASTM E1537, *Standard Test Method for Fire Testing of Upholstered Furniture* , 2016.

ASTM E1590, *Standard Test Method for Fire Testing of Mattresses* , 2017.

ASTM E2061, *Standard Guide for Fire Hazard Assessment of Rail Transportation Vehicles* , 2018.

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This new annex expands A .3.2.2 Authority Having Jurisdiction (AHJ)

1. INTRODUCTION

This annex suggests recommendations which have been successfully used to to promote cooperation between Fixed Guideway Transit and Passenger Rail Systems- Operator/Owners (known as Rail Agencies (RA)) and those Authority(ies) Having Jurisdiction (AHJ) that have been given the responsibility of ensuring that codes and/or standards are clearly and properly interpreted and enforced.

Many railroad properties pass through multiple city and state jurisdictions; all of which may establish fire and life safety guidance, interpretation's, and enforcement for their local jurisdictions. Given the range of AHJs and their different regulations as well as their conformance to different versions of the same regulations, conflicts will undoubtedly occur in language, interpretations and enforcement. Generally, where direct conflicts exist as they might with federal regulations, these typically supersede state or local regulations including this standard. Where a higher-level authority (i.e. federal government vs. state and local government) exists but where those regulations are silent on regulatory language on the subject matter in question, it becomes acceptable to utilize applicable language of a lower-level authority that exists.

To minimize delays and costs, RA's and AHJ's should come to an agreement to apply each jurisdiction's versions of a code and/or standard through an executed Memorandum of Understanding (MOU) between associated parties. An MOU is intended to document which codes, and interpretations of codes and standards are to be applied to a specific property and project. The development of this form of joint understanding agreement (MOU) between RA's and AHJ's should be initiated as soon as a project is formulated by the RA so as not to lose time and to move the projects design along expeditiously. Wherever possible an the MOU should be used for every AHJ to minimize changes to the RA.

Although, this standard (NFPA 130) is often written for new railroad properties it is can easily be adapted to modifications and/or additions to existing railroad properties. When new properties are added which pass through multiple jurisdictions, often the regulations between the existing and new jurisdictions will require a thorough review of applicability and acted upon accordingly. NFPA standards, such as this one, have limited legal authority unless it has been otherwise adopted by an enforcement agency, such as state and/or by city legislation. In states, counties, and cities a building or a fire code are often adapted and adopted from International Codes Council by legislation as minimum requirements. In almost all cases, the legislation establishes the AHJ as the entity set to enforce the code and possibly a standard. Most commonly the AHJ achieves its authority by a City, County, State or Federal Authority legislation. Where this standard has not been adopted in total but in part, the standard is generally recognized as a 'best practice or a minimum standard guideline' document which has legal merit.

2. REGULATION CHALLENGES

What is most beneficial to any project is to establish a "Fire and Life Safety Committee (FLSC)", whose members include, but are not limited to RA's, AHJ's and emergency response officials from the communities served. The FLSC will then agree on the following policies: that all members agree on applicable regulations, the regulation version (adopted or not); identify minimum requirements, provide a process for resolution of conflicts to fire and life safety regulations; identify and resolve gaps in regulations. While at the same time, ensuring all responsible agencies are properly represented that all agreed to regulations are included in SOP's; provide consistent regulations for designers and engineers, and finally to escalate conflicts to policy makers for any issues that cannot be resolved within the FLSC realm.

2.1 Fire and Life Safety Committee (FLSC):

The FLSC committee's membership of all affected agencies will help assure that fire/life safety requirements are accounted for in the design, construction, and final operation (revenue service) of the Project/Program. However, due to the sensitive nature and content of the information and decisions that will be shared throughout the course of the Fire Life Safety process, it will be necessary that all members participating in the review of and making recommendations to a projects formulation shall sign a confidentiality agreement. The Fire/Life Safety Committee will be the reviewing committee for fire/life safety considerations in a projects' design and construction operations and shall assist in the development of the emergency preparedness plan, including a response and operational requirements program. Note the FLSC does not have authority over AHJ's but provides a forum to resolve conflicts through discussion.

2.2 Coordinating Multiple Agency Responses

The FLSC also provides a forum to integrate emergency response agencies activities. Often the Fire Department is the regulatory AHJ, therefore fire department participation is simplified as this often includes response for fire, medical, rescue emergencies. However, other emergency response agencies (law enforcement, ambulance, RA, utilities, etc.) should be included in all relevant discussions and decisions. This inclusion could be significant when rail properties extend through multiple law enforcement and utility agency jurisdictions.

2.3 FLSC Structure

2.3.1 The RA normally assigns their Chief Safety Officer as the FLSC committee 'chairperson' who invites all AHJ representatives and develops the FLSC structure. The chairperson has the responsibility for ensuring that the FLSC includes members from all associated fire and life safety agencies.

2.3.2 Where AHJs choose not to participate it is necessary for them to provide to the FLSC chairperson a officially signed document stating their non-participation in the project so that they cannot return at a later date to request changes to the project, unless they, again in writing, request re-instatement on the project. This should specify if they will apply their authority on a project. In another case, some AHJ's may choose to opt out of exerting their authority for small, relatively insignificant, or low impact projects, or may defer to another AHJ.

2.3.3 The FLSC is normally comprised of AHJ's, state safety oversight's (SSO), first responder organizations and recognized international enforcement bodies as many may reference this standard as it is adopted rule. There may also be in some cases that a rail agency becomes its own Authority Having Jurisdiction. It is imperative in this case that they follow local codes and standards as a way of ensuring compliance with state and local laws.

2.3.4 With the help of the FLSC chairperson along with the approval of the RA operator, group members shall prepare and issue a charter for the committee members that establishes its scope, establish clearly defined roles and responsibilities of its members establish methods for the conflict resolution processes, and membership status for its members (voting and no-voting). The FLSC must finally establish the governing rules for a quorum so that all member can vote on all issues.

2.3.5 Representatives that are assigned to the FLSC should attend throughout the project's duration. Should that not be possible, each representative member agency should, in the early stages of the project designate alternates. . Committee membership alternates should attend all meetings. Given distances between AHJ offices, tele-meetings may be most effective method of maintaining meeting dates and times.

2.3.7 Minutes of meetings and shared documents should be provided to all participating agencies. An RA managed secure internet site should be maintained with authorized access to committee members, alternates, and their supervisors. It is important to present preliminary designs of the project so that members can have a visual understanding of what the project entails, including but not limited to current and planned track and station alignments corresponding to jurisdictions crossed.

2.3.8 Once FLSC team members and their alternates have been set, establish a work plan and schedule for future meetings. For new properties and/or new AHJ representative participation to an existing FLSC, it will be necessary to explain the overall project scope, schedule, available RA resources, known AHJ regulations and fire and life safety systems/concerns should be provided.

2.3.9 For more complex RA properties with simultaneously occurring and potentially interfacing projects a sub committees to the FLSC would be advisable to address local project issues. Results from the local project FLSC should be addressed at the full FLSC to integrate the findings across all projects.

2.4 FLSC Resources

The FLSC should consider both internal and external resources, starting with this standard, other regulations, guidelines, other rail properties documents and publications to assist in resolving conflicts.

RA experts (designers), such as Fire Protection Engineers, Architects, Traction Power Specialists, Track Engineers, Mechanical Engineers, tunnel operators, etc. are essential resources to have attend specific meetings to provide technical advice to AHJs needed to inform AHJs and other RA members.

As the project progresses from initial planning through the various other stages of design and construction, the committee should meet with designers and contractors to formulate best methods for producing a safe and reliable rail station/tunnels, etc. On the train orientation meetings will usually be required.

FLSC Subcommittees or task groups should be considered for specific issues. They can investigate possible solutions, prepare materials and recommendations for the full FLSC.

Site visits by FLSC members should be arranged to provide a firsthand understanding of the challenges and discuss resolutions applied resulting from committee discussions and voting.

2.5 Conflicts

FLSC members should identify regulation conflicts at the earliest time in the projects' formulation as possible and forward them to the FLSC chairperson for dissemination to all members. Once identified, whether they be code conflict(s) (or gaps, i.e. where regulations do not provide clear guidance), the committee should identify a method to identify regulation intent and a documented process to resolve conflicts or provide agreed clarification. The resolution should be distributed to affected AHJs and included in design guide, if available.

2.6 Level of Compliance - The RA should assume that they will adopt the most stringent applicable language, or, adopt less stringent code/standards along with necessary supporting documentation as to why a less stringent code/standard was adopted in each case; Consulting legal advice is advisable prior to any adoption. *For example, if this standard has been adopted as the design and construction guideline, but does not address specific circumstances, c language should be considered to address requirements from other building and fire codes whichever is applicable.*

2.7 Lead Agency - As any number of railroad properties pass-through multiple jurisdictions, all with different representative values and regulations it may be advisable to to select one as the lead agency representing the project and, and based on the size and complexity of the project, it may be appropriate to establish lead jurisdictions for each critical section/element. *E.g. For a major tunnel that connected into New York, all Fire Departments involved opted to have New York City Fire Department as the lead because of its size and expertise; for State Safety Oversight (SSO), with both NY and NJ as the two states involved, NJ SSO became the lead.*

2.8 Design Guide or Technical Requirements - Are created to document operating facility requirements that will be addressed while developing the design of a specific project. The document assembles design elements such as: architectural guidelines; mechanical guidelines; fire and life safety guidelines and depending on the involvement of multiple jurisdictions the document becomes of the utmost importance.

Specifically, this document, as it relates to all applicable fire and life safety regulations along with the inclusion of modified by local ordinances as jointly agreed to by the AHJs and RA should be established as soon as practical. In some cases, to reduce the extensive review of multiple, potentially conflicting regulations, a Fire and Life Safety design guide has been developed. This would include related excerpts from the regulations, along with resolutions to conflicts' and language to fill regulation gaps. This document allows designers a common ground to ensure their design will meet the RA project fire and life safety requirements. This becomes the basis for design work on any projects relative to fire and life safety, for example RA stations

Although using a single edition design guide for the life of the RA is desirable to ensure all fire and life safety systems are the same, this is not usually possible as fire and life safety regulations which affect applicability, testing and maintenance can change as regulations are revised, and projects can be extended or new projects added into a time period when new regulations are adopted. The design guide should be reviewed, conflicts and changes to requirements updated and approved and a revised version of the design guide issued.

For small changes in regulations, rather than issue an entirely new design guide, a process for documenting distribution and receipt of agreed changes should be established as appendix language in design guide . For example, there are occasionally Temporary Interim Agreements (TIA) which are issued procedurally by the NFPA to correct a standard at the request of the Technical Committee.

The design guide, once approved by the AHJ should not be changed for the specific project under which the design guide was approved, i.e. unless serious problems with the adopted version of a regulation occur.

If local changes to the design guide are necessary, a document expressly identifying why the change is necessary, identifying the sections of the applicable regulations, the intent, and be signed by affected parties. This document has been referred to as a Letter of Concurrence, or LOC.

Although a FLSC approved design guide is available, this does not supersede specific language in applicable regulations, nor does the presence of a design guide limit the authority vested in their regulations of the AHJ to make retroactive changes if deemed necessary.

3. EMERGENCY OPERATIONS PLANNING, TRAINING

The FLSC provides a logical venue to develop interagency training for RA, notably the Operations Control Center (OCC), and responding agencies. Since not all responders are from fire jurisdictions, other agencies should be included in planning and training. For larger rail properties a FLSC a standing subcommittee on training is often used. Since all agencies, including RA are required to comply with National Incident Management System federal requirements, the command structure of response is already defined. Specific training is required of the RA for responding agencies and this standard.

Given the potential for large scale mass casualty incidents with several jurisdictions responding, the FLSC is a logical location to develop, and coordinate required drills, tabletops, exercises, etc. to meet federal commissioning requirements typically included in funding packages. This is specifically applicable where multiple agencies will respond, i.e. fire department, law enforcement, RA, utilities such as power, local municipalities, etc.

Training includes pre-opening, as well as ongoing training and training when changes are made which might impact emergency responders and RA. Training types are identified in Homeland Security Exercise and Evaluation Program (1) and includes, seminars, drills, tabletops, functional and large-scale exercises.

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Statement of Problem and Substantiation for Public Input

NFPA has no guidance on the relationships between NFPA 130 Standard for Fixed Guideway Transit and Passenger Rail Systems and the the Authorities Having Jurisdiction. The proposed annex becomes Annex G and current Annex G becomes Annex H. Proposed annex submitted by Harold Levitt, member emeritus and Gary English, former AHJ. Following suggestions in this annex can streamline design, construction processes for new properties and property retrofits which will save time and money. Suggestions are made based on proven practices.

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Submittal Date:	Sat Jun 27 16:55:55 EDT 2020
Committee:	FKT-AAA

Committee Statement

Resolution: FR-52-NFPA 130-2020

Statement: Annex G Statement: Adds current information to the standard to provide guidance for on board fire protection systems for vehicles.

Annex H Statement: NFPA has no guidance on the relationships between NFPA 130 Standard for Fixed Guideway Transit and Passenger Rail Systems and the Authorities Having Jurisdiction. The Annex G is added to recommend a process for establishing the roles and responsibilities of the AHJ, rail authority and the designer.

Public Input No. 49-NFPA 130-2020 [Section No. G.1.2.4]

G.1.2.4 ASTM Publications.

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

ASTM D3675, *Standard Test Method for Surface Flammability of Flexible Cellular Materials Using a Radiant Heat Energy Source*, ~~2017~~ 2019 .

ASTM E162, *Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source*, 2016.

ASTM E1354, *Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter*, 2017.

ASTM E1537, *Standard Test Method for Fire Testing of Upholstered Furniture*, 2016.

ASTM E1590, *Standard Test Method for Fire Testing of Mattresses*, 2017.

ASTM E2061, *Standard Guide for Fire Hazard Assessment of Rail Transportation Vehicles*, ~~2018~~ 2020 .

Statement of Problem and Substantiation for Public Input

updates

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Committee Statement

Resolution: FR-32-NFPA 130-2020

Statement: ASTM Publication revision updates.

Public Input No. 67-NFPA 130-2020 [New Section after G.3]

New Annex

Automatic fire detection and on-board fire suppression

(1) **General**

The purpose of this annex is to provide information about beneficial effects of automatic fire detection and on-board fire suppression systems in rail vehicles on fire life safety as well as on the holistic design of rail systems.

(1) **Automatic fire detection**

2.1

The early detection of a fire on a rail vehicle is key to the effectiveness of mitigation measures intended to reduce the impact of the fire incident on fire life safety. A fire detection system can automatically detect a fire and communicate the information to initiate and facilitate emergency operational procedures.

2.2

A detection system can be used, not only to communicate the fire detection to personnel, but also to initiate other measures directly such as; turning on CCTV cameras in the affected areas for personnel to view the situation; controlling the vehicle ventilation system to stop smoke from spreading; automatically closing fire barrier doors; providing PA messages; cutting power to equipment enclosures where fire has been detected; activating an on-board fire suppression system.

2.3

The presence of an automatic fire detection system should be considered during the fire hazard analysis.

2.4

The performance of a smoke detection system on a rail vehicle is affected by vehicle parameters, in particular the vehicle heating, cooling and ventilation system. CFD modeling of the vehicle interior and air flows can aid the design of the smoke detection system. Smoke tests on the vehicle are used for design and verification of the detection performance.

(1) **On-board fire suppression**

(1) 3.1 Design objective

(2) The goal of an on-board fire suppression system is to slow or stop the fire growth rate or otherwise mitigate the impact of fire and in passenger areas to improve tenability for vehicle occupants during a fire condition until the vehicle is able to come to a safe stopping place where the occupants can egress the vehicle.

(3) 3.2

(4) In compact enclosed areas such as diesel engine compartments, electrical cabinets and other equipment enclosures the systems are designed to extinguish the fire.

(5) 3.3

(6) For passenger and crew areas a suppression system should be water mist based, intended to

sharply reduce the heat release rate of a fire and prevent its growth.

(7) 3.4 Tenable environment

(8) The tenability of the environment within a rail vehicle immediately after a fire has started until the vehicle is able to come to a safe stopping place where the occupants can egress the vehicle can be significantly improved with an on-board fire suppression system. Such systems typically improve thermal conditions in proximity to the fire, reduce the rate of smoke generation and its rate of spreading to other areas as well as keeping carbon monoxide levels well below critical levels.

3.5

The ability to suppress a fire on a rail vehicle at the fire´s incipient stage is essential to reduce the fire growth and control the fire. If approved by the AHJ, the design fire scenario can be reduced as well as the peak heat release rate.

3.6 Design impact on other systems

The use of an on-board fire suppression system may:

- Limit damage to the train, tunnel and the station which it has entered;
- Reduce or eliminate potential use of station sprinklers;
- Significantly reduce the impact of designing for fire emergencies on station architecture;
- Reduce tunnel ventilation capacity requirements
- Reduce the number and/or diameter of emergency ventilation fans required
- Decrease tunnel ventilation shaft and portal areas required
- Reduce the weight of vehicles by eliminating fire barrier doors
- Allow for improved vehicle design with open gangways

Statement of Problem and Substantiation for Public Input

On-board fire suppression system was previously included as annex G to NFPA 130 since the 2014 edition. In the 2020 revision it was intended to merge annex G with annex B. This however resulted in the entirety of annex G being omitted from annex B. The proposed text is based on the original text of the former annex G and now includes fire detection. Both fire detection and fire suppression can provide significant improvement on the fire life safety of rail and transit systems. These systems are already mentioned within the NFPA130 and this annex intends to provide information on aspects of these systems those that are not familiar with them on rail vehicles.

This proposal is the first of 3 alternative proposals:
1 Create a new annex with the proposed text
2 Restore the previous text from annex G from NFPA 130 2014 and 2017 in its entirety to a new annex
3 Add the proposed new text to Annex E Fire Hazard Analysis Process for Vehicle Assessment and Evaluation

For information the following is the original text from Annex G NFPA 130 2014 and 2017:

On-board fire suppression systems (e.g., mist systems), while relatively new in the passenger rail and rail transit fixed guideway industry have been successfully used on a number of passenger rail and diesel powered light rail systems outside of the United States. The applications for this type of system can range from protection of diesel engine compartments to the interior of passenger rail vehicles. The use of a fire suppression system may: save lives in the incident vehicle during a fire condition; minimize damage to the train, tunnel and the station which it has entered; reduce or eliminate potential use of station sprinklers; reduce or eliminate the need for downstands; significantly reduce the impact of designing for fire emergencies on station architecture; reduce tunnel ventilation capacities by approximately 40%; may reduce the number and/or diameter of emergency ventilation fans at each end of each station and within the tunnels, thus reducing structure sizes; decrease shaft airflow cross section areas by approximately 40%; and decrease tunnel ventilation shaft portal areas that correspond to the required fans sizes/velocities. When considering the addition of a fire suppression system, several design challenges should be met by the rail vehicle manufacturer. These challenges include: the type of extinguishing medium used; which all must be approved by the AHJ the size and number of medium canisters and where on the vehicle to place them for easy access for maintenance; the resultant increased energy consumption caused by the increase in weight of the suppression system; the maintenance intervals; the cost of the system; the testing and commissioning of the system; and the cost and difficulties associated with retrofitting vehicle

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 69-NFPA 130-2020 [New Section after G.3]	Alternative
Public Input No. 70-NFPA 130-2020 [New Section after E.3.4]	Alternative
Public Input No. 69-NFPA 130-2020 [New Section after G.3]	
Public Input No. 70-NFPA 130-2020 [New Section after E.3.4]	

Submitter Information Verification

Submitter Full Name: Jonathan Redding
Organization: FOGTEC Fire Protection
Street Address:
City:
State:
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Submittal Date: Fri Jun 26 08:09:25 EDT 2020
Committee: FKT-AAA

Committee Statement

Resolution: FR-52-NFPA 130-2020

Statement: Annex G Statement: Adds current information to the standard to provide guidance for on board fire protection systems for vehicles.

Annex H Statement: NFPA has no guidance on the relationships between NFPA 130 Standard for Fixed Guideway Transit and Passenger Rail Systems and the Authorities Having Jurisdiction. The Annex G is added to recommend a process for establishing the roles and responsibilities of the AHJ, rail authority and the designer.

Public Input No. 69-NFPA 130-2020 [New Section after G.3]

New Annex

On-board fire suppression systems

On-board fire suppression systems (e.g., mist systems), while relatively new in the passenger rail and rail transit fixed guideway industry have been successfully used on a number of passenger rail and diesel powered light rail systems outside of the United States. The applications for this type of system can range from protection of diesel engine compartments to the interior of passenger rail vehicles. The use of a fire suppression system may: save lives in the incident vehicle during a fire condition; minimize damage to the train, tunnel and the station which it has entered; reduce or eliminate potential use of station sprinklers; reduce or eliminate the need for downstands; significantly reduce the impact of designing for fire emergencies on station architecture; reduce tunnel ventilation capacities by approximately 40%; may reduce the number and/or diameter of emergency ventilation fans at each end of each station and within the tunnels, thus reducing structure sizes; decrease shaft airflow cross section areas by approximately 40%; and decrease tunnel ventilation shaft portal areas that correspond to the required fans sizes/velocities. When considering the addition of a fire suppression system, several design challenges should be met by the rail vehicle manufacturer. These challenges include: the type of extinguishing medium used; which all must be approved by the AHJ the size and number of medium canisters and where on the vehicle to place them for easy access for maintenance; the resultant increased energy consumption caused by the increase in weight of the suppression system; the maintenance intervals; the cost of the system; the testing and commissioning of the system; and the cost and difficulties associated with retrofitting vehicles

Statement of Problem and Substantiation for Public Input

On-board fire suppression system was previously included as annex G to NFPA 130 since the 2014 edition. In the 2020 revision it was intended to merge annex G with annex B. This however resulted in the entirety of annex G being omitted from annex B. The proposed text is based on the original text of the former annex G and now includes fire detection. Both fire detection and fire suppression can provide significant improvement on the fire life safety of rail and transit systems. These systems are already mentioned within the NFPA130 and this annex intends to provide information on aspects of these systems those that are not familiar with them on rail vehicles.

This proposal is the second of 3 alternative proposals:
1 Create a new annex with the proposed text
2 Restore the previous text from annex G from NFPA 130 2014 and 2017 in its entirety to a new annex
3 Add the proposed new text to Annex E Fire Hazard Analysis Process for Vehicle Assessment and Evaluation

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 67-NFPA 130-2020 [New Section after G.3]	Alternative
Public Input No. 70-NFPA 130-2020 [New Section after E.3.4]	Alternative

Submitter Information Verification

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Committee:	FKT-AAA

Committee Statement

Resolution: New annex was added to address on board fire protection systems for vehicles.