

NFPA 130  
Standard for Fixed Guideway  
Transit and Passenger Rail Systems  
Proposed Changes for 2006 Edition

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presented by  
William D. Kennedy, P.E.  
presented to  
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Tunnel Safety and Security

# Task Groups

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1) Editorial / SI Units

WD Kennedy  
Parsons Brinckerhoff

2) Emergency Exiting

JE Devlin  
Schirmer Engineering

3) Ventilation

WD Kennedy  
Parsons Brinckerhoff

4) Trains

JB Zicherman  
Fire Cause Analysis

5) Station and Tunnels

JK Mann  
Amtrak

6) Emergency Response

JH Nelsen  
Seattle Fire Department

# Task Group 1

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Editorial / SI Units

# TG 1 — Editorial / SI Units

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- Revise committee scope to include passenger rail systems
- Include references to other cited documents
- Address misc. metrification issues
- Address misc. “Passenger Rail” issues
- Address misc. editorial and Manual of Style issues

# TG 1 — Committee Scope

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This Committee shall have primary responsibility for documents on fire protection requirements for underground, surface, and elevated fixed guideway transit **and passenger rail** systems, including trainways, vehicles, stations, and vehicle maintenance areas and storage areas; and for life safety from fire in **fixed guideway transit and passenger rail system** stations, trainways, vehicles, and outdoor vehicle maintenance and storage areas. **Fixed guideway transit and passenger rail** stations shall pertain to stations accommodating only passengers and employees of the fixed guideway **and passenger rail** system and incidental occupancies at the stations.

# TG 1 — Misc. Editorial Issues

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- FRA-published Federal Register Notice re: fire tests & performance criteria (June 25, 2002)
- ASTM list update
- Add reference to FRA clarification on fire safety regulation (FRA 49, CFR, Part 238, Passenger Equipment Safety Standards, Final Rule)

# Task Group 2

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## Emergency Exiting

# TG 2 — Emergency Exiting

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- Emergency Exiting Analysis – Methodology
  - Wording should recognize that analysis may be done:
    - Manually or by spreadsheet (simple station geometries)
    - By computer (complicated station geometries)
  - Provide recommended minimum requirements of exiting software

## TG 2 — Emergency Exiting (cont'd)

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- Should emergency exiting be a separate chapter?
- Confirm changes to NFPA 101
- Clarify “Point of Safety” definition
- Escalators as Exits - provide background or change
- Discount one escalator per level vs. per station

## TG 2 — Emergency Exiting (cont'd)

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- Should escalators be permitted to be remotely re-started?
- Address deep station emergency exiting issue
- Does the six-minute travel time to a point of safety include the time required to exit the trains?
- Emergency exiting from non-revenue tunnels vs. revenue tunnels

# Task Group 3

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## Ventilation

# TG 3 — Ventilation

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- Emergency Ventilation System Design (7.2.3)

The design and operation of the signaling system, traction power blocks, and ventilation system shall be coordinated to match the total number of trains that could be between ventilation shafts during an emergency.

*Passengers shall be protected by preventing non-incident trains from entering the incident ventilation zone, or by allowing rapid extraction of non-incident trains by traction power segmentation and signaling capable of rapid reversing.*

# TG 3 — Ventilation (cont'd)

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- Emergency Ventilation Fans (7.3.1)

The ventilation system fans that are designated for use in fire emergencies shall be capable of satisfying the emergency ventilation requirements *to move tunnel air in either direction as required to provide the needed ventilation response.*

- *“All-Stop” to minimize dispersion of noxious products*
- *“Section Purge” to maximize dilution of noxious products*

# TG 3 — Ventilation (cont'd)

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- Power and Wiring (7.7)

*“The power for the emergency fan plants shall be provided by feeders from two separate and distinct utility substations”*

Needs further evaluation -- has no merit if the power for the plant does not come through the tunnel.

# Task Group 4

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Trains

# TG 4 — Trains

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## ■ Emergency Egress Facilities (8.8)

- Should evacuation time, ability to remove large persons, etc. be added?
- Shouldn't exiting function regardless of vehicle orientation?
- Are special requirements needed for automated trains?
- Should the operation of emergency doors stop moving trains?
- Should maximum allowable vertical and horizontal step distances from train to walkway be specified?

# TG 4 — Trains (cont'd)

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- Communications (8.9.2) – Struck in Entirety
  - Public Announcement (PA) System
  - Radio System
  - Crew Intercommunication System
  - Passenger Communication System
  - Unauthorized Opening of doors

# TG 4 — Trains (cont'd)

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- Add requirements for control redundancy, overrides, etc. for a fire within a train
  - prevent the train from being stopped in the tunnels
  - get the train to the station for evacuation & fire-fighting

# TG 4 — Trains (cont'd)

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- Fire Heat and Smoke Release Rates
  - Relate these to Annex D: Fire Hazard Assessment and Annex E: Hazard Analysis Process
  - Is there a need to add language concerning luggage?
  - Should methodology improvements by Amtrak, NIST & Volpe Center be incorporated?
- Should tenable environment be extended to trains?

# TG 4 — Trains (cont'd)

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- Emergency Lighting (8.8.3)
  - The lighting illumination level shall be not less than 60 percent of the minimum light levels ... after one *and one-half* hours of continuous illumination.

# TG 4 — Trains (cont'd)

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- Table 8.4 - Test Procedures and Performance Criteria for Flammability and Smoke Emission Characteristics. Should data be:
  - a duplicate of the FRA requirements
  - the FRA requirements plus any additions deemed appropriate by the committee, or
  - the FRA requirements plus any deletions or additions deemed appropriate by the Committee

# Task Group 5

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Station and Tunnels

# TG 5 — Stations & Tunnels

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## ■ Definitions

- Why is a Blue Light Station **Blue**?
- Should remote, local & manual control be defined?
- Should definition of “Underground System” be revised to include depressed boat section? Open cut section? Fully-enclosed above-ground section? How would this impact emergency egress and fire-fighting ingress requirements?

## TG 5 — Stations & Tunnels (cont'd)

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- This chapter shall apply to *{all}* fixed guideway transit and passenger rail stations whether they are entirely, or in any part, below, at, or above grade.

## TG 5 — Stations & Tunnels (cont'd)

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- Power and Wiring (7.7)

*“The power for the emergency fan plants shall be provided by feeders from two separate and distinct utility substations”*

Needs further evaluation -- has no merit if the power for the plant does not come through the tunnel.

- Wiring Requirements – why are ground wires permitted to be bare?

# TG 5 — Stations & Tunnels (cont'd)

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- Vehicle Storage & Maintenance Areas (Chapter 9)
  - trim back to reference NFPA industrial facilities standards
  - only provide added requirements unique to fixed guideway and passenger rail facilities

# TG 5 — Stations & Tunnels (cont'd)

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- Emergency Telephones (11.4)
  - Hands free operation?
  - Automatic identification in Central Control?

# TG 5 — Stations & Tunnels (cont'd)

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- Emergency Telephones (11.4)
  - Hands free operation?
  - Automatic identification in Central Control?
- Portal Interceptors
  - Should these be required to avoid the inflow of spilled liquids?

# TG 5 — Stations & Tunnels (cont'd)

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## ■ Shared Use Tunnels

- Should stations and tunnels have additional or special fire-life safety requirements?
- Would requirements be different if the use were time-separated (i.e., passenger trains during day and freight trains at night?)

***\*\*This is a federal issue***

## TG 5 — Stations & Tunnels (cont'd)

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- Low-level emergency lighting below the smoke line
  - being proposed by Commission Internationale De L'Eclairage (CIE )
  - must consider the role of the ventilation system in preventing backlayering

# Task Group 6

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## Emergency Response

# TG 6 — Emergency Response

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- More cross-references to other NFPA codes
  - Standpipe and hose system maintenance (NFPA 25)
  - Portable fire extinguisher installation and maintenance (NFPA 10)
  - Fire-retardant, pressure-treated ties (NFPA 704)
  - Standpipe strength (NFPA 14)
  - Painting / cleaning location selection (NFPA 33)

# Conclusions

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- NFPA 130 was significantly reformatted, reorganized and modified from 2000 to 2003
- Since committee meeting in May, a significant amount of groundwork has been accomplished
- Changes are being pushed along
- Public comment is always sought and welcomed

Thank You

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