



TECHNICAL SERVICES DEPARTMENT

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Allowable Locations for LFMC and LFNC in NFPA 130 Fixed Guideway Transit and Passenger Rail Systems

This bulletin is intended for providing clarification on where Liquidtight Flexible Metal Conduit (LFMC) and Liquidtight Flexible Non-Metallic Conduit (LFNC) can be used in rail applications in accordance with NFPA 130 Standard for Fixed Guideway Transit and Passenger Rail Systems. This bulletin will help provide a summary of where these flexible raceway products can and cannot be used.

Engineering Bulletin No. 115 covers electrical installations in Stations, Trainways and Vehicles.

Fixed Transit and Passenger Rail Vehicles are allowable locations for the use of LFMC and LFNC. Section 8.6.7.4 of the NFPA 130 standard covers Wiring Methods and includes both LFMC and LFNC. The requirements for the design and construction of vehicles is covered in Chapter 8 and includes requirements for flammability and smoke emission test method and criteria.

Section 8.6.7.4.5 references the use of LFMC and LFNC and includes specific installation instructions that the conduit shall be:

- (1) Extended into devices and cases where practicable
- (2) Rigidly secured in place by means of cleats, straps, or bushings to prevent vibration or movement and to give environmental protection
- (3) Run continuously into junction boxes or enclosing cases and be securely fastened to those devices

Stations and Trainways are not allowable locations for LFMC and LFNC unless they are encased in concrete. Section 12.4.1 requires that any materials used for conduits must be made of “non-combustible” material. “Non-combustible” material is defined in section 4.7.1. This definition requires a proposed material to pass ASTM E-136, which calls for “a furnace to expose building materials to a temperature of 750°C (1382°F) until failure occurs or for at least 30 minutes” . LFMC and LFNC do not meet this criterion.

In summary, LFMC and LFNC are permissible for use in Fixed Transit and Passenger Rail Vehicles, as long as the conduit passes the elastomer flammability testing conditions from Section 8.4, and is installed according to the aforementioned Wiring Method requirements. LFMC and LFNC are not permitted for use in Stations and Trainways due to the testing conditions needed to meet the “non-combustible material” classification required for exposed raceways, unless encased in concrete.

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