UL Product iQ®

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

FHIT - Electrical Circuit Integrity Systems

See General Information for Electrical Circuit Integrity Systems

System No. 50

June 26, 2023

Fire-Resistive Rating (FRR) - 2 Hr. at 480 VAC line-to-line

APPENDIX A

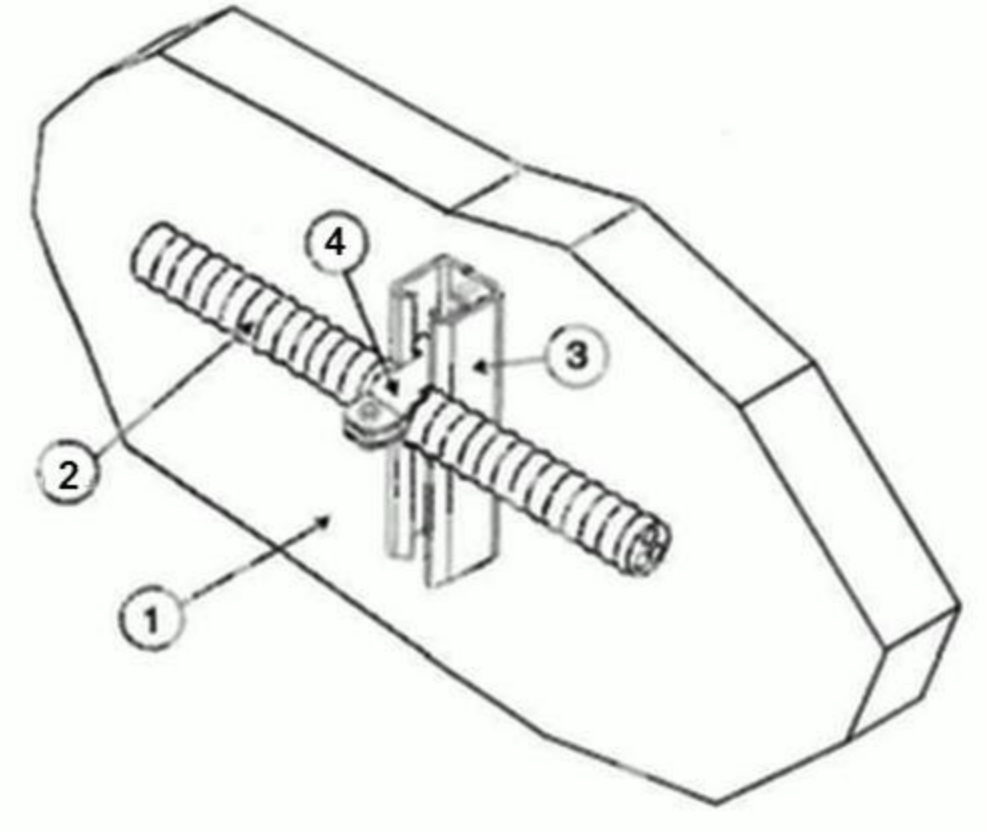

Fig. 1
Two-piece Single-bolt Pipe Clamp

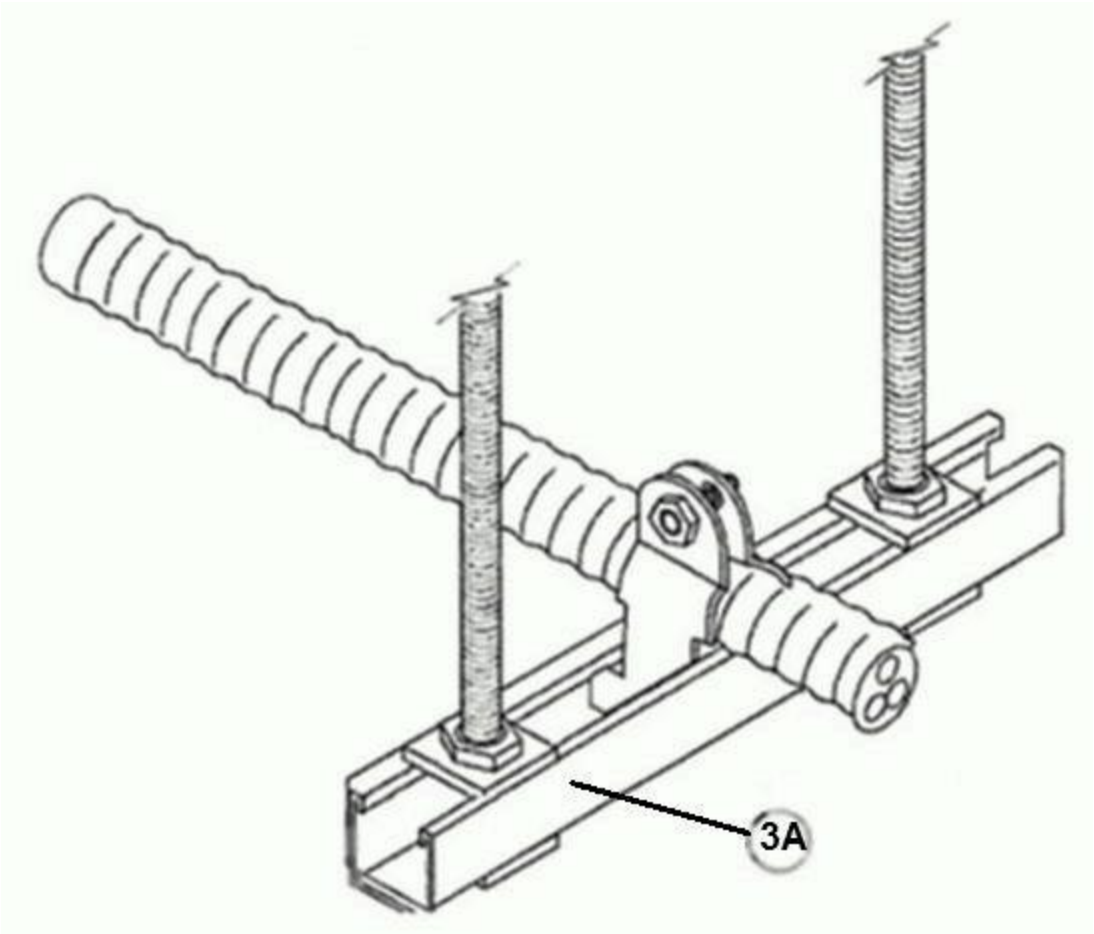

Fig. 2
Steel Strut Trapeze

APPENDIX A

1. **Wall or Floor Assembly* —** Concrete or masonry wall or concrete floor having an hourly rating corresponding to at least the FRR. Opening in wall or floor through which cable or cable tray passes is to be sized to closely follow the contour of the cable or cable tray. Through opening in wall or floor to be firestopped using a compatible firestop system. See **Through-Penetration Firestop Systems** (Guide XHEZ) category for presently Classified firestop systems.

2. **Fire Resistive Cables* —**
PRYSMIAN CABLES AND SYSTEMS USA LLC — Lifeline Type MC (copper clad) with or without polymeric jacket. To be installed as described herein and in accordance with the manufacturer's installation instructions SPL-FPT-0011 (TIS400) dated May 2023, File FHJR.R19359.

3. **Supports —** (Figure 1) Min 12 gauge, by 1-1/2 in. wide or 1-5/8 in wide, painted or unpainted, slotted steel channels with hemmed flange edges. Channel bottom with or without holes. Lengths of slotted steel channels 5 ft and less shall be secured to the wall or floor with a min of two 1/4 in. diameter (or larger) by 2-1/4 in. min long concrete screws, or 1/4 in. diameter (or larger) by 1-3/4 in. long min steel masonry anchors. One screw or anchor to be located at each end of the slotted steel channel. Lengths of slotted steel channel in excess of 5 ft require a min of three screws or anchors, one at each end of the channel and one centrally located within the length of the channel. The supports shall be spaced a maximum of 4 ft. OC.

3A. **Trapeze-type Supports —** (Figure 2) The MC cable(s) shall be installed on/from trapeze-type supports by item 4. The trapeze-type supports shall be secured from the surface of the floor. The supports shall be spaced a maximum of 4 ft. OC.

4. **Clamps —** Steel 1-1/4 in. wide two-piece single-bolt pipe clamps. Size to correspond with the outside diameter of the cable and as follows: Trade size 1/2 - 2 in., min 14-gauge; Trade size 2-1/2 in. min 12-gauge; Trade size 3 in. and larger, min 11-gauge.

5. **Splice (Optional Not Shown) —** 2AWG - 750MCM in the horizontal or vertical orientation may be installed with tape-splices. The following components are required: Selco model NE4X or Resolve One stainless steel type NEMA 4X cutout box, Remke model RTKSS type MC cable connectors with silicone bushing, Eaton model DP-E brass 1/2NPT breather/drain, Prysmian Lifeline Brand ceramifiable splicing-tape, 3M sealed wire connector system series ITCSN, 3M Type 69 insulating tape. Refer to the manufacturer's installation instructions TIS403 dated March 2023.
*Bearing the UL Certification Mark

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Last Updated on 2023-06-26

(2) Overcurrent Protection. Primary disconnecting means and overcurrent devices shall be selected in accordance with 695.4(B)(1). Secondary disconnecting means and overcurrent devices shall not be permitted.

(3) Feeder Source. The feeders on the primary and secondary of the transformer shall be sized in accordance with the requirements of 695.6 adjusted for the primary and secondary voltage.

(B) Utility Meters. Metering of fire pumps shall be current transformer driven or bypass type such that meter removal will not interrupt service to the fire pump. Metering may be dedicated to the fire pump or coincident with other building power use.

(C) Rectifiers. Rectifiers may be used to supply existing DC fire pump installation in accordance with the following.

(1) Size. Where a rectifier supplies an existing DC electric fire pump, it shall be rated at a minimum of 125 percent of the fire pump full load current plus 100 percent of the full load current of all other equipment connected to the rectifier.

Exception: If largest motor is other than the fire pump, rectifier shall be sized at 125 percent of the largest motor and 100 percent of all other equipment.

(2) Overcurrent Protection. The primary disconnecting means and overcurrent device shall be rated at 150 percent of the rectifier full load current. The DC fire pump shall be supplied by a dedicated connection on the secondary of the rectifier. Disconnecting means and overcurrent devices shall not be permitted.

(3) Feeder Source. The feeders on the primary and secondary of the rectifier shall be sized in accordance with the requirements of 695.6 adjusted for the primary and secondary voltage.

(4) Other Loads. Rectifiers installed to supply existing DC fire pumps shall be permitted to supply other loads. Rectifier capacity shall be increased in accordance with 695.5(C)(1). Each DC supply shall include a disconnecting means and overcurrent device sized in accordance with applicable sections of the code.

SECTION 695.6

Section 695.6 – Revise to read as follows:

695.6 Power Wiring. Power circuits and wiring methods shall comply with the requirements in 695.6(A) through (E), and as permitted in 230.90(A), Exception 4; 230.94, Exception 4; 230.208; 240.4(A); 240.13 and 430.31.

(A) Supply Conductors. Fire pump and limited service fire pump supply conductors shall be physically routed outside a building(s) and shall be installed as service entrance conductors. Where supply conductors cannot be physically routed outside buildings, routing through buildings is permitted where installed in accordance with Section 230.6(1), (2), (4) or (5).

Exception: The supply conductors located in the electrical service room and generator room where they originate and in the fire pump room shall not be required to have the minimum 2-hour fire separation or fire resistive rating.

(B) Circuit Conductors.

(1) Fire Pumps. Fire pump supply conductors, including emergency supply conductors where emergency power is provided, on the load side of the final disconnecting means and overcurrent device shall be kept entirely independent of all other wiring. They shall supply only loads that are directly

APPENDIX B

associated with the fire pump system, and shall be protected to resist potential damage by fire, structural failure, or operational damage. They shall be permitted to be routed through a building(s) using one of the following methods:

(1) Encased in a minimum of 50mm (2 in.) concrete using rigid metal conduit (steel RMC), intermediate metal conduit, electrical metallic tubing or schedule 80 non-metallic conduit.

(2) Rigid metal conduit (steel RMC) within an enclosed construction dedicated to the fire pump circuit(s) having a minimum of a 2-hour fire resistance rating.

(3) A listed electrical circuit protective system with a minimum 2-hour fire resistance rating. The installation shall comply with any restrictions provided in the listing of the electrical circuit protective system.

Exception: The supply conductors located in the electrical service room and generator room where they originate and in the fire pump room shall not be required to have the minimum 2-hour fire separation or fire resistive rating.

(2) Limited Service Fire Pumps. Limited service fire pump supply conductors shall be installed in rigid metal conduit (steel RMC) or intermediate metal conduit (steel IMC).

Exception: Where there are multiple sources of supply with means of automatic transfer from one source to the other, electrical metallic tubing (EMT) shall also be permitted.

(C) Conductor Size. Conductors supplying a fire pump or a limited service fire pump shall have a rating not less than 125 percent of the full load current of the pump motor selected at no greater than 75 degrees operating temperature of the conductor type used.

(D) Overload Protection. See 695.5(C)(2) for overload protection requirements.

(E) Pump Wiring. All wiring from the controllers to the pump motors shall be in rigid metal conduit (steel RMC) or have a minimum 1-hour fire separation or fire resistance rating.

Exception No. 1: Liquidtight flexible metal conduit (maximum of 915mm (36 in.)) is permitted for final connection to motor terminal housing.

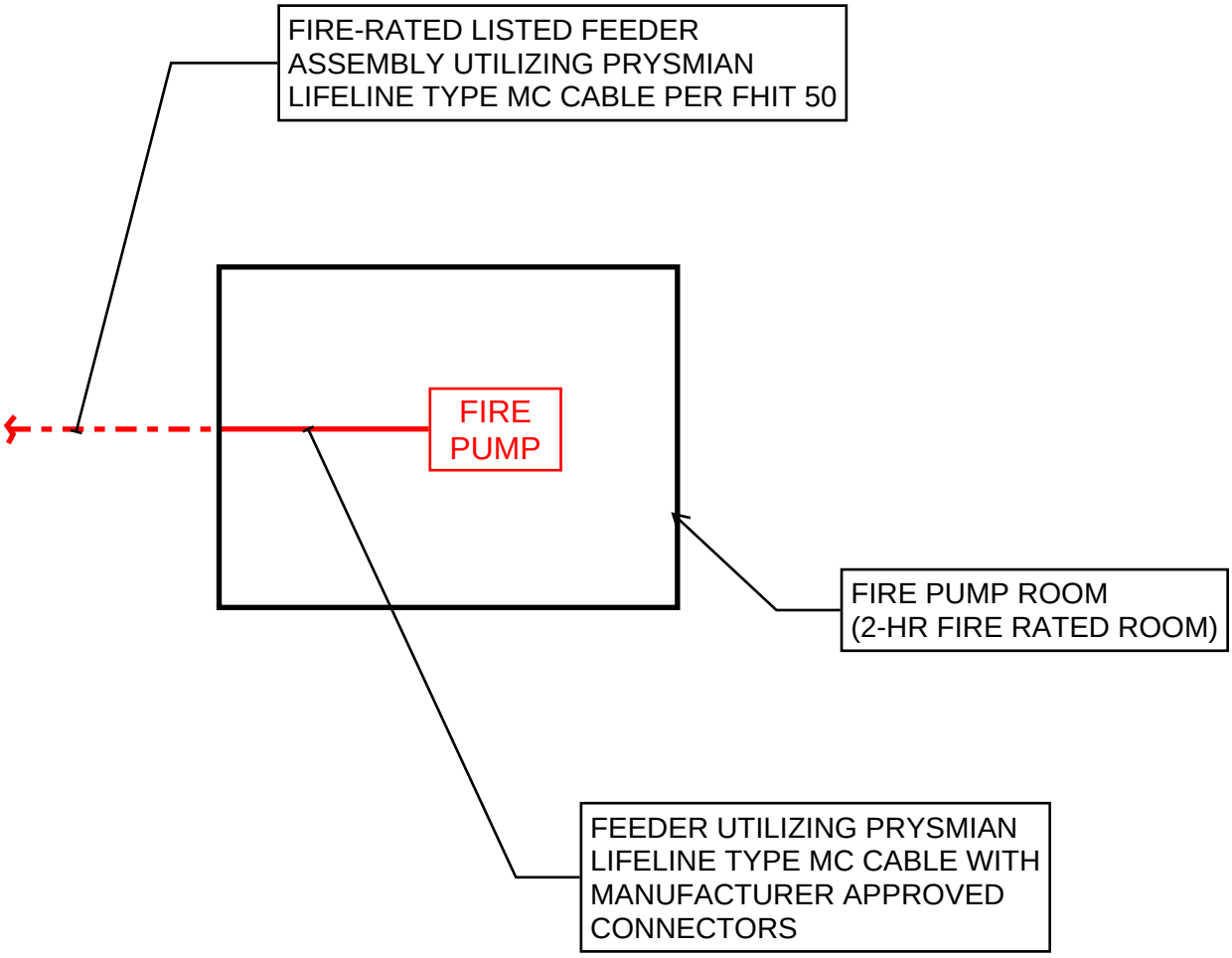
Exception No. 2: Intermediate metal conduit (steel IMC) and electrical metallic tubing (EMT) shall be permitted for limited service fire pumps.

SECTION 695.10

Section 695.10 – Revise to read as follows:

695.10 Listed Equipment. Diesel engine driven fire pump controllers, electric fire pump controllers, electric motors, fire pump transfer switches, foam pump controllers, and limited service controllers shall be listed and approved for fire pump use.

APPENDIX C



JBB
6/26/2024