Guidelines for Handling New Work Submittals of Fire Resistive Cables and Fire Resistive Cable Assemblies

The following program requirements apply to Subscribers who wish to have fire resistive cables for use in electrical circuit protective systems tested to UL 2196:

Sample Selection:

In general, since the interrelationship between all variables of a cable and or system construction are not understood by all and addressed in the standard, it will not be possible to conduct representative testing at this time. Therefore, only the specific cable and system construction tested and found compliant will be considered to be eligible for Classification or Listing. Items considered comprising a cable and system construction include:

- Number of Conductors (multi-conductor vs. single conductor)
- Conductor size
- Conductor Type (solid vs. stranded)
- Voltage rating
- Conductor lay (twisted vs. parallel)
- Shielded vs. unshielded
- Grounding Conductor (bare or insulated)
- Conduit Size (trade size)
- Conduit Orientation(vertical, horizontal, s-type, or other)
- Conduit Type (EMT, IMC, RMC , or other)
- Conduit manufacturer
- Fittings (type and manufacturer)
- Pulling Compounds (manufacturer and type)

There will be no allowances for alternate or optional materials unless each design is specifically tested.

The system is to be installed by UL laboratory staff using the system designer's installation instructions, where the exact installation methods are to be detailed (such as spacing between cable supports, the type of supports, and the like). The certification will reflect exactly what was tested. Each system orientation as specified in the installation instructions shall be tested (vertical, horizontal, s-shape, etc.), along with any associated cable grips.

Sample Size

A minimum of 5 samples of each construction are to be tested and all 5 samples need to achieve compliant results to be considered eligible for certification.

Certification Report / Follow- Up Procedure

Cable - A detailed description of the construction of the cable including each of the material grade designations and manufacturer of the material will be included in the FUS Procedure.

A cable design drawing and a complete material specification document will be requested so that the cable construction can be described in detail, including its individual components and raw materials.

System - A copy of the complete system design (cable, raceway, connectors, boxes, splices, etc.) identifying the critical parts by specific manufacturer and part number will be requested at the beginning of the investigation to reflect exactly what is being investigated, and will be included in the FUS procedure and system description. Below is a list of common (but not comprehensive) cable and system attributes that will be requested and described in the FUS procedure:

- Jacket- thickness, material designation/formulation, including raw materials by manufacturer and part number
- Conductor—type/grade of copper or other alloy(if used)
- Insulation- thickness, material designation/formulation, including raw materials by manufacturer and part number
- Any other cable material, such as a shield, drain wire, rip cord, reinforcing materials, etc. will require a detailed description, by type, dimensions, material description, manufacturer and part number
- Raceway –type, trade size and manufacturer
- Couplings/Connectors-- type, model number, and manufacturer
- Boxes—type, model ,and manufacturer
- Supports—spacing, type, model number, and manufacturer
- Pulling Lubricants—If used, described by amount to be applied, manufacturer, and part number
- System orientation—vertical, horizontal, s-type, or other is to be described in detail along with the detailed description of other system components

The FUS procedure will also contain a copy of the manufacturer's installation instructions.

Follow-Up Testing

Every six months:

Cables – In addition to normal FUS inspection, a one foot long sample of each cable type will be selected by UL Field Services staff and sent to UL laboratory facilities for a detailed analysis. The analysis report will be compared to the previous sample analysis and stored as a test reference.

Systems - Sufficient cable to construct 5 test systems for each of the systems described in the FUS procedure will also be selected by UL Field Services staff. If cable is not available, the authorization to utilize UL's certification mark on the cable will be suspended until samples for test are available and found to be compliant. The systems described in the FUS Procedures will be subjected to the UL 2196 test.