



BULLETIN 95-1

June 15, 1995

To: Electrical Engineers and Contractors, Fire Protection Engineers, Architects, and Certified Professionals

PROTECTION OF ELECTRICAL CONDUCTORS TO ENSURE ONE HOUR OPERATION OF EMERGENCY SYSTEMS

This bulletin is provided in addition to Bulletin 91-8 to permit acceptance of optional methods of emergency conductor protection in new and existing buildings without requiring an equivalency submission. The following issues of conductor protection are required to be addressed:

1. List of emergency equipment served by protected conductors.
2. Specific methods of conductor protection utilized for the project. (see note I)
3. Electrical plans indicating routes of protected conductors from the emergency power supply to the equipment being served.
4. Satisfactory operation of electrical equipment being supplied by conductors operating at substantially elevated temperatures (i.e. more than 30°C).
5. Protection of riser conductors from pressurized hot gases which follow inside conduits from the fire floor. (see note II)
6. Access to electrical riser conductor junctions for maintenance or testing. (see notes I & III)

Notes:

- I. Acceptable protection methods of electrical conductors to ensure operation of required equipment for a period of at least one (1) hour, are indicated in Table I (attached).
- II. Derating of conductors' ampacity may be required. Where conductors are protected in accordance with Methods B to F, as shown on the attached Table I and are sized to accommodate 110% of the rated load current, then no additional derating of conductors is required. For conductors protected in accordance with Method A, assessment of the conductors' performance (MI cables) under exposure to fire, shall be provided by the electrical engineer.
- III. Location of riser conductor junctions in exit stairwells is not acceptable.

A submission of the chosen methods of compliance with this bulletin shall be provided by the Professional Electrical Engineer responsible for the project at the design stage, in conjunction with the PA-2e letter. Upon completion of installation, a Letter of Field Review shall be submitted (PA-3a).

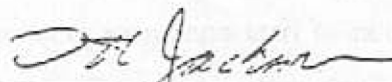
TABLE 1

Acceptable methods for protection of electrical conductors from fire exposure to ensure operation of the emergency equipment for a period of at least one (1) hour.

METHOD	ASSEMBLY
A.	Mineral insulated cables.
B.	Provide a minimum cover over the conduit of at least 100mm in concrete floor slabs or walls that form part of fire separations. Cover from the ends of slabs or walls that form part of the fire separations shall be at least 125mm.
C.	Provide a minimum cover over the conduit of at least 125mm in concrete columns, beams or walls that are not forming part of a fire separation.
D.	Enclose conductors in a shaft enclosure of at least two hour fire resistance construction. These shaft enclosure walls can be of concrete or any ULC, cUL or WH listed wall or shaft wall assembly.
E.	Any junction boxes or access points required for the protected conductors shall be protected with listed access panels (e.g. MAXAM FRCI-400) which have been tested to limit the temperature rise on the unexposed side to less than 90°C for one (1) hour. An air space shall be provided between the access panel and the conductors, to ensure that there will be no contact.
F.	Conduits leading from protected enclosures to branch circuits must be protected at junction boxes at both ends of the connecting conduit. This protection will consist of plugging the conduits to a depth of at least 12mm with an approved firestop caulking. Approved materials include Firestop Systems #4100NS sealant, 3M CP25 series caulking or Putty Type 303, Dow Corning 2000 series foam or sealant or similar listed flexible firestop materials. An acceptable alternative to the above is to use an EYS fitting at the protected enclosure end.

Note:

These are minimum requirements for the protection of conductors. Providing the methods are strictly adhered to the Designer signing the PA-2e may take full responsibility for the certification of this requirement. If there are any deviations from these methods a Fire Protection Engineer must be retained to analyze the arrangement and propose solutions on an equivalency basis for acceptance by the City.



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