



**CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
4 IRVING PLACE
NEW YORK, NY 10003**

**DISTRIBUTION ENGINEERING DEPARTMENT
CABLE SECTION**

**SPECIFICATION EO-6025
REVISION NO. 10
June 2008**

**EFFECTIVE DATE
June 30, 2008**

**APPLICATION OF ARC AND ARC/FIRE RESISTANT CABLE WRAPS TO
DISTRIBUTION CABLES**

**FILE: CONSTRUCTION STANDARDS MANUAL 3, SECTION 21
FIELD MANUAL 3, SECTION 6
FIELD MANUAL 1, SECTION 11**

TARGET AUDIENCE	ELECTRIC OPERATIONS
NESC REFERENCE	NONE

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1.0 **PURPOSE**

- 1.1 This specification describes the appropriate applications for arc resistant cable wraps. It also describes the applications for arc resistant cable wrapping that has been qualified as fire resistant through [EO-5343](#), Arc and Fire Resistant Materials Used for Cable Wraps. Throughout this document arc resistant cable wrap that is also fire resistant will be referred to as Arc/Fire resistant cable wrap.

2.0 **GENERAL APPLICATION**

- 2.1 This specification applies to all operating regions within the Con Edison service territory.
- 2.2 Arc resistant cable wrap, as described in [EO-5343](#), shall be applied, as described in section 4.0, to all primary cables, splices and terminations operating at 2,400 Volts or greater in distribution structures. These structures would include: manholes, vaults and services boxes.
- 2.3 Arc/Fire resistant cable wrap, as described in [EO-5343](#), shall be applied, as described in section 4.0, to all primary cables, splices and terminations operating in distribution structures designated as critical manholes. In critical manholes Arc/Fire resistant cable wrap should be applied to all new primary cable, splice and termination installations and whenever the existing arc resistant cable wrap is being restored as per section 4.4.1.
- 2.4 Critical manholes are determined by each operation region through [EO-10359](#), Periodic Underground Distribution Structure Inspections; section 4.2.
- 2.5 Secondary cable (rated at 600V) used as a “Reach” and operating at 265/460 Volts shall be protected with Arc or Arc/Fire resistant cable wraps, as per sections 4.0, within manholes, service boxes and 120/208 vaults. No protective wrap is required for the secondary cable operating within the 265/460 transformer/network-protector vault itself.
- 2.6 All primary and secondary cable, splices and terminations operating in customer service boxes shall be protected, as per section 4.0, with Arc or Arc/Fire resistant cable wraps.
- 2.7 Arc/Fire resistant cable wrap may be applied in non-critical manholes if the primary feeders are located in close proximity to the secondary mains that

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GENERAL APPLICATIONS (CONT.)

share the same structure. This application is at the discretion of the on-site supervisor or field operations planner.

3.0 GENERAL COMMENTS

- 3.1** In non-critical structures, arc resistant boots may be used on disconnectable pre-molded splices instead of arc resistant cable wrap. These arc resistant boots are listed on Table 1 in [EO-100,177](#), Approved Suppliers of Arc and Arc/Fire Resistant Cable Wraps.
- 3.2** Inverted joint shields shall be installed over the top of the uppermost feeder cable, after the application of Arc resistant or Arc/Fire resistant cable wrap, and secured with heavy duty cable ties. This applies only to structures that are covered with gratings that expose the uppermost feeder cables to tampering from outside the structure. These structures include:
- 3.2.1** P-Boxes that are covered with gratings that expose the feeder cables to tampering from outside the structure.
- 3.2.2** Vaults that are covered with gratings that expose the feeder cables to tampering from outside the structure.
- 3.2.3** Shallow manholes that are covered with gratings that expose the feeder cables to tampering from outside the structure.

4.0 THE APPLICATION OF ARC AND ARC/FIRE RESISTANT CABLE WRAPS

4.1 General Comments

- 4.1.1** The three-inch wide Arc or Arc/Fire resistant cable wrap shall be applied as one single half-lapped layer, from duct-edge to duct-edge, to cable, splices and terminations operating in manholes, service boxes or vaults as per section 2.0. The cable wrapping shall be secured with glass cloth (tie-down) tape at the end of each roll and as required to maintain the integrity of the wrapping.
- 4.1.2** The one-inch wide Arc or Arc/Fire resistant cable wraps may be used to fill-in any gaps or windows found after applying the three-inch cable wraps.

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General Comments (cont.)

- 4.1.3 It is not required to apply Arc resistant cable wrap over splices already protected by an Arc resistant boots (see section 3.1).
- 4.1.4 The joint-wipes of lead sleeve splices shall be covered with the one inch wide Arc or Arc/Fire resistant cable wrap. Each layer of the one inch wrap should be applied so that it telescopes smoothly onto the sleeve. The wrap shall be secured with the glass cloth (tie-down) tape as described in section 4.1.1.
- 4.1.5 All asbestos cable wrapping must be removed from cables, splices and terminations before the application of new Arc or Arc/Fire resistant cable wraps. The asbestos cable wrap must be removed and disposed of according to the appropriate EH&S procedures for asbestos handling (Asbestos Management Manual, Section 06.14 and 06.15).

4.2 Cable and Splices at Duct Edges and Rack Arms

- 4.2.1 Cables protected by Arc or Arc/Fire resistant wraps operating in manholes, service boxes or vaults shall be supported by approved insulators (called porcelains) at each rack arm.
- 4.2.2 Splices protected by Arc resistant wraps, Arc/Fire resistant wraps or Arc resistant boots shall be supported by approved joint-shields placed between the two adjacent rack arms. The approved insulators of section 4.2.1 are not required with approved joint-shields.
- 4.2.3 All cables shall be protected at the duct edge with the 14" X 14" Arc or Arc/Fire resistant mat supplied in the applicable kit (Class & Stock 575-5483 for Arc resistance and 575-7687 for Arc/Fire resistance). The mat should be inserted inside an approved duct-edge protector (Fair Leader) approximately six inches into the duct. The mat should be secured in place with glass cloth (tie-down) tape.

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4.3 Cables with Branch Splices

4.3.1 A branch splice joins more than two cables where at least one cable “branches” off from the main feeder run. Examples include taps off the main feeder run to supply a network transformer.

4.3.2 When using arc resistant boots in non-critical manholes the individual cable sections should be wrapped as per section 4.1.1 from where they exit from under the boot to where they reform into a triplexed configuration. Cable in a triplexed configuration can be wrapped together, as per 4.1.1, where one wrap covers all three phases. The wrap over the triplexed cables should overlap the single cables by at least six inches.

4.3.3 Branch splices in critical manholes must be covered with an approved Arc/Fire resistant cable wrap. The body of the splice should be wrapped as per section 4.1 with the individual cable legs on both end of the splice wrapped as per section 4.3.2.

4.4 Restoration of Arc and Arc/Fire Resistant Cable Wraps

4.4.1 When a portion of the existing cable wrapping is removed from the cable, splice or termination, for any reason including fault locating, it must be restored as per this specification. See [EO-6215](#), Restoration of the Cable Jacket and Arc-proofing Material after the Lead Sheath of Flat-Strap Neutrals are Exposed for Fault Locating Purposes, for additional information on the restoration of Arc and Arc/Fire resistant cable wraps.

4.4.2 Arc/Fire resistant cable wrap found on cables, splices or terminations with indications of charring and/or blistering should be replaced with a like-and-kind cable wrap. After removing the existing Arc/Fire resistant cable wrap the underlying cable, splice or termination should be inspected for defects as per [EO-1184](#), Identifying Cable and Splice Abnormalities on Distribution Feeders.

5.0 MATERIALS

- 5.1 Arc Resistant Cable Wrap – Table 1 in [EO-100,177](#)
- 5.2 Arc/Fire Resistant Cable Wrap – Table 2 in [EO-100,177](#)
- 5.3 Material Included In Each Kit – Section 6.0 in [EO-100,177](#)

6.0 REFERENCES

- 6.1 [EO-5343](#), Arc and Fire Resistant Materials Used for Cable Wraps
- 6.2 [EO-10359](#), Periodic Underground Distribution Structure Inspections
- 6.3 [EO-100,177](#), Approved Suppliers of Arc and Fire Resistant Cable Wraps
- 6.4 [EO-1184](#), Identifying Cable and Splice Abnormalities on Distribution Feeders
- 6.5 [EO-6215](#), Restoring Cable Jacket and Arc-proofing Material after the Lead Sheath of Flat-Strap Neutrals are Exposed for Fault Locating Purposes
- 6.6 Asbestos Management Manual, Section 06.14 and 06.15

George Murray (Signature on File)

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<u>REVISION 10</u> Added requirements for “Arc & Fire Resisting Wrap” in addition to the existing requirements for “Arc Proof Tape”. Removed paragraph 5.0, Corrosion Protection Removed paragraph 9.0, Gas-Filled Cable Joints	<u>FILE:</u> Purchase & Test Manual No. 6
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Revision 10 (cont.)

Removed paragraph 13.0, Exposure of the Lead Sheath or Flat Neutrals – For Fault Locating. This is covered in another specification, EO-6215.

Removed paragraph 11.0, Cables Occupying the Same Duct

Added reference to EO-100,177

Added reference to EO-1184

Added reference to EO-10359

Added reference to Asbestos Management Manual, Section 06.14 and 06.15

Deleted reference to EO-6021

General reformatting