

STATE OF NEW YORK DEPARTMENT OF PUBLIC SERVICE

THREE EMPIRE STATE PLAZA, ALBANY, NY 12223-1350

Internet Address: <http://www.dps.state.ny.us>

PUBLIC SERVICE COMMISSION

GARRY A. BROWN

Chairman

PATRICIA L. ACAMPORA

MAUREEN F. HARRIS

ROBERT E. CURRY JR.

CHERYL A. BULEY

Commissioners



PETER McGOWAN

Acting General Counsel

JACLYN A. BRILLING

Secretary

August 5, 2008

Mr. Thomas McCarroll
Executive Director - Public Affairs, Policy and Communications
Verizon New York
158 State Street
Room 100-A
Albany, NY 12207

Dear Mr. McCarroll,

Staff carefully considered the grounding and bonding matters Verizon New York Inc. (Verizon) presented at the meeting of July 29, 2008 for its FiOS product. We also reviewed the additional materials you provided subsequently, including the letters from the manufacturers of various fiber electronic devices and optical network terminals (ONTs).

Our conclusion is that compliance with the National Electrical Code (NEC) is effectuated by adhering to the following: sections 770.100, 800.100 or 820.100 Grounding Methods, and those sections are applicable to either a single family unit (SFU) or multiple dwelling units (MDUs). Pertinent sections that identify electrodes to which the grounding connection shall be made are as follows:

770.100(B) (1), 800.100(B) (1), 820.100(B)(1) In Buildings or Structures with an Intersystem Bonding Termination.

770.100(B) (2), 800.100(B)(2), 820.100(B)(2) In Buildings or Structures with Grounding Means.

770.100(B) (3), 800.100(B)(3), 820.100(B)(3) In Buildings or Structures Without Intersystem Bonding Termination or Grounding Means.

We also find other sections of the code applicable, including but not limited to:

Articles 770.93, 800.93, and 820.93 Entering Buildings,
Articles 770.100(B), 800.100(B), and 820.100(B) Electrode,
Articles 770.100(D), 800.100(D), and 820.100(D) Bonding of Electrodes,
Article 250.94 Bonding for Other Systems,
Article 250.70 Methods of Grounding and Bonding, and
Article 250.64(C) Continuous

We believe compliance with these sections is effectuated for either a single family unit (SFU) or multiple dwelling units (MDUs) by the following general steps, in order of priority:¹

1. Bonding the ONT to a power company ground (e.g. Multi-Ground Neutral or MGN).
2. Bonding the ONT to a metallic cold pipe within five feet of the point of building entrance.
3. Bonding the ONT to structural steel.
4. Bonding the ONT to a telephone ground rod. It is required for the telephone ground rod to be bonded the primary grounding point with a 6 AWG copper wire.

We find that the NEC does not allow for the alternatives the company presented at the meeting, specifically use of a three-prong cord or a grounding module. The code does allow for use of a supplemental or auxiliary ground. However, we do not agree with the company's interpretation that it may employ a supplemental ground as a replacement for the primary grounding connection. The NEC does allow an exception for the length of the grounding conductor in MDUs, where grounding conductors may exceed 20 feet in length in accordance with the footnotes associated with service to apartment and commercial buildings (Article 820.100(A)(4) in the "NEC 2008 Handbook").

Sincerely,

/Original Signed by/

Dennis F. Taratus
Office of Telecommunications
Chief, Network Reliability

/Original Signed by/

Daniel Whelan
Office of Telecommunications
Chief Technology Officer

¹ Appended is a full list of compliant grounding options with code references.

Acceptable NEC Grounding Means in Order of Priority
(Requirements also consistent with Sections 770.100(B) and 820.100(B))

800.100 (B) (1) In Buildings or Structures with an Intersystem Bonding Termination. If the building or structure served has an intersystem bonding termination, the grounding conductor shall be connected to the intersystem bonding termination.

800.100 (B) (2) In Buildings or Structures with Grounding Means. If the building or structure served has no intersystem bonding termination, the grounding conductor shall be connected to the nearest accessible location on the following:

- (1) The building or structure grounding electrode system as covered in 250.50
- (2) The grounded interior metal water piping system within 1.5m (5 ft.) from its point of entrance to the building, as covered in 250.52
- (3) The power service accessible means external to enclosures as covered in 250.94
- (4) The metallic power service raceway
- (5) The service equipment enclosure
- (6) The grounding electrode conductor or the grounding electrode conductor metal enclosure
- (7) The grounding conductor or the grounding electrode of a building or structure disconnecting means that is grounded to an electrode as covered in 250.32

800.100(B) (3) In Buildings or Structures Without Intersystem Bonding Termination or Grounding Means. If the building or structure served has no intersystem bonding termination or grounding means, as described in 800.100(B)(2), the grounding conductor shall be connected to either of the following.

- (1) To any one of the individual electrodes described in 250.52(A)(1), (A)(2), (A)(3), or (A)(4).
- (2) If the building or structure served has no grounding means, as described in 800.100(B)(2) or (B)(3)(1), to an effectively grounded metal structure or to a ground rod or pipe not less than 1.5m (5ft) in length and 12.7 mm in diameter, driven, where practicable, into permanently damp earth and separated from lightning conductors as covered in 800.53 and at least 1.5m (6 ft) from electrodes of other systems. Steam or hot water pipes or air terminal conductors (lightning rod conductors) shall not be employed as electrodes for protectors.