AT&T LEC
TECHNICAL PUBLICATION

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SECTION A--INTRODUCTION

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1. GENERAL

1.1. Introduction

1.1.1 ATT-TP-76911 provides equipment selection, site preparation, engineering, and installation requirements for placement of E911 Customer Premise Equipment (CPE) in the networks of the AT&T Local Exchange Carriers (LECs).

1.1.2 Changes in future issues of this section will be summarized in this paragraph.

1.1.3 The AT&T LEC's entire liability to any person for interruption or failure of 911 service shall be limited by the terms set forth in the AT&T LEC's applicable tariff.

1.1.4 The AT&T LEC reserves the right, without prior notice, to revise this technical publication for any reason.

1.1.5 Conformance to all requirements delineated in this document does not constitute a guarantee of acceptance of a given provider's product for use in the AT&T LEC.

1.1.6 ATT-TP-76911 is effective as of date of issue.

1.2. Outline of ATT-TP-76911

1.2.1 ATT-TP-76911 is divided into five major parts:

a) Section A of ATT-TP-76911 contains introductory material and definitions.

b) Section B provides information of particular interest to potential providers of E911 CPE. Therein are minimum requirements that E911 CPE must meet to be submitted for placement approval in the AT&T LEC's network.

c) Section C provides requirements for preparing a customer site for an E911 equipment installation.

d) Section E provides detail engineering requirements for the development of job specifications to be used by an installer of E911 CPE.

e) Section I provides administrative and workmanship requirements for the installation of E911 CPE.

1.3. Definitions

1.3.1 Definitions of certain terms used in ATT-TP-76911 are as follows:

a) **Public Safety Answering Point (PSAP)** - An agency or group of agencies designated and authorized to receive and respond to emergency calls requiring one or more public services (Police, Fire, EMS or all three).

b) **AT&T LEC** - AT&T Communications Inc Local Exchange Carrier.

c) **Shall** - The word "shall" indicates a requirement.

d) **Should** - The word "should" indicates a recommendation.

1.4. Ordering Information

1.4.1 Internet access is available to approved E911 equipment, engineering and installation suppliers, for downloading electronic copies of ATT-TP-76911 and other AT&T LEC references. Information concerning internet access can be obtained from:

Vickie Jefferson
111 S 3rd AVE, 1st Floor
Madill, OK 73446
vj6542@att.com

1.4.2 Non-AT&T LEC publications referenced herein should be obtained from the originator of the publication.

1.4.3 All proprietary documents referenced in ATT-TP-76911 are available to contracted suppliers through signed nondisclosure agreements or as detailed in current contracts between the AT&T LEC and the supplier.

1.4.4 A summary of references in ATT-TP-76911 can be found in Table A-1.

1.5. Comments On ATT-TP-76911

1.5.1 Comments on ATT-TP-76911 should be submitted by e-mail or in writing to:

Area Manager - Network Engineering Centralized Support
Laurie Gustin
Area Manager
102 Cross St., Room 201
San Luis Obispo, CA 93406
lg1376@att.com

TABLE A-1 – REFERENCES IN ATT-TP-76911

Reference	Title	ATT-TP-76911 Section
NENA 04-001	Generic Standards for E9-1-1 PSAP Equipment	B, E
NENA 03-002	Recommendation for the implementation of Enhanced MF Signaling, E9-1-1 Tandem to PSAP	B, E
NENA 04-002	Recommended PSAP Master Clock Standard	B, E
NENA 04-003	Recommended Generic Standards for E9-1-1 ISDN PSAP Equipment Utilizing Basic Rate Interface (BRI)	B, E
FCC Part 15		B, C
FCC Part 68		B
BSP 800-006-151MP	Network Facility Cable Rack Requirements	E
BSP 802-001-180MP	Grounding and Bonding Requirements - Telecommunications Equipment, Power Systems, Central Offices and Other Structures	E
BSP 800-000-104MP	Bracing Requirements For Network And Data Equipment On Raised Floor System	E
TP 76200	Network Equipment Power, Grounding, Environmental, and Physical Design Requirements	B, E
ATT-TP-76300	Installation Requirements	E
ATT-TP-76400	Engineering Requirements	E
ATT LEC 911 CPE Y2K Test Plan		B
GR-2945-CORE	Year 2000 Generic Requirements: Systems and Interfaces	B
GR-209-CORE (Telcordia Technologies)	Generic Requirements for Product Change Notices	B
GR-63-CORE (Telcordia Technologies)	Network Equipment Building System Requirements: Physical Protection	E

Reference	Title	ATT-TP-76911 Section
National Electrical Manufacturers Association (NEMA)	MG1, Part 22	E
National Electrical Code (NEC)		C, E
Uniform Building Code (International Conference of Building Officials)		E

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SECTION B--E911 EQUIPMENT REQUIREMENTS

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1. GENERAL

1.1. Introduction

1.1.1 This section provides the minimum equipment requirements for E911 Customer Premises Equipment (CPE) to be considered for placement in the networks of the AT&T Local Exchange Carriers (LECs).

1.1.2 Changes in future issues of this section will be summarized in this paragraph.

1.1.3 The E911 equipment provider is responsible for all costs incurred to conform to this section of ATT-TP-76911.

1.1.4 E911 system overview, features and associated definitions can be found in the National Emergency Number Association (NENA) Generic Standards for E911 PSAP Equipment, including, but not limited to:

a) NENA 04-001 Generic Standards for E9-1-1 PSAP Equipment

b) NENA 03-002 Recommendation for the implementation of Enhanced MF Signaling, E9-1-1 Tandem to PSAP

c) NENA 04-002 Recommended PSAP Master Clock Standard

d) NENA 04-003 Recommended Generic Standards for E9-1-1 ISDN PSAP Equipment Utilizing Basic Rate Interface (BRI).

2. REQUIREMENTS

2.1. General

2.1.1 Before the AT&T LEC will begin any equipment evaluation, potential E911 equipment providers shall furnish:

a) Test results verifying that the product meets the standards herein

b) Documentation in accordance with NENA 04-001

c) Documentation that the E911 equipment housing is designed for conditions in high seismic risk locations

d) Certification from a Nationally Recognized Testing Laboratory (NRTL) that the E911 equipment complies with UL1459

e) Documentation that the E911 equipment meets the regulatory requirements of FCC Part 15 and FCC Part 68.

2.2. PSAP Interfaces

2.2.1 The following PSAP interfaces shall be in accordance with NENA Standards for E911 PSAP Equipment:

a) Trunk interface

b) Central office based E911 interface

c) ANI display interface

d) ALI display interface

e) PSAP time synchronization interface

f) Remote data transfer interface

g) 1A2 key telephone system interface

h) Telephone analog audio interface

i) Radio/telephone headset interface

j) Off-hook signal contact pairs

k) Handset/headset interfaces

l) PBX / Automatic Call Distribution (ACD) interface

2.2.2 The **ALI database interface** shall be in accordance with the NENA Standards for E911 PSAP Equipment, with exception of the following:

a) In the **physical** interface, loss of carrier greater than 30 seconds must bring in a local and remote alarm.

b) For retransmits of **ALI requests**, the trunk number shall be 96. The position number must be the position number of the attendant issuing the request.

c) The **heartbeat message** shall be every 60 seconds.

d) For **manual ALI requests**, the trunk number shall be 98. The position number must be the position number of the attendant issuing the request.

2.2.3 The **Computer Aided Dispatch (CAD) interface** shall be in accordance with the NENA Standards for E911 PSAP Equipment, with exception of the following:

a) For **messages exchange**, the PSAP equipment shall have an option to not expect ACK/NAK from the CAD system and dump the message one time.

b) The PSAP equipment shall support the option to disable the transmission of **heartbeat messages**.

2.2.4 The **recorders and teleprinters interface** shall be in accordance with the NENA Standards for E911 PSAP Equipment, with exception of the following:

a) The **logging and recall recorders** shall connect to at least one of the following audio interfaces:

1. Direct connection to emergency trunks and 7/10 digit emergency lines.
2. The telephone set's analog common tip & ring interface.
3. The telephone set's analog handset interface receiver signal.

b) The design of the **connections/interface to printers** shall provide access leads for connections to customer-provided printers. If for any reason the printer in unavailable, alarms shall be generated to local and remote maintenance sites.

c) For the **CDR (Call Detail Record) printer interface**, the ANI/ALI controller shall be able to optionally output the ALI record as a part of the CDR printout. The record also should include text of TDD calls. TDD text shall be upper case for the PSAP calltaker and lower case for the caller text.

2.2.5 The **PSAP alarms interface** shall be in accordance with the NENA Generic Standards for E911 PSAP Equipment, with the following modifications:

a) **Remote alarms** interface shall utilize dedicated facilities and shall be provided in a format that is compatible with and acceptable to the AT&T LEC. The E911 equipment shall have the capability to inhibit the remote alarms. Generally acceptable formats are defined by BSP 801-601-900MP, Section A.03, Items 11.2-11.3.

b) **Alarm messages** shall provide PSAP location and date and time stamp.

c) **Remote Alarm capability** is not required in all AT&T LEC franchise areas. If the E911 equipment does not have remote alarming capabilities as described above, a supplier may be limited for possible deployment in areas of the AT&T family of companies that do not utilize this feature.

2.2.6 The **TDD/TTY interface** shall be in accordance with NENA Standards for E911 PSAP Equipment, with the following modifications:

a) If the TDD/TTY is built into the position, it shall be auto-launch.

b) HVO/VCO is required in addition to the NENA Standards. The TDD/TTY device shall be ADA compliant.

2.3. Call Progress Signals

2.3.1 Call progress signals shall be in accordance with the NENA Standards for E911 PSAP Equipment, with the following modifications:

a) For **E911 PSAP To Tandem With 7 Digit ANI**, if an ANI failure occurs between the E911 tandem office and the PSAP, the digits that shall be displayed are 0-000-0000.

b) The PSAP shall have **remote maintenance** features that allow the maintenance provider to access the PSAP equipment from a remote test center or location to assist in trouble isolation, resolution and fault clearing.

c) For an E911 PSAP equipped with CPE for ANI display, **trunk maintenance test calls** shall be made from the E911 Tandem Office using encoded ANI. KP-8-ST and KP-48-ST test calls shall return 120 IPM over trunk circuit to tandem without ringing in at the PSAP.

2.4. PSAP Feature Requirement Specifications

2.4.1 PSAP feature requirements shall meet the specifications of the NENA Standards for E911 PSAP Equipment.

2.4.2 In addition to the **headset/handset compatibility** requirements, the provider shall provide a list of headsets/handsets that are compatible with the E911 product. These devices shall be carbon compatible to minimize problems with integrating the new equipment with existing PSAP communications systems.

2.5. Commercial Power Requirements

2.5.1 The E911 equipment shall meet commercial power requirements specified in the NENA Standards for E911 PSAP Equipment.

2.6. Physical and Electrical Environment Requirements

2.6.1 The E911 equipment shall be compatible with the physical and electrical environment requirements of the NENA Standards for E911 PSAP Equipment, except that grounding and bonding shall conform to the requirements of TP 76200MP, Sections 6.

2.6.2 Data cabinet doors shall have positive latches and keyed locks to prevent door from accidentally swinging open.

2.7. Maintenance and Administration

2.7.1 The maintenance and administration requirements of the NENA Standards for E911 PSAP Equipment shall be met.

2.7.2 The E911 equipment supplier shall demonstrate compliance with Telcordia document GR-209-CORE, Generic Requirements for Product Change Notices.

2.8. Registration Requirements

2.8.1 The E911 equipment shall meet and be registered in accordance with the NENA Standards for E911 PSAP Equipment.

2.9. Quality and Reliability

2.9.1 The E911 equipment shall meet the quality and reliability requirements of the NENA Standards for E911 PSAP Equipment. In addition, if protection switching is utilized to meet these requirements, no in progress calls shall be dropped when switching occurs.

2.10. Y2K Compliance

2.10.1 The E911 equipment must be Y2K compliant as outlined in Telcordia document GR-2945-CORE, Year 2000 Generic Requirements: Systems and Interfaces, and pass the AT&T LEC's 911 CPE Y2K Test Plan, which will be provided to the potential supplier.

2.11. LAN Vulnerability

2.11.1 All local area network system components (hubs, NICs, media, etc.) shall be disconnected one at a time from the system and impact of their removal documented in the system test results. The LAN cabling (media) shall be shorted and the result of this action documented in system test results also. All alarms generated by these actions shall be described in the documentation package when requesting a system evaluation.

[END OF SECTION]

SECTION C--SITE PREPARATION REQUIREMENTS

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1. GENERAL

1.1. Introduction

1.1.1 The following information will assist the customer in preparing the PSAP site for E911 equipment installation. These requirements and guidelines are given to promote a safe environment for customer and installation personnel and to ensure a reliable E911 system.

1.1.2 Changes in future issues of this section will be summarized in this paragraph.

2. CUSTOMER SITE PREPARATION REQUIREMENTS

2.1. General Requirements and Guidelines

2.1.1 The customer is responsible for costs associated with adhering to the requirements in this section of ATT-TP-76911.

2.1.2 Any deviations from these requirements will require a review by AT&T LEC personnel.

2.1.3 The customer shall inform its architect or contractor of this section of ATT-TP-76911 and ensure that the requirements are met and applicable local ordinances and regulations are followed.

2.1.4 It is strongly recommended that the customer provide its contractor(s) with the E911 Equipment Area/Room QUIK-CHEK List (Figure C-1) and the Electrical Contractor QUIK-CHEK List (Figure C-2). The QUIK-CHEK Lists can then be signed and dated by the respective contractor or delegated authority as a permanent record of the customer's preparation.

2.1.5 When all items on the QUIK-CHEK Lists are in compliance, the customer should then notify the AT&T LEC Marketing Representative that the E911 equipment location is ready for installation. A

copy of the signed QUIK-CHEK lists should be provided to the AT&T LEC Marketing Representative.

2.1.6 The E911 equipment should have a program for service monitoring and recovery plan in the event of a service outage. Items to consider in the plan include but are not limited to:

a) Transfer of AC power to an alternate power source

b) Transfer of E911 service to an alternate PSAP

c) Handling of E911 equipment alarms.

2.2. Equipment Area

2.2.1 A maintenance space or access area around the equipment units should be available. This area should remain clear of all desks, machines, shelves, cabinets and storage. AT&T LEC repair personnel will not move customer material to gain access to equipment or backboards.

2.2.2 The equipment area should be as dust free as possible during and after installation. The floor should be clean, dry, level and free from vibration. The wall and ceiling finish should be a dust free surface that can be cleaned and will not flake.

2.2.3 A minimum clear ceiling height of 7'6" under girders or other obstructions throughout the equipment area should be provided.

2.2.4 A sheet of ¾ inch plywood, mounted 2 feet from the floor, shall be provided for mounting cross connect blocks and other E911 equipment. The plywood shall be painted or sealed per local building and fire codes. In general, if the plywood is fastened to gypsum or plaster, total equipment mounted to board should not exceed 75 pounds. If plywood is fastened to concrete, hollow block with embedded anchors, total equipment mounted to board should not exceed 100 pounds. A minimum of eight wall anchors shall be used to secure the plywood to the building wall.

2.3. Structural Requirements and Guidelines

2.3.1 The site floor condition should be checked before installing E911 equipment. Questionable floor construction may require moving equipment to another location or reconfiguring the equipment package.

2.3.2 The size of the E911 equipment location should be at least 40 square feet. However, the actual size requirements will be determined and agreed upon during the AT&T LEC's site visit.

2.3.3 The desks or tables used for E911 equipment shall be of a design that cannot be easily overturned, i.e. low profile, wide footprint. Workstations with elevated desktops may increase risks of overturning. E911 equipment will not be installed in a customer provided frame unless the frame conforms to the AT&T LEC requirements.

2.4. Environmental Requirements and Guidelines

2.4.1 The ambient temperature and relative humidity in the E911 equipment area should be maintained in a range of 55 to 85 degrees Fahrenheit with relative humidity in the range of 20 to 55 percent.

2.4.2 The E911 equipment location should be an air-conditioned space, with adequate airflow and no condensation.

2.4.3 E911 equipment shall not be installed in rooms in which a major heat source (i.e., boiler room, furnace room) can affect the ambient room temperature significantly.

2.4.4 E911 equipment should not be installed in a flood-prone space or area with high risk of water damage.

2.4.5 To avoid contamination by any process or condition involving silicone based lubricants, inks, dust, solvents or other airborne contaminants, the E911 equipment shall not be located in the same room with copying machines, printing presses and card punch machines, asbestos materials and/or wet cell batteries.

2.5. Electromagnetic Interference

2.5.1 The E911 equipment shall be located in an area that meets the following objectives:

a) Interference from electromagnetic fields less than 2 volts per meter.

b) No interference from licensed radio communication equipment, such as in FCC Rule 15 equipment.

c) No interference from electromagnetic noise, such as might be generated by electric motors with commutators.

2.6. Acoustics

2.6.1 The sound levels in the E911 equipment area shall comply with OSHA requirements.

2.6.2 The sound level in the calltaker location should not exceed 55 dBa, as measured on a sound level meter.

2.7. Lighting

2.7.1 A light intensity of 30 to 100 foot-candles shall be provided around the E911 equipment cabinet for maintenance activities.

2.8. Fire Protection

2.8.1 The customer shall provide chemical fire protection equipment at the E911 equipment location. Water or fire extinguishers not rated for use on electrical fires shall not be used.

2.8.2 Fire stopping, per Section I of ATT-TP-76911, of wall, floor and ceiling penetrations required for the E911 equipment installation is recommended. The customer should discuss arrangement for fire stopping with the SBE LEC Marketing Representative.

2.8.3 If an overhead sprinkler system exists in the equipment area, the E911 equipment should be protected from water damage.

2.9. Electrical Protection

2.9.1 For satisfactory performance of the E911 system, the customer shall arrange for the outside plant distribution cable entrance to be checked for proper electrical protection. Discrepancies noted should be forwarded to the Outside Plant (OSP) Telephone Cable Installation Company for correction.

2.9.2 Protection considerations for a specific cable installation should include all the exposures encountered, whatever the source, and the protection measures should be coordinated to reduce the effects of these exposures. Lightning protection, for example, is primarily a voltage-limiting task requiring bonding and grounding of metallic sheath components and metallic strength members, and the application of protectors to metallic pairs at specified locations. Power protection includes current-limiting that requires a fusible link in addition to the application of protectors and bonding and grounding. Fusible links, however, are not effective for lightning protection or sneak current protection and are not a substitute for protectors.

2.9.3 Good construction, including adequate mechanical strength and proper spacing between power and telephone facilities is the first line of defense against power contacts. Even with proper construction, power contacts can and do occur; this necessitates a coordinated protection plan. Such a plan should provide paths to ground on the telephone plant sufficient to prevent excessive voltage rise, and to conduct enough power line fault current to ground either to rapidly operate fuses or breakers on the faulted power line or to cause line conductors to fuse open at the fault point.

2.9.4 Low impedance paths to ground are an effective aid for lightning mitigation and are achieved by the following:

a) Establishing and maintaining continuity of metallic cable components (shield, strength member, vapor barrier) in cables

b) Bonding metallic sheath components and strength members of cables to metallic support strands as required

c) Bonding the metallic sheath components, strength members and strands of separate cables together

d) Bonds to Multi-Grounded Neutrals (MGN)

e) Proper grounding at buildings.

2.9.5 Telecommunications cables entering a PSAP location shall have all metallic components, such as the shield, strength member, or vapor barrier grounded.

2.9.6 All working and nonworking telecommunications pairs exposed to power and/or lightning that are terminated in the building shall have protectors. This applies to cable pairs contained in both paired conductor cable and optical fiber cable.

2.9.7 Exposed unterminated pairs within a building must be either grounded or isolated from ground within a closure. Fuse cable or a fuse link is required if the building is served by pairs larger than 24 gauge that are exposed to power.

2.9.8 Where ac powered equipment is located at the customer's location, protectors are required if the power is exposed to lightning, even though the telecommunications cable may be classified as unexposed.

2.9.9 The National Electrical Code (NEC), Articles 770 and 800, covers the installation of telecommunications facilities at customer locations.

2.9.10 If the PSAP site is served by 19 or 22 gauge paired conductor distribution cable, a fuse cable (or fusible link) shall be installed between the protector at the site and the exposed plant. The fusible link may consist of any of the following:

a) A 24 or 26 gauge cable having a minimum length of 2 feet under the cable's shield; or

b) The 24 or 26 gauge cable stub of a terminal block or building entrance protector.

2.9.11 The fusible fink may be located within the customer's location, provided that it is under the metal shield of a grounded cable.

2.9.12 Where an optical fiber cable containing metallic pairs is exposed to power a protector with an associated fuse link shall be installed for each metallic pair. The fuse link may be one of the following:

a) The 24 or 26 gauge tip and ring pairs contained in the optical fiber cable

b) The 24 or 26 gauge conductors in the input cable stub of a multiple pair station protector

c) A minimum two foot section of 24 or 26 gauge, metallic shielded cable placed in series with the optical fiber cable pairs between the power exposure and the customer location.

2.9.13 Where the optical fiber cable pairs themselves are to serve as the fuse link, that portion of the optical fiber cable routed within the customer's building should have a full circumferential metallic shield. If the cable does not have this shield, the cable within the building should be contained in a conduit appropriate for the purpose.

2.9.14 If a protector stub cable is to serve as the fuse link, the stub cable pairs must be contained under a metallic shield and the protector should have no exposed backplane wiring. The optical fiber cable to stub cable splice should be contained in a grounded metallic splice case.

2.9.15 When a fuse link such as a protector stub cable or fuse cable is used, the optical fiber cable shall coordinate with the 24 or 26 gauge fuse link conductors. If not, the optical fiber cable must have a full circumferential metallic shield, or be run in a conduit appropriate for the purpose, where it is routed inside a building.

2.9.16 Approved fuseless protectors shall be installed in all cases.

2.9.17 The building entrance facility protector(s) shall always be connected to an approved ground via the shortest and straightest practical route. See Table C-1 to determine the size of the Protector Ground Wire.

Table C-1 - Ground Wire Capacity

Ground Wire Size (AWG)	Max. No. Protected Circuits
No. 12	5
No. 10	6
No. 6	7 or more

Note: The ground wire between protectors shall be the same size as the ground wire between the protector and the grounding electrode.

2.9.18 The NEC requires the bonding together of all available electrodes into a grounding electrode system and the preferential choice for grounding the electric power is to any point on that system. The system consists of a bonded assembly of all of the following electrodes if available at the premises or structure:

a) The metal frame of a building where effectively grounded.

b) Concrete encased electrode as defined by the NEC

c) A buried ground ring as defined by the NEC

d) A metal underground public or private water pipe with at least 10 feet of metal pipe in direct contact with the earth.

2.9.19 The first choice for a station protector ground is the nearest accessible location on the power grounding system. For new construction, the NEC, in Article 250, requires an accessible means be provided (as part of the power service installation) for bonding and grounding other systems (such as the telephone) to the power ground. This may consist of the following:

a) A metallic service entrance conduit

b) A power grounding conductor

c) An external connector provided on the electric power service equipment or service raceway.

2.9.20 The power grounding system for grounding the protector shall result in the shortest run of grounding conductor. A gas pipe shall not be used as the grounding electrode for the protector.

2.9.21 The NEC requires that the power and telephone grounds be bonded. This is accomplished automatically when the station protector is grounded to the power grounding system. In installations where the power ground is inaccessible, the power is not grounded or there is no power present at the premises, a ground rod should be used to ground the station protector. The ground rod should be bonded to the interior metallic water system. Where the power ground is inaccessible or the power is not grounded, the customer should be notified that an unsafe condition might exist.

2.9.22 The AT&T LEC Equipment Engineer shall be contacted if the power ground is found to be defective.

2.9.23 Water pipes and gas pipes shall not be used as a grounding electrode or bonding conductor.

2.9.24 If the elements of the grounding system are present at the location, the flow chart in Figure C-3 may be used to select and acceptable protector ground.

2.9.25 The power and protector grounds shall be common.

2.9.26 Grounded metallic structures (such as uncoated buried tanks, pipes, conduits, and building steel) may be used for protector grounds when such structures will provide a better ground than a driven electrode. If the electric service is grounded to a buried metallic structure, the telephone protector ground shall be connected to the same structure.

2.9.27 Where none of the previously described grounding electrodes are available, standard E Station ground rods must be used for grounding station protectors. When an E Station ground rod is used, the interior metallic water pipe shall be bonded to the ground rod.

2.9.28 The metallic sheath components and strength members of cable shall be grounded as close to the entrance to the customer's building as practical but not more than 50 feet from the entrance. Protectors should be placed as close as practical to the entrance. The point of entrance is considered to be the point of emergence through an exterior wall, a concrete floor slab, or from a rigid metal conduit or an intermediate metal conduit that is grounded to the approved protector ground.

2.10. Grounding and Bonding Information, Recommendations and Requirements

2.10.1 Care must be taken at PSAP sites to avoid the creation of grounding arrangements that are above and beyond those needed to provide adequate fault current paths and reliable equipment operation. Unwarranted arrangements may result in undesirable conditions, including violations of electrical codes. Engineering requirements for grounding and bonding of E911 equipment can be found in Section E.

2.10.2 Isolated ground type AC receptacles are not recommended for any equipment unless required by the equipment manufacturer.

2.10.3 If the PSAP site is equipped with radio equipment and one or more radio antennas, it is strongly recommended that the site, including the building, the equipment within the building, each antenna and/or antenna support structure and other external and internal objects are equipped with a grounding system that, at minimum, conforms with the applicable requirements for radio sites in BSP 802-001-180MP.

2.10.4 All AC receptacles serving E911 equipment shall be grounded type receptacles.

2.10.5 AC equipment grounding (ACEG) conductors serving receptacles for E911 equipment shall meet all applicable requirements in Article 250 of the NEC and all other applicable codes. The ACEG conductor serving the E911 circuit breaker box shall be electrically continuous from the source of the AC system.

2.10.6 Where new feeders, distribution panels, branch circuits, etc., are installed to serve E911 equipment, it is strongly recommended that a separate ACEG conductor be installed in every added conduit and/or other raceway.

2.10.7 The E911 equipment area may be equipped with a bus bar and/or a system of grounding conductors connected to the site’s earth electrode system. If so equipped, the customer shall

allow access to the bus bar and/or grounding conductors for connection of grounding conductors serving E911 equipment, when required.

2.10.8 When required by the E911 equipment manufacturer or when E911 equipment contains a DC power source, a point of connection to the PSAP site's earth electrode system shall be furnished by the customer in the area where the E911 equipment is located. The preferred means of providing this point of connection is a small bus bar (Square D PK7GTA or equivalent). When a point of connection is required, a minimum #6 AWG bond shall be made from this point, in order of preference, to one or more of the following:

a) Dedicated grounding conductor extended from the site's earth electrode system

b) Building structural steel, provided it is bonded to the site's earth electrode system

c) Continuous metallic water pipe, provided it is accessible along its entire length to the point where it is bonded to the site's earth electrode system

d) Metallic conduit, raceway or panel containing service conductors

e) Metallic shield of a copper or fiber cable that has been bonded to the site's earth electrode system at the cable entrance

f) If it furnishes a continuous metallic path to the site's earth electrode system, a metallic conduit, raceway or panel containing feeder conductors

g) If it furnishes a continuous metallic path to the site's earth electrode system, a metallic conduit, raceway or panel containing branch circuit conductors

NOTE 1: The locations in f) and g) should only be used when no other location is available.

NOTE 2: Any conduit bonding hardware (bushings, clamps, etc.) must be listed for the purpose.

2.11. AC Power Requirements and Guidelines

2.11.1 AC surge protection should be provided at all electrical outlets providing power to customer owned equipment, such as displays and printers that interface with E911 equipment.

2.11.2 All customer provided AC power circuitry shall comply with the NEC and local codes.

2.11.3 The electrical load center shall be provided as follows:

a) The main E911 circuit breaker box shall be wired from the commercial AC load center or UPS with an appropriately sized circuit.

b) The feeder breaker shall be designated "E911 Panel."

2.11.4 The circuit breaker box shall be surface mounted to the wall in the E911 equipment location. The circuit breaker box shall be dedicated and used exclusively for E911 equipment.

2.11.5 The dedicated E-911 AC power service cabinets shall be designated with name, number, voltage and type of service, e.g., "PWR DISTG SERVICE CAB 001 208V AC 60 HZ 3PH 4W. E-911 Circuits Only."

2.11.6 The conduit serving the E911 circuit breaker box shall have a permanent tag attached that identifies the physical location of the serving load center. Example: From Panel A in Room l04.

2.11.7 The "serving load center" for the E911 circuit breaker box shall be connected to the local emergency generator bus, to provide continued electrical service in the event of a commercial power failure.

2.11.8 To prevent E911 equipment failure caused by the loss of commercial power source, an Uninterruptable Power Supply (UPS) is strongly recommended. The UPS should provide a minimum of 15 minutes of emergency power for full functionality of the following listed elements of the E-911 system:

a) Operator positions (both telephone sets and displays)

b) ANI and ALI controllers

c) ALI link modems and Network interfaces

d) Telephone common equipment

e) TDD/TTY devices

f) Recording devices.

The UPS shall be equipped with a manual by-pass switch to allow maintenance.

2.11.9 Each receptacle serving E911 equipment shall be dedicated to E911 equipment and shall be on a separate circuit breaker.

2.11.10 The electrical outlets shall be wired from the E911 circuit breaker box with conductors sized per NEC or local prevailing codes. Label the dedicated E-911 circuit breaker with the location of the circuit being served.

2.11.11 Extension power cords shall not be used in permanent installation for power to E911 equipment.

2.11.12 When power strips are used, the total load shall not exceed the capacity of the over-current protection device for the circuit.

2.11.13 Each answering position shall have a duplex outlet for the CRT and telephone set. However, different applications may require additional outlets.

2.11.14 The AC service provided for the E911 recording devices (tape drives/printers, etc.) may be served by a different AC load center than was provided for the E911 equipment location. However, these circuits also should be transferable to the emergency bus.

2.12. Access

2.12.1 The customer shall provide suitable access for movement of equipment into and out of the building. Such arrangements may be discussed with the AT&T LEC Marketing Representative during the site visit .

2.12.2 The customer shall provide a suitable route, per local ordinances, for installing cable:

a) From the E911 equipment location to the room in which the attendants are located

b) From the cable entry of the building to the 911 equipment area/room.

2.12.3 The customer should provide parking facilities for installation and maintenance personnel.

2.12.4 Washroom and toilet facilities should be available to installation personnel during the installation and testing period.

2.12.5 If the customer provides telephone set, printers and/or ALI displays, the customer shall allow the AT&T LEC to provide and designate a demarcation terminal strip.

2.12.6 The E911 equipment location should be secured from access by unauthorized personnel. However, access to AT&T LEC installation and maintenance personnel should be provided on a 24-hour basis.

FIGURE C-1 – E911 EQUIPMENT AREA/ROOM "QUIK-CHEK" LIST

Customer _____

Location _____

	Complied Yes	No	N/A
1. The 911 Equipment is located in a room:			
• containing no contaminants.	_____	_____	_____
• having sufficient maintenance area.	_____	_____	_____
• that is dust free.	_____	_____	_____
• where floors are clean, dry, level and free from vibration .	_____	_____	_____
2. Suitable routes are accessible for cable and ground wire routing to locations.	_____	_____	_____
3. If an overhead sprinkler system exists, E911 equipment has been protected from water damage.	_____	_____	_____
4. An appropriate type Fire Extinguisher system or unit has been provided.	_____	_____	_____
5. A backboard has been provided, painted/sealed per local codes.	_____	_____	_____
6. If Customer provides external equipment (telephone sets,printers, displays, etc.), the demarcation terminal strip has been installed.	_____	_____	_____
7. There is suitable access for movement of E911 equipment into and out of the building.	_____	_____	_____
8. The E911 equipment location is secured from access by unauthorized personnel.	_____	_____	_____
9. AC surge protection is provided at all electrical outlets providing power to customer owned equipment, such as displays and printers that interface with E911 equipment.	_____	_____	_____
10. All customer provided AC power circuitry complies with the NEC and local codes.	_____	_____	_____
11. The outside plant distribution cable entrance has been checked for electrical protection per the AT&T LEC's recommendations.	_____	_____	_____

	Complied Yes	No	N/A
12. The proposed equipment room meets the following environment requirements.			
• Ambient room temperature and relative humidity maintained in a range of 18 to 35 degrees Centigrade (65 to 95 degrees Fahrenheit) with relative humidity in the range of 20 to 60 percent.	_____	_____	_____
• The E911 equipment location is in an air-conditioned space, with adequate airflow and no condensation.	_____	_____	_____
• The room does not contain a major heat source (i.e., boiler room, furnace room) which could affect the ambient room temperature significantly.	_____	_____	_____
13. The floor condition is free from defects. (Questionable floor construction may require moving equipment to another location or reconfiguring the equipment package.)	_____	_____	_____
14. The size of the E911 equipment location is at least 40 square feet. (The actual size requirements will be determined and agreed upon during the AT&T LEC's site visit.)	_____	_____	_____
15. The desks or tables used for E911 equipment are of a design that cannot be easily overturned, i.e. low profile, wide footprint.	_____	_____	_____
16. The proposed equipment rooms meet the following Electromagnetic Interference requirements.			
• Interference from electromagnetic fields less than 2 volts per meter.	_____	_____	_____
• No interference from licensed radio communication equipment.	_____	_____	_____
• No interference from electromagnetic noise.	_____	_____	_____
17. The proposed equipment room meets the following acoustic requirements.			
• The sound levels in the E911 equipment area comply with OSHA requirements.	_____	_____	_____
• The sound level in the calltaker location does not exceed 55 dBa,	_____	_____	_____
18. The proposed equipment room meets the following lighting requirements.			
• Is a light intensity of 30 to 100 foot-candles provided around the E911 equipment cabinet for maintenance.	_____	_____	_____
19. If the E911 equipment is located near or connected to radio equipment that is directly connected to an outside antenna, the customer's radio equipment has been reviewed per the AT&T LEC's recommendation.	_____	_____	_____
20. Does the customer want AT&T to handle firestopping?	_____	_____	_____

21. Please note any other site unique items that may affect personnel safety or E911 equipment reliability.
_____

VERIFIED BY: _____ **DATE:** _____
TITLE: _____

FIGURE C-2 – E911 ELECTRICAL CONTRACTOR "QUIK-CHEK" LIST

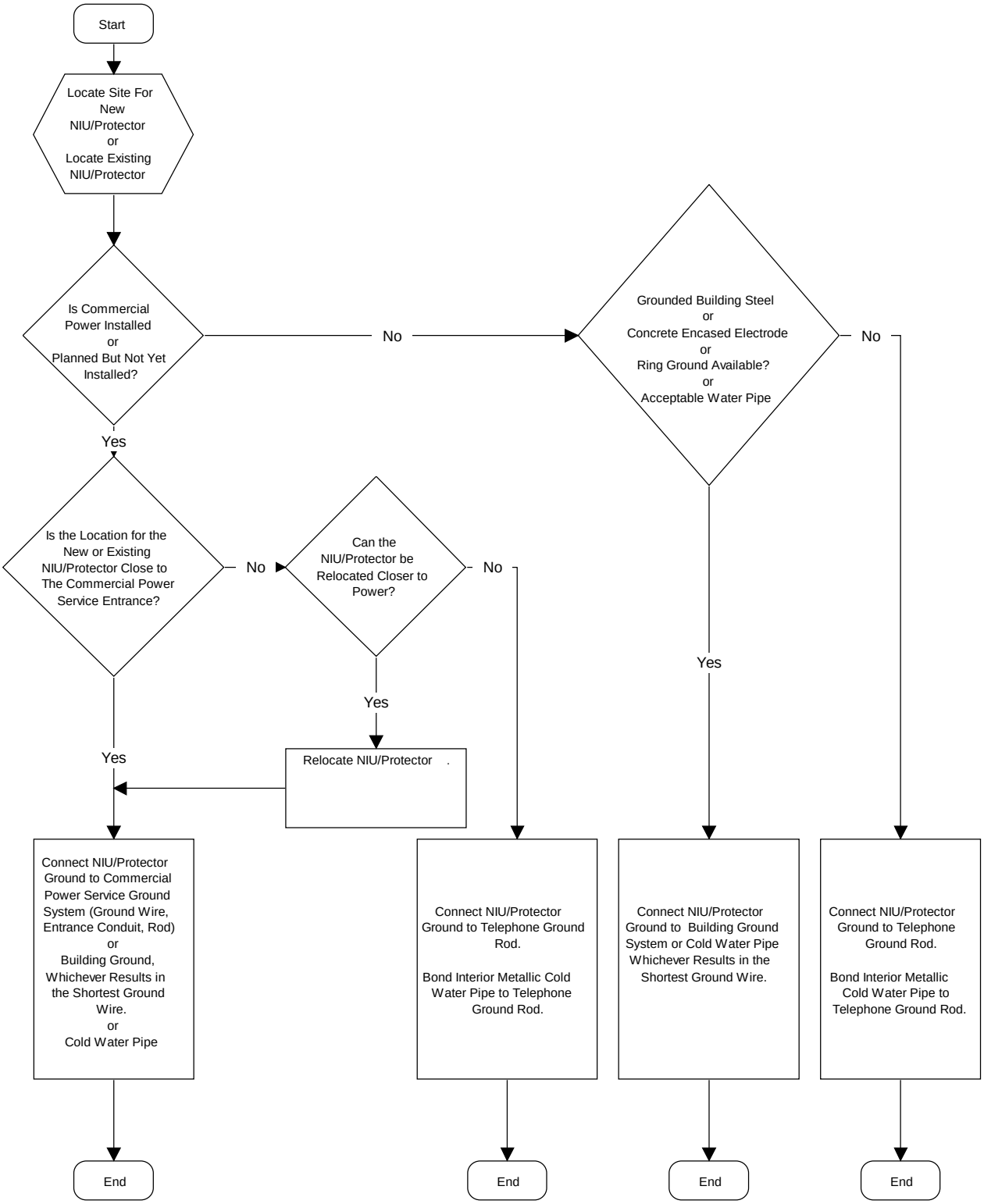
Customer _____
Location _____

	Complied Yes	No	N/A
1. The main E911 circuit breaker box is wired from the commercial AC load center, transformer or UPS with an appropriately sized circuit.	_____	_____	_____
2. The feeder breaker in the load center is designated "E911 Panel".	_____	_____	_____
3. The circuit breaker box is surface mounted to the wall in the E911 equipment location.	_____	_____	_____
4. The circuit breaker box is dedicated and used exclusively for E911 equipment.	_____	_____	_____
5. The front panel of the breaker box designated is "E911 CIRCUITS ONLY".	_____	_____	_____
6. The conduit serving the E911 circuit breaker box is equipped with a permanent tag that identifies the physical location of the serving load center.	_____	_____	_____
7. The "serving load center" for the E911 circuit breaker box is connected to the local emergency generator bus.	_____	_____	_____
8. If a UPS is provided, the UPS is equipped with a manual by-pass switch to allow maintenance.	_____	_____	_____
9. All 9-1-1 A/C Electrical circuits are wired from the 9-1-1 circuit breaker box and equipped with:			
• Conductors sized per NEC or local prevailing codes.	_____	_____	_____
• Dedicated and separate AC circuit breaker and AC receptacle for each E911 equipment circuit.	_____	_____	_____
• Non-isolated AC receptacles. (unless required by the manufacturer of company provided equipment.)	_____	_____	_____
10. No extension power cords are used in permanent installation for power to E911 equipment.	_____	_____	_____
11. All AC receptacles serving E911 equipment are grounded type receptacles.	_____	_____	_____
12. If required, a point of connection to the PSAP site's earth electrode system has been furnished.	_____	_____	_____

	Complied		
	Yes	**No**	**N/A**
13. All AC equipment grounding (ACEG) conductors serving receptacles for E911 equipment meet all applicable requirements in Article 250 of the NEC and all other applicable codes.	_____	_____	_____

VERIFIED BY: _____ **DATE:** _____
TITLE: _____

FIGURE C-3 – SELECTING AND ACCEPTABLE PROTECTOR GROUND



[END OF SECTION]

SECTION E--ENGINEERING REQUIREMENTS

CONTENTS PAGE

1. GENERAL

1.1. Introduction

1.1.1 This section provides the engineering requirements for installations of E911 equipment at Public Safety Answering Point (PSAP) locations for the AT&T Local Exchange Carriers (LECs).

1.1.2 Changes in future issues of this section will be summarized in this paragraph.

1.1.3 The detail engineering service provider for E911 CPE is responsible for all costs incurred to conform to this section of ATT-TP-76911.

1.2. Detail Engineer's Responsibilities

1.2.1 The Detail Engineer is the person or supplier responsible for developing the job package for the installer. The job package contains the installer's instructions, drawings, material lists, etc. for the E911 equipment installation at the PSAP site. The term "Detail Engineer" and the requirements herein apply to AT&T LEC personnel who develop job packages for E911 equipment, as well as to contracted suppliers of detail engineering services.

1.2.2 The Detail Engineer is responsible for:

a) Ensuring the equipment supplier's installation and interconnection requirements are met.

b) Ensuring that engineering is done in accordance with ATT-TP-76911, federal, state, and local requirements, laws, and regulations.

c) Obtaining required documentation to engineer the project.

d) Ensuring that required licenses, copyrights, or permits are available, if an equipment supplier requires them in the course of engineering.

e) Providing information and direction to the equipment supplier in accordance with the requirements established by the AT&T LEC practices or requirements.

f) Providing interpretation and direction to the installer on questions related to the job package.

1.2.3 The Detail Engineer should direct questions concerning the E911 project to the AT&T LEC Equipment Engineer.

1.3. General Requirements

1.3.1 The Detail Engineer shall use AT&T LEC approved products. Questions concerning the approved products should be directed to the AT&T LEC Equipment Engineer.

1.3.2 The AT&T LEC Equipment Engineer must approve deviations from ATT-TP-76911. The Detail Engineer shall include documentation of the approved deviation in the job package.

1.3.3 Along with this section, the Detail Engineer shall refer to Section I of ATT-TP-76911 to develop the job package, to ensure that the E911 equipment installation conforms to the requirements and references provided herein.

1.3.4 In addition to the requirements herein, the Detail Engineer shall comply with relevant building codes, national (e.g., NEC) and local electrical codes or other ordinances, statutes, rules, or governmental regulations.

2. THE JOB PACKAGE

2.1. Inputs to the Job Package

2.1.1 It is assumed that the Detail Engineer has available the following:

a) National Electrical Code (NEC) information

b) Nationally Recognized Testing Laboratory (NRTL) information

c) American National Standards Institute (ANSI) information

d) Manufacturer-specific equipment information

e) Manufacturer-specific interconnect information

f) Manufacturer-specific installation information

g) TP 76200MP Network Equipment Power, Grounding, Environmental, and Physical Design Requirements.

h) TP 76300MP Installation Requirements

i) TP 76400MP Engineering Requirements

j) ATT-TP-76911 E911 Requirements

k) AT&T LEC Bell Service Practices (BSPs) referenced in ATT-TP-76200, ATT-TP-76300, ATT-TP-76400 and ATT-TP-76911

l) National Electrical Manufacturers Association (NEMA) MG1, Part 22

m) National Emergency Number Association (NENA) Generic Standards for E911 PSAP Equipment

2.1.2 The AT&T LEC Equipment Engineer will provide specific project information, such as E911 service requests, site preparation guide, scope of work, etc., to the Detail Engineer.

2.2. Contents of the Job Package

2.2.1 The job package is the Detail Engineer's instruction set to the installer. The Detail Engineer shall provide in the job package all information that meets the requirements for:

a) Securing equipment against service risks

b) Routing, support and protection of cables

c) Maintaining equipment environment standards

d) Maintaining building, electrical and fire codes

e) Installing the E911 equipment per AT&T LEC requirements.

2.2.2 The job package shall include the following, as applicable to the job:

a) Cover sheet - A face sheet or title page (e.g., Job Control Form, specification cover sheet) containing specific key information about the job. A cover sheet is always required and shall include the following:

1. Job site name and address
2. Material "ship to" address
3. Description of work to be performed
4. Material ship date, installation start and completion date
5. Authorization information
6. Telephone numbers for project contacts

Other information may be included on the cover sheet as needed.

b) Job summary – A narrative summary of the entire job. The Job Summary shall contain the following information:

1. Additions to an existing location
2. A partial or complete removal
3. Listing of associated jobs/orders
4. Job sequencing/coordination requirements

c) Major items of equipment - A listing of major material items and activities included in the job summary. It shall contain the following information:

   1. Major items of equipment to be added or removed.
   2. Listing by major equipment category
   3. Listing by quantity and title of the equipment

d) Installer's general notes - Notes that provide direction applicable to the work to be performed. The following general notes shall always be included:

   1. The entire installation shall be in compliance with ATT-TP-76911. A copy of ATT-TP-76911 shall be available at the job site during installation.
   2. The installer shall have an approved Method of Procedure (MOP), in accordance with Section I of ATT-TP-76911, to begin work.
   3. The installer shall make equipment operational tests in accordance with the manufacturer's specifications. The installer shall leave a hard copy of all test records and software parameter settings with the installed equipment.
   4. The installer shall ensure that all applicable alarms associated with equipment added or modified in this job package work properly and are received at the local and remote alarm monitoring station.
   5. The installer shall leave on-site a copy of the manufacturer's documentation, the job package and the MOP.
   6. The installer shall refer engineering questions pertaining to this job package to the Detail Engineer.

   Other general installation notes may be included as required by the job.

e) Installer's job specific notes – Notes that provide direction associated with a specific work item. Installer's job specific notes should be used as needed to give clear instruction to the installer.

f) Material listing – The detailed list of all items ordered for the job (Summary of Materials).

g) Material listing notes – Instructions and information about the items ordered. These notes shall be used to indicate the supplier or source, and any special handling requirements.

h) Material to be removed – A listing of material to be removed and instructions for its disposition.

i) Job site drawings - If equipment is frame mounted, job site drawings shall be provided. At a minimum, the following drawings shall be provided:

   1. Floor Plan Record - includes building details necessary to locate and install the E911 equipment.
   2. Grounding Schematic - shows the principal ground point location, equipment ground bars, size of grounding conductors, ground terminations, and grounding electrodes.

3. Power Equipment Record - includes fuse assignments and details of the equipment used to produce, control and distribute power to the E911 equipment. Power Equipment Records shall be provided if the AT&T LEC provides the associated equipment.

4. Front Equipment Record - records of the physical location of equipment on various frameworks at the PSAP site.

TP 76400MP, Section 4, may be used as a guide for the content of these drawings.

j) Manufacturer's documentation - All applicable manufacturer provided documentation shall be included in the materials list.

k) Cable run information – Provides details on running cable between units of equipment. The following information shall be included:

1. Run number of each cable

2. A cross-reference to the material listing for the cable

3. The length of the cable run in feet

4. The number of cables to be run

5. The code of the cable being run

6. The cable termination point on the equipment

2.2.3 The Job Package shall be completed and distributed to the AT&T LEC Equipment Engineer by the assigned completion date.

2.2.4 The Detail Engineer shall issue an Appendix to show supplemental information required to complete the original Job Package, including additions, removals, record changes, or cancellations.

3. TECHNICAL CONSIDERATIONS

3.1. Power Requirements

3.1.1 The AT&T LEC customer is responsible for providing commercial AC power for the E911 equipment, per Section C.

3.1.2 If the AT&T LEC Equipment Engineer requests UPS backup, a reserve battery power supply or UPS (Uninterruptable Power Supply) shall provide a minimum of 15 minutes of emergency power for full functionality of the following listed elements of the E911 system:

a) Operator positions (both telephone sets and displays)

b) ANI and ALI controllers

c) ALI link modems and Network interfaces

d) Telephone common equipment

e) TDD/TTY devices

f) Recording devices.

3.1.3 The UPS shall be equipped with a manual by-pass switch.

3.2. Equipment Layout

3.2.1 E911 equipment installed in PSAP locations may be installed in various configurations depending on equipment size, application, room size, proximity to connected equipment or space available. The equipment may be installed on desktops, in a floor mounted relay rack, floor mounted data cabinet, wall mounted housing, placed on raised floor system, or fastened directly to a plywood wallboard. In all configurations, the E911 equipment shall be secured as required by these guidelines to reduce risk of service interruptions.

3.2.2 The Detail Engineer shall refer to Telcordia GR-63-CORE or the Uniform Building Code (UBC) for seismic risk maps. Equipment requires greater measures of securing when installed in locations of high seismic risk such as in California and parts of Missouri and Arkansas.

3.2.3 E911 equipment should be located in an area protected from high foot traffic, water spray, other equipment interference, with easy maintenance access, good ventilation when possible. Minimum of two feet aisle space around equipment is required for service access and ventilation.

3.2.4 Equipment shall not be located near heat or electrical interference sources.

3.2.5 Horizontal surfaces (e.g., desktops, shelves, desk trays, cabinets, or storage unit) on which E911 equipment will be placed:

a) Shall be stable and capable of supporting the weight of the E911 equipment

b) Shall be a minimum 2 inches greater than the footprint dimension of the E911 equipment

c) Shall be provided with a non-slip rubberized pad under the footprint of the equipment

d) In high seismic risk areas, the equipment shall be secured with straps or tie down hardware, e.g. Thumb Lock straps, webbed straps.

3.3. Grounding and Bonding Requirements

3.3.1 Care must be taken at PSAP sites to avoid the creation of grounding arrangements that are above and beyond those needed to provide adequate fault current paths and reliable equipment operation. Unwarranted arrangements may result in undesirable conditions, including violations of electrical codes.

3.3.2 The grounding of E911 equipment installed at PSAP customer locations shall conform to the requirements in BSP 802-001-180MP. The equipment at these sites can be separated into four categories, based on the powering arrangements and equipment environment. A description of each category, primary grounding requirements from the BSP, and some explanations are provided below.

3.3.3 **Category 1** equipment is described as follows:

a) The equipment is powered only from an external AC source.

b) The equipment is not co-located with DC powered equipment.

c) The equipment does not contain a DC power source that includes batteries.

3.3.4 **Category 1** equipment is considered adequately grounded via the AC equipment grounding (ACEG) conductor in the AC power cord or hard wired AC power connection, and does not require additional grounding connections.

3.3.5 **Category 2** equipment is described as follows:

a) The equipment is powered only from an external ac source.

b) The equipment is co-located with dc powered equipment.

c) The equipment does not contain a dc power source that includes batteries.

3.3.6 For **Category 2** equipment, a minimum #6 AWG framework grounding conductor shall be installed between the chassis of the equipment's frame, cabinet or other enclosure and the grounding system serving the dc powered equipment.

3.3.7 **Category 3** equipment is described as follows:

a) The equipment is powered from an external dc source.

b) The equipment may or may not be co-located with other equipment.

c) The equipment may or may not contain a dc power source that includes batteries.

3.3.8 For **Category 3** equipment, minimum #6 AWG conductor shall be installed between the chassis of the equipment's frame, cabinet or other enclosure and the grounding system to which the DC source is referenced.

3.3.9 **Category 4** equipment is described as follows:

a) The equipment may or may not be powered from an external DC source.

b) The equipment may or may not be co-located with other equipment.

c) The equipment contains a DC power source that includes batteries.

3.3.10 For **Category 4** equipment, a minimum #6 AWG conductor shall be installed between the chassis of the equipment enclosure and an appearance of the site's earth electrode system. When a cord-connected enclosure contains batteries as part of a DC power system, a framework ground conductor shall be provided between the enclosure's chassis and an extension of the site's earth electrode system.

3.3.11 Requirements for the grounding and bonding of entrance cables, protectors and network interface units are provided in ATT-TP-76911, Section C.

3.4. Physical Installation

3.4.1 Floor mounted framework and data cabinets shall be secured to building floor with concrete embedded anchors. In general, for low seismic risk locations (Zones 0-2), four ½ inch diameter Hilti HDI style of anchors shall be used to secure the frame. In high seismic risk locations (Zones 3-4), four 12mm Hilti HSL style anchors shall be used to secure the frame.

3.4.2 Floor mounted framework shall never be loaded with total equipment weight exceeding 400 pounds.

3.4.3 Data cabinet doors shall have positive latches and keyed locks to prevent door from accidentally swinging open.

3.4.4 Equipment, up to 10 pounds in weight, attached directly to the building wall shall used the following hardware:

a) Concrete, brick two ¼" Hilti HDI or ¼" Hilti Kwik-Bolt anchors

b) Hollow Blocktwo ¼" Hilti Toggler bolt

c) Sheetrock two ¼" Hilti Toggler bolt

d) Plaster two #14 wood lag screws

3.4.5 Equipment more than 10 pounds in weight shall be secured to concrete, brick or hollow block with additional two anchors. When attaching to sheetrock wall, the heavier equipment must attach to the wall framing or studs with wood lag screws.

3.4.6 Equipment greater than 40 pounds in weight shall not be secured to wall directly. Additional support from floor shall be provided.

3.4.7 Equipment installed on customer raised floor system shall be housed in an enclosure or relay rack that is securely attached to the building floor. Approved securing methods are described in BSP 800-000-104MP.

3.5. Cable Management

3.5.1 For non-power cable, the Detail Engineer shall follow the wire and cable requirements of TP 76400MP, Section 7.

3.5.2 Fiber optic interconnecting cable shall be run in dedicated raceways such as rectangular or circular ducts. Do not use circular fiber innerduct inside any building because of their flammability risks.

3.5.3 Coaxial cables may be run with switchboard cable on cable rack or in raceway.

3.5.4 In locations where the building ceiling is not prepared, cable racks and raceway systems shall be supported by equipment framework.

3.5.5 Cable raceway such as Panduit Type F Slotted Wall Ducts shall be used to support and protect cables when running cables overhead and between equipment relay racks or cabinets. The ducts shall be provided when steel ladder type cable rack is not available or will be difficult to install. See Table E-1

Table E-1
Panduit Type F Slotted Wall Duct

F Duct P/N	Nominal Duct Size		Cover P/N	Std. Length
	Width	Height		
F.5X.5LG6 F.5X1LG6	0.50	0.50 1.00	C.5LG6	6 ft.
F.75X.75LG6 F.75X1.5LG6	0.75	0.75 1.50	C.75LG6	6 ft.
F1X1LG6 F1X1.5G6 F1X2G6 F1X3G6	1.00	1.00 1.50 2.00 3.00	C1LG6	6 ft.
F1.5X1LG6 F1.5X1.5G6 F1.5X2G6 F1.5X3G6	1.50	1.00 1.50 2.00 3.00	C1.5LG6	6 ft.
F2X1LG6 F2X1.5G6 F2X2G6 F2X3G6	2.00	1.00 1.50 2.00 3.00	C2LG6	6 ft.
F3X1LG6 F3X2G6 F3X3G6	3.00	1.00 2.00 3.00	C3LG6	6 ft.
F4X2G6 F4X3G6	4.00	2.00 3.00	C4LG6	6 ft.

3.5.6 Ducts shall be secured to top of relay racks or cabinets and run parallel to lineup for distribution of cable to all racks. Support the ducts running to building at walls or from overhead. Ducts shall not be unsupported at distance greater than 3 feet.

3.5.7 All Slotted Wall Duct systems shall have joints at coupler fittings or other system fittings be secured with snap rivets, Panduit P/N NR2WH-L, for additional strength.

3.5.8 For switchboard, power and alarm cables, gray duct shall be used. For fiber optic cables, yellow duct shall be used.

3.5.9 Steel ladder cable racks shall be used in installations when large numbers of cables are expected. When cable volume exceeds capacity of 4 inch wide by 5 inch high Panduit Slotted Wall Ducts, this volume shall be considered a large number of cables.

3.5.10 Ladder type cable rack shall be supported to building wall per paragraphs 3.14 through 3.18 of BSP 800-006-151MP, Network Facility Cable Rack Requirements. Ladder type cable rack shall also be installed per paragraph 5.0 CDO Equipment Bracing of BSP 800-006-151MP for details on securing rack to framework and building.

3.6. Alarms

3.6.1 If AT&T LEC owned equipment is added at a PSAP site, the Detail Engineer should, according to local operational and maintenance practices, provision this equipment for remote alarms in accordance with the NENA-04-001 Generic Standard for E9-1-1, Section 3.16, as modified in ATT-TP-76911, Section B. Remote alarm capability is not required in all AT&T LEC franchise areas.

3.6.2 The following alarm provisioning is recommended:

a) Where remote alarm capability is to be provided, the remote alarm types to be applied for AT&T LEC owned PSAP equipment should include, but are not limited to, the following:

1. Loss of Incoming Trunk
2. Loss of Heartbeat > 60 seconds
3. Loss of Carrier > 30 seconds
4. Loss of Battery/Sealing Current
5. Call Detail Record Device Failure
6. Printer Problem
7. Computer Sanity Alert/Watchdog/Sanity Check Circuit
8. Major Server Component Failure
9. Major ACD Component Failure
10. Transfer to/from Backup Server
11. Backup Server Off Line
12. Unauthorized Access to ACS (If Secured)
13. Loss of Commercial Power
14. Rectifier Failure

b) Local alarms (audible and visual), as well as remote surveillance alarms and controls, are required for the PSAP equipment being added. The Detail Engineer should ensure the audible and visual alarms are connected to the local alarm system.

c) The external alarm interface should be dry contacts; Form C relay contacts are preferred. Separate contacts should be provided for alarms classified as major and minor.

d) If the AT&T LEC owned equipment being deployed does not provide unique and electrically isolated sets of remote alarms and local alarms, but instead provides only audible and/or visual local alarms, the visual alarm leads (typically, CRV, MJV, and MNV) should be used to initiate both the remote alarm indications and the local alarm indications via an approved splitter circuit.

e) The alarm collection system should operate independently of the PSAP equipment, so that in the event of a total/catastrophic PSAP failure, the alarm system will continue to operate as designed.

f) The alarm collection system should be provisioned for monitoring and collecting alarms associated with the AT&T LEC owned PSAP switch equipment and for sending said alarms to the appropriate Operations Support System (OSS).

g) PSAP equipment alarms and environmental alarms should be prioritized into Critical, Major, Minor, and Event (informational) categories and have threshold levels prescribed where applicable.

3.6.3 The AT&T LEC Equipment Engineer shall be contacted for resolution of all detail engineering issues involving alarms.

[END OF SECTION]

SECTION I--INSTALLATION REQUIREMENTS

CONTENTS PAGE

1. GENERAL

1.1. Introduction

1.1.1 This section provides the administrative and workmanship requirements for installations of E911 equipment in the networks of the AT&T Local Exchange Carriers (LECs).

1.1.2 Changes in future issues of this section will be summarized in this paragraph.

1.1.3 Site conditions of E911 equipment may be outside the normal central office environmental standards, subjecting equipment to greater service risks. Installing equipment to established standards is intended to reduce these risks.

1.1.4 The intent of ATT-TP-76911 is to familiarize the Installation Supplier with AT&T LEC installation/removal procedural requirements by:

a) Outlining the basic standards to which the Installation Supplier's performance will be expected to conform for job acceptance purposes.

b) Defining the necessary documentation used to detail the installation/removal activity.

c) Covering the precautions to be taken to prevent service interruptions and degradation during the installation/removal activity.

d) Defining installation start, job completion and job acceptance procedures.

e) Identifying the AT&T LEC involvement during the various aspects of the installation/removal operation.

1.1.5 ATT-TP-76911 also is applicable to installation/removal/rearrangement work performed by AT&T LEC personnel (e.g., OCS, OSP/NDS, COEI, and REM) at the PSAP site.

1.2. Conformance

1.2.1 The AT&T LEC reserves the right to audit for compliance to these requirements, including references herein.

1.2.2 E911 equipment installations shall conform to the requirements and references provided herein.

1.2.3 The Installation Supplier is responsible for all costs incurred to conform to Section I of ATT-TP-76911.

1.2.4 The Installation Supplier shall have ATT-TP-76911 available (may be electronic or paper copy) at the job site while installation work is in progress.

1.2.5 The Installation Supplier shall ensure, as part of the evaluation of the installation, that all work has been done in accordance with the detail specifications or approved changes to the detail specifications.

1.2.6 The AT&T LEC Equipment Engineer must approve deviations from Section I of ATT-TP-76911. The Installation Supplier shall leave documentation of the approved deviation with the job package at the job site.

1.2.7 The Installation Supplier should refer questions pertaining to the detail engineering of the job to the appropriate detail engineer.

2. ADMINISTRATIVE REQUIREMENTS

2.1. Safety and Security

2.1.1 The Installation Supplier shall take precautions to avoid harm to personnel, equipment and building.

2.1.2 The Installation Supplier shall immediately report any accident or hazardous condition to the AT&T LEC Equipment Engineer.

2.1.3 The Installation Supplier shall comply with PSAP security policies by ensuring that the premises are locked and secured at all times. All security devices such as windows, screens, fences, doors, gates and other similar equipment shall be in place at all times, except when temporary removal is necessary for the installation of equipment. Any security equipment temporarily removed or disabled by the Installation Supplier shall be replaced at the end of each working day.

2.2. Tools

2.2.1 The Installation Supplier shall provide its own tools.

2.2.2 Extension cords shall be NRTL listed, three conductor, 14 gauge or larger, commercial grade.

2.3. Equipment Inventory

2.3.1 The Installation Supplier shall make a visual inspection of all equipment and apparatus shipped to the job site (prior to installation) to identify any physical damage, defects or problems that may prevent its proper installation, maintenance and/or operation. The Installation Supplier shall notify the AT&T LEC Equipment Engineer for resolution when damaged or defective equipment is discovered.

2.3.2 The Installation Supplier shall inventory all equipment and material shipped to the job site prior to job start. Equipment and material received after job start shall be inventoried as well. Questions and/or shortages shall be directed to the AT&T LEC Equipment Engineer.

2.3.3 The Installation Supplier shall provide a document holder. All job documentation to remain at the job site shall be placed in this document holder.

2.4. Method of Procedure

2.4.1 The Method of Procedure (MOP) establishes the mutually agreed upon start and complete dates for the job interval and serves as authorization to start installation activities. The MOP (Figure I-1) shall be completed and properly authorized by the AT&T LEC Representative(s), the Installation Supplier and PSAP Representative before start of work. No work shall begin until the MOP is completed and signed. A verbal MOP shall not be considered adequate.

2.4.2 The AT&T LEC Equipment Engineer will be responsible for determining the AT&T LEC Representative(s) for the MOP meeting, at which details of the job will be discussed and the MOP approved.

2.4.3 The date of the MOP meeting shall be negotiated in advance with the AT&T LEC Representative. The Installation Supplier shall prepare the MOP in advance, for approval at this meeting.

2.4.4 The Installation Supplier shall distribute one copy of the signed MOP to the AT&T LEC Equipment Engineer and file one copy in the job package.

2.4.5 The following should be mutually agreed upon in developing a written MOP (additional considerations may be necessary for unusual installations):

a) Possible service problems and restoration procedures.

b) Detailed steps in a logical sequence.

c) The installation methods, tools and test sets to be used.

d) The responsibility (Installation Supplier or AT&T LEC) for each work activity.

e) The experience of personnel performing the work outlined on the MOP.

f) Protection required for the equipment and tools.

g) The time the various steps will be performed and the equipment to be removed from service, including the number and schedule of circuits to be made busy.

h) Procedures to be followed and tests to be made before additional or modified equipment is connected to any working equipment.

i) Provisions for testing existing alarms of all involved equipment, before and after the work is performed.

j) Review of those alarms involved which may require special action due to location and notification of the necessary personnel.

k) Procedures to be followed when cross connects, patch cords, plug-ins, AC power, etc., will be removed from working equipment.

l) Location and availability of spare fuses.

2.5. Service Interruption

2.5.1 The Installation Supplier shall immediately report any unplanned service interruption or abnormal condition to the PSAP representative and the service outage contacts specified on the MOP. Any unplanned service interruption caused by the Installation Supplier requires a follow-up written report containing all known facts about the interruption. A service interruption is defined as any condition that:

a) Interrupts, severely impairs or denies service availability to one or more attended positions.

b) Reduces the capacity of multiple access circuits where such reduction seriously impairs completion of emergency traffic.

2.6. Job Communication

2.6.1 The Job Information Memorandum (JIM, Figure C-2) shall be used for those occasions when formal communications between the AT&T LEC Equipment Engineer and Installation Supplier are necessary, including, but not limited to the following:

a) Additional material required

b) Additional engineering required

c) Additional information required

d) Request for additional installation support

e) Request for disposition of material or equipment

f) Approved deviation from AT&T LEC standards on a per job basis

g) Document verbal agreements.

2.6.2 The Installation Supplier shall forward a copy of the JIM to the recipient and retain a copy in the on-site job binder.

2.7. Job Completion

2.7.1 The properly signed Completion/Acceptance Report (Figure I-3) serves as notification from the Installation Supplier that the job has been completed. In addition it serves as final job acceptance from the AT&T LEC Representative and authorizes final payment to the Installation Supplier. Final payment will be withheld until the signed Completion / Acceptance Report indicating job acceptance has been received.

2.7.2 The Installation Supplier shall consider the job complete when all items described below have been complied with:

a) All equipment specified in the job package has been completely wired, adjusted, tightened, labeled, tested or removed and is ready for service without exception.

b) Spare parts (e.g., circuit packs, fuses, etc.) have been turned over to the AT&T LEC.

NOTE: All spare parts must be in good working condition. Parts found defective by the Installation Supplier or AT&T LEC Representative during acceptance tests shall be replaced at no additional cost to the AT&T LEC. Circuit packs shall be stored in the original protective shipping cartons to reduce the possibility of ESD damage.

c) Damage caused by the E911 equipment installation to buildings and grounds (e.g., walls, floors, driveways, fences, etc.) has been corrected by the Installation Supplier.

d) All equipment removed or not installed has been disposed of per job package or AT&T LEC Equipment Engineer's instructions

2.7.3 The Installation Supplier shall notify the AT&T LEC Equipment Engineer of the completion of installation and request a job Completion/Acceptance walk-through meeting at the job site, prior to the scheduled completion date of the job. The Installation Supplier shall provide a completed Completion/Acceptance form (Figure C-2) at the start of the meeting:

a) At the completion of the job, the AT&T LEC Equipment Engineer, or designated representative, and the Installation Supplier shall conduct a formal job Completion/Acceptance walk-through.

b) At the completion of this walk-through, the AT&T LEC Representative will either accept the job or reject the job and require the Installation Supplier to correct all defects. The job will not be accepted until it is complete and properly installed.

c) When the AT&T LEC Representative determines that the job has been completed, the AT&T LEC Representative and Installation Supplier shall sign the Completion/Acceptance Report.

d) The Installation Supplier shall provide a signed copy of Completion/Acceptance Report to the AT&T LEC Equipment Engineer and leave another copy with the job package at the job site.

e) Jobs completed and accepted remain subject to quality audits performed by the AT&T LEC.

3. WORKMANSHIP REQUIREMENTS

3.1. Power Requirements

3.1.1 E911 equipment powered by AC adapters plugged into frame mounted AC power strips shall have adapters secured to the power strip. Plastic tie wraps may be used to secure the adapter.

3.1.2 AC power shall not be run in cable rack or raceway with switchboard or coaxial cable.

3.2. Grounding and Bonding Requirements

3.2.1 The installation supplier shall install grounding and bonding per the job package.

3.3. Anchoring Requirements

3.3.1 Floor mounted framework and data cabinets shall be secured to building floor with concrete embedded anchors per the job package.

3.3.2 Equipment, up to 10 pounds in weight, attached directly to the building wall shall used the following hardware:

a) Concrete, brick — two ¼" Hilti HDI or ¼" Hilti Kwik-Bolt anchors

b) Hollow Block — two ¼" Hilti Toggler bolt

c) Sheetrock — two ¼" Hilti Toggler bolt

d) Plaster — two #14 wood lag screws

3.3.3 Equipment more than 10 pounds in weight shall be secured to concrete, brick or hollow block with additional two anchors. When attaching to sheetrock wall, the heavier equipment must attach to the wall framing or studs with wood lag screws.

3.3.4 Equipment greater than 40 pounds in weight shall not be secured to wall directly. Additional support from floor shall be provided.

3.3.5 Equipment installed on customer raised floor system shall be housed in an enclosure or relay rack that is securely attached to the building floor.

3.3.6 All equipment shall be secured within its framework or cabinet, including securing small equipment placed on shelves or grates.

3.4. Cabling Requirements

3.4.1 All cable shall be placed and securely supported so there is no appreciable sag in the cabling, or undue strain on skinners, connectors, or terminating apparatus. In general, cable shall not be unsupported for a distance greater than 3 feet when measured along the shortest cable between the last point of support on a cable rack/raceway and the first point of support at equipment or other apparatus except as follows:

3.4.2 Interconnecting cables, fiber, wires and power cables shall be protected from physical abuse and supported to prevent service risks. Cable and wire runs shall be placed, supported, secured in an organized manner on acceptable cable trays, racks or supports.

3.4.3 Cable and wire shall be installed on or in cable racks and raceways designated for the type of cable being installed and shall follow the cable routing paths provided in the associated job engineering or installation documentation.

3.4.4 Excess cable of individual fiber optic cable runs shall not be stored on or in fiber optic raceways. All excess cable shall be stored in slack storage panels or on slack storage reels over equipment frames.

3.4.5 Cables that are unsupported for a distance greater than 2 feet between cable rack/raceway and the first point of support at equipment shall be banded together at a minimum of three locations to keep the cables organized. For cable lengths less than 2 feet, banding shall be applied only if necessary to keep the cables grouped together in an orderly fashion.

3.4.6 Cables that are supported on wall mounted brackets shall be supported at approximately every 12 inches or less if necessary to prevent cables from sagging more than a distance equal to the diameter of the cable or bundles of cable installed on the rings or brackets.

3.4.7 Cable on horizontal racks and raceways equipped with solid pan or bottom need not be otherwise secured except where cables exit the rack/raceway. All cables on inclines up to 45 degrees should be secured every 2 feet. Where cables turn off of a cable rack/raceway they shall be sewn to other cables so they are held securely in place.

3.4.8 Unsecured cables shall be placed in an orderly manner and lie reasonably flat across the entire width of cable racks/raceways. To minimize the height of cable pileups at rack/raceway intersections, unsecured cable shall not be installed in bundles.

3.4.9 Cables supported by wall brackets shall be bundled and banded to provide support between rings.

3.4.10 Wall brackets shall be used for cables when support of cable is necessary for small number of cables running over a short distance on building wall. Wall brackets shall be spaced at 12 inches or less to assure cable sag does not exceed requirements.

3.4.11 Cables are secured with 9-ply waxed polyester twine. A minimum of two strands of twine shall be used to secure cable to support structures such as cable racks and cable brackets, to band runs of small diameter cable and wire into larger units, and to band new to existing cables for installation uniformity purposes. Coaxial 735C type cable shall first be wrapped with 2 layers of protective sheet fiber before being secured with 9-ply waxed polyester twine.

3.4.12 A minimum of 4 loops of twine shall be used to secure cable to inverted cable racks. Four loops of twine shall also be used for cable securing and banding when it is apparent that the use of 2 loops will unduly deform the general shape of cable.

3.4.13 Unless otherwise specified, fiber optic cables shall only be tied or otherwise fastened to their supporting apparatus to the extent necessary to restrict the cable's movement. Cable stitching shall be such that the cable jacket/insulation of fiber optic conductors is not

deformed. With the use of slight force it should be possible to move fiber optic cable within their cable stitches.

3.4.14 Cable shall be protected from abrasion where it bends around or comes in contact with the edges or corners of metal objects. Generally, cable protection should be applied to the objects or surfaces the cable is being protected from, however, cable protection may be applied around the cable itself when it is more appropriate to do so.

3.4.15 1/64 inch thick sheet fiber (vulcanized fiber, fish paper) shall be used in general to protect cable from abrasion. Tape may be used for abrasion protection only within the confines of network equipment frames when the use of sheet fiber is not practical. Twine shall be used to hold sheet fiber in place around metal objects and cable located in the office overhead ironwork environment.

3.4.16 Metal clips shall never be used to secure coaxial cable.

3.4.17 Coaxial cable shall be secured only with waxed fiber cord when necessary.

3.5. Fire Stopping Requirements

3.5.1 The Installation Supplier shall cover cable hole fire stopping responsibilities in the MOP discussion before job start.

3.5.2 The following guidelines shall be used when the AT&T LEC Equipment Engineer approves fire stopping:

a) Existing cable holes shall be fire stopped according to the methods and with the same materials already being used if practicable. If it is necessary or more expedient to use fire stopping materials other than what is already being used, installers shall ensure that new fire stopping material is not mixed or intermingled with existing materials. This shall be accomplished by completely removing existing material surrounding the perimeter of installed cable and replacing it with 3M Fire Barrier brand moldable putty. Below are two exceptions to the foregoing.

1. If lightweight concrete or expandable foam is used as the fire stopping medium, it is acceptable to remove only as much of the fire stop material as is necessary for the placement of new cables and fill any resulting spaces around installed cable with 3M Fire Barrier moldable putty.

2. If the space between the building or cable hole covers and installed cable exceed 1 inch, a means of reducing the annular space to 1-inch or less shall be installed before applying moldable putty. 3M Fire Barrier CS-195+ composite sheets should be used for large cable hole applications. Reducing the size of annular spaces in small openings should be accomplished by the use of mineral wool batting firmly packed into the opening. 3M Fire Barrier moldable putty shall be applied around installed cable after the annular space is reduced to 1-inch or less.

b) All cable penetrations through fire rated walls shall be closed with proper fire stopping methods at the end of each workday.

3.6. Equipment Designations

3.6.1 Labeling shall be accomplished using an approved labeling machine of the appropriate size.

3.6.2 All labels shall be on clear, black or white backing, or as manufacturer provides. Lettering shall be black or white, in contrast to the backing.

3.6.3 The front of cabinets or frames shall be designated with “AT&T E911.”

3.6.4 OSP cable terminating strips mounted on the customer provided backboard shall be designated with OSP cable number and cable pair count.

3.6.5 Terminal strips shall be designated with circuit identification numbers, when possible, to facilitate testing and rearrangements.

3.7. Equipment Removal

3.7.1 The Installation Supplier shall coordinate with the trucking, hauling or scrap company, specified in job documentation, or as instructed by the AT&T LEC Equipment Engineer, to ensure that all scrap materials are properly removed from the job site.

3.7.2 Any alarms disconnected shall be restored and verified for visual and audible accuracy at the completion of each work shift and when removal operations are completed. Alarm verification shall be confirmed for both PSAP and building alarms by the remote monitoring location (e.g. CMAC).

3.7.3 The Installation Supplier shall make the equipment busy and remove all associated fuses, patch cords, cross-connections, etc. prior to any removal operation.

3.7.4 The Installation Supplier shall physically protect working equipment during removal operations.

3.7.5 All removed equipment shall be disposed of at the direction of the AT&T LEC Equipment Engineer.

3.7.6 The Installation Supplier shall contact the AT&T LEC Equipment Engineer to obtain shipping containers if containers are not specified in the detail specification.

3.7.7 Prior to the removal or shipment of any equipment, the Installation Supplier shall contact the AT&T LEC Equipment Engineer for instructions for the identification and handling of hazardous material.

3.7.8 When backboard terminal strips are partially cleared, all wiring and designations associated with the removed circuits shall be removed.

3.7.9 When a frame or bay is removed, the floor fastener (e.g., Loxin, Hilti, etc.) shall not extend above the floor lines. If the floor fastener extends above the floor line, it shall be removed. If the floor fastener is removed, the hole shall be filled.

3.8. Installer Marked Drawings

3.8.1 The Installation Supplier shall compare the drawings with the equipment layout and make corrections as necessary so the “final” drawings reflect the actual office layout. The

requirements for a marked drawing are to verify the terminal strip, fuse panel, bay, frame, etc. for accuracy and mark the drawing to reflect the actual physical location of all items in the bay, on the panel, etc. are correct at the completion of the job. Examples: If the Installation Supplier adds a circuit to a fuse panel, the Installation Supplier must verify that the panel and drawing agree. The Installation Supplier shall update the drawings to correct any differences. If the Installation Supplier adds a unit to a bay, the Installation Supplier must verify that bay with the front equipment drawing and mark the drawing to correct any differences.

3.8.2 When corrections are required to the drawings, they shall be made with a colored pencil, provided it is readable. Markers, water color, etc., **are not acceptable**. Changes to the drawings shall be made as detailed below.

a) **Red** - Additions shall be marked or highlighted in red pencil.

b) **Yellow** - Removals shall be marked or highlighted in yellow pencil.

c) **Green** - New information concerning existing equipment shall be marked or highlighted in green pencil. This indicates a “Record Only” change.

3.8.3 Two full size copies of each marked print shall be corrected or updated.

3.8.4 When changes to the drawings are required, the affected area shall be outlined in the appropriate color. It is not necessary to color the entire area. For example, an area outlined in red indicates that everything in that area has been added. However, everything possible shall be done to clarify the correction. Small areas (e.g., units mounted in a relay rack, added fuse, etc.) may be completely shaded; bay or circuit numbers may be colored over.

3.8.5 When a small area is outlined, it requires straight lines that define the affected area of equipment; a loose circle that covers part of the adjacent equipment shall not be used. However, large isolated areas may be circled, for example, if a complete bay or frame is being removed from a front equipment drawing, a circle may be used. The whole idea is to mark the drawing so the draftsperson can accurately update the drawings.

3.8.6 Where there is enough space to legibly enter the information:

a) Outline the exact area in red.

b) Enter the information.

1. Include locating dimensions.

2. Use symbols to indicate bay sizes.

3.8.7 Where there is not enough space on the drawing to legibly enter the information:

a) Select a nearby vacant area.

b) Using a red pencil or pen, draw an enlarged outline of the area. Circle it and draw a line to the intended location on the drawing.

c) Enter the new information in the outlined area.

d) Position the information exactly. The draftsperson will redraw it to scale.

3.8.8 Additions (red) and information (green) shall not be drawn on top of removals or changes (yellow).

3.8.9 When equipment is removed, the affected area shall be outlined in yellow.

3.8.10 It is not necessary to yellow the entire area; everything inside the outlined area will be removed by the draftsperson.

3.8.11 When equipment is to be replaced, the removal location shall be outlined in yellow.

3.8.12 Do not add the new equipment (red) over the removed (yellow) area. Add the changes (new information and additions) using the rules detailed above for additions.

FIGURE I-1 – METHOD OF PROCEDURE FORM

A reproducible MOP form follows this page.

.

PSAP
METHOD OF PROCEDURE
NUMBER: _____

PROJECT INFORMATION:

PSAP _____ City _____State_____
LEC Req No _____ Project No _____
LEC Equipment Engineer _____
Installation Supplier _____ Supplier Order No _____
Actual Job Completion Date _____
Project Description:
_____

MOP schedule: Start Date _____ End Date _____ Work hours _____ to _____

LIST ALL DETAILED MOPS (BY NUMBER AND PURPOSE) WHICH ARE ASSOCIATED WITH THIS JOB:

MOP NO.	DATE	PURPOSE	START	COMPLETE

Detailed List of Equipment to be Installed/Removed/Modified/Affected:

Equipment Description	Equipment Location

List of all Handbooks, Technical Documents, Bulletins, Flashes, Warnings Related to Work Operations under this MOP

TITLE	ISSUE/ISSUE DATE	TITLE	ISSUE

PSAP
METHOD OF PROCEDURE
NUMBER: _____

AT&T Local Exchange Carriers

POTENTIAL RISKS OF SERVICE PROBLEMS ASSOCIATED WITH THIS JOB,
AND PRECAUTIONS THAT WILL BE TAKEN TO PREVENT THEM:

_____
_____
_____
_____
_____

Emergency/Restoration Contact Telephone Numbers:
FIRE/POLICE/AMBULANCE: 911
Installation Supplier Tech Assist: _____
Tech Assist: _____
Secondary PSAP Location: _____
Other: _____

Alarm Surveillance Control Centers (NOCs): _____

Vendor Personnel working under this MOP

Name		Emergency #	Name		Emergency #

All activity performed under this MOP must adhere to requirements specified in TP76911MP, which supersedes any other requirements.

After this MOP has been approved, no one will deviate from the listed procedures without written approval from all MOP Signatories. The approved MOP shall be filed in the job package at the job site. Copies can be made for further distribution if requested. .

MOP APPROVAL:

Title:	Name:	Telephone No.:	Signature:	Date:
AT&T LEC Representative				
Installation Supplier				
PSAP Representative				

Warning: All hazardous material in the area of work operations must be identified and communicated to all involved parties

PSAP
METHOD OF PROCEDURE
NUMBER: _____

AT&T Local Exchange Carriers

Firestopping Requirements:

_____
_____
_____
_____
_____
_____

ASK YOURSELF QUESTIONS

(Pacific Bell only)

BEFORE ANY CRITICAL WORK IS PERFORMED, ALL PERSONS INVOLVED IN THE WORK OPERATION COVERED BY THIS MOP MUST COMPLETE THE FOLLOWING ASK YOURSELF QUESTIONS, CHECK EACH BOX AND SIGN OFF AT THE BOTTOM:

Y N

☐ ☐ 1. Do I know why I am doing this work?

☐ ☐ 2. Have I identified and notified everybody - customers and internal groups who will be directly affected by this work?

☐ ☐ 3. Have I verified the MOP has the appropriate signatures?

☐ ☐ 4. Can I prevent or control service interruption?

☐ ☐ 5. Is it the right time to do this work?

☐ ☐ 6. Am I trained and qualified to do this work?

☐ ☐ 7. Do I have everything I need to quickly restore service if something goes wrong?

Installation Supplier Signature: _____ Date: _____

PSAP
METHOD OF PROCEDURE
NUMBER: _____

AT&T Local Exchange Carriers

THE DETAILED STEP BY STEP PORTION OF THIS MOP MUST BE USED TO LIST THE SEQUENTIAL STEP BY STEP WORK OPERATION FROM START TO COMPLETION. IDENTIFY AND DETAIL ALL CRITICAL WORK ACTIVITIES. (ATTACH ADDITIONAL PAGES AS REQUIRED)

DETAILED STEPS

RESPONSIBILITY COMPLETED — STEPS

STEP #	SUPL	PSAP	CRITICAL	**DESCRIPTION OF WORK OPERATION** ** INDICATES OFFSHIFT ACTIVITIES * INDICATES CRITICAL WORK ACTIVITY	DATA & TIME	SUPL	PSAP
1							
2							
3							
4							
5							
6							
7							
8							

INITIALS: _____

Additional pages of Detailed Steps may be attached if needed

FIGURE I-2 – JOB INFORMATION MEMORANDUM FORM

A reproducible copy of the JIM form follows this page.

JOB INFORMATION MEMO

DATE _____
PROJECT NO. _____
JIM NO. _____

TO _____ FROM _____

ADDR. _____ ADDR. _____

CITY _____ CITY _____

PHONE _____ PHONE _____

LEC NO. _____ PSAP _____

BLDG. ADDR. _____ CITY _____

JOB DESCRIPTION _____

SUBJECT _____

DETAILS _____

ORIGINATOR _____ TITLE _____

SIGNATURE _____ DATE _____

RESPONSE _____

NAME _____ TITLE _____

SIGNATURE _____ DATE _____

NOTE: A copy of this JIM shall be place in the job folder.

FIGURE I-3 – COMPLETION/ACCEPTANCE FORM

A reproducible copy of the Completion/Acceptance form follows this page.

COMPLETION/ACCEPTANCE REPORT

After proper authorization, this document serves as notification from the Installation Supplier of Job Completion. In addition it serves as final job acceptance from the AT&T LEC and authorizes final payment to the Supplier.

PROJECT INFORMATION:

PSAP _____ City_____State_____
LEC Req No _____ Project No _____
LEC Equipment Engineer _____
Installation Supplier _____ Supplier Order No _____
Actual Job Completion Date _____
Project Description:
_____
_____
_____

REQUIRED DOCUMENTS:

_____ Job Package
_____ Test Records
_____ Marked Prints

The following individuals were present and participated in the final completion/acceptance review:

Name	Title
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

YES / NO All equipment ordered in the above specification has been provided and/or installed, without exception, in accordance with the current ATT-TP-76911 and is ready for service. (NOTE: Even if accepted, this job is subject to AT&T LEC quality audits.)

If **NO** is circled, list the exceptions below, and reschedule the job completion by issuing a revised MOP.

_____ _____
Installation Supplier Representative (Sig) Title Date

_____ _____
AT&T LEC Representative (Sig) Title Date

This completed form (whether **YES** or **NO** is circled) shall be distributed to:

☐ AT&T LEC Equipment Engineer
☐ Job Package
☐ Installation Supplier

[END OF SECTION]