SECTION C--INSTALLER SKILL LEVEL ASSESSMENT

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TABLE C-1 – SUMMARY OF CHANGES IN SECTION C

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Item</th>
<th>Action</th>
<th>Requirements Change Notification</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/17/2017</td>
<td>2.1.2 f)</td>
<td>Modification</td>
<td>ATT-TP-76300-367</td>
</tr>
<tr>
<td>04/03/2017</td>
<td>2.1.2 f)</td>
<td>Modification</td>
<td>ATT-TP-76300-373</td>
</tr>
<tr>
<td>03/04/2019</td>
<td>2.1.2 c)</td>
<td>Modification</td>
<td>ATT-TP-76300-424</td>
</tr>
</tbody>
</table>

1. GENERAL

1.1. Introduction

1.1.1 The Installation Supplier shall ensure, as part of the evaluation of the installation, that all equipment added, rearranged or modified is properly installed and in conformance with AT&T installation specifications.

1.1.2 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.

1.1.3 This section provides criteria for qualifying the Installation Supplier and their personnel to perform installation activities.

1.1.4 AT&T reserves the right to verify the Suppliers and their installer's skill level, and review the Installation Supplier's qualification process.

1.1.5 Changes to this issue of Section C are summarized in Table C-1.
2. SUPPLIER AND INSTALLER SKILL LEVEL REQUIREMENTS

2.1. Assessment of Supplier Qualifications

2.1.1 The Supplier’s qualifications are categorized as Tier 1 and Tier 2 as defined below. The Supplier’s rating level determines the type of work the Supplier can perform.

2.1.2 A Tier 1 Supplier is qualified to work in an AT&T Carrier Communications Space in the system technology category that they have been approved in by the appropriate AT&T Engineering, LFO, and Quality organizations for the geographical region that approved them. The system technology categories that a Supplier can be qualified to work in are listed below.

a) Common Systems – Cable racking, Iron work, Equipment frames (bay frame), MDF, FDF, and IDF COSMIC, Lighting, Building System grounding, Bay AC outlets, Etc.

b) Switch – Switch installation to include secondary power distribution to the switch frames

c) Transport – Transport equipment installation including secondary power distribution to the Transport Frames in any environment, and primary power distribution to the Transport Frames in cases where either of the following criteria are applicable:

1. Secondary power distribution does not exist (e.g. network sites less than 1200 square feet or a Distributed Architecture power plant located within eighty (80) feet one way of the equipment it serves), or:

2. A circuit switch (host or remote), or tandem switch does not exist (e.g. a repeater hut or customer premise containing only transport equipment)

d) Power Equipment – All primary power work including power frame, equipment (includes Power Plants, Converter Plants, Ring Plants, Inverter Plants, Battery Plants, Engine Generator Plants, BDFBs), installation and connection to all primary equipment and frames.

e) AC Installation Matrix

<table>
<thead>
<tr>
<th>Who does work on load side of AC panel*</th>
<th>CRE</th>
<th>Tier 1 Supplier</th>
<th>Power Supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSC to AC receptacles and NE aisle lights</td>
<td>2**</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Lighting Panel to NE aisle lights</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Lighting Panel to building lights</td>
<td>2</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>PDSC (w/o network power load) to AC receptacles and NE aisle lights</td>
<td>N/A</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>PDSC (w/ network power load)</td>
<td>N/A</td>
<td>N/A</td>
<td>1</td>
</tr>
<tr>
<td>PPDSC to load</td>
<td>N/A</td>
<td>N/A</td>
<td>1</td>
</tr>
<tr>
<td>General purpose power panel to building receptacles</td>
<td>2</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

*An AC panel may be defined as:

**Power Service Cabinet (PSC)** is a general purpose AC panel that can be used for "Test" receptacles; convenience receptacles; lighting circuits and other general AC loads. These
AC panels are generally, but not necessarily, connected to "essential" power which has standby engine backup.

**Power Distribution Service Cabinet (PDSC)** is a dedicated AC panel to distribute "essential" AC power to DC plant rectifiers; UPS; AC Maintenance Bypass; and other power equipment.

**Protected Power Distribution Service Cabinet (PPDSC)** is used to distribute UPS or Inverter "protected" power to AC loads that cannot tolerate an interruption. Never use an AC panel containing critical network loads for aisle lighting or receptacle service.

**Indicator that defines who can perform the work function on the first column of the chart above:**
1. Level 4 installer (experienced with the installation of AC wiring) performs the work or licensed electrician.
2. Licensed electrician or CRE (per local agreement).

**Notes:**
- Network Power includes "essential" AC power to DC plant rectifiers; UPS; AC Maintenance Bypass; and other power equipment.
- Installation Supplier is responsible to get work done. May use Level 4 installer (experienced with the installation of AC wiring), CRE suggested licensed electrician, Tier 1 Power Supplier or CRE (per local agreement).
- See Figure C-1 for Carrier Communications Space Demarcation Between AC Building Power And Communications Power

**f) SPDU Modification Matrix**

Modifications to Secondary Power Distribution Units (SPDUs) such as BDFBs shall only be made by the Tier 1 authorized supplier type as indicated in the table below:

<table>
<thead>
<tr>
<th>Type of Modification (additions, removals, or replacements)</th>
<th>Tier 1 Supplier Authorized to Perform Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plug-in Circuit Breakers</td>
<td>Transport or Power</td>
</tr>
<tr>
<td>Plug-in Fuse Block</td>
<td>Transport or Power</td>
</tr>
<tr>
<td>Plug-in (Bullet) Disconnect Switch</td>
<td>Transport or Power</td>
</tr>
<tr>
<td>Bolted Fused Disconnect Switch (e.g. replace two single space TPS with one dual space TPL)</td>
<td>*Transport or Power</td>
</tr>
<tr>
<td>Panel, Bus Bar, Shunt</td>
<td>Power</td>
</tr>
<tr>
<td>Adding / Splitting Primary Loads</td>
<td>Power</td>
</tr>
<tr>
<td>Transition Secondary Loads to a different SPDU</td>
<td>Power</td>
</tr>
</tbody>
</table>

*Transport vendors changing out “Bolted Fused Disconnect Switches” shall follow the process in APEx document ATT-JA-000-004-380, OTV SPDU Bolt on Fuse Block Replacement Process to comply with the Power work approval process.

**2.1.3 Tier 2 Approved Suppliers:** "AT&T Collocation Approved Installation Suppliers - These suppliers have been approved to perform collocation installation work for CLECs in all AT&T Incumbent central offices in the Collocator's Physical footprint (Caged Collocation area and/or in the "footprint of the bay" in Cageless Collocation. This category of approval does not include the Tier 2 supplier's access to common areas, installation of cabling outside of the cage or the "footprint of the bay" in cageless collocation, virtual collocation, the MDF or the
Power Board/BDFB Carrier Communications Space areas. Tier 2 Suppliers can only coordinate a JSA/MOP for work within a Collocator's footprint. In addition, the JSA/MOP cannot include work scopes that require a Tier 1 Supplier. In order to attain Tier 2 approval a Supplier is required to complete a full day “Train-The-Trainer” training session from the AT&T Network Planning and Engineering Quality organization annually.

2.1.4 **Tier 1 Approved Suppliers:** A Supplier can request to be considered for approval as an AT&T Approved CO Installation Supplier (Tier 1 Supplier) by applying through AT&T Procurement Contract Management. Selection of new candidates for the Tier 1 approval process is made on an “as needed” basis by AT&T’s telcos based upon the overall AT&T Telco & CLEC job volumes with the goal of maintaining enough total capacity among the Tier 1 Suppliers to handle the volume demand of the AT&T Telcos and CLECs. Once a Supplier is selected for approval trialing by an AT&T Telco, the Supplier is allowed to submit a firm price quote on jobs in the area/region of the AT&T Telco that sponsored the Supplier. The Supplier must successfully complete 5 evaluation jobs in the technology category for which they have been sponsored by the AT&T Telco (Power, Switch, Transmission, Batteries, Engines, etc) each job will be audited by AT&T. The job quality level shall meet AT&T’s defect quality criteria. Once the Supplier has passed the job audits on the 5 jobs, the supplier will be reviewed and, if accepted by the AT&T Telco review team, their company name will be added to the Tier 1 list for the technology category and the AT&T Telco area/region that sponsored the Supplier. A Tier 1 shall maintain an acceptable defect rate in order to retain this approval status. The list for Tier 1 Suppliers is maintained by AT&T Procurement Contract Management.

2.2. **Assessment of Installer Qualifications**

2.2.1 Installers’ qualifications are categorized as Levels 1 through 4 as defined below. This skill level assessment is based on the installer’s years of experience in specific systems/environments and his/her ability to perform work operations/job activities associated with equipment installation activities.

2.2.2 If the Installation Supplier can demonstrate to AT&T a documented program for qualifying an installer on specific work activities and specific systems, related to the level requirements indicated below, the Installation Supplier’s rating of its personnel will be accepted. The Installation Supplier shall participate in the AT&T supplier verification process, such as a Quality Program.

2.2.3 While the years of experience listed for an individual level is the recommended minimum for that level; advancement from one level to the next shall not be based solely on the installer’s years of experience. The Installation Supplier shall assure and concur that the installer has the appropriate skills and abilities to competently progress to the next skill level before the installer performs work operations/job activities associated with a higher level.

2.2.4 All levels require a complete understanding of the equipment installation requirements and procedures associated with the work operation/job activity being performed. In addition, installers at Levels 3 and 4 require a complete and in-depth understanding of the equipment installation standards and requirements of ATT-TP-76300.
2.2.5 The Installation Supplier shall assess and classify its personnel working on telecommunications equipment by skill level on each of the following systems/environments:
   a) Common Systems
   b) Switch
   c) Transport
   d) Power Equipment

2.2.6 All Installation Supplier personnel shall carry in their possession and provide, upon request, a Skill Level Identification Card that provides identification of their skill level in each applicable system(s) for which they are qualified.

2.2.7 Once classified at a specific level on a system/environment, the installer shall perform only work operations/job activities associated with the assigned level unless properly supervised by an installer of the appropriate level.

2.2.8 A Level 3 or 4 installer shall directly supervise Level 1 and 2 installers. The in-charge or job supervisor shall be "on-site" to direct the Level 1 or 2 installers as necessary.

2.3. Skill Level Definition and Activities

2.3.1 Installers at Level 1 shall:
   a) Be directly supervised and instructed by an Installation Supplier's manager or Level 3 or 4 installer
   b) Be capable of performing addition or removal of non-powered or passive equipment/hardware
   c) Not perform Level 2 and above work operations/job activities unless properly supervised
   d) Not progress to Level 2 without a minimum of 1-1/2 years experience or documented equivalent proficiency, as determined by the Installation Supplier.

2.3.2 Installers at Level 2 shall:
   a) Have a minimum of 1-1/2 years experience, or documented equivalent proficiency, as determined by the Installation Supplier
   b) Be directly supervised and instructed by an Installation Supplier's manager or Level 3 or 4 installer
   c) Be capable of performing the following work operations/job activities:
      1. Addition or removal of non-powered or passive equipment
      2. Addition or removal of wiring and connections (on non-working equipment only and switchboard cable only)
      3. Lead verification
   d) Not perform Level 3 or Level 4 work operations/job activities unless properly supervised
e) Not progress to Level 3 without a minimum of 4 years experience or documented equivalent proficiency, as determined by the Installation Supplier.

2.3.3 Installers at Level 3 shall:

a) Have a minimum of 4 years experience, or equivalent as determined by the Installation Supplier and demonstrated to AT&T in the equipment system/environment (e.g. common systems, switch, transport, power) being worked on.

b) Be capable of performing the following work operations/job activities without supervision or direction:
   1. Addition or removal of common systems equipment/hardware
   2. Addition or removal of wiring and connections (on non-working equipment only)
   3. Lead verification
   4. Analysis of job specifications and drawings
   5. Provide work assignments to crew
   6. Prepare the forms described in Section D and E of ATT-TP-76300
   7. Resolve job specification and/or drawing problems
   8. Correct office record drawings
   9. In-process and final quality inspections
   10. Able to communicate with AT&T on all aspects of the job throughout the duration of the job.

c) Be capable of performing as the Installation Supplier's in-charge person on jobs not specifically restricted to having a Level 4 person in charge as defined later in this section of ATT-TP-76300

d) Not perform Level 4 work operations/job activities unless properly supervised

e) Not progress to Level 4 without a minimum of 6 years experience or equivalent as determined by the Installation Supplier and demonstrated to AT&T in the system/environment (e.g. common systems, switch, transport, power) being worked on.

f) Not perform work operations/job activities on working equipment or circuits.

g) Job site supervision of subcontractor work.

2.3.4 Installers at Level 4 shall:

a) Have a minimum of 6 years experience or equivalent as determined by the Installation Supplier and demonstrated to AT&T in the equipment system/environment (e.g. common systems, switch, transport, power) being worked on.

b) Be capable of performing the same work operations/job activities as a Level 3 installer without supervision or direction.

c) Be capable of performing as the Installation Supplier's in-charge person.
d) Be capable of performing additions, removals, wiring connections, and modifications on working equipment and circuits

e) Level 4 work operations/job activities may include:
   1. Circuit modifications
   2. Software adds or upgrades
   3. Power transition work
   4. Addition or removal of batteries
   5. Addition or removal of circuits on working power distribution sources
   6. Equipment testing and turn-up
   7. Overseeing volatile work activities
   8. Job-site supervision of subcontractor work.
   9. Additions, modifications, or removals to Power Boards
   10. Additions, modifications, or removals to Engine Generator

2.3.5 Installer at Level 4A shall:
   a) A Skill Level 4A person shall be technically competent and have successfully completed training in the Test and Turn-up procedures for a specific piece of equipment or procedure. This person shall not be considered able to perform all the work operations of the Skill Level 1 through 4 installer.
Figure C-1
Central Office Demarcation Between AC Building Power And Communications Power