

## Changes included in Issue 7 - July , 1997

<b><u>SECTION</u></b>	<b><u>CHANGE</u></b>
All	Pages renumbered to make future releases easier to distribute and to reduce turn around time. Each major section now has page numbers.
1	Removed specific reference to fiber.
1.3	Deleted as unnecessary and renumber 1.4
2.1	Added reference to CEVs, Huts, and Cabinets where required by law.
2.3	Changed 60 day reference to what is required by the applicable tariff or agreement.
2.4	Removed example because it did not add clarity.
3.A.1.1	Reworded for clarity and added fiber where required by law.
3.A.1.3	Clarified that TP76300 can be obtained from the Manager - Information Release and Services. (Also added at the end of the Appendix, a list of sources for all documentation mentioned in this publication)
3.A.3.4	Correct typo at end of sentence to say "where <u>available</u> ."
3.A.3.6	Corrected typo from last release that was not updated to correctly reference section 3.A.3.19 instead of 3.A.3.16.
3.A.3.7	Clarified that POT frame can accommodate a maximum of approximately 1,000 VG pairs.
3.A.3.7	Changed "may" to "should" to indicate that designs larger than 1,000 VG pairs should use the VF POT Frame design.
3.A.3.7	Changed "VF Distributing Frame" to "VF POT Distributing Frame" to clarify that the VF frame is a POT Frame.
3.A.3.7	Added that POT Frame may be placed in the Common Collocation area where required by law.
3.A.3.15 - 26	Renumbered to correct numbering error from previous release.
3.A.3.20	Clarified that SWBT will not maintain any records where there is a direct interconnection between two physically collocated interconnectors.
3.A.3.21	Added wording which is also in paragraph 3.A.3.6 to emphasize that equipment placed in the POT frame for interconnection must be identical to that listed.

- 3.A.3.20 Clarified wording to indicate that when SWBT is selected as the installation and furnish vendor, it will only install a complete POT and/or VG frame.
- 3.A.3.20 Capitalized LUCENT to emphasize that SWBT will require this exact type of DS1 or DS3 interface in the POT frame.
- 3.A.3.20 Added section, that will be updated in next release, referring to POT Bay design when POT location is in the Collocation Common area.
- 3.A.3.20 Added reference to LUCENT bidirectional FDF shelf and modules.
- 3.A.3.20 Replaced reference to LUCENT DIXI-3 panels with LUCENT DDF panels.
- 3.A.3.21 Engineering Design charges for Initial and Non-Standard increased to match Texas Tariff Charges.  
Initial EDC increased from \$4,220 to \$4,250 (\$30 increase)  
Non-Standard EDC increased from \$1,320 to \$1,330 (\$10 increase)
- 3.A.3.22 Added sentence that clarified the work activities covered by the EDC.
- Section 3 Entire section was renumbered to conform to numbering in the rest of the document.
- 3.B.1.3 Added need for one (1) year forecast and stated that it will be used to determine power consumption rates.
- 3.B.2.2 Reworded for clarity.
- 3.B.3.1 Reworded for clarity.
- 3.B.4.A Reworded for clarity.
- 3.B.4.B Reworded for clarity.
- 3.B.5 Reworded for clarity.
- 3.B.6.1 Reworded for clarity.
- 3.B.6.3 Reworded for clarity.
- 3.B.6.5 Reworded for clarity.
- 3.B.6.5.D Reworded for clarity.
- 4.A.1.7 Engineering Design charges for Initial and Non-Standard increased to match Texas Tariff Charges.  
Initial EDC increased from \$4,220 to \$4,250 (\$30 increase)  
Non-Standard EDC increased from \$1,320 to \$1,330 (\$10 increase)
- 4.A.3 Deleted ordering information on DS1s and DS3s because they are not part of the

**Physical Collocation offering.**

- 4.A.3 (New) Added reference to LSR for interconnectors ordering local service interconnection.
- 4.B.1.3 Reworded for clarity.
- 4.B.2.8 Added wording to indicate that interconnector should contact SWBT prior to ordering any equipment to be placed in its' collocation area if there is any question as to whether it is compatible with SWBT requirements.
- 4.B.2.10 Added "where required by law" to first sentence.
- 4.B.2.11 Added additional responsibilities of the collocator. This information was added from the proposed Texas Collocation Tariff filed in June, 1997.
- 5.A.1 Added reference to LOC for trouble reporting.
- 6.A.1.8 Deleted paragraph.
- 6.A.1.8 (New) Clarified wording about requiring direct access from the exterior.
- 6.A.2.1.A Changed 60 day reference to what is required by the applicable tariff or agreement.
- 6.A.2.1.H Deleted reference to fiber to indicate that other alternatives exist where required by law or agreement and where space permits.
- 6.A.2.1.I Added reference to applicable tariff or agreement.
- 6.B.2 Deleted reference to reinforced fiberglass mesh as a suitable cage material.
- 6.B.4 Clarified wording to indicate that cage must have a roof to insure security.
- 6.D.1 Clarified wording of card key access.
- 6.D.8 Added section on secure path access.
- Application**
- All Renumber pages to differentiate between Application, Quotation and Confirmation Notice, and Job Completion Notice. The last two items are to be completed by SWBT and returned to the collocator.
- All Anywhere there was an address field, an additional line was added for more room and for the collocator to add an email address if available.
- 2 The word Job replaced with Case for consistency.
- 3.1 The word equipment replaced with POT for clarity.

- 3.2 VG POT Frame added.  
5 Reformatted and reworded for clarity. DS3 option for 32 ckts added. This option may not be immediately available from the vendor, LUCENT technologies.
- 7.6 Clarified to indicate that the required input is the number of cables to be placed.
- 1 - Quotation Retitled and renumbered to indicate that this form is not required of the collocator but will be returned to the collocator by SWBT. Included so that collocator understands the type of information to be returned.
- 1 - Job Completion Retitled and renumbered to indicate that this form is not required of the collocator but will be returned to the collocator SWBT. Included so that collocator understands the type of information to be returned.
- 1 - Job Completion NSS reference changed to Project Manager.
- 2 - Job Completion Revised for clarity. Circuit Type field added to indicated if interconnection is VG, DS1, DS3, Fiber etc.
- Appendix**
- 1 - 6 Added the word "Tariff" for clarify.
- Page 15 Added Physical Collocation Grounding Diagram and Key.
- Pages 16 - 19 Replaced POT Frame Component list with most recent version.
- Pages 21 - 22 Added sources for technical references cited in this Technical Publication to make it easier for interconnectors to obtain.

# *Section 1*

## *General*

## 1. GENERAL

This Technical Publication provides the interconnector with information needed to apply for and operate in a physical collocation arrangement in a Southwestern Bell telephone Company central office building. To qualify as physical collocation, the requested arrangement must meet the following conditions:

The interconnector will install their own outside cables to be brought into the collocation space in the SWBT office. This requirement is not applicable to Local Service Providers (LSPs) who apply for collocation for the purpose of obtaining access to leased local loops. 48V. DC requirements can be served by some combination of the two arrangements offered. Equipment to be installed will be basic transmission equipment only. No administrative space will be allowed in the collocation area.

1.1 Under physical collocation, the interconnector pays for SWBT central office space in which to locate its own equipment necessary to terminate its transmission links. The interconnector has physical access to the SWBT central office to install, maintain and repair its equipment. Collocation agreements can be established on a month-to-month basis or for a specific negotiated term.

1.2 The interconnection point(s) will be located as close as reasonably possible to the central office and will be designated by SWBT. These points will be accessible by both SWBT and the interconnector on non-discriminatory terms. The interconnector will retain ownership of the cable, but will pay space rental for use of SWBT conduit and other facilities starting at or very near the interconnection point. SWBT will designate the point(s) of termination as the point(s) of physical demarcation between the interconnector's maintenance and ownership responsibilities and SWBT's maintenance and ownership responsibilities.

1.3 Microwave interconnection will require resolution of additional issues involving rooftop space availability and suitability for microwave antennas, as well as authorizations required under any other Regulations, Rules and Laws. However, the interconnection architectural and related standards will generally apply to microwave interconnection. SWBT will address any bona fide requests for microwave interconnection received on an individual case basis.

1.5 The interconnector shall, at its sole cost and expense procure, maintain, pay for and keep in force the following insurance coverage and any additional insurance and/or bonds required by law and underwritten by insurance companies having a BEST Insurance rating of A+VII or better, and which is authorized to do business in the jurisdiction in which the central office is located.

- (1) Commercial General Liability insurance with minimum limits of: \$1,000,000 General Aggregate limit: \$1,000,000 each occurrence sublimit for all bodily injury, property damage or medical expenses incurred in any one occurrence: \$1,000,000 each occurrence sublimit for Personal Injury and Advertising: \$1,000,000 Products/Completed Operations Aggregate limit, with a \$1,000,000 each occurrence sublimit for Products/Completed Operations. Said coverage shall include the contractual, independent contractors products/completed operations, broad form property, personal injury and fire legal liability.
- (2) If use of an automobile is required or if the interconnector is provided or otherwise allowed parking space by SWBT in connection with this Agreement, automobile liability insurance with minimum limits of \$1 million each accident for Bodily Injury, Death and Property Damage combine. Coverage shall extend to all owned, hired and non-owned automobiles.
- (3) Workers' Compensation insurance with benefits afforded in accordance with the laws of the State in which the space is to be provided.
- (4) Employer's Liability insurance with minimum limits of \$100,000 for bodily injury by accident, \$100,000 for bodily injury by disease per employee and \$500,000 for bodily injury by disease policy aggregate.
- (5) Umbrella/Excess liability coverage in an amount of \$5 million excess of coverage specified above.
- (6) All Risk Property coverage on a full replacement cost basis insuring all of the interconnector's personal property situated on or within the central office.
- (7) Interconnector shall also require subcontractors who may enter the central office to maintain the same insurance requirements listed above.
- (8) Interconnector shall furnish SWBT a certificate of insurance stating the types of insurance and policy limits.
- (9) Self insurance of the requirements listed above is permitted if:
  - a) The interconnector's tangible net worth is \$50 million or greater
  - and**
  - b) The interconnector files a financial statement annually with the SEC and/or has a financial strength rating of 4A or 5A assigned by Dun & Bradstreet.

## *Section 2*

# *Floor Space Planning*

## **2. FLOOR SPACE PLANNING**

**2.1 Physical collocation is available on a non-discriminatory first-come, first-served basis subject to the availability of space and facilities in each SWBT central office and in Controlled Environment Vaults (CEVS), Huts, and Cabinets where required by law. Virtual collocation is available on the same basis at any SWBT central office where there is not enough available space for physical collocation or physical collocation is not technically feasible, but where there is space available for virtual collocation.**

**2.2 In determining the availability of space for collocation, SWBT will take into account its own future needs for space. SWBT will not construct new buildings and/or additions or forgo its own planned use of central office space in order to accommodate interconnectors.**

**2.3 Partitioned space will be offered in 100 square foot. The interconnector must place transmission equipment in the partitioned space within the number of days specified by applicable tariffs or agreements after it is ready for occupancy or the space will be considered available for use by SWBT or other interconnectors.**

**2.4 Once SWBT has provided physical collocation in a particular central office, this offering may not be withdrawn for existing interconnectors due to space limitations. However, reasonable restrictions on the warehousing of unused space by an interconnector can be imposed by SWBT.**

## *Section 3*

### *Engineering*

*A. Equipment Design*

*B. Power and Grounding*

ISSUE 7

Southwestern Bell Telephone Company  
Interconnector's Technical Publication for Physical Collocation

October 15, 1997

# *Section 3A*

## *Equipment Design*

### **3.A PHYSICAL COLLOCATION EQUIPMENT DESIGN**

#### **3.A.1 GENERAL**

**3.A.1.1 SWBT will provide interconnection to DS1, DS3, local exchange plant pairs, and where required, fiber pairs.**

**3.A.1.2 SWBT does not assume any responsibility for the design, engineering, testing, or performance of the interconnector's equipment and facilities. However, the interconnector's equipment must meet the same safety criteria and protection standards as the equipment SWBT utilizes and installs. The interconnector will be expected to conform to the same accepted procedures and standards utilized by SWBT and its contractors when engineering and installing any equipment.**

**3.A.1.3 SWBT Installation Guide Technical Publication (TP76300) contains information intended to provide interconnectors and SWBT vendors with the general requirements affecting building facilities and their care, the installation of central office equipment and the related service requirements to be met prior to, during and following installation activity.**

**Note: A copy of TP76300  
can be obtained by contacting:**

**Southwestern Bell Telephone Company  
Manager-Information Release and Services  
1010 Pine, Room 9-W-70  
St. Louis, Missouri 63101  
314-235-8300**

**3.A.1.4 The interconnector will be responsible for servicing, supplying, repairing, installing and maintaining the following:**

- its fiber optic cable(s) within the partitioned space**
- its equipment located in the partitioned space**
- the connection cable and associated equipment which may be required within the partitioned space to the POT frame.**

### 3.A.2 OUTSIDE PLANT CONSIDERATIONS

3.A.2.1 The interconnector will be responsible for bringing its dielectric fiber optic cable to the central office interconnection point, usually an entrance manhole. The entrance manhole will be designated by SWBT.

3.A.2.2 Dielectric optical fiber cables manufactured for outside plant applications have flammable polyethylene sheaths. All cables used in equipment areas must meet the fire resistance requirements outlined in Section 4.3.3.2 (material/components fire resistance criteria) of GR-63, Network Systems and Building Systems (NEBS) Requirements, or be protected in a manner to ensure they don't pose a potential fire hazard.

3.A.2.3 To meet fire resistance requirements for bringing polyethylene sheathed fiber cables into equipment areas, a metallic conduit will be installed from the cable vault to the collocation area.

3.A.2.4 To satisfy the fire resistance requirements, the interconnector-supplied dielectric fiber optic cable will be placed in innerducts within the metallic conduit. With the use of multi-port innerduct liner, the outside diameter of the fiber cable will not exceed .75 inches (OD).

3.A.2.5 Interconnector employees, agents and contractors will be permitted to have access to the interconnector's cable only at the collocation space (where the cable is exposed for such access and where connections exist or are planned), and outside the entrance manhole (where the cable is delivered to SWBT). Access at any other location within the central office, cable vault, or within the conduit will not be permitted or required.

3.A.2.6 In order for SWBT to identify the entrance manhole(s) for the interconnector, the direction from where the cable(s) is/are originating *must* be specified by the interconnector. SWBT will verify that a vacant access sleeve(s) or riser duct(s) exists at the entrance manhole(s). If none exists, construction of one will be required. If a vacant access sleeve or riser duct does not exist and one has to be constructed solely for the interconnector, the interconnector will pay for the construction on an Outside Plant Custom Work Order basis.

3.A.2.7 The interconnector will be provided with the total length requirements for the unbroken dielectric cable(s) that it must furnish to extend from outside the entrance manhole through the designated path and into the partitioned space. Measurement by SWBT will be made of the route into the entrance manhole from the delivery point, through that manhole, the vault, the nonflammable conduit and into the interconnector's partitioned space. This information will be provided to the interconnector and documented on the "Physical Collocation Application" form, Section 7, Outside Plant Cable Information.

3.A.2.8 The interconnector will leave sufficient cable length outside the entrance manhole to allow SWBT to fully extend that cable from outside the entrance manhole, into and through that manhole, into and through the vault and into the partitioned space. Any excess cable will be brought into the interconnector's partitioned space and left as slack for the interconnector to install to its equipment.

3.A.2.9 On the "Outside Plant Field Survey" portion of the "Physical Collocation Application" form, SWBT will provide to the identified interconnector contact (name and telephone number will be provided on the form) the number of feet of cable required, the date the information was provided to the interconnector contact, and the name of the SWBT Engineer who provided it.

**3.A.2.10 Where available, SWBT will provide two (2) separate points of entry to a central office whenever there are at least two entry points for SWBT cable. In those offices where only one point of entry is used for SWBT's facilities, only one entry point will be provided to an interconnector.**

**Note: On the outside Plant Field Survey portion of the "Physical Collocation Application Form", the interconnector will identify its desire for "diverse entry" by checking "yes" on the form. In those offices where only one point of entry is used for SWBT's facilities, SWBT will keep a record of the interconnector's desire for alternate entry. Should SWBT provide another entry for its use, the interconnector will be notified that diversity at the office is available.**

**3.A.2.11 Any request for conduit usage, other than the entrance, will be governed by current conduit leasing/licensing policies and pricing.**

### 3.A.3 EQUIPMENT ENGINEERING

3.A.3.1 Interconnectors will be allowed to collocate basic central office transmission equipment needed to interconnect with the SWBT network within the partitioned space of the central office. SWBT is not required to and will not allow collocation of other types of equipment, i.e. -48 volt DC power equipment.

3.A.3.2 Because of SWBT's central office modernization program and SWBT's move toward shorter equipment framework (which will eliminate the need for ladders), interconnector facilities and equipment located in a central office must not exceed a height of seven feet (7') and must meet the safety requirements as specified by SWBT.

3.A.3.3 The interconnector will identify the type and quantity of equipment (by manufacturer) that it plans to install in its collocated space. This information will be furnished as part of the "Physical Collocation Application Form" under Section 6: "Detailed Technical Information". The information will be used by engineering and architecture personnel to review the equipment data contained in Bellcore's Network Equipment - Building Systems (NEBS) data sheets, to obtain the actual DC current drain, physical data (height, depth, weight, minimum front and rear aisle dimensions, heat release, etc.) and floor space determination.

3.A.3.4 Partitioned space will be offered in 100 square foot increments per central office. Additional floor space will be offered in 100 square foot increments on an as-needed basis where available.

3.A.3.5 Space designated for physical collocation will be enclosed in a cage and/or room for security purposes. The enclosure will conform with the standards for health, safety and security to which SWBT presently adheres within a central office environment.

3.A.3.6 In order to minimize engineering, installation, maintenance, and repair effort and simplify service order procedures associated with physical collocation, for both SWBT and the interconnector, a standard equipment layout was developed for interfacing SWBT facilities with interconnector equipment. This design layout approach will enable SWBT and interconnector personnel to recognize the same equipment configuration, regardless of where collocation occurs throughout the SWBT territory. Either SWBT or the interconnector may furnish and install the standard equipment layout listed below in the physical collocation area except for the 48V DC power panel which will always be furnished and installed by SWBT as part of the standard arrangement. If the interconnector elects to supply the equipment, it must be identical to that listed in section 3.A.3.19 below.

3.A.3.7 The standard configuration for every central office begins with the installation of a Point of Termination (POT) frame which can accommodate at most approximately 1000 local exchange plant pairs. Separate VF POT distributing frames with connector blocks should be installed to accommodate locations where more than 1000 local exchange plant pairs will eventually terminate. The POT frame will be equipped with interface devices (DS1 and/or DS3 panels and/or connector blocks for local exchange plant pairs and timing if requested), and a 48V DC power panel equipped with loads specified by the collocater, installed within the partitioned interconnector space. The designated point of termination/interface within each central office, that is between SWBT and the interconnector, is the POT frame power and DS1, DS3, or fiber panels or VF connector blocks. In addition, where required by law, the POT Frame, enclosed in a cabinet, may be located in the Common Collocation Area outside of the partitioned interconnector space.

3.A.3.8 The POT frame configuration will provide the interconnector with DC power up to a maximum of 50 amps per distribution circuit, central office ground, facility/equipment terminations, and testing points. Power requirements in excess of 50 amps may be obtained by requesting multiple 50 amp power distribution circuits or by requesting a *Non-Standard Power Arrangement* which would terminate in an interconnector provided BDFB (Battery Distribution Fuse Bay) or PDF (Power Distribution Frame) located within the partitioned interconnector space. (This is discussed in greater detail in Section 3.B:

**Power and Grounding)**

**3.A.3.9** The POT frame DI-1/3 interface panels and/or connector panels provide the physical demarcation (network point of termination) between the interconnector's maintenance and ownership responsibility and SWBT's maintenance and ownership responsibility. Maintenance and related activities up to the SWBT side of the point of termination (at their interface point) will be the responsibility of SWBT and up to the interconnector's point of termination (their interface panel), the interconnector's responsibility.

**3.A.3.10** Depending on the interconnector's design, SWBT will provide dedicated shielded cabling from the POT frame DI-1 panel(s) to SWBT's digital cross connect frame and/or B&C equipped coaxial cables from the POT frame DI-3 Panel(s) to SWBT's digital cross connect frame. This will enable the interconnector to add additional service without additional cable work by SWBT and will simplify service order, record keeping and problem resolution activities.

**3.A.3.11** One of the concerns when engineering the cabling between the interconnector equipment, the POT frame and SWBT's digital cross connect frame is cable distance and signal degradation. The following table provides the cabling distance limitations for DS1 and DS3 circuits (without regeneration devices).

TYPE OF CONNECTION	DISTANCE LIMIT
DS-1	655 feet
DS-3	450 feet

**3.A.3.12** Signal specifications are usually made at the DSX equal level point, meaning that the acceptability of the signal is determined by readings made at the DSX frame. The standard way of connecting to the DSX frame is to use artificial line build out at the transmission equipment to make the total effective distance to the DSX frame equal to the DSX cable distance limit. In this manner, every circuit appearance is at the same signal strength. In cases where this distance limit cannot be met, intraoffice repeaters can be used to regenerate the signal to bring the signal strength to acceptable levels. In most cases, the need for intraoffice repeaters will not be required.

**Note:** The POT bay DI-1/3 panels are interface devices and are not to be perceived as making the POT bay a DSX- type bay.

**3.A.3.14** Interconnectors whose equipment is within the DSX distance limits will receive signals with levels below the DSX values, but still within the acceptable range for intraoffice wiring. If SWBT is required to provide regeneration, all costs to provide the regeneration will be billable to the interconnector.

**3.A.3.15** With the cabling distances varying within each central office, SWBT will have to ensure that the artificial Line Build Out (LBO) designs for the circuits assigned to the interconnector, properly take into account the cable distances from the SWBT digital cross connect frame to the POT frame in the collocater space. The interconnector will need to be provided the cable distance for its "buildout" design.

**3.A.3.16** To provide the interconnector with selected Point of Termination 48v DC Power Arrangement for individual loads not to exceed 50 amps, SWBT will install power cables from SWBT's power plant to the POT frame 48v power fuse panel. The interconnector will obtain its DC power by cabling to the rear side of the power panel (this will be discussed in more detail in Section 3.B, Power and Grounding).

**Note:** SWBT will install fusing and calculated power cables to terminate loads as specified in the collocation application. The interconnector should consider its future (3 to 5 year) power requirements when estimating its power requirements. Advance notification for additional

**Power Arrangements must be provided to SWBT to allow SWBT to engineer, order and install additional cabling, etc., to avoid potential service delays should additional DC power be required.**

**3.A.3.17 Timing if provided, will terminate on network elements within the interconnector space. No "SPARE" synchronization assignments will be provided by SWBT. Synchronization connector blocks will be Red 50 pair timing blocks. They will connect to the SWBT timing source via red jacketed 22 AWG cables. Interconnectors whose equipment is within the clock signal distance limits will receive signals within the acceptable range for intraoffice wiring. If SWBT is required to provide regeneration, all costs to provide the regeneration will be billable to the interconnector.**

**3.A.3.18 Local exchange plant pairs will terminate on connector blocks on the POT frame or on a separate VF distributing frame. Connector blocks on the POT frame will be Beige Connectorized Type 800 100 Pair Tie Blocks. Connector blocks on the separate VF distributing frame will be Beige Connectorized Type 89 100 Pair blocks (If connectorized cable is available).**

**3.A.3.19 Physically collocated interconnectors in the same SWBT premises may interconnect transmission links directly to each other only via conduit furnished and installed by SWBT. Pull wire will be provided as part of the installation by SWBT. SWBT will not be involved in any additional interconnection negotiations that may be required between the two physically collocated interconnectors and will not maintain any records.**

**3.A.3.20 The interconnector may furnish and install or choose to have SWBT furnish and install the POT Frame and associated equipment that resides in the partitioned interconnector space. If the interconnector elects to supply the equipment however, it must be identical to that listed below under Inside Partitioned Interconnector Space. The POT frame power panel will however, always be provided by SWBT when it is required (For loads of 50 amps or less powered off the POT frame). If selected by the interconnector to perform the furnish and installation, SWBT will only furnish and install a complete POT frame and/or VF distributing frame as listed below. All cables, cable racks and other support materials to SWBT DSX Cross Connect Bays, Intermediate Distributing Frames (IDF), Power Plants etc. will be furnished and installed by SWBT.**

**Inside Partitioned Interconnector Space -or-  
in Common Interconnector Space (Where required by law)**

**POT Frame (Inside Partitioned Space)**

- **Inside Partitioned Space** Equipment frame consisting of a 7-0 ft. unequal flange cable duct, welded bay framework with 2 inch mounting holes; 5 inch guard rail in front; 2 inch guard rail in rear, earthquake seismic zone 1,2 or 3 floor bolts; eight vertical cable rings; two horizontal ring panels; two cable troughs; other cable management accessories; all miscellaneous blank panels; and frame grounding material.
- **In Common Space** POT Cabinet - Specifications to be provided in future release of this document for collocation of the POT Frame in the Common Collocation where required by law.
- **POT Frame/Cabinet Components**
- **PECO II - 48V Point of termination Power Fuse Panel** equipped with fuses and a DC current meter. (This will always be provided by SWBT)
- **LUCENT Technologies Digital Interconnect/Cross Connect Interface (DIXI-1) DI-1 (84 circuits) and/or Lucent Technologies Digital Interconnect/Cross Connect Interface (DDF) DSX-3 panel**

(24 circuits) and/or Lucent Technologies 12 circuit FDF shelf with two fiber Wave Division Multiplexing Modules and/or Type 800 VF pair connector blocks (100 pair) and/or red timing blocks (2 50 pair) in the POT frame as specified by the collocator in the collocation application.

#### **VF POT Frame**

- Lucent Technologies Single Sided Low Profile Distributing Frame.
- Type 89 connector blocks color beige.

#### **Outside Partitioned Interconnector Space**

- Power Fuse panel as required (to terminate 48v DC power cables at power plant).
- Calculated power cable(s) to terminate loads in requested by the interconnector in the application, from the POT frame to SWBT's DC power plant). Power cable(s) will be sized as required (e.g. length, load, voltage drop, etc.)
- A cable from the central office ground bar located on the same floor as the equipment, and terminated on an interconnector central office ground bus bar detail located on the cable rack above the interconnector's partitioned space or in close proximity to the interconnector partitioned spaces (to terminate the POT frame to the central office Ground Bar and ensure the central office ground window).
- Cable Rack(s) and termination and support material from the SWBT cross connect frames to the POT frame.
- Cable Rack(s) and termination and support material from 48v DC power source to POT frame (to be used for power cables only).
- Cable Rack(s) and termination and support material from SWBT timing source to POT frame (to be used for timing as requested by interconnector).

3.A.3.21 An interconnector interested in collocating in a SWBT central office should complete the Application Form for Physical Collocation (one form per central office), and provide all pertinent information discussed in the following paragraphs, and submit it with a check for "Engineering Design Charges" (EDC) (one per request) to:

SWBT-ICSC  
Attention: Project/Collocation Manager  
One Bell Plaza, Room 2800  
Dallas, Texas 75202

3.A.3.22 Engineering Design Charges include SWBT subject matter expert time to estimate the quotation of charges for space availability, cable distances, and work required to provide the requested Physical Collocation Arrangement. An Initial Engineering Design Charge will apply to the interconnector's physical collocation request. An additional Non Standard Engineering Design Charge will apply when a request includes DC power requirements other than 20 or 50 AMPS or other than integrated ground plane or when floor space requirements are greater than 400 square feet. A revision to the Initial request for Physical Collocation that changes floor space requirements, cable entrance facilities requirements, or changes DC Power Distribution from a tariff basis configuration to an ICB basis configuration, will be considered a total revision and result in the application of a new engineering

design charge. Requests for additions to the initial request, such as the addition of collocator provided equipment that require SWBT to engineer and purchase additional equipment will result in a Subsequent Engineering Design Charge. The Engineering Design Charges are:

Initial - \$4,250  
Non Standard - 1,330  
Subsequent - \$1,150

3.A.3.23 The interconnector completed form will contain information SWBT requires to design the space/cage and ensure proper "in-place" equipment and cabling to interface SWBT's facilities with those of the prospective interconnector.

3.A.3.24 The form also contains information (e.g., SWBT completion date, occupancy date, cable length, charges, etc.) the interconnector requires to accomplish physical collocation in SWBT's central offices.

3.A.3.25 This publication for collocation", SWBT's "Installation Guide" Technical Publication TP 76300 and Bellcore's Network Equipment Building Systems (NEBS) and Electromagnetic Compatibility and Electrical Safety Generic Criteria Technical publications are all intended to provide the interconnector with the general requirements affecting building facilities and their care, the installation of central office equipment and the related service requirements to be met prior to, during and after installation activity in a central office.

3.A.3.26 SWBT Installation Guide Technical Publication (TP 76300), has been prepared to provide vendors of telecommunications equipment and/or installation services with the general guidelines necessary to effectively interface with SWBT personnel when installation/removal services are performed in a SWBT central office location. The information addressed in the document will be utilized during on-site inspection of the collocation space and interconnector's equipment installation.

3.A.3.27 The combination of SWBT installation and documentation requirements and Bellcore's Network Equipment Building Systems (NEBS) Technical Reference GR-63: Generic Equipment Requirements and Technical Reference GR-1089, Electromagnetic Compatibility and Electrical Safety Generic Criteria for telecommunications equipment systems used in central offices, provides SWBT and the interconnector with the standards of performance and quality SWBT expects the interconnector to follow and to which interconnectors are expected to conform.

## **SWBT QUALITY ASSURANCE AUDIT REVIEW**

3.A.3.28 The objective of the SWBT quality assurance audit, is to ensure all equipment furnished and installed in a SWBT central office, has met all of SWBT's standards and guidelines prior to the provisioning of service.

3.A.3.29 SWBT's collocation audit process will occur following the completion of interconnector installation activity, but prior to any service being cross-connected and furnished by SWBT to the interconnector. The SWBT audit review of the office environment with a "walk-through" observation will occur with the interconnector.

3.A.3.30 In performing the quality review of the interconnectors equipment installation, SWBT will use SWBT's Installation Guide (TP 76300) and Bellcore's Network Equipment Building Systems (NEBS) GR-63 and GR-1089 reference document material appropriate to determine the actual quality of the installation and equipment being reviewed. Items to be verified are:

- \* Safe working environment in the cage/collocation space

- Clean floors
- Proper temperature and humidity levels
- Equipment in place and frame wiring properly run and dressed
- Office POT frame power alarms properly functioning
- Frame and equipment properly identified (SWBT's DSX-panels properly identified so interconnector orders can be quickly and easily processed)
- Cables secured

**3.A.3.31 The quality review will be performed jointly by representatives from both SWBT and the interconnector. If problems are uncovered with the quality of equipment installation and the problems require immediate resolution before service can be provided, SWBT will identify and document the problems and forward the problem list to the interconnector. Following satisfactory resolution of the identified problems, SWBT will ensure satisfactory resolution and confirm the acceptability for service provisioning between SWBT and the interconnector.**

# *Section 3B*

## *Power and Grounding*

### 3.B POWER AND GROUNDING

#### 3.B.1 GENERAL

3.B.1.1 Powering and grounding arrangements for collocated equipment will be such as to minimize any impact on the reliability of SWBT's own telecommunication equipment as well as that of the interconnector.

3.B.1.2 SWBT will follow its present power and grounding procedures and practices when providing collocation power. Interconnectors may not provide any power plant equipment of their own. Power plants include DC power plants with rectifiers and storage batteries, AC backup plants with storage batteries, and standby AC plants (including engines).

3.B.1.3 Interconnectors will provide a one (1) and three (3) year forecast of power drain requirements for its equipment, submitted on the Physical Collocation Application Form. The one year forecast will be used to determine the monthly power consumption charge. The three year forecasted current drain represents the average current during the busy hour of the busy season drawn by equipment operated at normal voltage and operating conditions. This forecast is used by SWBT in determining the size of the DC power plant. SWBT provides AC and DC power to the partitioned space. Interconnectors will receive the same quality DC power and AC power that SWBT provides for itself.

3.B.1.4 Typical power requirements provided by SWBT to an interconnector are as follows:

- Two nonessential 120v, 15 ampere AC circuits
- Two redundant (A & B Load) DC circuits, nominal -48v, 20 ampere *and/or*
- Two redundant (A & B Load) DC circuits, nominal -48v, 50 ampere

#### 3.B.2 AC POWERING OF EQUIPMENT

3.B.2.1 AC power for convenience outlets will be provided from a commercial (nonessential) source by separate circuits from those serving SWBT telecommunication equipment. All nonessential AC requirements, including the convenience outlets, lighting, switches, etc., will be provided by SWBT, as outlined in Section 6, at the time of the partitioned space construction. Emergency lighting will also be provided by SWBT.

3.B.2.2 Essential AC power will be provided by SWBT only under prices, terms, and conditions as determined by Custom Work Order or as provided by tariff (where applicable).

### 3.B.3 DC POWERING OF EQUIPMENT

3.B.3.1 DC power provided to the collocator may be shared with SWBT and other collocation interconnectors. A collocating interconnector's equipment shall be capable of operating in the power systems environment described in the current issue of the following documents:

- GR-513-CORE 3, Power (A module of FR-64, LSSGR)
- SR-3580 Issue 1, November 1995: Network Building Equipment Systems (NEBS), critical levels. (Level One Requirements)
- GR-63-CORE, Network Equipment Building Systems (NEBS) Requirements: Physical Protection (a module of LSSGR, FR-64; TSGR, FR-440; and NEBSFR, FR2063)
- GR-1089-CORE, Electromagnetic Compatibility and Electrical Safety Generic Criteria for Network Telecommunications Equipment.

NOTE: These documents cover the design and electrical requirements for the interconnector's equipment to be compatible with the SWBT network.

### 3.B.4 STANDARD POWER ARRANGEMENT

Each SWBT standard power arrangement provides two (2) redundant nominal negative (-) 48v DC distribution circuits: as specified by the interconnector in their application. The loads specified represent the peak current that will be imposed on a power feeder at any voltage within the emergency operating limits of the equipment and any normal operating condition (i.e. not a short circuit or other malfunction). To meet these needs, DC power to the interconnector will be as follows:

- A. The primary distribution circuits will originate at a BDFB or a power plant and terminate at a secondary distribution point. The SWBT Equipment Engineer will determine the power distribution arrangements. The first choice will usually be to provide the primary distribution circuits from a BDFB (equipped with a minimum of two (2) separate loads) or DC power plant. The grounding of these arrangements will be that of an Integrated Ground Plane. If this arrangement cannot be provided, the SWBT Equipment Engineer will select another serving arrangement. Protective devices will be sized for the maximum load. For example, if the BDFB is the primary distribution source, a 60 amp fuse is sufficient to protect a 50 amp load. The secondary distribution panel will be arranged for a maximum of two (2) fifty (50) amp circuits.
- B. The primary battery and battery return distribution circuits will terminate in a secondary distribution fuse panel located in a Point of Termination (POT) frame. The panel will be equipped with space for eight (8) two-hole connections. [Note, per TP 76300, power and grounding connections must be made with a two-hole compression connector.] The panel will be equipped with two fuse blocks in the 3 amp to 60 amp range with three fuses (includes one (1) spare) of appropriate size and type, shunts, volt and amp meter, alarm relay, and a small block of six to ten (6-10) GMT fuses for -48v power to LED circuits located in the jack panels. Two (2) of the GMT fuses to power miscellaneous fuse panels in supplemental (optional) POT frames must be reversed. The secondary distribution fuse panel will be part of the standard POT frame collocation package and will always be furnished and installed by SWBT.
- C. The secondary distribution fuse panel is equipped with an alarm circuit. The interconnector will be responsible for surveillance of all associated alarms.
- D. The interconnector may request multiple standard power arrangements in order to meet load requirements.

### 3.B.5 NON STANDARD POWER ARRANGEMENTS

**3.B.5.1 The collocating interconnector may request specialized powering arrangements. These may include distribution circuits with a capacity greater than the two (2) fifty (50) amp loads. It may also include an arrangement such that the grounding of these arrangements will be that of an Isolated Ground Plane. As described in the STANDARD POWER ARRANGEMENTS section, the loads specified are to represent peak currents.**

**These circuits will usually come from a power plant dedicated to serving collocators. However, other serving arrangements may be deployed. These circuits are to terminate in a BDFB or PDF provided by the collocator and to be located within the collocators partitioned interconnection space (cage). The collocator will indicate on the Physical Collocation Application Form as to whether these power loads are to be in the Integrated or Isolated Ground Plane. [Note: An indication that these loads are to be in the Isolated Ground Plane may require that the power and return leads be routed by the Main Ground Bar (MGB) in the Ground Window per GR-295-CORE. This ground window will usually be in the vicinity of the SWBT switch or other equipment requiring such an isolated ground plane.]**

### **3.B.6 GROUNDING**

**3.B.6.1 Integrated Ground Plane Grounding requirements will follow the current issue of the SWBT Installation Guide, TP 76300. Isolated Ground Plane grounding will follow the current issue of the SWBT Installation Guide, TP 76300 and may also follow the current issue of the Bellcore TR-NWT-000295, Isolated Ground Planes; Definition and Application to Telephone Central Offices.**

**SWBT will extend the grounding conductor from the central office ground bar located on the same floor as the equipment. SWBT will terminate an extension of this grounding conductor on an interconnector ground bar, located on the cable rack in or near the collocator's partitioned interconnection space (cage). SWBT will utilize this grounding bar to ground the cage and the POT frame, if provided. The interconnector shall utilize this ground bar as the terminating point for all grounding conductors of the equipment that is located within the partitioned space.**

**3.B.6.2 SWBT will be responsible for providing and terminating the extended central office ground circuit.**

**3.B.6.3 The interconnector will be responsible for extending the central office ground circuit from the interconnector ground bar to their own equipment. A minimal #6 AWG insulated conductor shall be used for this connection.**

**3.B.6.4 SWBT will provide, erect and connect the cage. The cage will be installed in sections. To provide a continuous ground, each section will be connected together by a No. 6 ground wire.**

**3.B.6.5 When engineering the extension of the SWBT central office ground, the SWBT Equipment Engineer may consider the following items:**

- A. Distance between the equipment from the central office ground bar.**
- B. The largest fuse for which the extended central office ground cable will be used as a fault clearing path.**
- C. If the cage is metallic, it must be grounded.**
- D. If the interconnector's equipment design is such that the framework serves as a battery return, the interconnector must specify this condition in the comments on the Physical Collocation Application Form.**
- E. If the return bar in the power plant serves as the Ground Window, note where the power feeds extended to the interconnector equipment are terminated.**
- F. If the interconnector requires an isolated ground plane, the requirements of TR-NWT-000295 must be met.**