

GENERAL INSTALLATION REQUIREMENTS

GENERAL EQUIPMENT REQUIREMENTS

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1. GENERAL

A. Scope

1.01 This section covers the general requirements affecting building facilities and their care, the installation of central office equipment, whether new or used, the warranty under which exchange or toll central office equipment is supplied and installed by Western Electric Company, Incorporated, hereinafter referred to as Western Electric, and the related service requirements to be met before acceptance by the Bell System operating company, hereinafter referred to as the operating company. Any deviation and the applicable compensation therefore should be agreed upon in advance by the operating company and Western Electric. This

section is not intended to supersede the Standard Supply Contract or the Prefaces to Western Electric Price Lists, which outline the terms and conditions of sale between Western Electric and the operating company. If any provision hereof is or becomes inconsistent with the Standard Supply Contract and/or the Price List Prefaces, such provision shall be disregarded and those documents shall govern.

(a) The general inspection procedure for determining that requirements for installed central office equipment have been met is covered in Section 800-668-180 (IS 218.002).

1.02 Recommended procedures to be followed for the acceptance of installation specified in 1.01 are included in this section and are intended to:

(a) Minimize the duplication of verification-inspections and performance testing of equipment by Western Electric and the operating company.

(b) Ensure that equipment installed for operating company service will meet service standards within the economic limits prescribed in engineering sections of Bell System Practices.

(c) Reduce to a minimum the established interval between the actual turnover date of an installation and the actual cutover date to the public.

1.03 While this section is confined to the items indicated in 1.01 and 1.02, the installation requirements, adjustable apparatus requirements, and system and equipment performance requirements, all detailed in specific BSP Engineering Series Practices (800 Series), shall be met prior to the acceptance of the installation.

1.04 This section is reissued to add specific operating company and Western Electric installation responsibilities for inspecting and testing central office equipment in preparation for turnover, and to outline the operating company procedures for accepting central office installation. Since this reissue covers a general revision, the arrows normally used to indicate changes have been omitted.

1.05 The requirements covered in this section shall be met, except as modified by applicable specifications and drawings.

2. BUILDING FACILITIES AND CARE OF PREMISES**A. Access**

2.01 The operating company will allow Western Electric representatives free access to the premises and facilities at all hours necessary for performance of installation work. Likewise, the operating company representatives will be allowed access to all parts of the building at all times during the progress of an installation.

B. Building Conditions

2.02 All building construction or alterations, within areas requiring Western Electric occupancy and access to perform the installation, should be completed before the scheduled start of the installation activity. The operating company shall take such actions as are necessary to ensure that the previously mentioned areas are dry, free from dust, and in such a condition as not to be potentially injurious to the Western Electric employees or to the equipment which they are to install.

C. Ceiling Inserts

2.03 The operating company will provide the necessary ceiling inserts, imbedded ceiling channel, or appropriate fastening arrangement in the area in which the equipment requires ceiling fastening.

D. Electric Current, Heat, and Light

2.04 The operating company will provide prime electric power for all necessary purposes, with suitable terminals in rooms in which work is to be performed; heat and general illumination, of a permanent or temporary nature, in rooms in which work is to be performed or material stored, equivalent to that ordinarily furnished for similar purposes in a working office, will also be provided by the operating company.

E. Engine Fuel, Exhaust, and Cooling Facilities

2.05 The operating company will provide suitable fuel and storage, water, floor drain, and exhaust facilities as required, with piping terminating within the building and within 10 feet 0 inch of the location of the engine. Where the engine is located in a separate room, the necessary facilities shall be terminated within the engine room.

2.06 Western Electric will extend the required piping from the terminations referred to in 2.05 to the engine, if required by the job specification.

2.07 It is customary for the operating company to furnish all engine fuel, lubricating oil, and permanent antifreeze required for the test run of reserve and power plant engines.

F. Floor Space for Administrative and Other Purposes

2.08 The operating company will provide, at installation start and during progress of the installation work, suitable and easily accessible floor space: for storing major items of material closely adjacent to where they will be used, for administrative and luncheon purposes, for lockers for employees' personal effects, and for the tools and other property of Western Electric. The amount of space and its location will be a matter of agreement between Western Electric and the operating company in advance of the start of installation.

G. Openings in Buildings

2.09 The operating company will provide suitable openings in buildings to allow material to be placed in position, and necessary openings and ducts for cable and conductors in floors and walls as designated on drawings furnished to the operating company by Western Electric.

H. Toilet Facilities

2.10 The operating company will provide proper and easily accessible toilet facilities and supplies, such as towels and soap, in all locations in which work is in progress. Any unusual arrangements shall be by agreement between the operating company and Western Electric prior to the start of installation.

I. Vents for Batteries

2.11 The operating company will provide the required ventilation for storage battery rooms.

J. Alterations and Repairs to Buildings

2.12 The operating company will make alterations and repair to buildings necessary for proper installation of equipment.

K. Damage Caused by Western Electric

2.13 Western Electric will make all building repairs necessary due to damage for which they are responsible. Where Western Electric and the operating company have agreed, the operating company will make all necessary repairs and Western Electric will reimburse the operating company.

L. Protection of Building and Equipment

2.14 Western Electric will protect the building and equipment from physical damage arising from installing operations.

M. Security

2.15 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 telephone equipment. Any security device temporarily removed by Western Electric shall be replaced before the end of each working day.

3. PERMITS AND RIGHTS OF WAY—LOCAL RULES AND ORDINANCES

A. Permits and Rights of Way

3.01 The operating company will provide all rights of way permits, and authority for installation of equipment.

B. Local Rules and Ordinances

3.02 The operating company will cover in their specifications the local requirements, when applicable, of the city ordinances or state laws that vary from the standard requirements of the National Electrical Code. Where no local requirements are in effect, it should be so stated in the operating company specifications.

4. CENTRAL OFFICE EQUIPMENT—GENERAL

A. Western Electric Warranty Obligations

4.01 Acceptance by the operating company shall not affect Western Electric obligations under the Standard Supply Contract for materials furnished thereunder.

B. Cable Hole Sheathing

4.02 Sheathings for cable holes used initially are provided and installed as a part of the equipment. Sheathings are not generally provided for unused holes or unused portions of cable slots; the closing arrangements for the latter are provided by the operating company.

C. Cross-Connections

4.03 The operating company will normally install cross-connections to the outside cable terminations.

4.04 If the proposal or estimate submitted by Western Electric so specifies, Western Electric will install cross-connections in accordance with cross-connection lists furnished by the operating company.

D. Frame and Aisle Lighting

4.05 Western Electric will normally install conduit, wire, fixtures, appliance outlets, and other necessary material for frame and aisle lighting which is part of the central office equipment.

E. Grounds

4.06 The operating company will provide the central office ground in accordance with the applicable Bell System Practices.

F. Number Plates and Line Lamp Caps

4.07 The operating company will furnish the installer with the assignment and location of answering-jack number plates and line lamp caps at time of installation.

G. Equipment Cleaning

4.08 General cleaning is to be done by Western Electric during the entire installation period on all types of installations.

4.09 Pressure cleaning shall be performed by Western Electric on all crossbar equipment, unless otherwise specified by the operating company. Normally, this cleaning shall be done once prior to turnover. The cleaning operation shall be performed after the wiring operation, and before the test

period. Other types of equipment shall not be pressure cleaned.

- (a) Where job conditions, such as building construction, require additional pressure cleaning to that prescribed above, such additional cleaning shall only be done with the agreement of the operating company.

4.10 Pressure cleaning equipment shall be provided by the operating company when this type of cleaning is to be performed by Western Electric.

H. Start Notification and Notification of Completion

4.11 Western Electric shall give the operating company advance notice of the start of installation in accordance with established routines.

4.12 Western Electric will notify the operating company of the completion of work on installations (or such portion thereof as is completed) and the operating company will promptly expedite acceptance. Western Electric will promptly correct any defects.

I. Interruption of Service

4.13 To avoid service interruptions in a building already having working equipment, a detailed written Method of Procedure shall be prepared by Western Electric covering the step-by-step procedures to be followed during installation operations. This Method of Procedure shall be agreed to and signed by Western Electric and the operating company. Care shall be taken to avoid any condition liable to cause interruption in normal service. Should service interruptions occur as a result of installation activity, Western Electric will immediately report such interruptions to the operating company in accordance with local instructions.

J. Modification of Existing Plant

4.14 The operating company will remove cross-connections, fuses, patch cords, and plug-ins, transfer service from answering jacks, trunks, and other working equipment and make such other arrangements as are required to permit Western Electric to make necessary modifications to existing plant. The quantity of facilities to be removed from service will be determined by the operating company traffic department representative;

this figure will be included in the Method of Procedure.

K. Material Furnished by Operating Company

4.15 Any new or used material furnished by the operating company shall be in such condition that it requires no repair and no adjust or test effort in excess of that normal for new equipment. The operating company assumes all responsibility for the proper functioning of such material, whether or not such material has been repaired.

L. Storage and Removal of Material

4.16 Apparatus and materials shall not be stored or unpacked in rooms having working equipment without the approval of the operating company.

4.17 Material shall not be stored in such a manner as to exceed the safe floor load of the building.

4.18 The operating company will arrange for the disposition of all scrap metal, such as pieces of cable rack and superstructure, generated by the installation.

M. Fire Protection Requirements

Detection and Protection Apparatus

4.19 The operating company shall install fire protection apparatus, such as standpipe and hose system, fire extinguishers, etc, in accordance with Sections 760-620-151 and 770-320-150.

4.20 All fire protection equipment installed to detect and limit the spread of fire within a building shall be in place at all times except when temporary removal is necessary for the installation of telephone equipment. Smoke detectors, cable hole covers, fire retardant cable hole bags, fire windows, dampers and doors, and similar equipment temporarily removed, shall be replaced before the end of each working day.

4.21 Western Electric will take the necessary steps to ensure that the fire detection and protection apparatus, installed by the operating company, is available and accessible at all times. Any relocation of fire fighting apparatus made

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necessary by the installation work will be made by operating company.

4.22 Where smoke detection systems are to be provided, they should be installed and operational before the installation of telephone equipment.

Western Electric Equipment and Facilities

4.23 All Western Electric installation equipment capable of overheating or causing fires such as lamps, torches, soldering irons, and similar equipment shall be of approved types.

4.24 Western Electric combustible storage shall be located in one-hour noncombustible fire rated enclosures with all openings properly protected. Where lounges and lunchrooms are provided, within the telephone equipment areas, the same one-hour fire rated construction must be provided.

Storage and Removal of Flammable Materials

4.25 Western Electric equipment and materials shall not be unpacked or stored in rooms having working telephone equipment without written approval from the operating company.

4.26 All flammable materials and liquids shall be stored in approved type containers in suitable places outside the building or in places authorized by the operating company and in accordance with Section 770-300-152.

4.27 All flammable materials such as waste paper, foam plastic, filled scrap wire bags, packing boxes, excelsior, and similar materials generated by the installer, shall be removed from the building by Western Electric on a daily basis or more frequently if any accumulation of such materials creates a potential fire hazard.

4.28 Scrap wire containers shall be replaced when their covers become inoperative or holes develop in the container.

Furniture and Fixtures

4.29 Furniture, file cabinets, bookcases, plan racks, etc, located in equipment rooms, shall not be combustible.

Obstruction of Exits and Exitways

4.30 Western Electric shall not locate any apparatus or materials in corridors, stairs, or fire exits.

Fire Report

4.31 In the event of a fire, which occurred during the installation period, the Western Electric personnel shall furnish the operating company with all of the information required to complete form E5000 B in accordance with Section 770-340-501.

Building Evacuation

4.32 All Western Electric personnel shall be familiar with the building's evacuation features.

Smoking

4.33 No smoking shall be permitted in telephone equipment areas.

Resolution of Fire Protection Issues

4.34 If Western Electric and the operating company cannot settle a disagreement over fire protection requirements, the operating company shall request the advice of M&M Protection Consultants. If the issue remains unresolved after reviewing M&M Protection Consultant's decision, the matter should be referred to the Engineering Manager-Buildings at AT&T headquarters in New York.

N. Rules for Fire Prevention

4.35 The rules for fire prevention established by the operating company shall be followed insofar as they apply to installation practices, personnel, and equipment. All reasonable precautions shall be taken to prevent fire resulting from the use of temporary wiring, testing wiring, lamps, torches, soldering coppers, and other similar equipment.

O. Release for Service

4.36 On additions to existing and new equipment, the circuits will be released for regular service only by the operating company or as instructed by the operating company. On TURNKEY and EDIT plan jobs, Western Electric will negotiate

with the operating company as to when service will be provided.

P. Access to Existing Facilities and Use of Testing Equipment

4.37 Subject to arrangements made locally, the operating company will release, for Western Electric use, such portions of the existing plant or equipment as are necessary for the proper completion of such tests as require coordination with existing facilities. Working equipment and circuits shall be made busy by Western Electric only with the full knowledge and consent of the operating company representatives. The quantity of facilities to be removed from service will be determined by the operating company traffic department representative; this figure will be included in the Method of Procedure.

4.38 Western Electric will be permitted to use such available apparatus as test equipment, meters, and transmission measuring sets as are required for the performance of necessary tests to ensure proper functioning of added equipment to which the existing testing facilities provide normal access and for which new or complete testing facilities are not provided. Western Electric will be permitted to determine that such testing apparatus is in proper adjustment.

4.39 Upon request before turnover, the operating company may have access to the test equipment which is to be turned over as a part of the office equipment to permit the checking of the circuit features which are being tested and of the amount of connected equipment to which the test circuits have access.

4.40 If the operating company desires to use test equipment which is the property of Western Electric, notice shall be given sufficiently in advance to ensure the equipment being available at the time required.

Note: The responsibility for the correct electrical and mechanical functioning of the various test equipment cited in 4.38 through 4.40 lies with the owner of said equipment.

Q. Operating Company Designed Circuits

4.41 Where special operating company circuits are to be installed or standard circuits modified

by operating company drawings, information covering the desired test and readjust requirements for the apparatus and requirements for circuit performance will be furnished to Western Electric by the operating company.

R. Use of Operating and Maintenance Accessories

4.42 Receivers, transmitters, and tools furnished for the operating company's operation and the maintenance of the equipment will not be used for installation purposes, except in specific cases where arrangements are made with the operating company for use of such equipment. Ladders may be used by Western Electric to the extent that such usage will not seriously interfere with necessary maintenance activities. Such equipment should be turned over to the operating company in a satisfactory condition.

5. INSTALLATION REQUIREMENTS AND ACCEPTANCE PROCEDURES

A. General

5.01 All equipment shall meet the office specifications, applicable performance requirements, as covered in the 800 series BSPs, and circuit and transmission requirements.

5.02 Western Electric will notify the operating company of the completion of Western Electric work on central office installation (or such portions thereof as are ready for inspection) and the operating company shall promptly make such inspection as it deems necessary and will expedite acceptance of the job. Western Electric will promptly correct any defects for which it is responsible.

B. Analysis Committee

5.03 An Analysis Committee, sometimes referred to as the Test and Analysis Committee, should be formed by the operating company for all large installations, major modifications, and transitions. Smaller installations may also require an Analysis Committee, depending on local conditions and practices. Since verification-inspection is one of the items in which an Analysis Committee is ordinarily interested, the committee should be organized early enough in the job interval to be active during this stage.

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5.04 The chairman of the Analysis Committee should be an operating company representative, and the membership should be determined mutually with Western Electric. Ordinarily, the membership may include the following, depending on involvement or interest in the project. However, in some instances, AT&T and Bell Laboratories may be included.

OPERATING COMPANY	WESTERN ELECTRIC
Engineering Representative	Area Supervisor
Plant Representative	Project Supervisor
Traffic Representative	Job Supervisor

5.05 It is the purpose of the Analysis Committee to bring about a coordination of all parties interested in the satisfactory completion of the project. It does not, however, take over the function of Western Electric supervision. Typical items which the committee should consider and take action on are listed as follows:

- (a) Assure that Methods of Procedure are prepared as required; these MOPs should contain in-service equipment requirements (from traffic) and should clearly establish dates for equipment restoral upon completion of the steps.
- (b) The equipment furnished meets the operating company specifications for the project.
- (c) When connecting equipment is not of the type that will function with the equipment furnished.
- (d) Cross-connection lists and other information required by Western Electric and furnished by the operating company will be available on the dates required.
- (e) Information for the preparation of designation cards and strips is available as required.
- (f) Equipment in connecting offices will be ready in time for interoffice testing by the operating company.
- (g) The progress of installation verification-inspections and testing is satisfactory as

determined by spot checks by the operating company, where it can be arranged without interfering with Western Electric schedule of work operations.

- (h) Questions of mutual interest such as cleanliness of the building and building alterations and verification and test operations are mutually resolved.
- (i) Questions concerning pressure cleaning of equipment, when required, are resolved and the necessary equipment is available to do this.
- (j) Where completion dates are in jeopardy, analyze conditions and recommend action.
- (k) Assure that circuit changes and modifications are made, as required, and that a cutoff date is established.
- (l) Arrange for placement of operating company personnel for training purposes, as required.
- (m) Arrangement for operating company use of Western Electric testing equipment and personnel, as required.
- (n) Arrange for the equitable use of operating company maintenance equipment by Western Electric, as required.
- (o) Determine when all requirements have been met and the equipment involved is ready for turnover and acceptance by the operating company.

C. Equipment and Operational Tests

5.06 As an integral part of the installation, continuity tests shall be performed by Western Electric to ensure the proper termination of all cable conductors and wire run by the installer. These tests shall be completed before the start of any operational testing.

5.07 As part of the installation, tests shall be performed by Western Electric to verify all operating features and functions of the equipment furnished. As specified in 5.01, these features and functions are outlined in the General and Specific Performance Requirements in the 800 series BSPs and Circuit and Transmission Requirements. These tests shall be performed after the completion

of all verification-inspection and prior to turnover of the equipment to the operating company.

D. Acceptance Procedures

5.08 The job Analysis Committee (see 5.03) is required to coordinate the application of installation acceptance procedures detailed as follows.

5.09 Equipment or apparatus furnished by the operating company, whether new, reused or relocated, and equipment affected by wiring changes, shall be verified and tested by Western Electric using regular verification-inspection and test procedures, unless otherwise specified by the operating company. The operating company is responsible for assuring that any material it furnishes requires no adjust or test effort in excess of that normal for new equipment, and the operating company assumes all responsibility for the proper functioning of any used material it furnishes.

5.10 Acceptance of an installation by the operating company should ordinarily be based on an analysis of Western Electric reports pertaining to verification-inspections and performance tests.

5.11 Prior to acceptance of any equipment, the operating company reserves the right to perform any test or inspection which may appear necessary to verify the condition of equipment. However, such inspections and tests should normally only be justified on the basis of adverse performance experienced with recently completed jobs or with general observation of the job in progress. Any inspections or tests shall be performed in accordance with BSP procedures and requirements.

Verification—Equipment Inspections

5.12 Verification is the comprehensive inspection procedure performed by Western Electric to determine that equipment and apparatus installed by them will meet Bell System Quality Standards and is therefore satisfactory for acceptance by the operating company. If the installation fails to meet quality standards, then corrective action will be necessary to make it acceptable for service.

5.13 Installation of equipment supplied by Western Electric includes a verification-inspection to determine that specified items of equipment and certain adjustments (selected items) of the shop product are in accordance with Bell System Quality

Standards. The selection and distribution of the required sample lots, together with the procedures to be followed for applying verification-inspections, are the responsibility of Western Electric.

5.14 It should not be assumed that a sample inspection of the equipment supplied will give assurance of an installation free from defects, but rather that the risk of accepting a defective installation is reduced to an economically acceptable minimum.

5.15 Where an independent verification-inspection by the operating company appears to be warranted, agreement with Western Electric must be obtained as to when such inspections may be carried out to avoid interference with installation schedules. However, every effort should be made to perform verification-inspections concurrently with Western Electric verification. These inspections will normally be confined to a spot check of Western Electric's total sample lot and are intended to obtain assurance of the rigidity of Western Electric methods applied to their total verification job.

5.16 If verification-inspections are to be applied by the operating company under circumstances where Western Electric inspections have not proved satisfactory, they are to be performed in accordance with applicable Inspection Series Bell System Practices.

Operational Tests

5.17 To establish that the equipment is in conformity with performance test requirements and to avoid duplication of testing by the operating company, a joint or observing assignment with Western Electric is recommended during their test cycles. The operating company should observe the testing methods to the extent necessary to obtain assurance that they are performed in accordance with standard practices and that the following requirements are being met:

- (a) The equipment functions properly and is within transmission limits where specified.
- (b) The equipment is correctly wired and interconnected to meet operational and maintenance requirements.
- (c) Equipment and apparatus adjustments are within required limits.

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(d) Performance limits as specified in the Performance Requirements are met.

involved will be made available to designated operating company representatives.

Records

5.18 *Analysis of Trouble Records:* Where the performance requirement specifications make the analyzation of trouble records optional with the operating company, the operating company will inform Western Electric before the test period starts whether or not such analyzation is desired.

5.19 *Availability of Records:* All trouble records, test and verification reports, and charts

5.20 *Records of job verification and test* are also required by the Bell Laboratories Quality Assurance Center for assurance that equipment placed in service meets Bell System standards.

5.21 *Records of service interruptions* shall be distributed by Western Electric in accordance with the Systems Equipment & Standards Engineering Handbook, Section CI42.455-23.