EQUIPMENT SUPPORT

1. GENERAL

1.01 This section discusses and provides standards as shown in Table A for the support of equipment frames, bays, cabling, and cable racks. These standards are provided for use in the design of new buildings or building additions that are intended to house telephone equipment that meets the requirements of Section 800-610-164, "New Equipment-Building System (NEBS), General Equipment Requirements."

1.02 This section supersedes Section 6.5 of Specification X-74300, "NEBS Building Engineering Standards (BES)." Whenever this section is reissued, the reason for reissue will be listed in this paragraph.

2. SCOPE

2.01 Central office equipment conforming to the requirements of Section 800-610-164 is intended to be floor-supported. The floor should be designed and constructed in a manner to facilitate equipment placement and to develop the full strength of the floor anchors. For concrete floors, this involves considerations of the strength of the mix of stone and cement and the levelness of the finished floor. For raised floors, this means providing such characteristics as adequate structural strength to resist the large overturning forces caused by seismic loads and structural details that permit easy attachment of the frames.

2.02 Nonearthquake installations (Zone 0) of equipment are designed to support their own weight and, additionally, any lateral forces which may reasonably be expected to be applied to them, such as craftspersons leaning on the frames or pulling cable in overhead cable racks.

2.03 In earthquake areas, (Zone 1, 2, 3, and 4) installations of equipment are designed to support all of the loads applied in nonearthquake installations and, additionally, lateral forces applied during an earthquake. (See Section 760-200-023.)

3. MOUNTING ON CONCRETE FLOORS

3.01 Concrete floors should be of high quality material, with a nondusting, steel-troweled surface finish. The floor design should take into consideration the need for drilling holes for the floor anchors (see Section 760-200-040) or for bonding or anchoring the raised floor pedestals (see Section 760-200-110).

3.02 Design criteria for the concrete floor finish that can be easily met under normal construction practices, with little or no differential in costs, and that will allow Western Electric to install the equipment with a minimum of shims are as follows:

(a) ***Floor Levelness:*** Maximum deviation from the elevation established for the floor should not exceed plus or minus 1 inch (2.54 cm) over the entire floor area and the maximum difference in elevation between the high and low points in any building bay should not exceed 3/4 inch (1.905 cm).

(b) ***Floor Flatness:*** Maximum deviation from a true straightedge 8 feet (2.438 m) in length placed anywhere on the floor should not exceed 1/4 inch (0.635 cm). (It should be noted that in many areas it is standard to obtain a maximum deviation from a true straightedge 8 feet (2.438 m) 1/8 inch (0.318) cm).

3.03 These limits reflect the maximum deviations that can be tolerated. It is suggested that these limits be specified as the minimum requirements for floors in all new equipment buildings and building additions. In existing buildings, if the variations in floor levelness or flatness are so great as to add materially to the installation difficulties and cost, consideration should be given to correcting these variations to meet the above-stated limits. To correct extreme conditions, the use of a raised floor has been shown to be economically attractive when used with a Modular Cooling System (MCS).

4. MOUNTING ON RAISED FLOORS

4.01 Raised floors may be equipped with inserts (screw threaded) to receive equipment hold-down fasteners. Typically, inserts are integrally positioned into the body of the floor panel to permit transfer of loading from the equipment through the panel into the floor support work. Further information on application and capabilities of raised floor panel inserts is provided in Section 760-200-040.

5. REFERENCES

1. ED-1A210-12—Common Systems—Method of Installing End Guards

2. ED-1A210-13—Common Systems—Method of Installing Cable Rack Standings

3. ED-1A210-20—Common Systems—Method of Installing Framework

4. ED-97785-30—Common Systems—Method of Installing Framework (UNIFRAME Frameworks)

5. ED-97804-01—MCS Planning and Engineering Guidelines

TABLE A

EQUIPMENT FRAME (BAY) SUPPORT STANDARDS

EARTHQUAKE ZONE (SEE SECTION 760-200-023)	FLOOR LOCATION OF EQUIPMENT	AVERAGE EQUIPMENT CABLE WEIGHT*	OVERHEAD BRACING REQUIREMENTS	FLOOR ANCHOR REQUIREMENT (SEE REFERENCES 3 AND 4)
0	All	All	No	One 3/8-inch self-drill per frame (single and multibay) diagonal with adjacent frame
1	All	All	No	One 3/8-inch self-drill per 2-foor 2-inch module diagonal bay to frame
2	Ground/First	All	No	Two 1/2-inch self-drills per 2-foot 2-inch module (diagonally located)
	Second and Above	$\leq$650 lbs	No	Two 1/2-inch self-drills per 2-foot 2-inch module (diagonally located)
		>650 lbs	No	Four 1/2-inch self-drills per 2-foot 2-inch module (in each corner)
3	Ground/First	All	No	Four 1/2-inch self-drills per 2-foot 2-inch module (in each corner)
	Second and Above	$\leq$850 lbs	No	Four 1/2-inch self-drills per 2-foot 2-inch module (in each corner)
		>850 lbs	Yes	Four 1/2-inch self-drills per 2-foot 2-inch module (in each corner)
4	All	$\leq$650 lbs	No	Four 1/2-inch self-drills per 2-foot 2-inch module (in each corner)
		>650 lbs	Yes	Four 1/2-inch self-drills per 2-foot 2-inch module (in each corner)

* The average equipment and cable weight is defined as the weight of all equipment, cable, equipment-frameworks, and cable racks within one building bay, as determined from floor plan data sheets, divided by the total number of 2-foot 2-inch and 3-foot 3-inch wide frames or bays.