

CABLE OPENINGS

1. GENERAL

1.01 This section covers the requirements for openings associated with standard cable holes in floors and walls or partitions, cable shafts, cable sleeves, and cable slots under distributing frames and between columns.

1.02 This section is reissued for the following reasons:

- (a) To include information contained in addendum of previous issue of the section.
- (b) To revise certain parts of the text to include a brief description of all drawings referring to cable openings listed in Paragraph 2.01.
- (c) To increase the clearance between floor opening and the outside of sheet metal type cable hole sheathing.
- (d) To provide tapered floor openings for cable sleeves.
- (e) To require openings for future use to be packed with canvas bags of mineral wool.
- (f) To include reference to cable vault walls.
- (g) To describe a method for providing temporary closures for cable openings in floors.

Arrows are used to indicate changes throughout the text.

1.03 A cable opening is required where a cable run passes through a floor, wall or partition in a telephone building. The openings consist of cable holes in floors and walls or partitions, cable slots in floors, cable shafts, cable sleeves in floors, and floor openings in cable ducts.

1.04 The providing or cutting of openings is arranged for by the Telephone Company, unless otherwise specified. In case of walls or partitions, where it may not be practicable to determine the location or size of the cable opening at the time the locations and sizes of

floor openings are determined, the wall or partition openings may be cut at the time of equipment installation. Any unused cable opening in the floor is provided with a cover plate flush with the floor. (See Paragraph 1.07.)

1.05 Except for cable holes using sheet metal type sheathing, openings for cable holes are provided or cut to the exact dimensions shown on the floor plan and floor plan data sheets. In the case of cable holes using sheet metal type sheathing, usually holes of less than one square foot in area in floor, the actual opening is provided or cut 3/16 inch larger all around than the finished hole shown on the floor plan drawings.

1.06 Fascia angles required for cable hole and slot openings in fire resistive floors and cable hole openings in fire resistive walls or partitions are furnished and installed by the Telephone Company. The outer faces of the legs of these angles are flush with sides of opening and floor, ceiling or wall surface. The legs flush with floor, ceiling, wall or partition are drilled and tapped by the Telephone Company, as indicated on the drawings referred to in Paragraph 2.01, to facilitate installation of sheathing and covers. The tapped holes are protected by inserting temporary screws prior to placing the concrete and floor material.

1.07 Flush cover plates required for the unused portions of cable openings in the floor together with the necessary support angles fastened to the vertical legs of the top fascia angles are furnished and installed by the Telephone Company.

1.08 Design requirements for standard cable hole sheathings are covered in a section of Division AA380 of the Bell System Practices.

1.09 Installation requirements for cable hole and cable slot sheathing, closing details and cable sleeves together with power cable supports in shaftways are covered in Section AA614.003, Sheathing for Cable Openings - Installation.

1.10 A method of forming cable openings in reinforced concrete floors under main distributing frames by use of removable aluminum cores is described in Section H36.149, Core Method of Forming Main Frame Cable Holes. This method is both economical and practicable, and is offered for consideration when arranging for cable openings under main distributing frames.

2. DRAWINGS

2.01 The following standard drawings with subjects indicated give the necessary information to the Telephone Company for providing the cable openings included in this section.

<u>Subject</u>	<u>Drawing No.</u>
Cable hole sheathing, angle type construction, for cable holes in fire resistive type floors.	ED-90980-01
Cable hole sheathing, sheet metal type, for cable holes in fire resistive and combustible floors.	ED-90004-01
Cable hole sheathing, angle type construction, for cable holes in mill type and wood joist floors.	ED-90005-01
Cable hole sheathing for fire resistive and combustible walls and partitions and for floor openings in cable ducts.	ED-90006-01
Sheathing for cable slot between columns or series of cable holes between columns.	ED-90878-01
Power cable shaft. Closing arrangements and supporting of cable runs.	ED-90578-01
Power cable shaft. Supporting units for cable runs.	ED-90679-01
Cable slot sheathing, channel type, for cable slot beneath I.D.F. in fire resistive type floors.	ED-90979-01
Main Distributing Frame. Closing framework and cover for slot under frame for outside cable.	ED-90627-01
Protector frame assembly, double sided, showing closing framework for slot beneath protector frame.	ED-90274-01
Cable sleeve in floor for switchboard and power cable.	ED-90591-01
Enclosure for vertical cable run adjacent to column.	ED-90579-01
Cable hole sheathing, channel type construction, for cable holes in fire resistive type floors.	ED-92116-01

3. CABLE HOLES

Angle Type Sheathing

3.01 Drawing ED-90980-01 provides for angle type sheathing for cable holes in fire resistive floors based upon the openings having top and bottom fascia angles. The sheathing fastened on the top fascia angles, is comprised of angles to which the top cover is fastened by means of inverted angles, the bottom cover being fastened directly to the bottom fascia angles.

3.02 Drawing ED-90005-01 provides for angle type sheathing for cable holes in mill type and wood joist floors. Top and bottom fascia angles are not required for the floor opening.

3.03 Angle type sheathing is the kind generally used for cable holes.

Channel Type Sheathing

3.04 Drawing ED-92116-01 indicates channel type sheathing for cable holes in fire resistive floors. The sheathing is of channels, fastened on the top fascia angles, and the top cover is fastened directly to the channels.

3.05 Channel type sheathing is a special set of sheathing designed specifically for use in switchboard cable turning sections.

Sheet Metal Type Sheathing

3.06 Drawing ED-90004-01 shows sheet metal type sheathing for cable holes in floors. This type of sheathing does not require any fascia angles in the opening as the sheet steel sheathing extends through the opening a few inches above floor and below ceiling. This allows the bottom cover to be supported by angles attached to the sheathing. The top cover is fitted around the sheathing and above the sheathing angles. These angles are fastened to floor with expansion bolts or wood screws depending on whether floor is concrete or wood.

3.07 In order to obtain approximately 1/8-inch clearance between the outside of the sheet steel sheathing and the sides of the floor opening, the Telephone Company provides an opening 3/16 inch larger all around than the finished hole size shown on the floor plan drawings.

Sheathing for Walls and Partitions

3.08 Drawing ED-90006-01 provides for sheathing for cable holes in walls and partitions, and also for floor openings in cable ducts. The sheathing for cable holes in fire resistive walls or partitions is based on fascia angles at both wall surfaces. Unused portion of opening in shaft walls is covered with steel plate furnished and installed by the Telephone Company.

3.09 Methods of providing cable hole openings in walls and partitions of special construction such as glass, metal, etc., must be worked out for each specific case and should be discussed with the Western Electric Company prior to the sheathing installation.

4. CABLE SLOTS BETWEEN COLUMNS

4.01 Drawing ED-90878-01 shows sheathing for cable slot between columns or series of cable holes between columns.

4.02 With the practice of carrying power cables on standard cable racks, the use of cable slots between columns permits more direct runs of power and switchboard cabling as compared with the practice of using shafts. It also provides a greater degree of flexibility in caring for the cabling between equipment floors. Under this plan a number of slots between the columns parallel to and nearest the lengthwise center line of the building are provided. Recommended locations for the slots regarding power cables which will best provide for the initial and ultimate cabling needs of the equipment floors are shown on the standard floor plan data sheets. The construction of the slot and covers are such that, if required, frames can be installed over unused portions. A bulkhead is provided as a part of the sheathing to separate the used from the unused portion.

4.03 The bottom cover plate for a continuous cable slot is furnished in sections, the length of each of which is approximately 2'-9". This conforms with the standards for the top cover plate and will ordinarily make it unnecessary to remove more than one section of cover plate, at both top and bottom, for each cable run installed.

4.04 Drawing ED-90878-01 also has notes in regard to the reuse by the installer of the bottom cover plate in those cases where this plate, covering the unused portion of the slot and furnished by the Telephone Company, is No. 12-gauge sheet steel.

5. CABLE SHAFTS

5.01 There will be cases in some buildings where cable shafts will still be required. Drawings ED-90578-01 and ED-90679-01 cover certain closing arrangements and supporting units. Any necessary steel floor plate is furnished and installed by the Telephone Company.

6. CABLE SLOT BENEATH I.D.F.

6.01 Drawing ED-90979-01 provides for sheathings, channel type, based on the openings having top and bottom fascia angles.

7. CABLE SLOT BENEATH M.D.F.

7.01 Drawing ED-90627-01 indicates the method of closing the slot beneath the M.D.F. The floor opening requires top fascia angles only. Steel angle stringers are used for fastening the cover stringers of 1/4-inch asbestos lumber. As a further aid in closing, the slot covers are furnished in sections, 8 inches in length, cut to fit around the angle uprights of the M.D.F. The sections are not precut to fit around the cable inasmuch as the size and number of cables per vertical vary.

7.02 The M.D.F. closing framework is furnished by the Western Electric Company only when specified.

8. CABLE SLOT BENEATH DOUBLE SIDED PROTECTOR FRAME

8.01 Drawing ED-90274-01 indicates the closing details which are furnished in all cases as part of the frame. The floor opening requires top fascia angles only. The cover is furnished in sections. Two kinds of sections are available, one precut to fit around four 202-pair terminating cables, and the other blank for use at unequipped verticals and for cutting on the site to fit irregular cable terminations. The equipment questionnaires provide for the Telephone Company specifying the number of each cover section required for the protector frame verticals ordered.

9. CABLE SLEEVE IN FLOOR

9.01 Drawing ED-90591-01 covers a floor sleeve for switchboard and power cable where the cable capacity of the sleeve is sufficient for the ultimate requirements. It may be used beneath desks and at other places where a small number of cables are involved.

9.02 A tapered opening is provided in the floor for this sleeve.

9.03 This sleeve is limited to a maximum 4-inch inside diameter in a 5-inch hole.

10. ENCLOSURE FOR VERTICAL CABLE RUN ADJACENT TO COLUMN

10.01 Drawing ED-90579-01 covers the enclosure of vertical runs located adjacent to a column, such as where a cable run passes through non-equipment space. Such enclosures are provided with an opening on both sides of the cable racks to facilitate the work of the installer. The fire resistive construction and finish of the enclosure are governed by the local conditions. Such enclosures are provided by the Telephone Company.

11. FIRE PROTECTION FOR CABLE OPENINGS

11.01 In closing cable openings in floors, walls or partitions of fire resistive telephone buildings, canvas bags containing mineral wool are packed around the cables to prevent drafts from carrying smoke, flames or heat through the openings in case of fire except in the case of the slots beneath the M.D.F. and protector frame (see Paragraph 11.05), cable openings in enclosed shafts and cable sleeves. Cable openings through combustible type floors, with the exceptions stated above, also are packed with bags of mineral wool, but in holes through combustible walls and partitions this protection is not required. The bags are of eight-ounce canvas and are filled about three-quarters full with mineral wool so as to be about 12" x 12" x 1" in size per Specification KS-5048.

11.02 Cable holes in fire resistive floors are packed tightly with canvas bags of mineral wool to a depth of approximately 8" above the bottom cover plate. Cable holes in combustible floors are packed to a depth of 4". In fire resistive walls and partitions, all available space around the cable runs is packed with canvas bags from cover to cover of the cable hole.

11.03 When installing the bags of mineral wool each horizontal layer of bags is arranged so as to overlap the space between the bags in the layer beneath and to fit tightly against the cable runs and sides of the cable hole. It will not be practicable to close completely all small openings by this method but the arrangement will effectively cut off drafts and will be satisfactory from a fire protection standpoint. In the case of small cable holes,

the bags are folded as necessary to permit them to be fitted in the limited space provided.

11.04 The closing of cable holes in floors, walls or partitions and cable slots in floors provided for future use is done by the Telephone Company. Such openings are packed tightly with canvas bags of mineral wool in accordance with Paragraphs 11.01 to 11.03.

11.05 In central office buildings where outside underground cables require cable racking, a cable vault separated from other parts of basement by a fire resistive wall is provided. In general this is based on the following:

(a) Protects cables from possible fire originating in general basement.

(b) In locations where M.D.F. is in first story directly above the cable racking in basement, provides a fire barrier between general basement and equipment space in which M.D.F. is located. From a fire protection standpoint, this makes the cable vault a part of the frame room.

Fire resistive ratings and protection of vertical openings in cable vault walls are covered in Section H41.230, Interior Construction to Restrict Spread of Fire.

12. TEMPORARY COVERS FOR CABLE OPENINGS IN FLOORS

12.01 It is good practice for the Telephone Company to place all permanent top and bottom cover plates and canvas bags of mineral wool in cable holes and slots at the earliest possible time in the construction of buildings to provide adequate fire and accident protection at these locations during the construction and equipment installation periods.

12.02 Temporary covers for cable openings are furnished and installed by the Telephone Company during the construction of a building where such openings are not provided with permanent covers in this period. During the equipment installation as cables are added, the installer modifies these temporary covers as necessary until the regular closing details are installed. These temporary closures may be constructed of materials such as cement-asbestos boards, treated wood, wire baskets with canvas bags of mineral wool, and pine boards.

12.03 In order to be sufficiently fire resistive, all temporary closures are comparable in fire resistive rating to a cement-asbestos and

pine board cover over a basket containing bags of mineral wool. For example, if pine boards are used, a cement-asbestos board of at least 1/8" thickness, or its equivalent in fire protection, is attached to the underside of the pine boards. Cement-asbestos boards are available which can be nailed to wood and cut easily so that sections of the cover can be removed when cables are being installed. Board covers are usually secured to cleats so that the cover can not be accidentally moved on the opening.

12.04 In addition to the temporary cover, bags of mineral wool as described in Paragraphs 11.01 to 11.03 are packed tightly to a depth of at least 6" into wire or metal lath baskets under the cover. The baskets are not

to be dependent upon wood portions of the closure for support in case the wood is removed or destroyed.

12.05 All covers are to be of adequate strength and securely fastened in place. They should not be unfastened or removed except when it is necessary to work in the cable holes or slots, or to place the permanent sheathing or cover plates.

12.06 The closures should always be replaced at night if workmen are not on the job. Western Electric Company installation practices cover the use of temporary guard rails around the cable holes through which cables are to be run, and its practice is to use temporary closures during the progress of its work in placing the cables.