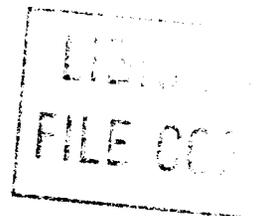


**SHEATHING FOR CABLE OPENINGS
INSTALLATION
GENERAL EQUIPMENT REQUIREMENTS**



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NOTICE

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1. GENERAL**A. Scope**

1.01 This section covers the general equipment requirements for installing cable-hole and cable-slot sheathing, closing details, and cable sleeves.

1.02 This section is reissued to reflect the standardization of new materials, closure designs, and fire-stopping procedures for cable holes and slots in fire-resistive floors. In addition, references to associated specifications, drawings, and cabling guidelines have been added. Since this reissue covers a general revision, the arrows ordinarily used to indicate changes have been omitted.

B. Supplementary Information

1.04 The sections listed below contain supplementary cabling and cable openings requirements and, where applicable, are referred to in other parts of this section.

- 628-220-204—Sealing Ducts, Caulking Materials
- 636-210-205—Cable Termination, Installation of Open Cable Forms
- 760-200-032—Cable Openings, Design Standards
- 760-200-110—Raised Floors
- 760-330-150—Cable Openings
- 760-330-151—Core Method of Forming Mainframe Cable Holes
- 760-330-152—Cable Vaults
- 800-610-164—New Equipment-Building System (NEBS) General Equipment Requirements
- 800-614-152—Switchboard, Power, and Local Power Cables—Installation
- 800-614-157—Cable Racks—Installation
- 801-006-151—Cable Hole Sheathing—Equipment Design Requirements
- 801-026-167—Cable Hole Sheathing for Modular Raised Floor Systems
- 801-801-182—Cable Distribution Systems and Systems Assembly in Electronic Offices

C. Drawings

1.05 The following drawings cover the requirements for the design of cable holes and sleeves of sheathing for cable holes and shafts, of sleeves in floors, and of closing arrangements at floors in shafts

around power and outside plant cable runs. These drawings also cover the closing arrangements the telephone company furnishes for cable openings provided for future use.

Cable Hole Sheathing

- ED-90005-31—A&M Only—Cable Hole Sheathing—Angle Type for Cable in Mill-Type and Wood Joist Floors
- ED-90006-30—AT&TCo Std—Cable Hole Sheathing for Fire-Resistive and Combustible Walls and Partitions and for Floor Openings in Cable Ducts
- ED-92116-71—A&M Only—Cable Hole Sheathing Channel-Type Construction Cable Slots or Series of Cable Holes Between Columns and Miscellaneous Cable Holes in Fire-Resistive Type Floors
- ED-92116-72—AT&TCo Std—Cable Hole Sheathing Channel-Type Construction and Adjustable Ceiling Cover Louver-Type for Cable Holes in Fire-Resistant-Type Floors
- ED-92117-70—A&M Only—Cable Hole Sheathing for 8-1/2 Inch Holes Switchboard Used on Existing Cable Holes Made for Toll Switchboard 3C or on Original-Type Cable Hole Made for Switchboard 3CL

Cable Slot Sheathing

- ED-90007-32—A&M Only—Cable Slot Sheathing for Cable Slot Beneath IDF in Noncombustible-Type Floor—Angle Type
- ED-90274-71—AT&TCo Std—Protector Frame Double-Sided
- ED-90627-31—AT&TCo Std—MDF, CDF, or Protector Frames—Closing Framework and Cover for Slot Under Frame for Outside Cables
- ED-90979-30—A&M Only—Cable Slot Sheathing for Cable Slot Beneath IDF in Fire-Resistive Type Floors—Channel Type
- ED-90979-31—A&M Only—Cable Slot Sheathing for Cable Slot Beneath IDF in Fire-Resistive Type Floors—Channel Type

Cable Sleeve

- ED-90591-70—AT&TCo Std—Cable Sleeve in Floors

Closing of Cable Shafts

ED-90578-01—AT&TCo Std—Closing Arrangements and Supporting of Cable Runs in Power Cable Shafts

ED-90878-01—A&M Only—Sheathing for Cable Slot Between Columns or Series of Cable Holes Between Columns

ED-90679-31—AT&TCo Std—Details of Supporting Units at Floors for Power Cable Runs

D. Building Construction

1.06 Several types of building construction are referred to herein in connection with the different types of cable-hole sheathing. Brief descriptions of the types of building construction are as follows:

- (a) Wood-joist construction, sometimes referred to as nonfireproof or combustible, consists in general of small wood joists or timbers spaced on small centers.
- (b) Mill-type construction refers to a slow-burning construction consisting of thick planks carried by heavy floor timbers or groups of timbers spaced on large centers in such a manner as to result in open construction. This type of construction is seldom encountered in present day telephone buildings.
- (c) Fire-resistive construction consists generally of steel in connection with masonry, concrete, or tile.

E. Cabling Guidelines

1.07 Cabling associated with 7-foot-high equipment that meets NEBS standards should be installed in accordance with Section 801-801-182, covering the general engineering information for cable distribution systems and systems assembly in electronic offices using 7-foot frameworks. The Cable Pathways Plan covered in Section 801-801-182 coordinates the locations of cabling, lighting, cooling air diffusers/slots, fire detectors, and various building elements over the life of the equipment building system. To achieve the full benefits of this plan, it should be incorporated into the early stages of planning an office and the pathways should be indicated on central office record drawings.

1.08 In the layout of cable racks and the routing of cables, critical lead length and cable segregation requirements for the equipment systems involved shall be satisfied. Congestion of the cable racks shall be avoided and cable length shall be minimized. To control fire and smoke propagation in the event of a fire, interfloor cable holes must be properly closed and fire-stopped, and consideration shall be given to minimizing the number of cable holes opened during the installation intervals, consistent with any established plan which may exist for cabling the office. The following guidelines apply to the layout of cable distribution systems and to the routing of cables in both new offices and additions:

- (a) Equipment system requirements governing critical lead length and cable segregation shall be met.
- (b) Congestion of cable racks shall be avoided.
- (c) Cable distribution systems shall be installed in agreement with any established plan for the offices. In particular, for offices meeting NEBS standards per Section 800-610-164, the Cable Pathways Plan shall be followed as described in Section 801-801-182. The Cable Pathways Plan modified to suit job conditions shall also be applied in non-NEBS and existing space.
- (d) In all additions to existing central offices, the adjustable ceiling closure plate (ED-92116-73) shall be installed in all cable holes opened during the installation, if not already so equipped.
- (e) The cable pileup on all vertical cable runs shall be limited so that it is not closer than 3 inches to the side of the cable hole, thus providing the clearance necessary to properly pack the hole with KS-5048 bags. See Section 801-006-151.
- (f) In additions to existing central offices, cables shall be routed so as to minimize the number of cable holes to be opened, consistent with items (a) through (e) above. It is economical to increase the total amount of cable in a run by a total of 75 feet for switchboard cable, or 30 feet for power cable, to avoid opening a cable hole. For example, for a switchboard cable run of 5 cables, it is economical to increase the length of the runs up to 75 feet (15 cable feet/5 cables) to avoid opening a cable hole equipped with an adjustable cover.

(g) In new offices, the planning and layout of the cable distribution system, including vertical cable runs for the ultimate office, should include provision for growth and seek to minimize the number of holes required to be opened during a single installation job, consistent with the requirements of items (a) through (e) above.

2. GENERAL DESCRIPTION OF CABLE-HOLD SHEATHING

A. Cable Openings

2.01 Cable openings are made large enough to accommodate the ultimate size and quantity of cable to be installed and also to provide proper access for installing these cables. Openings in the past have been either holes or slots of a variety of dimensions and are now rated A&M Only. In new construction, cable openings will conform to the following:

- (a) Circular with thin-wall steel-sleeve inserts, 4 inches inside diameter, for use in all cases for outside plant cable or small quantities of power and switchboard cable.
- (b) Rectangular, 12 inches wide by 24 inches long, for all cable holes between columns or in walls or partitions.
- (c) Rectangular, either 2 or 4 inches wide by 6 inches long for use in all cases where holes are to be located beneath protector or distributing frames.

B. Fascia Angles

2.02 Fascia angles: All new rectangular cable holes will be constructed without fascia angles in fire-resistive construction-type B walls and floors. Sheathing will be of the self-supporting type which will employ tie rods and angles to clamp the bottom and top sheathing of the closure to the wall or floor.

2.03 The cutting or opening of cable holes will be arranged for by the telephone company, unless otherwise specified. When holes have to be cut in an existing floor, self-supporting sheathing is used. In new buildings, holes between columns are provided by precast concrete plugs placed regularly, as shown in Section 800-610-164, in column rows parallel to equipment frame lineups in all building bays that eventual-

ly may contain equipment. Also, plugged cable holes are provided where cable runs eventually may pass through nonequipment space. The tapered plugs used for cable openings are made of precast concrete; each is tightly wrapped in two layers of 0.008-inch thick polyethylene sheeting and bolted to the framework of the floor slab. The slab is then poured around the positioned plugs. When, at some later time, a plugged cable hole is to be opened, the loosened plug is pulled out of the floor with a chain hoist attached to the inserts embedded in the plug. The appropriate sheathing is then assembled to form the metal closure and cable rack support.

C. Channel-Type Sheathing

2.04 Channel-type sheathing is provided for cable holes and slots in fire-resistive floors. The sheathing consists of a framework of channels, formed to fit around the cable hole or slot, and is fastened to the floor fascia angles. A sheet-steel cover, cut to fit the cable run, is fastened to the top of the channels. A sheet-steel cover, also cut to fit the cable run, is fastened to the fascia angles at the ceiling.

Note: This requirement is now rated A&M Only and is superseded by paragraph 2.05.

2.05 Each cable hole requires sheathing to close the opening. In floors, the sheathing is sealed to the floor surface by a flexible gasket-forming material and extends about 4 inches above the floor line to protect the cables and equipment below from possible damage by water. Sheathing of this kind consists of channels which form a framework around the hole. A steel sheet cover, 0.125 inch thick and cut to fit the cable runs, is bolted to the top of the channels by flat-head screws. An adjustable steel cover is bolted to the ceiling frame and fastened to cover the opening at the ceiling below and thereafter accessed only from the floor above.

D. Angle-Type Sheathing

2.06 Angle-type sheathing is provided for cable holes in mill-type or wood-joint floors. The sheathing consists of a framework of angles, formed to fit around the cable hole, and is fastened directly to the wood joists. Top and bottom fascia angles are not required. A sheet-steel cover, cut to fit the cable run, is fastened to the top of the sheathing angles by means of inverted angles. The bottom cover is fastened directly to the wood joists at the ceiling.

Note: This requirement is now rated A&M Only.

3. SHEATHING OF CABLE HOLES AND SLOTS IN FIRE-RESISTIVE-TYPE FLOORS

A. Channel-Type Sheathing

3.01 Channel-type sheathing, as shown in Fig 1, shall be installed over cable holes in fire-resistive-type floors in accordance with ED-92116-71 (A&M Only).

(a) Where cable holes have not been equipped with fascia angles, the channel-type sheathing shall be fastened to the floor with angles as shown on ED-92116-71 (A&M Only).

3.02 Self-supporting channel-type sheathing, as shown in Fig 2, shall be installed over all new rectangular cable holes in fire-resistive-type floors in accordance with ED-92116-72.

3.03 Adjustable ceiling plates, as shown in Fig 3, shall be installed at the ceiling of all new rectangular cable holes in fire-resistive-type floors in accordance with ED-92116-72.

B. Cables Holes in Cable-Turning Sections

3.04 Channel-type sheathing, as shown in Fig 4, shall be installed over cable holes in cable-turning sections for No. 3CL and similar type switchboards so that the switchboard framework floor channels will not overlap the fascia angles in accordance with ED-92116-71 (A&M Only).

(a) For existing cable holes where the switchboard framework floor members overlap the cable hole fascia angles, combination channel- and angle-type sheathing shall be installed as shown on ED-92117-70 (A&M Only).

C. Cable Slot Under IDF

3.05 Channel-type sheathing, as shown in Fig 5, shall be installed at cable slots under the IDF in accordance with ED-90979-31 (A&M Only).

(a) Where angle-type sheathing has been used at existing cable slots, the sheathing shall be extended with sheathing of the same type in accordance with ED-90007-32 (A&M Only).

3.06 At cross beams and girders, the sheathing and top cover shall be installed in a continuous line. The bottom cover shall be terminated at each side of a beam or girder crossing the slot and extending below the level of the bottom cover.

3.07 When making additions, the temporary sheathing end shall be moved as required. Where practicable, the top and bottom covers shall be moved with the sheathing end. Additional lengths of sheathing structure together with top and bottom cover sections shall be installed to complete the sheathing of the slot.

D. Cable Slots Under MDF and Double-Sided Protector Frame

3.08 Top covers for cable slots under the MDF and double-sided protector frame, as shown in Fig 6 and 7, shall be installed in accordance with ED-90627-31 (A&M Only) and ED-90274-71 (A&M Only), respectively. The MDF floor angle serves as part of the closing framework and is fastened to the fascia angle of that side of the slot. At the double-sided protector frame, the frame floor angles serve as a means of supporting the cover for the slot under the frame. On additions and where cross beams interfere, the procedure outlined in paragraphs 3.06 and 3.07 shall be followed.

E. Cable Slot Between Columns

3.09 Channel-type sheathing, as shown in Fig 8, shall be installed in cable slots between columns in accordance with ED-92116-71 (A&M Only). Continuous slots are used in buildings of steel construction, and noncontinuous type or a series of cable holes are used in buildings of concrete construction.

3.10 The floor cover and supporting angle for a continuous slot are generally furnished in sections 2 feet 9 inches in length, making it unnecessary to remove more than one section of cover and supporting angles for each cable run installed.

F. Cement Grout Fills

3.11 Where cable holes or slots are located under the IDF, the space between the sheathing framework and the frame floor angle shall be filled with cement grout, as shown in Fig 5, to avoid dust pockets.

3.12 Cement grout fill shall be used between the backs of sheathing channels of adjacent slots separated by 9 inches or less and between the face of a column or wall and the channel of the first slot located 9 inches or less from the column or wall as shown in Fig 8.

G. Sealing of Joints (Waterproofing)

3.13 The joints between sheathing framework and the fascia angles at the floor and all joints in sheathing framework not welded shall be made mechanically tight and waterproofed by the use of Permatex Form-A-Gasket No. 2 sealing compound, Permatex Company, Inc., Brooklyn, N.Y., applied to the surfaces of the details. Sufficient compound shall be used so that the sealer will squeeze out around the edges when the fastening bolts are tightened. Where the sealing compound would tend to run through large openings, the openings shall be closed with R-4779 (401981816) Kaowool Bulk Ceramic Fiber. Waterproofing is not required for slots under the MDF per Fig 6, or double-sided protector frames per Fig 7.

4. SHEATHING OF CABLE HOLES IN MILL-TYPE AND WOOD-JOIST FLOORS

A. Angle-Type Sheathing

4.01 Angle-type sheathing, as shown in Fig 9, shall be installed in cable holes in mill-type and wood-joint floors in accordance with ED-90005-31 (A&M Only).

5. SHEATHING FOR FLOOR OPENINGS IN CABLE DUCTS

5.01 Sheathing, as shown in Fig 10, shall be installed for floor openings in cable ducts in accordance with ED-90006-30.

(a) Closing details for floor openings in cable ducts are not required unless specified by the telephone company.

6. SHEATHING FOR CABLE HOLES IN WALLS AND PARTITIONS

6.01 Cable hole sheathing, as shown in Fig 11, shall be installed in walls and partitions in accordance with ED-90006-30.

(a) Methods of installing sheathing in walls and partitions of special construction such as glass, metal, etc, shall be discussed with the telephone company.

(b) Where walls are of exposed masonry, the sheathing may be attached directly to the wall without the use of an angle iron frame as shown in Fig 12.

6.02 Closing arrangement for openings in shaft wall for cable runs, as shown in Fig 11, shall be installed in accordance with ED-90578-01.

7. CLOSING CABLE HOLES AND SLOTS

7.01 The top and bottom covers of cable holes and used portions of cable slots in floors and the closing plates of cable holes in walls or partitions shall be cut to fit as closely as practicable around the cable runs and cable rack passing through these openings. They shall not, however, be cut to fit the curvature of individual cables and care shall be taken not to fit these covers so tightly that the cables will be damaged. Closing plates for unused cable holes, cable slots, and portions of cable slots will be furnished by the telephone company.

7.02 Cable holes shall be closed by filling the opening with overlapping layers of KS-5048 bags, as shown in Fig 13. The KS-5048 bags shall be placed in the hole under a pressure of 50 pounds per square foot (this pressure can be obtained manually). The cables shall be banded tightly with a nylon strap, R-4659 (400898318), at the levels of the ceiling and floor cover plates. A high-temperature caulking compound (AT-8832, 401925300) shall be applied in a continuous bead between the top cover and cable perimeter. For openings of 2 feet by 1 foot, KS-5048 bags must also be inserted between the first row of cables and the adjoining concrete surface.

7.03 Where 12-inch-wide slots are provided between columns and a cable hole is required, a portion of the steel floor and ceiling plate shall be removed and the sheathing placed over the opening. The cable hole shall then be physically isolated from the unused portion of the slot by a thin steel partition between the ceiling plate and the lower flange of the channel sheathing framework, as shown in Fig 14. The cable hole shall then be fire-stopped in accordance with paragraph 7.02.

7.04 All portions of the slot not being used shall be fire-stopped using one of the two following methods:

- (a) The entire space shall be tightly packed with overlapping layers of KS-5048 bags under a pressure of 50 pounds per square foot.
- (b) Two overlapping layers of 3-inch-thick mineral wool batting cut in widths 2 inches larger than the slot dimension shall be inserted into the slot space from either above or below to provide fire stopping, as shown in Fig 14.

7.05 Small rectangular holes (2-inch by 6-inch or 4-inch by 6-inch openings) as shown in Fig 15, which are spaced regularly beneath protector frames or distributing frames shall be provided with closure packing to impede the passage of heat, fire, and smoke as follows:

- (a) To obtain an optimum fire stop, fire-resistive packing material shall be stuffed to a depth of at least 12 inches in the space between the cable and the hole. Since the thickness of the concrete slab beneath protector frames and distributing frames is typically less than 12 inches, the necessary 12-inch packing depth shall be obtained by placing a rectangular thin-walled split steel sleeve of appropriate height, width, and length over the 2-by 6-inch or 4-by 6-inch opening.
 - (1) To provide room for packing, a 1/4-inch minimum space shall be left between the cable bundle and the side of the opening.
 - (2) To facilitate packing the hole, the extension sleeve shall not be placed until after the caulking compound (AT-8832, 401925300) is packed around the individual cables.
- (b) The cables shall be banded tightly with a nylon strap, R-4659 (400898318), placed above and below the hole, as shown in Fig 15. The space between the cable bundle and the hole shall then be tightly packed using R-4779 (401981816) Kaowool Bulk Ceramic Fiber furnished by Babcock and Wilcox. Material furnished by Carborundum Co. as "Fiberflax Bulk Fiber" or by Johns-Manville as "Cerafiber Bulk 111" may also be used.

Note: To avoid possible skin irritation, gloves shall be worn when the ceramic fiber is handled.

- (c) After packing the hole, the residual volume within the extension shall be packed with R-4779 (401981816) Kaowool Bulk ceramic fiber and capped with a final top layer of 2 inches of caulking compound (AT-8832, 401925300).

7.06 In older buildings where a continuous slot is provided in the floor between the cable entrance vault and the double-sided protector frame or the main distributing frame, closure packing shall be provided to impede the passage of heat, fire, and smoke, as shown in Fig 16, as follows:

- (a) Sheet steel sections, cut to fit the rise cables, shall be fastened to the floor angles of the frames. At the MDF, an additional angle, parallel with the floor angle and on the opposite side of the slot, is required for closing and support of the cover. An angle is also furnished for closing each end of the slot both at the protector and mainframes in accordance with ED-90627-31 and ED-90274-71, respectively.
- (b) All voids between the individual rise cables shall be closed using caulking compound AT-8832 (401925300) at the point where they pass through the steel cover plate and extend a minimum of 2 inches below the cover plate. The cables shall then be tied in a tight bundle to reduce the void space.
- (c) The slot volume shall be packed to a total depth of 12 inches using 3- or 4-inch mineral wool batts of U.S. Gypsum Thermafiber Curtain Wall insulation with an aluminum wall facing on one surface and having a density of 4 pounds per cubic foot. The aluminum foil facing serves to reduce the quantity of loose particles that are generated when handling and inserting the batts into the slot. The mineral wool batts shall be cut to a dimension 2 inches longer than the distance between verticals, and 2 inches wider than the width of the cable slot. With the top cover in place, the batts shall be inserted from below in the space between the rise cables, as shown in Fig 16.

Note: Over equipment areas the thermofiber curtain wall insulation shall be wrapped in aluminum foil prior to insertion into the slot.

8. FASTENING COVERS

8.01 Top covers shall be secured to the sheathing, and bottom covers to the fascia angles (where provided), with screws.

8.02 Where no fascia angles have been provided at the ceiling, the bottom cover shall be fastened directly to the ceiling surface with expansion bolts placed in the cement along the edges of the opening or supported by suitable details in the opening itself, similar to those shown on ED-90007-32 (A&M Only) for extending sheathing of the previous design in existing cable slots.

8.03 When specified, top covers for cable slots under MDF and double-sided protector frames, as shown in Fig 6 and 7, shall be installed in accordance with ED-90627-31 and ED-90274-71, respectively. The MDF floor angle serves as part of the closing framework and is fastened to the fascia angle of that side of the slot. At the double-sided protector frame, the frame floor angles serve as a means of supporting the cover for the slot under the frame.

8.04 The covers for protector frames and distributing frames are furnished in small sections. Two 4-inch sections are available for 14-foot 5-inch protector frames, one precut to fit around two 202-pair lead-covered cables, and the other blank for use at unequipped verticals and for cutting on the site to fit irregular cable terminations.

8.05 Support for cable-hole covers may be necessary where they are cut into a number of small pieces. They can be reinforced by iron braces of supports, obtained locally, secured to the cable-hole sheathing or cable rack. Screws (of the same size as those furnished for fastening covers to the sheathing) shall be used for fastening covers to braces or supports.

8.06 At cross beams and girders in cable slots under IDF, the top covers shall be installed in a continuous line without interruptions. The bottom covers shall be terminated at each side of a beam or girder, crossing the slot and extending below the level of the bottom covers.

9. CABLE SLEEVES

A. In Floors

9.01 Sleeves in floors for switchboard and power cables shall be installed as shown in Fig 17. After the sleeves are in place, the opening around them shall be filled with cement grout and finished at the ceiling to match the surrounding finish.

B. In Covered Slot Between Columns

9.02 Power cable sleeves set in a covered slot between columns shall be installed as shown in Fig 17. The holes in the floor and ceiling plates shall fit the sleeve closely and a suitable support, such as a collar with setscrew, furnished to hold each sleeve in place.

C. At Rear of Fuse Bays

9.03 Power cable sleeves set in the floor at the rear of fuse bays, relay-rack-mounted fuse panel bays, or battery-distributing fuse boards shall be located as shown in Fig 18. Sleeves are not used at frames, racks, or fuse bays employing sheet-metal base construction.

10. SEALING CABLE SLEEVES AND CONDUIT

A. Sealing Power and Switchboard Cable Sleeves

10.01 Sleeves containing power or switchboard cables shall be sealed by tightly packing with R-4779 (401981816) Kaowool Bulk Ceramic Fiber and fire retardant caulking compound (AT-8832, 401925300) at the top end only. In addition, where concrete slabs are less than 8 inches thick, the floor end of the steel sleeve shall be covered with a 1-inch minimum thickness of fire-resistant pipe insulation, as shown in Fig 17.

B. Sealing Power and Switchboard Cable Conduit

10.02 Ends of conduit, other than floor sleeves, containing switchboard cable only, terminating upward or horizontally, shall be packed with R-4779 (401981816) Kaowool Bulk Ceramic Fiber to a depth of 3 to 4 inches. Where both horizontal ends of the conduit terminate in the same room, no treatment of the ends is necessary.

(a) Where one or both ends of a conduit containing switchboard cables only is terminated in an open-cell battery room, both ends shall be sealed by first packing with R-4779 (401981816) Kaowool Bulk Ceramic Fiber and then with caulking compound (AT-8832, 401925300).

10.03 For sealing of conduit containing power cable alone or combined power and switchboard cables other than sleeves in floors and walls, see Section 802-005-180 on Assembly and Installation of Power Plant and Bus Bar Wiring.

11. POWER CABLE SHAFT-CLOSING DETAILS

11.01 The sheet steel cover furnished at each floor in the portion of the power cable shaft occu-

ried by the cable runs, as shown in Fig 19, shall be installed in accordance with ED-90679-31. See Section 800-614-157 for installation of the cable rack supporting unit.

12. FINISH

12.01 Sheet steel covers of cable holes in floors, shafts, or walls and of cable slots shall be given the KS-8662 or No. 395 gray enamel finish.

12.02 Cement grout fills between sheathing angles and adjacent distributing frame floor angles, walls, columns, or other cable holes shall be given one coat of cement filler (Toch Bros. or approved equivalent). After the cement filler is thoroughly dry, one coat of KS-8662 gray enamel shall be applied.

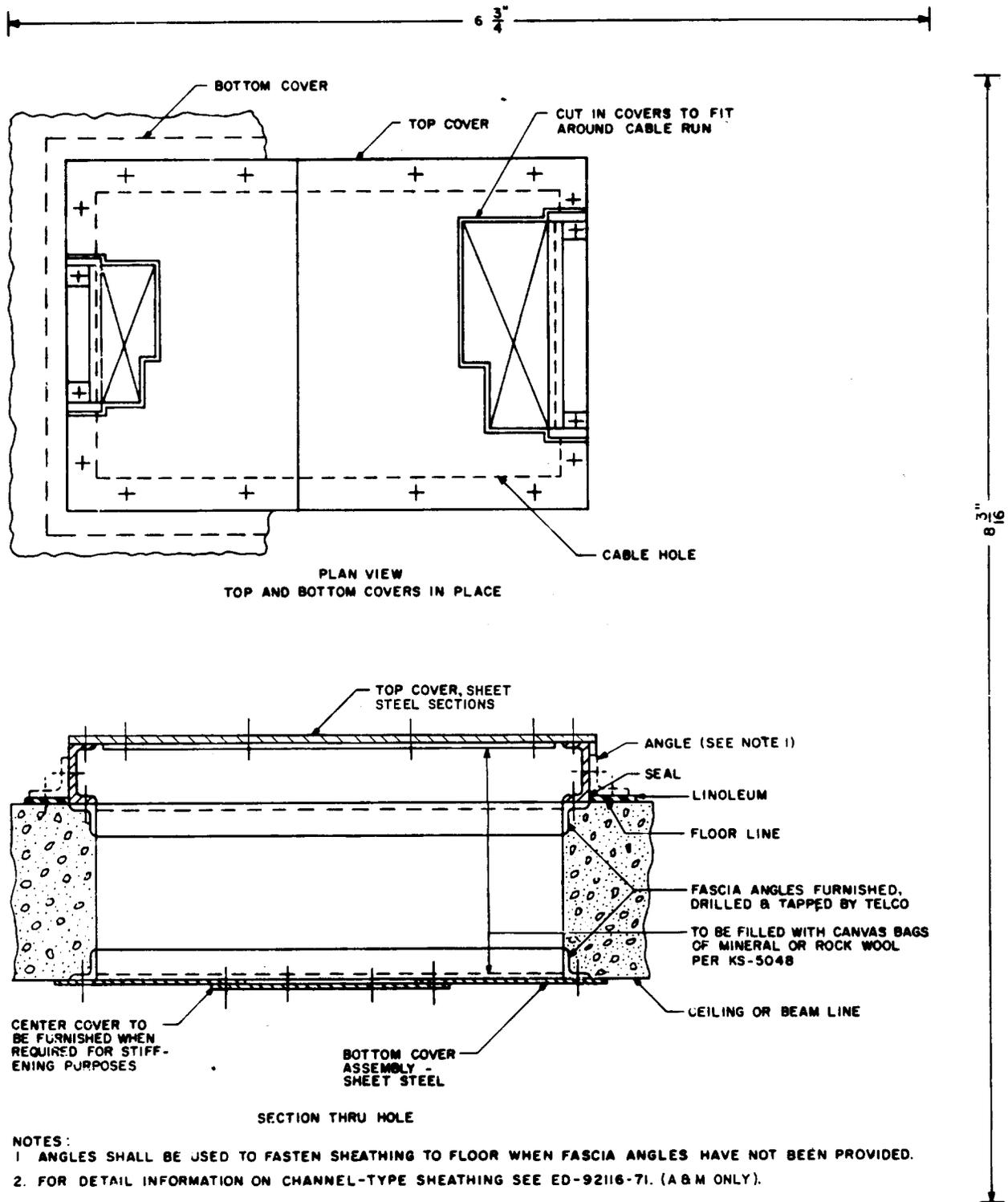


Fig 1—Channel-Type Sheathing for Cable Holes in Fire-Resistive-Type Floors—A&M Only—Replaced by Fig 2

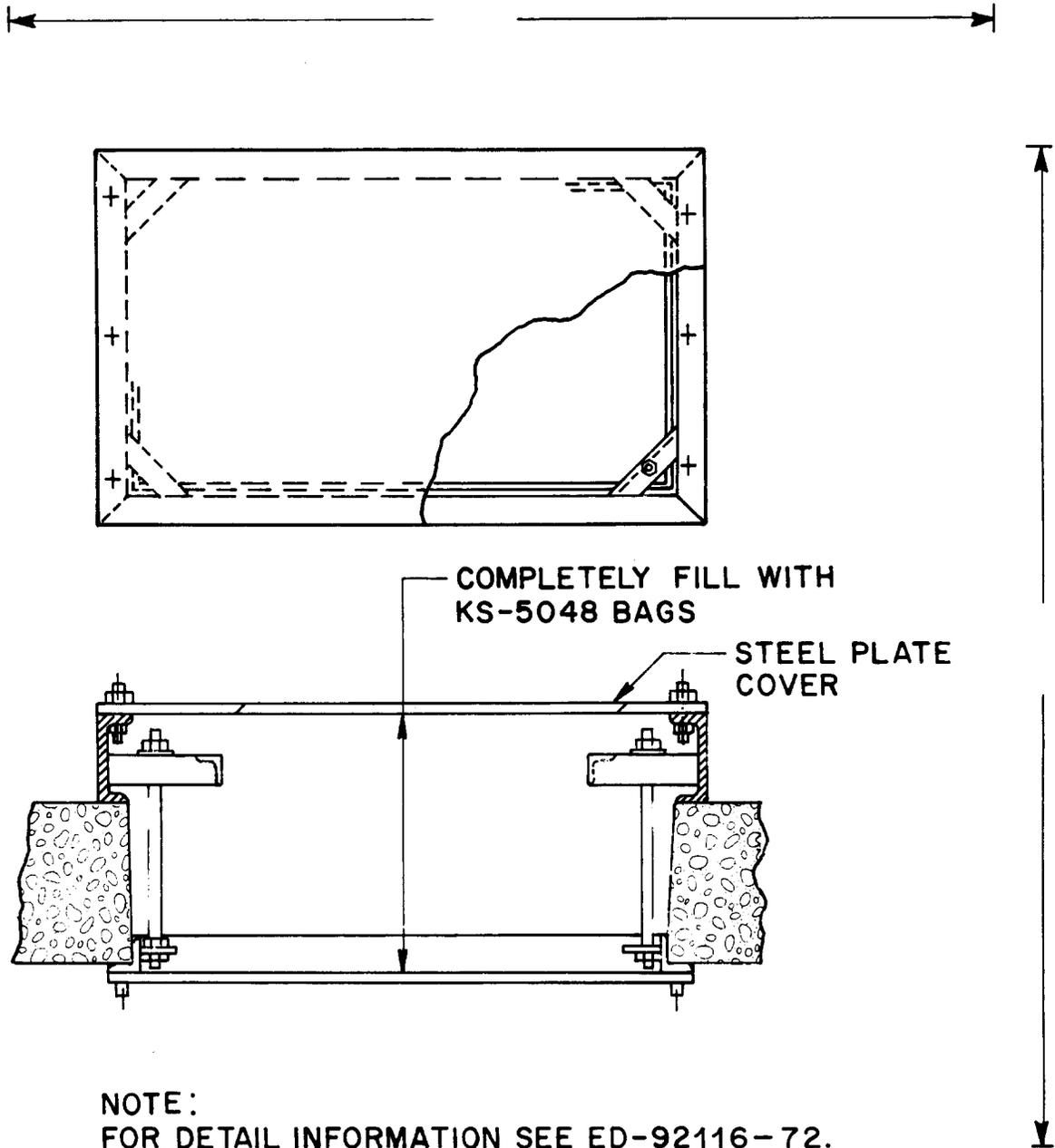


Fig 2—Self-Supporting-Type Sheathing for Cable Holes in Fire-Resistive-Type Floors

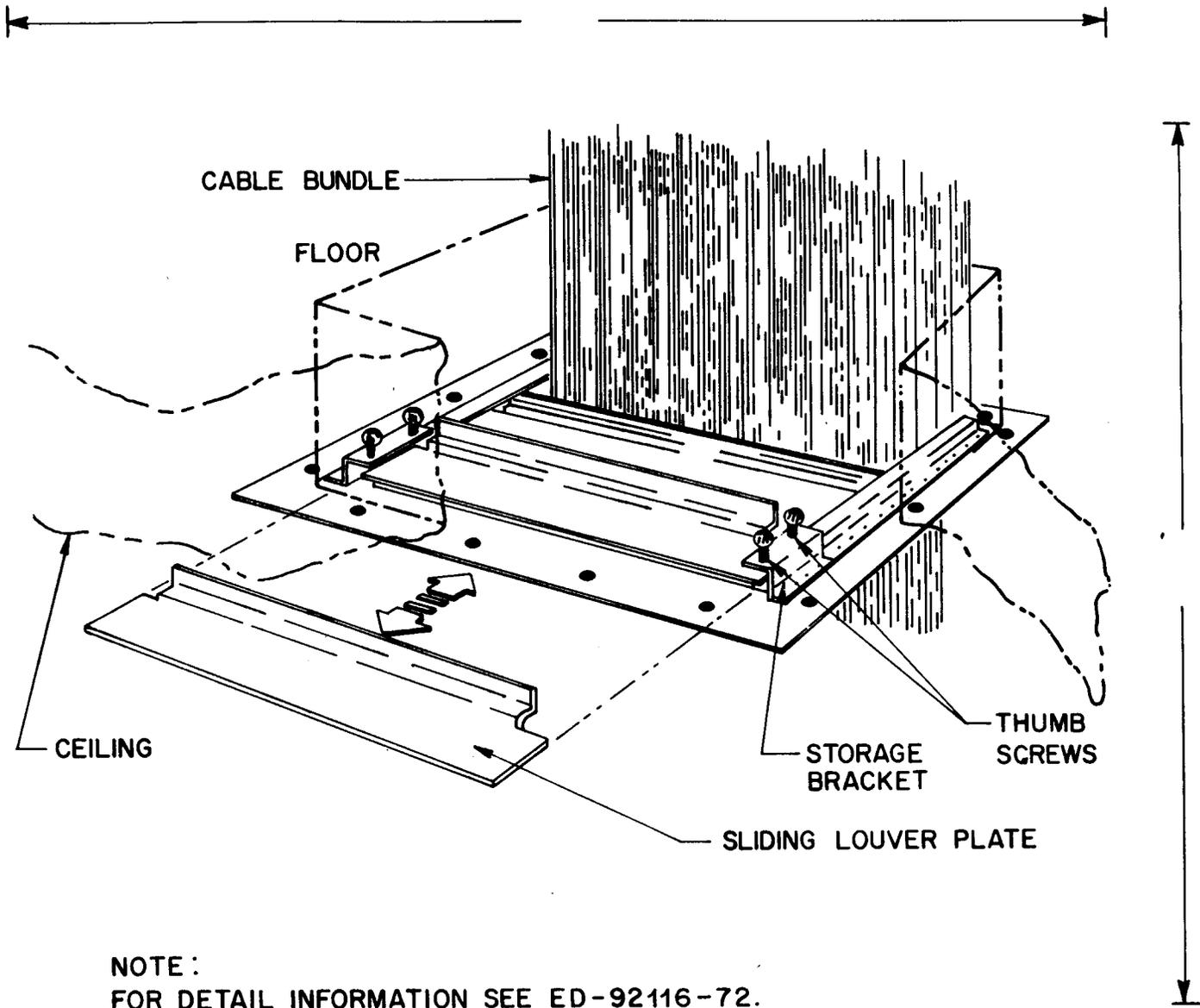
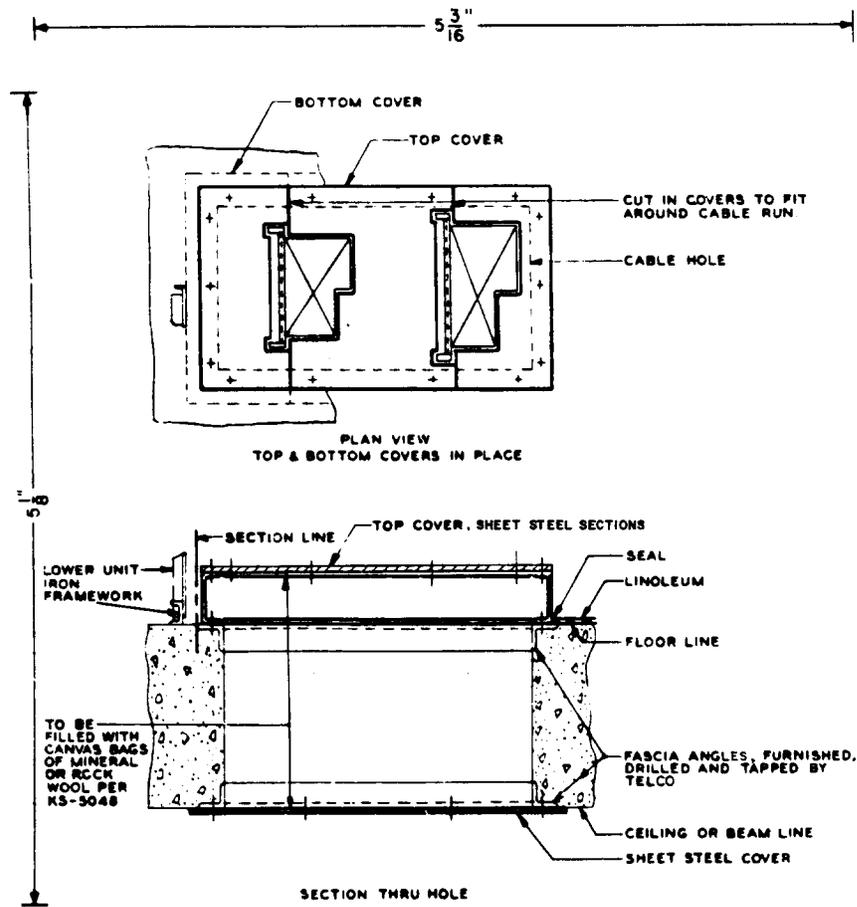
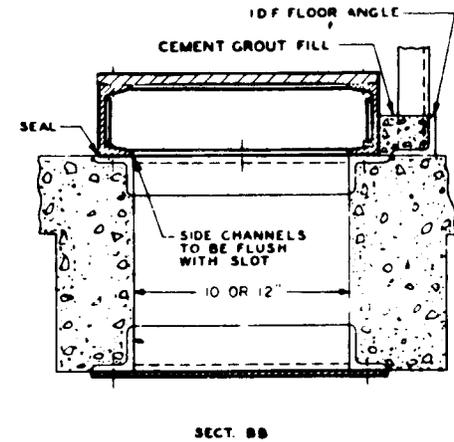
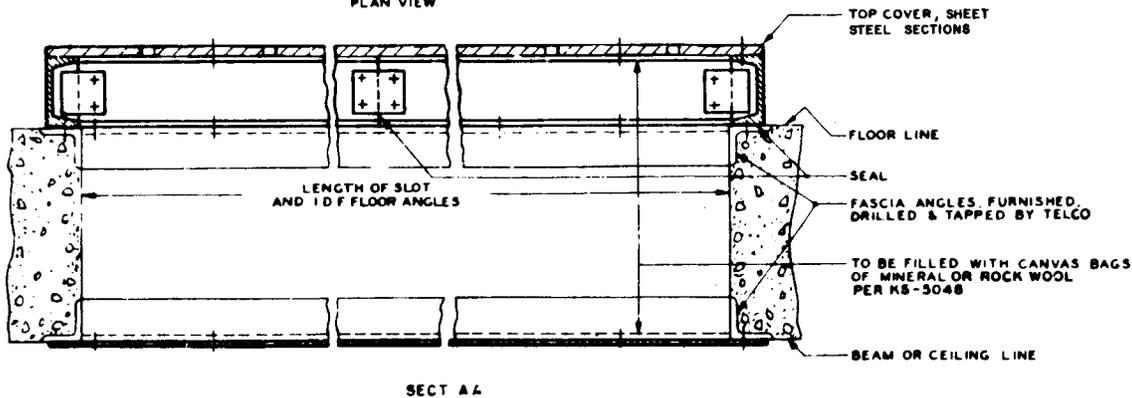
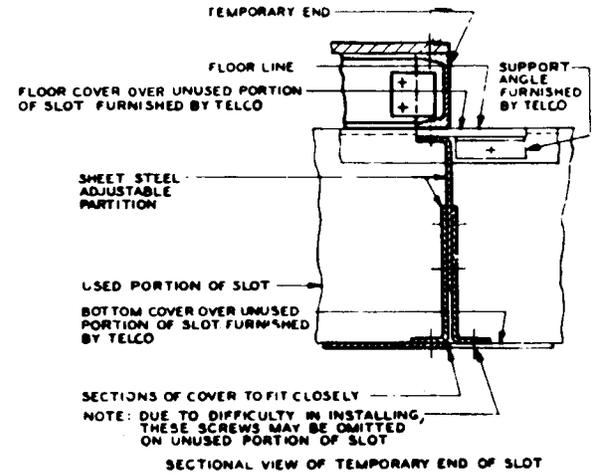
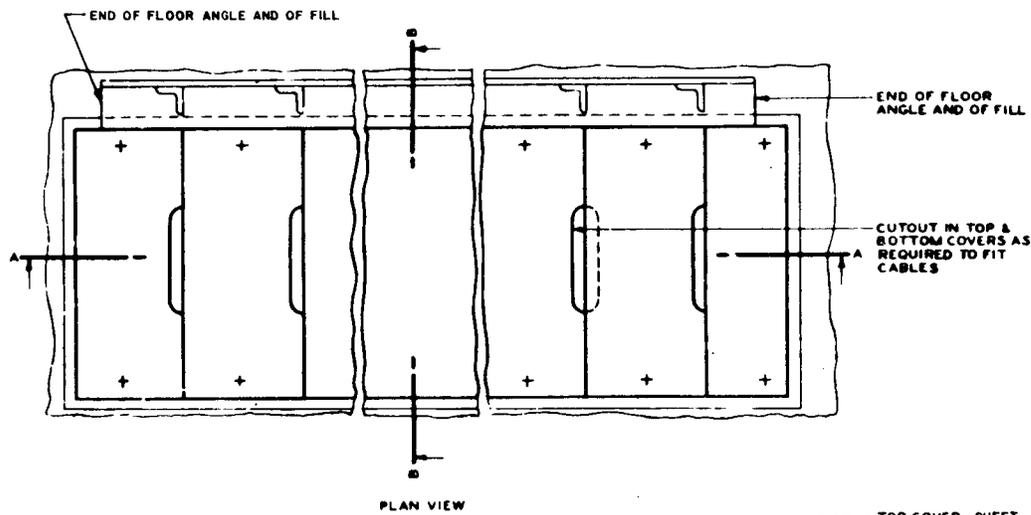


Fig 3—Adjustable Cable Hole Ceiling Plate



NOTE:
FOR DETAIL INFORMATION SEE ED-92116-71 (A & M ONLY).

Fig 4—Channel-Type Sheathing for Cable Holes in Switchboard Cable-Turning Sections in Fire-Resistive-Type Floors



NOTE FOR DETAIL INFORMATION SEE ED-90979-31 (A&M ONLY).

Fig 5—Channel-Type Sheathing for Cable Slot Under IDF in Fire-Resistive-Type Floors

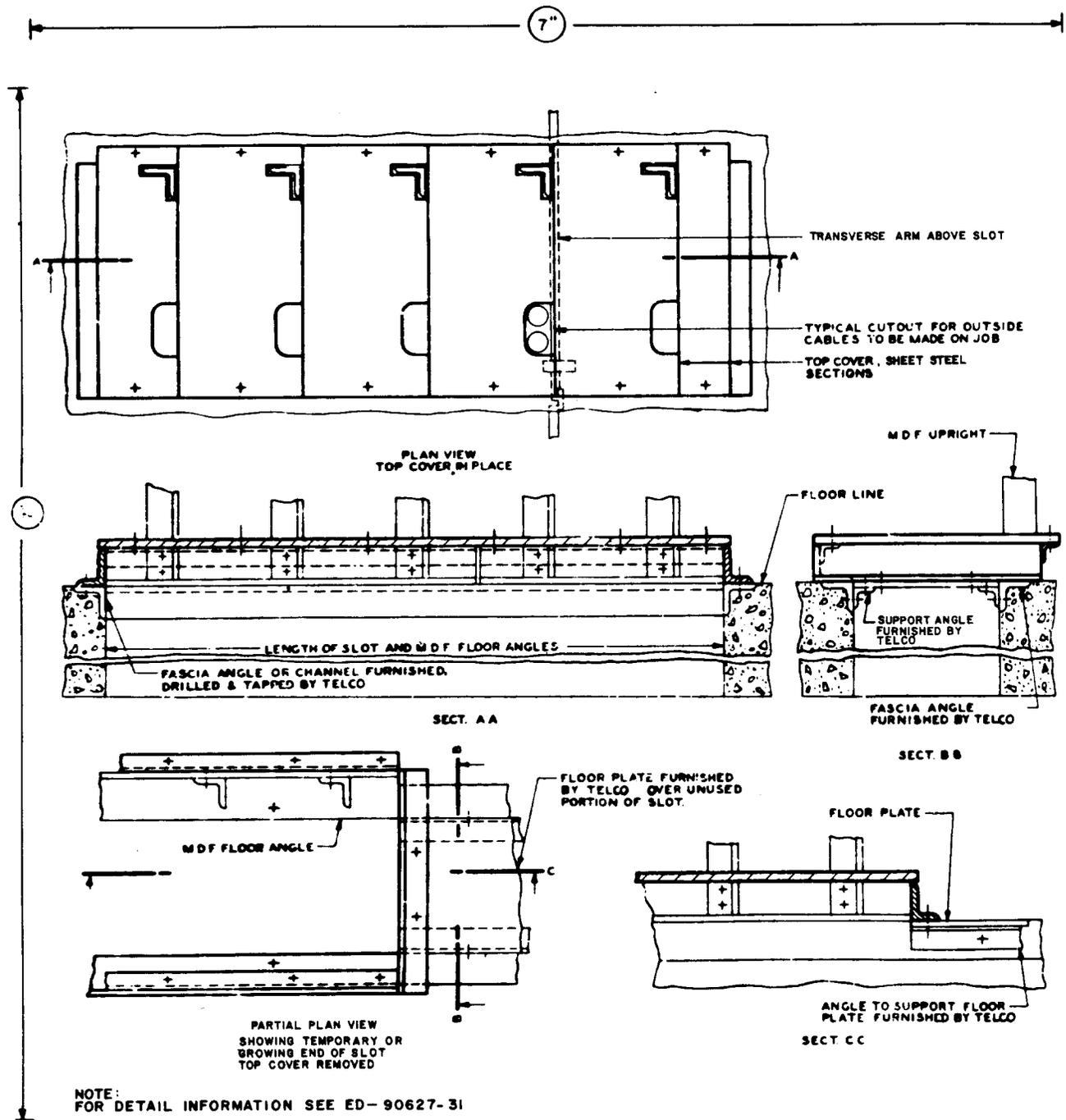


Fig 6—Closing Framework and Cover for Slot Under MDF

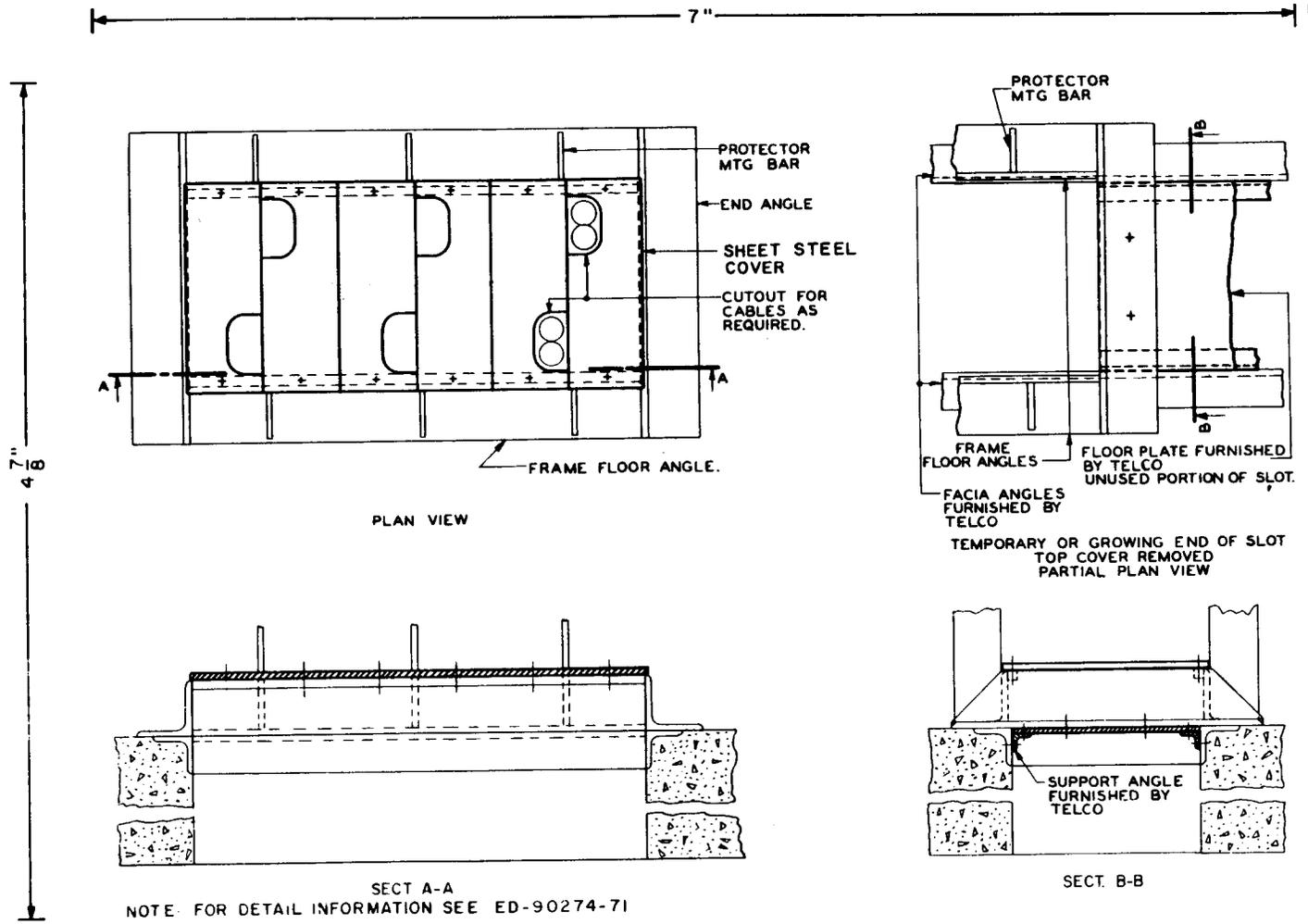


Fig 7—Cover for Slot Under Double-Sided Protector Frame

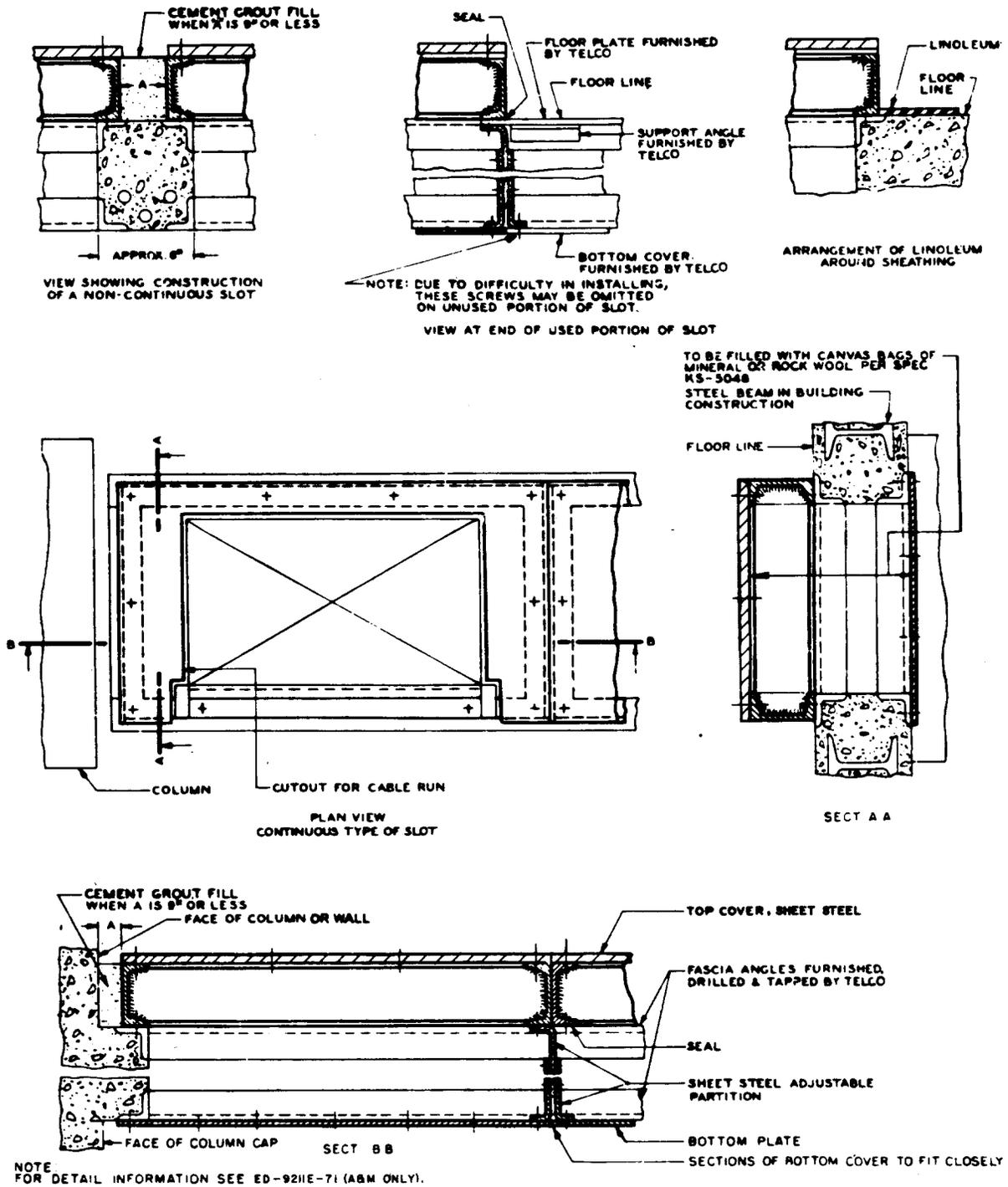
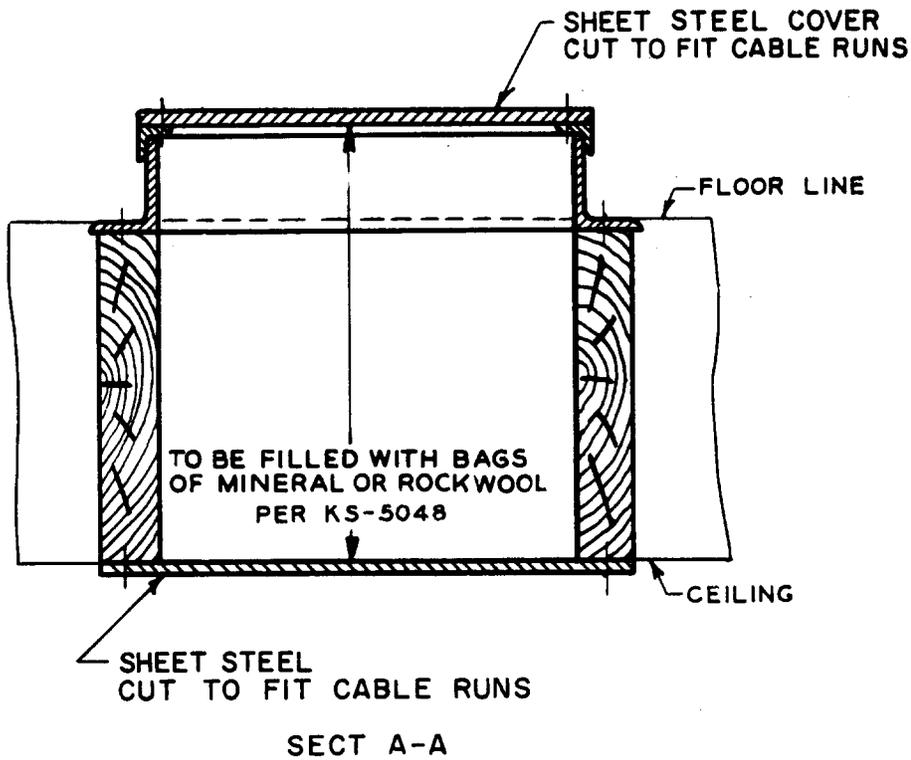
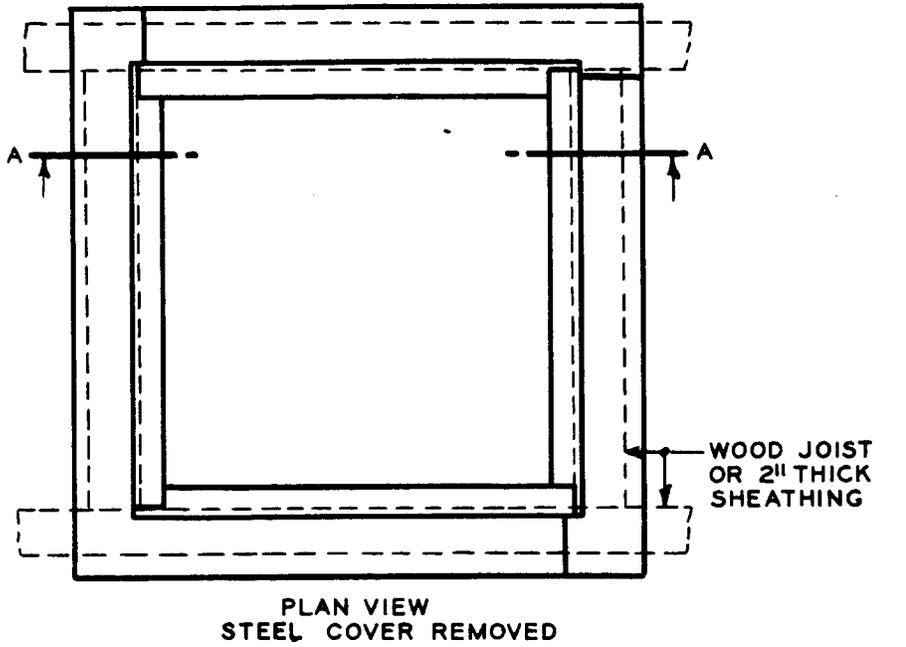
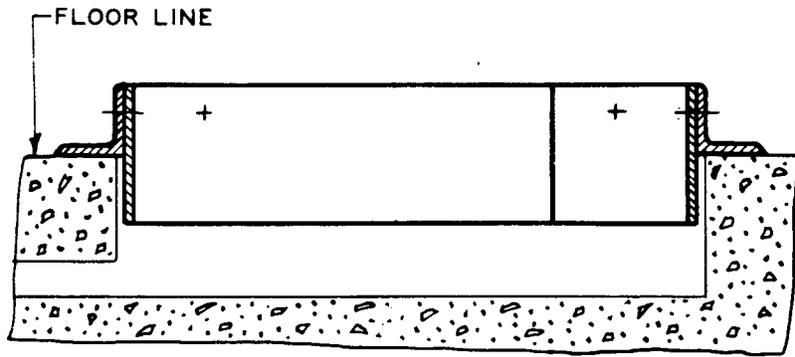
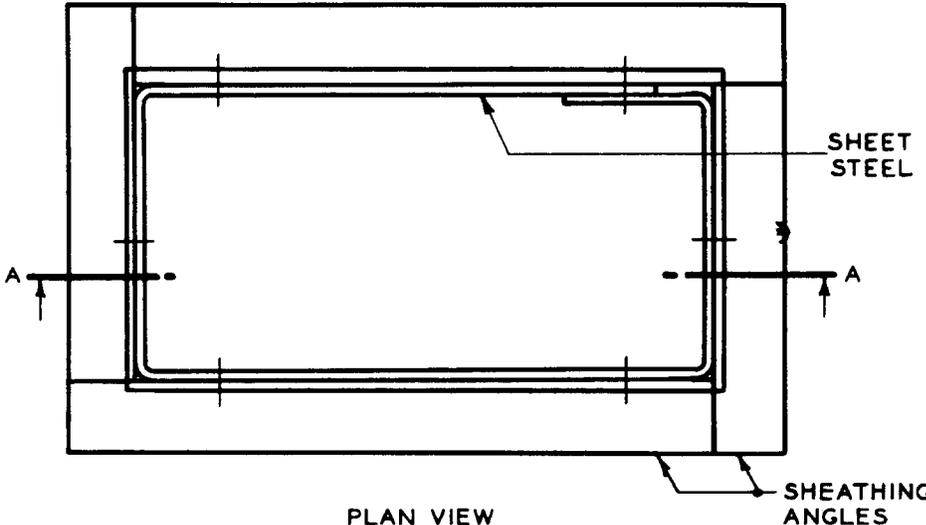


Fig 8—Channel-Type Sheathing for Continuous or Noncontinuous Cable Slots Between Columns



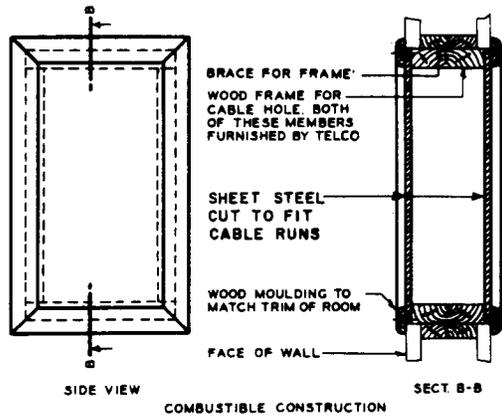
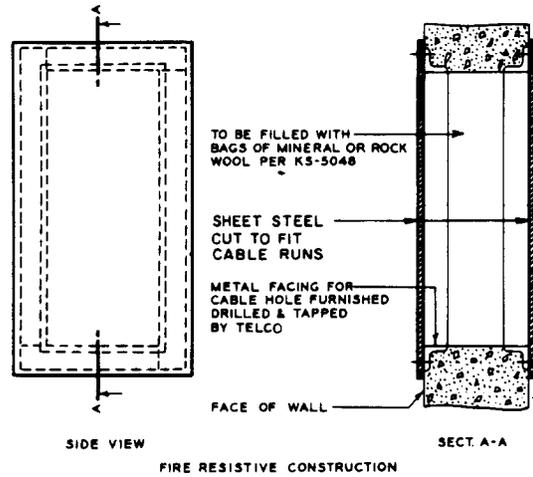
NOTE: FOR DETAIL INFORMATION
SEE ED-90005-31(A & M ONLY)

Fig 9—Angle-Type Sheathing for Cable Holes in Mill-Type and Wood-Joist Floors

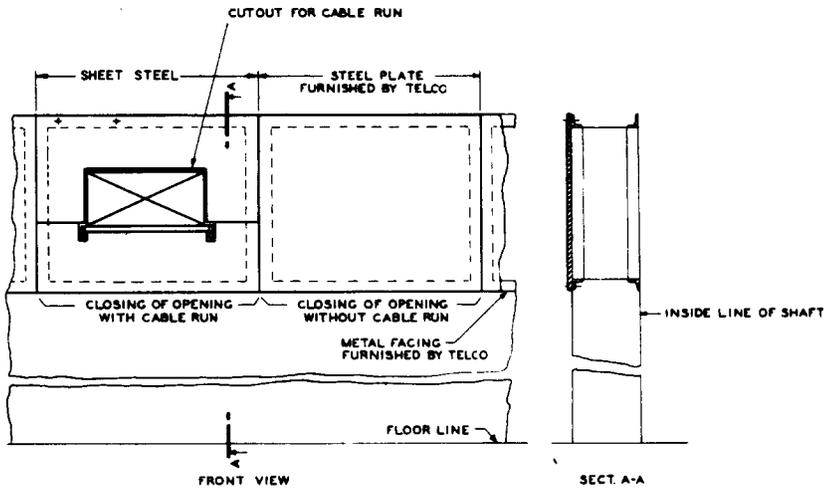


SECT. A-A
NOTE: FOR DETAIL INFORMATION SEE ED-90006-30

Fig 10—Sheathing for Floor Opening in Cable Ducts

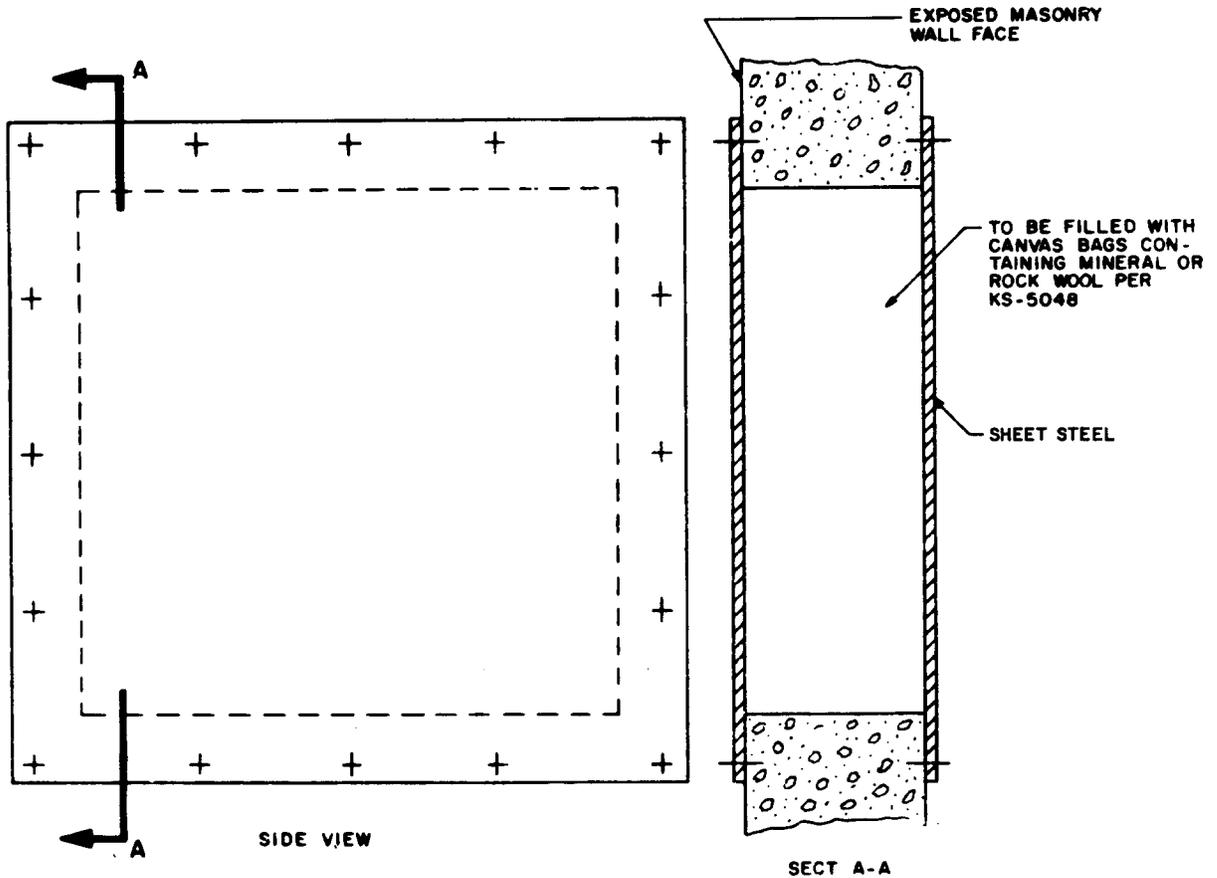


NOTE: FOR DETAIL INFORMATION SEE ED-90006-30



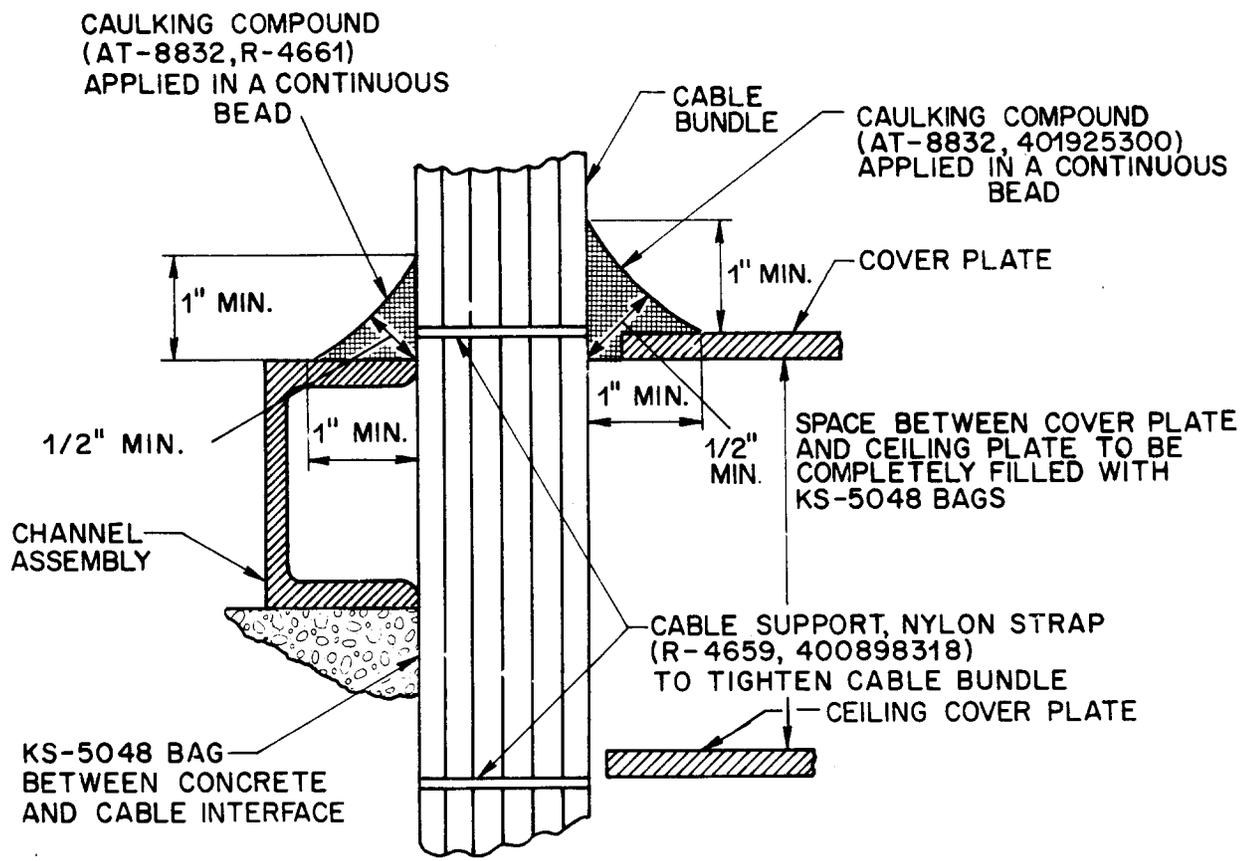
NOTE: FOR DETAIL INFORMATION SEE ED-90578-01
 LOCATION AND CLOSING ARRANGEMENT FOR OPENINGS IN SHAFT WALL FOR CABLE RUNS

Fig 11—Sheathing for Cable Holes in Walls and Partitions



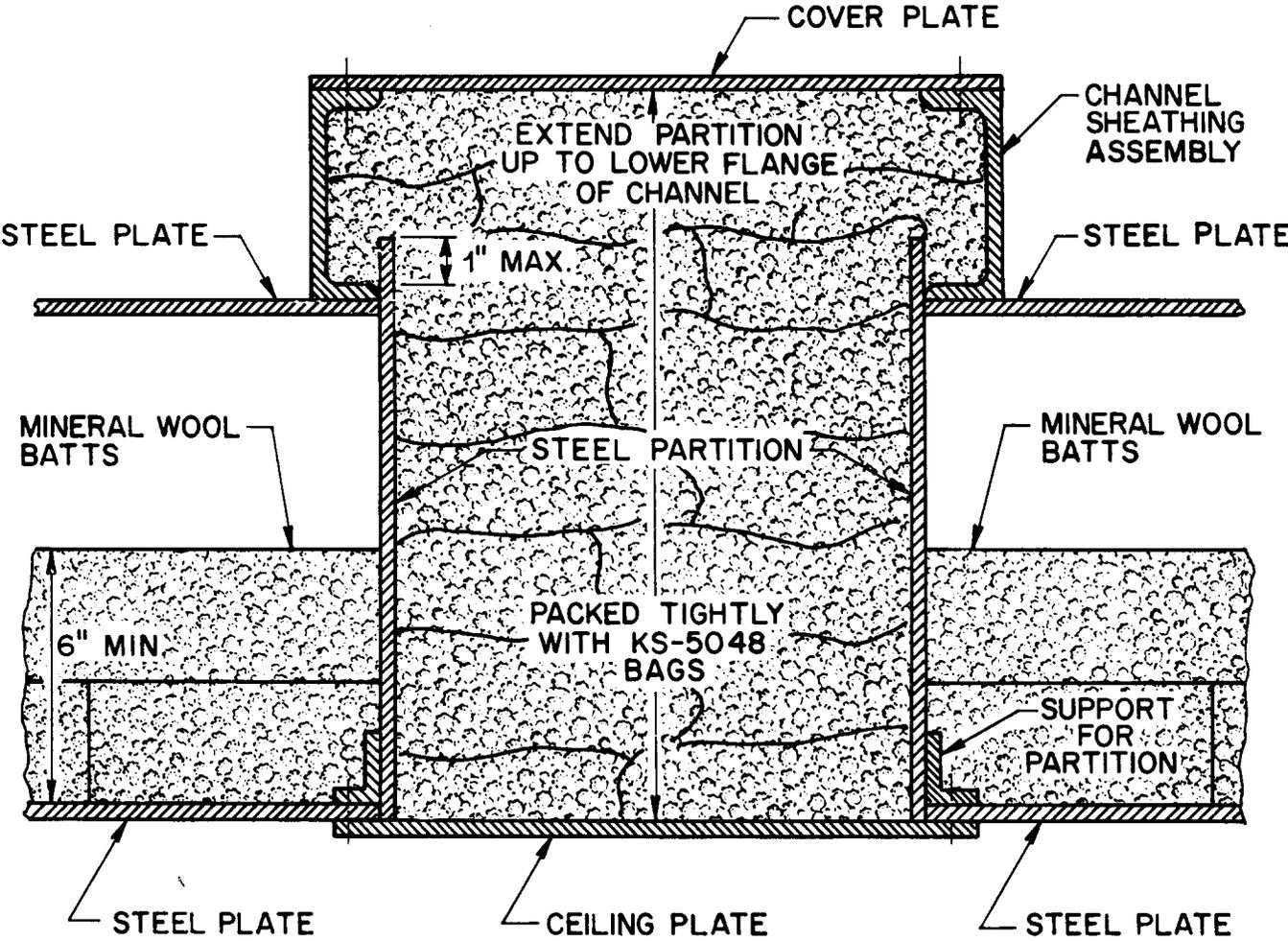
NOTE:
FOR DETAIL INFORMATION SEE ED-90006-30.

Fig 12—Sheathing for Cable Holes in Exposed Masonry Walls



NOTE:
FOR DETAIL INFORMATION SEE ED-92116-72.

Fig 13—Cable Hole Closing



NOTE:
FOR DETAIL INFORMATION SEE ED-92116-72.

Fig 14—Fire-Stopping Configuration for Continuous Cable Slot Between Columns

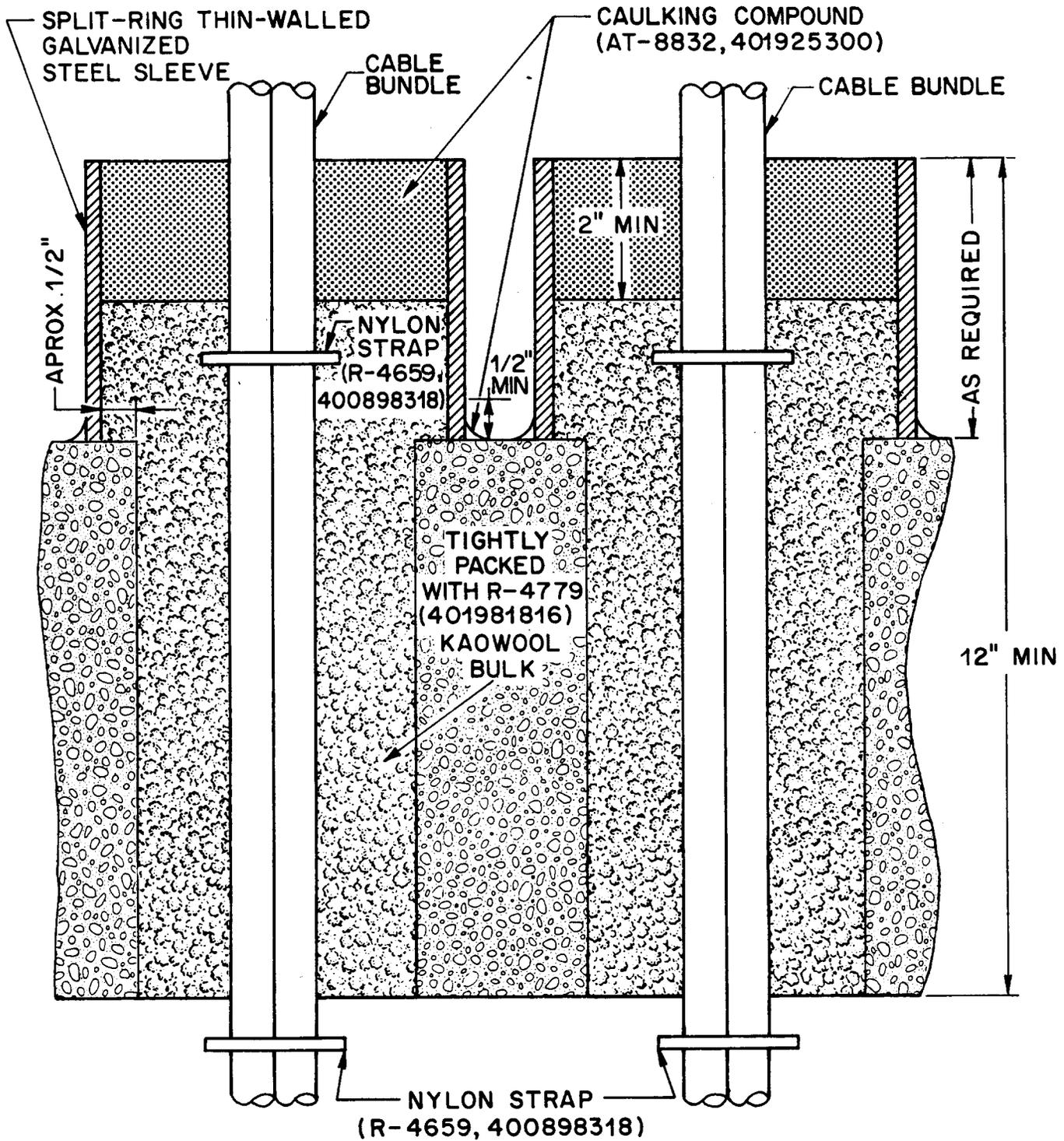
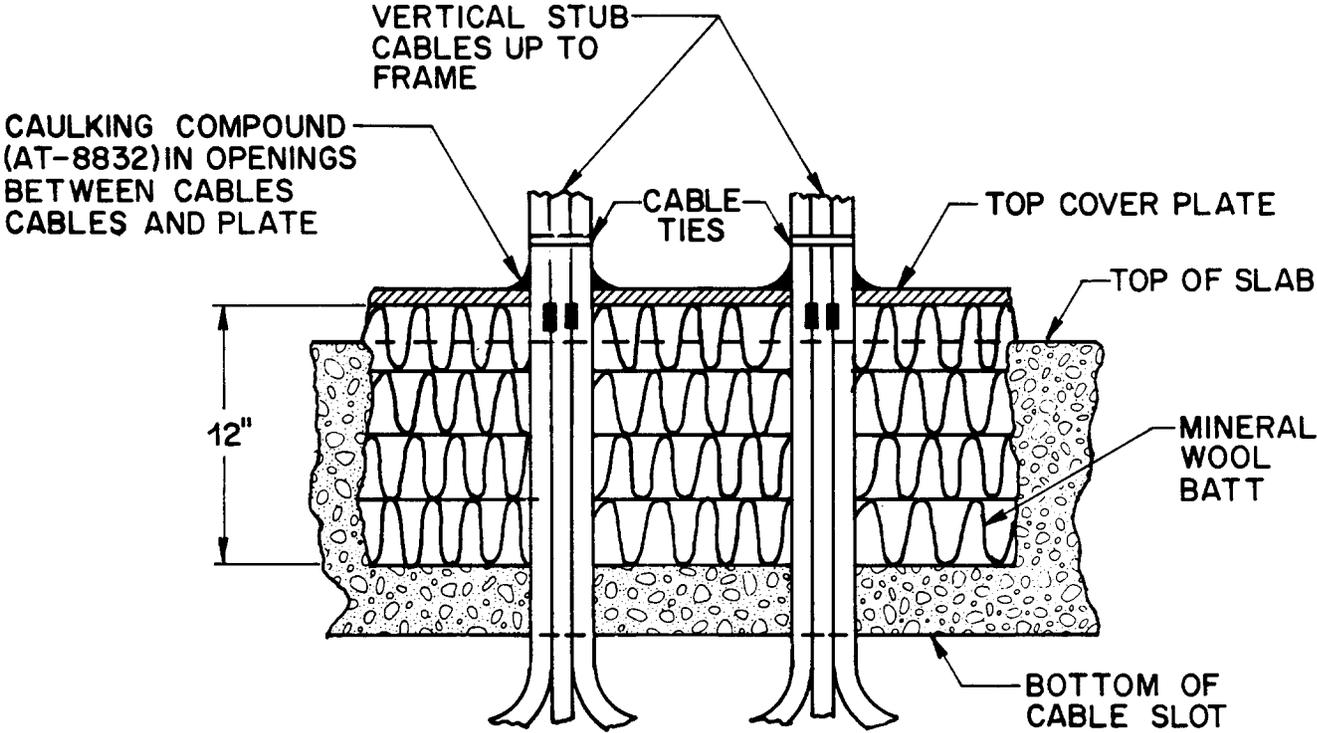
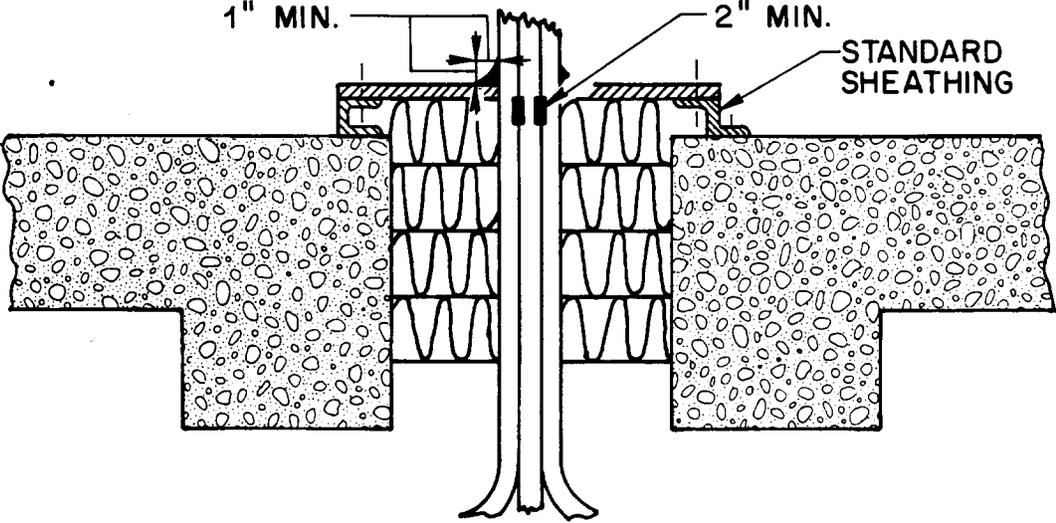


Fig 15—Fire-Stopping Configuration for 2-Inch by 6-Inch and 4-Inch by 6-Inch Cable Holes



LONGITUDINAL SECTION OF SLOT



CROSS SECTION OF LOT

Fig 16—Fire-Stopping Configuration for Protector Frame and Main Distribution Frame Cable Slots

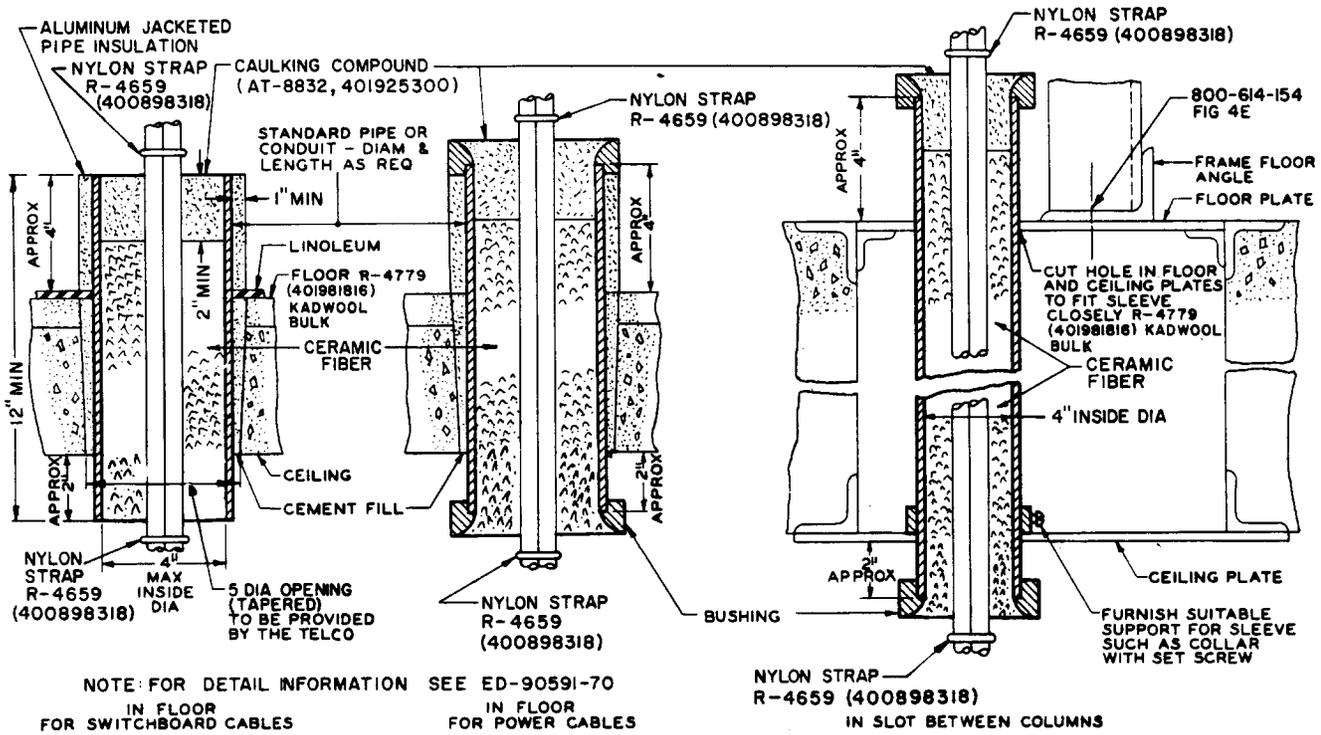
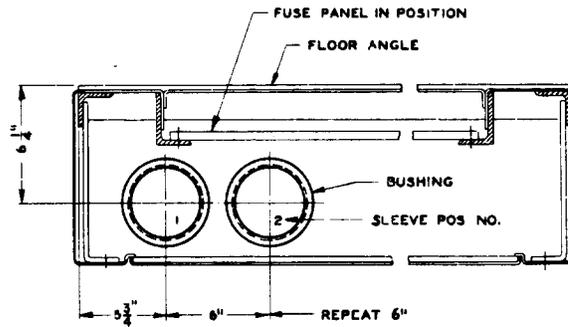


Fig 17—Cable Sleeves



LOCATION OF POWER CABLE SLEEVES IN ENCLOSED TYPE BATTERY DISTRIBUTING FUSE PANEL

Fig 18—Location of Power Cable Sleeves

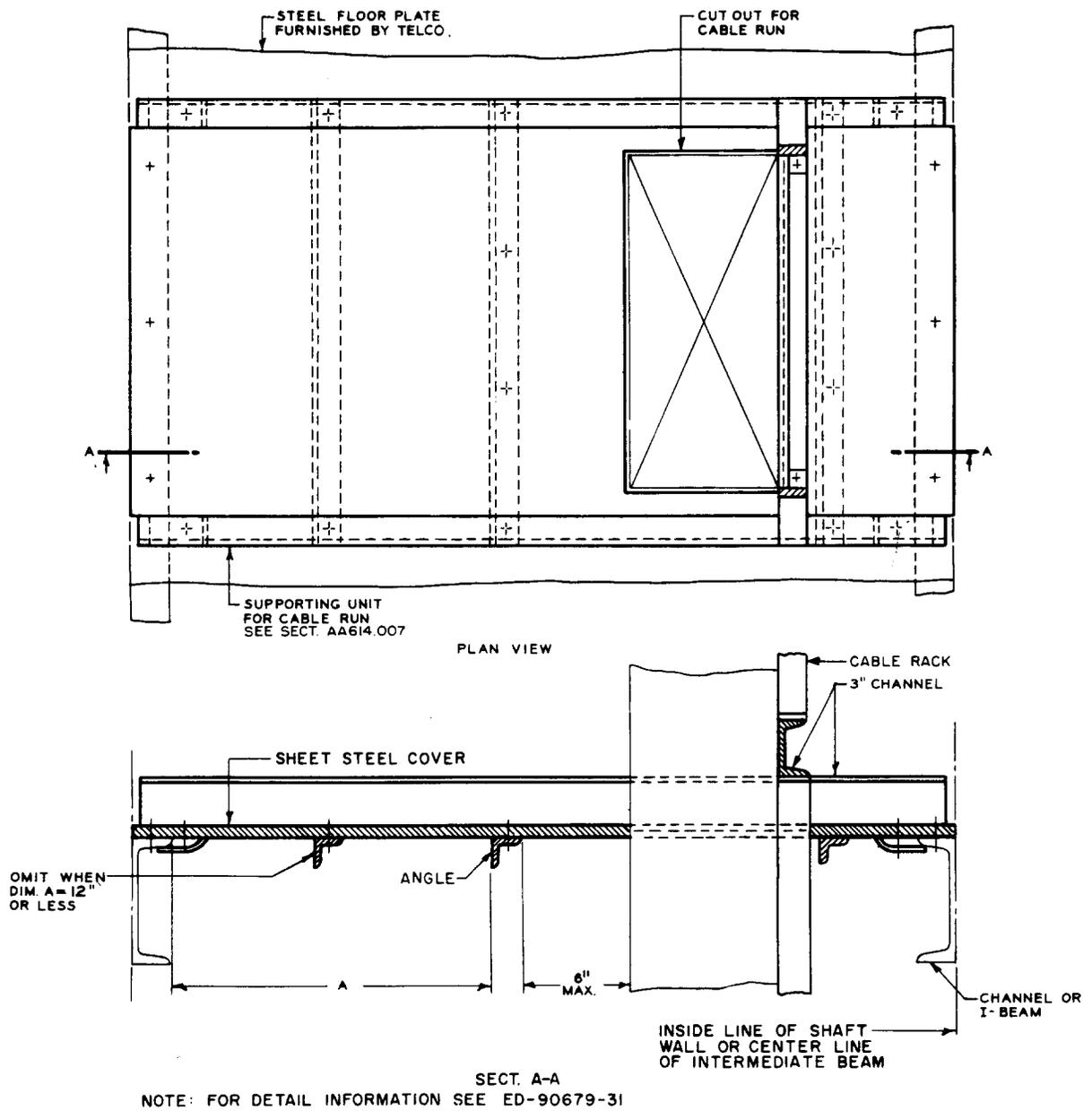


Fig 19—Closing of Shaft Around Power Cable Run