CLOSING CABLE HOLES AND SLOTS

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ASSOCIATED HANDBOOK INFORMATION REFERENCE CHART

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2. GENERAL

2.1 Scope

2.11 This section covers the specific requirements and methods for closing cable holes and slots. It also contains information relative to the use of closing details and the support of cable racks in power cable shafts.

2.12 It is assumed that the cable hole sheathing will have been installed before the operations of this section are started.

2.2 Associated Information

2.21 Refer to the chart above for the location of information to which reference may be necessary when performing operations covered by this section.

2.22 Reference should also be made to the job specifications and drawings.

2.3 Verification

2.31 The verification items marked "P", at the end of this section, are so designated to indicate that the items should be verified before they become inaccessible.

3. INSTALLING EQUIPMENT

3.1 In addition to tools supplied in the general kits, the tools and materials listed below may be required for the operations covered in this section.

3.11 Kits

No. 4 Ironworkers Kit

3.12 Additional Tools

R-1672	Blade, Hacksaw, 12 in"., 24 Teeth per inch
R-1789	Drill .437 (7/16")
R-3032	Drill Electric, 1/2"
R-2922	Punch, Perforating 7/16"
Obtain Locally	Saw, Compass
Obtain Locally	Saw, Hack (Frame Depth 12")
R-2541	Saws, Hole
R-3148	Saw, Reciprocating, Power
R-3055	★All Plastic Safety Goggles
R-3080	★Respirator

★See Par. 4.4 Caution

3.13 Materials

RM-626122	Canvas, Flameproofed
Obtain Locally (See Par. 5.2)	Cardboard or Beaver Board
RM-641598	Compound, Caulking
R-3050	Compound, Sealing, Cable Hole, Non-Hardening
Obtain Locally (See Par. 4.4 Caution)	Gloves, Leather Palmed, Canvas
RM-585920	Oakum, Rope

4. USE OF MINERAL WOOL BAGS

4.1 In closing cable holes, except in combustible walls and partitions, bags of mineral or rock wool per specification KS-5048 should be packed in the cable hole to prevent drafts and to furnish necessary fire protection. Slots under protector frames and MDF's are not packed with mineral wool.

4.2 In the case of cable holes and the used portion of cable slots in fire-resistive and mill-type floors, the bags are to be packed tightly in the space not occupied by cable runs, to a depth of approximately 8" measured from the bottom closing plate of the hole or slot. In the case of wood joist floors this depth should be approximately 4". In fireproof walls and partitions all available space in the cable hole shall be filled with bags of mineral wool. No packing is required in cable holes in nonfireproof walls and partitions. Bags of mineral or rock wool are not to be furnished for unused cable holes or slots, or unsheathed portions of cable slots, unless specified by the telephone company.

4.3 To determine the number of bags required for the permanent closing of cable holes, (bags are approximately 12" x 12" x 1" in size) deduct the approximate cross sectional area of the cables and racks from the total area of the cable hole and multiply the resulting area in sq. ft. by the depth in inches to which the hole is to be filled. Then add approximately 10% to care for the reduction in volume resulting from the packing of the bags in the opening.

NOTE: Mineral or rock wool bags, KS-5048, required for the permanent closing of cable holes, are furnished to the job as "Equipment" items.

CAUTION: The R-9440 asbestos filled bags, which are of green colored canvas, are furnished for temporary closing of cable holes. Because these bags absorb moisture they will damage the cables if confined with them. Therefore, they should never be used for the permanent closing of cable holes.

4.4 Install the bags of mineral or rock wool so that the bags in each layer will overlap the space between the bags in the layer immediately beneath, to prevent a possible draft through the cable hole or slot. Fit the bags as tightly as possible around the cable runs. The bags should be folded where necessary to place them in the limited space of small cable holes. It will not be necessary to close such small openings as may remain after the proper installing of the bags of mineral wool.

CAUTION: Handle mineral or rock wool bags with care as particles may sift through the bag and cause irritation. Avoid kneeling or sitting on the bags or touching the face with the hands while engaged in handling the bags. Men engaged in unpacking cable holes which are fireproofed with loose mineral or rock wool, should wear R-3055 All Plastic Safety Goggles, and leather palmed canvas gloves. When a considerable amount of loose mineral or rock wool is to be handled use an R-3080 Respirator to protect the nose and mouth.

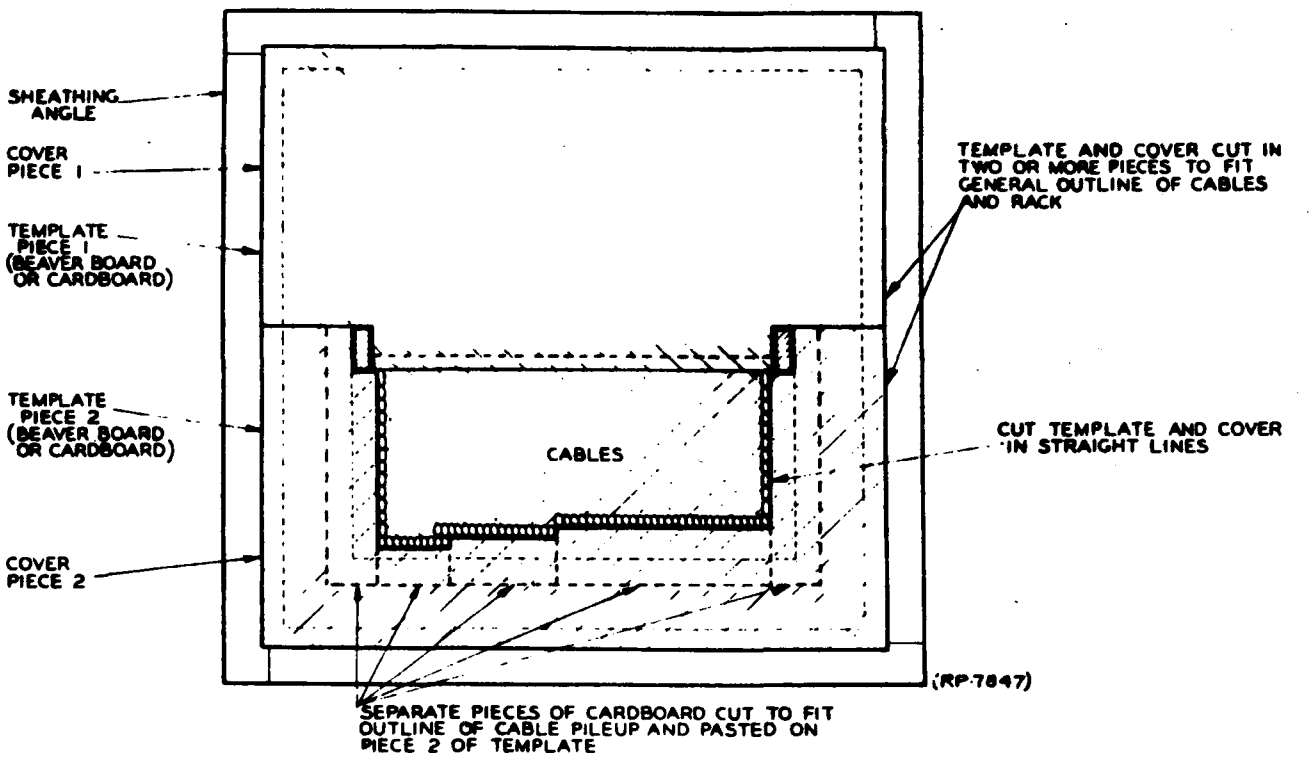


FIG. 1 TYPICAL METHOD OF MAKING TEMPLATE AND COVER FOR CABLE HOLE (Pars. 5.2,5.4(a))

5. CUTTING COVERS

5.1 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, are to be cut to fit as closely as practicable around the cable runs and cable rack passing through these openings. They are not however, to be cut to fit the curvature of individual cables and care should 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. Cable hole covers need not consist of one piece. Where conditions are such that job fabrication will be facilitated it is permissible to make the cover of two or more pieces.

5.2 The fitting of cable hole covers can be more readily done by making cardboard or "beaver" board templates as shown in Figure 1.

(a) Fit the templates to the general contour of the cables and cable racks. It is not necessary that they fit the curvature of each individual cable.

5.3 Mark and cut the covers to conform to the templates, taking care not to fit the covers so tightly that the cables will be damaged. It may be more economical in some cases to have covers cut as required, by a local machine shop, especially the steel covers. Where this is done the template should be furnished with the cover for use in making the cuts which may be done with a band saw or an oxyacetylene torch. Where a torch is used, however, precautions must be taken to prevent warping of the cover; also the cuts must be finished with a grinder and a file to remove all sharp edges and burrs.

5.4 Where the covers are to be cut on the job, the procedure should be in accordance with the following:

(a) Use a deep frame hacksaw (12 in. deep) with a coarse tooth blade (18 teeth per inch) for asbestos lumber and a fine tooth blade (24 teeth per inch) for metal covers. Make straight or angular cuts as required and, if necessary remove small sections of the cover material at a time. See Figure 1.

(b) The hole saws (R-2541) will be found convenient for cutting holes for cables which are in a straight line, as under distributing frames.

(c) If the number of covers to be cut according to the planning constants in Handbook 250 requires it, the R-3148 or R-3009 reciprocating power saw should be used. Figure 2 illustrates the general method of holding the tool.

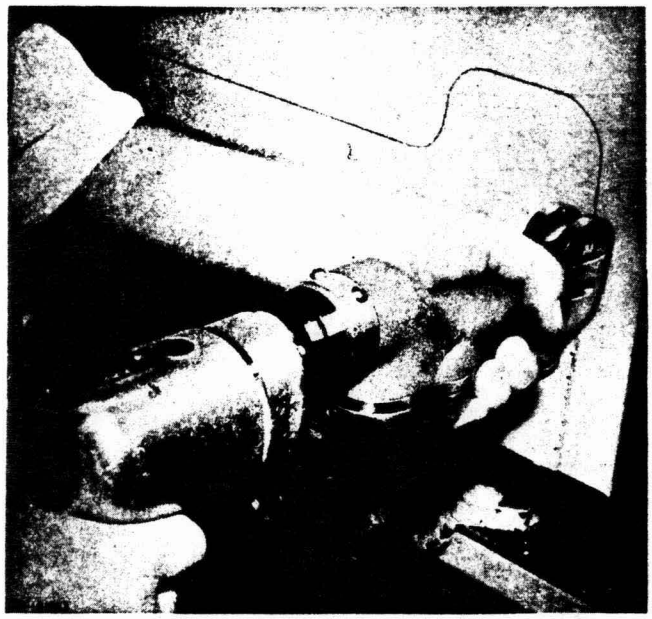


FIG. 2 CUTTING COVERS WITH THE R-3148 OR R-3009 RECIPROCATING POWER SAW (Par. 5.4(c))

(1) At the beginning of each day while the R-3009 saw is in use, it should be given one shot of lubrication. On the saw-housing, the recessed screw should be removed, the R-3026 super saw lubricant tube screwed into this hole and the mechanism. Be sure that an excess amount of grease does not accumulate in the housing where the saw is attached. This might clog up the air vent above the saw blade which keeps the guide line clean of chips.

(2) The R-3025 metal scroll saw blade is placed into the chuck of the tool and the Allen set screw tightened with the R-2671, 1/8" Allen wrench. This blade will cut steel, transite or asbestos lumber.

(3) Hold the saw firmly against the work before starting the motor. A pair of auxiliary framing bars may be clamped along with the cable hole cover in the vise to stiffen the unsupported end of the work.

(4) Always cut up so that guide line is easily visible and make turns when using the scroll saw before turning the work.

CAUTION: Shut off the saw before withdrawing the blade from the work, to prevent personal injury.

NOTE: The R-3148 Saw, Reciprocating Power, if available on the job may be used for cutting cable hole covers. Instructions for using this saw are given on the label in the cover of the shipping case. No provisions are made for lubricating these saws in the field. Installation Stockkeeping will recall the saws periodically (once a year) for relubricating and reconditioning.

5.5 Before placing cover details, dress the edges with a file. Also take care when placing or removing covers not to damage the cables.

5.6 When covers are furnished not drilled the exact location of the mounting screw holes can be determined by:

(a) Using an awl or a punch as a "feeler" for locating the holes with the cardboard template in place on the sheathing, or

(b) Inserting round head screws in the sheathing and tapping the template lightly with a hammer to produce indentations above the screw heads, or

(c) Using stamping ink on the heads of the screws for marking the location of the holes directly on the cable hole cover.

5.7 Drill the mounting holes in steel cable hole covers for 3/8" mounting bolts with the R-3032, 1/2" Electric Drill and the R-1789, 8/16" Drill. If the number of holes to be drilled according to the planning constants in Handbook 250 requires it, the R-2922 perforating punch should be used instead. Set up the punch by bolting it to the bench with 3/8" bolts as shown in Figure 3. Use the following procedure for the correct operation of the punch.

(a) Make sure that the square head bolts on the base hold the punch securely in an upright position.

(b) Set the stripper bolts so that the steel cover just fits between the bolts and the die. Tighten the lock nuts to maintain this setting. If the thickness of the material to be punched is changed, the stripper bolt adjustment must be changed.

(c) Adjust the operating handle to the position shown in Figure 3 by holding the collar of the punch and setting the handle with the ratchet to this position with the material just engaged by the punch and die. Then set the ratchet lever to the neutral position. If the thickness of the material is changed the handle setting should be changed.

(d) Where it is more convenient to use the punch away from the bench, loosen the square head bolts in the base and use the punch without the base.

6. FASTENING COVERS

6.1 Top covers are secured to the sheathing, and bottom covers to the fascia angles (where provided), with screws.

6.2 Where no fascia angles have been provided at the ceiling, the bottom cover should 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.

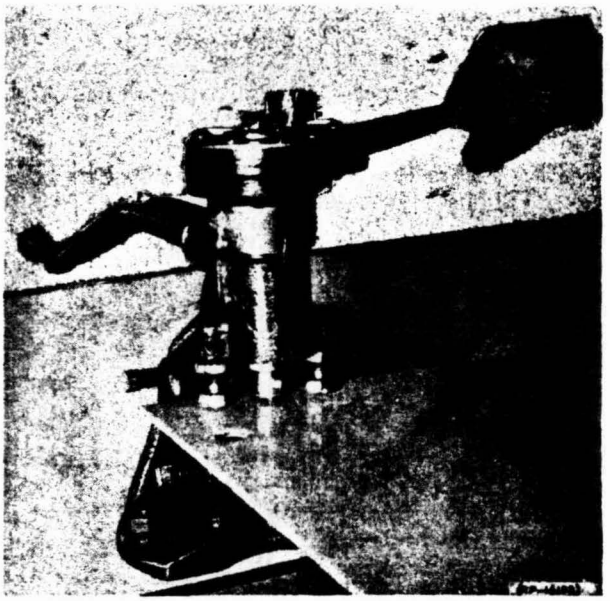


FIG. 3 PUNCHING HOLES WITH THE R-2922, 7/16" PERFORATING PUNCH (Par. 5.7)

6.3 When specified, top covers for cable slots under MDF and double sided protector frames should be installed per Figures 8 and 9 of Section 15B. 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.

6.4 The covers for protector frames and distributing frames are furnished in small sections. Two 4" sections are available for 14' - 5" 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.

6.5 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 or supports, obtained locally, secured to the cable hole sheathing or cable rack. Use screws (of the same size as those furnished for fastening covers to the sheathing) for fastening covers to braces or supports.

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

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

6.8 Where cable holes are located only a few inches from a wall and a rack passing through the hole is secured to the sheathing adjacent to the wall, it will be necessary to close the space between the cable rack stringers before the cables are run in. First secure a piece of sheet metal between the stringers near the bottom of the hole, bolting it either to the lower fascia angle or to the cable rack stringers. Then pack bags of mineral wool between the cable rack cross straps and the wall of the cable hole, completely closing the space between the cable rack stringers. This procedure may be necessary also where two cable racks are placed back to back within a cable hole.

6.9 Asbestos lumber covers of cable holes in floors, shafts or walls and of cable slots should have a finish applied. For type of finish and method of applying see Section 70 of this handbook.

7. POWER CABLE SHAFT CLOSING DETAILS AND SUPPORT OF CABLE RUNS

7.1 The supporting unit for power cable runs in shafts and the asbestos lumber cover furnished at each floor in the portion of the shaft occupied by the cable runs should be installed as shown in Figure 4.

8. CLOSING CABLE HOLES AND SLOTS PROVIDED FOR FUTURE USE

8.1 The closing of cable holes and slots provided for future use, and of unused portions of cable slots, is expected to be taken care of by the telephone company

(a) In general, these openings are provided with a metal plate set flush with the floor, and secured to angles inside the opening. These angles are removed when sheathing is installed

8.2 When fireproofing is specified for cable holes for future use, the usual closing structure is employed, and the space filled with mineral wool bags.

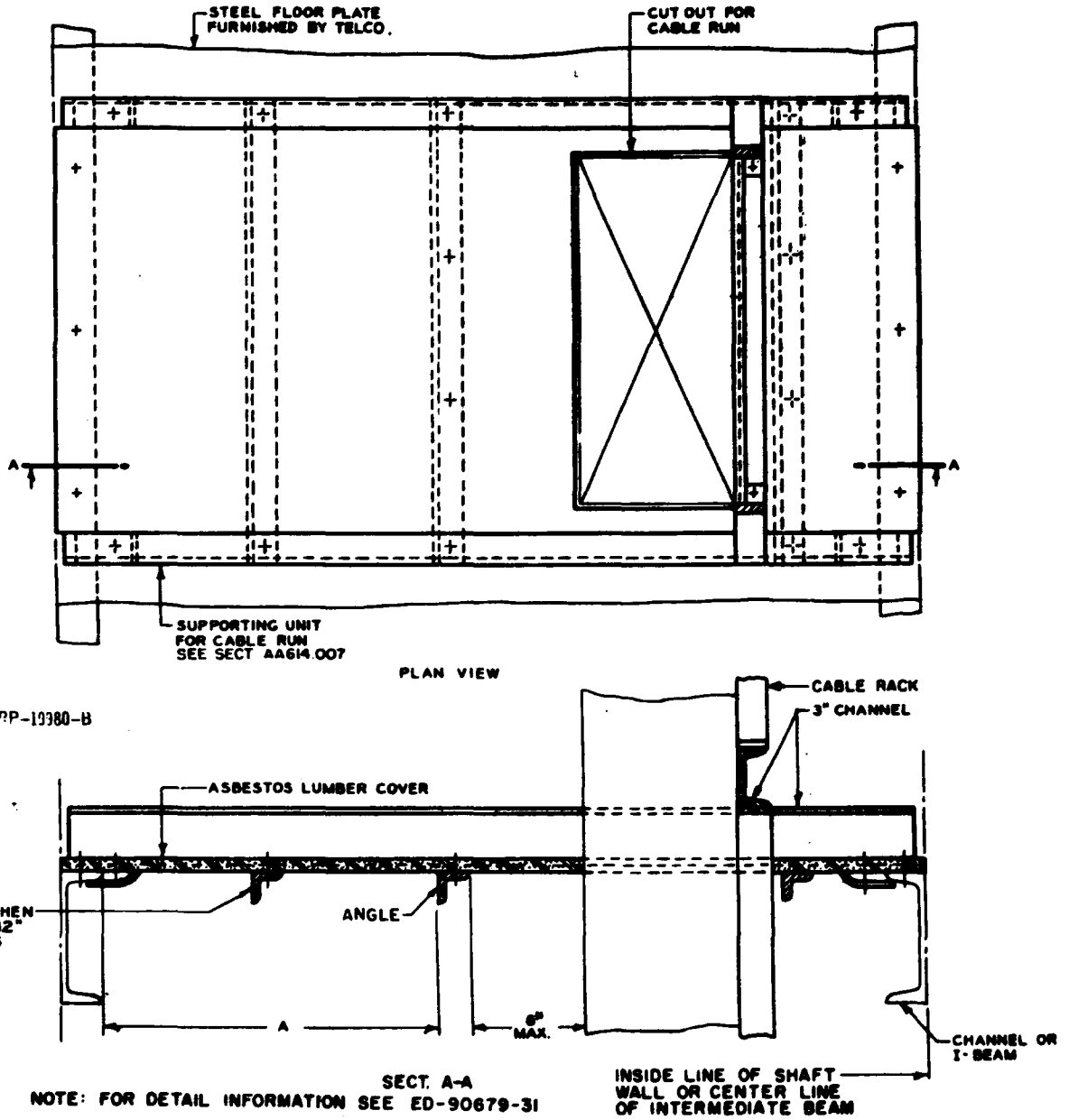
9. CLOSING CABLE HOLES OPENED FOR ADDITIONAL CABLING

9.1 Modify cover details as required, to take care of the added cables, in accordance with the method covered in the preceding paragraphs.

9.2 Place mineral wool bags, unless otherwise specified, in all cable holes that were previously made fireproof by means of loose mineral wool or asbestos fibre. Consult the telephone company for disposition of the old fireproofing material.

10. VERIFICATION ITEMS

10.1 The numbers in parentheses refer to the associated requirement paragraphs in this section unless otherwise indicated. Items marked (P) should be verified before they become inaccessible.



→ FIG. 4 TYPICAL METHOD OF SUPPORTING CABLE RACK AND CLOSING OF SHAFT AROUND POWER CABLE RUN (Par. 7.1)

(P) 10.11 Arrangement of mineral wool bags (4.2, 4.4, 8.2, 9.2).

10.12 Fit of covers around cables (5.1).

10.13 Asbestos lumber covers painted (6.9).

→ Arrowed lines indicate new or changed information.

[Vertical line at side of paragraphs indicates requirements.

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Reason for Reissue:
(1) To add R-3055 and R-3080 to Pars. 3.12 and 4.4 Caution.
(2) To indicate that cable hole covers need not consist of one piece in Par. 5.1.
(3) To omit details and refer to drawing in Fig. 4.

Replaces Section 15D dated 7-19-56.