

CABLE SPLICING - HOUSE

TAPED SPLICES IN BUILDINGS

CONTENTS

PAGE

1. GENERAL	1
2. LEAD CABLE	2
3. ALPETH CABLE	5
4. STALPETH CABLE.....	7
5. SPLICE BETWEEN BUILDING ENTRANCE CABLE AND BUILDING TERMINAL.....	8
6. JUNCTION OF ALPETH, STALPETH AND LEAD SHEATH CABLE	12

1. GENERAL

1.01 This section describes the permanent taping of building splices that are so located that they are not likely to be exposed to excessive moisture.

Note: Taped splices shall not be used on toll cables.

1.02 Where, in the opinion of the supervisor, moisture, excessive heat, or other conditions would present a possible maintenance problem, a lead sleeve should be wiped over the splice.]

1.03 Where it is necessary to make a taped splice in an exposed location in an office building the completed splice should be covered with one layer of ivory friction tape.

1.04 The opening for a taped splice should be 3 inches shorter than the lead sleeve specified for that particular splice if it were to be wiped. The conductors should be joined and the splice dried and wrapped in the usual manner.

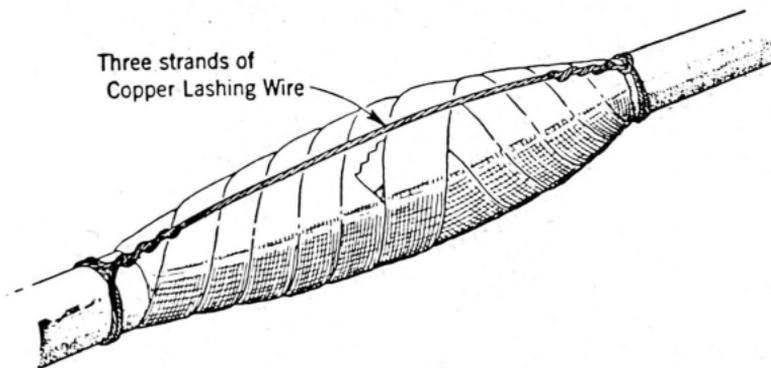
1.05 All bonds at taped splices between a building entrance and a protector type cable terminal must be bonded with bonding ribbon and soldered. At all other taped splices the bond may be made with three strands of copper lashing wire wrapped twice around the lead sheath, aluminum or terne-plate as the case might be and carried across the splice.

1.06 Where butt splices are encountered the ends of the cable should be prepared as for the particular sheath involved and the bonding ribbon or copper lashing wire attached to the sheath in accordance with Paragraph 1.05.

2. LEAD CABLE

2.01 Straight Splice: After the conductors have been joined, dry the splice and wrap with muslin in the usual manner. The splice should then be bonded and taped as follows:

(a) Clean two inches of the lead sheath at each end of the splice opening with a carding brush. Then bond across the opening with three strands of copper lashing wire wrapped twice around the sheath as illustrated.



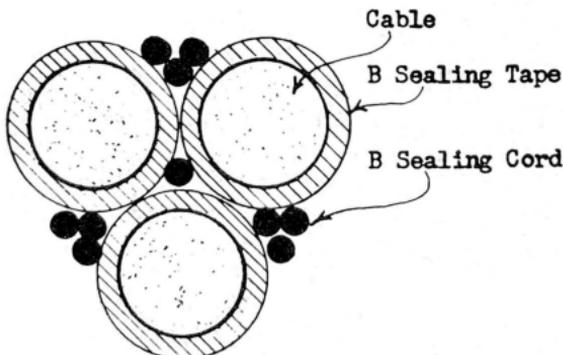
(b) Apply C cement to the cleaned area (except over the bond wire) and apply one half-lapped layer of 2-inch DR tape across the splice extending the tape beyond the copper lashing wire about 1 inch at each end.

(c) Apply two half-lapped layers of 2-inch friction tape across the splice extending the tape beyond the DR tape about 1 inch at each end.

2.02 Branch Splice: After making the correct sheath openings, the cable should be prepared in the following manner:

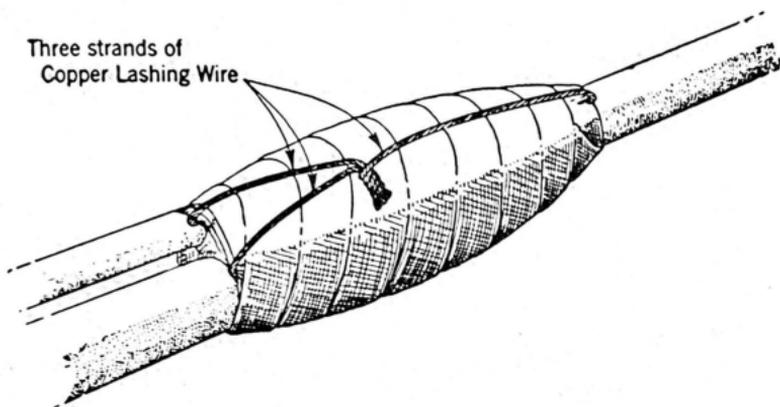
- (a) Clean approximately 3 inches of the sheath from the opening of each cable with a carding brush. On each cable entering the branch or multiple end of the splice, place 1 wrap of B Sealing Tape so that the inside edge of the tape will be 1-1/2 inches from the sheath opening. Place the tape as smoothly as possible, and keep free of dirt or moisture.
- (b) Place three strands of Copper Lashing Wire wrapped twice around the sheath of each lead cable between the opening and the sealing tape, and allow enough length so that they may be joined with the bond wire, or wires, from the opposite end of the splice after splicing operations are complete and the splice has been wrapped with muslin, as illustrated following Paragraph 2.02(f).
- (c) Align the sheath openings on the branch end of the splice in the correct position for splicing, and then press the taped portions together firmly.
- (d) Fill in the spaces on the sides of the branch at the taped portion with lengths of B Sealing Cord, cut approximately 1/4 inch less in length than the width of the tape, and build up so that an oval or round joint of sealing material is formed. On multiple joints of three or more cables, it may be necessary to place lengths of Sealing Cord in the center of the group of cables at the taped portions to insure a solid joint of sealing material when the joint is compressed, as illustrated below.

Cross Section View
of a Multiple Joint
(before compressing)



(e) Apply two half-lapped layers of 3/4 inch DR Tape, under tension, over the joint formed by the sealing material.

(f) After the conductors have been joined, dry and wrap the splice in the usual manner and join the bond wires at the center of the splice, as illustrated below. In order to clarify the bonding operation, the B Sealing material joint has been omitted in the illustration. Do not cover the DR Tape on the joint with the muslin wrapping.



(g) Apply one half-lapped layer of 2 inch DR Tape covering the splice and the joint. If one end of the splice contains a single cable, that end should be treated the same as for a straight splice.

(h) Starting at the center, wrap the splice with two half-lapped layers of 2 inch friction tape covering the DR Tape, and in the case of a single cable, extending about 1 inch beyond the DR Tape.

2.03 Additional cables may be added or an existing cable removed from a B Sealing material joint without removal of the entire joint in the following manner:

(a) To add a cable, after the outer wrapping has been removed from the splice, cut a horizontal groove through the DR Tape and into the B Sealing material of the joint with Splicer's Scissors. The groove should be made in the desired position for

the new cable and large enough to accommodate it. Allow some of the sealing material to remain on the cables adjacent to the groove and keep free from dirt or moisture. Prepare the new cable with one wrap of B Sealing Tape and bonding wire, then position it in the groove in the existing joint. Build up the joint with B Sealing Cord and retape with 2 half-lapped layers of 3/4 inch DR Tape. After splicing is completed, wrap the splice as previously specified.

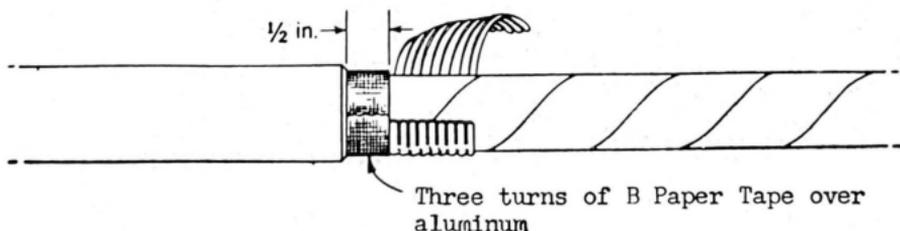
(b) To remove a cable, after the conductors have been trimmed out of the splice, cut through the DR Tape and the sealing material around the cable. After removing the cable, fill in the void with B Sealing Cord to reform the joint and rewrap with 2 half-lapped layers of 3/4 inch DR Tape. Complete the wrapping of the splice as specified in other Paragraphs of this Section.

2.04 At existing taped splices in buildings where Plastic Duct Seal has been used to form a branch or multiple joint, the superseded duct seal method may be reused when working in these splices if space limitations or other factors prevent the use of the B Sealing material for formation of the joint. If the duct seal method must be used, protect polyethylene sheath cables with one wrap of 4 inch aluminum tape to prevent contact between the sheath and the duct seal. In addition, the duct seal must be covered by one layer of friction tape to prevent contact with the DR Tape wrapping over the splice.

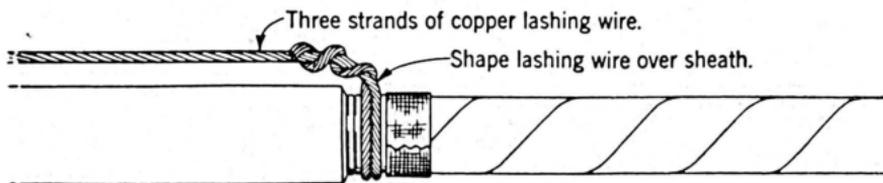
3. ALPETH CABLE

3.01 Prepare each Alpeth Sheath end as shown below.

(a) Place three turns of 1/2 inch B paper tape over the aluminum. Then tear off the aluminum to the B paper tape, making a smooth flared end and remove the B paper tape.



- (b) Place two turns of B paper tape smoothly over the core wrap-
per adjacent to the aluminum. Remove cement from exposed
aluminum. Then wrap three strands of copper lashing wire
around the aluminum and twist the ends together as illustrated
below.

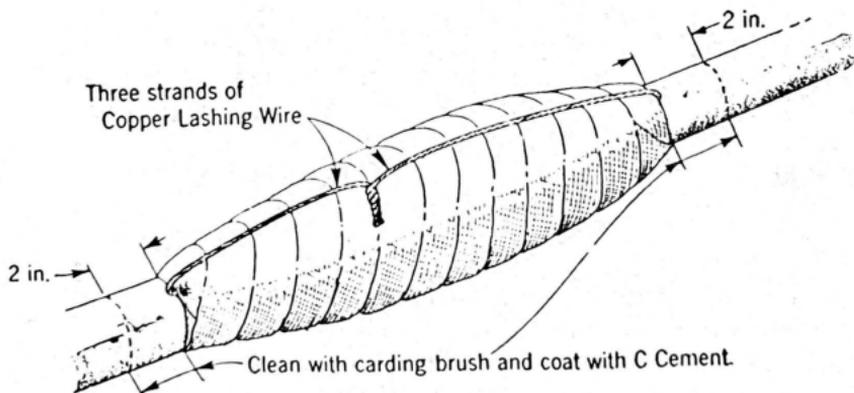


- (c) Serve with three half-lapped layers of DR tape, one inch wide
covering the B paper tape and one inch of the polyethylene
sheath. Then tear off the core wrapping paper to edge of tape
as illustrated below.



3.02 Straight Splice: After the conductors have been joined and
dried, complete the splice in the following manner:

- (a) Apply one half-lapped layer of muslin, extending the muslin
about 1 inch beyond the DR tape at each end. Join the bond
wires on top of the splice as indicated. Clean 2 inches of the
polyethylene at each end of the splice opening with a carding brush
and coat the cleaned area with C cement.



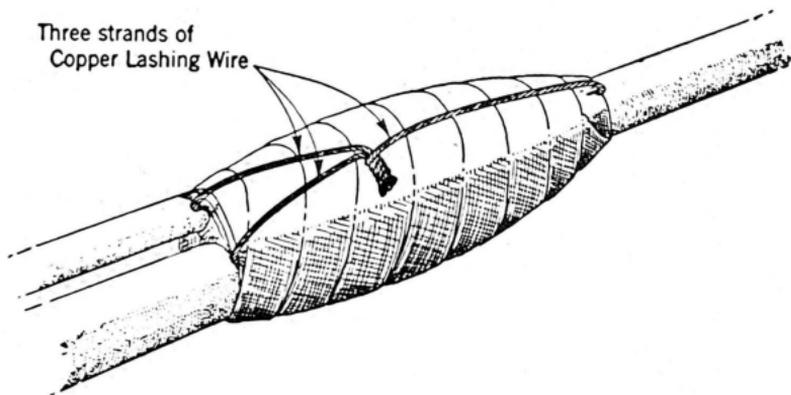
(b) Apply one half-lapped layer of 2-inch DR tape, extending the tape over the cemented area at each end of the splice.

(c) Wrap the splice with two half-lapped layers of 2-inch friction tape, extending the tape beyond the DR tape about one inch at each end.

Branch Splice

3.03 Except for the bonding operation, Alpeth and Stalpeth sheath cables may be treated the same as for lead cables in regard to the construction of the B sealing material joint and wrapping operations, as specified in Paragraphs 2.02 to 2.04.

3.04 When Alpeth, Stalpeth, and lead cables enter the splice in the same branch or multiple joint, place bond wires on each cable as indicated in other Paragraphs for the particular type of sheath. After splicing is completed and the muslin wrapping applied, join the bond wires on top of the splice as illustrated below. Complete the wrapping of the splice as specified in other paragraphs.



4. STALPETH CABLE

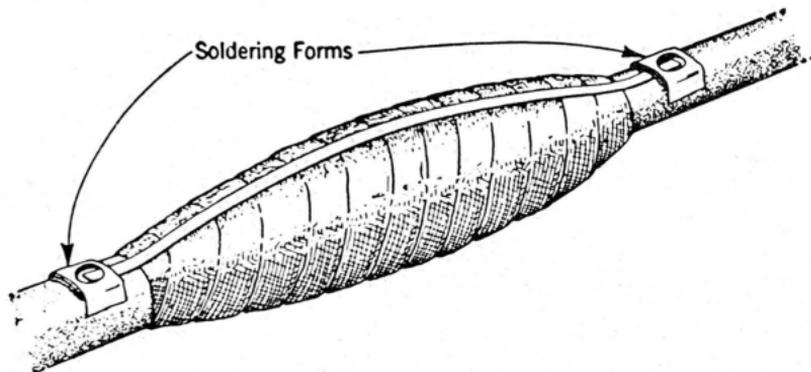
4.01 Where Stalpeth cable enters a taped building splice it should be treated in the same manner as Alpeth. The aluminum tape and terne-plate should be removed to 1/2-inch from the opening and the bonding attachments made on the terne-plate. Do not attempt to clean the terne-plate with a carding brush.

5. SPLICE BETWEEN BUILDING ENTRANCE CABLE AND BUILDING TERMINAL

5.01 The high current which may be carried on the sheath at locations where protector type terminals are needed requires the use of a soldered bond across taped splices. The method of bonding is shown in the following paragraphs.

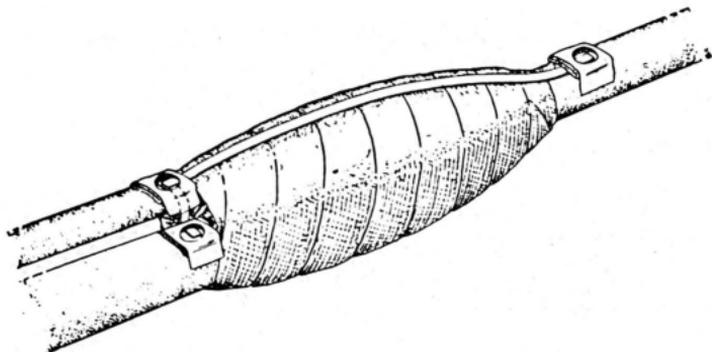
Lead Cable

5.02 Straight Splice: Clean 2 inches of the sheath at each end of the splice opening with a carding brush. Solder a strip of bonding ribbon across the opening as illustrated. Apply C cement to the cleaned area and complete the wrapping as outlined in Paragraph 2.01.



5.03 Branch Splice: After the splice has been wrapped with muslin, run a strip of bonding ribbon between the cables at the branch end, extending it across the opening and solder it to the lead sheaths using soldering forms as illustrated. If more convenient due to size of lead cables, or if polyethylene sheath cables enter the joint

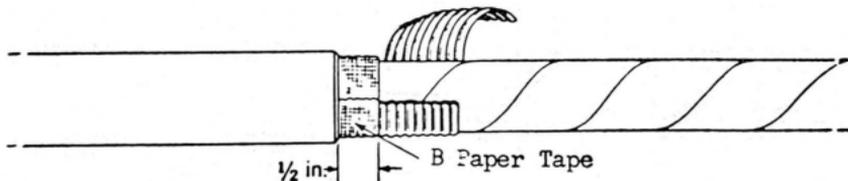
with lead cables, bonding ribbon may be attached to each sheath, prior to make-up of the sealing joint and splicing operation, and then joined at the center of the splice after muslin has been applied as illustrated at Paragraph 5.07.



Alpeth Cable

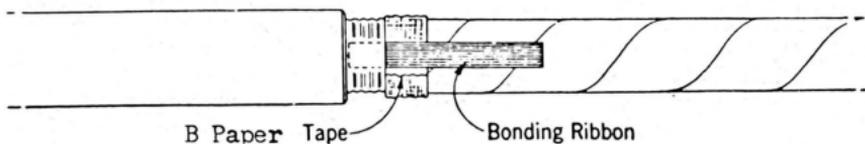
5.04 Prepare each Alpeth sheath end as shown below:

- (a) Place three turns of B paper tape over aluminum as indicated. Then tear off the aluminum to the B paper tape making a smooth flared end. Remove the B paper tape.

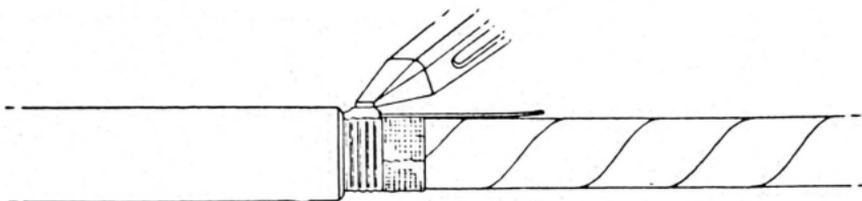


- (b) Place two turns B paper tape smoothly over core wrapper adjacent to aluminum. Insert bonding ribbon between core wrapper and aluminum making sure that the end of bonding

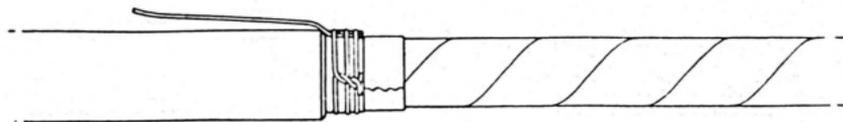
ribbon is free of sharp edges. Remove cement from exposed aluminum. Then with scissors smooth out the corrugations in the aluminum over the bonding ribbon and clean the area using the cutting edge of the scissors.



(c) Drop some molten aluminum solder over the cleaned area and rub the soldering copper over the surface until it is tinned. Complete the tinning by applying a small quantity of rosin core solder to the surface. Then remove the strip of bonding ribbon.



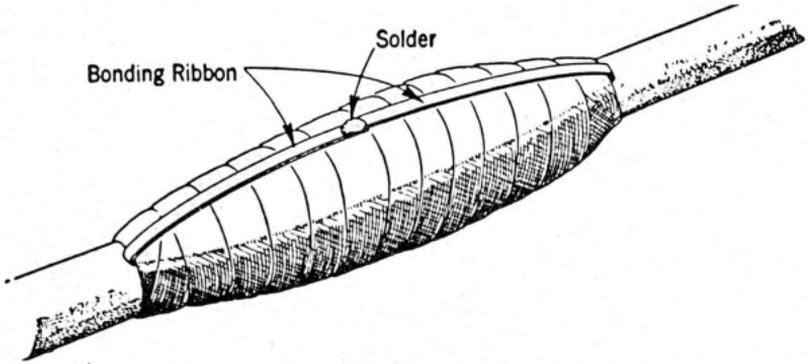
(d) Shape bonding ribbon to fit over cable sheath. Then place three turns tinned lashing wire to hold bonding ribbon in place. Solder bonding ribbon to aluminum and lashing wire with rosin core solder.



(e) Apply three half-lapped layers of one inch wide DR tape covering the B paper tape and extending about one inch over the polyethylene sheath. Then tear off core wrapper to edge of sheath.

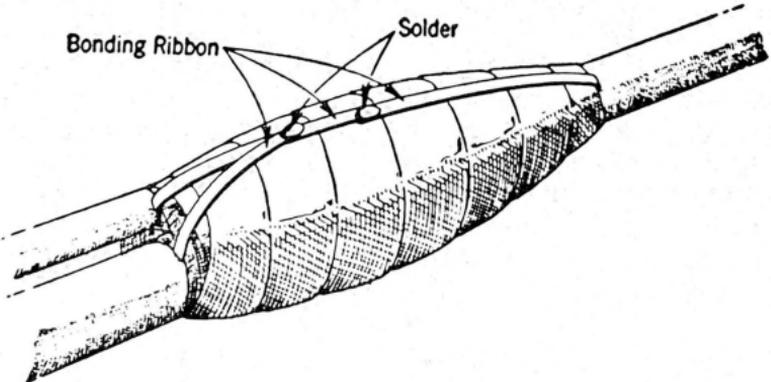


5.05 Straight Splice: Apply one half-lapped layer of muslin over the splice, extending the muslin about 1 inch beyond the DR tape at each end as illustrated. Solder the bonds from each side on top of the splice as indicated. Then clean 2 inches of sheath at each end and coat the cleaned area with C cement.



5.06 Complete the wrapping as outlined in Paragraphs 3.02(b) and 3.02(c).

5.07 Branch Splice: On polyethylene sheath cables, the bonding ribbon should be soldered to each cable prior to make-up of the sealing joint and splicing operations, then soldered together at the center of the splice after muslin has been applied to the splice as illustrated below. Complete the splice wrapping as specified in other paragraphs of this Section.



Stalpeth Cable

5.08 Stalpeth cable should be treated the same as Alpeth cable. The aluminum and terne-plate should be removed to 1/2 inch from the opening and the bonding attachments made on the terne-plate. Do not use a carding brush on the terne-plate.

Taped Splice as Insulating Joint

5.09 Where a splice, occurring in a cable between the entrance to the building and the building terminal, requires an insulating joint as specified on detail plans no bond shall be placed. The splice should be tagged to indicate that no bond is required. Suitable tags may be obtained from the Electrolysis Department.

6. JUNCTION OF ALPETH, STALPETH AND LEAD SHEATH CABLE

6.01 Where Alpeth, Stalpeth and lead sheath appear in the same splice, each butt should be prepared as outlined for the particular sheath. The bonding ribbon or lashing wire should be joined at the center of the splice. The splice can then be wrapped as previously outlined.