

## UNDERGROUND CABLE BONDING - LEAD SHEATH CABLES

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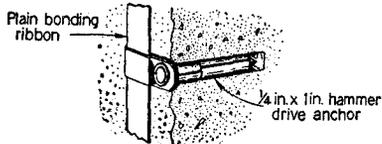
### 1. GENERAL

1.01 This section describes the method of installing permanent bonds in manholes and central office vaults on lead sheath cables.

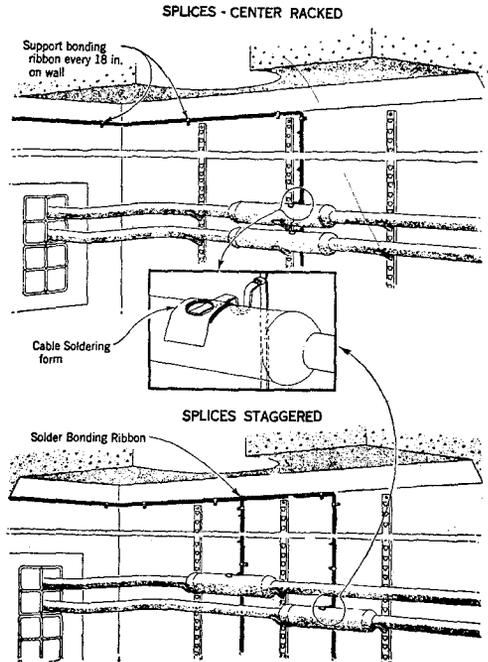
1.02 All cables should be bonded together in every manhole with tinned copper bonding ribbon soldered to the sleeve of each cable.

### 2. INSTALLATION OF BONDING RIBBON

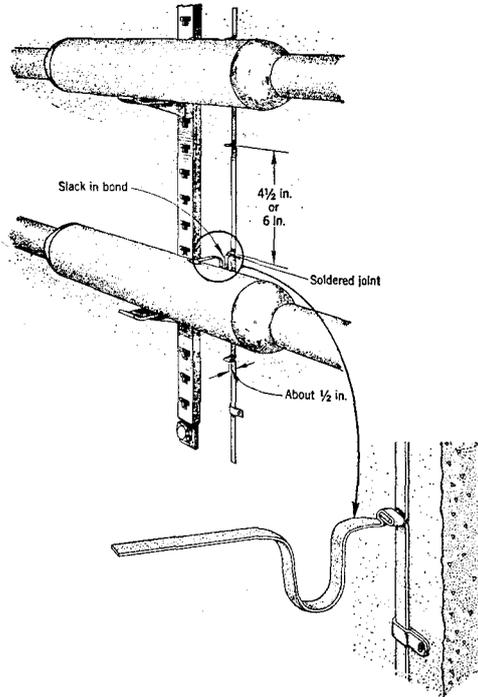
2.01 **Permanent Bond in Manholes**—The bonding ribbon should be attached to the manhole walls with bonding ribbon clamps, using 1/4-inch by 1-inch hammer drive anchors.



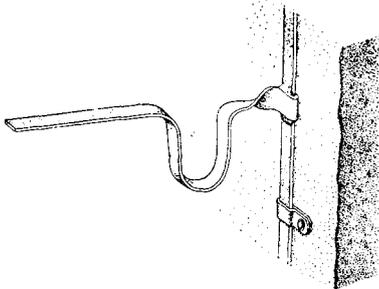
2.02 The bonding ribbon shall be placed when the second cable is installed in the manhole. If the first two cables are racked on the same side of the manhole, place a piece of bonding ribbon long enough to care for all the future cables which may be placed on that wall. At the time that the first cable is installed on the second wall, extend the bonding ribbon around the end wall near the manhole roof and down the other wall as shown in the following sketch.



2.03 In order to provide for future bonding, the permanent bond may be arranged as shown below, leaving a 1/2-inch projection every 4-1/2 or 6 inches, depending on the spacing of cables, so that it falls just a little above the top of each future sleeve. The ribbon should be clamped every 18 inches. As each new cable is installed, a piece of bonding ribbon can be soldered to the projection and to the sleeve, allowing slack in the bonding ribbon as indicated in the diagram.



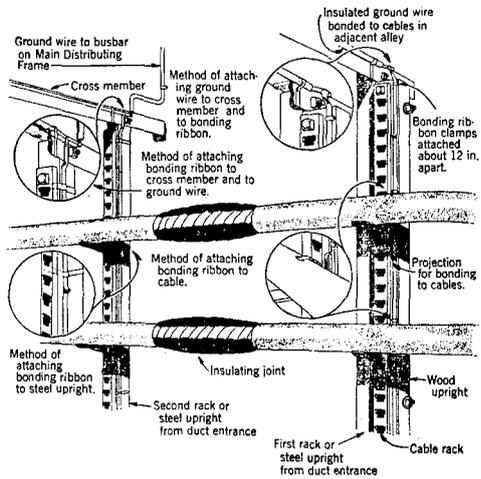
2.04 If the permanent bond is installed without projections the piece of bonding ribbon to the sleeve of the cable is attached to the permanent bond as shown below.



3. BONDING IN CENTRAL OFFICE CABLE VAULTS

3.01 The sheaths of all underground cables entering central office buildings shall be bonded together and grounded to the office ground unless otherwise specified.

3.02 The bonding should be done near the cable entrance end of the vault at the second rack or steel upright. The bonding ribbon should be attached to the steel upright as indicated at the left in the following figure. Unless otherwise specified, the connection to the office ground can be made by means of No. 6 BRC solid R wire.



3.03 When insulating joints are required, the cables should be bonded together with bonding ribbon between the duct and the insulating joints. The bonding ribbon should be attached to the wood upright, which is usually placed at the first rack or steel upright near the duct entrance end of the cable vault. The bonding ribbon should be kept free from contact with the steel uprights, bolts, etc. Where the bond is carried along a steel cross member, insulated ground wire should be used to avoid contacts with the steel framework. Unless otherwise specified, No. 6 BRC solid R wire should be used for this purpose. The method of attaching the insulated wire is illustrated in the diagram in Paragraph 3.02.

3.04 In vaults with duct entrances from two or more subways, a bond may not be required between the separate duct banks. The bonding arrangement to be used will be shown in the detail plans.