

BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

SECTION G53.135
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BLOCK AND HOUSE CABLE

GROUNDING—GENERAL

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1. GENERAL

1.01 This Section covers the methods of grounding cable sheath and cable terminals within subscribers' buildings. The conditions under which the cable sheath should be grounded are outlined in Section G10.345, "Bonding and Grounding Cable Sheaths."

1.02 This issue of Section G53.135 has been prepared to describe changes in the methods of grounding cable sheaths, protected terminals and battery feeds and to describe modifications made in the standard protected terminals.

1.03 Establish the ground wire run as described in Section G53.145.

1.04 The ground wire should be attached to cable sheath as described in the cable splicing instructions, but if splicing facilities are not available it may be attached by means of the L Ground Clamp as described in Section G53.150.

1.05 The ground wire should be attached to water pipes, etc., as described in Section G53.150.

1.06 The term "cold water pipe" as used in this Section shall be understood to include the other grounds covered in Section G53.145 when such an alternative is necessary and acceptable.

2. FEEDER CABLE SHEATH GROUND

2.01 Where the feeder cable sheath is to be grounded within a building run No. 6 BRC Solid R Wire from any point on this sheath to a permanent and convenient pipe in the cold water system.

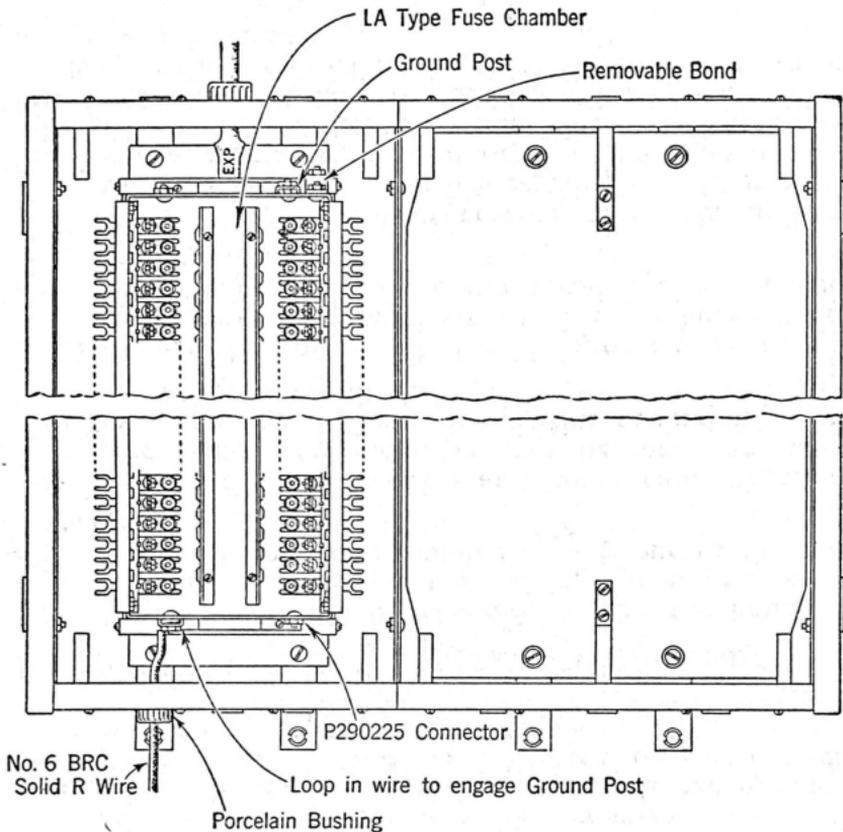
3. PROTECTED TERMINAL GROUND

3.01 Run a No. 6 BRC Solid R Wire from the Ground Post of the Fuse Chamber to the cold water piping as specified in Section G53.145.

3.02 The method of terminating ground wire at a Fuse Chamber is the same for either the LA or LB type and is outlined below:

- (1) Remove from the L Type Cable Terminal Section a knockout, other than a center knockout, which is most convenient for the ground wire entrance.
 - (2) Insert the porcelain bushing supplied with the Fuse Chamber for this purpose.
 - (3) Remove the insulation from the end of the ground wire for approximately 1-1/2 inches and thoroughly clean the conductor with Abrasive Cloth.
 - (4) Insert the ground wire through the porcelain bushing.
 - (5) Form a loop in the bare wire which will engage the Ground Post within the limits of its clamp and provide 1/8 inch separation between the ground wire insulation and this clamp.
 - (6) Remove the nut and clamp from the Ground Post adjacent to the ground wire knockout. It may be necessary to move a Ground Post to this position.
 - (7) With the wire loop pointing toward the front of the terminal place it around the Ground Post.
 - (8) Replace the clamp and turn the nut securely into place.
 - (9) Arrange the wire toward the back of the terminal in order that it will not interfere with other wiring.
- 3.03 The ground wire arrangement at an LA Type Cable Terminal is shown below:

LA TYPE CABLE TERMINAL



3.04 Removable Bond: In the construction of the LA and LB types of Fuse Chambers, a removable bond is provided between the exposed cable sheath and the ground strip of the chamber. Since the removal of the bond produces the same effect as placing an insulating joint in the exposed cable, the bond should not be removed unless specified in the detail plans.

With the bond between the ground strip and the exposed cable sheath in place:

- (1) A ground connection run from either the exposed cable sheath or the Ground Post of the Fuse Chamber, depending upon which is easier, grounds both.
- (2) Connections are not required between the ground strips of adjacent Fuse Chambers since the sheaths of the stub cables are joined at the terminal splice.

(3) In the construction of the LB Type Fuse Chamber a removable bond is also provided between the ground strip of the chamber and the unexposed cable sheath. With this bond in place, the ground connection described in (1) grounds the unexposed cable sheath as well.

With the bond between the ground strip and the exposed cable sheath removed:

(4) A connection between the Ground Post of the Fuse Chamber and the cold water piping system is required. The ground wire should be terminated at the terminal as described in Paragraph 3.02.

(5) In the case of an LB Type Fuse Chamber, if the removable bond between the ground strip and the unexposed cable sheath is in place, the ground connection described in (4) grounds the unexposed cable sheath as well.

(6) Connections are required between the ground strips of adjacent Fuse Chambers. The connections should be terminated as described in Paragraph 3.02 except that the connecting No. 6 BRC Solid R Wires should be run within the terminal.

4. RINGER AND COIN COLLECTOR GROUNDS

4.01 **House Cable Sheath Ground:** Where the house cable sheath is to be used in providing ringer and coin collector grounds, it may be grounded by any one of the following means:

(a) Where the feeder cable and house cable sheaths are electrically continuous or can be made so and the feeder cable sheath is grounded, this ground is adequate and no other is required.

(b) Where the house cable sheath is, or can be, connected to a protector ground strip which has been grounded, such connection is adequate and no other direct connection to ground is required.

(c) Where for electrolysis reasons a separation between the house and exposed feeder cable sheaths is provided either by an insulating joint or a terminal, no bond shall be placed around the insulating joint or the terminal. In these cases, run No. 6 BRC Solid R Wire from a convenient point on the house cable sheath to any point on permanent cold water piping.

Note (1): H type terminals unless equipped with backboards do not provide electrical separation between

feeder and house cable sheaths since electrical continuity is maintained through the housing of the terminal.

Note (2): When the LA Type Cable Terminal is used, no bond exists between the exposed cable sheath and the unexposed cable sheath. In such cases it is necessary to run a separate ground wire from the unexposed cable sheath, or if more convenient, to run a No. 14 Ground Wire between a 2A Ground Strip attached to the Binding Post Chamber and a 2A Ground Strip attached to the ground strip of the Fuse Chamber by means of the P290225 connector, the Fuse Chamber being grounded as described in Part 2 or Part 3.

5. BATTERY FEED GROUND

5.01 Cold water systems should not be used for Battery Feed grounds. Metallic return is recommended.

6. TEMPORARY OPENINGS IN CABLE SHEATHS

6.01 As specified in the cable splicing sections, when openings are made or taped joints, other than insulating joints, are left in Block and House Cable sheaths, the sheath continuity of the cable should be maintained by temporarily bonding the ends of the sheaths together.