

**BELL SYSTEM PRACTICES**  
**Outside Plant Construction**  
**and Maintenance**

**SECTION G31.134.1**  
**Issue 1, August, 1952**  
**AT&T Co Standard**

**OPEN WIRE**  
**TYING**  
**GENERAL**

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**1. GENERAL**

1.01 This section and Sections G31.134.2, G31.134.3 and G31.134.4 replace Section G31.134, Issue 2 and Addendum G31.134, Issue 1. These sections have been issued to reassign the uses of the various ties and to introduce the modified spiral tie for use on TW insulators.

1.02 A list of the available sizes and kinds of tie wires may be found in the section entitled "Open Wire—Weights."

## 2. KIND OF TIE REQUIRED

2.01 The following table indicates the kind of tie required at the specific condition likely to be found in the field.

KIND OF TIE REQUIRED			
CONDITION	KIND OF LINE WIRE		
	COPPER	COPPER-STEEL	STEEL
AVERAGE SPAN LESS THAN 250' *			
STRAIGHT LINES AND CORNERS UP TO 15' CORNERS OVER 15'	STANDARD STANDARD	SPIRAL HORSESHOE	HORSESHOE HORSESHOE
AVERAGE SPAN GREATER THAN 250'			
STRAIGHT LINES AND CORNERS UP TO 15' CORNERS OVER 15'	SPIRAL HORSESHOE	SPIRAL HORSESHOE	SPIRAL HORSESHOE
REGARDLESS OF AVERAGE SPAN LENGTH			
CROSSING OVER HIGHWAYS	SPIRAL	SPIRAL	SPIRAL
CROSSING OVER RAILROADS	SPIRAL	SPIRAL	SPIRAL
WHERE CHANGE OF GRADE REQUIRES HEAVY CONSTRUCTION	MODIFIED HORSESHOE	MODIFIED HORSESHOE	MODIFIED HORSESHOE
POINT TRANSPOSITION BRACKET WHERE TIES ARE REQUIRED	HORSESHOE	HORSESHOE	HORSESHOE

\* SEE PARAGRAPH 2.06

- 2.02 On TW insulators, the modified spiral tie should be used in place of the spiral tie.
- 2.03 At highway crossings, place the spiral tie at the adjacent poles if it can not be placed on the crossing poles.
- 2.04 At railroad crossings, double arms are placed on each crossing pole. Each conductor unless dead-ended should be tied on each of two crossarms at each crossing pole. Spiral ties should be used. If there is not sufficient space between the insulators to permit installing a spiral tie at each insulator, install one at the insulator towards the crossing span. At the other insulator, place a horseshoe tie.

- 2.05 When a sleeve in the line wire would interfere with the placing of a spiral tie, use a horseshoe tie.
- 2.06 When spiral ties are to be used at locations other than those given in Paragraph 2.01, this information will be indicated on the construction prints. Locations where spiral ties may be desired are as follows:
- (a) Lines exposed to crosswinds and which become ice coated.
  - (b) Lines on which loose ties or wire abrasions have been a frequent source of trouble.
  - (c) Lines such as those used for J carrier operation where it is desired to maintain greater uniformity of sag between wires of a pair than is obtainable with other types of ties.
- 2.07 Tree wire should be tied to the insulator with a modified horseshoe tie. When tree wire is inserted in a copper or copper-steel line use 24" size 128 copper tie wires. When tree wire is inserted in a steel line use the 30" size 109 tie wires normally used for spiral ties. Cut these tie wires to 24" lengths.