

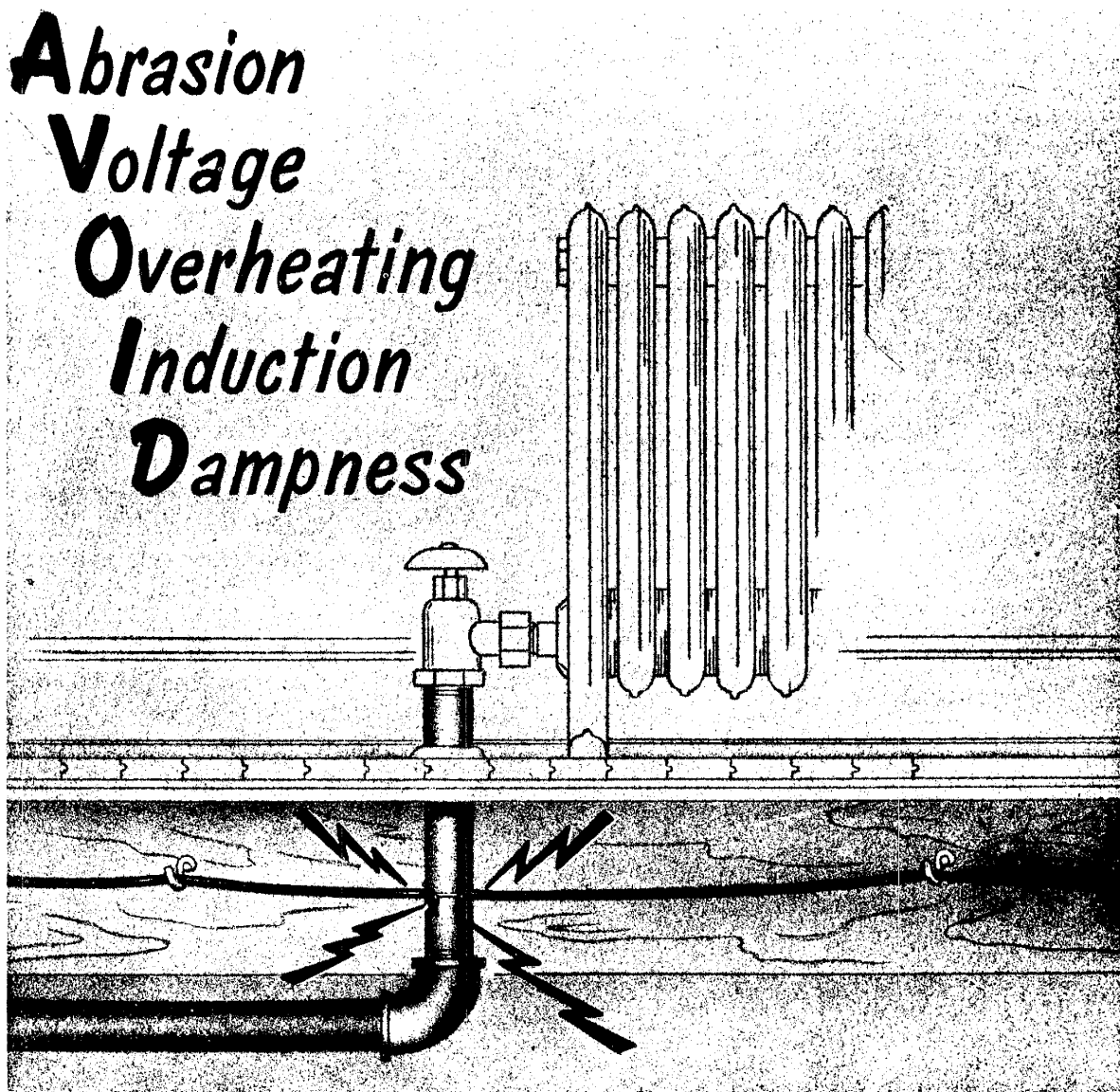
SEPARATION AND MECHANICAL PROTECTION FOR WIRE AND CABLE

1.00 INTRODUCTION

1.01 This section specifies the minimum separations that are required in or on buildings, and in the span to buildings, between telephone wiring and foreign conductors or metallic objects.

1.02 This section is reissued to cover changes in Tables A and B, and to add Table C.

1.03 Due to extensive changes, marginal arrows have been omitted.



2.00 GENERAL

2.01 In general, the separations are required for electrical reasons. However, uncovered steam and hot water pipes, stationary metal gratings, etc, also must be considered because of excessive heat and abrasion.

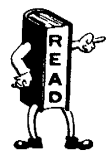
2.02 Cold water pipes sweat under certain conditions; therefore, cross wires *over* rather than under the pipes.

2.03 All station wires or cables installed in explosive atmospheres shall be placed in accordance with the instructions pertaining to that equipment.

2.04 Wire or cable shall not be placed in pipe, conduit, or compartment containing electric light and power wires or cables, nor in the same outlet box, junction box, or compartment unless separated from the electric light and power wires by a suitable partition.

2.05 Whenever practicable avoid running telephone wire or cable in the same conduit, molding, or runway with foreign signal circuits which are operated by battery or from a step-down transformer. Strict adherence to this recommendation will minimize the possibility of interference by either or both parties during placing or maintenance activities.

3.00 SEPARATIONS



The separations shown in Tables A, B, and C are minimum requirements. Greater separations shall be provided where readily obtainable.

3.01 Separations specified in Tables A, B, and C apply to crossings and parallel runs.

3.02 In Tables A and B the specified separations must be obtained for parallel runs.

3.03 The specified separations must be obtained at crossings designated *No Alternative* in Tables A and B.

3.04 Separations and protection requirements for wiring, placed on outside walls of buildings, that is to be extended to off-premises stations, outdoor stations, loud ringing bells, etc, are the same as specified for drop and block wire and are shown in Table B.

3.05 Separations of less than 6 feet between drop, block, station wiring, station cabling, or telephone ground wires and lightning wires or rods are permissible under the following conditions: *In no case shall the separation be less than 4 inches.*

- a. Where telephone, power, and lightning rod ground connections are made to a common grounding medium such as a cold water pipe.
- b. Where separate driven ground rods are used for telephone, power, and lightning rod installations, *and the ground rods are bonded together.*

3.06 Tables A and B list the minimum separations between telephone wiring and foreign conductors or metallic objects outside or inside buildings.

3.07 Table A applies only to telephone wiring between the protector (fuseless or fused) and the telephone equipment and to telephone wiring requiring no protector.

3.08 Table B applies only to telephone wiring (drop or block) attached to the building and feeding a protector (fuseless or fused).

3.09 Table C lists the minimum separations that shall be obtained between drop wire in the span to a building and foreign conductors or metallic objects.

4.00 DEFINITIONS

Terms used in Tables A, B, and C are defined below:

- Bare Wire—A conductor having no covering or insulation whatsoever.
- Open Wiring—A wiring method using cleats, knobs, tubes, and flexible tubing for

(Continued on page 4)

TABLE A

Type of Plant Involved		Minimum Separations	Protection Required if Minimum Separations Cannot be Obtained (See Note 1)
Electric Supply	THINK Bare light or power wire of any voltage	5 feet*	No Alternative*
	Open wiring of any voltage	2 in.	See Note 2
	Wires in conduit, or in armored or nonmetallic sheath cable, or power ground wires	none	
Radio and Television	Antenna lead-in and ground wires	4 in.	See Note 2
Signal or Control Wires	Open wiring or wires in conduit or cable	none	
Telephone Drop or Block Wire	Using fused protectors	2 in.	See Note 2
	Using fuseless protector or where no protector required	none	
Telephone Ground Wire		none	
Sign	Neon signs and associated wiring from transformer	6 in.†	SK station wire with shield grounded or lead cable with sheath grounded. Ground requirements same as for signaling ground. See section entitled Protector and Signaling Grounds
Lightning System	Lightning rods and wires	6 ft	See 3.05
Pipe	Steam or hot water or heating ducts	1 in.‡	Split porcelain tube extending 2 inches beyond each side of object being crossed
Stationary Grating, Metal Shutter Grillwork, etc		E, P, or S wire guard, or two layers of friction tape required in all cases to resist abrasion	

* **THINK** Power is to be turned off if working above bare wire. Ladders shall be placed so as to maintain a 5-foot minimum clearance.

† To prevent accidental breakage, avoid neon sign location if alternative run is possible.

‡ Excessive heat may damage plastic-insulated wires; therefore, avoid heating ducts and other heat sources.

Note 1: Applies only to crossings. For parallel runs the indicated minimum separations must be maintained.

Note 2: Plastic tube; E, P, or S wire guard; or two layers of friction tape extending 2 inches beyond each side of object being crossed. Add split porcelain tube to existing wire.


the protection and support of insulated conductors run in or on buildings, and not concealed by the building structure.

- Service Drop—The overhead service conductors between the last pole or other aerial

support and the first attachment to the building.

- Nonmetallic Sheathed Cable—An assembly of two or more insulated conductors having an outer sheath of moisture resistant, flame retardant, nonmetallic material.

TABLE B

Minimum separations between telephone wiring, outside or inside buildings, and type of plant indicated are below. This applies only to telephone wiring (drop or block) attached to buildings and feeding a fuseless or fused protector. Separations apply to crossings and to parallel runs.			
Type of Plant Involved		Minimum Separations	Protection Required if Minimum Separations Cannot be Obtained (See Note 1)
Electric Supply	 Bare light or power wire of any voltage	5 ft*	No Alternative*
	Service drops or open wiring not over 750 volts	4 in.	P or S wire guard extending 2 inches beyond each side of object being crossed
	Wires in conduit, or in armored or nonmetallic sheath cable, or power ground wires	2 in.	
Radio and Television	Antenna lead-in and ground wires	4 in.	
Signal Wire	Open wiring or wires in conduit or cable	2 in.	
Communication Wire	Foreign open wiring and wires in conduit or cable	2 in.	
	Between exposed and unexposed Telephone Company wires		
Metallic Object	Downspouts and gutters	2 in.	P or S wire guard or two layers of friction tape required in all cases to resist abrasion
	Stationary gratings, etc		
Telephone Ground Wire		none	
Sign	Neon signs and associated wiring from transformer	6 in.	S wire guard, 12 inches long†
Lightning System	Lightning rods and wires	6 ft	See 3.05
Telephone Ground Rods to Other Ground Rods		6 ft	No Alternative

*  Power is to be turned off if working above bare wire. Ladders shall be placed so as to maintain a 5-foot minimum clearance.

† To prevent accidental breakage, avoid neon sign location if alternative run is possible.

Note 1: Applies only to crossings. For parallel runs the indicated minimum separations must be maintained.

TABLE C

Minimum separations between drop wire span to buildings and type of plant indicated are below.			
Type of Plant Involved		Drop Wire Span to Building Minimum Separation	
		Crossing	Parallel
Electric Supply	Service drops or open wiring not over 750 volts	2 ft	1 ft
	Wires in conduit, or in armored or nonmetallic sheath cable	4 in.	4 in.
Radio and Television	Antenna lead-in and ground wires	2 ft	1 ft
Signal Wires	Open wiring	2 ft	1 ft
	Wires in conduit or cable	4 in.	4 in.
Communication Wires	Foreign open wiring	2 ft	1 ft
	Foreign wires in conduit or cable	4 in.	4 in.
Metallic Objects	Rain spouts, gutters, etc	4 in.	4 in.
Ground Wires	Ground wires (except radio, television, and lightning ground wires)	4 in.	4 in.
Lightning	Lightning wires and rods	6 ft	6 ft
Signs	Neon sign and associated wiring from transformer	1 ft	1 ft

5.00 WIRE PROTECTION

5.01 Where it is not practicable to obtain recommended minimum separation at crossings other than those shown as No Alternative in Tables A and B, or where wire or cable runs are subject to mechanical damage, abrasion, or excessive heat, a protective covering is required as follows:

- Split porcelain tube extending 2 inches beyond each side of object being crossed when excessive heat is a factor (see Fig. 1).

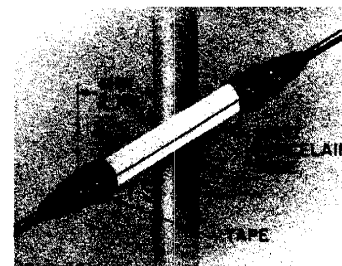


Fig. 1 — Crossing Exposed Steam Pipes

- Split porcelain tube only where tube is added to existing wire. Use a split tube as follows:
 1. Place flat side of tube in a plane parallel to pipe, electric wires, etc.
 2. Secure split tube by placing two turns of lashing wire about 1 inch from each end of tube (see Fig. 2).
 3. Bend pigtail over and cover lashing wire with two layers of friction tape.
 4. Use clamps or staples as shown in Fig. 3 if support for tube is needed.

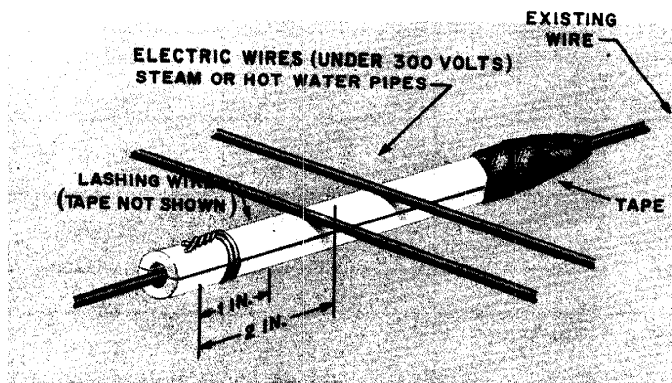


Fig. 2 — Securing Split Tubes

- Plastic tube, P or S wire guard, or two layers of friction tape extending 2 inches beyond each side of object being crossed.

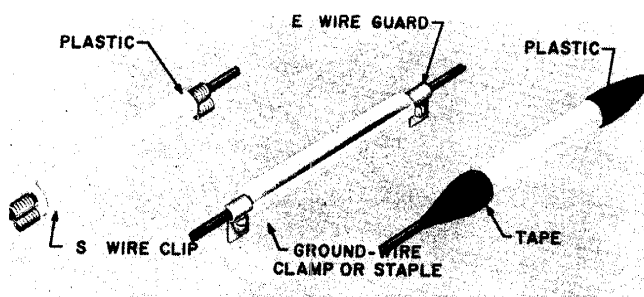


Fig. 3 — Securing Plastic Tubes or E Wire Guard

- P or S wire guard, plastic tube, or two layers of friction tape shall be used in all cases where telephone wiring is subject to abrasion or mechanical damage. E wire guard (plastic tubing) may be used in place of friction tape or P wire guard on station wiring within buildings where improved appearance is desired. (See Fig. 4.)

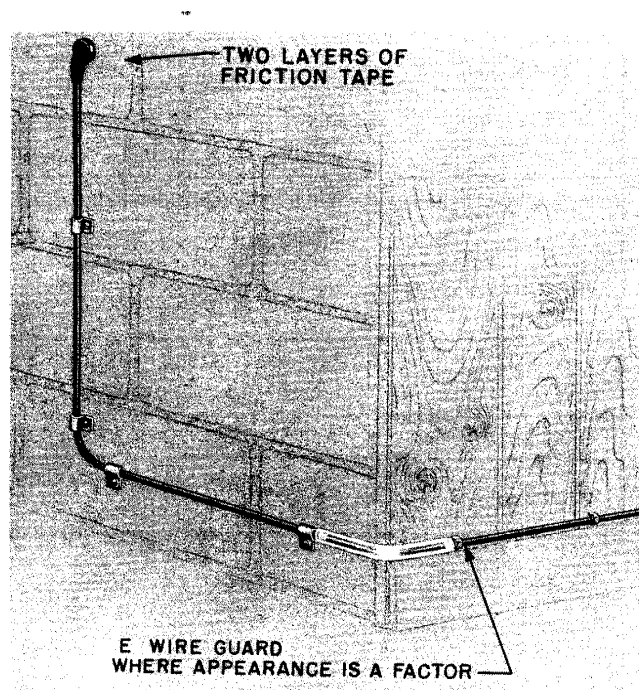


Fig. 4 — Use of Tape or E Wire Guard

5.02 Where plastic insulated station wire or cable passes through wall or floor adjacent to wall or baseboard, protection with friction tape or E wire guard is not required unless wire is subject to mechanical damage or abrasion.

5.03 Where station wiring passes over floor away from wall or baseboard, protect it from mechanical damage with overfloor ducts and associated fittings as covered in the section entitled Overfloor Ducts, Identification and Installation.

5.04 Fig. 5 through 12 are typical examples of wiring requiring protection.

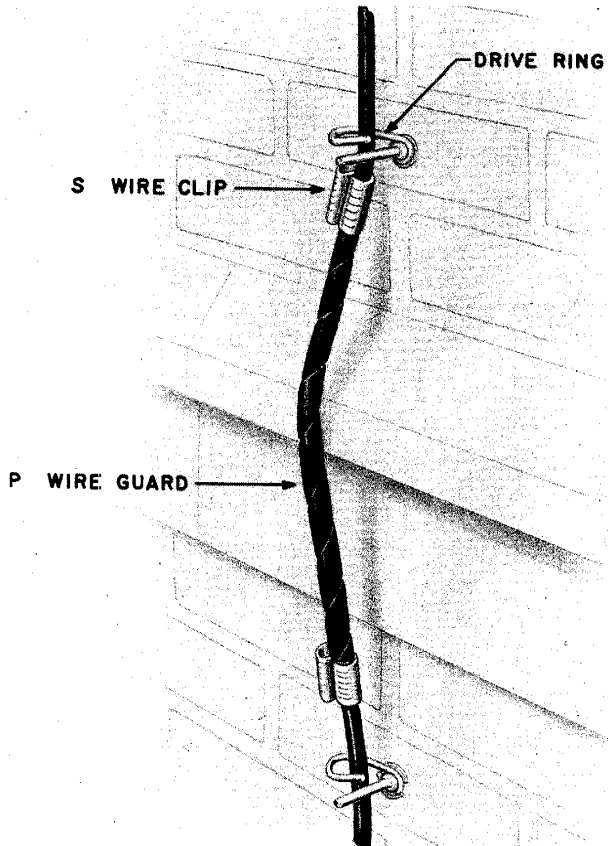


Fig. 5 — Crossing Masonry Building Projection



Do not run wires or cables through removable gratings.

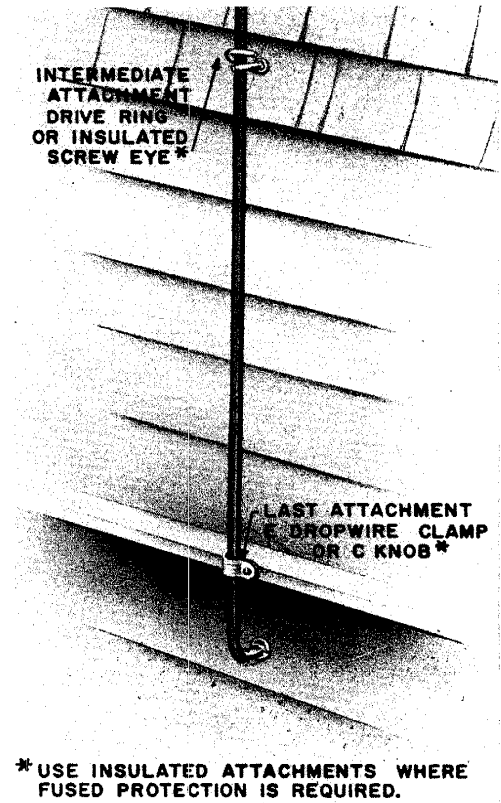


Fig. 6 — Crossing Wood or Stucco on Wood Building Projection

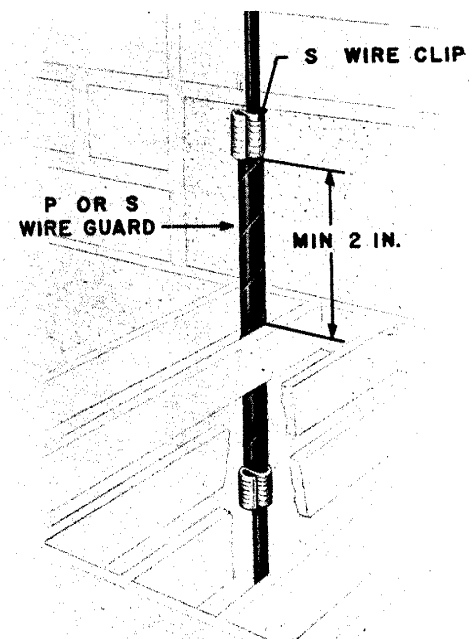
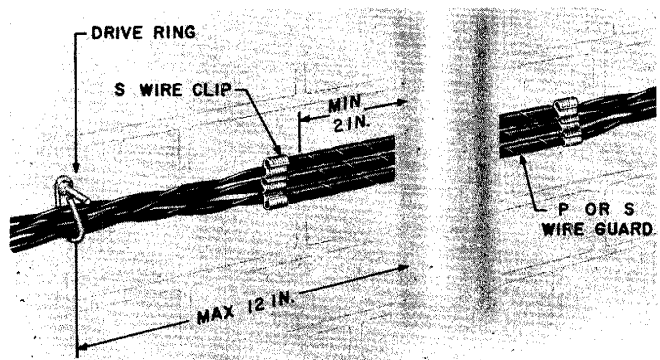
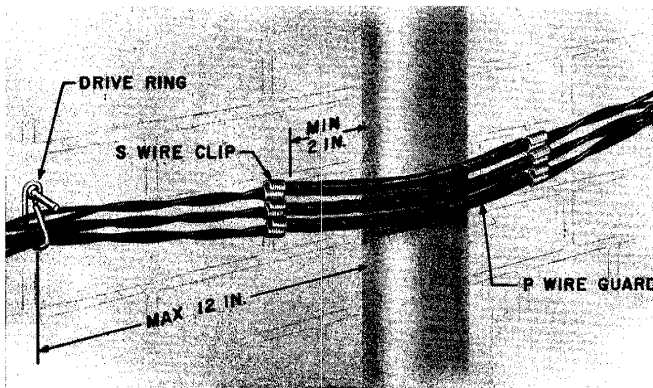
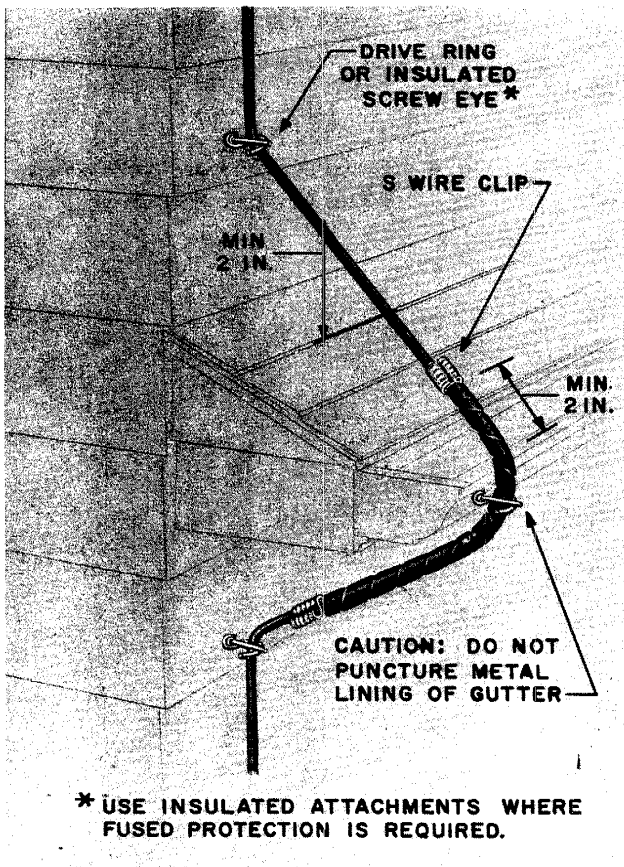


Fig. 7 — Protecting Wire Run through Stationary Metal Grating

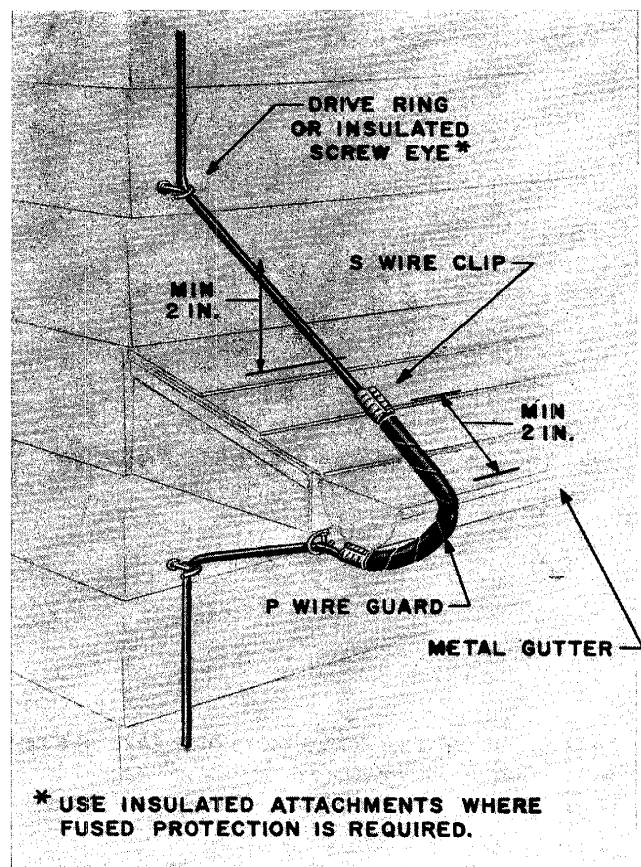


Masonry or Brick Surface

Fig. 8 — Wires Crossing Downspout

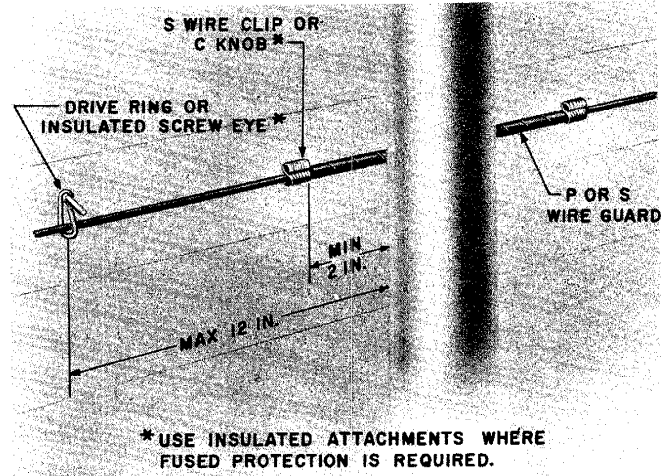
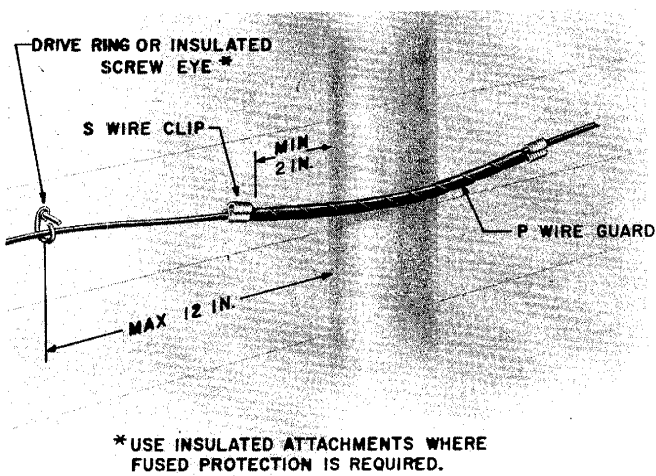


Metal-Lined Wooden Box Gutter



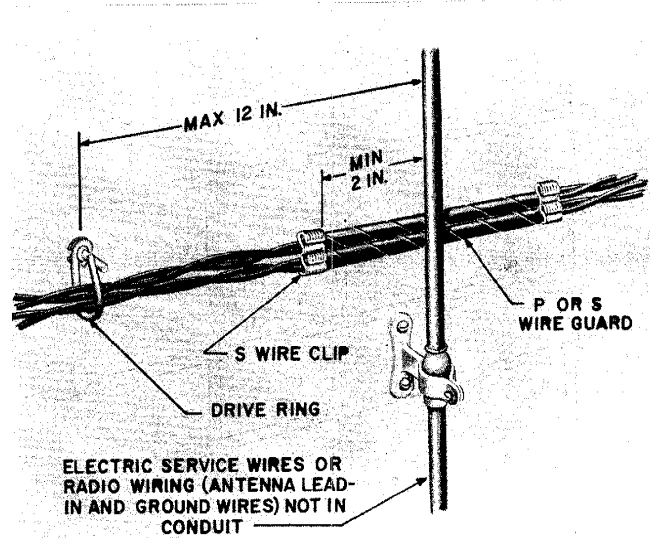
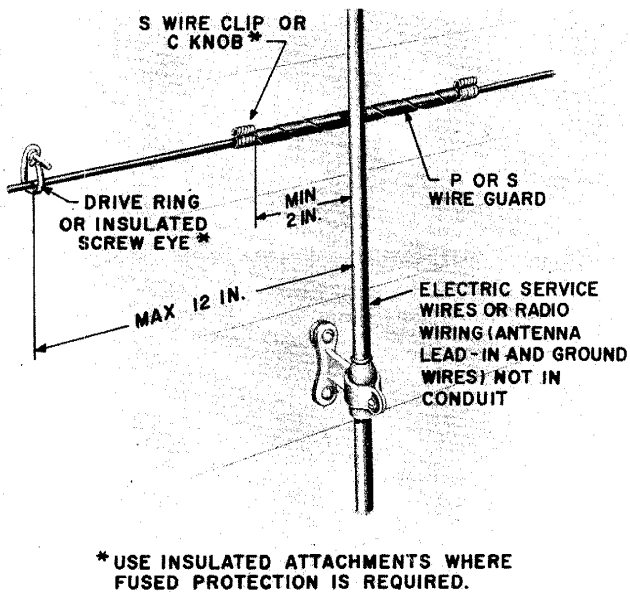
Metal Gutter

Fig. 9 — Crossing Building Overhangs and Gutters



Wood, Stucco on Wood, or Metal Siding on Wood Surface

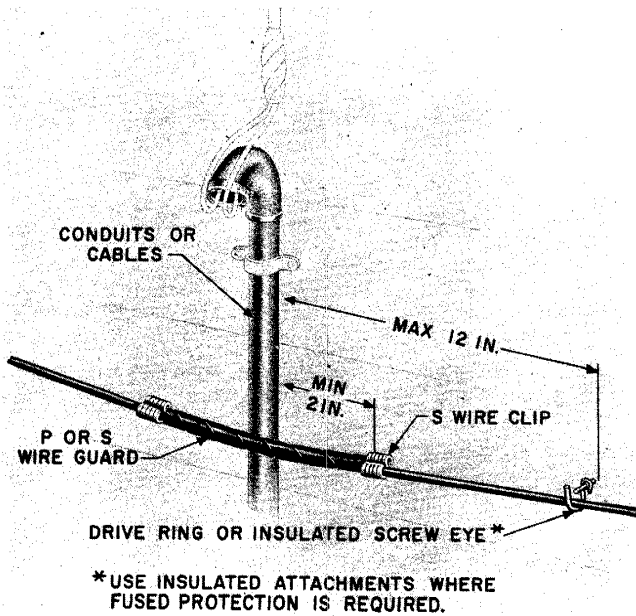
Fig. 10 — Wires Crossing Downspout



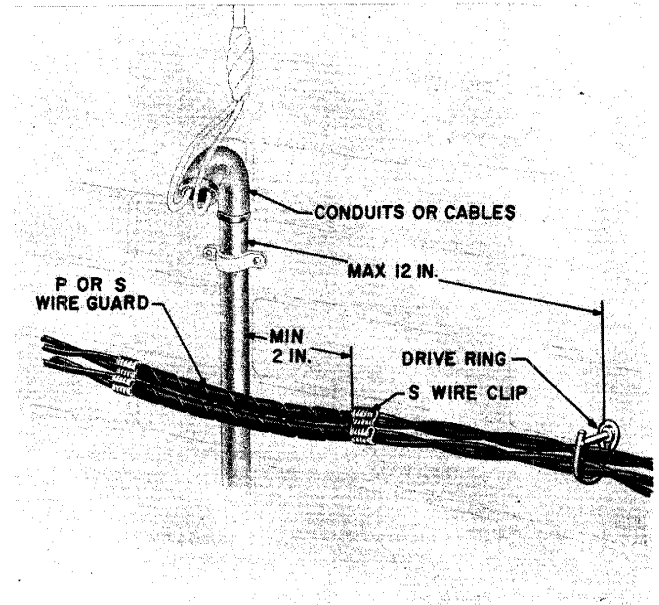
Wood, Stucco on Wood, or Metal Siding on Wood Surface

Masonry or Brick Surface

Fig. 11 — Wires Crossing Power Service, Radio Wires, or Television Wires



Wood, Stucco on Wood, or Metal Siding
on Wood Surface



Masonry or Brick Surface

Fig. 12 — Wires Crossing Foreign Cables, Metal Conduits, Open Signal Wires, or Ground Wires