SEPARATION AND MECHANICAL PROTECTION FOR WIRE AND CABLE

1. GENERAL

1.01 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.

1.02 This section is reissued to update Tables A, B, and C to agree with Section 462-450-205.

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

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.

1.04 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 stepdown transformer. Strict adherence to this recommendation will minimize the possibility of interference by either or both parties during placing or maintenance activities.

2. SEPARATIONS

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

2.01 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. DEFINITION OF TERMS

3.01 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 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.

4. WIRE PROTECTION

4.01 A protective covering is required (Fig. 1) where it is not practicable to obtain the minimum separation at crossings shown in Tables A and B or where wire and cable runs are subject to mechanical damage, abrasion, or excessive heat. Where Tables A and B list **No Alternative,** the minimum separation must be maintained. P 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 (Fig. 2).

4.02 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.

4.03 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.

4.04 Fig. 3 through 12 are typical examples of wiring requiring protection.

Do not run wires or cables through removable gratings.

TABLE A — SEPARATION AND PHYSICAL PROTECTION FOR WIRING BETWEEN PROTECTOR AND TELEPHONE EQUIPMENT

This table applies only to telephone wiring from fuseless or fused protector to telephone equipment and to telephone wiring requiring no protector. Minimum separations between telephone wiring outside or inside buildings, and type of plant involved, are as follows. Separations apply to crossings and to parallel runs.

TYPE OF PLANT INVOLVED		MINIMUM SEPARATIONS	PROTECTION REQUIRED IF MINIMUM SEPARATIONS CANNOT BE OBTAINED (Note 1)
Electric Supply	***Bare light or power wire of any voltage***	5 ft (Note 2)	No Alternative (Note 2)
	Open wiring not over 300 volts	2 in.	See Note 3
	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 3
Signal or Control Wires	Open wiring or wires in conduit or cable	None	
Communication Wires	Community television systems coaxial cables with shields at ground potential	None	
Telephone Drop or Block Wire	Using fused protectors	2 in.	See Note 3
	Using fuseless protector or where no protector required	None	
Telephone Ground Wire		None	
Sign	Neon signs and associated wiring from transformer	6 in. (Note 4)	SK station wire with shield grounded or lead cable with sheath grounded. Ground requirements same as for signaling ground. See Section 638-210-100.
Lightning System	Lightning rods and wires	6 ft	See 2.01
Pipe	Steam or hot water or heating ducts	See Note 5	See Note 5
Stationary Grating, Metal Shutter Grillwork, etc.		P Wire Guard, or two layers of vinyl tape required in all cases to resist abrasion.	

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

Note 2: Power is to be turned off if working above bare wire. Ladders shall be placed to maintain a 5-foot minimum clearance.

Note 3: B Plastic tube; E or P wire guard; or two layers of vinyl tape extending 2 inches beyond each side of object being crossed.

Note 4: To prevent accidental breakage, avoid neon sign location if alternate run is possible.

Note 5: Excessive heat may damage plastic-insulated wires, therefore, avoid heating ducts and other heat sources.

TABLE B — WIRING BETWEEN BUILDING ATTACHMENT AND TELEPHONE PROTECTOR

This table applies only to telephone wiring (drop or block) attached to buildings and feeding a fuseless or fused protector. Minimum separations between telephone wiring outside or inside buildings, and type of plant involved, are as follows. Separations apply to crossings and to parallel runs.

TYPE OF PLANT INVOLVED		MINIMUM SEPARATIONS	PROTECTION REQUIRED IF MINIMUM SEPARATIONS CANNOT BE OBTAINED (Note 1)
Electric Supply	***Bare light or power wire of any voltage***	5 ft (Note 2)	No Alternative (Note 2)
	Service drops or open wiring not over 750 volts	4 in.	P 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 Wires	Foreign open wiring and wires in conduit or cable	2 in.	
	Between exposed and unexposed Telephone Company wires		
	Community television systems coaxial cables with shields at ground potential	None	
Metallic Object	Downspouts and gutters	2 in.	
	Stationary Gratings, etc.	P Wire Guard or two layers of vinyl tape required in all cases to resist abrasion	
Telephone Ground Wire		None	
Sign	Neon signs and associated wiring from transformer	6 in.	P Wire Guard, 12 inches long (Note 3)
Lightning System	Lightning rods and wires	6 ft	See 2.01
Telephone Ground Rods to Other Ground Rods		6 ft	No Alternative

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

Note 2: Power is to be turned off if working above bare wire. Ladders shall be placed to maintain a 5-foot minimum clearance.

Note 3: To prevent accidental breakage, avoid neon sign location if alternate run is possible.

TABLE C – MINIMUM SEPARATIONS BETWEEN DROP WIRE SPANS AND OTHER EQUIPMENT OR WIRING

Minimum separations between drop wire spans to buildings, and type of plant involved, are as follows:

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.
	Community television systems coaxial cables with shields at ground potential	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

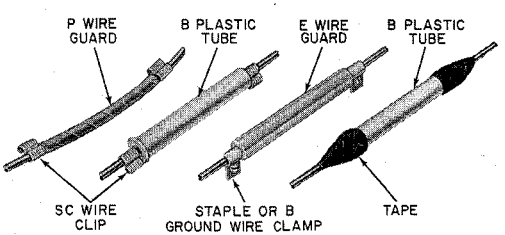

Fig. 1—Securing Plastic Tubes or E Wire Guard

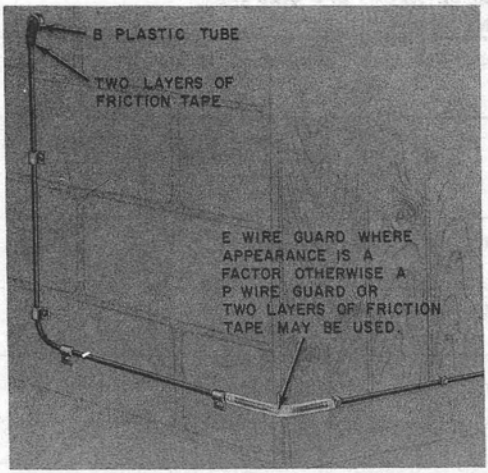

Fig. 2—Use of Tape or E Wire Guard

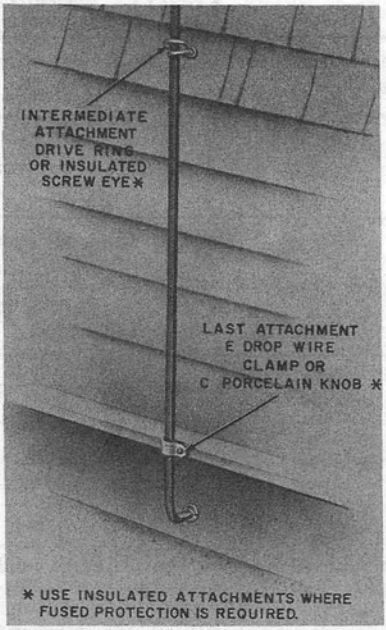

Fig. 4—Crossing Wood or Stucco on Wood Building Projection

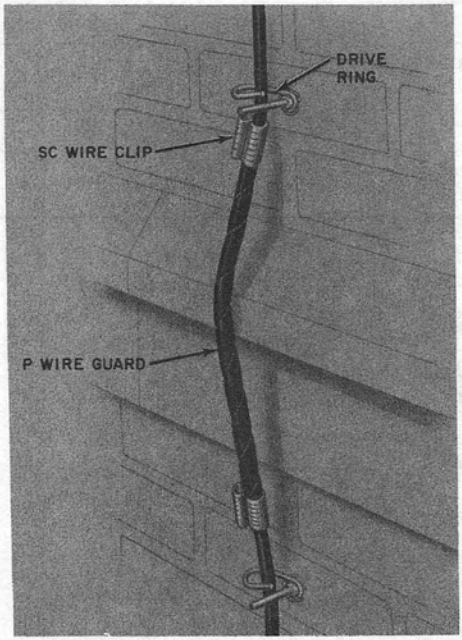

Fig. 3—Crossing Masonry Building Projection

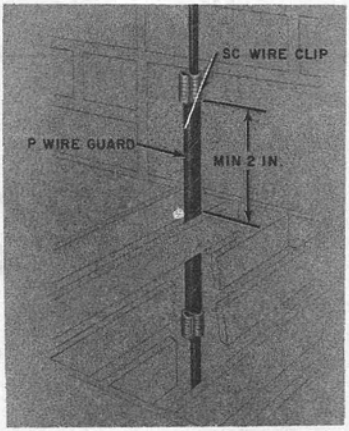

Fig. 5—Protecting Wire Run Through Stationary Metal Grating

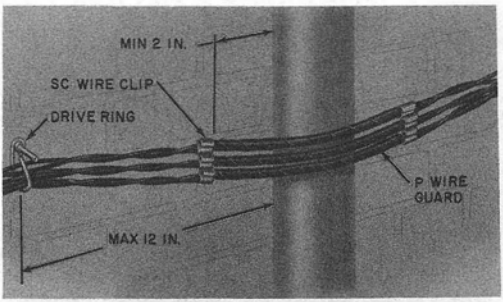

Fig. 6—Wires Crossing Downspout on Masonry or Brick Surface

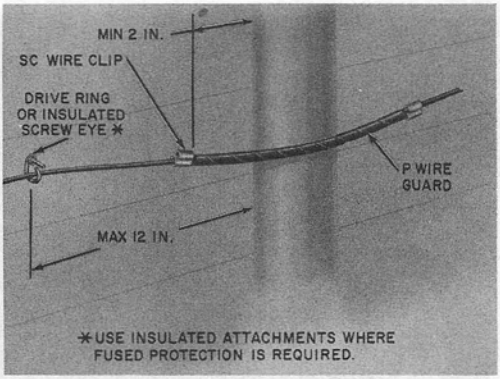

Fig. 8—Wires Crossing Downspout on Wood, Stucco, or Metal Surfaces

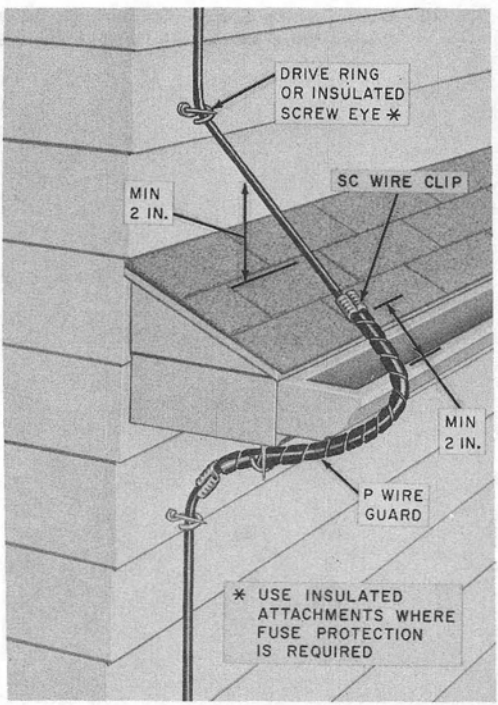

Fig. 7—Crossing Building Overhang and Metal Gutter

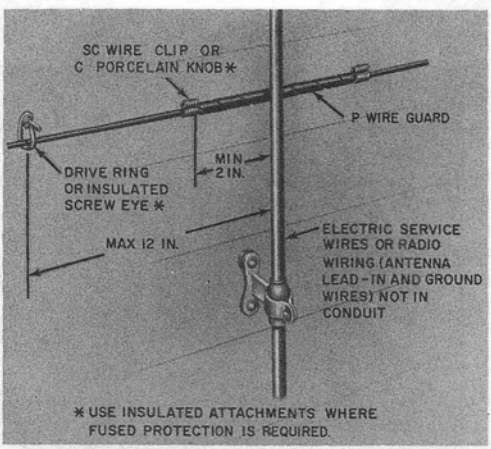

Fig. 9—Wires Crossing Power, Radio, or Television Wires on Wood, Stucco, or Metal Siding

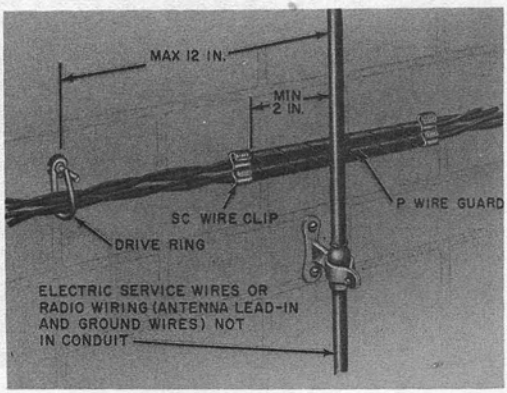

Fig. 10—Wires Crossing Power, Radio, or Television Wires on Masonry or Brick Surfaces

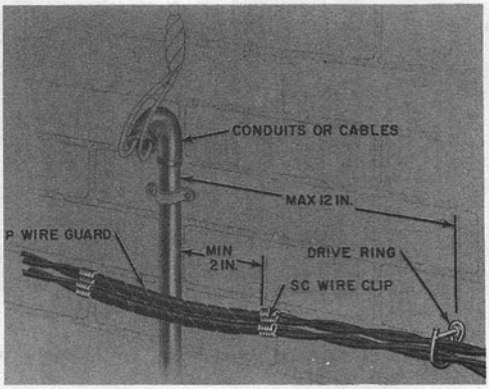

Fig. 12—Wires Crossing Cables, Conduits, Signal, or Ground Wires on Masonry or Brick Surfaces

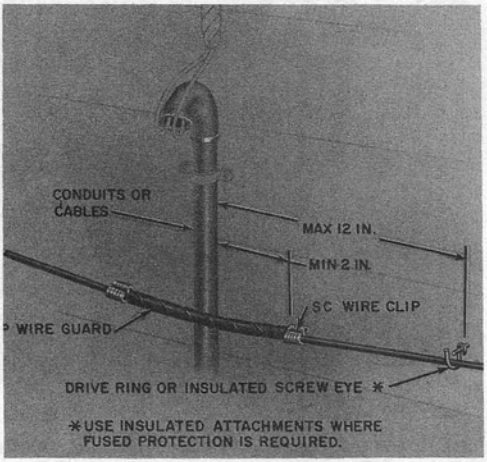

Fig. 11—Wires Crossing Cables, Conduits, Signal, or Ground Wires on Wood, Stucco, or Metal Siding