

DROP AND BLOCK WIRING

SEPARATION AND MECHANICAL PROTECTION

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1. GENERAL

1.01 This section specifies minimum separations required between foreign conductors and telephone wiring in or on buildings and in spans to buildings. It also describes mechanical protection required between telephone wiring and pipes, gutters, masonry, etc.

1.02 This section is reissued to include separation requirements originally contained in Section 461-200-201. Since this is a general revision, arrows ordinarily used to indicate changes have been omitted.

1.03 In general, 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 or abrasion.

2. GENERAL PRECAUTIONS

2.01 All wire installed in explosive atmospheres shall be placed in accordance with the instructions pertaining to that equipment.

2.02 Wire shall not be placed in pipe or conduit containing electric light and power wires or cables. Wires shall not be placed in the same outlet box or junction box, unless separated from the electric light and power wires by a suitable insulating partition.

2.03 Whenever practicable, avoid running telephone wire in the same conduit, molding, or runway with 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.

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

3. DEFINITION OF TERMS

3.01 The following definitions are for terms used in Tables A, B, and C:

- 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. SEPARATIONS



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

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

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

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

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

4.05 Separations of less than 6 feet between drop, block, and station wiring, or telephone ground wires and lightning wires or rods are permissible under the following conditions:

- (a) Where telephone, power, and lightning rod ground connections are made to a common grounding medium as specified in 460-100-201.
- (b) Where separate driven ground rods are used for telephone, power, and lightning rod installations, **and the ground rods are bonded together** as specified in 460-100-201.

Note: *In no case shall the separation be less than 4 inches.*

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

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

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

4.09 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.

5. MECHANICAL 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 shown in Fig. 1. The protective covering should be used as follows:

- B Plastic Tube, P Wire Guard, or two layers of vinyl tape extending 2 inches beyond each side of object being crossed.
- P Wire Guard, B Plastic Tube, or two layers of vinyl 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 vinyl tape or P Wire Guard on station wiring within buildings where improved appearance is desired. (See Fig. 2.)

5.02 Where plastic-insulated station wire passes through wall or floor adjacent to wall or baseboard, protection with vinyl 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 Section 461-350-100.

5.04 Fig. 3 through 14 are typical examples of wiring that requires 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 ¹
Electric Supply	<i>Bare light or power wire of any voltage</i>	5 ft ²	No Alternative 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. 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 4.05
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 ¹
Electric Supply	<i>Bare light or power wire of any voltage</i>	5 ft ²	No Alternative 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.	
Communi- cation Wires	Foreign open wiring and wires in conduit or cable	2 in.	
	Between exposed and unex- posed Telephone Company wires		
	Community television sys- tems 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 ³
Lightning System	Lightning rods and wires	6 ft	See 4.05
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.

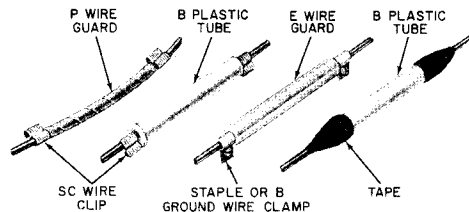
Note 2: *Power is to be turned off if working above bare wire.* Ladders shall be placed to maintain a 5-foot minimum clearance.

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

TABLE C — DROP WIRE SPANS TO BUILDINGS

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 Wire Guards**

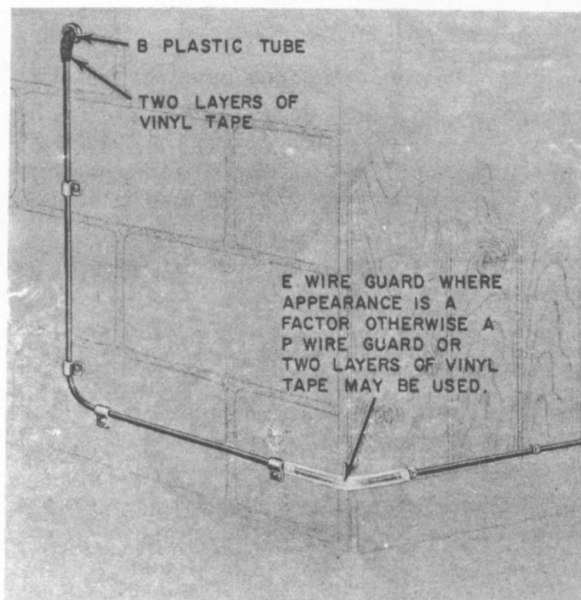


Fig. 2—Use of Vinyl Tape or E Wire Guard

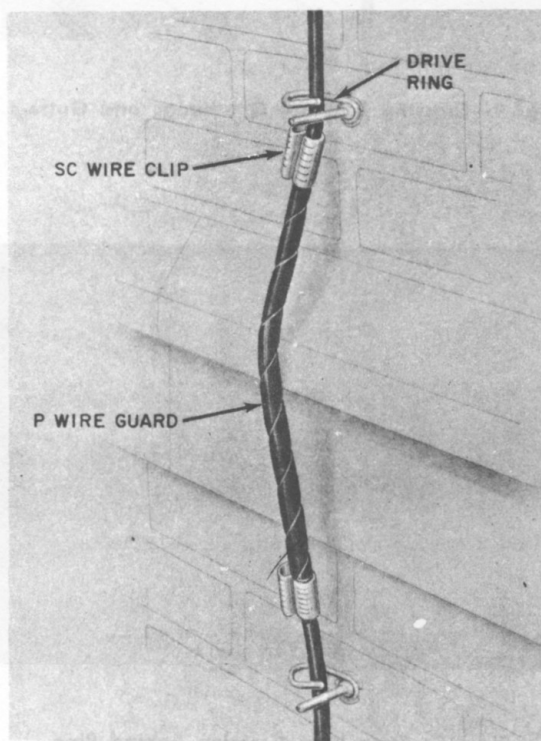


Fig. 3—Crossing Masonry Building Projection

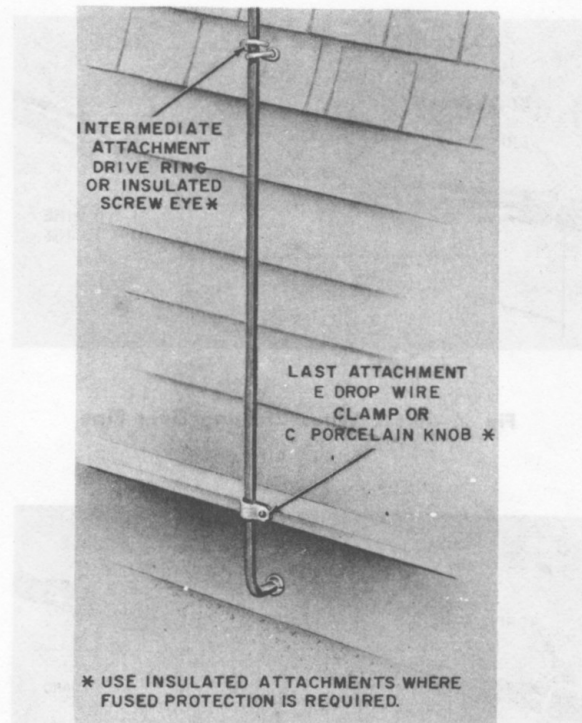


Fig. 4—Crossing Wood or Stucco on Wood Building Projection

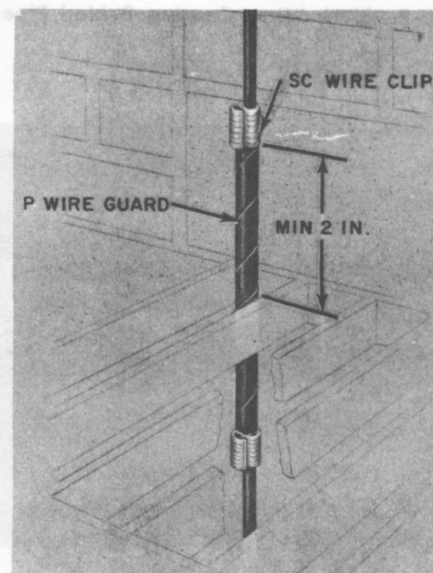


Fig. 5—Protecting Wire Run Through Stationary Metal Grating

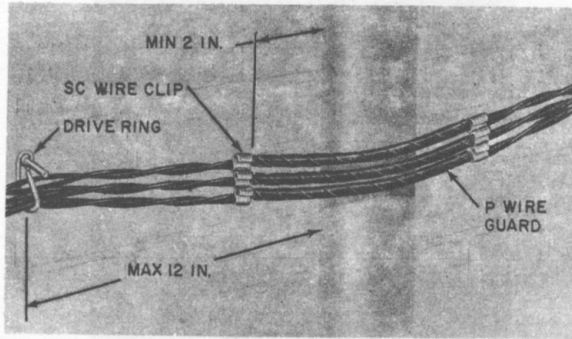


Fig. 6—Block Wires Crossing Over Pipe

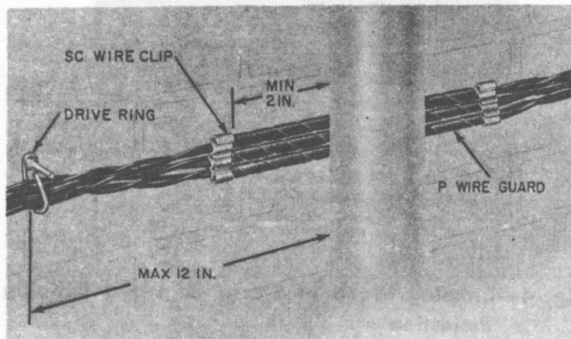


Fig. 7—Block Wires Crossing Behind Pipe

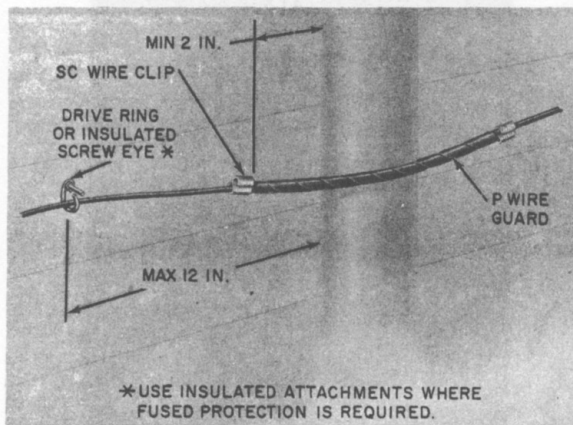


Fig. 8—Drop Wire Over Pipe

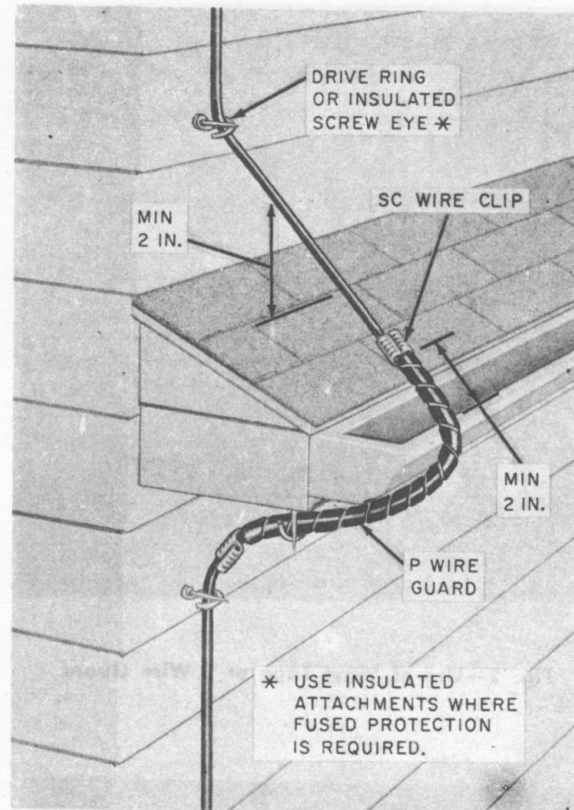


Fig. 9—Crossing Building Overhangs and Gutters

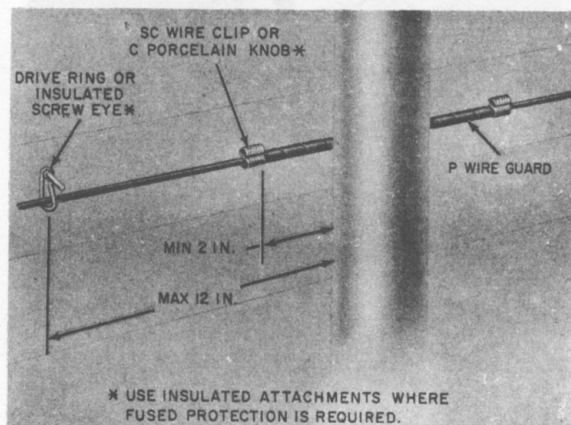


Fig. 10—Drop Wire Crossing Behind Pipe

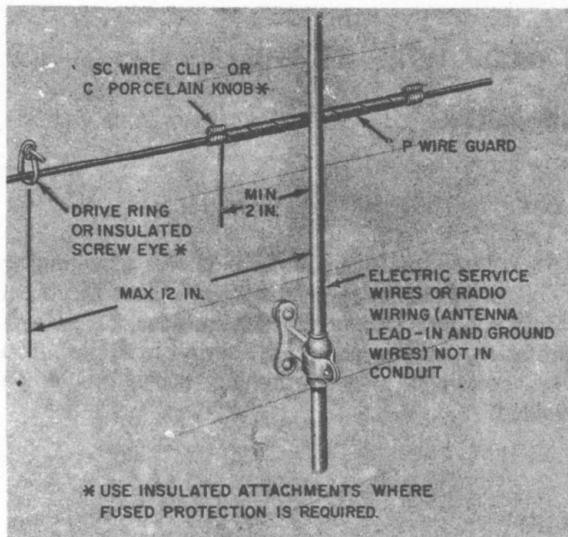


Fig. 11—Drop Wire Crossing Behind Foreign Wire

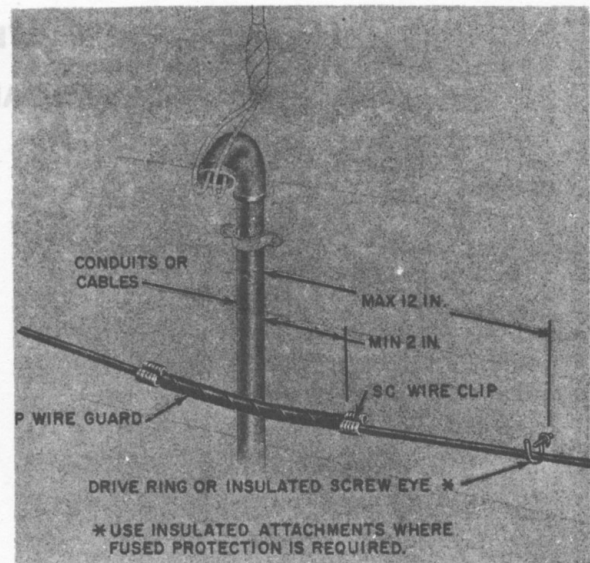


Fig. 13—Drop Wire Crossing Over Conduit

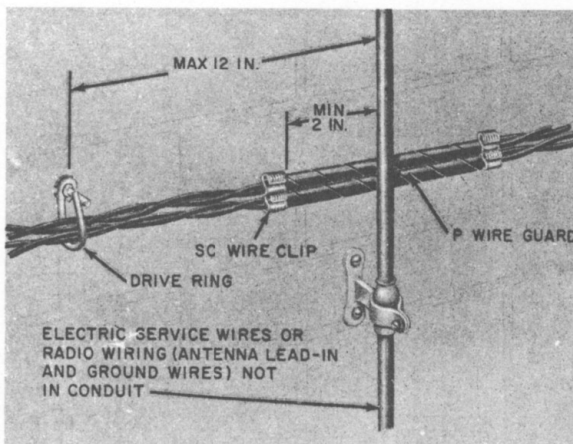


Fig. 12—Block Wire Crossing Behind Foreign Wire

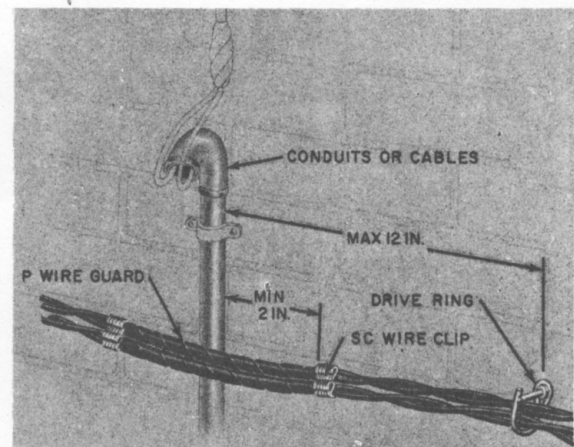


Fig. 14—Block Wire Crossing Over Conduit