

DROP AND STATION WIRE SEPARATION AND MECHANICAL PROTECTION

CONTENTS	PARAGRAPH
GENERAL	1
MATERIAL	2
GENERAL PRECAUTIONS	3
DEFINITION OF TERMS	4
SEPARATIONS	5
MECHANICAL PROTECTION	6

1. GENERAL

1.01 This practice is reissued to include information contained in CTSP 475-300-404 and current separation and mechanical protection information.

1.02 All copies of CTSP 475-300-404 should be destroyed.

1.03 If any differences exist between clearances specified in this practice and those specified by the National Electrical Code, those which are the most stringent will apply.

2. MATERIAL

2.01 The following material may be required:

- a. E wire guard, CTS #02-26-021-2.
- b. P wire guard, CTS #02-26-023-9.
- c. Plastic tube 3/8 inch x 6 inches, CTS #20-79-004-0.
- d. Vinyl tape (see CTS Tape, Vinyl).
- e. D drop wire clip, CTS #68-11-016-2.
- f. D drive ring (see CTS Ring, Drive).
- g. Insulated screw eye (see Eye, Screw, Insulated).
- h. C porcelain knob, CTS #68-34-001-0.
- i. E drop wire clip, CTS #68-11-017-1.

3. GENERAL PRECAUTIONS

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

3.02 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.

3.03 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.

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

3.05 Exposed drop wire shall not enter a building through the same entrance hole with protected telephone wires.

4. DEFINITION OF TERMS

4.01 The following definitions are for terms applying to electrical conductors used in Tables A, B, and C.

a. **Bare Wires:** A conductor having no covering or insulation whatsoever.

b. **Open Wiring:** A wiring method using clamps, 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.

c. **Electric Service Drop:** The overhead service conductors between the last pole or other aerial support and the first attachment to the building.

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

5. SEPARATIONS

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

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

5.02 In Tables B and C, the specified separations must be obtained for parallel runs.

5.03 The specified separations must be obtained at crossings designated **NO LESSER ALTERNATIVE** in Tables B and C.

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

5.05 Separations of less than 6 feet between drop, 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 CTSP 475-500-410.
- 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 CTSP 475-500-410.

NOTE: The separation should not be less than 4 inches in any case.

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

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

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

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

6. MECHANICAL PROTECTION

6.01 Where it is not practicable to obtain recommended minimum separation at crossings other than those shown as **No Lesser Alternative** in Tables B and C, or where wire or cable runs are subject to mechanical damage, abrasion, or excessive heat, a protective covering is required as shown in Figure 1. The protective covering should be used as follows:

- a. Plastic tube, P wire guard, or two layers of vinyl tape extending 2 inches beyond each side of object being crossed.
- b. P wire guard, 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 Figure 2.

6.02 Where 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.

6.03 Figures 3 through 16 are typical examples of wiring that requires protection.

NOTE: Do not run wires or cables through removable gratings.

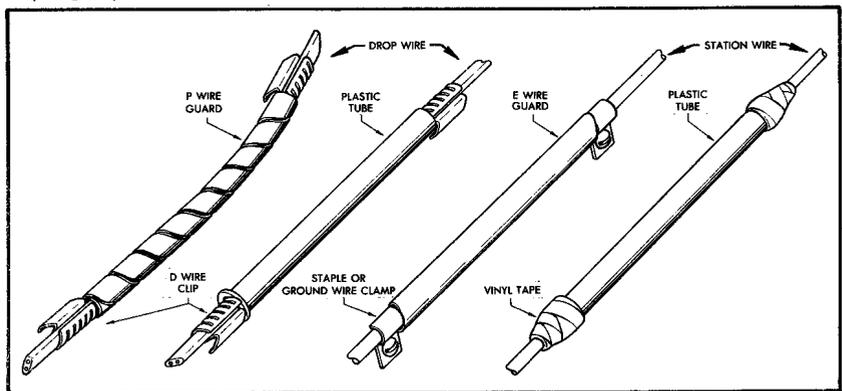


FIGURE 1. Securing Wire Guards

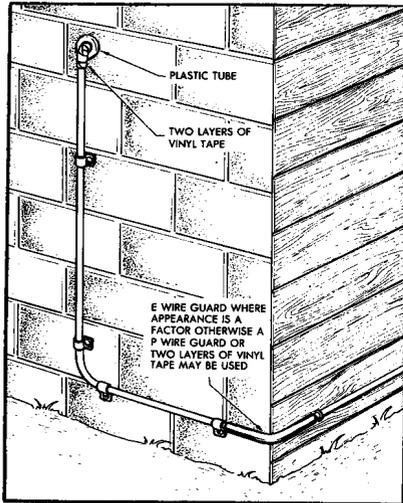


FIGURE 2. Use of Vinyl Tape or E Wire Guard on Station Wire

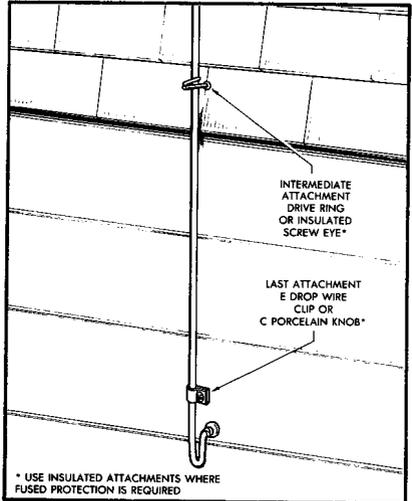


FIGURE 4. Drop Wire Crossing Wood or Stucco on Wood Building Projection

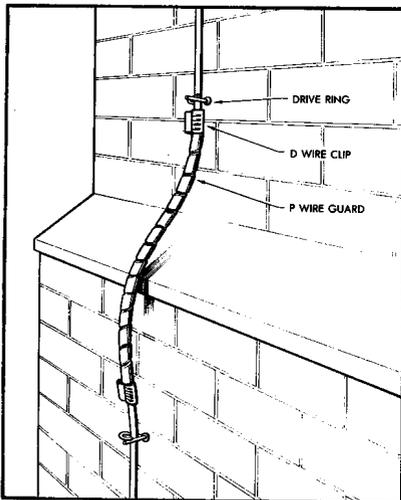


FIGURE 3. Drop Wire Crossing Masonry Building Projection

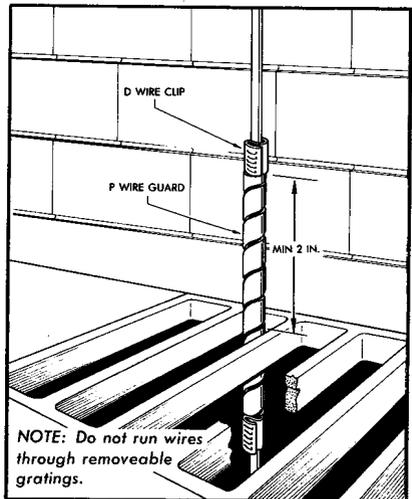


FIGURE 5. Protecting Drop Wire Run Through Stationary Metal Grating

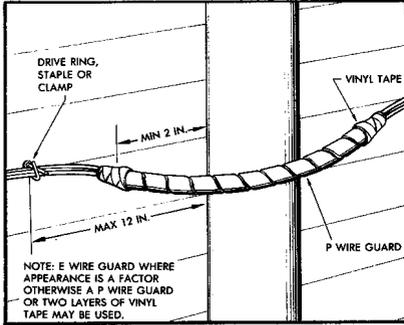


FIGURE 6. Station Wires Crossing Over Pipe

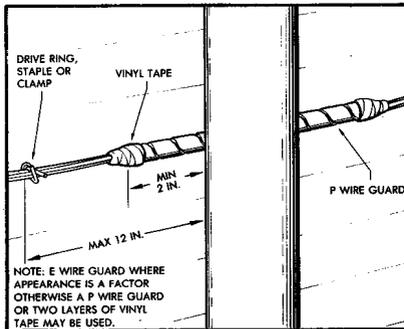


FIGURE 7. Station Wires Crossing Behind Pipe

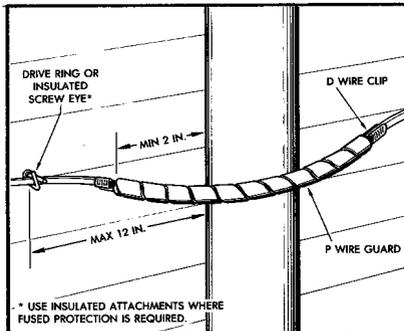


FIGURE 8. Drop Wire Over Pipe

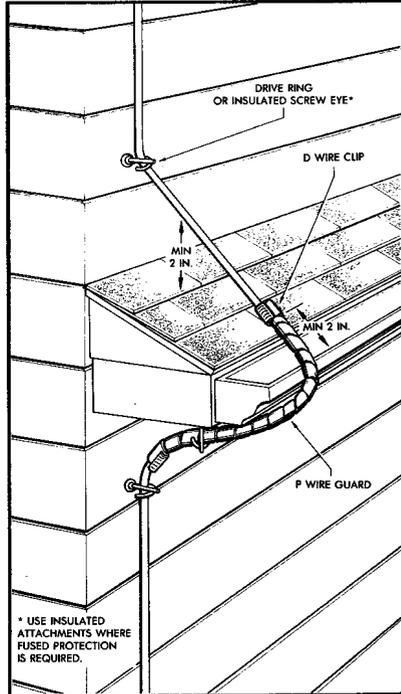


FIGURE 9. Drop Wire Crossing Building Overhangs and Gutters

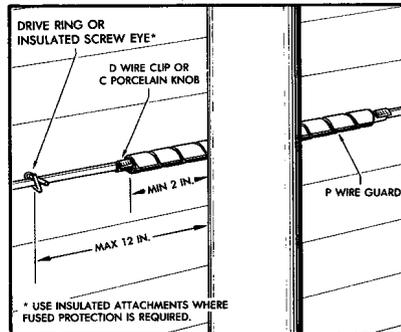


FIGURE 10. Drop Wire Crossing Behind Pipe

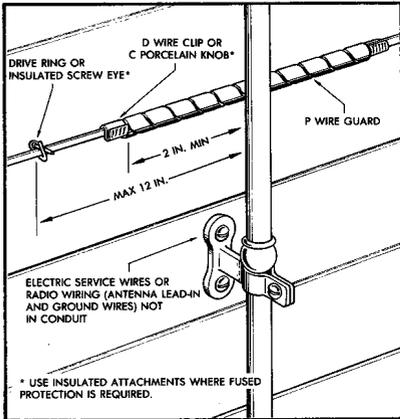


FIGURE 11. Drop Wire Crossing Behind Foreign Wire

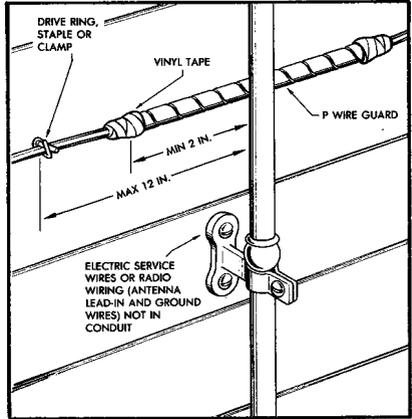


FIGURE 12. Station Wires Crossing Behind Foreign Wire

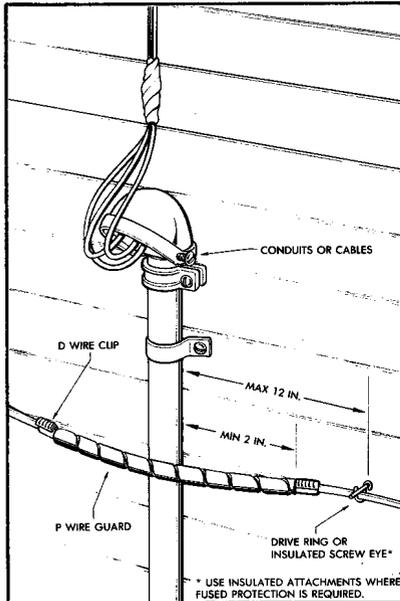


FIGURE 13. Drop Wire Crossing Over Conduit

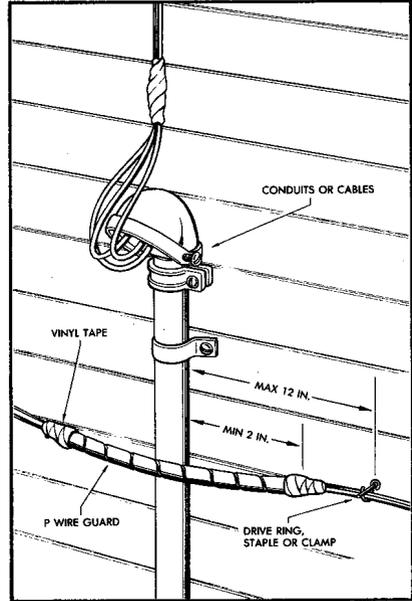


FIGURE 14. Station Wires Crossing Over Conduit

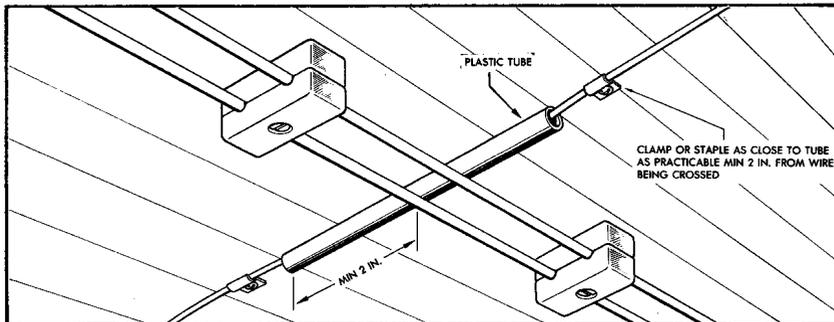


FIGURE 15. Station Wire Crossing Open Electric Light Wires (Drawing 1 of 2)

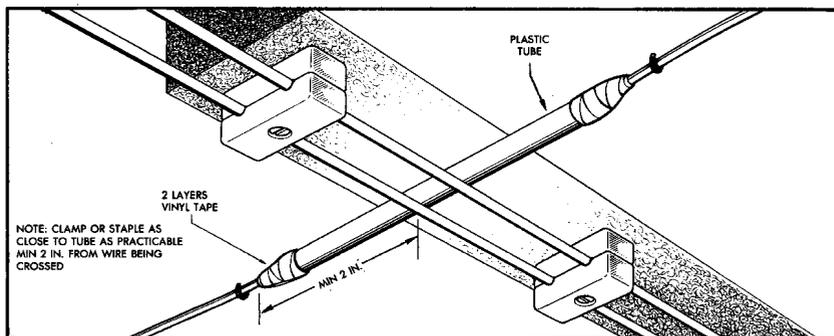


FIGURE 15. Station Wire Crossing Open Electric Light Wires (Drawing 2 of 2)

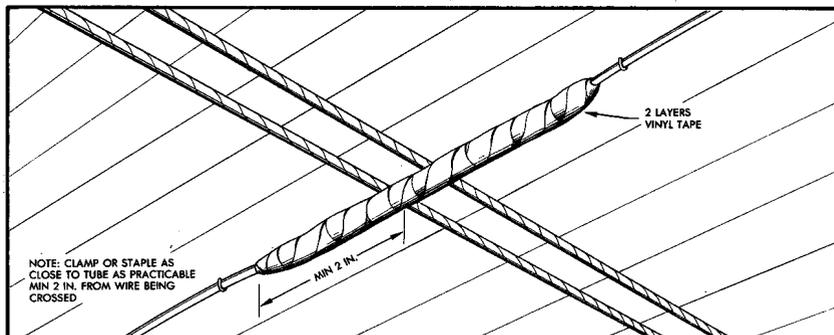


FIGURE 16. Station Wire Crossing Signal Wires

TABLE A. 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	Electric 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.

TABLE B. Wiring Between Building Attachment and Telephone Protector			
This table applies only to telephone wiring (drop or station) 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 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. See Note 2	No Lesser Alternative See Note 2
	Electric service drops or open wiring not over 750 volts.	4 in.	
	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.	P Wire Guard extending 2 inches beyond each side of object being crossed
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.	None	
	Community television systems coaxial cables with shields at ground potential.	None	
Metallic Object	Downspouts and gutters.	2 in.	P Wire Guard or two layers of vinyl tape required in all cases to resist abrasion
	Stationary gratings, etc.	2 in.	
Telephone Ground Wire		None	
Sign	Neon signs and associated wiring from transformer.	6 in.	P Wire Guard, 12 inches long See Note 3
Lightning System	Lightning rods and wires.	6 ft.	See Paragraph 5.05
Pipe	Steam or hot water or heating ducts.	3 in.	See Note 4
Telephone Ground Rods to Other Ground Rods.		6 ft.	No Lesser Alternative
<p><i>Note 1:</i> Applies only to crossings. For parallel runs the indicated minimum separations must be maintained.</p> <p><i>Note 2:</i> Power is to be turned off if working above bare wire. Ladders shall be placed to maintain a 5-foot minimum clearance.</p> <p><i>Note 3:</i> To prevent accidental breakage, avoid neon sign location of alternate run is possible.</p> <p><i>Note 4:</i> Excessive heat may damage plastic-insulated wires, therefore avoid heating ducts and other heat sources.</p>			

TABLE C. 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 SEE NOTE 1	
Electric Supply	Bare light or power wire of any voltage.	5 ft. See Note 2	No Lesser Alternative See Note 2
	Open wiring not over 300 volts.	2 in.	
	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 Telephone Ground Wire	Using fused protectors.	2 in.	See Note 3
	Using fuseless protector or where no protector required.	None	
Sign	Neon signs and associated wiring from transformer.	6 in. See Note 4	Station wire with a grounded shield or lead cable with sheath grounded. Ground requirements same as for signaling ground. See CTSP 475-500-410
	Lightning System	Lightning rods and wires.	6 ft. See Paragraph 5.05
Pipe	Steam or hot water or heating ducts.	3 in.	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.
<p><i>Note 1:</i> Applies only to crossings. For parallel runs the indicated minimum separations must be maintained.</p> <p><i>Note 2:</i> Power is to be turned off if working above bare wire. Ladders shall be placed to maintain a 5-foot minimum clearance.</p> <p><i>Note 3:</i> Plastic tube; E or P wire guard; or two layers of vinyl tape extending 2 inches beyond each side of object being crossed.</p> <p><i>Note 4:</i> To prevent accidental breakage, avoid neon sign location if alternate run is possible.</p> <p><i>Note 5:</i> Excessive heat may damage plastic-insulated wires, therefore avoid heating ducts and other heat sources.</p>			