

JOINT USE CLEARANCES IN THE SPAN AND SEPARATIONS AT THE POLE

CONTENTS	PAGE
1. GENERAL	555
2. VERTICAL SEPARATIONS AT THE POLE	555
3. MINIMUM VERTICAL CLEARANCE IN THE SPAN BETWEEN POWER AND COMMUNICATION CONDUCTORS	557
4. VERTICAL RUNS OF POWER AND COMMUNICATION CONDUCTORS AT THE POLE	558
5. CLIMBING SPACE	559

1. GENERAL

1.01 This section contains the MINIMUM clearance and separation requirement applying generally to the construction and maintenance of joint plant.

1.02 This section is reissued to clarify the interpretation of the requirements of CSA Standard C22.3 No. 1-1970.

1.03 Communication plant owned by other parties must be treated as power plant unless it is so constructed throughout its length as to meet the separation from power plant required for Bell Canada plant.

1.04 Where two or more clearance requirements apply to any situation, the requirement for the greater clearance shall be used.

1.05 The minimum clearances specified in Tables A and B should be increased if additional space is required for future construction or maintenance operations.

1.06 The clearances specified in this section apply to the normal level arrangement at the pole, i.e., from the top down:

- (a) Supply (higher voltages)
- (b) Supply (lower voltages)
- (c) Communication
- (d) Trolley span wires (See Para. 2.04)

The inverted level arrangement, i.e., supply conductors below communication conductors, is not acceptable to Bell Canada and should not be used. Trolley *feeder* wires must therefore be placed above communication conductors.

1.07 Vertical separations at the pole between current carrying parts of supply and communication plant respectively serve both:

- (a) To provide safe clearance from the line-man's body as follows:

- (1) **Supply Lineman:** from the feet to communication plant when supply conductors are waist high.

- (2) **Communication Lineman:** from the head to supply plant when communication conductors are immediately below shoulder level.

- (b) To minimize possible contact between usual types of supply and communication wires or cables in the span when ice remains on the supply conductors while off the communication conductors.

1.08 Instructions for measuring clearances in the span and separations at the poles are given in Section 081-220-104.

2. VERTICAL SEPARATIONS AT THE POLE

2.01 The minimum vertical separations at the pole for the normal level arrangement are

SECTION 620-215-011CA

given in Table A. Increased separations, however, may be needed to meet the clearance requirements in the span. (See Part 3).

2.02 Joint use drop wires (i.e. an assembly of power service wire and telephone service wire manufactured as a unit), although listed separately in Table A, are treated as live current carrying supply plant in each joint use drop wire span. Special requirements for terminating the communication portion of such drops are given in Section 462-800-900.

2.03 The minimum lateral telephone drop wire separation specified in the footnote to Table A, should not be used where greater separation is readily available.

2.04 Span wires are wires or strand between two structures, the main purpose of which is to supply a mechanical support for trolley conductors, luminaires or similar equipment. Luminaire span wires must be provided with insulation suitable for the voltage and type of service concerned. Both luminaire and trolley span wires require a strain insulator not less than 6 feet from the pole.

2.05 Luminaires operating over 300 volts to ground must be effectively grounded if located below communication plant.

2.06 Switch handles must have at least 4 inches separation from communication plant. The metal frames and operating rods shall be effectively grounded.

TABLE A
Minimum Vertical Separations at the Pole

Minimum Separation Between Communication Wire, Cable, Strand, Guy, and Associated Hardware and:	Voltage to Ground of Supply Conductors		
	0 to 750	Over 750 to 22,000	Over 22,000
	inches	inches	inches
Live or current carrying power plant (including neutrals, fuses, lightning arresters, disconnect switches, etc.)	40*	40	60 + (0.4 per 1000 volts over 50,000 volts)
Non-energized supply plant including cross- arm braces, transformer cases, through bolts etc., but excluding luminaire span wires, brackets (see below) and switch handles (Para. 2.06)	40*	40	60 + (0.4 per 1000 volts over 50,000 volts)
UNGROUND — — — — —	40*	40	40 + (0.4 per 1000V over 50,000V)
EFFECTIVELY GROUNDED — — — — —	30*	30	40 + (0.4 per 1000V over 50,000V)
Trolley span wires or brackets (Paras. 1.06, 2.04)	12	Not Applicable	Not Applicable
Span wires and brackets for luminaires and traffic lights (Para. 2.04, 2.05)	12	40	Not Applicable
UNGROUND — — — — —	12	40	Not Applicable
EFFECTIVELY GROUNDED — — — — —	4	4	Not Applicable
Point of attachment of joint use drop wire (Para. 2.02)	40*	Not Applicable	Not Applicable
Communication power supply connected to the power service by an effectively grounded continuous metal sheathed cable or conduit.	0	Not Applicable	Not Applicable
Point of attachment of power guy	See Section 620-210-011		

* A lesser value (minimum 24") may be used for communication drop wires if no other communication plant is attached to the pole.

3. MINIMUM VERTICAL CLEARANCE IN THE SPAN BETWEEN POWER AND COMMUNICATION CONDUCTORS

3.01 The clearance between the lowest power conductor and the line of sight between the

point of support of the highest communication conductor not the actual clearance between these two conductors is used in determining the permissible clearance in the span. (See Fig. 1)

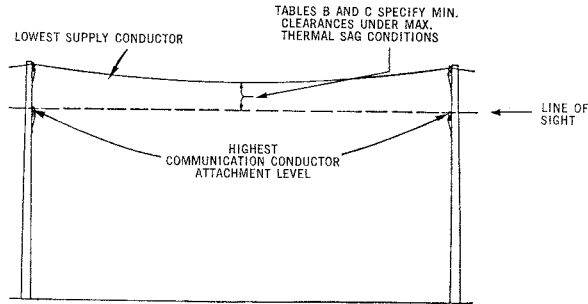


Fig. 1 — Measurement of Clearance in the Span

3.02 The clearances specified in Tables B and C are those applying under the maximum thermal sag condition for the power conductor i.e., the condition under which the power conductor reaches its highest operating temperature. Since power wires are not usually placed under these conditions, an appropriate increase in the values shown in Tables B and C must be provided by the Power Company at the time of placing.

3.03 If the communication conductor is constructed after the power wires have been placed, the approximate increase in the clearances

shown in Tables B and C may have to be obtained from the Power Company. In most cases however, the Power Company will sag their conductors to accommodate the communication conductor at the top of the communication space on the pole, in which case the requirements of Tables B and C will apply automatically.

3.04 Clearance between power guys and communication conductors in the span are specified in Section 620-210-011.

TABLE B

Minimum vertical clearances in span between supply and communication conductors under maximum thermal sag in supply conductor.	
Voltage to Ground of Supply Conductor	Clearance of Supply Conductor Above Line-of-Sight (See Fig. 1) of Points of Support of Highest Communication Wire or Cable
0 to 750 volts with Thermoplastic Weatherproof Covering	0 inch
0 to 750 volts — other covering or bare	3 inches
over 750 volts to 15,000 volts	12 inches
over 15,000 volts to 22,000 volts	15 inches
over 22,000 volts to 250,000 volts	15 inches plus 0.4" per 1000 volts in excess of 22,000 volts.

TABLE C

Minimum vertical clearances in span between communication conductor and multigrounded neutral* conductor located 12" or more below supply conductor not exceeding 22,000 volts (in all other cases treat the neutral as a supply conductor and use Table B.)	
Span Less than 150'	Use clearances specified in Table B
Span 150' to 250'	Minimum separation at the structure shall be so adjusted that the neutral will not come below the line of sight of points of support of the highest communication conductor
Span over 250'	Multigrounded neutral can sag below line of sight of points of support of the highest communication conductor but not lower than 12 in. above communication conductor under conditions of: <ul style="list-style-type: none"> (i) Maximum thermal sag in power circuit (Para. 3.02) (ii) Initial sag at 120F for communication circuit

* Neutral conductor must be effectively grounded

4. VERTICAL RUNS OF POWER AND COMMUNICATION CONDUCTORS AT THE POLE

4.01 Vertical runs attached to the surface of the pole shall be separated from span or guy wires by at least 2 inches (See Fig. 2). Vertical runs enclosed in a moulding of adequate electrical insulating and mechanical properties

do not require separation other than that provided by the moulding, but the guy or span wire must not abrade the moulding.

4.02 Electrical and mechanical protection for vertical runs attached to the surface of the pole is illustrated in Fig. 3 (normal level arrangement):

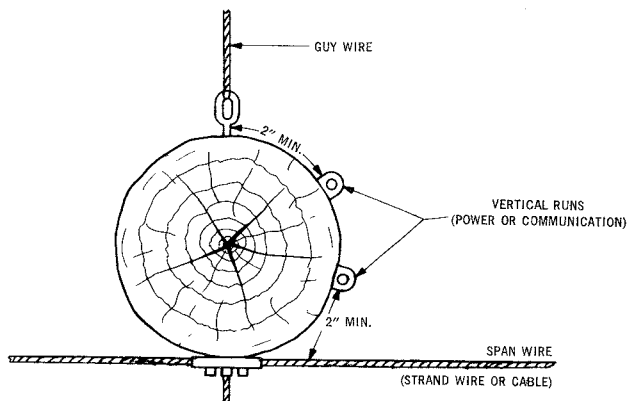


Fig. 2 — Minimum Separation Between Vertical Runs on Surface of Pole and Other Pole Attachments

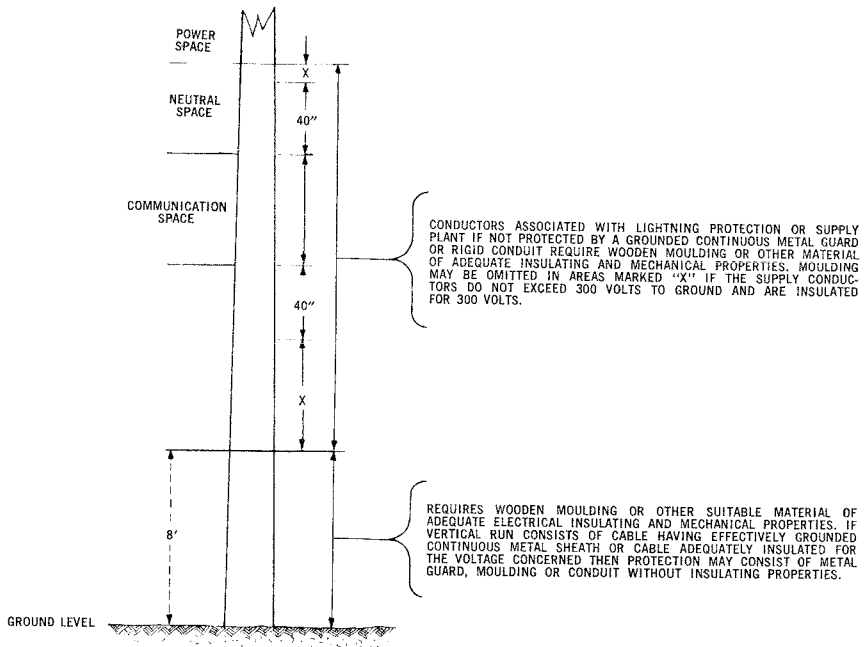


Fig. 3 — Vertical Runs on Poles

4.03 Vertical runs not attached to the surface of the pole such as lamp leads running directly from a supply crossarm through or within 40 inches vertically from the communication line plant shall be held taut at least 40 inches from the surface of the pole unless insulated. In passing through communication plant, these conductors shall have a minimum clearance of 12 inches beyond the end of the communication crossarm, 6 inches from communication drop

wire and 20 inches from communication cable unless provided with insulation for the voltage and type of service concerned. (Fig. 4).

5. CLIMBING SPACE

5.01 A climbing space shall be provided past the communication conductors, cables, crossarms or attachments in the communication space, and extending 40 inches above and below the limiting conductors as follows:

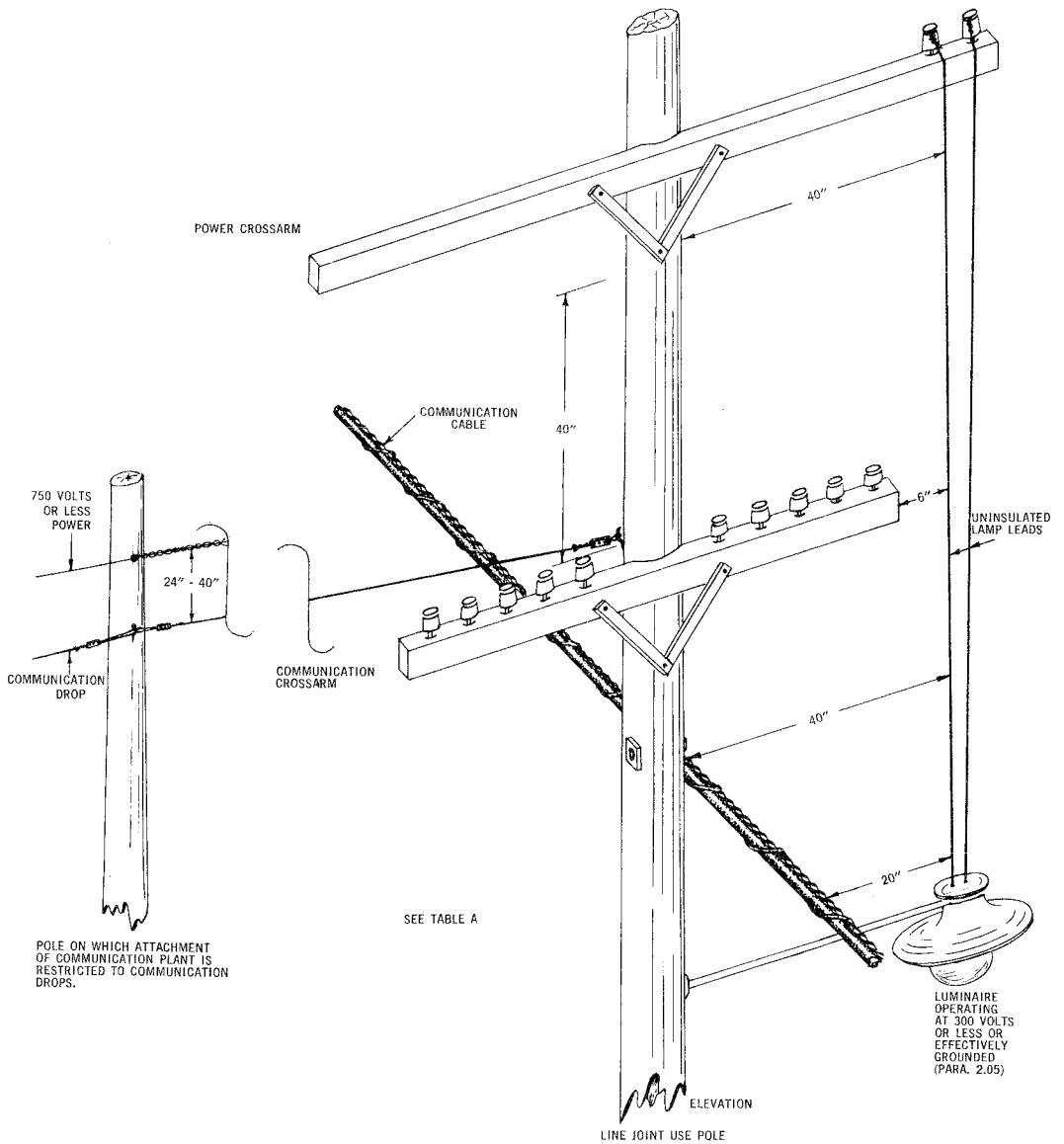


Fig. 4 — Minimum Clearances At Poles

(a) 30 inches by 30 inches. This must be so arranged as to permit the hoisting of transformers, crossarms etc., to the upper position of the structure. (Fig. 5).

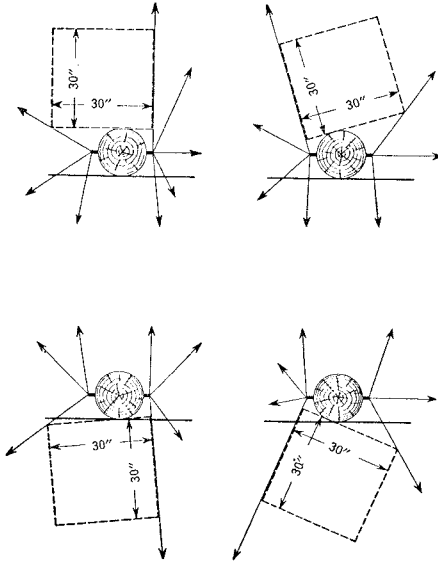


Fig. 5 — Examples of 30x30 Climbing Space

(b) 16 inches by 30 inches where supply service conductors only are attached to the top of a common crossing pole. (Fig. 6).

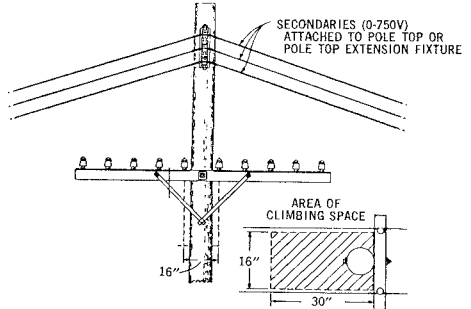


Fig. 6 — Climbing Space at Crossing Pole

5.02 No attachment on the structure shall encroach into the climbing space except as follows:

- (a) Pole steps at the side of the climbing space.
- (b) Crossarms or communication longitudinal runs along the side of the climbing space.
- (c) Vertical runs in the climbing space provided they are suitably protected and do not interfere with the use of pole steps or line-man's climbers.