

Section B      Clearances

ES43 B0

B0-01      Table of Contents

ES43 B1

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|                                 |                                             |                                                                                                                   |               |
|---------------------------------|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------|---------------|
| Clearances<br>Table of Contents | Issued: 2026-02-18<br>Effective: 2026-02-18 | DISTRIBUTION<br>STANDARDS<br> | ES43 B0-01 R5 |
|---------------------------------|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------|---------------|

### 1. Mandatory Minimum Clearances:

The following pages give the mandatory minimum clearances, separations, and spacing that must be maintained between electric power conductors, communication lines, span guys, foreign objects, and the ground under specified conditions. To ensure that these minimum values are met under maximum specified loading and service conditions, additional day-to-day clearance must be obtained to allow for varying operating, weather, and other conditions on or around the pole. Allowances should also be made for anticipated future changes such as distribution or communication plant additions, changes to road grades, new buildings adjacent to the pole line, etc.

### 2. Vertical Clearances:

Vertical clearances shown are, in general, those specified in CSA Standard C22.3 No. 1-10, and apply under conditions of maximum specified design sag due to either ice-loading or thermal expansion, whichever is larger. Vertical clearances apply to any point of the span, so allowances must be made for the profile of the terrain. To calculate the clearance of inclined spans, see ES43 Y1-04.

### 3. Horizontal Clearances:

Horizontal clearances shown are, in general, those specified in CSA Standard C22.3 No. 1-10, and apply under conditions of maximum specified design swing for the conductor or wire. To calculate conductor swing, see ES43 Y1-06.

### 4. Private Property:

For conductors over private property, clearances must conform with the requirements of the Canadian Electrical Code (CSA Standard C22.1, Canadian Electrical Code Part 1).

### 5. Highways:

For conductors crossing or alongside highways, clearances shown are those specified in the B.C. Ministry of Transportation & Infrastructure (MoTI) Utility Policy Manual, and apply within MoTI rights-of-way.

### 6. Navigable Waters:

Clearances over navigable waters are not included in this section. Such clearances are subject to the regulations of Transport Canada and are shown on the individual crossing permits.

DRAFTER: DM

|                                                                                                            |                                                                                                                  |                                                                                                               |
|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| DESIGNER<br><br>P. YANG | RECOMMENDED<br><br>C. PICASSI | APPROVED<br><br>F. DENNERT |
| ORIGINAL ISSUE DATE: SEPTEMBER 1985                                                                        |                                                                                                                  |                                                                                                               |

## CLEARANCES GENERAL NOTES

#### 7. Gas / Propane Tanks:

Conductors are not to pass over gasoline pumps or propane tanks over 7600 litres capacity. Primary conductors, including the system neutral, are to be kept 7.6 m horizontal distance from gasoline pumps or propane tanks.

#### 8. Secondary Conductors:

The practical clearance of secondary and neutral conductors may be dictated by pole attachment heights needed to attain required service clearances (see ES43 B1-11).

#### 9. Joint Use Poles:

On joint use poles, minimum clearances and attachment heights of conductors are dictated by Provincial and National Regulations, by the BC Hydro/TELUS Joint Use Agreement, and by variations established from time-to-time by the Joint Use Coordinating Committee (JUCC). (See ES43 C2-01).

#### 10. Over-Height Vehicle Clearances:

For line construction through farmland, consideration must be given to the likelihood of large farm machinery being moved about. Near machinery depots, dumping areas, and logging areas, additional vertical clearances may be required by local agreement to allow passage of vehicles and machinery in excess of 4.15 m in height. Where combined height of vehicle plus load exceeds 4.15 m, clearances must be increased by the amount by which the height exceeds 4.15 m. (See ES43 B1-03)

#### 11. Transmission Line Clearances:

Transmission Engineering must be consulted for clearances to transmission conductors, as sags may change significantly under extreme operating conditions (see ES43 B1-16).

#### 12. Horizontal Separation from Other Buried Services:

Minimum separation of 0.6 m is required between the edge of the base of a pole and the nearest face of other buried service, in order to permit pole replacement without damage to other services.

DESIGNER

RECOMMENDED

APPROVED

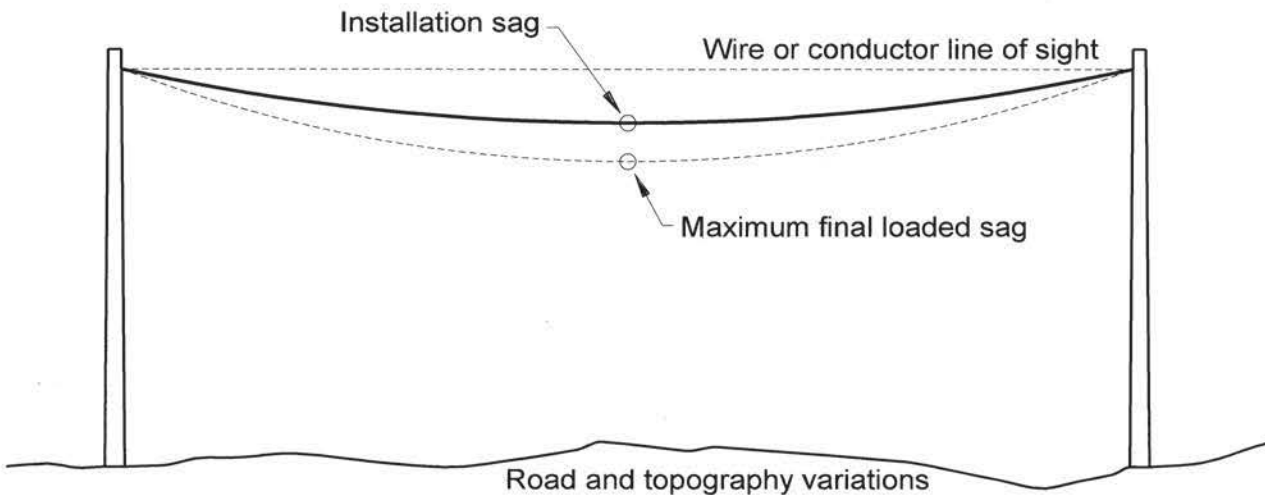
  
P. YANG

  
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F. DENNER

ORIGINAL ISSUE DATE: SEPTEMBER 1985

### CLEARANCES GENERAL NOTES



**NOTES:**

1. Minimum wire and conductor clearances above ground and roads are mandated by road authorities and CSA Standards. Minimum vertical clearances are based on maximum final design sag conditions.
2. For service placing heights see ES43 B1-11.
3. For clearances over railway crossings see ES43 B1-12.

ES43 F2-02  
ES43 F1-04  
ES43 F1-01

REFERENCE DRAWINGS

|             |                                                                                                                    |                                                                                                   |                                                                                                   |                                                                                      |            |      |
|-------------|--------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------|------|
| DRAFTER: DM | DESIGNER                                                                                                           | RECOMMENDED                                                                                       | APPROVED                                                                                          | STANDARD VERTICAL SAG CRITERIA<br>FOR WIRES AND CONDUCTORS<br>ABOVE GROUND AND ROADS |            |      |
|             | <br>C. YANG                     | <br>C. PICASSI | <br>F. DENNERT |                                                                                      |            |      |
|             | ORIGINAL ISSUE DATE: NOVEMBER 2012                                                                                 |                                                                                                   |                                                                                                   |                                                                                      |            |      |
|             | BCHydro  DISTRIBUTION STANDARDS |                                                                                                   |                                                                                                   | PAGE 1<br>OF 1                                                                       | ES43 B1-02 | R. 0 |



### Application

This standard provides the vertical clearance required for above ground conductors, communication wires, and span guys.

### Revision Notes

Expanded note 10, including new Table 1, to add 12 kV and 25 kV conductor values. Added new note 11. Changed content is marked by green vertical revision lines in the left margin. This revision released concurrently with Standards and Equipment Advisory Information Bulletin 2026-007 *Revised ES43 B1-03 and B1-15 Overhead Conductor and Wire Clearance Standards*.

### References

#### BC Hydro Distribution Standards

- ES43 B1-12 Clearances Over Railway Crossings
- ES43 Y1-06 Conductor Swing for Horizontal Design Clearance
- ES55 B3-03 Conductor Swing for Horizontal Design Clearance

#### External Documents

- British Columbia Ministry of Transportation and Infrastructure (MOTI) Utility Policy Manual
- CSA 22.3 No.1 Overhead systems

### Notes

- Clearances in Table 2 are absolute minimum under maximum final design sag conditions (see note 4). Additional clearance is required over and above the normal ambient operating conditions to ensure Table 2 clearances are met.
- Add the amount by which vehicle heights (including load), person heights, and equipment heights are permitted to exceed H as defined in Table 2.
- Vertical ground clearance where snowmobiles travel shall consider local snowfall and add this to the clearance in Table 2 row 8.
- Maximum sag may occur under ice loading or thermal expansion for primary, neutral, and secondary conductors.
- The clearance in Table 2 row 3 may be reduced to 4.0 m where communication wires or cables run along alleys and cannot swing out over the area accessible to vehicles (horizontal swing or telecommunications ally arm).
- The clearance in Table 2 row 3 may be reduced to 4.0 m when crossing residential driveways with communication cables.
- The clearance in Table 2 row 3 over a residential driveway may be reduced to 3.7 m for service conductors and communication drops to residences or residence garages.

|                                   |                                                                                     |                                                                                     |                                                                      |               |
|-----------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------|---------------|
| Designed:<br>K. Middleton, P.Eng  |  |  | Vertical Design Clearance of<br>Wires and Conductors<br>Above Ground |               |
| Checked:<br>K. Middleton, P.Eng   |  |                                                                                     |                                                                      |               |
| Reviewed:<br>V. Batinovic, P.Eng  |  |                                                                                     |                                                                      |               |
| Approved:<br>H. Giesbrecht, P.Eng |  | Issued: 2026-02-18<br>Effective: 2026-02-18                                         | DISTRIBUTION<br>STANDARDS<br>BC Hydro                                | ES43 B1-03 R7 |

8. The clearance in Table 2 row 4 may be reduced by 0.76 m on farmland where high farm vehicles cannot travel. Examples include steep slopes, hillsides, and rocky ledges. This does not apply to swamps or other areas that can be crossed by vehicles in winter.
9. An additional vertical clearance of 0.3 m has been added to permit normal subsequent ballast adjustments without encroaching on the specified minimum clearance when a line that crosses a railway is constructed or rebuilt, or the crossing structures are subsequently replaced. See ES43 B1-12.
10. Flashover plus horizontal swing distance have been calculated in Table 1 for conductors up to 1 kV, and for 12 kV and 25 kV conductors. Flashover distances do not need to be considered for telecom. Flashover is 8 mm for up to 1 kV conductors, 145 mm for 12 kV conductors, and 218 mm for 25 kV conductors (CSA C22.3 No. 1, Table A.8 *Switching surge values for AC conductors*). Horizontal swing for BC Hydro conductors is available in ES55 B3-03 and ES43 Y1-06. The non-sheltered factor is used to calculate the horizontal swing distance provided below. Calculations can be performed for site-specific conditions (conductor size and span length) to reduce the values.

**Table 1** – Horizontal swing plus flashover distances for cables up to 25 kV

| Span length<br>(ruling span) (m) | 8 mm flashover plus horizontal<br>swing for conductors up to 1 kV (m) | 218 mm flashover plus horizontal swing<br>for 12 kV and 25 kV conductors (m) |
|----------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------------------|
| 50                               | 0.9                                                                   | 1.1                                                                          |
| 75                               | 1.4                                                                   | 1.7                                                                          |
| 100                              | 2.5                                                                   | 2.7                                                                          |

11. When a line crosses land types listed in Table 2 and its horizontal swing allows it to extend over another land type, the clearance value from the row with the higher requirement shall be applied.
12. Table 2 rows 1 and 2 are governed by a separate agreement with MOTI, TELUS, and BC Hydro and follow the *Utility Policy Manual*.
13. The minimum clearance for telecommunication cables is 6.1 m where a lower vertical clearance may interfere with highway operations or maintenance as determined by the MOTI district manager (or designate) per the *Utility Policy Manual*.

# Vertical Design Clearance of Wires and Conductors Above Ground

**ES43 B1-03**

**Table 2** – Minimum vertical clearance at maximum design sag

| Row | Short description                               | Wire or conductor location, where H is the expected maximum person, vehicle including load, and equipment height                                                                                                                                                               | Minimum vertical clearance at maximum design sag (m) |                           |                             |
|-----|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|---------------------------|-----------------------------|
|     |                                                 |                                                                                                                                                                                                                                                                                | Span guys and telecom wires                          | System voltage            |                             |
|     |                                                 |                                                                                                                                                                                                                                                                                |                                                      | 0 to 1 kV phase to ground | >1 to 22 kV phase to ground |
| 1   | Over MOTI expressways and freeways              | Over BC freeways, expressways, and signalized intersections as approved under MOTI jurisdiction. See note 12.                                                                                                                                                                  | 5.5                                                  | 6.1                       | 6.7                         |
|     | Over MOTI signalized intersections              |                                                                                                                                                                                                                                                                                |                                                      |                           |                             |
| 2   | Over or alongside MOTI highways                 | Over or alongside MOTI highways and within the highway right-of-way. Greater clearance may be required for highway maintenance and construction equipment as determined by the district highways manager. See notes 12 and 13.                                                 | 5.0                                                  | 6.1                       | 6.7                         |
| 3   | Road surface                                    | Over, alongside, or adjacent to a road surface within the maximum horizontal swing plus flashover distance (see note 10) likely to be travelled by road vehicles (including roadways, streets, lanes, alleys, residential and commercial driveways and entrances). H = 4.15 m. | 4.42<br>(see notes 5, 6, 7)                          | 4.42<br>(see note 7)      | 4.75                        |
| 4   | Farmland                                        | Over land likely to be travelled by agricultural or other equipment, including farm field access roads and farmyard entrances. H = 4.15 m.                                                                                                                                     | 4.42<br>(see note 8)                                 | 4.42                      | 4.75                        |
| 5   | Underground pipeline right-of-way               | Over underground pipeline right-of-way. H = 4.15 m.                                                                                                                                                                                                                            | 4.42                                                 | 4.42                      | 4.75                        |
| 6   | Land used by off-road vehicles                  | Over land likely to be travelled by off-road vehicles, riders on horses, or other large animals. H = 3.6 m.                                                                                                                                                                    | 3.7                                                  | 3.7                       | 4.75                        |
| 7   | Road right-of-way inaccessible to road vehicles | Over land within the road right-of-way inaccessible to road vehicles other than as described in row 3. H = 2.9 m.                                                                                                                                                              | 3.0                                                  | 3.4                       | 4.15                        |
| 8   | All-terrain vehicles                            | Over walkways or land normally accessible only to pedestrians alone, snowmobiles (see note 3), and personal use all-terrain vehicles. H = 2.4 m.                                                                                                                               | 2.5                                                  | 3.1                       | 3.4                         |
|     | Pedestrian walkways                             |                                                                                                                                                                                                                                                                                |                                                      |                           |                             |
| 9   | Railway crossings                               | Above top of rails at railway crossings. H = 6.7 m. See note 9.                                                                                                                                                                                                                | 7.6                                                  | 7.6                       | 7.9                         |

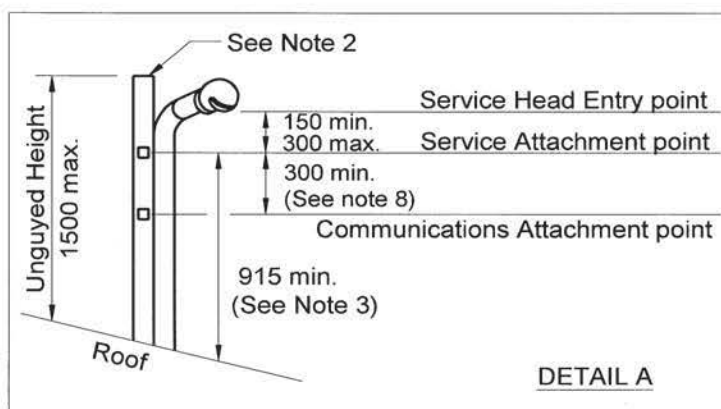
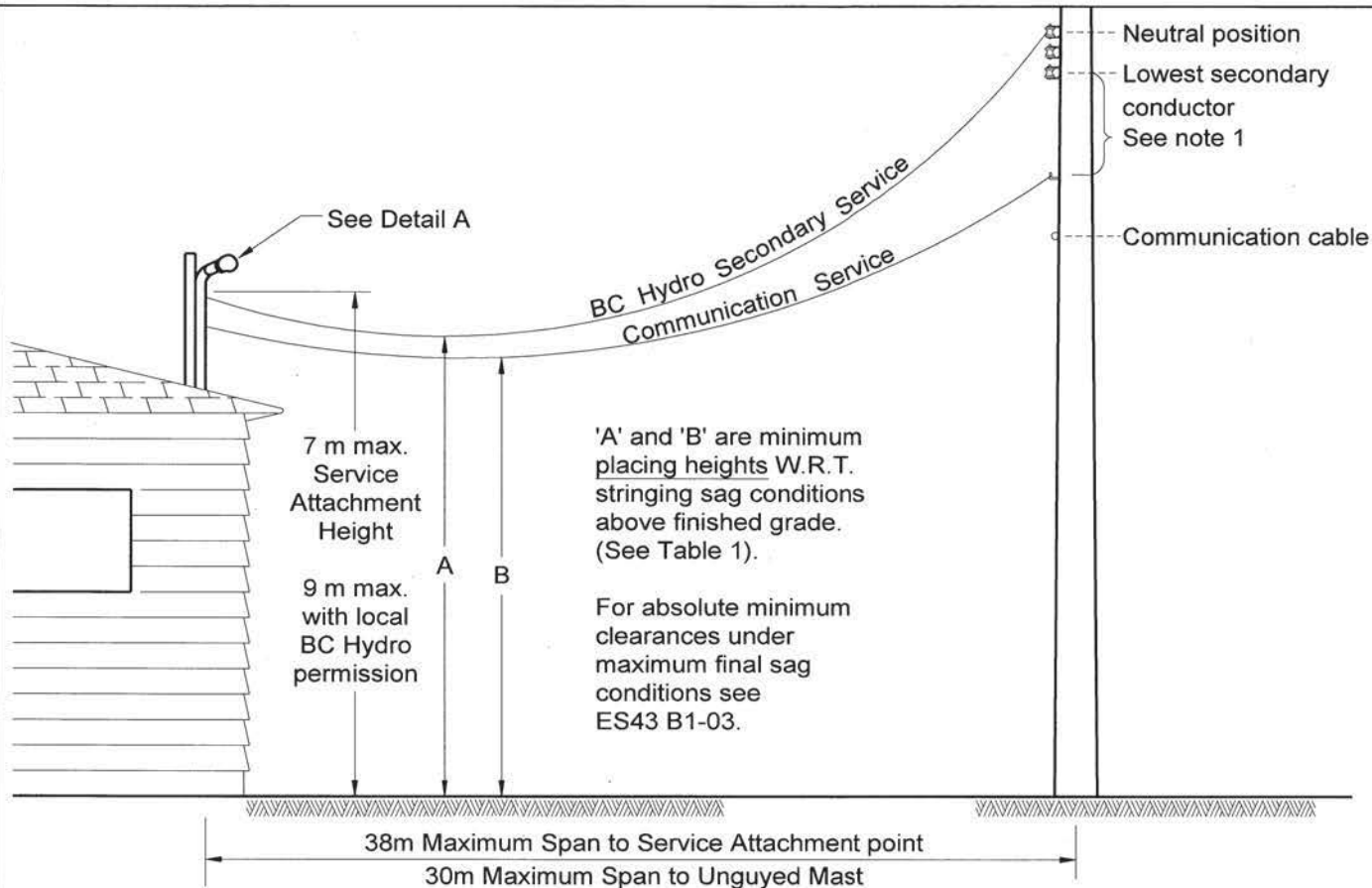


TABLE 1

| LOCATION                                     | A (Hydro) | B (TELUS) |
|----------------------------------------------|-----------|-----------|
| Across MoTI Freeways, Expressways            | 7.1 m     | 6.4 m     |
| Across MoTI Highways                         | 7.1 m     | 5.9 m     |
| Across Streets, Lanes, Pipeline Row          | 5.5 m     | 5.3 m     |
| Across Residential Driveways                 | 4.5 m     | 4.3 m     |
| Across Commercial and Industrial Driveways   | 5.5 m     | 5.3 m     |
| Across Ground only Accessible to Pedestrians | 3.5 m     | 3.0 m     |

**NOTES:**

1. For Joint Use spacing on Pole see ES43 C2-01.
2. Mast and Service Head to comply with clause 6-112 and 6-116 of the Canadian Electrical Code, Part 1, 2009.
3. Drip Loop clearance to roof 600 mm minimum.
4. Services must also meet the requirements of Distribution Instruction S10-2.
5. All clearances shown apply to services attached directly to the side of buildings. See ES43 N2-02, N2-05 and N2-06.
6. On Joint Poles ensure that sufficient clearance is available to allow for communication service placing height.
7. All dimensions in mm except where noted.
8. Telus requires 600 mm separation on commercial buildings.

R.3- TITLE BLOCK, NOTES REVISED, MAR'10 FK

DRAFTER: DM

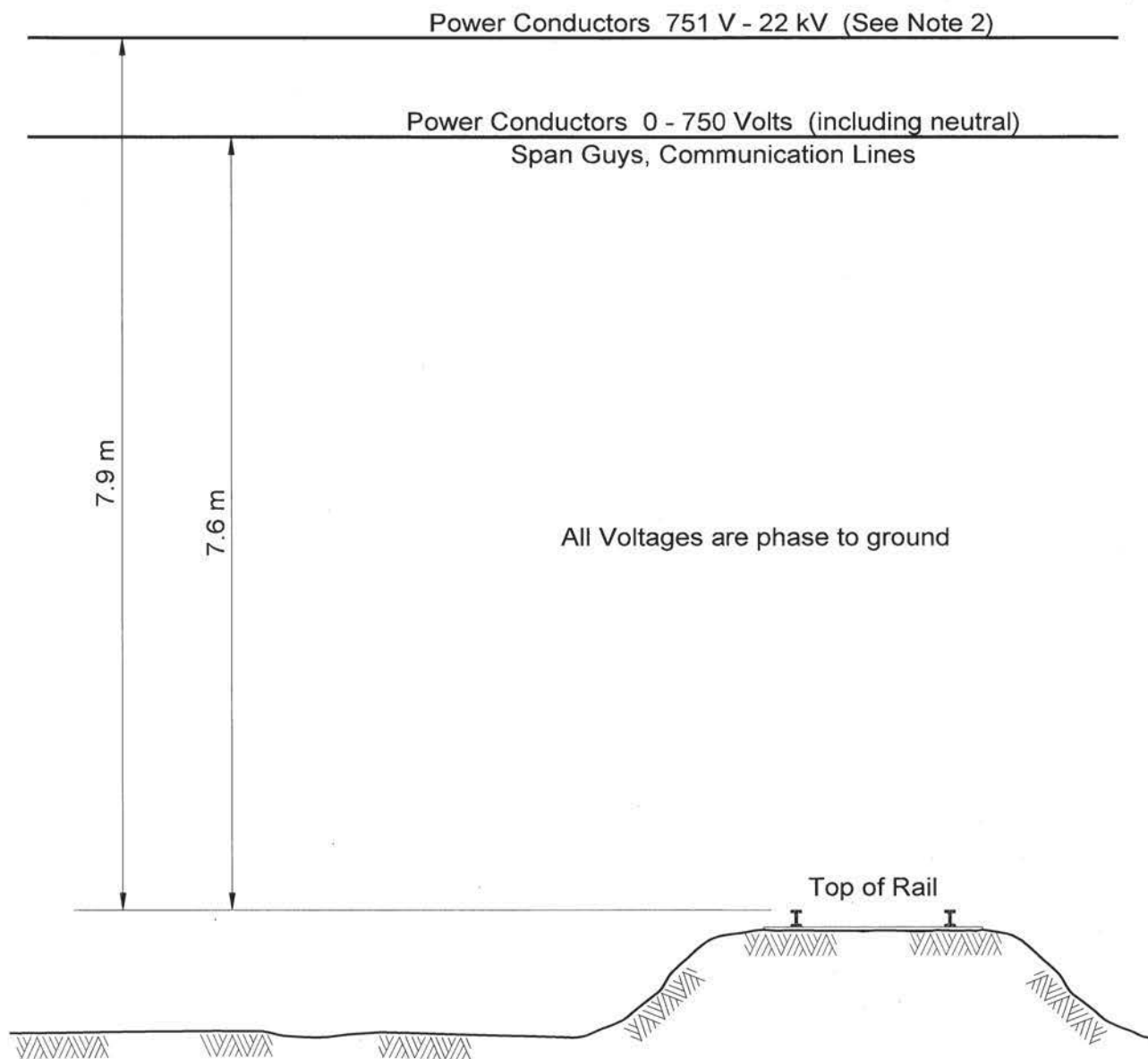
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| DESIGNER<br><br>R. YANG | RECOMMENDED<br><br>C. PICASSI | APPROVED<br><br>F. DENNERT |
|-------------------------|-------------------------------|----------------------------|

ORIGINAL ISSUE DATE: SEPTEMBER 1985

**CLEARANCES ABOVE GROUND  
FOR LOW VOLTAGE SERVICES**



R. 3- TITLE BLOCK, CSA C22.3 NO. 1-10, MAR. '10 FK  
DRAFTER: DM



**NOTES:**

1. Clearances shown are absolute minimum under any and all conditions of sag and loading as specified in CSA C22.3, No.1-10.
2. Clearances include 0.3 m allowance for future ballast lift.
3. Clearances are measured from the top of the rail to the sag point directly over the rail.
4. Transmission Engineering must be consulted for clearances to transmission conductors, as sags may change significantly under extreme operating conditions.

| DESIGNER                                                                                       | RECOMMENDED                                                                                       | APPROVED                                                                                          |
|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <br>R. YANG | <br>C. PICASSI | <br>F. DEHNERT |

ORIGINAL ISSUE DATE: SEPTEMBER 1985

**CLEARANCES  
OVER RAILWAY CROSSINGS**

# Vertical Separation Between Power Conductors and Communication Lines Attached to Same Pole

ES43 B1-13

## Application

This standard provides the vertical separation required between conductors and communication lines attached to the same pole.

## Revision Notes

Added *Application*, *Revision Notes*, and *References* sections. Edited Table 1 column headings for clarity, to more closely match CSA 22.3 Table 23. Deleted “with WP covering” and changed 2 mm to 75 mm in note 4a. Added note 5. Added reference to ES43 C2-02 to note 6. Changed content is marked by green vertical revision lines in the left margin. This revision released concurrently with Standards and Equipment Advisory Information Bulletin 2023-037 *Revised ES43 B1-13 Distance Between Supply and Communication Conductors*.

## References

### BC Hydro Distribution Standards

|            |                                                                                                        |
|------------|--------------------------------------------------------------------------------------------------------|
| ES43 C2-01 | Spacing and Separation Wire Spacing on Joint Use Pole Below the Neutral                                |
| ES43 C2-02 | Spacing and Separation In-Span Separation Between Secondary/Neutral Conductors and Communication Wires |
| ES43 G3-10 | Single-Phase Flat Tangent                                                                              |
| ES43 G3-11 | Single-Phase Flat Angle 5° - 45°                                                                       |
| ES43 G3-12 | Single-Phase Flat Dead-End                                                                             |
| ES43 G3-13 | Single-Phase Flat Double Dead-End                                                                      |

### External Documents

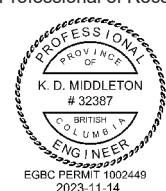
CSA 22.3 No.1 Overhead systems

## Notes

**Table 1** – Minimum vertical separation (all voltages are phase to ground)

| Between                                              | Minimum vertical separation for power conductor voltages |                    |
|------------------------------------------------------|----------------------------------------------------------|--------------------|
|                                                      | 0 V to 750 V                                             | 751 V to 22 kV     |
| Power conductors and communication lines at the pole | 1.0 m (see note 2)                                       | 1.2 m (see note 3) |

1. Table 1 spacings at the pole conform with CSA C22.3 No.1, Table 23 *Minimum vertical separations at a joint-use structure*, but may in some cases be less than the framing dimensions shown in the ES43 standards. Standard framing dimensions, if larger, supersede the spacings in Table 1.

|                                    |                                                                                     |                                                                                     |                                                                                                                   |               |
|------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|---------------|
| Designed:<br>A. Kehoe              |  |  | Vertical Separation Between Power Conductors and Communication Lines Attached to Same Pole                        |               |
| Checked:<br>K. Middleton, P. Eng   |  |                                                                                     | DISTRIBUTION<br>STANDARDS<br> | ES43 B1-13 R4 |
| Reviewed:<br>K. Middleton, P. Eng  |  |                                                                                     |                                                                                                                   |               |
| Approved:<br>H. Giesbrecht, P. Eng |  |                                                                                     |                                                                                                                   |               |

2. Separation for communication service drops at the pole may be reduced to 0.6 m (see ES43 C2-01).
3. A multi-grounded neutral is considered to be 0 to 750 volts. See ES43 G3-10, 11, 12, and 13 for single-phase flat construction communication spacing.
4. Per CSA C22.3 No.1, Table 24 *Minimum in-span vertical clearances between supply and communication conductors*, minimum in-span vertical clearances between supply and communications conductors are measured from the line of sight of the highest communication wire or cable as follows:
  - a. 0 V to 750 V: 75 mm
  - b. 751 V to 15 kV: 300 mm
  - c. 15 kV to 22 kV: 380 mm
5. Conductors are considered bare even when covered by weatherproof coverings, as coverings can fail before the end of the conductor's lifespan.
6. The neutral for spans over 75 m may sag below the line-of-sight of the communication attachments, but not lower than 300 mm above the communication line in the span (per ES43 C2-02 and CSA C22.3 No.1, clause 5.10.3.3).

### Application

This standard provides minimum separations required from flammable dielectric-filled equipment (transformers) to buildings.

### Revision Notes

New standard, released concurrently with Standards and Equipment Advisory Information Bulletin 2025-054  
*Released ES43 B1-14 and K6-04 and Revised ES43 K6-03.*

### References

#### BC Hydro Distribution Standards

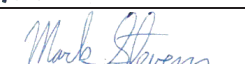
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|----------------|------------------------------------------------------------|
| ES43 B1-15.01  | Minimum Clearances Buildings and Street Lights             |
| ES43 B1-15.02  | Canadian Electrical Code Clearance Requirements            |
| ES43 section J | Transformers, Regulators, Capacitors, and Revenue Metering |
| ES43 K3-06     | Cutout-Mounted Current-Limiting Dropout Fuse Selection     |
| ES43 K6-04     | Current-Limiting Dropout Fuses for Overhead Transformers   |
| ES43 Y1-06     | Conductor Swing for Horizontal Design Clearance            |
| ES55 B3-03     | Conductor Swing for Horizontal Design Clearance            |

#### External Documents

|                |                  |
|----------------|------------------|
| CSA 22.3 No. 1 | Overhead systems |
|----------------|------------------|

### Notes

1. Separations meet or exceed CSA C22.3 No.1 clause 5.7.6.2 and Table 12 where applicable.
2. Table 1 separations are from the transformer edge to building combustible material, windows and doors that open, and ventilation inlets and outlets.
3. Table 2 separation is from the transformer edge to the outermost building projection (balconies, fire escapes, and other permanent fixtures).
4. Separation shall be the shortest line-of-sight distance for parts of the building above the equipment and the horizontal distance to parts of the building below the equipment (see Table 1 and Figure 1).
5. Transformers equipped with a pressure relief device (standard on current BC Hydro stock) and protected by a current-limiting fuse (see ES43 K6-03 and K6-04) may be installed with reduced separations per Table 2.
6. Vertical dimensions in Table 2 are taken from the bottom of the transformer.
7. Normally inaccessible areas are those where the building near the equipment is not readily accessible to persons unless special means for access are used.
8. Required transformer clearances shall be considered in addition to the primary and secondary clearances specified in ES43 B1-15.

|                                   |                                                                                     |                                                                                     |                                                                                                                           |                      |
|-----------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|----------------------|
| Designed:<br>K. Middleton, P.Eng  |  |  | <h2>Minimum Separation from Flammable Dielectric-Filled Equipment to Buildings</h2>                                       |                      |
| Checked:<br>K. Middleton, P.Eng   |  |                                                                                     |                                                                                                                           |                      |
| Reviewed:<br>M. Stevens, P.Eng    |  |                                                                                     |                                                                                                                           |                      |
| Approved:<br>H. Giesbrecht, P.Eng |  | Issued: 2025-11-05<br>Effective: 2025-11-05                                         | <b>DISTRIBUTION<br/>STANDARDS</b><br> | <b>ES43 B1-14 R0</b> |



9. Where practicable, clearances greater than the minimum specified values should be provided for enhanced safety of persons in or on buildings, workers maintaining street lights, and fire fighters.
10. Table 1 and Figure 1 show the minimum separation required between a BC Hydro transformer and a building without a current-limiting fuse.
11. Table 2 and Figure 2 show the minimum separation required between a BC Hydro transformer with a pressure relief device and a building with a current-limiting fuse, and for building parts not listed in Table 1.

Table 1 – Transformer separation from building without current-limiting fuse

| Building part                                          | Minimum separation from building part (m)                                             |                                                                           |
|--------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
|                                                        | Shortest line-of-sight distance to building parts above equipment level (dimension A) | Horizontal distance to building parts below equipment level (dimension B) |
| Combustible building surface                           | 3                                                                                     | 3                                                                         |
| Door or window that opens, ventilation inlet or outlet | 6                                                                                     | 6                                                                         |

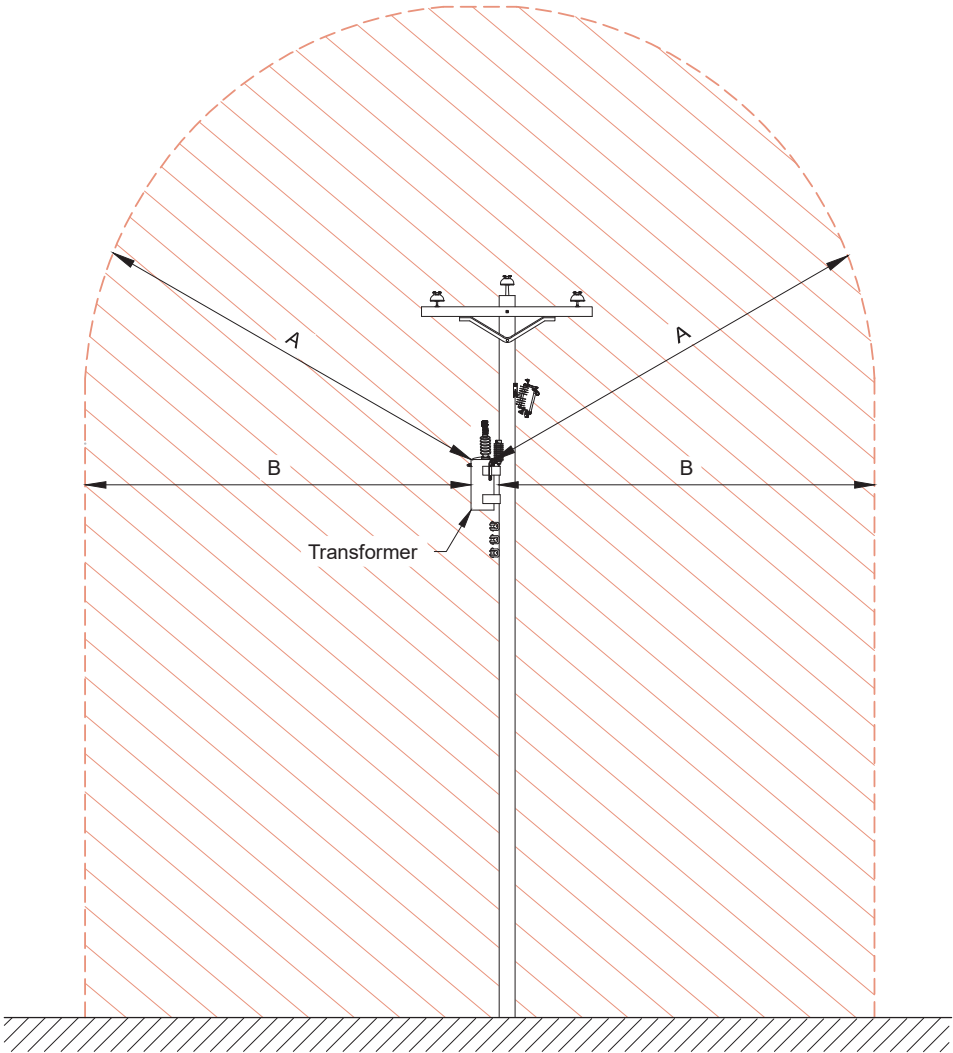


Figure 1 – Transformer separation from building

Table 2 – Separations for transformers with current-limiting fuse and non-combustible buildings (see note 8)

| Condition                                                                                                                                             | Horizontal separation from building (m) |                         | Vertical separation from building (m) |                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-------------------------|---------------------------------------|-----------------------------------------|
|                                                                                                                                                       | Normally inaccessible area              | Readily accessible area | Area accessible to pedestrians only   | Area likely to be travelled by vehicles |
|                                                                                                                                                       | Dimension C (see note 3)                |                         | Dimension D (see note 6)              |                                         |
| Building parts not listed in Table 1, and all building parts where transformers with current-limiting fuses and pressure relief devices are installed | 1.5                                     | 2.0                     | 3.0                                   | 4.4                                     |

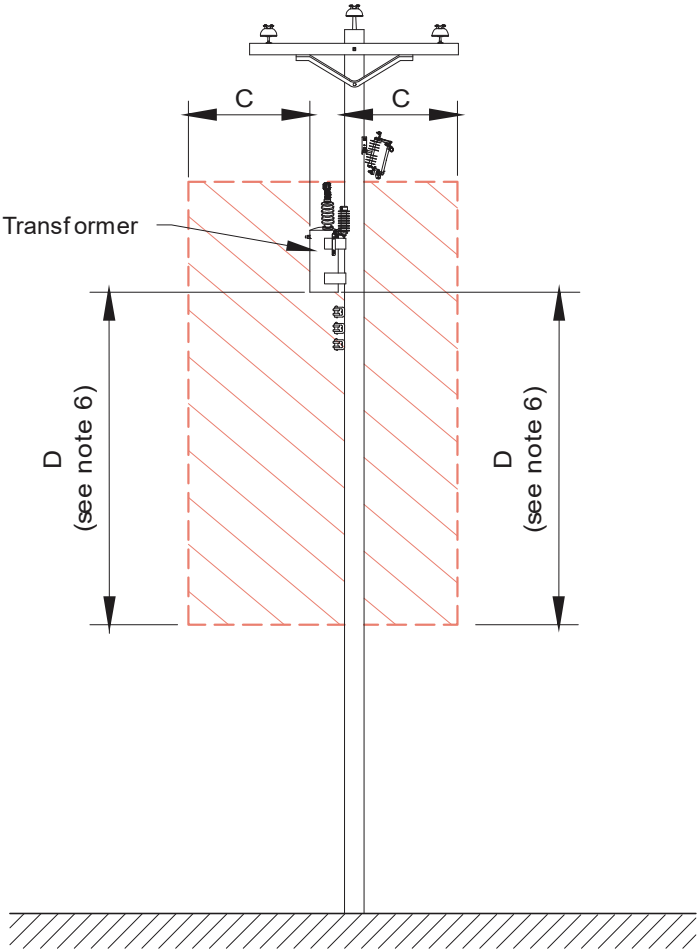


Figure 2 – Transformer with current-limiting fuse separation from building (see note 8)

# Minimum Clearance for Conductors to Buildings, Signs, Billboards, Lamp and Traffic Sign Standards, and Similar Plant

**ES43 B1-15**

## Application

This standard provided horizontal and vertical clearance requirements between BC Hydro distribution lines and buildings, signs, billboards, lamp and traffic structures, and similar plant.

## Revision Notes

Entire standard revised to align with WorkSafeBC requirements and CSA C22.3 No. 1. Changes are not marked with revision lines as the entire contents of the standard have changed. This revision released concurrently with Standards and Equipment Advisory Information Bulletin 2026-007 *Revised ES43 B1-03 and B1-15 Overhead Conductor and Wire Clearance Standards*.

## References

### BC Hydro Distribution Standards

|                |                                                                            |
|----------------|----------------------------------------------------------------------------|
| ES43 B1-03     | Vertical Design Clearances of Wires and Conductors Above Ground            |
| ES43 B1-14     | Minimum Separation from Flammable Dielectric-Filled Equipment to Buildings |
| ES43 section F | Conductors and Connectors                                                  |
| ES43 Y1-06     | Conductor Swing for Horizontal Design Clearance                            |
| ES55 B3-03     | Conductor Swing for Horizontal Design Clearance                            |
| ES55 B3-05     | Conductor and Equipment Clearance and Separation to Structures             |

### Other BC Hydro Documents

BC Hydro's guide to utility clearance requirements

### External Documents

BC Occupational Health and Safety Regulation Part 19      Electrical Safety  
CSA C22.3 No.1    Overhead systems

## Notes

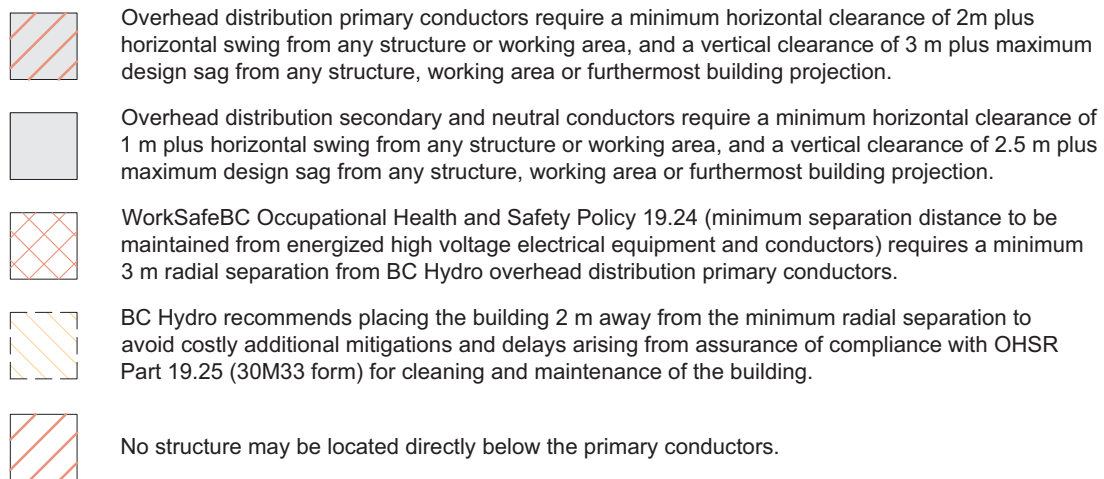
1. This standard provides the minimum distances to maintain around three-phase and single-phase overhead distribution lines for buildings and building additions being constructed in the vicinity of existing overhead distribution lines, per CSA C22.3 No.1 Table 9 *Minimum design clearances from wires and conductors not attached to buildings, signs, and similar plant*, and applicable occupational health and safety regulations.
2. Clearances apply to all points on the wire or conductor and all points on the building, including balconies, fire escapes, antennas, and their supporting structures, and other permanent fixtures.
3. Conductors over 1000 V shall not pass over buildings.
4. Guy wires, communications cables, and drop wires shall not be allowed to rub against buildings or other plant.
5. Clearances meet or exceed CSA C22.3 No.1 clause 5.7.3 and Table 9 where applicable.

|                                    |                                                                                     |                                                                                     |                                                                                                                               |               |
|------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|---------------|
| Designed:<br>K. Middleton, P. Eng  |  |  | Minimum Clearance for Conductors<br>to Buildings, Signs, Billboards, Lamp<br>and Traffic Sign Standards,<br>and Similar Plant |               |
| Checked:<br>K. Middleton, P. Eng   |  |                                                                                     |                                                                                                                               |               |
| Reviewed:<br>V. Batinovic, P. Eng  |  |                                                                                     | DISTRIBUTION<br>STANDARDS<br>             | ES43 B1-15 R4 |
| Approved:<br>H. Giesbrecht, P. Eng |  |                                                                                     |                                                                                                                               |               |
|                                    |                                                                                     | Issued: 2026-02-18<br>Effective: 2026-02-18                                         |                                                                                                                               |               |

6. Clearances greater than the minimum specified values should be provided where practicable for enhanced safety to persons in or on buildings, workers maintaining streetlights, and fire fighters.
7. WorkSafeBC requirements for working close to exposed electrical equipment and conductors are covered in Occupational Health and Safety Regulation (OHSR) Part 19 *Electrical Safety*. WorkSafeBC regulations specify a working clearance of 3 m shall be maintained by any worker, tool, machine, equipment, or material. BC Hydro recommends an additional 2 m be added to allow for building maintenance work without requiring additional measures to make the line safe (e.g. 30M33). See ES55 B3-05.
8. Clearances over or adjacent to portions of a building normally traversed by persons or vehicles (e.g. balconies) are specified in ES43 B1-03.

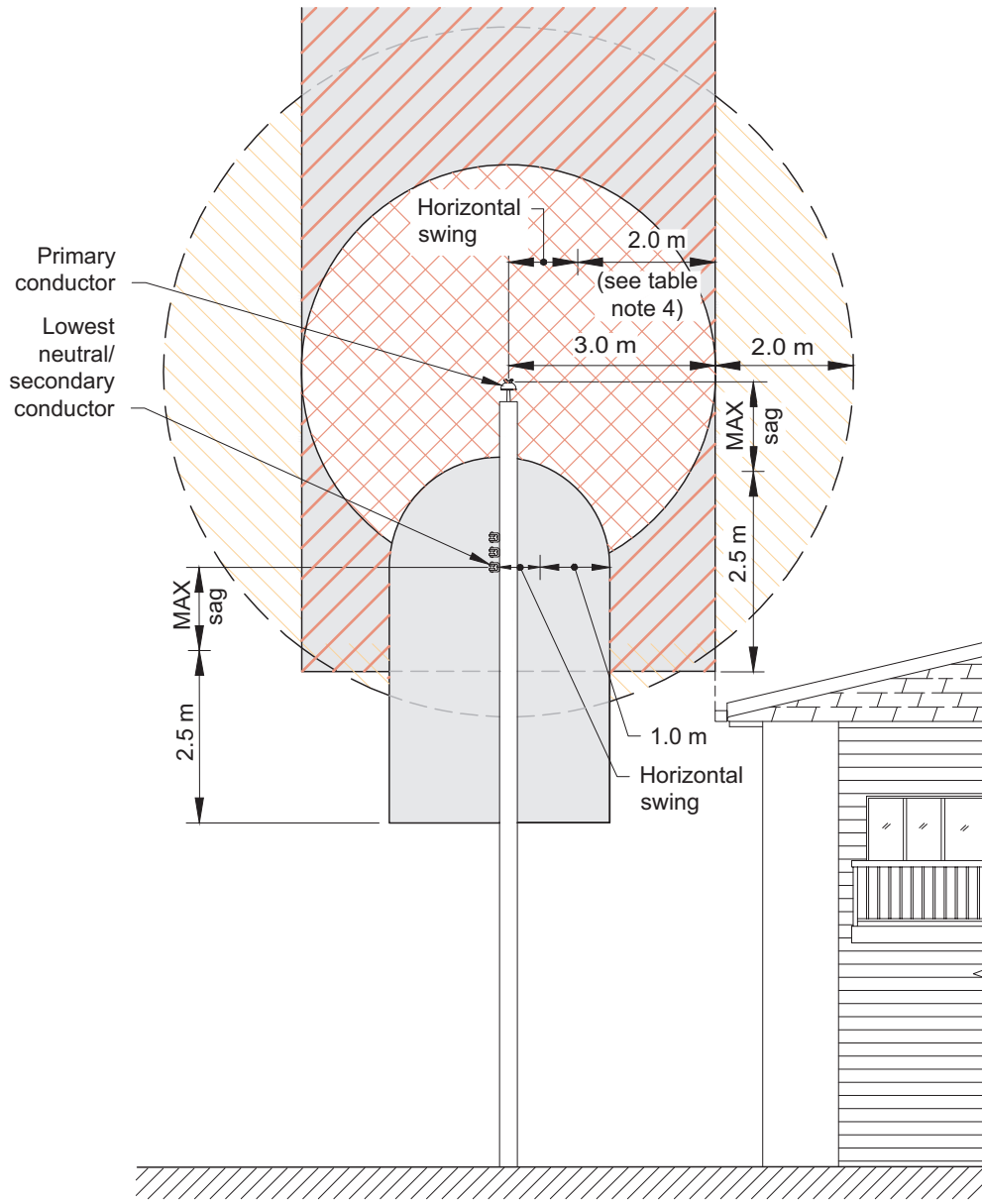
**Table 1** – Clearance and separation for conductors to buildings, signs, billboards, lamp, and traffic standards

| Phase-to-ground voltage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Building surface (Figures 1 and 2) (m) |                       | Signs, billboards, lamp, and traffic standards (see Figure 3) (m) |                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------|-------------------------------------------------------------------|---------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Horizontal <sup>1</sup>                | Vertical <sup>2</sup> | A (horizontal) <sup>1, 3</sup>                                    | B (vertical) <sup>2</sup> |
| 0 to 1000 V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1.0                                    | 2.5 <sup>5</sup>      | 1.0                                                               | 0.5                       |
| 1 to 22 kV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2.0 <sup>4</sup>                       | 3.0                   | 3.0                                                               | 2.5                       |
| <p>Table notes:</p> <ol style="list-style-type: none"> <li>1. Horizontal clearance shall apply when the conductor or wire is in a position of swing as determined by ES43 Y1-06 and ES55 B3-03. Conductor swing shall be added to the horizontal clearance specified.</li> <li>2. Vertical clearances for conductors or wires shall apply under conditions of maximum wire or conductor sag. Maximum wire or conductor sag shall be added to the vertical clearance specified.</li> <li>3. Allowance shall be made for the swing of a sign or similar plant.</li> <li>4. May be reduced to 1.5 m where the building does not have fire escapes, balconies, and windows that can be opened adjacent to the conductor (see note 7)</li> <li>5. May be reduced to 1.0 m where portions of the building or above-ground pipeline are considered normally inaccessible</li> </ol> |                                        |                       |                                                                   |                           |



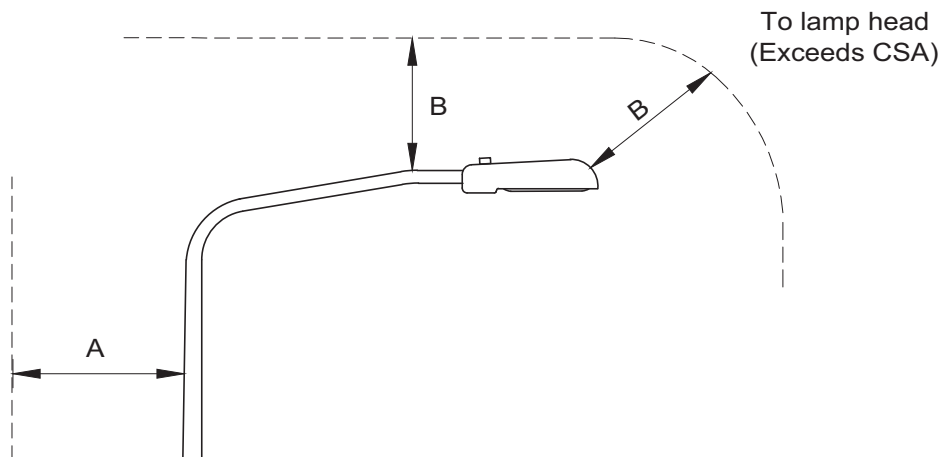
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-  Overhead distribution primary conductors require a minimum horizontal clearance of 2m plus horizontal swing from any structure or working area, and a vertical clearance of 3 m plus maximum design sag from any structure, working area or furthestmost building projection.
-  Overhead distribution secondary and neutral conductors require a minimum horizontal clearance of 1 m plus horizontal swing from any structure or working area, and a vertical clearance of 2.5 m plus maximum design sag from any structure, working area or furthestmost building projection.
-  WorkSafeBC Occupational Health and Safety Policy 19.24 (minimum separation distance to be maintained from energized high voltage electrical equipment and conductors) requires a minimum 3 m radial separation from BC Hydro overhead distribution primary conductors.
-  BC Hydro recommends placing the building 2 m away from the minimum radial separation to avoid costly additional mitigations and delays arising from assurance of compliance with OHSR Part 19.25 (30M33 form) for cleaning and maintenance of the building.

**Figure 2 – Single-phase conductor to building horizontal and vertical clearance**



**Figure 3** – Conductor to streetlight clearance

## Application

This standard provides the vertical separation required between conductors carried on separate supports.

## Revision Notes

Added *Application*, *Revision Notes*, and *References* sections. Updated transmission engineering standard reference in note 4. Added note 6. Changed content is marked by green vertical revision lines in the left margin. This revision released concurrently with Standards and Equipment Advisory Information Bulletin 2023-023 *Revised ES43 B1-14 and ES55 B3-06 Vertical Separation of Conductors on Separate Supports*.

## References

### Other BC Hydro Documents

ES41 K 1.1 Electrical Clearances for Overhead Transmission Lines

### External Documents

CSA 22.3 No.1 Overhead systems

## Notes

1. Obtain agreement from Transmission Engineering before distribution lines are designed or constructed, or clearances are altered beneath transmission lines, as sags may change significantly under extreme operating conditions. Obtain transmission line elevations at maximum sag from Transmission Engineering, as normal survey methods will not determine maximum sag conditions.
2. These minimum separations meet or exceed CSA C22.3 No.1, Table 13, and apply when the top conductors are at maximum sag.
3. A multigrounded neutral is less than 750 volts.
4. Minimum separations to conductors above 25 kV meet or exceed ES41 K 1.1, Table 3.
5. Increase clearance to meet the specified clearance in the de-wired position if the trolley pick-up arm is not prevented from de-wiring.
6. Attach BC Hydro and telecommunications plant to a common pole at crossing locations when practicable when installing new or modifying existing telecommunications cable or BC Hydro conductors.

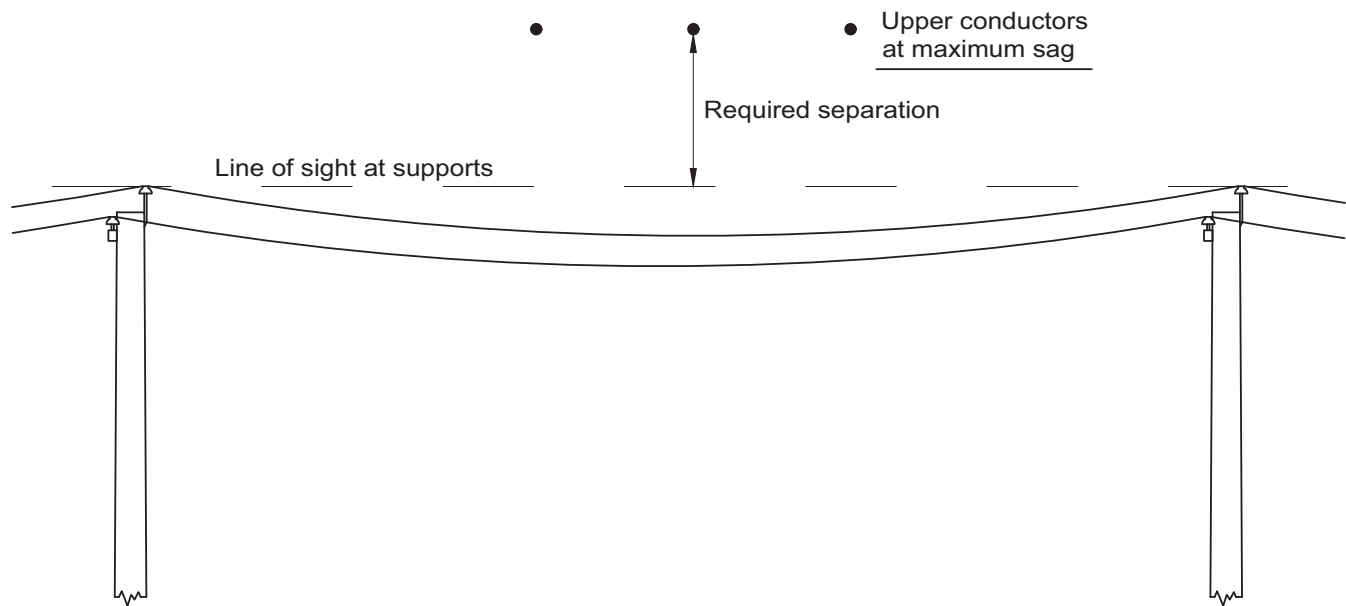
|                                    |                                                                                     |                                                                                     |                                                                                                                   |               |
|------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|---------------|
| Designed:<br>K. Middleton, P. Eng  |  |  | Vertical Separation Between<br>Conductors Carried on<br>Separate Supports                                         |               |
| Checked:<br>K. Middleton, P. Eng   |  |                                                                                     |                                                                                                                   |               |
| Reviewed:<br>H. Giesbrecht, P. Eng |  |                                                                                     | DISTRIBUTION<br>STANDARDS<br> | ES43 B1-16 R4 |
| Approved:<br>H. Giesbrecht, P. Eng |  |                                                                                     |                                                                                                                   |               |
|                                    |                                                                                     | Issued: 2023-07-07<br>Effective: 2023-07-07                                         |                                                                                                                   |               |

# Vertical Separation Between Conductors Carried on Separate Supports

ES43 B1-16

**Table 1** – Required vertical separation between conductors

| Conductors and span guys at lower level (phase to ground) | Conductors at upper level (phase to phase) (m) |       |                     |        |        |        |        |        |
|-----------------------------------------------------------|------------------------------------------------|-------|---------------------|--------|--------|--------|--------|--------|
|                                                           | 750 V                                          | 25 kV | (see Notes 1 and 4) |        |        |        |        |        |
|                                                           |                                                |       | 60 kV               | 138 kV | 230 kV | 287 kV | 360 kV | 500 kV |
| Communication                                             | 0.3                                            | 2.1   | 2.1                 | 2.1    | 2.6    | 3.1    | 3.5    | 4.2    |
| Span guys                                                 | 0.2                                            | 0.5   | 1.4                 | 2.0    | 2.6    | 3.1    | 3.5    | 4.2    |
| 0 V to 750 V AC                                           | 0.3                                            | 0.5   | 1.4                 | 2.0    | 2.6    | 3.1    | 3.5    | 4.2    |
| 751 V to 22 kV AC                                         | –                                              | 0.6   | 1.4                 | 2.0    | 2.6    | 3.1    | 3.5    | 4.2    |
| Trolley 0 V to 750 V DC (see Note 5)                      | 0.6                                            | 0.9   | 1.4                 | 2.0    | 2.6    | 3.1    | 3.5    | 4.2    |



**Figure 1** – Vertical separation