

EXCEPTION 2: Clearances in Rule 231A may be reduced by agreement with the local fire authority and the pole owner.

B. From streets, roads, and highways

1. Where there are curbs: supporting structures, support arms, anchor guys, or equipment attached thereto, up to 4.6 m (15 ft) above the road surface shall be located a sufficient distance from the street side of the curbs to avoid contact by ordinary vehicles using and located on the traveled way. For a redirection curb, such distance shall be not less than 150 mm (6 in). For paved or concrete swale-type curbs, such facilities shall be located behind the curb.
2. Where there are no curbs, supporting structures should be located a sufficient distance from the roadway to avoid contact by ordinary vehicles using and located on the traveled way.
3. Location of overhead utility installations on roads, streets, or highways with narrow rights-of-way or closely abutting improvements are special cases that must be resolved in a manner consistent with the prevailing limitations and conditions.
4. Where a governmental authority exercising jurisdiction over structure location has issued a permit for, or otherwise approved, specific locations for supporting structures, that permit or approval shall govern.

C. From railroad tracks

Where railroad tracks are parallel to or crossed by overhead lines, all portions of the supporting structures, support arms, anchor guys, and equipment attached thereto less than 6.7 m (22 ft) above the nearest track rail shall have horizontal clearances not less than the values required by Rule 231C1 or 231C2 for the situation concerned.

NOTE: See Rule 234I.

1. Not less than 3.6 m (12 ft) from the nearest track rail.
 - EXCEPTION 1:** A clearance of not less than 2.13 m (7 ft) may be allowed where the supporting structure is not the controlling obstruction, provided sufficient space for a driveway is left where cars are loaded or unloaded.
 - EXCEPTION 2:** Supports for overhead trolley-contact conductors may be located as near their own track rail as conditions require. If very close, however, permanent screens on cars will be necessary to protect passengers.
 - EXCEPTION 3:** Where necessary to provide safe operating conditions that require an uninterrupted view of signals, signs, etc., along tracks, the parties concerned shall cooperate in locating structures to provide the necessary clearance.
 - EXCEPTION 4:** At industrial sidings, a clearance of not less than 2.13 m (7 ft) shall be permitted, provided sufficient space is left where cars can be loaded or unloaded.
2. The clearances of Rule 231C1 may be reduced by agreement with the railroad(s).

232. Vertical clearances of wires, conductors, cables, and equipment above ground, roadway, rail, or water surfaces

A. Application

The vertical clearances specified in Rule 232B1 apply under the following conductor temperature and loading conditions, whichever produces the largest final sag:

1. 50 °C (120 °F), no wind displacement
2. The maximum conductor temperature for which the line is designed to operate, if greater than 50 °C (120 °F), with no wind displacement
3. 0 °C (32 °F), no wind displacement, with radial thickness of ice, if any, specified in Table 230-1 for the zone concerned

EXCEPTION: The conductor temperature and loading condition for trolley and electrified railroad contact conductors shall be 15 °C (60 °F), no wind displacement, final unloaded sag, or initial unloaded sag in cases where these facilities are maintained approximately at initial unloaded sags.

STATE OF NEW YORK
DEPT. OF PUBLIC SERVICE
DATE 9/30/09
CASE NO. 06-T-0650
254

NOTE: The phase and neutral conductors of a supply line are normally considered separately when determining the sag of each due to temperature rise.

- B. Clearance of wires, conductors, cables, equipment, and support arms mounted on supporting structures
1. Clearance to wires, conductors, and cables
The vertical clearance of wires, conductors, and cables aboveground in generally accessible places, roadway, rail, or water surfaces, shall be not less than that shown in Table 232-1.
 2. Clearance to unguarded rigid live parts of equipment
The vertical clearance above ground, roadway, or water surfaces for unguarded rigid live parts such as potheads, transformer bushings, surge arresters, and short lengths of supply conductors connected thereto, which are not subject to variation in sag, shall be not less than that shown in Table 232-2. For clearances of drip loops of service drops, see Table 232-1.
 3. Clearance to support arms, switch handles, and equipment cases
The vertical clearance of switch handles, equipment cases, support arms, platforms, and braces that extend beyond the surface of the structure shall be not less than that shown in Table 232-2. These clearances do not apply to internal structural braces for latticed towers, X-braces between poles, and pole-type push braces.
 4. Street and area lighting
 - a. The vertical clearance of street and area lighting luminaires shall be not less than that shown in Table 232-2. For this purpose, grounded luminaire cases and brackets shall be considered as effectively grounded equipment cases; ungrounded luminaire cases and brackets shall be considered as a rigid live part of the voltage contained.
EXCEPTION: This rule does not apply to post-top mounted luminaires with grounded or entirely dielectric cases.
 - b. Insulators, as specified in Rule 279A, should be inserted at least 2.45 m (8 ft) from the ground in metallic suspension ropes or chains supporting lighting units of series circuits.
- C. Additional clearances for wires, conductors, cables, and unguarded rigid live parts of equipment
Greater clearances than specified by Rule 232B shall be provided where required by Rule 232C1.
1. Voltages exceeding 22 kV
 - a. For voltages between 22 and 470 kV, the clearance specified in Rule 232B1 (Table 232-1) or Rule 232B2 (Table 232-2) shall be increased at the rate of 10 mm (0.4 in) per kilovolt in excess of 22 kV. For voltages exceeding 470 kV, the clearance shall be determined by the method given in Rule 232D. All clearances for lines over 50 kV shall be based on the maximum operating voltage.
EXCEPTION: For voltages exceeding 98 kV ac to ground or 139 kV dc to ground, clearances less than those required above are permitted for systems with known maximum switching-surge factors (see Rule 232D).
 - b. For voltages exceeding 50 kV, the additional clearance specified in Rule 232C1a shall be increased 3% for each 300 m (1000 ft) in excess of 1000 m (3300 ft) above mean sea level.
 - c. For voltages exceeding 98 kV ac to ground, either the clearances shall be increased or the electric field, or the effects thereof, shall be reduced by other means as required to limit the steady-state current due to electrostatic effects to 5 mA rms if the largest anticipated truck, vehicle, or equipment under the line were short-circuited to ground. The size of the anticipated truck, vehicle, or equipment used to determine these clearances may be less than but need not be greater than that limited by federal, state, or local regulations governing the area under the line. For this determination, the conductors shall be at a final unloaded sag at 50 °C (120 °F).

D. Alternate clearances for voltages exceeding 98 kV ac to ground or 139 kV dc to ground

The clearances specified in Rules 232B and 232C may be reduced for circuits with known switching-surge factors, but shall be not less than the alternate clearance, which is computed by adding the reference height from Rule 232D2 to the electrical component of clearance from Rule 232D3.

1. Sag conditions of line conductors

The vertical clearance shall be maintained under the conductor temperature and loading condition given in Rule 232A.

2. Reference heights

The reference height shall be selected from Table 232-3.

3. Electrical component of clearance

a. The electrical component (D) shall be computed using the following equations. Selected values of D are listed in Table 232-4.

$$D = 1.00 \left[\frac{V \cdot (PU) \cdot a}{500K} \right]^{1.667} bc \quad (\text{m})$$

$$D = 3.28 \left[\frac{V \cdot (PU) \cdot a}{500K} \right]^{1.667} bc \quad (\text{ft})$$

where

V = maximum ac crest operating voltage to ground or maximum dc operating voltage to ground in kilovolts

PU = maximum switching-surge factor expressed in per-unit peak voltage to ground and defined as a switching-surge level for circuit breakers corresponding to 98% probability that the maximum switching surge generated per breaker operation does not exceed this surge level, or the maximum anticipated switching-surge level generated by other means, whichever is greater

a = 1.15, the allowance for three standard deviations

b = 1.03, the allowance for nonstandard atmospheric conditions

c = 1.2, the margin of safety

K = 1.15, the configuration factor for conductor-to-plane gap

b. The value of D shall be increased 3% for each 300 m (1000 ft) in excess of 450 m (1500 ft) above mean sea level.

c. For voltages exceeding 98 kV ac to ground, either the clearances shall be increased or the electric field, or the effects thereof, shall be reduced by other means as required to limit the steady state current due to electrostatic effects to 5 mA, rms, if the largest anticipated truck, vehicle, or equipment under the line were short-circuited to ground. The size of the anticipated truck, vehicle, or equipment used to determine these clearances may be less than but need not be greater than that limited by federal, state, or local regulations governing the area under the line. For this determination, the conductors shall be at a final unloaded sag at 50 °C (120 °F).

4. Limit

The alternate clearance shall be not less than the clearance given in Table 232-1 or 232-2 computed for 98 kV ac to ground in accordance with Rule 232C.

m

**Table 232-1—
Vertical clearance of wires, conductors, and cables above ground,
roadway, rail, or water surfaces[Ⓢ]**

(Voltages are phase to ground for effectively grounded circuits and those other circuits where all ground faults are cleared by promptly de-energizing the faulted section, both initially and following subsequent breaker operations. See the definitions section for voltages of other systems.
See Rules 232B1, 232C1a, and 232D4.)

Nature of surface underneath wires, conductors, or cables	Insulated communication conductors and cable; messengers; overhead shield/surge-protection wires; grounded guys; ungrounded guys exposed to 0 to 300 V [Ⓢ] ; neutral conductors meeting Rule 230E1; supply cables meeting Rule 230C1 (m)	Noninsulated communication conductors; supply cables of 0 to 750 V meeting Rule 230C2 or 230C3 (m)	Supply cables over 750 V meeting Rule 230C2 or 230C3; open supply conductors, 0 to 750 V [Ⓢ] ; ungrounded guys exposed to over 300 V to 750 V [Ⓢ] (m)	Open supply conductors, over 750 V to 22 kV; ungrounded guys exposed to 750 V to 22 kV [Ⓢ] (m)	Trolley and electrified railroad contact conductors and associated span or	
					0 to 750 V to ground (m)	Over 750 V to 22 kV to ground (m)
Where wires, conductors, or cables cross over or overhang						
1. Track rails of railroads (except electrified railroads using overhead trolley conductors) [Ⓢ]	7.2	7.3	7.5	8.1	6.7 [Ⓢ]	6.7 [Ⓢ]
2. Roads, streets, and other areas subject to truck traffic [Ⓢ]	4.7	4.9	5.0	5.6	5.5 [Ⓢ]	6.1 [Ⓢ]
3. Driveways, parking lots, and alleys [Ⓢ]	4.7 [Ⓢ]	4.9 [Ⓢ]	5.0 [Ⓢ]	5.6	5.5 [Ⓢ]	6.1 [Ⓢ]
4. Other land traversed by vehicles, such as cultivated, grazing, forest, orchard, etc. [Ⓢ]	4.7	4.9	5.0	5.6	—	—
5. Spaces and ways subject to pedestrians or restricted traffic only [Ⓢ]	2.9	3.6 [Ⓢ]	3.8 [Ⓢ]	4.4	4.9	5.5
6. Water areas not suitable for sailboating or where sailboating is prohibited [Ⓢ]	4.0	4.4	4.6	5.2	—	—
7. Water areas suitable for sailboating including lakes, ponds, reservoirs, tidal waters, rivers, streams, and canals with an unobstructed surface area of [Ⓢ]						
a. Less than 0.08 km ²	5.3	5.5	5.6	6.2	—	—

m

Table 232-1— (continued)
Vertical clearance of wires, conductors, and cables above ground, roadway, rail, or water surfaces[Ⓞ]

(Voltages are phase to ground for effectively grounded circuits and those other circuits where all ground faults are cleared by promptly de-energizing the faulted section, both initially and following subsequent breaker operations. See the definitions section for voltages of other systems. See Rules 232B1, 232C1a, and 232D4.)

Nature of surface underneath wires, conductors, or cables	Insulated communication conductors and cable; messengers; overhead shield/surge-protection wires; grounded guys; ungrounded guys exposed to 0 to 300 V [Ⓞ] ; neutral conductors meeting Rule 230E1; supply cables meeting Rule 230C1 (m)	Noninsulated communication conductors; supply cables of 0 to 750 V meeting Rule 230C2 or 230C3 (m)	Supply cables over 750 V meeting Rule 230C2 or 230C3; open supply conductors, 0 to 750 V [Ⓞ] ; ungrounded guys exposed to over 300 V [Ⓞ] (m)	Open supply conductors, over 750 V to 22 kV; ungrounded guys exposed to 750 V to 22 kV [Ⓞ] (m)	Trolley and electrified railroad contact conductors and associated span or	
					0 to 750 V to ground (m)	Over 750 V to 22 kV to ground (m)
b. Over 0.08 to 0.8 km ²	7.8	7.9	8.1	8.7	—	—
c. Over 0.8 to 8 km ²	9.6	9.8	9.9	10.5	—	—
d. Over 8 km ²	11.4	11.6	11.7	12.3	—	—
8. Established boat ramps and associated rigging areas; areas posted with sign(s) for rigging or launching sail boats	Clearance aboveground shall be 1.5 m greater than in 7 above, for the type of water areas served by the launching sites					
Where wires, conductors, or cables run along and within the limits of highways or other road rights-of-way but do not overhang the roadway						
9. Roads, streets, or alleys	4.7 [Ⓞ]	4.9	5.0	5.6	5.5 [Ⓞ]	6.1 [Ⓞ]
10. Roads where it is unlikely that vehicles will be crossing under the line	4.1 [Ⓞ]	4.3 [Ⓞ]	4.4 [Ⓞ]	5.0	5.5 [Ⓞ]	6.1 [Ⓞ]

ⓄWhere subways, tunnels, or bridges require it, less clearance above ground or rails than required by Table 232-1 may be used locally. The trolley and electrified railroad contact conductor should be graded very gradually from the regular construction down to the reduced elevation.

ⓄFor wires, conductors, or cables crossing over mine, logging, and similar railways that handle only cars lower than standard freight cars, the clearance may be reduced by an amount equal to the difference in height between the highest loaded car handled and 6.1 m, but the clearance shall not be reduced below that required for street crossings.

ⓄDoes not include neutral conductors meeting Rule 230E1.

ⓄIn communities where 6.4 m has been established, this clearance may be continued if carefully maintained. The elevation of the contact conductor should be the same in the crossing and next adjacent spans. (See Rule 225D2 for conditions that must be met where uniform height above rail is impractical.)

ⓄIn communities where 4.9 m has been established for trolley and electrified railroad contact conductors 0 to 750 V to ground, or 5.5 m for trolley and electrified railroad contact conductors exceeding 750 V, or where local conditions make it impractical to obtain in the clearance given in the table, these reduced clearances may be used if carefully maintained.

ⓄThis footnote not used in this edition.

T-232-1(m)

Part 2: Safety Rules for Overhead Lines

T-232-1(m)

- ① Where the height of a residential building does not permit its service drop(s) to meet these values, the clearances over residential driveways only may be reduced to the following:

	(m)
(a) Insulated supply service drops limited to 300 V to ground	3.8
(b) Insulated drip loops of supply service drops limited to 300 V to ground	3.2
(c) Supply service drops limited to 150 V to ground and meeting Rule 230C1 or 230C3	3.6
(d) Drip loops only of service drops limited to 150 V to ground and meeting Rule 230C1 or 230C3	3.0
(e) Insulated communication service drops	3.5
- ② Where the height of a residential building does not permit its service drop(s) to meet these values, the clearances may be reduced to the following:

	(m)
(a) Insulated supply service drops limited to 300 V to ground	3.2
(b) Insulated drip loops of supply service drops limited to 300 V to ground	3.2
(c) Supply service drops limited to 150 V to ground and meeting Rule 230C1 or 230C3	3.0
(d) Drip loops only of supply service drops limited to 150 V to ground and meeting Rule 230C1 or 230C3	3.0
- ③ Spaces and ways subject to pedestrians or restricted traffic only are those areas where riders on horses or other large animals, vehicles, or other mobile units exceeding a total height of 2.45 m, are prohibited by regulation or permanent terrain configurations, or are otherwise not normally encountered nor reasonably anticipated.
- ④ Where a supply or communication line along a road is located relative to fences, ditches, embankments, etc., so that the ground under the line would not be expected to be traveled except by pedestrians, the clearances may be reduced to the following values:

	(m)
(a) Insulated communication conductor and communication cables	2.9
(b) Conductors of other communication circuits	2.9
(c) Supply cables of any voltage meeting Rule 230C1, supply cables limited to 150 V to ground meeting Rule 230C2 or 230C3, and neutral conductors meeting Rule 230E1	2.9
(d) Insulated supply conductors limited to 300 V to ground	3.8
(e) Guys	2.9
- ⑤ No clearance from ground is required for anchor guys not crossing tracks, rails, streets, driveways, roads, or pathways.
- ⑥ This clearance may be reduced to 4.0 m for communication conductors and guys.
- ⑦ Where this construction crosses over or runs along alleys, driveways, or parking lots not subject to truck traffic this clearance may be reduced to 4.6 m.
- ⑧ Ungrounded guys and ungrounded portions of span guys between guy insulators shall have clearances based on the highest voltage to which they may be exposed due to a slack conductor or guy.
- ⑨ Anchor guys insulated in accordance with Rule 279 may have the same clearance as grounded guys.
- ⑩ Adjacent to tunnels and overhead bridges that restrict the height of loaded rail cars to less than 6.1 m, these clearances may be reduced by the difference between the highest loaded rail car handled and 6.1 m, if mutually agreed to by the parties at interest.
- ⑪ For controlled impoundments, the surface area and corresponding clearances shall be based upon the design high-water level.
- ⑫ For uncontrolled water flow areas, the surface area shall be that enclosed by its annual high-water mark. Clearances shall be based on the normal flood level; if available, the 10-year flood level may be assumed as the normal flood level.
- ⑬ The clearance over rivers, streams, and canals shall be based upon the largest surface area of any 1.6 km-long segment that includes the crossing. The clearance over a canal, river, or stream normally used to provide access for sailboats to a larger body of water shall be the same as that required for the larger body of water.
- ⑭ Where an overwater obstruction restricts vessel height to less than the applicable reference height given in Table 232-3, the required clearance may be reduced by the difference between the reference height and the overwater obstruction height, except that the reduced clearance shall be not less than that required for the surface area on the line-crossing side of the obstruction.
- ⑮ Where the US Army Corps of Engineers, or the state, or surrogate thereof has issued a crossing permit, clearances of that permit shall govern.
- ⑯ See Rule 234I for the required horizontal and diagonal clearances to rail cars.
- ⑰ For the purpose of this rule, trucks are defined as any vehicle exceeding 2.45 m in height. Areas not subject to truck traffic are areas where truck traffic is not normally encountered nor reasonably anticipated.
- ⑱ Communication cables and conductors may have a clearance of 4.6 m where poles are back of curbs or other deterrents to vehicular traffic.
- ⑲ The clearance values shown in this table are computed by adding the applicable Mechanical and Electrical (M & E) value of Table A-1 to the applicable Reference Component of Table A-2a of Appendix A.
- ⑳ When designing a line to accommodate oversized vehicles, these clearance values shall be increased by the difference between the known height of the oversized vehicle and 4.3 m.

ft

**Table 232-1—
Vertical clearance of wires, conductors, and cables above ground,
roadway, rail, or water surfaces[Ⓢ]**

(Voltages are phase to ground for effectively grounded circuits and those other circuits where all ground faults are cleared by promptly de-energizing the faulted section, both initially and following subsequent breaker operations. See the definitions section for voltages of other systems.

See Rules 232B1, 232C1a, and 232D4.)

Nature of surface underneath wires, conductors, or cables	Insulated communication conductors and cable; messengers; overhead shield/surge-protection wires; grounded guys; ungrounded guys exposed to 0 to 300 V [Ⓢ] ; neutral conductors meeting Rule 230E1; supply cables meeting Rule 230C1 (ft)	Noninsulated communication conductors; supply cables of 0 to 750 V meeting Rule 230C2 or 230C3 (ft)	Supply cables over 750 V meeting Rule 230C2 or 230C3; open supply conductors, 0 to 750 V [Ⓢ] ; ungrounded guys exposed to over 300 V to 750 V [Ⓢ] (ft)	Open supply conductors, over 750 V to 22 kV; ungrounded guys exposed to 750 V to 22 kV [Ⓢ] (ft)	Trolley and electrified railroad contact conductors and associated span or messenger wires	
					0 to 750 V to ground (ft)	Over 750 V to 22 kV to ground (ft)
Where wires, conductors, or cables cross over or overhang						
1. Track rails of railroads (except electrified railroads using overhead trolley conductors) [Ⓢ] ① ② ③	23.5	24.0	24.5	26.5	22.0 [Ⓢ]	22.0 [Ⓢ]
2. Roads, streets, and other areas subject to truck traffic [Ⓢ]	15.5	16.0	16.5	18.5	18.0 [Ⓢ]	20.0 [Ⓢ]
3. Driveways, parking lots, and alleys [Ⓢ]	15.5 [Ⓢ] ①	16.0 [Ⓢ] ①	16.5 [Ⓢ]	18.5	18.0 [Ⓢ]	20.0 [Ⓢ]
4. Other land traversed by vehicles, such as cultivated, grazing, forest, orchards, etc. [Ⓢ]	15.5	16.0	16.5	18.5	—	—
5. Spaces and ways subject to pedestrians or restricted traffic only [Ⓢ]	9.5	12.0 [Ⓢ]	12.5 [Ⓢ]	14.5	16.0	18.0
6. Water areas not suitable for sailboating or where sailboating is prohibited [Ⓢ]	14.0	14.5	15.0	17.0	—	—
7. Water areas suitable for sailboating including lakes, ponds, reservoirs, tidal waters, rivers, streams, and canals with an unobstructed surface area of [Ⓢ] ① ② ③ ④ ⑤						

ft

Table 232-1— (continued)
Vertical clearance of wires, conductors, and cables above ground, roadway, rail, or water surfaces[®]

(Voltages are phase to ground for effectively grounded circuits and those other circuits where all ground faults are cleared by promptly de-energizing the faulted section, both initially and following subsequent breaker operations. See the definitions section for voltages of other systems.
See Rules 232B1, 232C1a, and 232D4.)

Nature of surface underneath wires, conductors, or cables	Insulated communication conductors and cable; messengers; overhead shield/surge-protection wires; grounded guys; ungrounded guys exposed to 0 to 300 V [ⓐ] [ⓑ] ; neutral conductors meeting Rule 230E1; supply cables meeting Rule 230C1 (ft)	Noninsulated communication conductors; supply cables of 0 to 750 V meeting Rule 230C2 or 230C3 (ft)	Supply cables over 750 V meeting Rule 230C2 or 230C3; open supply conductors, 0 to 750 V [ⓐ] ; ungrounded guys exposed to over 300 V to 750 V [ⓑ] (ft)	Open supply conductors, over 750 V to 22 kV; ungrounded guys exposed to 750 V to 22 kV [ⓐ] (ft)	Trolley and electrified railroad contact conductors and associated span or messenger wires	
					0 to 750 V to ground (ft)	Over 750 V to 22 kV to ground (ft)
a. Less than 20 acres	17.5	18.0	18.5	20.5	—	—
b. Over 20 to 200 acres	25.5	26.0	26.5	28.5	—	—
c. Over 200 to 2000 acres	31.5	32.0	32.5	34.5	—	—
d. Over 2000 acres	37.5	38.0	38.5	40.5	—	—
8. Established boat ramps and associated rigging areas; areas posted with sign(s) for rigging or launching sail boats	Clearance aboveground shall be 5 ft greater than in 7 above, for the type of water areas served by the launching site.					
Where wires, conductors, or cables run along and within the limits of highways or other road rights-of-way but do not overhang the roadway						
9. Roads, streets, or alleys	15.5 [ⓐ]	16.0	16.5	18.5	18.0 [ⓐ]	20.0 [ⓐ]
10. Roads where it is unlikely that vehicles will be crossing under the line	13.5 [ⓐ] [ⓑ]	14.0 [ⓐ]	14.5 [ⓐ]	16.5	18.0 [ⓐ]	20.0 [ⓐ]

- ⓐWhere subways, tunnels, or bridges require it, less clearance above ground or rails than required by Table 232-1 may be used locally. The trolley and electrified railroad contact conductor should be graded very gradually from the regular construction down to the reduced elevation.
- ⓑFor wires, conductors, or cables crossing over mine, logging, and similar railways that handle only cars lower than standard freight cars, the clearance may be reduced by an amount equal to the difference in height between the highest loaded car handled and 20 ft, but the clearance shall not be reduced below that required for street crossings.
- ⓒDoes not include neutral conductors meeting Rule 230E1.
- ⓓIn communities where 21 ft has been established, this clearance may be continued if carefully maintained. The elevation of the contact conductor should be the same in the crossing and next adjacent spans. (See Rule 225D2 for conditions that must be met where uniform height above rail is impractical.)
- ⓔIn communities where 16 ft has been established for trolley and electrified railroad contact conductors 0 to 750 V to ground, or 18 ft for trolley and electrified railroad contact conductors exceeding 750 V, or where local conditions make it impractical to obtain the clearance given in the table, these reduced clearances may be used if carefully maintained.
- ⓕThis footnote not used in this edition.

①Where the height of a residential building does not permit its service drop(s) to meet these values, the clearances over residential driveways only may be reduced to the following:

	(ft)
(a) Insulated supply service drops limited to 300 V to ground	12.5
(b) Insulated drip loops of supply service drops limited to 300 V to ground	10.5
(c) Supply service drops limited to 150 V to ground and meeting Rule 230C1 or 230C3	12.0
(d) Drip loops only of service drops limited to 150 V to ground and meeting Rule 230C1 or 230C3	10.0
(e) Insulated communication service drops	11.5

①Where the height of a residential building does not permit its service drop(s) to meet these values, the clearances may be reduced to the following:

	(ft)
(a) Insulated supply service drops limited to 300 V to ground	10.5
(b) Insulated drip loops of supply service drops limited to 300 V to ground	10.5
(c) Supply service drops limited to 150 V to ground and meeting Rule 230C1 or 230C3	10.0
(d) Drip loops only of supply service drops limited to 150 V to ground and meeting Rule 230C1 or 230C3	10.0

①Spaces and ways subject to pedestrians or restricted traffic only are those areas where riders on horses or other large animals, vehicles, or other mobile units exceeding a total height of 8 ft are prohibited by regulation or permanent terrain configurations, or are otherwise not normally encountered nor reasonably anticipated.

①Where a supply or communication line along a road is located relative to fences, ditches, embankments, etc., so that the ground under the line would not be expected to be traveled except by pedestrians, the clearances may be reduced to the following values:

	(ft)
(a) Insulated communication conductor and communication cables.	9.5
(b) Conductors of other communication circuits	9.5
(c) Supply cables of any voltage meeting Rule 230C1, supply cables limited to 150 V to ground meeting Rule 230C2 or 230C3, and neutral conductors meeting Rule 230E1	9.5
(d) Insulated supply conductors limited to 300 V to ground	12.5
(e) Guys	9.5

①No clearance from ground is required for anchor guys not crossing tracks, rails, streets, driveways, roads, or pathways.

①This clearance may be reduced to 13 ft for communication conductors and guys.

①Where this construction crosses over or runs along alleys, driveways, or parking lots not subject to truck traffic this clearance may be reduced to 15 ft.

①Ungrounded guys and ungrounded portions of span guys between guy insulators shall have clearances based on the highest voltage to which they may be exposed due to a slack conductor or guy.

①Anchor guys insulated in accordance with Rule 279 may have the same clearance as grounded guys.

①Adjacent to tunnels and overhead bridges that restrict the height of loaded rail cars to less than 20 ft, these clearances may be reduced by the difference between the highest loaded rail car handled and 20 ft, if mutually agreed to by the parties at interest.

①For controlled impoundments, the surface area and corresponding clearances shall be based upon the design high-water level.

①For uncontrolled water flow areas, the surface area shall be that enclosed by its annual high-water mark. Clearances shall be based on the normal flood level; if available, the 10-year flood level may be assumed as the normal flood level.

①The clearance over rivers, streams, and canals shall be based upon the largest surface area of any 1-mi-long segment that includes the crossing. The clearance over a canal, river, or stream normally used to provide access for sailboats to a larger body of water shall be the same as that required for the larger body of water.

①Where an overwater obstruction restricts vessel height to less than the applicable reference height given in Table 232-3, the required clearance may be reduced by the difference between the reference height and the overwater obstruction height, except that the reduced clearance shall be not less than that required for the surface area on the line-crossing side of the obstruction.

①Where the US Army Corps of Engineers, or the state, or surrogate thereof has issued a crossing permit, clearances of that permit shall govern.

①See Rule 234I for the required horizontal and diagonal clearances to rail cars.

①For the purpose of this rule, trucks are defined as any vehicle exceeding 8 ft in height. Areas not subject to truck traffic are areas where truck traffic is not normally encountered nor reasonably anticipated.

①Communication cables and conductors may have a clearance of 15 ft where poles are back of curbs or other deterrents to vehicular traffic.

①The clearance values shown in this table are computed by adding the applicable Mechanical and Electrical (M & E) value of Table A-1 to the applicable Reference Component of Table A-2a of Appendix A.

①When designing a line to accommodate oversized vehicles, these clearance values shall be increased by the difference between the known height of the oversized vehicle and 14 ft.

255