

TABLE 310.21 Ampacities of Bare or Covered Conductors in Free Air

Copper Conductors				AAC Aluminum Conductors			
Bare		Covered		Bare		Covered	
AWG or kcmil	Amperes	AWG or kcmil	Amperes	AWG or kcmil	Amperes	AWG or kcmil	Amperes
8	98	8	103	8	76	8	80
6	124	6	130	6	96	6	101
4	155	4	163	4	121	4	127
2	209	2	219	2	163	2	171
1/0	282	1/0	297	1/0	220	1/0	231
2/0	329	2/0	344	2/0	255	2/0	268
3/0	382	3/0	401	3/0	297	3/0	312
4/0	444	4/0	466	4/0	346	4/0	364
250	494	250	519	266.8	403	266.8	423
300	556	300	584	336.4	468	336.4	492
500	773	500	812	397.5	522	397.5	548
750	1000	750	1050	477.0	588	477.0	617
1000	1193	1000	1253	556.5	650	556.5	682
—	—	—	—	636.0	709	636.0	744
—	—	—	—	795.0	819	795.0	860
—	—	—	—	954.0	920	—	—
—	—	—	—	1033.5	968	1033.5	1017
—	—	—	—	1272	1103	1272	1201
—	—	—	—	1590	1267	1590	1381
—	—	—	—	2000	1454	2000	1527

Note: Section 310.21 shall be referenced for conditions of use.

## ARTICLE

## 312

## Cabinets, Cutout Boxes, and Meter Socket Enclosures

local electric utility on such requirements helps identify suitable equipment for an installation.

## Part I. General

**312.1 Scope.** This article covers the installation and construction specifications of cabinets, cutout boxes, and meter socket enclosures. It does not apply to equipment operating at over 1000 volts, except as specifically referenced elsewhere in the Code.

Cabinets and cutout boxes are designed with a swinging door(s) to enclose potential transformers, current transformers, switches, overcurrent devices, meters, or control equipment. Cabinets and cutout boxes are required to be of sufficient size to accommodate all devices and conductors without overcrowding or jamming. Additional space is often provided through auxiliary gutters (see Article 366).

## See also

Article 100 for definitions of the terms *cabinet* and *cutout box*

The serving electric utility often has equipment specifications or service requirements beyond the NEC® for meter sockets, metering cabinets, and metering compartments within switchgear, switchboards, and panelboards. Consulting with the

**Δ 312.2 Damp or Wet Locations.** In damp or wet locations, surface-type enclosures within the scope of this article shall be placed or equipped so as to prevent moisture or water from entering and accumulating within the cabinet or cutout box, and shall be mounted so there is at least 6-mm (¼-in.) airspace between the enclosure and the wall or other supporting surface. Enclosures installed in wet locations shall be weatherproof. For enclosures in wet locations, raceways or cables entering above the level of uninsulated live parts shall use fittings listed for wet locations.

*Exception: Nonmetallic enclosures shall be permitted to be installed without the airspace on a concrete, masonry, tile, or similar surface.*

Informational Note: See 300.6 for protection against corrosion.

**312.3 Position in Wall.** In walls of concrete, tile, or other noncombustible material, cabinets shall be installed so that the front edge of the cabinet is not set back of the finished surface more than 6 mm (¼ in.). In walls constructed of wood or other combustible material, cabinets shall be flush with the finished surface or project therefrom.

**312.4 Repairing Noncombustible Surfaces.** Noncombustible surfaces that are broken or incomplete shall



be repaired so there will be no gaps or open spaces greater than 3 mm (1/8 in.) at the edge of the cabinet or cutout box employing a flush-type cover.

The repair of noncombustible surfaces is not limited to plaster or drywall types of construction. This requirement for cabinets and cutout boxes is similar to the outlet box requirement found in 314.21.

**312.5 Cabinets, Cutout Boxes, and Meter Socket Enclosures.** Cable assemblies and insulated conductors entering enclosures within the scope of this article shall be protected from abrasion and shall comply with 312.5(A) through (C).

**(A) Openings to Be Closed.** Openings through which conductors enter shall be closed in an approved manner.

**(B) Metal Cabinets, Cutout Boxes, and Meter Socket Enclosures.** Where metal enclosures within the scope of this article are installed with messenger-supported wiring, open wiring on insulators, or concealed knob-and-tube wiring, conductors shall enter through insulating bushings or, in dry locations, through flexible tubing extending from the last insulating support and firmly secured to the enclosure.

**Δ (C) Cables.** Where cable is used, each cable shall be secured to the cabinet, cutout box, or meter socket enclosure.

The installation of several cables bunched together and run through a knockout or chase nipple is prohibited. Individual cable clamps or connectors are required to be used with only one cable per clamp or connector unless the clamp or connector is identified for more than a single cable.

*Exception No. 1: Cables with entirely nonmetallic sheaths shall be permitted to enter the top of a surface-mounted enclosure through one or more nonflexible raceways not less than 450 mm (18 in.) and not more than 3.0 m (10 ft) in length, provided all of the following conditions are met:*

- (1) Each cable is fastened within 300 mm (12 in.), measured along the sheath, of the outer end of the raceway.
- (2) The raceway extends directly above the enclosure and does not penetrate a structural ceiling.
- (3) A fitting is provided on each end of the raceway to protect the cable(s) from abrasion and the fittings remain accessible after installation.
- (4) The raceway is sealed or plugged at the outer end using approved means so as to prevent access to the enclosure through the raceway.
- (5) The cable sheath is continuous through the raceway and extends into the enclosure beyond the fitting not less than 6 mm (1/4 in.).
- (6) The raceway is fastened at its outer end and at other points in accordance with the applicable article.
- (7) Where installed as conduit or tubing, the cable fill does not exceed the amount that would be permitted for complete

conduit or tubing systems by Table 1 of Chapter 9 of this Code and all applicable notes thereto. Note 2 to the tables in Chapter 9 does not apply to this condition.

Informational Note: See Chapter 9, Table 1, including Note 9, for allowable cable fill in circular raceways. See 310.15(C)(1) for required ampacity reductions for multiple cables installed in a common raceway.

*Exception No. 2: Single conductors and multiconductor cables shall be permitted to enter enclosures in accordance with 392.46(A) or (B).*

This exception correlates with 392.46(A) and (B), which permit single or multiconductor cables entering an enclosure. The term *multiconductor cables* has been added to coordinate with the common practice of transitioning from cable trays with Type TC and Type TC-ER cables. This clarifies and correlates the permitted methods for individual conductors and cables to transition and enter equipment from cable trays.

**312.6 Deflection of Conductors.** Conductors at terminals or conductors entering or leaving cabinets, cutout boxes, and meter socket enclosures shall comply with 312.6(A) through (C).

*Exception: Wire-bending space in enclosures for motor controllers with provisions for one or two wires per terminal shall comply with 430.10(B).*

**(A) Width of Wiring Gutters.** Conductors shall not be deflected within a cabinet or cutout box unless a gutter having a width in accordance with Table 312.6(A) is provided. Conductors in parallel in accordance with 310.10(G) shall be judged on the basis of the number of conductors in parallel.

If Table 312.6(A) is used, bending space is measured in the direction in which the wire leaves the terminal.

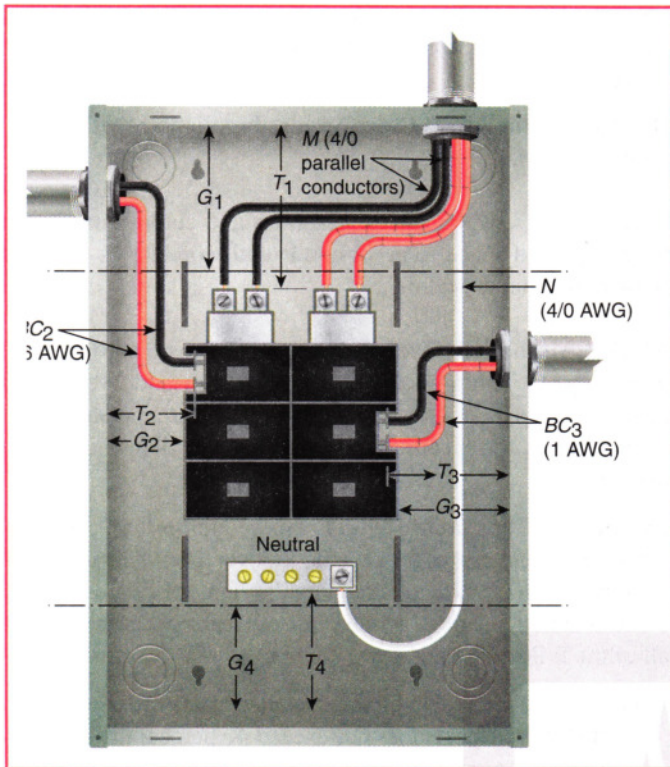
Exhibit 312.1 illustrates the requirements of wiring gutter widths as specified in 312.6(A) and Table 312.6(A). The table determines the following required gutter widths, where G stands for the dimension of the gutter, M stands for the main conductors, and BC stands for the branch-circuit conductors:

- Gutter width  $G_1$  is required to be 6 inches based on conductors M, which are parallel 4/0 conductors.
- Gutter width  $G_2$  is required to be 1½ inches based on conductors  $BC_2$ , which are 6 AWG.
- Gutter width  $G_3$  is required to be 3 inches based on conductors  $BC_3$ , which are 1 AWG.
- Gutter width  $G_4$  is required to be 4 inches, based on conductor N, which is 4/0 AWG.

As a practical matter, the available gutter space on either side is likely to be equal. Therefore, the allowable space determined for  $G_3$  would typically apply to  $G_2$  as well.

**(B) Wire-Bending Space at Terminals.** Wire-bending space at each terminal shall be provided in accordance with 312.6(B)(1) or (B)(2).





**EXHIBIT 312.1** Table 312.6(A) and Table 312.6(B) applied to gutter and wire-bending space within enclosures.

**(1) Conductors Not Entering or Leaving Opposite Wall.** Table 312.6(A) shall apply where the conductor does not enter or leave the enclosure through the wall opposite its terminal.

**(2) Conductors Entering or Leaving Opposite Wall.** Table 312.6(B)(2) shall apply where the conductor does enter or leave the enclosure through the wall opposite its terminal.

*Exception No. 1:* Where the distance between the wall and its terminal is in accordance with Table 312.6(A), a conductor shall be permitted to enter or leave an enclosure through the wall opposite its terminal, provided the conductor enters or leaves the enclosure where the gutter joins an adjacent gutter that has a width that conforms to Table 312.6(B)(2) for the conductor.

*Exception No. 2:* A conductor not larger than 350 kcmil shall be permitted to enter or leave an enclosure containing only a meter socket(s) through the wall opposite its terminal, provided the distance between the terminal and the opposite wall is not less than that specified in Table 312.6(A) and the terminal is a lay-in type or removable lug with integral mounting tang, where the terminal is either of the following:

- (1) Directed toward the opening in the enclosure and within a 45-degree angle of directly facing the enclosure wall
- (2) Directly facing the enclosure wall and offset not greater than 50 percent of the bending space specified in Table 312.6(A)

**Informational Note:** Offset is the distance measured along the enclosure wall from the axis of the centerline of the terminal to a line passing through the center of the opening in the enclosure.

**TABLE 312.6(A)** Minimum Wire-Bending Space at Terminals and Minimum Width of Wiring Gutters

Wire Size (AWG or kcmil)		Wires per Terminal									
All Other Conductors	Compact Stranded AA-8000 Aluminum Alloy Conductors (see Note 2)	1		2		3		4		5	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
14–10	12–8	Not specified		—	—	—	—	—	—	—	—
8–6	6–4	38.1	1½	—	—	—	—	—	—	—	—
4–3	2–1	50.8	2	—	—	—	—	—	—	—	—
2	1/0	63.5	2½	—	—	—	—	—	—	—	—
1	2/0	76.2	3	—	—	—	—	—	—	—	—
1/0–2/0	3/0–4/0	88.9	3½	127	5	178	7	—	—	—	—
3/0–4/0	250–300	102	4	152	6	203	8	—	—	—	—
250	350	114	4½	152	6	203	8	254	10	—	—
300–350	400–500	127	5	203	8	254	10	305	12	—	—
400–500	600–750	152	6	203	8	254	10	305	12	356	14
600–700	800–1000	203	8	254	10	305	12	356	14	406	16
750–900	—	203	8	305	12	356	14	406	16	457	18
1000–1250	—	254	10	—	—	—	—	—	—	—	—
1500–2000	—	305	12	—	—	—	—	—	—	—	—

**Notes:**

1. Bending space at terminals shall be measured in a straight line from the end of the lug or wire connector (in the direction that the wire leaves the terminal) to the wall, barrier, or obstruction.
2. This column shall be permitted to be used to determine the minimum wire-bending space for compact stranded aluminum conductors in sizes up to 1000 kcmil and manufactured using AA-8000 series electrical grade aluminum alloy conductor material in accordance with 310.3(B). The minimum width of the wire gutter space shall be determined using the all other conductors value in this table.



Section 312.6(B)(2) and Table 312.6(B) provide the requirements for wire-bending space where straight-in wiring or offset is employed at terminals. Table 312.6(A) is used when the conductors do not enter or leave the wall opposite their terminal.

If Table 312.6(A) is used, bending space is measured in the direction in which the wire leaves the terminal. If Table 312.6(B) is used, it is measured in a direction perpendicular to the enclosure wall.

Exhibit 312.1 applies the rules of 312.6(B)(1), 312.6(B)(2), and Tables 312.6(A) and 312.6(B). The tables determine the following required gutter widths, where  $T$  stands for the wire-bending space,  $M$  stands for the main conductors,  $N$  is the neutral conductor, and  $BC$  stands for the branch-circuit conductors:

- $T_1$  is required to be  $7\frac{1}{2}$  inches based on conductors  $M$ , which are parallel 4/0 conductors.
- $T_2$  is required to be  $1\frac{1}{2}$  inches based on conductors  $BC_2$ , which are 6 AWG.
- $T_3$  is required to be  $4\frac{1}{2}$  inches, based on conductors  $BC_3$ , which are 1 AWG.
- $T_4$  is required to be 7 inches, based on conductor  $N$ , which is 4/0 AWG.

Table 312.6(B), Note 2, permits a reduction in required bending space for removable and lay-in wire terminals. The removable terminal wire connectors can be either the compression type or the set-screw type. However, connectors are required to be of the type intended for a single conductor (single barrel). Removable connectors designed for multiple wires are not permitted to have a reduction in bending space.

A lay-in wire terminal is a pressure wire connector in which part of the connector is removable or swings away so that the stripped end of the conductor can be laid into the fixed portion of the connector. The removable or swing-away portion is then put back in place and the connector tightened down on the conductor.

Exhibit 312.2 illustrates the conditions under which 312.6(B)(2), Exception No. 2, is applicable. The terminal on the left has an offset not greater than 50 percent of bending space, per

condition (2) of Exception No. 2. The terminal on the right is within a 45-degree angle of the enclosure, per condition (1) of Exception No. 2.

**(C) Conductors 4 AWG or Larger.** Installation shall comply with 300.4(G).

**312.7 Space in Enclosures.** Cabinets and cutout boxes shall have approved space to accommodate all conductors installed in them without crowding.

**312.8 Switch and Overcurrent Device Enclosures.** The wiring space within enclosures for switches and overcurrent devices shall be permitted for other wiring and equipment subject to limitations for specific equipment as provided in 312.8(A) and (B).

**(A) Splices, Taps, and Feed-Through Conductors.** The wiring space of enclosures for switches or overcurrent devices shall be permitted for conductors feeding through, spliced, or tapping off to other enclosures, switches, or overcurrent devices where all of the following conditions are met:

- (1) The total of all conductors installed at any cross section of the wiring space does not exceed 40 percent of the cross-sectional area of that space.
- (2) The total area of all conductors, splices, and taps installed at any cross section of the wiring space does not exceed 75 percent of the cross-sectional area of that space.
- (3) The bending space for conductors 4 AWG and larger complies with 314.28(A)(2).
- (4) A warning label complying with 110.21(B) is applied to the enclosure that identifies the closest disconnecting means for any feed-through conductors.

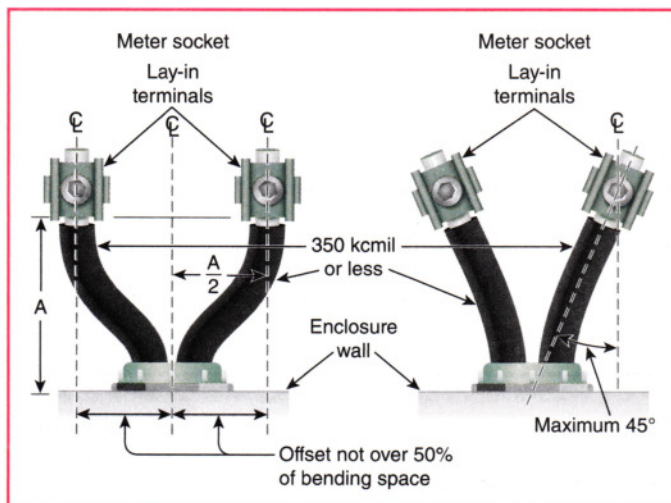
The following application example shows a volume calculation used for splices, taps, or feed-through conductors.

#### Application Example

An enclosure having a wiring space of 4 in. wide by 3 in. deep has a 12 in.<sup>2</sup> cross-sectional area. Thus, the total conductor fill (see Chapter 9, Table 5, for dimensions of conductors) at any cross section cannot exceed 4.8 in.<sup>2</sup> (40 percent of 12 in.<sup>2</sup>), and the maximum space for conductors and splices or taps at any cross section cannot exceed 9 in.<sup>2</sup> (75 percent of 12 in.<sup>2</sup>).

**(B) Power Monitoring or Energy Management Equipment.** The wiring space of enclosures for switches or overcurrent devices shall be permitted to contain power monitoring or energy management equipment in accordance with 312.8(B)(1) through (B)(3).

Many new devices are used for power monitoring that are intended to be installed in enclosures containing panelboards, which are often not supplied by the panelboard manufacturer.



**EXHIBIT 312.2** Wiring in a meter socket with lay-in wire terminals.



TABLE 312.6(B)(2) Minimum Wire-Bending Space at Terminals

Wire Size (AWG or kcmil)		Wires per Terminal							
All Other Conductors	Compact Stranded AA-8000 Aluminum Alloy Conductors (See Note 3.)	1		2		3		4 or More	
		mm	in.	mm	in.	mm	in.	mm	in.
14–10	12–8	Not specified		—	—	—	—	—	—
8	6	38.1	1½	—	—	—	—	—	—
6	4	50.8	2	—	—	—	—	—	—
4	2	76.2	3	—	—	—	—	—	—
3	1	76.2	3	—	—	—	—	—	—
2	1/0	88.9	3½	—	—	—	—	—	—
1	2/0	114	4½	—	—	—	—	—	—
1/0	3/0	140	5½	140	5½	178	7	—	—
2/0	4/0	152	6	152	6	190	7½	—	—
3/0	250	165 <sup>a</sup>	6½ <sup>a</sup>	165 <sup>a</sup>	6½ <sup>a</sup>	203	8	—	—
4/0	300	178 <sup>b</sup>	7 <sup>b</sup>	190 <sup>c</sup>	7½ <sup>c</sup>	216 <sup>a</sup>	8½ <sup>a</sup>	—	—
250	350	216 <sup>d</sup>	8½ <sup>d</sup>	216 <sup>d</sup>	8½ <sup>d</sup>	229 <sup>b</sup>	9 <sup>b</sup>	254	10
300	400	254 <sup>e</sup>	10 <sup>e</sup>	254 <sup>d</sup>	10 <sup>d</sup>	279 <sup>b</sup>	11 <sup>b</sup>	305	12
350	500	305 <sup>e</sup>	12 <sup>e</sup>	305 <sup>e</sup>	12 <sup>e</sup>	330 <sup>e</sup>	13 <sup>e</sup>	356 <sup>d</sup>	14 <sup>d</sup>
400	600	330 <sup>e</sup>	13 <sup>e</sup>	330 <sup>e</sup>	13 <sup>e</sup>	356 <sup>e</sup>	14 <sup>e</sup>	381 <sup>e</sup>	15 <sup>e</sup>
500	700–750	356 <sup>e</sup>	14 <sup>e</sup>	356 <sup>e</sup>	14 <sup>e</sup>	381 <sup>e</sup>	15 <sup>e</sup>	406 <sup>e</sup>	16 <sup>e</sup>
600	800–900	381 <sup>e</sup>	15 <sup>e</sup>	406 <sup>e</sup>	16 <sup>e</sup>	457 <sup>e</sup>	18 <sup>e</sup>	483 <sup>e</sup>	19 <sup>e</sup>
700	1000	406 <sup>e</sup>	16 <sup>e</sup>	457 <sup>e</sup>	18 <sup>e</sup>	508 <sup>e</sup>	20 <sup>e</sup>	559 <sup>e</sup>	22 <sup>e</sup>
750	—	432 <sup>e</sup>	17 <sup>e</sup>	483 <sup>e</sup>	19 <sup>e</sup>	559 <sup>e</sup>	22 <sup>e</sup>	610 <sup>e</sup>	24 <sup>e</sup>
800	—	457	18	508	20	559	22	610	24
900	—	483	19	559	22	610	24	610	24
1000	—	508	20	—	—	—	—	—	—
1250	—	559	22	—	—	—	—	—	—
1500	—	610	24	—	—	—	—	—	—
1750	—	610	24	—	—	—	—	—	—
2000	—	610	24	—	—	—	—	—	—

## Notes:

- Bending space at terminals shall be measured in a straight line from the end of the lug or wire connector in a direction perpendicular to the enclosure wall.
- For removable and lay-in wire terminals intended for only one wire, bending space shall be permitted to be reduced by the following number of millimeters (inches):

<sup>a</sup>12.7 mm (½ in.)<sup>b</sup>25.4 mm (1 in.)<sup>c</sup>38.1 mm (1½ in.)<sup>d</sup>50.8 mm (2 in.)<sup>e</sup>76.2 mm (3 in.)

- This column shall be permitted to determine the required wire-bending space for compact stranded aluminum conductors in sizes up to 1000 kcmil and manufactured using AA-8000 series electrical grade aluminum alloy conductor material in accordance with 310.3(B).

Much of this equipment is used for load monitoring and energy management. This section provides requirements used to determine if the addition of devices or equipment is acceptable. The inclusion of devices and equipment in a wiring space is limited to those that are identified as field installable accessories as part of the listed equipment or as a listed kit evaluated for field installation in the specific equipment.

**(1) Identification.** Power monitoring or energy management equipment shall either be identified as a field installable accessory as part of the listed equipment or be a listed kit evaluated for field installation in switch or overcurrent device enclosures.

**(2) Area.** The total area of all conductors, splices, taps, and equipment at any cross section of the wiring space shall not exceed 75 percent of the cross-sectional area of that space.

**(3) Conductors.** Conductors used exclusively for control or instrumentation circuits shall comply with either 312.8(B)(3) (a) or (B)(3)(b).

(a) Conductors shall comply with 724.49.

(b) Conductors smaller than 18 AWG, but not smaller than 22 AWG for a single conductor and 26 AWG for a multiconductor cable, shall be permitted to be used where the conductors and cable assemblies meet all of the following conditions:



- (1) Are enclosed within raceways or routed along one or more walls of the enclosure and secured at intervals that do not exceed 250 mm (10 in.)
- (2) Are secured within 250 mm (10 in.) of terminations
- (3) Are secured to prevent contact with current carrying components within the enclosure
- (4) Are rated for the system voltage and not less than 600 volts
- (5) Have a minimum insulation temperature rating of 90°C

**312.9 Side or Back Wiring Spaces or Gutters.** Cabinets and cutout boxes shall be provided with back-wiring spaces, gutters, or wiring compartments as required by 312.101(C) and (D).

**N 312.10 Screws or Other Fasteners.** Screws or other fasteners installed in the field that enter wiring spaces shall be as provided by or specified by the manufacturer or shall comply with the following as applicable:

- (1) Screws shall be machine type with blunt ends.
- (2) Other fasteners shall have blunt ends.
- (3) Screws or other fasteners shall extend into the enclosure no more than 6 mm (¼ in.) unless the end is protected with an approved means.

*Exception to (3): Screws or other fasteners shall be permitted to extend into the enclosure not more than 11 mm (7/16 in.) if located within 10 mm (3/8 in.) of an enclosure wall.*

## Part II. Construction Specifications

**312.100 Material.** Cabinets, cutout boxes, and meter socket enclosures shall comply with 312.100(A) through (C).

**(A) Metal Cabinets and Cutout Boxes.** Metal enclosures within the scope of this article shall be protected both inside and outside against corrosion.

**(B) Strength.** The design and construction of enclosures within the scope of this article shall be such as to secure ample strength and rigidity. If constructed of sheet steel, the metal thickness shall not be less than 1.35 mm (0.053 in.) uncoated.

**(C) Nonmetallic Cabinets.** Nonmetallic cabinets shall be listed, or they shall be submitted for approval prior to installation.

**312.101 Spacing.** The spacing within cabinets and cutout boxes shall comply with 312.101(A) through (D).

**(A) General.** Spacing within cabinets and cutout boxes shall provide approved spacing for the distribution of wires and cables placed in them and for a separation between metal parts of devices and apparatus mounted within them in accordance with 312.101(A)(1), (A)(2), and (A)(3).

**(1) Base.** Other than at points of support, there shall be an airspace of at least 1.59 mm (0.0625 in.) between the base of the

device and the wall of any metal cabinet or cutout box in which the device is mounted.

**(2) Doors.** There shall be an airspace of at least 25.4 mm (1.00 in.) between any live metal part, including live metal parts of enclosed fuses, and the door.

*Exception: Where the door is lined with an approved insulating material or is of a thickness of metal not less than 2.36 mm (0.093 in.) uncoated, the airspace shall not be less than 12.7 mm (0.500 in.).*

**(3) Live Parts.** There shall be an airspace of at least 12.7 mm (0.500 in.) between the walls, back, gutter partition, if of metal, or door of any cabinet or cutout box and the nearest exposed current-carrying part of devices mounted within the cabinet where the voltage does not exceed 250. This spacing shall be increased to at least 25.4 mm (1.00 in.) for voltages of 251 to 1000, nominal.

*Exception: Where the conditions in 312.101(A)(2), Exception, are met, the airspace for nominal voltages from 251 to 600 shall be permitted to be not less than 12.7 mm (0.500 in.).*

**(B) Switch Clearance.** Cabinets and cutout boxes shall be deep enough to allow the closing of the doors when 30-ampere branch-circuit panelboard switches are in any position, when combination cutout switches are in any position, or when other single-throw switches are opened as far as their construction permits.

**(C) Wiring Space.** Cabinets and cutout boxes that contain devices or apparatus connected within the cabinet or box to more than eight conductors, including those of branch circuits, meter loops, feeder circuits, power circuits, and similar circuits, but not including the supply circuit or a continuation thereof, shall have back-wiring spaces or one or more side-wiring spaces, side gutters, or wiring compartments.

**(D) Wiring Space — Enclosure.** Side-wiring spaces, side gutters, or side-wiring compartments of cabinets and cutout boxes shall be made tight enclosures by means of covers, barriers, or partitions extending from the bases of the devices contained in the cabinet, to the door, frame, or sides of the cabinet.

*Exception: Side-wiring spaces, side gutters, and side-wiring compartments of cabinets shall not be required to be made tight enclosures where those side spaces contain only conductors that enter the cabinet directly opposite to the devices where they terminate.*

Partially enclosed back-wiring spaces shall be provided with covers to complete the enclosure. Wiring spaces that are required by 312.101(C) and are exposed when doors are open shall be provided with covers to complete the enclosure. Where space is provided for feed-through conductors and for splices as required in 312.8, additional barriers shall not be required.

**N 312.102 Doors or Covers.** Cabinets, cutout boxes, and meter socket enclosures shall be equipped with doors or covers.