AL9CU. Numbers 7 and 9 identify the temperature ratings of 75°C and 90°C, respectively, for these terminations.

Copper-clad aluminum conductors are manufactured so that copper forms a minimum of 10 percent of the cross-sectional area of a solid conductor or of each strand of a stranded conductor.

(C) Stranded Conductors. Where installed in raceways, conductors 8 AWG and larger shall be stranded, unless specifically permitted or required elsewhere in this *Code* to be solid.

Large-size conductors are required to be stranded for greater flexibility. This requirement does not apply to conductors outside of raceways, such as busbars and the conductors of Type MI metal-sheathed cable. Special applications elsewhere in the *NEC*® may require or permit different requirements for stranded conductors. For example, the bonding conductors of a permanently installed swimming pool are required to be solid copper conductors of 8 AWG or larger, according to 680.26(B).

(D) Insulated. Conductors not specifically permitted elsewhere in this *Code* to be covered or bare shall be insulated.

Informational Note: See 250.184 for insulation of neutral conductors of a solidly grounded high-voltage system.

Part II. Construction Specifications

310.4 Conductor Constructions and Applications. Insulated conductors shall comply with Table 310.4(1) and Table 310.4(2).

Informational Note: Thermoplastic insulation may stiffen at temperatures lower than −10°C (+14°F). Thermoplastic insulation may also be deformed at normal temperatures where subjected to pressure, such as at points of support.

Table 310.4(1) includes conductor applications and maximum operating temperatures for insulations rated 600 volts. Some conductors with dual ratings are listed for dry, damp, and wet locations. Type XHHW is rated 90°C for dry and damp locations and 75°C for wet locations; Type THW is rated 75°C for dry and wet locations and 90°C for special applications within electric-discharge lighting equipment. Types RHW-2, XHHW-2, and other types identified by the suffix "2" are rated 90°C for dry and wet locations.

Additional detailed wire classification information for sizes 14 AWG through 2000 kcmil is available in standards and directories such as those published by Underwriters Laboratories Inc.

Δ ***TABLE 310.4(1)*** *Conductor Applications and Insulations Rated 600 Volts*

Trade Name	Type Letter	Maximum Operating Temperature	Application Provisions	Insulation	Thickness of Insulation					Outer Covering[1]
					AWG or kcmil	mm		mils		
Fluorinated ethylene propylene	FEP or FEPB	90°C (194°F)	Dry and damp locations	Fluorinated ethylene propylene	14–10	0.51		20		None
					8–2	0.76		30		
		200°C (392°F)	Dry locations — special applications[2]	Fluorinated ethylene propylene	14–8	0.36		14		Glass braid
					6–2	0.36		14		Glass or other suitable braid material
Mineral insulation (metal sheathed)	MI	90°C (194°F) 250°C (482°F)	Dry and wet locations	Magnesium oxide	18–16[3]	0.58		23		Copper or alloy steel
			For special applications[2]		16–10	0.91		36		
					9–4	1.27		50		
					3–500	1.40		55		
Moisture-, heat-, and oil-resistant thermoplastic	MTW	60°C (140°F)	Machine tool wiring in wet locations	Flame-retardant, moisture-, heat-, and oil-resistant thermoplastic		(A)	(B)	(A)	(B)	(A) None (B) Nylon jacket or equivalent
		90°C (194°F)	Machine tool wiring in dry locations.		22–12	0.76	0.38	30	15	
					10	0.76	0.51	30	20	
					8	1.14	0.76	45	30	
			Informational Note: See NFPA 79-2021, *Electrical Standard for Industrial Machinery*.		6	1.52	0.76	60	30	
					4–2	1.52	1.02	60	40	
					1–4/0	2.03	1.27	80	50	
					213–500	2.41	1.52	95	60	
					501–1000	2.79	1.78	110	70	
Paper		85°C (185°F)	For underground service conductors, or by special permission	Paper						Lead sheath

(continues)