

NON RESIDENTIAL LOADS

BASED ON THE 2023 NEC

	L1	L2	L3
CALCULATED LOAD (NEC 215.5)	6,740 VA	4,440 VA	4,940 VA
CALCULATED LOAD WITH DEMAND FACTORS (NEC 215.5)			
GENERAL LOAD	0 VA	1,200 VA	0 VA
RECEPTACLE LOAD (NEC TABLE 220.44)			
1ST 10,000W	1,440 VA	1,440 VA	1,440 VA
CONTINUOUS LOAD (NEC 215.2)	1,800 VA	1,800 VA	0 VA
PLUS 25%	450 VA	450 VA	0 VA
MOTOR LOAD (NEC 430.24)	3,500 VA	0 VA	3,500 VA
PLUS 25% OF LARGEST MOTOR	875 VA	0 VA	875 VA
KITCHEN LOADS (NEC 220.56)			
L1 (0 VA X 1) =	0 VA		
L2 (0 VA X 1) =		0 VA	
L3 (0 VA X 1) =			0 VA
TOTAL BALANCED LOAD (3-PHASE)	4,890 VA	4,890 VA	4,890 VA
TOTAL BALANCED LOAD (1-PHASE)	925 VA	0 VA	925 VA
TOTAL UNBALANCED LOAD (1-PHASE)	2,250 VA	0 VA	0 VA
LINE AMPS BALANCED (3-PHASE)	40.7 A	40.7 A	40.7 A
LINE AMPS BALANCED (1-PHASE)	8.9 A	0.0 A	8.9 A
LINE AMPS UNBALANCED (1-PHASE)	18.8 A	0.0 A	0.0 A
NON RESIDENTIAL LOAD	68.4 A	40.7 A	49.6 A

RESIDENTIAL LOADS

BASED ON THE 2002 NEC SECTION 220.32

TOTAL SQ FOOTAGE (4,000 SQ FT X 3 VA) =	12,000 VA
APPLIANCE CIRCUITS (8 X 1,500 VA) =	12,000 VA
LAUNDRY CIRCUITS (4 X 1,500 VA) =	6,000 VA

RANGES (4 ON ANY 2 PHASES) = 32,000 KVA	
PER PHASE DEMAND (32,000 VA ÷ 2) = 16,000 VA	
EQUIVALENT 3-PHASE LOAD (16,000 VA X 3) =	48,000 VA

DRYERS (4 ON ANY 2 PHASES) = 20,000 KVA	
PER PHASE DEMAND (20,000 VA ÷ 2) = 10,000 VA	
EQUIVALENT 3-PHASE LOAD (10,000 VA X 3) =	30,000 VA

WATER HEATER LOAD	10,000 VA
MISC LOADS	4,800 VA
LARGEST HEATING OR COOLING LOAD	16,000 VA
TOTAL CONNECTED LOAD	138,800 VA

CONNECTED AMPS (138,800 VA ÷ 208 V ÷ 1.732) = 385 A

DEMAND FACTOR NEC TABLE 220.84 = 45%

ADJUSTED AMPS (385 A X 0.45) = 173 A

NON-RESIDENTIAL LOAD 68 A

SUBTOTAL 241 A

FUTURE FACTOR (241 A X 0.00) = 0 A

SERVICE SIZE 241 A**PROJECT NAME SAMPLE PROJECT**

NEUTRAL LOAD PER NEC 220.61	
TOTAL SQ FOOTAGE (4,000 SQ FT X 3 VA) =	12,000 VA
APPLIANCE CIRCUITS (8 X 1,500 VA) =	12,000 VA
LAUNDRY CIRCUITS (4 X 1,500 VA) =	6,000 VA
TOTAL CONNECTED NEUTRAL LOAD	30,000 VA
FIRST 3,000 VA @ 100% (3,000 VA X 1.00) =	3,000 VA
3,000-120,000 VA @ 35% (27,000 VA X 0.35) =	9,450 VA
OVER 120,000 VA @ 25% (0 VA X 0.25) =	0 VA
SUBTOTAL	12,450 VA
RANGE DEMAND	
PROHIBITED REDUCTION NEC 220.61(C)(1)	
100% OF TABLE 220.55 (17,000 VA X 1.00) =	17,000 VA
DRYER DEMAND	
PROHIBITED REDUCTION NEC 220.61(C)(1)	
100% OF TABLE 220.54 (20,000 VA 1.00 VA X 1.00) =	20,000 VA
UNBALANCED 120 VOLT MISC. LOADS AT 100%	2,400 VA
NEUTRAL LOAD VA	51,850 VA
NEUTRAL LOAD (51,850 VA ÷ 1.732 ÷ 208 V) =	144 A
NON RESIDENTIAL NEUTRAL LOAD	68 A
NEUTRAL LOAD AMPS	212 A
FURTHER DEMAND FACTOR - NEC 220.61(B)(2)	
FIRST 200 A @ 100% (200 A X 1.00) =	200 A
REMAINDER @ 70% (12 A X 0.70) =	8 A
MINIMUM NEUTRAL CONDUCTOR AMPACITY	208 A