

LOAD CALCULATIONS FOR "PANEL CP1"

BASED ON THE 2023 NEC

NEC 220.61(A)

	L1	L2	L3	NEUTRAL
CALCULATED LOAD (NEC 215.5)	6,740 VA	4,440 VA	4,940 VA	6,740 VA
CALCULATED LOAD WITH DEMAND FACTORS (NEC 215.5)				
GENERAL LOAD	0 VA	1,200 VA	0 VA	0 VA
RECEPTACLE LOAD (NEC TABLE 220.44)				
1ST 10,000W	1,440 VA	1,440 VA	1,440 VA	1,440 VA
CONTINUOUS LOAD (NEC 215.2)	1,800 VA	1,800 VA	0 VA	1,800 VA
PLUS 25%	450 VA	450 VA	0 VA	
0% (NEUTRAL) NEC 215.2(A) EX NO. 2				0 VA
MOTOR LOAD (NEC 430.24)	3,500 VA	0 VA	3,500 VA	3,500 VA
PLUS 25% OF LARGEST MOTOR	875 VA	0 VA	875 VA	875 VA
KITCHEN LOADS (NEC 220.56)				
L1 (0 VA X 1) =	0 VA			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	
NEUTRAL LOAD				7,615 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	
TOTALS	68.4 A	40.7 A	49.6 A	63.5 A
ADJUSTMENT FACTOR	0.0 A	0.0 A	0.0 A	0.0 A
TOTAL DESIGN LOAD	68.4 A	40.7 A	49.6 A	63.5 A

VOLTAGE DROP CALCULATIONS

Three Phase $(2 \times 50' L \times 0.2450 R \times 68.4 A \div 1,000 \times 0.866) = 1.5 \text{ VD}$
 Voltage Drop % $(1.5 \text{ VD} \div 208 \text{ V} \times 100) = 0.7 \% \text{ VD}$

HARMONIC CURRENT CALCULATION (NEC 310.15 (B) 4 (C) & NEC TABLE 310.15 B (2) A)

(Harmonic Load 0 VA \div Connected Load 16,120 VA) \times 100 = 0 %
 Harmonic Load Does Not Exceed 50%

FAULT CURRENT CALCULATIONS

Available Fault Current at Starting Point $((44,000 \text{ AFC} \times 1.00 \text{ UA}) + 116 \text{ MC}) = 44,116 \text{ AFC}$
 Conductor Factor CF - Formula $(1.732 \times 50 \text{ L} \times 44,116 \text{ AFC}) \div (4,774 \text{ C} \times 1 \text{ N} \times 208 \text{ V}) = 3.847 \text{ CF}$
 Conductor Multiplier CM - Formula $(1) \div (1 + 3.847 \text{ CF}) = 0.206 \text{ CM}$
 Conductor Let-Through Current CLC - Formula $(44,116 \text{ AFC} \times 0.206 \text{ CM}) = 9,088 \text{ CLC}$

- A - Amps
- AFC - Available Fault Current
- C - Conductor Constant
- CF - Conductor Factor
- CLC - Conductor Let-Through Current
- CM - Conductor Multiplier
- L - Length of Conductor
- MC - Motor Contribution
- N - Number of Conductors Per Phase
- R - Resistance
- UA - Utility Adjustment 1.1
- V - Voltage
- VA - Volt Amps
- VD - Voltage Drop