

LOAD CALCULATIONS FOR "PANEL CP"

BASED ON THE 2017 NEC

	L1	L2	L3	NEC 220.61(A) NEUTRAL
CALCULATED LOAD (NEC 215.5)	47,600 VA	46,910 VA	44,930 VA	47,600 VA
CALCULATED LOAD WITH DEMAND FACTORS (NEC 215.5)				
GENERAL LOAD	47,600 VA	46,910 VA	44,930 VA	47,600 VA
RECEPTACLE LOAD (NEC TABLE 220.44)				
1ST 10,000W	0 VA	0 VA	0 VA	0 VA
CONTINUOUS LOAD (NEC 215.2)	0 VA	0 VA	0 VA	0 VA
PLUS 25% (L1, L2, L3)	0 VA	0 VA	0 VA	
0% (NEUTRAL) NEC 215.2(A) EX NO. 2				0 VA
MOTOR LOAD (NEC 430.24)	0 VA	0 VA	0 VA	0 VA
PLUS 25% OF LARGEST MOTOR	0 VA	0 VA	0 VA	0 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)	44,930 VA	44,930 VA	44,930 VA	
TOTAL BALANCED LOAD (1-PHASE)	1,980 VA	1,980 VA	0 VA	
TOTAL UNBALANCED LOAD (1-PHASE)	690 VA	0 VA	0 VA	
NEUTRAL LOAD				47,600 VA
LINE AMPS BALANCED (3-PHASE)	162.1 A	162.1 A	162.1 A	
LINE AMPS BALANCED (1-PHASE)	8.3 A	8.3 A	0.0 A	
LINE AMPS UNBALANCED (1-PHASE)	2.5 A	0.0 A	0.0 A	
TOTALS	172.9 A	170.4 A	162.1 A	171.8 A
ADJUSTMENT FACTOR	0.0 A	0.0 A	0.0 A	0.0 A
TOTAL DESIGN LOAD	172.9 A	170.4 A	162.1 A	171.8 A

VOLTAGE DROP CALCULATIONS

Three Phase $(2 \times 50' L \times 0.0367 R \times 172.9 A + 1,000 \times 0.866) = 0.5 \text{ VD}$
 Voltage Drop % $(0.5 \text{ VD} \div 480 \text{ V} \times 100) = 0.1 \% \text{ VD}$

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

(Harmonic Load 0 VA + Connected Load 139,440 VA) X 100 = 0 %
 Harmonic Load Does Not Exceed 50%

FAULT CURRENT CALCULATIONS

Available Fault Current at Starting Point $((24,321 \text{ AFC} \times 1.00 \text{ UA}) + 0 \text{ MC}) = 24,321 \text{ AFC}$
 Conductor Factor CF - Formula $(1.732 \times 50 \text{ L} \times 24,321 \text{ AFC}) \div (22,737 \text{ C} \times 1 \text{ N} \times 480 \text{ V}) = 0.193 \text{ CF}$
 Conductor Multiplier CM - Formula $(1) + (1 + 0.193 \text{ CF}) = 0.838 \text{ CM}$
 Conductor Let-Through Current CLC - Formula $(24,321 \text{ AFC} \times 0.838 \text{ CM}) = 20,381 \text{ CLC}$

- 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