LOAD CALCULATIONS FOR "PANEL P1"
BASED ON THE 2008 NEC

	L1	L2	L3	NEC 220.61(A) NEUTRAL
CALCULATED LOAD (NEC 215.5)	38,860 VA	34,050 VA	34,420 VA	38,860 VA
CALCULATED LOAD WITH DEMAND FACTORS (NEC 215.5)				
GENERAL LOAD	13,850 VA	13,850 VA	13,850 VA	13,850 VA
RECEPTACLE LOAD (NEC TABLE 220.44)				
1ST 10,000W	3,750 VA	3,125 VA	3,125 VA	3,750 VA
REMAINDER @ 50%	2,445 VA	2,038 VA	2,038 VA	2,445 VA
CONTINUOUS LOAD (NEC 215.2)	10,870 VA	9,000 VA	9,370 VA	10,870 VA
PLUS 25% (L1, L2, L3)	2,718 VA	2,250 VA	2,343 VA	
0% (NEUTRAL) NEC 215.2(A) EX NO. 2				0 VA
MOTOR LOAD (NEC 430.24)	2,500 VA	2,500 VA	2,500 VA	2,500 VA
PLUS 25% OF LARGEST MOTOR	625 VA	625 VA	625 VA	625 VA
KITCHEN LOADS (NEC 220.56)				
L1 (3,000 X 1) =	3,000 VA			3,000 VA
L2 (1,500 X 1) =		1,500 VA		
L3 (1,500 X 1) =			1,500 VA	
TOTAL BALANCED LOAD (3-PHASE)	34,888 VA	34,888 VA	34,888 VA	
TOTAL BALANCED LOAD (1-PHASE)	463 VA	0 VA	463 VA	
TOTAL UNBALANCED LOAD (1-PHASE)	4,407 VA	0 VA	0 VA	
NEUTRAL LOAD				37,040 VA
LINE AMPS BALANCED (3-PHASE)	125.9 A	125.9 A	125.9 A	
LINE AMPS BALANCED (1-PHASE)	1.9 A	0.0 A	1.9 A	
LINE AMPS UNBALANCED (1-PHASE)	15.9 A	0.0 A	0.0 A	
TOTALS	143.7 A	125.9 A	127.8 A	133.7 A
ADJUSTMENT FACTOR	0.0 A	0.0 A	0.0 A	0.0 A
TOTAL DESIGN LOAD	143.7 A	125.9 A	127.8 A	133.7 A

VOLTAGE DROP CALCULATIONS

Three Phase (2 X 60' L X 0.1220 R X 143.7 A ÷ 1,000 X 0.866) = 1.8 VD

Voltage Drop % (1.8 VD ÷ 480 V X 100) = 0.4 % VD

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

(Harmonic Load 25,500 VA ÷ Connected Load 107,330 VA) X 100 = 23.8 %

Harmonic Load Does Not Exceed 50%

FAULT CURRENT CALCULATIONS

Available Fault Current at Starting Point ((35,000 AFC X 1.00 UA) + 36 MC) = 35,036 AFC

Conductor Factor CF - Formula (1.732 X 60 L X 35,036 AFC) ÷ (8,925 C X 1 N X 480 V) = 0.850 CF

Conductor Multiplier CM - Formula (1) ÷ (1 + 0.850 CF) = 0.541 CM

Conductor Let-Through Current CLC - Formula (35,036 AFC X 0.541 CM) = 18,954 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