

## LOAD CALCULATIONS FOR "PANEL P1"

BASED ON THE 2026 NEC

NEC 220.61(A)

|                                                   | L1        | L2        | L3        | NEUTRAL   |
|---------------------------------------------------|-----------|-----------|-----------|-----------|
| CALCULATED LOAD ( NEC 215.5 )                     | 15,360 VA | 14,610 VA | 14,760 VA | 15,360 VA |
| CALCULATED LOAD WITH DEMAND FACTORS ( NEC 215.5 ) |           |           |           |           |
| GENERAL LOAD                                      | 0 VA      | 0 VA      | 0 VA      | 0 VA      |
| RECEPTACLE LOAD (NEC TABLE 220.44)                |           |           |           |           |
| 1ST 10,000W                                       | 3,333 VA  | 3,333 VA  | 3,333 VA  | 3,333 VA  |
| REMAINDER @ 50%                                   | 1,214 VA  | 1,214 VA  | 1,214 VA  | 1,214 VA  |
| CONTINUOUS LOAD (NEC 215.2)                       | 1,500 VA  | 1,500 VA  | 1,500 VA  | 1,500 VA  |
| PLUS 25%                                          | 375 VA    | 375 VA    | 375 VA    |           |
| 0% (NEUTRAL) NEC 215.2(A) EX NO. 2                |           |           |           | 0 VA      |
| MOTOR LOAD (NEC 430.24)                           | 6,400 VA  | 6,400 VA  | 6,400 VA  | 6,400 VA  |
| PLUS 25% OF LARGEST MOTOR                         | 800 VA    | 800 VA    | 800 VA    | 800 VA    |
| KITCHEN LOADS (NEC 220.56)                        |           |           |           |           |
| L1 ( 1,700 X 0.8 ) =                              | 1,360 VA  |           |           | 1,360 VA  |
| L2 ( 950 X 0.8 ) =                                |           | 760 VA    |           |           |
| L3 ( 1,100 X 0.8 ) =                              |           |           | 880 VA    |           |
| TOTAL BALANCED LOAD (3-PHASE)                     | 14,382 VA | 14,382 VA | 14,382 VA |           |
| TOTAL BALANCED LOAD (1-PHASE)                     | 120 VA    | 0 VA      | 120 VA    |           |
| TOTAL UNBALANCED LOAD (1-PHASE)                   | 480 VA    | 0 VA      | 0 VA      |           |
| NEUTRAL LOAD                                      |           |           |           | 14,607 VA |
| LINE AMPS BALANCED (3-PHASE)                      | 119.8 A   | 119.8 A   | 119.8 A   |           |
| LINE AMPS BALANCED (1-PHASE)                      | 1.2 A     | 0.0 A     | 1.2 A     |           |
| LINE AMPS UNBALANCED (1-PHASE)                    | 4.0 A     | 0.0 A     | 0.0 A     |           |
| TOTALS                                            | 125.0 A   | 119.8 A   | 121.0 A   | 121.7 A   |
| ADJUSTMENT FACTOR                                 | 0.0 A     | 0.0 A     | 0.0 A     | 0.0 A     |
| TOTAL DESIGN LOAD                                 | 125.0 A   | 119.8 A   | 121.0 A   | 121.7 A   |

## VOLTAGE DROP CALCULATIONS

Three Phase  $( 2 \times 25' L \times 0.1540 R \times 125.0 A \div 1,000 \times 0.866 ) = 0.8 \text{ VD}$   
Voltage Drop %  $( 0.8 \text{ VD} \div 208 \text{ V} \times 100 ) = 0.4 \% \text{ VD}$

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

( Harmonic Load 0 VA  $\div$  Connected Load 44,730 VA )  $\times 100 = 0 \%$   
Harmonic Load Does Not Exceed 50%

## FAULT CURRENT CALCULATIONS

Available Fault Current at Starting Point  $(( 21,840 \text{ AFC} \times 1.00 \text{ UA} ) + 212 \text{ MC} ) = 22,052 \text{ AFC}$   
Conductor Factor CF - Formula  $( 1.732 \times 25 L \times 22,052 \text{ AFC} ) \div ( 7,293 C \times 1 N \times 208 \text{ V} ) = 0.629 \text{ CF}$   
Conductor Multiplier CM - Formula  $( 1 ) \div ( 1 + 0.629 \text{ CF} ) = 0.614 \text{ CM}$   
Conductor Let-Through Current CLC - Formula  $( 22,052 \text{ AFC} \times 0.614 \text{ CM} ) = 13,540 \text{ CLC}$

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