SINGLE FAMILY SERVICE LOAD CALCULATIONS
BASED ON THE 2014 NEC SECTION 220.82

PROJECT NAME SAMPLE
DWELLING UNIT DP

GENERAL LOADS NEC 220.82(B)

TOTAL SQ FOOTAGE (1,500 SQ FT X 3 VA) =	4,500 VA
APPLIANCE CIRCUITS (2 X 1,500 VA) =	3,000 VA
LAUNDRY CIRCUITS (1 X 1,500 VA) =	1,500 VA
RANGE (2 ON ANY 2 PHASES) = 24,000 KVA	
PER PHASE DEMAND (24,000 VA ÷ 2) = 12,000 VA	
EQUIVALENT 3-PHASE LOAD (12,000 VA X 3) =	36,000 VA
DRYER (2 ON ANY 2 PHASES) = 10,000 KVA	
PER PHASE DEMAND (10,000 VA ÷ 2) = 5,000 VA	
EQUIVALENT 3-PHASE LOAD (5,000 VA X 3) =	15,000 VA
WATER HEATERS (1 X 2,500 VA) =	2,500 VA

MISC LOADS NEC 220.82(B)(4)

DISHWASHER (1 X 10A X 120 V) =	1,200 VA

NEUTRAL LOAD NEC 220.61

TOTAL SQ FOOTAGE (1,500 SQ FT X 3 VA) =	4,500 VA
APPLIANCE CIRCUITS (2 X 1,500 VA) =	3,000 VA
LAUNDRY CIRCUITS (1 X 1,500 VA) =	1,500 VA
TOTAL CONNECTED NEUTRAL LOAD	9,000 VA
FIRST 3,000 VA @ 100% (3,000 VA X 1.00) =	3,000 VA
3,000-120,000 VA @ 35% (6,000 VA X 0.35) =	2,100 VA
OVER 120,000 VA @ 25% (0 VA X 0.25) =	0 VA
SUBTOTAL	5,100 VA
RANGE DEMAND NEC 220.61	
PROHIBITED REDUCTION NEC 220.61(C)(1)	
100% OF TABLE 220.55 (8,000 VA X 1.00) =	8,000 VA
DRYER DEMAND NEC 220.61	
PROHIBITED REDUCTION NEC 220.61(C)(1)	
100% OF TABLE 220.54 (5,000 VA 1.00 VA X 1.00) =	5,000 VA
UNBALANCED MISC LOADS	1,200 VA
NEUTRAL LOAD VA	19,300 VA
NEUTRAL LOAD (19,300 VA ÷ 1.732 ÷ 240 V) =	46 A
FURTHER DEMAND FACTOR - 2005 NEC 220.61(B)(2)	
FIRST 200 A @ 100% (46 A X 1.00) =	46 A
REMAINDER @ 70% (0 A X 0.70) =	0 A
MINIMUM NEUTRAL CONDUCTOR AMPACITY	46 A

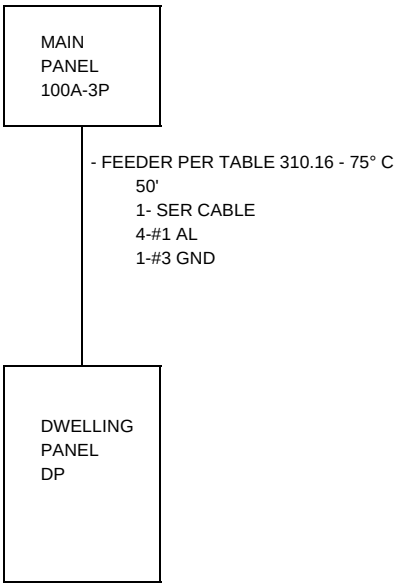
VOLTAGE DROP CALCULATIONS
(2 X 50' L X 0.2530 R X 84.0 A ÷ 1,000 X 0.866) = 1.8 VD
(1.8 VD ÷ 240 V X 100) = 0.8 % VD

FAULT CURRENT CALCULATIONS
((28,875 AFC X 1.00 UA) + 0 MC) = 28,875 AFC
(1.732 X 50 L X 28,875 AFC) ÷ (4,699 C X 1 N X 240 V) = 2.217 CF
(1) ÷ (1 + 2.217 CF) = 0.311 CM
(28,875 AFC X 0.311 CM) = 8,980 CLC

TOTAL GENERAL LOAD	63,700 VA
FIRST 10 KVA AT 100%	10,000 VA
REMAINDER OF LOAD AT 40%	21,480 VA
SUB TOTAL GENERAL LOAD	31,480 VA

HEATING & COOLING LOADS - NEC 220.82(C)

(1) AC LOAD (0 VA X 100%) = 0 VA	
(2) HEAT PUMPS NO SUPP (0 VA X 100%) = 0 VA	
(3) ELECTRIC CONTINUOUS (0 VA X 100%) = 0 VA	
(4) HEAT PUMPS WITH SUPPL (0 VA X 100%) = 0 VA	
(5) SPACE HEATING (0 VA X 65%) = 0 VA	
(6) SPACE HEATING (9,000 VA X 40%) = 9,000 VA	
LARGEST HEATING OR COOLING LOAD	3,600 VA
TOTAL KVA	35,080 VA
TOTAL AMPS (35,080 VA ÷ 1.732 ÷ 240 V) =	84 A
FUTURE AMPS (0%)	0 A
DESIGN AMPS	84 A



KEY

	(N) - Neutral	VD - Voltage Drop
	A - Amps	
	L - Length	
	R - Resistance	
	V - Volts	
	VA - Volt Amps	