SINGLE FAMILY SERVICE LOAD CALCULATIONS
BASED ON THE 2008 NEC SECTION 220.82

PROJECT NAME SAMPLE
DWELLING UNIT DP1

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
RANGES (2 RANGES X 12,000 VA) =	24,000 VA
DRYER (1 DRYER X 5,000 VA) =	5,000 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

TOTAL GENERAL LOAD	41,700 VA
FIRST 10 KVA AT 100%	10,000 VA
REMAINDER OF LOAD AT 40%	12,680 VA
SUB TOTAL GENERAL LOAD	22,680 VA

HEATING & COOLING LOADS - NEC 220.82(C)

(1) AC LOAD (5,000 VA X 100%) = 5,000 VA	< < LARGEST
(2) HEAT PUMPS NO SUPP (0 VA X 100%) = 0 VA	
(3) HEAT PUMPS (0 VA X 100%) = 0 VA	
SUPPLEMENTAL HEAT (0 VA X 65%) = 0 VA	
(4) ELECTRIC SPACE (0 VA X 65%) = 0 VA	
LESS THAN FOUR SEPARATELY CONTROLLED UNITS.	
(5) SPACE HEATING (12,000 VA X 40%) = 4,800 VA	
MORE THAN FOUR SEPARATELY CONTROLLED UNITS.	
(6) SPACE HEATING (0 VA X 100%) = 0 VA	
CONTINUOUS AT THE FULL NAMEPLATE VALUE.	
LARGEST HEATING OR COOLING LOAD	5,000 VA
TOTAL KVA	27,680 VA

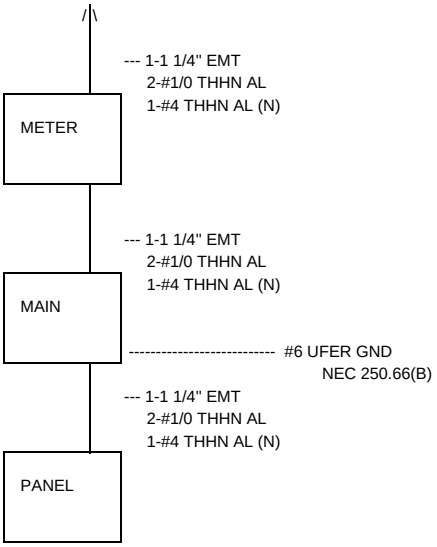
TOTAL AMPS (27,680 VA ÷ 240 V) =	115 A
FUTURE AMPS (0%)	0 A
DESIGN AMPS	115 A

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	
TABLE 220.55 COLUMN C	
70% OF TABLE 220.55 (11,000 VA X 0.70) =	7,700 VA
DRYER DEMAND	
TABLE 220.54	
70% OF TABLE 220.54 (5,000 VA 1.00 VA X 0.70) =	3,500 VA
UNBALANCED MISC LOADS	1,200 VA
NEUTRAL LOAD VA	17,500 VA
NEUTRAL LOAD (17,500 VA ÷ 240 V) =	73 A
FURTHER DEMAND FACTOR - 2005 NEC 220.61(B)(2)	
FIRST 200 A @ 100% (73 A X 1.00) =	73 A
REMAINDER @ 70% (0 A X 0.70) =	0 A
MINIMUM NEUTRAL CONDUCTOR AMPACITY	73 A

VOLTAGE DROP CALCULATIONS
(2 X 10' L X 0.2010 R X 115.0 A ÷ 1,000) = 0.5 VD
(0.5 VD ÷ 240 V X 100) = 0.2 % VD

FAULT CURRENT CALCULATIONS
((14,000 AFC X 1.00 UA) + 0 MC) = 14,000 AFC
(2 X 10 L X 14,000 AFC) ÷ (5,777 C X 1 N X 240 V) = 0.202 CF
(1) ÷ (1 + 0.202 CF) = 0.832 CM
(14,000 AFC X 0.832 CM) = 11,648 CLC



FEEDER PER TABLE 310.15(B)(6)

KEY

(N) - Neutral	CLC - Conductor Let Through Current	N - Number of Conductors
A - Amps	CM - Conductor Multiplier	R - Resistance
AFC - Available Fault Current	CU - Copper	UA - Utility Adjustment
AL - Aluminum	GND - Ground	V - Volts
C - Conductor Constance	L - Length	VA - Volt Amps
CF - Conductor Factor	MC - Motor Contribution	VD - Voltage Drop