

PROJECT NAME
DWELLING UNIT

HEATING & COOLING LOADS - NEC 120.82(C)	
(1) AC LOAD (6,000 VA X 100%) = 6,000 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 100%) = 0 VA	
LESS THAN FOUR SEPARATELY CONTROLLED UNITS.	
(5) SPACE HEATING (0 VA X 40%) = 0 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	6,000 VA

TOTAL SQ FOOTAGE (1,500 SQ FT X 2 VA) =	3,000 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	<u>7,500 VA</u>
FIRST 3,000 VA @ 100% (3,000 VA X 1.00) =	3,000 VA
3,000-120,000 VA @ 35% (4,500 VA X 0.35) =	1,575 VA
OVER 120,000 VA @ 25% (0 VA X 0.25) =	0 VA
SUBTOTAL	<u>4,575 VA</u>
RANGE DEMAND	
TABLE 120.55 COLUMN C	
70% OF TABLE 120.55 (8,000 VA X 0.70) =	5,600 VA
DRYER DEMAND	
TABLE 120.54	
70% OF TABLE 120.54 (5,000 VA 1.00 X 0.70) =	3,500 VA
UNBALANCED MISC LOADS	1,200 VA
NEUTRAL LOAD VA	<u>14,875 VA</u>
NEUTRAL LOAD (14,875 VA ÷ 240 V) =	62 A
FURTHER DEMAND FACTOR - NEC 120.61(B)(2)	
FIRST 200 A @ 100% (62 A X 1.00) =	62 A
REMAINDER @ 70% (0 A X 0.70) =	0 A
MINIMUM NEUTRAL CONDUCTOR AMPACITY	<u>62 A</u>

$$(2 \times 25' L \times 0.2010 R \times 122.0 A \div 1,000) = 1.2 \text{ VD}$$

$$(1.2 \text{ VD} \div 240 \text{ V} \times 100) = 0.5 \% \text{ VD}$$
$$\begin{aligned} & ((25,134 \text{ AFC} \times 1.10 \text{ UA}) + 0 \text{ MC}) = 27,647 \text{ AFC} \\ & (2 \times 25 \text{ L} \times 27,647 \text{ AFC}) \div (5,777 \text{ C} \times 1 \text{ N} \times 240 \text{ V}) = 0.997 \text{ CF} \\ & (1) \div (1 + 0.997 \text{ CF}) = 0.501 \text{ CM} \\ & (27,647 \text{ AFC} \times 0.501 \text{ CM}) = 13,851 \text{ CLC} \end{aligned}$$

TOTAL SQ FOOTAGE (1,500 SQ FT X 2 VA) =	3,000 VA
APPLIANCE CIRCUITS (2 X 1,500 VA) =	3,000 VA
LAUNDRY CIRCUITS (1 X 1,500 VA) =	1,500 VA
RANGES - NEC 120.82(B)(3)(B)	
RANGE (1 RANGE X 12,000 VA) =	12,000 VA
DRYERS - NEC 120.82(B)(3)(C)	
DRYER (1 DRYER X 5,000 VA) =	5,000 VA
WATER HEATERS - NEC 120.84(C) (3)(D)	
WATER HEATERS (1 X 2,500 VA) =	2,500 VA
MISC LOADS NEC 120.82(B)(4)	
DISHWASHER (1 X 10 A X 120 V) =	1,200 VA

TOTAL GENERAL LOAD	28,200 VA
FIRST 8,000 VA AT 100	8,000 VA
REMAINING VA AT 40% (20,200 VA X 0.40) =	8,080 VA
SUB TOTAL GENERAL LOAD	16,080 VA
LARGEST HEATING OR COOLING LOAD	6,000 VA

EV CHARGERS - NEC 120.84(C)(3)(A)	
EV CHARGER (1 X 7,200 VA) =	7,200 VA

TOTAL KVA	29.280 VA
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TOTAL AMPS (29,280 VA ÷ 240 V) = 122 A

FUTURE AMPS (0%)	0 A
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DESIGN AMPS	122 A
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A - Amps
AFC - Available Fault Current
C - Conductor Constance
CF - Conductor Factor
CLC - Conductor Let Through Current
CM - Conductor Multiplier
L - Length
MC - Motor Contribution
N - Number of Conductors
R - Resistance
UA - Utility Adjustment
V - Volts
VA - Volt Amps
VD - Voltage Drop