SINGLE FAMILY DWELLING ELECTRICAL LOAD CALCULATION

Community Development Department

Building Division

1600 First St., PO Box 650

Napa, CA 94559-0660

CONTRACTOR_____

ADDRESS OF PROPERTY_____

CEC SECTION 220:80

General light, power	_____SF x 3 volt-amperes	=	_____ volt-amperes
Two kitchen appliance circuits	@ 1,500 volt-amperes	=	3,000 volt-amperes
Laundry circuits		=	1,500 volt-amperes
Electric range (NP rating)		=	_____ volt-amperes
Wall mounted oven (NP rating)		=	_____ volt-amperes
Water heater (NP rating)		=	_____ volt-amperes
Dishwasher (NP rating)		=	_____ volt-amperes
Disposal (NP rating)		=	_____ volt-amperes
Dryer (NP rating)		=	_____ volt-amperes
Other_____		=	_____ volt-amperes
	Subtotal		_____volt-amperes

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	10,000 volt-amperes	(First 10 kilo volt-amperes @ 100%)	=	10,000 volt-amperes
Difference	_____volt-amperes	(Remaining volt-amperes x 40%)	=	_____volt-amperes

Heating and Air-Conditioning (The Largest of the following shall be included):

1. Air conditioning and cooling	(100% NP rating)	=	_____volt-amperes
2. Heat pump without supplemental heating	(100% NP rating)	=	_____volt-amperes
3. Heat pump with supplemental electric heating	(100% NP rating plus 65%)	=	_____volt-amperes
4. Electrical space heating < 4 separate units	(65% NP rating)	=	_____volt-amperes
5. Electrical space heating ≥ 4 separate units	(40% NP rating)	=	_____volt-amperes
6. Electrical thermal storage and other	(100% NP rating)	=	_____volt-amperes
	Total		_____ volt-amperes

Total volt-amperes _____ ÷ 240 volts = _____
(amps size for service entrance conductors and panel)

Single Family Dwelling Load Calculation – Step by Step Example (Optional Method) CEC 220.82

2800 sq. ft.
14 kW range
3 kW water heater
5 kW clothes dryer
1.5 kW dishwasher
15 kW central heat
29 amp, 240 volt air conditioning

Step 1:
Multiply the sq. ft. area by 3 VA per Sq. ft.
2800 sq. ft. X 3 VA = **8,400 VA** (VA = volt amperes)

Step 2:
Add in 1500 VA for each 2-wire, 20-amp small appliance branch circuit and the laundry circuit
1,500 VA X 3 = **4,500 VA**

Step 3:
Add in the appliances loads at nameplate value.

Range	**14,000 VA**
Water heater	**3,000 VA**
Clothes dryer	**5,000 VA**
Dishwasher	**1,500 VA**

Step 4:
Add all appliance loads together.
Total = **36,400 VA**

Step 5:
Take the first 10 kW at 100%. 10,000 VA
Take the remainder (26,400 VA) at 40%. 26,400 VA X .40 = 10,560 VA

Step 6:
Add the two values from step 5 together to find the general load.
10,000 VA + 10,560 VA = **20,560 VA**

Step 7:
Compare the heating load to the AC load and take the larger of the two loads.
AC load at 100%. 29 amps X 240 volts = 6,960 VA
Heat load at 65%. 15,000 VA X .65 = **9,750 VA** (largest load).

Step 8:
Add the general load to the largest of the AC or heating load.

General load	=	20,560 VA
Heating load	=	9,750 VA
Total	=	**30,310 VA**

Step 9:
Divide the load in VA by the voltage. 30,310 VA ÷ 240 = **126 amps.**