

Assignment 2: Circuit evaluation and residential kitchen electrical sketch

Directions:

Create a sketch of a residential kitchen. Include proper symbols to recognize various types of switches, receptacles, and lighting. The sketch can either be completed by hand or digitally but must be neat. Include all large appliances as well as small appliances that are located on countertop areas in the sketch and identify the appliance by symbols and a key for the sketch. Use the following chart to calculate the appliances total wattage rating. Assume that all small appliances are on one single circuit and all other large appliances are on their own individual circuit. I prefer you locate the wattage and amperage ratings on each of your own appliances, however if you are unable to locate these ratings on each appliance you may use the chart provide for the appliance wattage and amperage rating. The chart has a range for some appliances wattage and amperage ratings and you may pick the range that you feel is the closest to the appliance in your sketch. Calculate the safe capacity which is 80% of the total available on each circuit.

Example:

Circuit # <u>1</u> Amps: <u>15</u> Volts: <u>120</u> Total Capacity: <u>1800</u> (watts) Safe capacity: <u>1440</u> (watts)		
Appliance or Fixture	Notes	Wattage rating
Toaster	Cuisinart 9 amps ($9 \times 120 = 1080$)	1080 watts
TV	Panasonic ($3 \times 120 = 360$)	360 watts
Total Demand		1440 (watts)

Small Appliances

Circuit # ____ Amps ____ Volts ____ Total Capacity ____ (watts) Safe capacity ____		
Appliance or Fixture	Notes	Wattage rating
Total Demand		(watts)

Microwave Oven (built in only)

Circuit # ____ Amps ____ Volts ____ Total Capacity ____ (watts) Safe capacity ____		
Appliance or Fixture	Notes	Wattage rating
Total Demand		(watts)

Refrigerator

Circuit #	Amps	Volts	Total Capacity	(watts)	Safe capacity
Appliance or Fixture	Notes		Wattage rating		
			Total Demand	(watts)	

Range Electric or Gas

Circuit #___ Amps___ Volts___			Total Capacity_____ (watts)		Safe capacity_____	
Appliance or Fixture		Notes			Wattage rating	
Total Demand					(watts)	

Typical Amperage and Wattage Ranges of Residential Kitchen Appliances and Lighting

Appliance	Amps	Watts
Air Conditioner (window)	6 to 13	720 to 1560
Blender	2 to 4	240 to 480
Broiler	12.5	1500
Can Opener	1.2	144
Coffee Maker	4 to 8	480 to 960
Dishwasher	8.5 to 12.5	1020 to 1500
Fan (ceiling)	3.5	420
Freezer	2 to 4	240 to 600
Frying Pan	9	1080
Garbage Disposal	3.5 to 7.5	420 to 900
Microwave Oven	4 to 10	480 to 1200
Range Electric (Oven/Stove) 240V	5.5 to 10.8	1320 to 2600
Refrigerator	2 to 4	240 to 600
Stereo	2.5 to 4	300 to 480
Television	2.5	300
Toaster	9	1080
Trash Compactor	4 to 8	480 to 960
Waffle Iron	7.5	900