



REUSE, RECYCLE, RENOVATE

Kitchens for Rent

The county's non-profit organizations will need to rent kitchen space to mass-produce food products for commercial purposes, process large amounts of garden produce for storage, or cook meals for organizations such as Meals on Wheels. Since the old nursing home has a large kitchen area that can be divided into three work kitchens, the electrical work will be minimal.

The number of watts a circuit can support depends on the amperage and volts of the power source. The formula is shown below.

$$\text{watts} = \text{amps} \times \text{volts}$$

It is recommended to use only 80% of the available watts. The kitchen will have 20-amp circuits and a 110-volt power source.

1. If the kitchens are wired to one panel box and one meter, a maximum use of 1920 watts and 110 volts per circuit will be allowed. Write an algebraic equation to find the amps and decide the maximum amp circuit breaker that can be used. You have circuit breakers in 15 amps, 20 amps and 30 amp sizes.
2. A ceiling fan uses 75 watts. There are three ceiling fans and three banks of fluorescent lights on one circuit. The maximum use of the circuit is 1920 watts. Write and solve an algebraic inequality to find how many watts each bank of lights may use if the fans and lights are on at the same time.

3. A circuit has a 20-amp breaker. There is one ceiling fan that uses 75 watts on the circuit. Write and solve an inequality to find the maximum number of 150-watt lights that may be on the circuit with the ceiling fan.
4. A 20-amp circuit can safely handle 1760 watts. On one 20-amp circuit, $\frac{2}{3}$ of the safe wattage is used for toasters and $\frac{1}{4}$ of the safe wattage is used for coffee makers. Write an inequality to express how many watts a hot plate can use and safely be added to the circuit. Solve the inequality by rewriting before multiplying.
5. If each kitchen has a separate panel, 15-amp breakers may be used for small appliances. The watt-use should be equal to or less than 80% of available watts. If 55% of watt-use is for griddles and 22% is for coffee urns, how many watts can coffee grinders use and still be added to the circuit?