Landmark Load Calculation for 4-Unit Multiplex

# Step-by-Step Calculation

## Step 1: Identify Loads for One Unit

Each unit in the multiplex has:  
1. Furnace: 10 kW (10,000 W)  
2. Hot Water Tank: 4 kW (4,000 W)  
3. Stove (Range): 12 kW (12,000 W)  
4. Dryer: 5 kW (5,000 W)  
5. Lighting and General Receptacles:  
 - Lighting: 15 lights at 100 W each = 1,500 W  
 - General receptacles and small appliances: 3,000 W (as per CEC requirements for general use and small appliance circuits)

## Step 2: Calculate the Total Load for One Unit Before Derating

1. Furnace: 10,000 W  
2. Hot Water Tank: 4,000 W  
3. Stove (Range): 12,000 W  
4. Dryer: 5,000 W  
5. Lighting and General Receptacles: 1,500 + 3,000 = 4,500 W  
  
Total Load for One Unit:  
10,000 + 4,000 + 12,000 + 5,000 + 4,500 = 35,500 W

1. General Lighting and Receptacles:  
 - The first 3,000 W is taken at 100%.  
 - The next 1,500 W is taken at 35%.  
 3,000 x 1.0 + 1,500 x 0.35 = 3,000 + 525 = 3,525 W  
  
2. Furnace:  
 - The entire furnace load (10 kW) is taken at 100% since it's a heating load: 10,000 W  
  
3. Hot Water Tank:  
 - Hot water tank load is taken at 100%: 4,000 W  
  
4. Stove (Range):  
 - For a stove rated at 12 kW, the first 12 kW is taken at 100%: 12,000 W  
  
5. Dryer:  
 - The dryer load is taken at 100%: 5,000 W

## Step 4: Total Adjusted Load for One Unit

Add the adjusted loads for one unit:  
3,525 + 10,000 + 4,000 + 12,000 + 5,000 = 34,525 W

## Step 5: Calculate the Total Load for the 4-Unit Multiplex

Apply the CEC demand factors for multiple dwelling units:  
1. Heaviest Unit at 100%: 34,525 W  
2. Next 2 Units at 65%: 2 x 34,525 x 0.65 = 44,882.5 W  
3. Last Unit at 40%: 34,525 x 0.40 = 13,810 W  
  
Total Load for the 4-Unit Multiplex:  
34,525 + 44,882.5 + 13,810 = 93,217.5 W ≈ 93.2 kW

## Step 6: Convert to Amperage

Assuming a 240V single-phase system:  
Total Current = 93,200 W / 240 V ≈ 388 A