

Residential Load Calculator

Enter the service voltage and four preliminary load estimates to calculate connected load, demand from the entered factor, current at the entered voltage, and diversity allowance. This transparent U.S. English model does not reproduce NEC demand rules or determine a compliant service size.

Generated October 10, 2026

<https://www.elecatrix.com/residential-load-service/residential-load-calculator/>

Inputs

Input	Value	Unit
Service voltage	240	V
Lighting load	3000	VA
Receptacle load	1800	VA
Appliance load	4500	VA
HVAC load	6000	VA
Demand factor	75	%
Load basis note	N/A	
Demand factor source note	N/A	

Results

Result	Value	Unit
Connected load	15300	VA
Entered demand factor	0.75	decimal
Estimated demand from entered factor	11475	VA
Estimated current at entered voltage	47.8125	A
Diversity allowance from entered factor	3825	VA

Calculation details

Detail	Value	Unit
Calculation basis	Four user-entered load categories multiplied by a user-supplied demand factor at the entered service voltage.	

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Demand factor boundary	Entered demand factor is user-supplied; no NEC dwelling demand factor is selected or reproduced.
Diversity allowance interpretation	Diversity allowance is connected load minus demand from the entered factor; it is not unused service or panel capacity.
Service-size boundary	No NEC demand calculation, service-size calculation, conductor selection, breaker selection, panel rating decision, or code-compliance result is made by this calculator.

Formulas

$\text{connected load VA} = \text{lighting load VA} + \text{receptacle load VA} + \text{appliance load VA} + \text{HVAC load VA}$

$\text{demand factor decimal} = \text{demand factor percent} / 100$

$\text{estimated demand VA} = \text{connected load VA} \times \text{demand factor percent} / 100$

$\text{estimated current amps} = \text{estimated demand VA} / \text{service voltage}$

$\text{diversity allowance VA} = \text{connected load VA} - \text{estimated demand VA}$

$\text{demand factor boundary} = \text{entered demand factor is user-supplied; no NEC dwelling demand factor is selected or reproduced}$

$\text{service-size boundary} = \text{no NEC demand calculation, service-size calculation, conductor selection, breaker selection, panel rating decision, or code-compliance result is made by this calculator}$

Warnings and limitations

This is a U.S. English preliminary engineering estimate, not an NEC demand calculation, not service sizing, and not code-compliance approval. The demand factor is supplied by the user and does not reproduce NEC dwelling-unit demand factors, standard tables, continuous-load rules, load-category rules, conductor ampacity, breaker limits, panel ratings, utility requirements, or local amendments. Verify the adopted NEC edition, AHJ direction, utility requirements, equipment data, load characteristics, and project conditions with a qualified electrical professional before design or installation.