

**Sample Electric Co.**

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100 Example Way, Anytown, TX 00000

Permit Packet

Calculated per NEC 2023

NEC 2023 Dwelling Unit Load Calculation — Standard Method (Article 220 Part III)
Sample Residence (NEC Annex D Example D2(a))

Job

Customer: A. Homeowner (sample)
Job / site address: 123 Example Street, Anytown, USA
Permit number: SAMPLE-0000
Job date: September 23, 2026
Notes: Fictional job for the public sample. Every page is marked SAMPLE.
Prepared by: Sample Electric Co.
Service: 128.3 A calculated at 240 V; minimum service rating 150 A
Floor area: 1,500 ft²

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Electrical Load Calculation

Standard Method (Article 220 Part III)

Calculated per NEC 2023

Project: Sample Residence (NEC Annex D Example D2(a))
Location: 123 Example Street, Anytown, USA
Prepared By: Sample Electric Co.
Date: 2026-09-23
Report Generated: 2026-09-23 12:00

Dwelling Inputs

Floor area	1,500 ft² (outside dimensions, excluding the attached garage; open porches, decks and unfinished space not adaptable for future use are excluded)
Attached garage	None
Small-appliance circuits	2
Laundry circuits	1
Appliances fastened in place	1 × Water heater (2,500 VA); 1 × Dishwasher (1,200 VA)
Cooking appliances	1 × Electric range (12 kW) — Table 220.55 Note 3: automatic (lower of Column C and Columns A/B)
Clothes dryers	1 × 5,000 VA
Heating	Electric space heating 9,000 VA in 5 separately controlled unit(s)
Air conditioning	1,380 VA
Motors	None
EV supply equipment	None
Other loads	None
Service voltage	240 V

Standard Method (Article 220 Part III) — Line Items

Line item	NEC	Connected	Demand	Basis
General lighting and receptacles	220.41	4,500 VA	(in subtotal)	1,500 ft² × 3 VA/ft²
Small-appliance branch circuits	220.52(A)	3,000 VA	(in subtotal)	2 circuits × 1500 VA
Laundry branch circuit	220.52(B)	1,500 VA	(in subtotal)	1 circuit × 1500 VA
General load after demand factors	Table 220.45	9,000 VA	5,100 VA	3,000 VA at 100% = 3,000 VA; 6,000 VA at 35% = 2,100 VA
Appliances fastened in place	220.53	3,700 VA	3,700 VA	2 appliances at 100%
Clothes dryers	220.54	5,000 VA	5,000 VA	1 × 5,000 VA (nameplate) at 100% (Table 220.54)
Cooking appliances	220.55	12,000 VA	8,000 VA	Column C for 1 unit = 8 kW
Electric space heating	220.60	9,000 VA	9,000 VA	Larger of electric space heating 9,000 VA and cooling 1,380 VA; heating governs (220.60)
Air conditioning	220.60	1,380 VA	0 VA	Omitted, heating is the larger noncoincident load (220.60)

Informational estimate only — not a compliance document. Verify all calculations against the NEC edition adopted in your jurisdiction. Calculated per NEC 2023.



Line item	NEC	Connected	Demand	Basis
Motors	220.50 / 430.24	—	0 VA	None
25% of largest motor	220.50 / 430.24	—	0 VA	No motor loads
EV supply equipment	220.57	—	0 VA	None
Other loads	220.14	—	0 VA	None
25% of continuous loads	230.42(A)(1)	—	0 VA	No continuous loads
Total calculated load		40,080 VA	30,800 VA	128.3 A at 240 V

Standard vs Optional Method

	Standard (Part III)	Optional (220.82)
Total calculated load	30,800 VA	21,480 VA
Calculated current	128.3 A	89.5 A
Minimum service rating	150 A	100 A
Difference	9,320 VA (38.8 A) lower by optional method	

Service Sizing

Calculated load	30,800 VA
Service voltage	240 V
Calculated current	128.3 A
Future load allowance (+20%)	+6,160 VA
Adjusted load	36,960 VA (154.0 A)
Feeder/service neutral (220.61)	14,200 VA (59.2 A)
Minimum service rating (240.6(A), not less than 100 A per 230.79(C))	175 A

Inspector / Reviewer Notes:

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* Calculated per NEC 2023



Panel Schedule

NEC 2023 load calculation

Panel: Panel A (sample) System: 120/240 V, 1-phase, 3-wire
Main: 200 A Spaces: 30

Ckt	Description	Poles	Trip	VA	Leg	Ckt	Description	Poles	Trip	VA
1	Electric range	2P	50 A	12,000 VA	L1	2	Clothes dryer	2P	30 A	5,000 VA
3	(Electric range, 2-pole)				L2	4	(Clothes dryer, 2-pole)			
5	Water heater	2P	15 A	2,500 VA	L1	6	Electric space heating unit 1	2P	15 A	1,800 VA
7	(Water heater, 2-pole)				L2	8	(Electric space heating unit 1, 2-pole)			
9	Electric space heating unit 2	2P	15 A	1,800 VA	L1	10	Electric space heating unit 3	2P	15 A	1,800 VA
11	(Electric space heating unit 2, 2-pole)				L2	12	(Electric space heating unit 3, 2-pole)			
13	Electric space heating unit 4	2P	15 A	1,800 VA	L1	14	Electric space heating unit 5	2P	15 A	1,800 VA
15	(Electric space heating unit 4, 2-pole)				L2	16	(Electric space heating unit 5, 2-pole)			
17	Air conditioning	2P	15 A	1,380 VA	L1	18	Dishwasher	2P	15 A	1,200 VA
19	(Air conditioning, 2-pole)				L2	20	(Dishwasher, 2-pole)			
21	Spare (spare)	2P	30 A	—	L1	22	Laundry circuit 1	1P	20 A	1,500 VA
23	(Spare, 2-pole)				L2	24	General lighting and receptacles 1 of 3	1P	15 A	1,500 VA
25	General lighting and receptacles 2 of 3	1P	15 A	1,500 VA	L1	26	Small-appliance circuit 1	1P	20 A	1,500 VA
27	General lighting and receptacles 3 of 3	1P	15 A	1,500 VA	L2	28	Small-appliance circuit 2	1P	20 A	1,500 VA
29	Spare (spare)	1P	20 A	—	L1	30				

Leg L1 (A) 20,040 VA (167.0 A)
Leg L2 (B) 20,040 VA (167.0 A)
Imbalance 0 VA (0.0%)
Connected VA on schedule 40,080 VA
Circuits 29 of 30 (CTL limit, 2-pole counts 2); 18 circuits

Trip ratings are the next standard rating for the connected load (125% for continuous loads and motors); confirm conductor and overcurrent sizing separately. Circuits marked (spare) or (existing) were added by hand and are outside the load calculation.