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Commercial electrical load calculation spreadsheet

Electrical load calculation formula excel. How to calculate electrical loads in commercial buildings. Commercial electrical load calculation example. Electrical load calculation for commercial building spreadsheet. How to calculate maximum electrical load.

To determine the power needed for a residential or commercial project, electrical contractors need to calculate the load—a detailed list of the electrical load placed on a distribution system. This dictates the equipment and ratings used. Calculating a residential load list requires adding the wattage rating of all lighting circuits, outlets, and permanent appliances, subtracting 10,000, multiplying by 40, adding 10,000, adding the wattage of permanent A/C or heating units (whichever is larger), then dividing the total number by 240. If that doesn't sound like math you can quickly calculate in your head, you're not alone. Many electricians use load list worksheets or calculators to determine a load list during the design phase of a construction project. While an electrical load list template simplifies determining the load capacity, it doesn't solve challenges relating to selling, customizing, or managing contracts, dispatching service technicians, or providing superior customer service.

	Count	VA/Unit	NEC Load	Connected Load	Continuous Load	Noncontinuous	Neutral Load
General Lighting							
NEC 220.12 Connected Loads from Table 2.2	1395	3	4185	2630			
Totals			4185	2630	4185		4185
Storage Area							
NEC 220.12 Connected Loads from Table 3.3	858	0.25	215	600			
Totals			215	600	600		600
Other Loads							
Receptacle outlets	21	180	3780			3780	3780
Copy Machine	1	1440		1440		1440	1440
Receptacle for HVAC	1	1500		1500		1500	1500
Sign Outlets	1	1200	1200		1200		1200
Cash registers	2	240		480		480	480
Electric doors	2	360		720		720	720
Water heater	1	4500		4500	4500		
Toilet (storage)	1	7500		7500	7500		

For that, many electrical contractors turn to a comprehensive business solution like ServiceTitan electrician software. Read on for an electrical load list worksheet you can download and customize, and details on how ServiceTitan helps electricians streamline their operations and better serve customers. What is an electrical load list template? An electrical load list template, similar to an HVAC load calculator, helps an electrician determine commercial or residential electrical load calculation, according to National Electrical Code (NEC) load calculations. It's typically formatted as a load calculation worksheet in Excel with blanks for: General electric load requirements, including general lighting load, large and small appliance circuits and motor loads in volt-amperes (laundry circuit, water heater, etc.), heating and air conditioning volt-ampere loads. Each Microsoft Excel sheet section is further broken down to perform precise calculations. The electrician will input all the project information, including square footage, quantities of appliances, and heating and air conditioning sources to calculate a total load in amps. The #1 newsletter for the trades. Why an electrical load list matters: An electrical load list is crucial for providing an accurate estimate of electrical load, and thus determining the power required for the project. This dictates the size of conduits and conductors, control and PPE required, and allows for accurate cost estimates. When electrical equipment is oversized, the project costs the end user significantly more than it should. Even worse, underestimating an electrical load presents a huge safety/fire risk for those occupying the building. Precise calculations save money and lives. Current electrical load list solutions: Some contractors may guessimate the electrical load size using general rules of thumb or presets of electrical panel sizes, transformers, equipment disconnects, feeders, and overcurrent protection devices. However, this approach is risky and could provide an inaccurate baseline for the electrical engineering design. In addition, there are makeshift spreadsheets and faulty software that designs from the top down rather than adding the loads from the circuit breaker to the service entrance (bottom-up). These approaches are error-prone, which is why a calculator based on NEC code for electrical service is the best option. How a load list template improves accuracy: An electrical load calculation spreadsheet improves electrical design accuracy by providing you with a calculation sheet you can use over and over. >> To use ServiceTitan's electrical load list template, click here to download the form. Save the spreadsheet to your desktop as a new file. How ServiceTitan improves electrical operations and sales: ServiceTitan electrician software connects your office and field to streamline business operations, improve efficiency, and increase profit. Leverage electrical estimates and bids to increase profitability. Use electrical estimating software to take the guesswork out of job bidding and create profitable estimates every time. Easily create estimates and bids that contain accurate costs for materials, labor, and profit margins. A field service app enables your techs to show customers professional-looking estimates, complete with manufacturer videos and product information, right on the spot. Tiered options empower customers in the decision-making process, showing them the value of higher-priced options. Eliminate inconsistent follow-ups on open estimates with integrated software that automates the process.

Type of Occupancy	Unit Load	
	VA/m ²	VA/ft ²
Automotive facility	16	1.5
Convention center	15	1.4
Courthouse	15	1.4
Dormitory	16	1.5
Exercise center	15	1.4
Fire station	14	1.3
Gymnasium ¹	18	1.7
Health care clinic	17	1.6
Hospital	17	1.6
Hotels, motels, apartments without provisions for cooking ³	18	1.7
Library	16	1.5
Manufacturing facility ⁴	24	2.2
Motion picture theater	17	1.6
Museum	17	1.6
Office ⁵	14	1.3
Parking garage ⁶	3	0.3
Penitentiary	13	1.2
Performing arts theater	16	1.5
Police station	14	1.3
Post office	17	1.6
Religious facility	24	2.2
Restaurant	16	1.5
Retail ⁷	20	1.9
School/university	33	3
Sports arena	33	3
Town hall	15	1.4
Transportation	13	1.2
Warehouse	13	1.2
Workshop	18	1.7

With just one click, your team can see all open bids, when the customer opens the email, and immediately follow up with customers to close the sale. Customers can digitally sign off on estimates and pay through a personalized online payment portal, or techs can securely capture checks and credit cards in the field. When you offer customers convenient payment options, you enhance the customer experience and get faster results. Boost efficiency in electrical installations and service. Use electrical scheduling and dispatching software to match techs to the right job, even weeks or months in advance. With customer and job information in one place, your team can access important information, such as property and equipment data and previous jobs, without needing to call or text the office. During the job, ServiceTitan's job costing capabilities give you real-time insight on materials and labor costs, so you can remain proactive and keep projects on time and on budget. Budgeted vs. actual costs provides critical data for future projects, so you can ensure your estimates remain accurate and profitable. Streamline your business with electrician software. While electrical load list templates save time during the electrical design process, it won't solve other business challenges, such as creating efficient workflows for your team. ServiceTitan provides a comprehensive solution for electrical businesses, streamlining every aspect of operations to boost performance and profit. >> Ready to drive your business forward? Schedule a demo with ServiceTitan today.