

EV CHARGER RESIDENTIAL CHECKLIST



102 Town Hall Drive, Leland, NC 28451
www.townofleland.com

Permitting & Inspections Department
Phone 910-371-3754

Purpose

The purpose of this guideline is to assist permit applicants in streamlining the permitting, plan review, and inspection process for Residential (Single Family, Townhomes and Duplex) EV Chargers.

NOTE: If a service upgrade is part of scope, please apply for a Residential Electrical Permit instead of EV Charger permit.

EV Charger Location Layout

- The location of the building, garage (if applicable) and street name
- All EV receptacle location(s), conduct type/ size, wire type/ size, conductors, equipment ground size, and existing or proposed electrical meter location

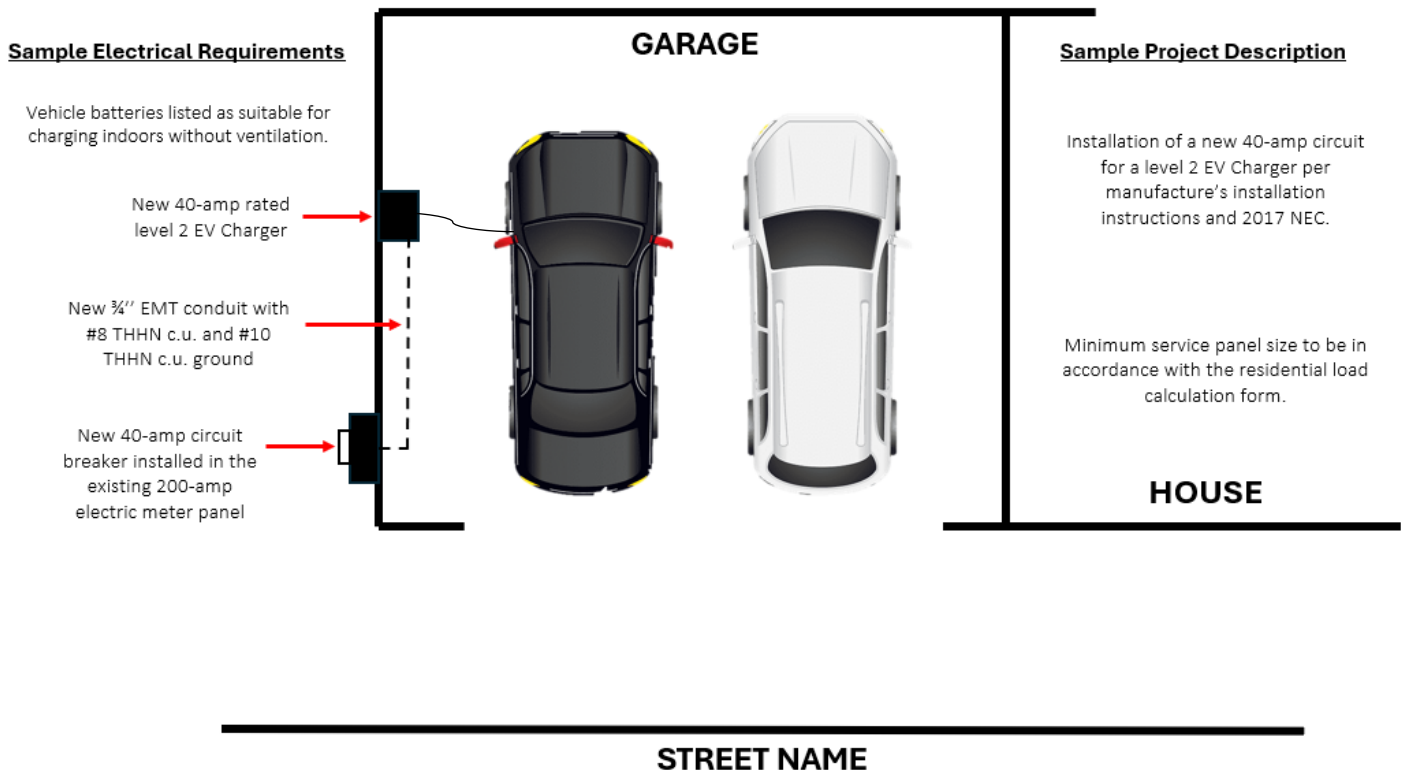
Manufacturer's Specifications

Provide the manufacturer's EV charger specifications. These specifications will show requirements and data for the EV charger being installed as well as a listing agency approval.

Electrical Service Load Calculation Form

Complete the attached Electrical Service Calculation Form or similar document. The load calculation will determine the minimum amperage needed for your electrical service panel.

Sample EV Charger Location Layout



EV CHARGER ELECTRICAL SERVICE LOAD CALCULATION



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<p>1. General Lighting and Receptacle Loads 220.82(B)(1) Do not include open porches, garages, or unused or unfinished spaces not adaptable for future use.</p>	<p>3 x _____ = (Sq ft using outside dimensions)</p>	<p>1</p>		
<p>2. Small-Appliance Branch Circuits 220.82(b)(2) At least two small-appliance branch circuits must be included. 210.11(c)(2)</p>	<p>1500 x _____ = (Minimum of two)</p>	<p>2</p>		
<p>3. Laundry Branch Circuit(s) 220.82(b)(2) At least one laundry branch circuit must be included. 210.11(c)(2)</p>	<p>1500 x _____ = (Minimum of one) Note: 1500 VA shall be included for each laundry branch circuit.</p>	<p>3</p>		
<p>4. Appliances 220.82(b)(3) and (4) Use nameplate rating of all appliances (Fastened in place, permanently connected, or connected to a specific circuit), ranges ovens, cooktops, motors, and clothes dryers. Convert any nameplate rating given in amperes to volt-amperes by multiplying the amperes by the rated voltage.</p>	<p>Do not include any heating or air-conditioning equipment in this section</p> <p>Water heater/ _____ Dishwasher / _____ Clothes dryer/ _____ Disposal / _____ Range / _____ EV / _____</p>	<p>Total volt-amperes of all appliances. LISTED BELOW</p> <p>_____/_____ _____/_____ _____/_____ _____/_____ _____/_____ _____/_____</p>	<p>4</p>	
<p>5. Apply 220.82(b) demand factor to the total of lines 1 through 4.</p> <p>_____ - 10,000 = _____ x 40 % = _____ + 10,000 = (Total of line 1 to 4)</p>		<p>5</p>		
<p>6. Heating or Air-Condition System 220.82(c) Use the nameplate rating in volt-amperes for all applicable systems in lines 'a' through 'c'.</p>	<p>Air-Conditioning and cooling systems, including heat pumps without any supplemental electric heating:</p> <p>_____ x 100% =</p>		<p>A</p>	
<p>Electric thermal storage and other heating systems where the usual load is expected to be continuous at full nameplate value. Systems qualifying under this section shall not be figured under any other selection in 220.82(c)</p> <p>_____ x 100% =</p>	<p>B</p>	<p>Supplemental electric heating equipment for heat-pump systems. Include the heat-pump compressor(s) at 100%. If the heat-pump compressor is prevented from operating with the supplement heat, omit the compressor.</p> <p>_____ x 65% =</p>	<p>C</p>	
<p>7. Total Volt-Ampere Demand Load:</p> <p>_____ + _____ = (Largest VA rating from line 6a through 6c) (Line 5)</p>		<p>7</p>		
<p>8. Minimum Amperes Divide the total Volt-Amperes by the voltage</p> <p>_____ + _____ = (Line 7) (Voltage)</p>	<p>8</p>	<p>_____ (minimum amperes)</p>	<p>9. Minimum Size Service or Feeder 240.6(A)</p> <p>9</p>	<p>(Minimum is 100 amperes)</p>
<p>10. Size the Service of Feeder Conductors. Use 310.15(B)(6) to find service conductors up to 400 amperes. Rating in excess of 400 amperes shall comply with table 310.16. 310.15(B)(6) also applies to feeder conductors serving as the main power feeder.</p>		<p>Minimum Size Conductor</p>	<p>10</p>	
<p>11. Size of Grounding Electrode Conductors. Use line 10 to find the ground electrode conductor in table 250.66. Size the Equipment Grounding Conductor (for Feeder). 250.122. Use line 9 to find the equipment grounding conductor in Table 250.122. Equipment grounding conductor types are listed in 250.118.</p>		<p>Minimum Size Conductors</p>	<p>11</p>	