HOME SOLAR SYSTEM

Get every box on this list ready before you call for the electrical inspection. Page 1: paperwork, roof and wiring.

1 UTILITY & PAPERWORK

- [ ] National Grid told and approved **before** you install. Send NG the inverter specs for approval before you buy it. **ESB 11.3, 11.3.1**
- [ ] Inverter is listed to UL 1741 and meets the IEEE 1547 grid standard. **ESB 756, App. A**
- [ ] Zoning approval from the town or village first, then the building/electrical permit (Solar Permit Application, systems 25 kW DC or less).
- [ ] Plans are stamped and signed by a NY licensed PE or registered architect. They show the electrical diagram, string layout, disconnects and rapid shutdown location. Keep them, the spec sheets and the NG approval on site.
- [ ] Existing service is in good shape (meter box, main breaker, grounding). If any of it is changing, see the residential service handout.
- [ ] The system stays switched off until National Grid gives permission to operate. Passing the electrical inspection is not that permission.

2 ROOF & MOUNTING

- [ ] Solar panels, inverter and racking are listed and installed per the manufacturer's instructions. **NEC 110.3(B), 690.4**
- [ ] Roof structure is certified to carry the added load: site-specific structural calculations plus a PE or RA letter, with panel weights, support locations and attachment method shown. **Jefferson Co. Solar Permit**
- [ ] Every roof attachment and penetration is flashed and sealed against leaks.
- [ ] Metal panel frames and racking are bonded together with listed hardware and connected to the grounding system. **NEC 690.43**
- [ ] Roof access paths and edge setbacks meet the building code. The code official checks these.

3 WIRING FROM THE PANELS

- [ ] Wires on the roof are solar PV wire (or a listed equal), clipped and secured. Nothing hangs loose, rests on sharp edges or lies on the roof surface. **NEC 690.31**
- [ ] Connectors are a matched, listed pair. Don't mix brands. **NEC 690.33**
- [ ] Solar wiring that enters the building runs in metal conduit or metal-clad cable. **NEC 690.31**
- [ ] Junction boxes on the roof are rated for outdoors and reachable for service. **NEC 690.34**
- [ ] The system has built-in arc-fault protection (it shuts down if a wire connection arcs and could start a fire). **NEC 690.11**
- [ ] Rapid shutdown: pressing the shutdown switch drops the voltage on wires more than 1 ft from the panels to a safe level (30 V) within 30 seconds, so firefighters aren't shocked on the roof. Use equipment listed as a rapid shutdown system. **NEC 690.12**

Sources: 2023 NEC; National Grid ESB 750-2025 (11.3) and ESB 756; NY Standardized Interconnection Requirements (SIR); Jefferson County Solar Permit Application.

HOME SOLAR SYSTEM

Get every box on this list ready before you call for the electrical inspection. Page 2: inverter, disconnects, panel connection and labels.

4 INVERTER

- [ ] Inverter is mounted where the manufacturer allows (indoors or outdoors rating matches). It is not in a bathroom. **NEC 690.4, 110.3(B)**
- [ ] Clear working space in front: 30 in. wide, 36 in. deep, 6½ ft high. Nothing stored there. **NEC 110.26**
- [ ] Inverter output wire and breaker are sized for the inverter's rated output (breaker not smaller than 125% of that current). **NEC 705.28**
- [ ] Inverter is grounded and bonded per its instructions. **NEC 250, 690.43**

5 SHUT-OFF SWITCHES

- [ ] PV system disconnect: a switch that turns the whole solar system off. Readily accessible (no ladder, no locked room), marked, and can be locked open. **NEC 690.13**
- [ ] Rapid shutdown switch is in a spot firefighters can reach quickly, and it is labeled. **NEC 690.12**
- [ ] National Grid may want a lockable, visible AC disconnect outside near the meter. Check your NG approval letter. Install it if the letter says so. **ESB 11.3**

8 BEFORE YOU CALL

- [ ] Plans, one-line diagram, spec sheets and NG approval letter are on site.
- [ ] Every label on page 2 is on and readable from where you stand.
- [ ] Owner has been shown where the shut-off switches are and how to turn the system off.
- [ ] Panels, wiring and panel covers are all accessible for the inspector. Nothing is hidden.

6 CONNECTION TO THE MAIN PANEL

- [ ] Solar breaker is a type the panel maker allows for that panel. Do not double-lug or use a breaker the panel is not listed for. **NEC 110.3(B)**
- [ ] Solar breaker is fastened in place so it can't be pulled out while live (clip or screw). **NEC 705.12**
- [ ] Panel's busbar can handle the extra power. Typical rule: main breaker plus solar breaker may not exceed 120% of the busbar rating, and the solar breaker goes at the opposite end of the bus from the main. **NEC 705.12**
- [ ] Nothing is connected ahead of the meter without written approval from National Grid. **ESB 7.1.6**
- [ ] **No bite connectors** (piercing or insulation-piercing taps) on the incoming, unmetered wires. National Grid prohibits them. Any tap or splice there must follow the NEC. **ESB 5.1.5, 7.4.1**

7 WARNING LABELS

- [ ] Directory plaque at the meter/service equipment showing where each power source is and where its disconnect is. **NEC 705.10**
- [ ] Rapid shutdown label at the service equipment and shut-off. **NEC 690.56(C)**
- [ ] Label on every solar disconnect, with its rating. **NEC 690.13**
- [ ] Warning at the panel that it has two power sources and not to move or add breakers beyond what the label says. **NEC 705.12**
- [ ] "WARNING: PHOTOVOLTAIC POWER SOURCE" on conduit, boxes and cable trays, every 10 ft and at turns and walls. **NEC 690.31**
- [ ] Labels are permanent, weather-resistant, and not handwritten with a marker. **NEC 110.21(B)**

Sources: 2023 NEC; National Grid ESB 750-2025 (11.3) and ESB 756; NY Standardized Interconnection Requirements (SIR).