

High-Voltage Switchgear Installation Safety Checklist

Site / Project	_____	Address	_____
Inspector name	_____	Company	_____
Date	_____	Time	_____

Documentation aid only. Adapt this resource to the site, manufacturer instructions, and applicable local requirements. It does not replace a competent person, professional judgment, legal advice, or a required statutory form.

Inspection checklist

I. Pre-Installation Site Assessment

☐ Is site access controlled and restricted to authorized personnel only? (Lockout/Tagout procedures in place)	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐ Has a soil resistivity test been performed to determine appropriate grounding requirements per IEEE 80?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐ Have all underground utilities been located and marked before excavation (One-Call system)?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐ Are weather conditions (wind, rain, temperature) suitable for safe high-voltage work? (Refer to company policy).	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐ Is the switchgear staging area clear of obstructions and properly graded to prevent water accumulation?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐ Is the site-specific emergency response plan documented, communicated, and readily available?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐ Is a reliable communication system (e.g., two-way radios) available for all personnel?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐ Are adequate first aid supplies and trained personnel available on site?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐ Has an arc flash hazard analysis been completed for the specific switchgear configuration?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐ Are all personnel involved in the installation qualified and trained for high-voltage work?	☐ Pass	☐ Fail	☐ N/A	Notes: _____

II. Grounding and Bonding

☐	Is the grounding electrode system installed per NEC 250, including grounding rods, ground ring, and connections to the switchgear?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Are grounding rods driven to a depth of at least 8 feet (2.44 m) and spaced at least 6 feet (1.83 m) apart?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Are grounding conductors sized appropriately per NEC 250.66 based on the size of the service entrance conductors?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Are equipment grounding conductors (EGCs) properly installed and connected to all metallic enclosures and non-current-carrying parts?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Are bonding jumpers installed around all expansion joints, flexible metal conduit, and other discontinuities in the grounding path?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Has a ground resistance test been performed to verify that the grounding system meets the required impedance levels (typically < 25 ohms)?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Have step and touch potential calculations been performed, and are mitigation measures (e.g., ground grid, equipotential plane) in place?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Is the DC system grounding configuration compliant with NEC 690, including proper grounding of the DC combiner boxes and inverters?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Are surge protection devices (SPDs) installed on both the AC and DC sides of the switchgear to protect against voltage transients?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Are all grounding connections clean, tight, and free of corrosion? (Use anti-oxidant compound).	☐ Pass	☐ Fail	☐ N/A	Notes: _____

III. Switchgear Installation and Commissioning

☐	Is the switchgear securely anchored to the concrete pad per the manufacturer's specifications?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Are all cable terminations properly torqued and insulated per the manufacturer's instructions and applicable standards?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Are all cables clearly labeled with their voltage, phase, and destination?	☐ Pass	☐ Fail	☐ N/A	Notes: _____

☐	Has an insulation resistance test (megger test) been performed on all cables before energization?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Is a voltage test performed to verify correct voltage levels and phase rotation before connecting to the grid?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Are all protective relays (e.g., overcurrent, overvoltage) properly set and tested?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Is all control wiring properly connected and tested for functionality?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Does the switchgear nameplate match the system design and specifications?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Is the switchgear ventilation and cooling system functioning correctly to prevent overheating?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Are arc flash mitigation measures (e.g., arc flash relays, current limiting fuses) properly installed and tested?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Are the inverters compatible with the switchgear's voltage and current ratings?	☐ Pass	☐ Fail	☐ N/A	Notes: _____

IV. Personal Protective Equipment (PPE) and Safety Procedures

☐	Are all personnel wearing appropriate arc-rated clothing (e.g., shirts, pants, suits) based on the arc flash hazard analysis?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Are voltage-rated gloves being used, inspected before each use, and properly stored?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Are safety glasses with side shields or a face shield being worn for eye protection?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Are insulated tools being used for all work within the arc flash boundary?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Is a hot work permit required and obtained before performing any work that could create an ignition source?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Are proper Lockout/Tagout (LOTO) procedures being followed to de-energize and isolate the switchgear before any work is performed?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Is rubber matting or other insulating material used to provide additional protection from step and touch potential?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Is a qualified safety observer present during all high-voltage work?	☐ Pass	☐ Fail	☐ N/A	Notes: _____

☐ Is an insulated rescue hook readily available in case of an electrical emergency? ☐ Pass ☐ Fail ☐ N/A Notes: _____

☐ Is a calibrated voltage detector used to verify that equipment is de-energized before starting work? ☐ Pass ☐ Fail ☐ N/A Notes: _____

Findings

#	Item	Location	Severity	Action required
1				
2				
3				
4				
5				
6				
7				
8				

Signature

Inspector signature _____

Name _____

Date _____