



Specializing in Fire, Building, and Life Safety

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Commercial Roof-Mounted Solar PV – Plan Review Submittal Checklist

This checklist covers typical requirements for **IBC, NEC, IFC**, and **ASCE 7**–based jurisdictions, as well as common utility interconnection requirements.

Permit Application Package

- ☐ Completed building permit application
- ☐ Electrical permit application (if separate)
- ☐ Contractor license information
- ☐ Owner authorization
- ☐ Project valuation and scope of work description

Site Plan

- ☐ Property address, parcel number, zoning, and occupancy type
- ☐ North arrow and scale
- ☐ Building footprint with all roof areas receiving PV
- ☐ Locations of electrical service equipment, meters, transformers, and disconnects
- ☐ Fire access roads and site fire lanes
- ☐ Locations of any ground equipment/ESS (if included)

Roof Plan

- ☐ Scaled roof plan showing array layout
- ☐ Array dimensions and spacing
- ☐ Fire access pathways, setbacks, and ridge clearances (per IFC/Local Fire Marshal)
- ☐ Location of rooftop mechanical equipment (HVAC, vents, skylights)
- ☐ Roof drainage pathways maintained (commercial roofs often require review)

Structural Documentation

A. Structural Drawings

- ☐ Existing structural framing plan with member sizes, spacing, spans
- ☐ Roof deck type (metal, TPO over insulation, concrete, wood, etc.)
- ☐ Added structural supports (if required)
- ☐ Anchorage details for racking system

B. Structural Calculations

- ☐ Dead load of PV system and ballast (if used)
- ☐ Wind load calculations (ASCE 7 exposure category + component & cladding pressures)
- ☐ Snow load and drifting (if applicable)
- ☐ Roof parapet impacts on wind loads
- ☐ Verification of structural capacity for added loads
- ☐ Ballasted system analysis showing no overstress of decking

C. Racking/Mounting Manufacturer Information

- ☐ Certified engineering for racking system
- ☐ Attachment spacing, allowable load tables
- ☐ Ballast layout (if ballasted)

D. Structural Engineer of Record

- ☐ Stamped/sealed calculations
- ☐ Stamped/sealed structural drawings
- ☐ Letter of structural adequacy (if applicable)

Electrical Documentation

A. Electrical Plans

- ☐ One-line diagram and three-line diagram (commercial systems typically require both)
- ☐ Array configuration: strings, DC combiners, optimizers, microinverters
- ☐ Wiring methods, conductor types, and sizes
- ☐ Conduit routing diagram (interior/exterior)
- ☐ Overcurrent protection devices (OCPDs)
- ☐ Grounding & bonding methods (NEC 250 & 690)
- ☐ Rapid shutdown system description (NEC 690.12)
- ☐ Voltage drop calculations (often required commercially)
- ☐ Location and type of disconnects: AC, DC, ESS, building disconnect
- ☐ Equipment grounding and bonding plan
- ☐ Signage and labeling plan (NEC 690/705/706)

B. Electrical Calculations

- ☐ Maximum DC voltage (NEC 690.7)
- ☐ Maximum current calculations (NEC 690.8)
- ☐ Conductor ampacity corrections (temperature, rooftop derate, conduit fill)
- ☐ Load vs. supply-side interconnection analysis (NEC 705)
- ☐ Fault current calculations
- ☐ Arc-fault and ground-fault protection method

C. Equipment Specifications

- ☐ PV modules
- ☐ Inverters / microinverters / optimizers
- ☐ Combiner boxes / disconnects
- ☐ Rapid shutdown devices
- ☐ Metering equipment
- ☐ PV wire, connectors, and racking documentation

Fire Safety / IFC Compliance

- ☐ Fire pathways per IFC or local amendments
- ☐ Clear access to standpipes, HVAC, hatches, skylights
- ☐ Noncombustible rooftop equipment setback compliance
- ☐ Equipment marking/labeling for firefighters
- ☐ Fire-resistance rating maintained for any penetrations
- ☐ PV array layout avoids obstructing smoke ventilation points

Utility Interconnection Package

- ☐ Completed interconnection application
- ☐ Signed utility interconnection agreement
- ☐ Utility-required diagrams (line diagram, load study, transformer data)
- ☐ Relay protection scheme (for large commercial systems)
- ☐ Medium-voltage equipment details (if applicable)
- ☐ Utility point of connection clearly shown

Code & Standards Compliance Statements

- ☐ Compliance with IBC (latest adopted edition)
- ☐ Compliance with NEC (latest adopted edition)
- ☐ Compliance with IFC and local fire code amendments
- ☐ Compliance with ASCE 7 for wind, seismic, snow
- ☐ Compliance with UL 1703/61730 (modules) and UL 1741 (inverters)
- ☐ Compliance with OSHA for rooftop work and pathways

Additional Jurisdiction-Specific Requirements

- ☐ Environmental review (if required)
- ☐ Historic preservation approval
- ☐ FAA notice of construction (for tall buildings near airports)
- ☐ Stormwater considerations (for equipment on roof)
- ☐ Hazardous materials review (for ESS systems)
- ☐ Emergency response plan (for large-scale installations)

Installer & Project Information

- ☐ Electrical contractor license
 - ☐ Structural engineer license
 - ☐ Project manager contact
 - ☐ NABCEP certification (if jurisdiction requires or recommends)
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