

Solar AI Platform — Project Report (Starter)

Project: Solar Installation - 123 Main Street (ID: 2)

Address: 123 Main Street, San Francisco, CA 94102

Project Assets



[photo]

roof_20251228_000243_564450_cracks.jpg

[View Full Size](#)



[photo]

roof_20251228_000243_574841_rusty.jpg

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[photo]

roof_20251228_000243_579947_bad.jpg

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[photo]

roof_20251228_000243_582920_good.jpg

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Analysis Results

X Electrical: FAILED

Unsafe to install solar on current electrical system

Action required: Electrical panel upgrade needed

X FAILED

Safety Score: 72 / 100

15.0kW system requires 50A breaker on 125.0A panel

System Details:

- Planned Solar System Size: 15 kW
- Main Panel Rating: 125 A
- Main Breaker Rating: 125 A
- Solar Breaker Required: 50 A
- Phase Type: Three
- Voltage: 230 V

Key Findings:

- X Panel capacity exceeded by 25A - UNSAFE
- ■ Panel age unknown - inspection recommended

Recommendation:

CRITICAL - Panel capacity exceeded by 25A Violates NEC 120% rule -
installation would be unsafe and illegal Upgrade panel to 195A+ OR reduce
system to 4kW

SHADING Analysis

Summary: 2 roof plane(s), 2 obstruction(s)

Overall Shading Level: **Low** (Avg 0.27% loss)

• Main Roof

Shading Level: **Low** (0.54% annual loss)

Expected Production: **Excellent**

Power loss during strongest sunlight hours (10AM-4PM): 0.0%

Recommendations:

- Excellent solar exposure - minimal shading impact
- Most affected time: 18:00 - avg 1.1% shaded

• Garage Roof - West Facing

Shading Level: **Low** (0.0% annual loss)

Expected Production: **Excellent**

Power loss during strongest sunlight hours (10AM-4PM): 0.0%

Recommendations:

- Excellent solar exposure - minimal shading impact

CHECK - RECOMMENDATION:

Excellent site conditions! Minimal shading impact - ideal for solar installation.

COMPLIANCE Analysis

Compliance Status: **PASS**

Score: **100/100**

■ Compliance Check PASSED - Score: 100/100. Design meets all requirements and is ready for permitting.

Checked 1 of 2 roof plane(s) with layouts

ROOF_RISK Analysis

Roof Risk: **HIGH RISK**

Risk Score: **100/100**

Survey Information:

Key Risk Factors:

- Major cracks detected
- Water leakage signs detected
- Major structural damage detected
- Weak structural areas detected

Recommended Actions:

Action: CRITICAL - Repair roof leakage immediately

Reason: Active water intrusion poses severe risk to solar equipment and safety.

Next step: Stop installation, repair all leaks, waterproof roof, then re-assess.

Detailed Image Analysis:

Image 1 — Findings



Extensive water stains and discoloration (brown/yellow) are visible on both the ceiling and the wall, indicative of prolonged water ingress.

Significant crumbing and detachment of plaster/finishing material is evident along the edge of the ceiling, consistent with severe water damage.

Widespread deep cracks are present on the wall surface, suggesting structural movement or material degradation.

Clear drip marks and active/recent water leakage are visible on the wall, confirming an ongoing or recent water issue.
The severe interior damage strongly implies a compromised roof structure and waterproofing above.
Roof type identified: Cannot determine from interior image

Image 2 — Findings



A very pronounced and significant horizontal sag/undulation is visible across the roof slope, indicating potential structural issues with the roof decking, rafters, or underlying supports.
Widespread and severe deterioration of asphalt shingles is evident, including significant granule loss, curling, lifting, and brittleness.
Many shingles appear to be at the end of their lifespan, with several exhibiting creasing and potential breakage points.
Accumulation of pine needles and other debris is present on the roof surface and heavily collected within the gutter, which can trap moisture and accelerate material degradation.
Discoloration and potential surface rust or corrosion are visible on the metal flashing around the chimney, suggesting a potential area for water intrusion.
The overall degradation of the shingles and the pronounced sag strongly imply past or ongoing water damage to the roof structure or decking beneath the shingles.

Roof type identified: asphalt shingles

Image 3 — Findings



Extensive cracking, splitting, and tearing of asphalt shingles across the visible surface.
Significant granule loss is evident, indicating advanced wear and deterioration of the shingles.
Multiple shingles are broken or have pieces missing, directly exposing the underlying roof felt/underlayment and potentially the decking.
The exposed underlying material shows signs of discoloration, suggesting past or ongoing water intrusion.
Fasteners (likely nails with caps) are visible and exposed in damaged areas, indicating loss of shingle integrity and potential points of leakage.

The roof covering has completely failed in multiple areas, making it highly susceptible to water leakage.

Image 4 — Findings



The visible asphalt shingles appear largely intact with no obvious cracks, lifting, or curling.

The granular surface of the shingles shows some normal variation consistent with exposure, but no widespread or severe granule loss is apparent.

No visible signs of water leakage, staining, discoloration, moss, or significant algae growth are present in the depicted area.

No rust or corrosion is visible on any metal components, as none are clearly visible within the focused image.

The roof section in the foreground appears structurally sound with no visible sagging, holes, or major damage.

While the visible section looks acceptable, the image focuses on a small area, limiting the full assessment of the entire roof's condition and potential age-related wear.