# Solar AI Platform — Project Report (Starter)

Project: test (ID: 11)
Address: ghjjh

### Project Assets

**[photo]**
roof_20260103_161952_414595_two image.jp
View Full Size

## Analysis Results

### ROOF_RISK Analysis

**Roof Risk: SAFE** **Risk Score: 0/100**

**Survey Information:**

**Key Risk Factors:**

- Roof appears to be in good condition

**Recommended Actions:**

**Action:** Proceed with solar installation
**Reason:** Roof is in good condition with no significant issues detected
**Next step:** Schedule installation at your convenience

**Detailed Image Analysis:**

#### Image 1 — Findings

From this aerial perspective, no visible cracks, sagging, holes, or major structural damage are apparent on the main visible roof sections.

No obvious signs of water leakage, prominent staining, or significant discoloration are discernible on the roof surfaces.
The roof appears to be primarily an asphalt shingle type, common for residential structures.
Due to the aerial view and image resolution, minor defects such as small hairline cracks, localized rust on flashing (which is not clearly visible), or subtle signs of wear cannot be definitively assessed.
A very large, dense tree significantly shades a substantial portion of the roof, which would severely impact solar panel efficiency and would likely necessitate significant tree trimming or removal for optimal solar production.
Roof type identified: Asphalt Shingle

### ✗ Electrical: FAILED

Unsafe to install solar on current electrical system
**Action required: Electrical panel upgrade needed**

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### ✗ FAILED

Safety Score: 0 / 100

10.0kW system requires 63A breaker on 125.0A panel

**System Details:**

- Planned Solar System Size: 10 kW
- Main Panel Rating: 125 A
- Main Breaker Rating:  A
- Solar Breaker Required: 63 A
- Phase Type: Single
- Voltage: 230 V

**Key Findings:**

- ✗ BLOCKING FAILURE: Panel capacity exceeded by 38A - INSTALLATION PROHIBITED
- ✗ BLOCKING FAILURE: Rapid shutdown required by NEC 690
- ✗ BLOCKING FAILURE: Arc-fault protection required by NEC 690
- ■ Panel age unknown - professional inspection required before installation

**Recommendation:**

■ INSTALLATION BLOCKED: Panel capacity exceeded (NEC 705.12 violation) NEC 705.12 violation - fire and safety hazard Review automated solutions below and select best option

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## COMPLIANCE Analysis

### Compliance Status: FAIL  **Score: 65/100**

■ Compliance Check FAILED - Score: 65/100. Design has 1 critical violation(s) that must be fixed bef

**Issues Found (2):**

- **Edge Setback Requirement** [HIGH]
  Roof: Main Roof
  Issue: Panels are 0.5m from edge (minimum: 0.9m)
  Fix: Increase offset_from_edge to 0.9m or greater
- **Fire Pathway Width** [MEDIUM]
  Roof: Main Roof
  Issue: Edge clearance (0.5m) may not provide adequate fire pathway
  Fix: Increase edge offset to 0.9m for fire safety

Checked 1 of 1 roof plane(s) with layouts

# SHADING Analysis

## ! Shading Impact: High

**Expected Energy Loss:** **20.8% per year**

Main Issue: tree causing shadows during peak sun hours

### What We Found:

- The 12.0m tall tree is the sole and dominant shading obstruction, posing a
- significant risk to solar production.
- Given the south-facing roof (Azimuth 180), the tree's height will result
- in substantial shading, particularly when the sun is lower in the sky.
- The impact will be most pronounced during winter months and potentially
- around midday if the tree is positioned to the south of the array, or
- morning/afternoon if east/west.

### When Shadows Affect Your Panels:

Morning (6-9 AM): Some shade
Peak Hours (9 AM-3 PM): Heavy shade
Afternoon (3-6 PM): Some shade

### Throughout the Year:

Summer: Moderate shading
Winter: Heavy shading

### What You Should Do:

- Conduct a detailed site survey to determine the exact distance and bearing
- of the tree relative to the solar array to precisely model shading
- patterns.
- Evaluate options for tree pruning or removal if the shading analysis
- confirms significant energy loss and if feasible.
- Consider using module-level power electronics (MLPE) such as
- micro-inverters or power optimizers to mitigate the impact of partial
- shading.