



San Jose ADU

Introduction

In December 2019, SunDrum Solar and Freedom Solar commissioned a 10.7kW hybrid solar PV-T system on an Accessory Dwelling Unit (ADU) being built by Acton ADU in San Jose, CA. The solar system supplies 100% of the electrical, space heating, space cooling, and DHW for the entire home. The system includes 670 sq. ft. of Insol Corp Infinite R 23C phase change material installed in the ceilings, which serves as thermal storage for the space heating and cooling. SunDrum Solar's thermal collectors are attached to the back side of commercial PV panels allowing this area to collect both electrical and thermal energy. The dramatic improvement in solar energy collection increases useful energy to the client, which is extremely valuable for homes with limited roof space. In this case a standard PV array would only produce 6.5MWh and the client would need to purchase energy from the grid. By converting the PV panels to hybrid modules 14.5MWh of energy is produced allowing the client to be net zero and reducing their 25yr cost of ownership to \$9,000 vs a traditional system's \$113,000. Enablement of these systems in the small home market will make homes more affordable and improve home ownership.



System Information

Location: San Jose, CA, USA

Application: DHW, Space Heating, A/C, PV Electricity

Rated Power Output: 10.7kW (6.5kWt, 4.2kW_e)

Yearly Energy Output: 9,500 kWh_t (uses 1,500 kWh_e), 6,500 kWh_e

Yearly CO₂ Reduction: 9,000 lbs.

Solar Collectors: 10 SDM100-300 (650W_t), 12 SunPower X21-350

System Format: Indirect Closed Loop

Storage Capacity: 40 gal water heater, phase change insulation

Backup Heating: Electric

