

Department of Defense Sustainability Roof Project

Vandenberg Space Force Base (VSFB), California

Location: Bishop Tracking Station (BTS), Building 23229

General Contractor: Chapmon-VJR, JV, LLC.

Sub-Contractor: Alternative Coatings Solutions (ACS) Inc.

Roof Restoration Project #: XUMU 22-2416

Roof Manufacturer: Instacoat Premium Products (IPP)

The BTS roof deck required repairs to eliminate leaks, water damage and annual maintenance repair costs on a 16K square foot roof over 25 years old. Design calling for a full roof tear-off and replacement would require membrane removal and construction costs to raise curbs, drains, flashing, and installing new iso-board. Following sustainability guidelines listed in Executive Orders and the Federal Acquisition Regulation, VSFB was able to adjust the project design and pursue a sustainable liquid applied cool roof approach to roof repair and restoration. This design change eliminated the demolition phase and prevented 18 tons of construction waste from entering local landfills and reduced Carbon Dioxide emissions by 3.85 metric tons MTCO₂E.

Existing Roof Details:

- 16,000 square feet (ft²)
- 2-ply asphalt modified bitumen (mod-bit) base sheet and aggregate coated top sheet

Project Details:

- Instacoat Premium Products (IPP) roof restoration system: Liquid Applied Seamless Cool Roof
- New monolithic, liquid, cold applied, highly reflective, UV stable, seamless membrane
- Existing seams, curbs, drains, sealed with dual component asphalt rubber emulsion sealer
- Primer coat ABB100 and 250HS UV stable highly reflective white silicone topcoat, 20-year warranty
- Cool Roof Rating Council (CRRC)-SRI Values exceeded--Replaced DOE Energy Star roof rated products

Instacoat Premium Products Sustainability Design Benefits:

- Exceeded 50% waste reduction goal; obtained 100% reduction, 18 tons of waste prevention
- 88% Solar Reflective reduced Heat Island Effect, reduced deck temperatures 30-60 degrees
- **Seamless system**, significant cost savings over lifetime of roof--90% of leaks are seam related
- IPP inspections every 3-years, can eliminate voided Roof Warranties, saving M&O tax dollars
- California Energy Commission rated 33% energy savings with installed cool roof technologies
- Co₂ emissions reduced, less HVAC run cycle times, equipment life cycle/maintenance extended
- No demolition construction waste: reduced 3.85 metric tons of Co₂ emissions at VSFB
- IPP Sealed decks prevent energy loss, promote energy conservation and dollar cost savings

Selecting cool roof technologies for this project helped the DOD meet or exceed sustainability goals.

The documents and sources listed below contain the sustainability goals followed on this project.

- Executive Orders: 13834, 13990, 14005, 14008, 14057 Sustainability Design
- DAF Climate Action Plan: Priority 2-Climate Informed Decisions and Acquisitions
- Federal Acquisition Regulation (FAR) Part 23 Environment/Energy--Cool Roof Rating Council (CRRC)
- FAR 36.104 Policy-Energy Savings, Waste Reduction, Co₂ Reduction, Renovation Cost Savings
- Environmental Protection Agency (EPA)-Heat Island Mitigation Strategies (cool roof technology)