

Department of Homeland Security
Customs and Border Protection (CBP)
U.S. Border Patrol (USBP) Station
San Diego Sector
Chula Vista, CA Bldg 11

IPP Silicone Roof Restoration Systems
(SRRS)

The pictures in these slides show the application process used to apply IPP products on existing roof decks. These products meet federal sustainability requirements while restoring existing roof envelopes and providing a new roof membrane. Different roof systems on this site included: cap-sheet, shingles, TPO, BUR gravel, and metal standing seam.

USBP – Chula Vista Station:

This picture shows a new plywood deck being coated with neoprene rubber asphalt emulsion. This coating will have fabric embedded into the rubber to reinforce the seams and create a new membrane bonded to the deck. The material is easily rolled over the surface to create the required thickness for any project 60-80mils thick are standard coatings when applying rubber. This surface will cure and be coated with a primer and then 40mils thick of white silicone. This new membrane will seal all joints, seams, penetrations and is self-flashing to other surfaces. (wood, steel, concrete, shingles, cap-sheet, TPO, EPDM, PVC, BUR)



Substrates The old cap-sheet failed at multiple seams and buckled across this deck. Plywood was rotten and some rafters had termite damage and needed replacement. This picture shows how the rubber emulsion bonds to multiple surfaces; wood, stucco, and metal flashing. The rubber forms a water-resistant shield across these surfaces and adheres directly to the materials.



Silicone Deck The silicone coat can be applied with a super-spreader, spray application or roller brush. This small deck application was rolled on at 40mils thick providing a water-proof membrane. A full roof restoration membrane at seams and penetrations is typically 190+ mils thick. This is 2x thicker than standard 90mil TPO decks. Unlike TPO/EPDM the IPP rubber is self-sealing, if any punctures are made through the membrane, the rubber will bond around the object preventing a leak. (nails, screws, or cut/slices) If the object is removed, the rubber will bond back together preventing any leaks. Most leaks on standard roofs are at the seams. With an IPP roof, there are no seams to fail, this seamless system has a rubber membrane with 800-1000% elongation factor. These roofs will not fail at the seams like BUR, TPO, EPDM, Cap-sheet and metal standing seam. All these qualities, while at the same time meeting or exceeding Executive Orders, FAR 36.104, DOE, EPA and CRRC federal requirements.



Silicone Deck Transitions

The plywood deck was sealed with neoprene asphalt rubber emulsion and top coated with white UV stable highly reflective silicone. This application transitioned from the upper deck to the lower cap-sheet deck. The picture shows the elevation change from one deck to the other and the white silicone transitioning with the roofs. The base of the galvanized pole shows the IPP product bonding to steel and the base penetration was sealed preventing any leaks. The shingles on the sloped roof also transition into the IPP products and all systems tied into one seamless monolithic roof envelope. This solar reflective inorganic membrane will drop temperatures saving on energy costs and prevent any decay/mildew on the roof. Ponding water isn't an issue either because silicone unlike TPO/EPDM/PVC and BUR does not break down in water.



Sustainability Design and Cool Roof Technology

- Federal Sustainability Plan: www.sustainability.gov/federalsustainabilityplan/
- Executive Order: 14005, 14008, 14057
- FAR 36.104 Policy: [www.acquisition.gov/far/part-36#FAR 36 104](http://www.acquisition.gov/far/part-36#FAR_36_104)
- FAR 23 Acquisition, Environment, Energy and Water: www.acquisition.gov/far/part-23
- EPA, Heat Island Effect, Co2 Emissions and VOC's: www.epa.gov/heatislands
- EPA, Guiding Principles for Sustainable Federal Buildings: www.epa.gov/greeningepa/guiding-principles-sustainable-federal-buildings
- Cool Roof Rating Council CRRC/ANSI rated products: www.coolroofs.org/resources/ansi-crrc-s100
- DHS Sustainability Plan 2022: www.sustainability.gov/pdfs/dhs-2022-sustainability-plan.pdf
- DOE Energy Star Roof Products 2022: www.instacoat.com/energystar/sunsetting
- Federal Energy Management Program (FEMP): www.energy.gov/eere/femp/federal-energy-management-program