

Department of Homeland Security
Customs and Border Protection (CBP)
U.S. Border Patrol (USBP) Station
San Diego Sector

Chula Vista, CA BUCA0481 **Metal Roof Deck**

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 steam.

Metal Roof Deck Bldg 17

This is an old metal corrugated roof that covers an open mechanical bay for working on vehicles. The workspace underneath is exposed to high summer temperatures and the metal deck heats up to over 110 degrees. Employees are exposed to the baking effect in this area under the metal. This picture shows detail work being accomplished and transitions from metal to cap-sheet and TPO at the end of the roof. The following slides will show the highly reflective UV stable white silicone being applied, which drops temperatures significantly across the entire surface.



Seams and Detail Work

The metal deck is pressure washed and detail work entails sealing all the seams, screws and penetrations across the deck. The neoprene rubber emulsion bonds directly to the metal and forms a new membrane. Any rusted metal decking is coated with rubber, this prevents any further oxidization or decay. No primer or preparation work is required such as sanding or grinding; the rubber bonds directly to the steel.



Detail Work at Transitions

This roof transitioned between metal, cap-sheet and TPO. The detail work will tie in all roof sections and form a seamless membrane between decks. Once all the detail work is completed and cured, the metal surface will be coated with a high solid silicone top coating. This silicone coating will meet or exceed federal sustainability requirements set in: Executive Orders 14005, 14008 and 14047, FAR 36.104, DOE, EPA and CRRC.



Silicone Deck Transitions

The silicone is applied directly to the metal roof deck, flashing and TPO. The TPO and cap-sheet will be cleaned, neoprene asphalt rubber emulsion applied at all seams and penetrations. This rubber membrane bonds to all the surfaces and cures ready for the next coating. The main roof field will be coated using roller brush application with silicone. This process will seal the entire roof envelope and provide a water-resistant membrane for decades.



Silicone Roller Brush Applied

This inorganic membrane will bond to the deck and provide a UV stable membrane for decades. This material is perfect for roofs because it does not break down in water. The surface temperatures were instantly noticed after one application in the morning. Workers underneath the metal roof noticed a 20-degree change in temperatures. The surface temperatures on the deck dropped even more across the roof surface. Quality of Life (QoL) isn't part of the sustainability goals but is definitely a positive gain using this system.



Sustainability Goals

This high solid silicone membrane drops surface temperatures on the roof. This equates to less cycle times for HVAC units. This translates into reduced energy consumption, reduced Co2 emissions, reduced heat island effect, cost savings on preventative maintenance because equipment is used less and an overall tax dollars savings. A roof restoration project can lead to 100% of construction wasted diverted from landfills. The next slide has links to federal government sites with goals to meet sustainability by 2030. The IPP roofing system can help meet these goals.



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