Department of Homeland Security

Customs and Border Protection (CBP)

U.S. Border Patrol (USBP) Station

San Diego Sector

Chula Vista, CA BECA0141 Cap-Sheet Roof Decks

IPP Silicone Roof Restoration Systems

(SRRS)

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.

Cleaning the Deck

The cap-sheet is washed to remove any dirt, grease or debris. This capsheet was left in-place, restored and a new IPP roof membrane applied. Not removing the deck can save hundreds of thousands of tax dollars. At the same time meeting federal *sustainability goals,* by reducing construction waste. The roofs at this site were left in place preventing over 200K lbs of construction waste being dumped into a landfill and saving thousands of dollars on labor costs.

Cleaning Roof Decks

The IPP system reduces Co2 because it's a cold applied system, there are no hot tar kettles or torch applied products, which all emit Co2 into the atmosphere. The IPP roofing systems meet or exceed federal sustainability goals: Executive Order 14005, 14008, and 14057
Federal Acquisitions Regulation
(FAR) 36.104 Policy

Clean and Dry Surface

After the deck is washed and dry, it's ready for detail work around seams, penetrations and transitions using neoprene asphalt rubber emulsion. Damaged seams will have reinforced fabric embedded into the rubber to strengthen the seam. This rubber has an 800-1000% elongation factor and can stand-up to any expansion or contraction the roof deck might encounter.

Seams

The seams are coated with 20mils thick base coat of rubber, reinforcement fabric is added as needed and coated with 30mils of rubber. The second 30mils thick rubber coat is applied encapsulating the seams, for a total of 80mils.
If the cap-sheet is newer or in good standing the entire deck can have primer applied directly to the cap-sheet and then top coated with silicone. Some applications required full restoration of the cap-sheet so rubber is applied over the entire deck creating a 130mils thick membrane.

Penetrations

Vents, scuppers, stacks, utility lines, and roof top equipment.

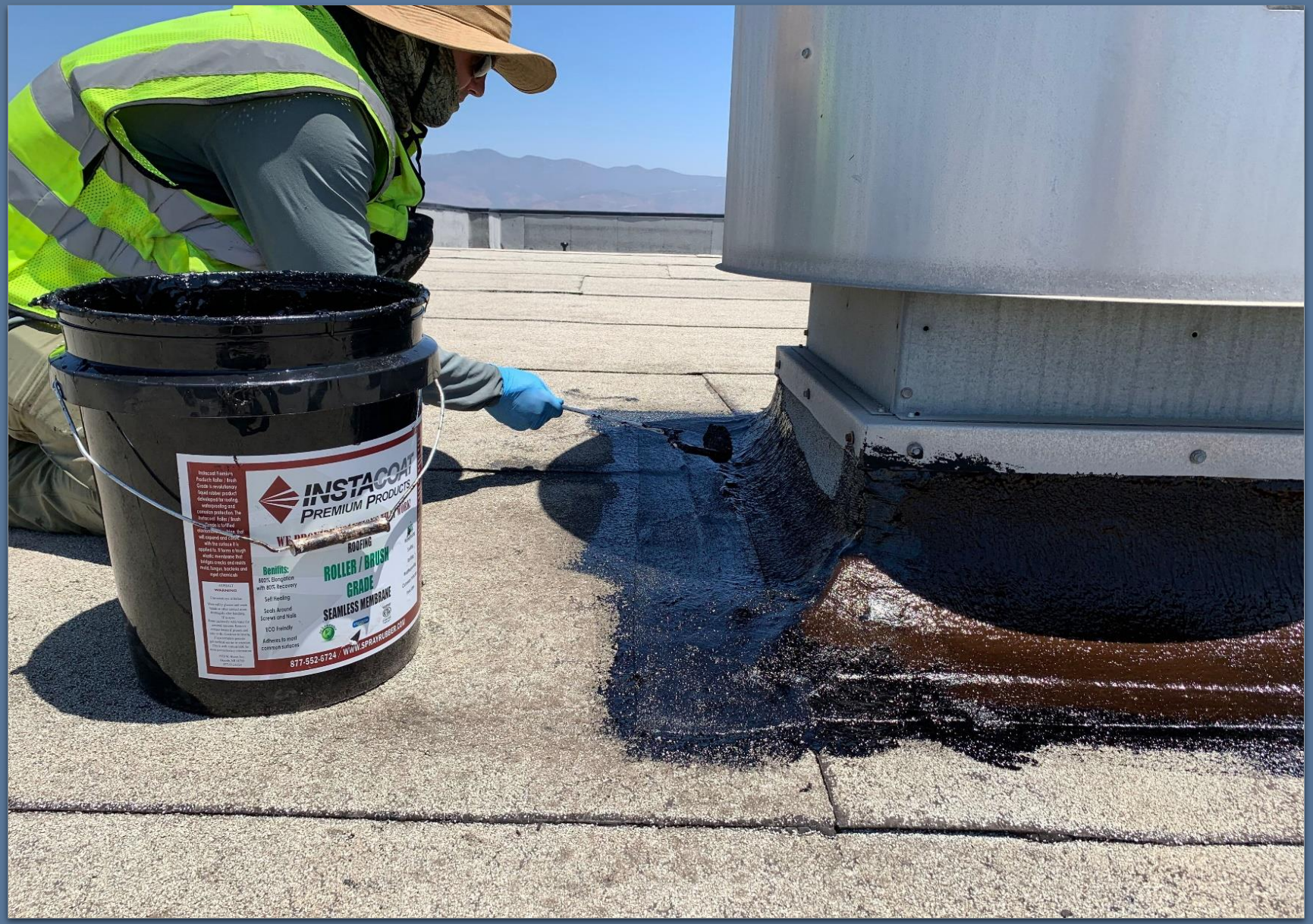
These areas are encapsulated with rubber emulsion and will have reinforced fabric embedded in the rubber. Neoprene asphalt rubber emulsion has 800-1000% elongation properties, self-sealing if punctured and is monolithic, so there's no seams to fail.

Transitions

This transition is having detail work completed between the roof deck and parapet wall. The vertical seams can be sealed with dual component spray applied rubber. This will instantly set and bond to the vertical surface. Trowel Grade Rubber can also be applied and will seal any seam, penetration, or transition.

Reinforcement Fabric

Fabric is embedded in the rubber at the transition between the deck and parapet wall. 100% polyester spun laced fabric.



Detail Work around Roof Top Equipment

Rubber emulsion is applied around equipment and curbing. Reinforcement fabric is cut onsite to be embedded in the rubber strengthening the final membrane.

Neoprene Asphalt Rubber Emulsion

This cap-sheet was coated with rubber at 40mils thick, the buckets of rubber on the deck are for the second application of 40mils thick rubber. This will have a primer applied and a silicone top coating. Any seams needing repair will have reinforcement fabric added to the rubber to strengthen the seam.

Second Coat of Rubber

The roof is measured and marked off in a grid pattern to ensure the proper coverage rates. Rubber is poured into the grid section and rolled out to meet the 40mil thickness requirement for this roof. Spray applications can be applied using IPP dual component in one application.

Roller Brush/Squeege

The rubber is poured into a grid section and a squeegee is used to move product across the deck. Then rollers are used to back roll the rubber. Detail work around penetrations and equipment can use brushes and small rollers as needed.

High Solids Silicone HS250

The rubber has primer options and can be coated with white/tan silicones to drop surface temperatures across the deck. The final top coating will be 40mils thick and provide an energy savings, UV stable, highly reflective barrier for the roof envelope.

Silicone Roof Restoration System (SRRS)

The system is very versatile and used across different roof systems, wood, TPO, concrete, metal, EPDM, PVC, Cap-sheet, BUR, etc..

This system meets or exceeds EO/FAR/CRRC/EPA and DOE guidelines for cool roof systems. The system is also an air sealing technology to ensue full roof envelope air seal.

One-Way vents

One-Way Vents

The vent s are bonded into the deck with the IPP system. This allows trapped air/gasses to escape the roofing envelope. This vent was top coated with UV Stable Red Silicone to help prevent tripping hazards.

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
- 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