VA Orlando, FL-Lake Nona

IPP roofing product demonstration. Applications for different roof systems.

These next photos show the application processes used to apply IPP products on TPO, EPDM and PVC membranes. The same application process is used when conducting in-house preventative maintenance and sealing any roof issues that cause leaks.

Training demonstration at Orlando VAMC: The training demonstration showed application techniques for IPP products. These products can be applied to; TPO, EPDM, PVC, BUR or Cap-Sheet membranes and directly applied to metal roofs, wood or concrete surfaces. The following pictures show the processes used during the training briefing. These techniques can be used by Maintenance Mechanics to apply roofing products and eliminate roof leaks across any flat roof system.

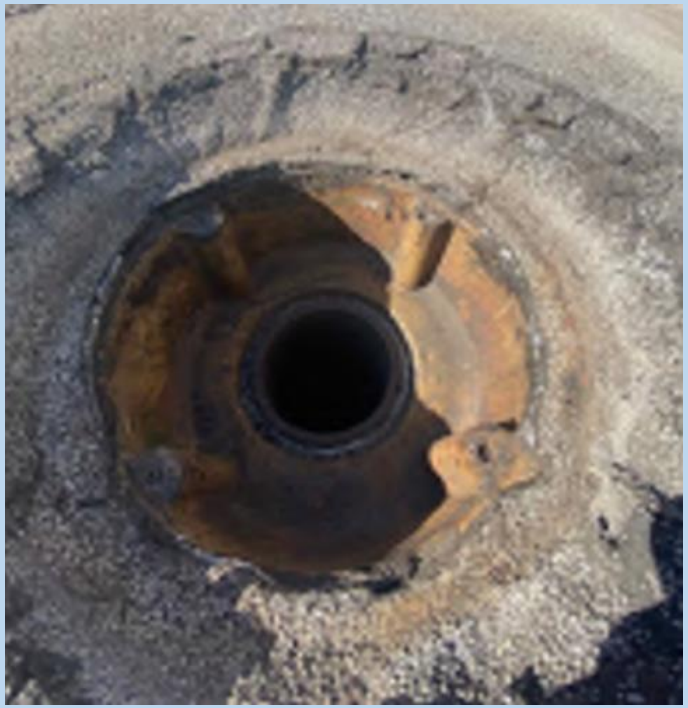
<u>TPO/EPDM/PVC</u> Pressure wash using IPP Wash and Prime cleaning solution. This process removes dirt and the oxidized top layer on rubber membranes. All materials are COLD applied meeting EPA guidelines for VOC reduction and eliminating environmental concerns with hot applications. This product meets or exceeds Executive Orders 14057 and Federal Acquisition Regulation 36.104 Policy, for sustainability and cool roof technologies.

Rubber base coat is 60mil thick with fabric encapsulated to strength all seams. Once the rubber cures, a primer is applied at 10-15mils thick, followed by an UV stable top coat of Silicone or Watershed. These top coats will reduce surface temperatures and reflects UV light. (SRI values)

One-way vent sealed into the deck and top coated with UV stable Watershed or 250HS White Silicone. This allows built up pressure to escape and prevents blisters and pressure build-up, which can rupture seams. Membrane leaks are usually associated with failed seams or penetration points such as; drains, stacks, and equipment utility lines.

Rubber asphalt emulsion is used around roof drains and reinforced by embedding fabric into the rubber. Preventative Maintenance at drains will seal the area and prevent roof leaks. Failed drains and seams are the #1 source of roof leaks.

Drain cap/ring removed and cleaned.



Drain coated with rubber emulsion.

Drains are encapsulated in rubber emulsion with reinforced polyester fabric. The vertical parapet wall transitions to the roof deck. The deck and parapet walls will be coated with 250HS white silicone. This will seal the roof envelope preventing any further roof leaks and drop surface temperatures; reducing energy costs and heat island effect. (Sustainability Goals, CRRC, DOE/EPA Sustainable Guidelines)

The TPO seams, stacks, vents, drains, penetrations and transitions were all coated with rubber emulsion. Once the rubber cured the entire deck was coated with 40mils of 250HS White UV stable silicone. This TPO roof photo was taken 6 months after completion and shows dust build-up after rain; highlighting just how bright white this silicone coating is on the roof deck.

Cap-Sheet roof.

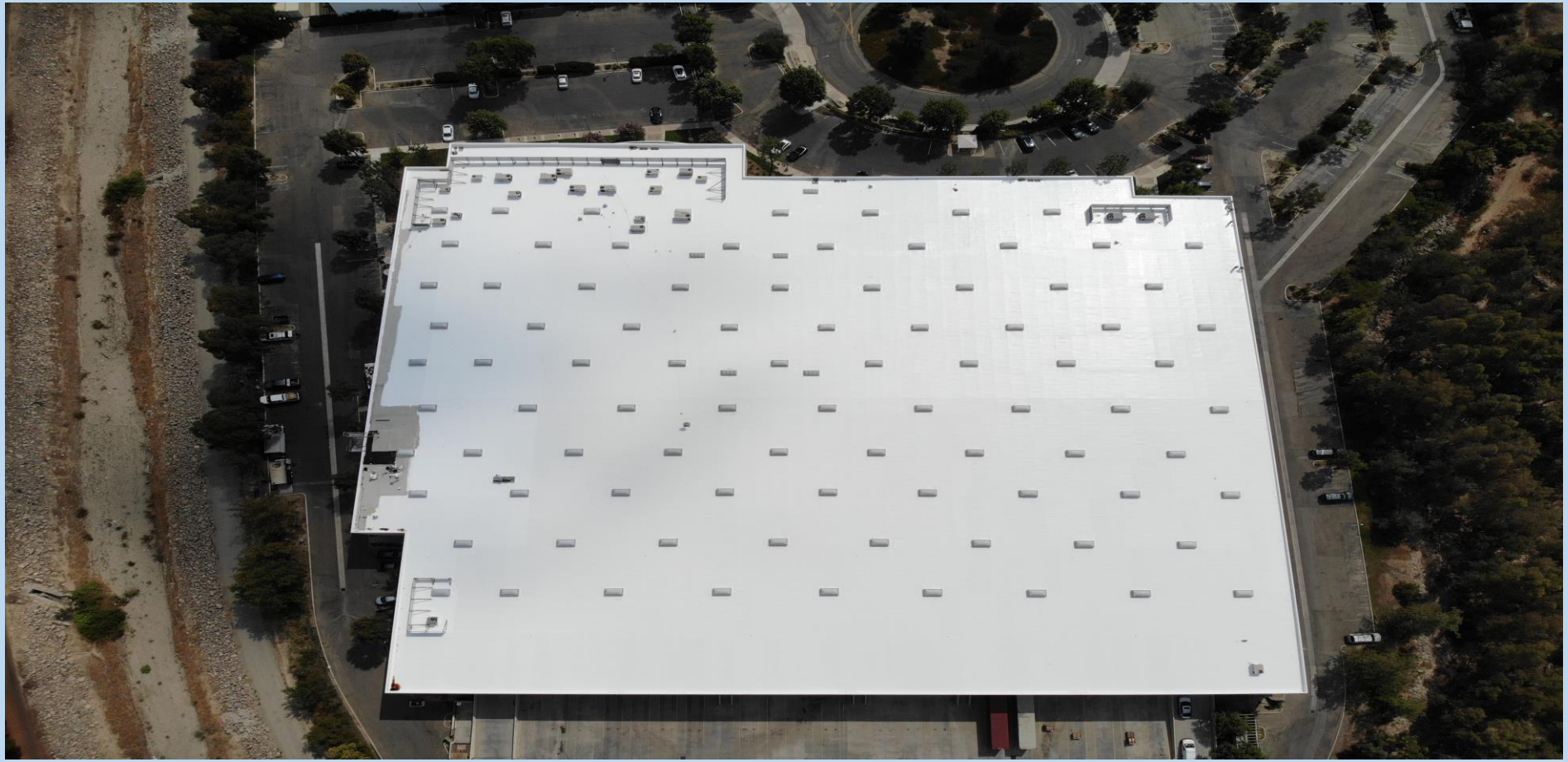
The same application processes used for full roof restoration are used when conducting preventative maintenance patches.

Watershed can be used in place of silicone when conducting maintenance repairs. IPP Watershed is a cost effective patch that coats and seals roofing issues while providing a UV stable top coat for the rubber emulsion membrane.

Cap-Sheet Roof: All seams were coated and detail work around equipment and sun-roofs. Seams were treated with 60mils of rubber, then coated with 80mils of rubber emulsion creating a sealed, seamless deck. The capsheet on this deck was old and needed to be completed coated with rubber emulsion providing a brand new roof membrane. Once the primer and 250HS Silicone is applied the thicknesses will be: seams 190mils and deck 130mils thick. (Full SRRS system)

After the seams cured, the entire deck was coated with 80mils of rubber emulsion, sealing the entire roofing envelope. The next step will be to coat the deck with a primer 10-15mils, followed by 40mils of white highly reflective UV stable 250HS Silicone.

This picture show's the final stages of IPP Silicone Roof Restoration System (SRRS). This provides a brand new roof membrane and a 25 year warranty.



Cap-Sheet, cleaned and ready for rubber emulsion applications for seams and detail work around vents.

Seams and exhaust vents are sealed with rubber emulsion and reinforced polyester fabric is embedded into the rubber membrane.

250HS White Silicone, highly reflective, UV stable, does not break down in ponding water, drops surface temperatures and meets EO/FAR Sustainability Guidelines. (Energy Reduction, Cost Savings, Heat Island Effect, Construction Waste Reduction)

The cap-sheet is now sealed and top coated with 250HS white silicone. Total square footage can be tracked for agency specific sustainability goals. LEED Silver, FEMP, DOE-Better Buildings Campaign

<u>Built-Up Roof (BUR) gravel deck system.</u>

The same application process is used when conducting preventative maintenance and sealing any roof issues.

Seams are typically the source of leaks on BUR systems. The IPP repair system is a fast and economical approach.

Full roof restoration prevents tear-off and tons of constructions waste going to landfills. This is another federal sustainability goal listed in Executive Orders, Federal Acquisition Regulation (FAR). The entire deck can be coated/sealed and top coated with white silicone to meet cool roof standards. (CRRC/DOE/EPA)

BUR gravel roof: Remove gravel and recycled as needed. The deck is flood coated with rubber emulsion filling all voids, seams and cracks. The surface cures and bonds to the roof deck creating a new roof membrane.

BUR gravel roof deck with rubber emulsion, this will be coated with a primer and top coated with 250HS White Silicone. These top coatings protect the rubber emulsion from UV light and prolong the membrane for decades.

Final top coat 250HS white silicone, seals the deck with a new roof membrane and reduces surface temperatures across the facility. This will reduce energy consumption, save money, reduce heat island effect and provide a sealed roof envelope for 25 years under warranty.

Metal Roof Deck

The same application process is used when conducting preventative maintenance and sealing any metal roof issue that cause leaks.

Cold applied, fast and easy applications for maintenance patches, which will seal roof issues for decades, prolonging your roof life-cycle

This metal roof deck was cleaned and detail work completed prior to coating the seams on the deck. The black lines are all the seams with IPP rubber emulsion sealing this roofing system. The next step to top coat with UV stable silicone.

After the rubber cures across the deck, it's top coated with highly reflective UV stable white 250HS Silicone. This system meets third party ratings such as Cool Roof Rating Council (CRRC). Remember the DOE Energy Star rating system was retired in 2022 and no longer applies to roofing products.

Sustainability Design and Cool Roof Technology

- SustainableDesign@va.gov
- Executive Order: 14005, 14008, 14057
- VA, Office of Construction & Facilities Management, Facilities Standard Alert, Aug 24, 2021: 003C2B-SA-018, Green Building Certification Standard Update
- VA Sustainability Design Manual: http://www.cfm.va.gov/til/sustain/dmSustain.pdf

Section 2.0 General Project Requirements
Section 4.0 Energy
Section 5.0 Water
Section 6.0 Indoor Environmental Quality (Low VOC)
Section 7.0 Environmental Impacts of Materials
Section 7.3 Waste Diversion