SPRAY POLYURETHANE FOAM ALLIANCE

SPFA-127

Spray Polyurethane Foam Roof Systems Maintenance Manual

Spray Polyurethane Foam Alliance
O: (800) 523-6154 | F: (703) 563-7425
www.sprayfoam.org | info@sprayfoam.org

ABOUT SPRAY POLYURETHANE FOAM ALLIANCE (SPFA)

Founded in 1987, the Spray Polyurethane Foam Alliance (SPFA) is the voice, and educational and technical resource, for the spray polyurethane foam industry. A 501(c)6 trade association, the alliance is composed of contractors, manufacturers, and distributors of polyurethane foam, related equipment, and protective coatings; and who provide inspections, surface preparations, and other services. The organization supports the best practices and the growth of the industry through a number of core initiatives, which include educational programs and events, the SPFA Professional Installer Certification Program, technical literature and guidelines, legislative advocacy, research, and networking opportunities. For more information, please use the contact information and links provided in this document.

DISCLAIMER

This document was developed to aid building construction and design professionals in choosing spray-applied polyurethane foam systems. The information provided herein, based on current customs and practices of the trade, is offered in good faith and believed to be true to the best of SPFA's knowledge and belief.

THIS DOCUMENT IS MADE AVAILABLE "AS IS" AND WITHOUT WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, SATISFACTORY QUALITY, AND NON-INFRINGEMENT. TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, SPFA, ITS OFFICERS, DIRECTORS, EMPLOYEES, AUTHORIZED AGENTS AND VOLUNTEERS DISCLAIM ANY AND ALL LIABILITY OR RESPONSIBILITY FOR ANY LOSSES, DAMAGES, COSTS AND/OR INJURIES OF ANY KIND OR NATURE ARISING OUT OF OR RESULTING FROM THE USE AND/OR RELIANCE UPON THE CONTENTS OF THIS DOCUMENT.

Individual manufacturers and contractors should be consulted for specific information. Nominal values which may be provided herein are believed to be representative but are not to be used as specifications nor assumed to be identical to finished products. SPFA does not endorse the proprietary products or processes of any individual manufacturer, or the services of any individual contractor.

DOCUMENT HISTORY

Date	Sections Modified	Description of Changes
2005		
August 2015	All	Administrative changes
December 2016	All	Replaced nearly all photos, modified text for clarity.
January 2021	Cover and Header	New SPFA Logo

ROOFING COMMITTEE

Mission Statement

The mission of the Roofing Committee is to provide a wide range of technical service to the SPF (spray polyurethane foam) industry such as, but not limited to:

(1) Review existing documents and serve as a clearing house to ensure the "Continuity of Value" of technical information published by SPFA and others concerning roofing system products and services to the SPF industry;

(2) Review, research, develop, and issue documents concerning new products, systems and services for SPF roofing applications; and

(3) To identify, explore, develop, and communicate an understanding of roofing technical issues facing to the SPF industry.

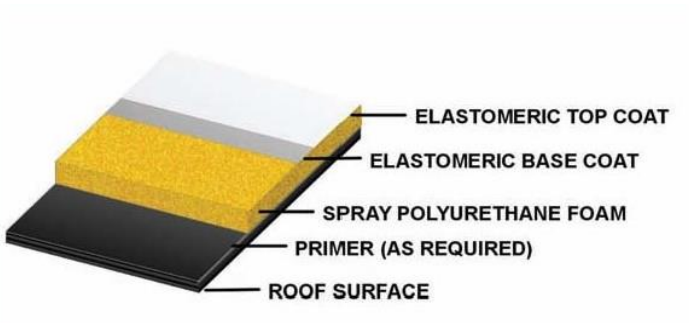
Roofing Committee Participating Members	
Bruce Schenke Accella Polyurethanes	James Andersen JA Consulting
Eric Banks BASF Corporation	Mary Bogdan Honeywell
Luke Nolan Central Coating Company	Mason Knowles Mason Knowles Consulting
Bill Baley CIS	Jason Hoerter NCFI Polyurethanes
Roger Morrison Deer Ridge Consulting	Steve Heinje United Coatings
Robb Smith Dimensional Building Consultants, LLC	Jack Moore West Roofing Systems, Inc.
Brad Houlden Houlden Contracting	Chris West West Roofing Systems, Inc.

December 2016 Update Task Group	
Robb Smith (TG Chair) Dimensional Building Consultants, LLC	James Andersen JA Consulting
Bruce Schenke Accella Polyurethanes	Jack Moore West Roofing Systems, Inc.
Jason Hoerter NCFI	Chris West West Roofing Systems, Inc.
Roger Morrison Deer Ridge Consulting	

Table of Contents

WHAT IS SPF (SPRAY POLYURETHANE FOAM) ROOFING?

This seamless spray-applied system lends itself well to all types of roofing situations with the added advantage of being adaptable to buildings of unusual shape or configuration. This roof system is easily maintained because minor damage is readily identifiable and repaired by in-house personnel.



A properly maintained polyurethane foam roof system will provide excellent weatherproofing, protecting the building and its contents against nature's extremes. An SPF roof system can also be applied in varying thicknesses to promote drainage and meet insulation requirements.

In reroof situations, SPF roofing systems may eliminate the need to tear off existing roofing. Due to the closed-cell structure of the SPF system, water does not penetrate the system resulting in leaks, even in areas where there may be minor damage.

PERIODIC ROOF INSPECTIONS

Every roof system should be inspected for damage or defects. Inspect roofs at least twice a year (spring and fall) and complete any needed repairs in accordance with this manual. To assist in this inspection process, a **Maintenance Inspection Checklist** has been included at the end of this document. Use a separate inspection form for each SPF roof and attach a sketch of the roof to this form.

WHAT TO LOOK FOR WHILE INSPECTING AN SPF ROOF

GUTTERS, SCUPPERS, AND DRAINS

(1) Check all gutters, scuppers, and drains for leaves, dirt, etc., that can restrict drainage.
(2) Check for cracks in the coating and SPF at these areas.
(3) Verify that screens and strainers are in place and properly secured.

INSPECT ROOFTOP UNITS AND PENETRATIONS

(1) Flashings at roof penetrations, such as vents, hatches, stacks, skylights, and HVAC equipment, should be sealed against the weather.
(2) Condensation from HVAC units should be piped to drains. Ensure that heater stacks have rain caps, seams in units are sealed with caulk, skylights are properly sealed, and there has been no damage to the surrounding roof system.

INSPECT FLASHINGS, ROOF EDGES, EXPANSION AND CONTROL JOINTS, AND OTHER ROOF SYSTEM TERMINATIONS

(1) Look for cracks or splits in the system at roof terminations, such as edge flashings and expansion joints.
(2) Ensure that coping joints and metal counter flashings are sealed.
(3) Check masonry walls for moisture penetration and/or deterioration.

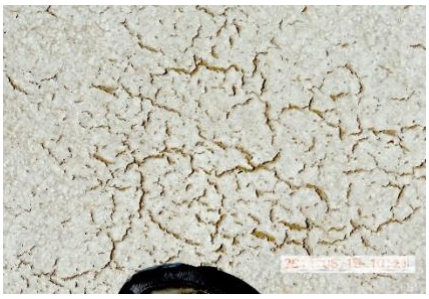
THE FIELD OR SURFACE AREA OF THE ROOF SYSTEM

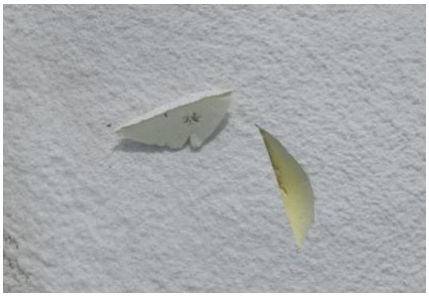
(1) Check for mechanical or physical damage caused by tools or heavy objects, hail, vandalism, excessive foot traffic, etc.
(2) Inspect for blisters or areas of inner layer separation in the roof system

DEFECTS IN THE ROOF SURFACE

Check for pinholes, erosion of the coatings or polyurethane foam, cracks, and moisture penetration into the polyurethane foam insulation. A small "slit" sample may be taken to determine if there is any moisture present. A nondestructive moisture detection device may also be used.

(Long cracks or splits in the SPF roof system may be due to structural movement below the SPF. These should be investigated by a SPFA-PCP (Professional Certification Program) accredited contractor or structural engineer.





Know Your Roof System…
The roof system file should include a technical data sheet, the original specifications, a copy of the contractor and/or manufacturer warranty(ies), how to contact the manufacturer and contractor, previous roof inspection reports, a record of conducted repairs, and this manual. The data should be readily available for all roof maintenance personnel.

Understanding the Warranty…
Determine if your roof system has a warranty from the contractor or manufacturer. If it does, make sure your roof maintenance procedures conform with the manufacturer's recommendations. If there are any questions about these requirements, contact the issuer of the warranty for clarification.

Generally, acts of God, abuse, or vandalism are not covered by a roof system warranty. These items may be covered under your building insurance policy. Check with your insurance carrier for clarification or to file a claim if there is damage to the roof due to weather, earthquakes, fire or vandalism.

If you think that there has been damage or leakage covered by the warranty, notify the issuer of the warranty and send notice in writing of the defect or leak. This procedure is usually outlined in the warranty.

Note any conditions that could void the warranty and contact the issuer if there are any questions.

PREVENTIVE MAINTENANCE

Remove debris from the roof system. Leaves and organic matter should be routinely removed from drains, scuppers, gutters, and the field of the roof. Prune overhanging tree limbs.

The roof should not be used for storage of HVAC repair parts, lumber, signs, or any other unnecessary equipment. Storage of anything on the roof may void a warranty.

Prevent damage to the roof system from exposure to harmful chemicals or substances. Vents should not exhaust harmful materials onto the roof surface. HVAC condensate should not be drained onto the roof but rather plumbed to the roof drains. Consult the coating manufacturer regarding exhausting of harsh chemicals, oils, animal fats and other airborne materials over the roof.

Minimize foot traffic to that necessary for the maintenance of the roofing system or HVAC, photovoltaic or other equipment. Walkways may be installed to help protect areas normally used by personnel. Check with manufacturers or contractors before the installation. Walkways should always be installed on any roof where regular traffic is anticipated. Consideration should be given to the size and type of walkway depending on purpose and frequency of use.

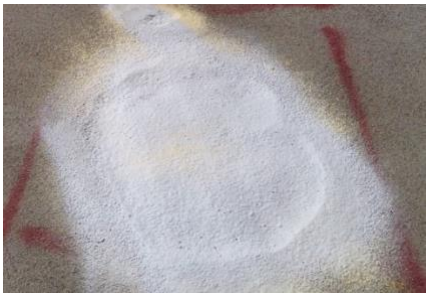
SPF roofs with aggregate covering (see SPFA-110 “Spray Polyurethane Foam Aggregate Systems for New and Remedial Roofing”) may be subject to scour following wind events. Corrective maintenance would include redistribution of the aggregate. Aggregate may also be embedded into wet elastomeric coating for areas subject to repeated scouring.

REPAIR OF SMALL PUNCTURES AND HOLES

Repair small damaged areas by using a compatible caulking material according to the following steps:

(1) Thoroughly clean the roof surface around the damaged area of all dirt, dust, or other contaminants with a rag and clean water. Allow to dry completely.
(2) Using a knife, carefully cut out (at a 45° angle) any loose, wet, or damaged coating membrane or SPF, and leave a clean beveled depression in the system.

(3) Apply compatible caulking material into the hole so that the caulk overfills and is feathered and smoothed out around the edge.
(4) If the manufacturer recommends top-coating these areas with a compatible coating, the caulking should be completely cured prior to applying the overcoating. (A primer may also be required.)



REPAIR OF CRACKS OR SPLITS

Repair all cracks and splits using the procedures below:

(1) Thoroughly clean the roof surface around the damaged area of all dirt, dust, or other contaminants with a rag and clean water. Allow to dry completely.
(2) With a knife, carefully trim any dirty or wet materials back. The result will be a V-shaped groove that extends beyond where the original crack ended.
(3) If the crack is at an edge between a metal flashing and the SPF roof system, it should be trimmed back from the metal in a ½ inch wide V-shape. The metal must be clean.
(4) Apply a compatible caulking material so that the V-shaped groove is overfilled and the edges are feathered.

Compatible caulking material: On silicone coatings, only use silicone caulking. On polyurethane or acrylic coating, use polyurethane caulking. Consult the coating manufacturer as necessary.

REPAIR OF SMALL BLISTERS

Generally, it may not be necessary to repair small blisters (<4”) if they are not located in traffic areas.

Blisters in SPF roofing systems should not be broken or cut open until the repair has begun. Only blisters in coating or SPF that are no larger than 6” in diameter and less than 1” deep should be repaired without contracting with an applicator. Larger blisters should always be repaired by a professional applicator.

(1) Thoroughly clean the roof surface around the damaged area of all dirt, dust, or other contaminants with a rag and clean water. Allow to dry completely.
(2) Cut out the blister until all loose material is removed and a tight edge is achieved. Bevel the cut at a 45° angle sloping inward.
(3) Fill the void with a compatible caulking material. Make certain the caulk extends slightly above the roof level and beyond the void 2” - 3”. Feather the edge of the caulk. Consider using fabric 2”-4” beyond the edge of the cut to provide reinforcement.
(4) A compatible coating or covering may be used over the caulk after it has cured. (A primer may also be required.)

MATERIALS REQUIRED TO REPAIR SPF ROOF SYSTEMS

MATERIALS NEEDED

- Caulking - compatible with the coating membrane (see manufacturer's recommendations.)
- Protective Coating – If required by the manufacturer, they can supply small quantities of the top coating used in your system.

TOOLS NEEDED

- Utility Knife

- Filet or Long-blade Knife
- Rags or Paper Towels
- Putty Knife (2”-4” wide)
- Caulking Gun
- Bucket or Spray Bottle of Clean Water
- Stir Stick
- Brushes or Rollers
- Plastic Trash Bags

TRAINING YOUR PERSONNEL

Contact your contractor or manufacturer and request a training program for your roof maintenance personnel. This training session should cover instructions on how to properly maintain the system and what preventive maintenance services should be performed. Always observe safety precautions when maintaining or inspecting the roof system.

WHEN TO CALL YOUR CONTRACTOR

- If large blisters (greater than 6”) or leaks are noted, the original installation contractor should be contacted.
- The problems noted may be covered under a warranty agreement. The company issuing the warranty should be notified.
- At some point, the system may require some rejuvenation or renewal. Contact an SPFA-PCP (Professional Certification Program) accredited contractor for review and specifications. Contact the contractor and/or manufacturer issuing the warranty.
- The contractor can set up a Maintenance Program with periodic inspections.

If there are any questions concerning the system, contact an experienced applicator, the system manufacturer or the SPFA.

Maintenance Inspection Checklist

Building:_____ Roof Section:_____

SPF Roofing Manufacturer:_____ Warranty Term:_____

Contractor:_____ Completion Date:_____

Inspected By:_____ Inspection Date:_____

	PROBLEM		OBSERVATIONS	REPAIRS	
	YES	NO		O/A*	DATE
(1) Roof Condition					
a. General					
Debris					
Walkways					
Substrate					
Contaminants					
Leaks					
Vegetation					
b. Drainage					
Roof Drains					
Scuppers					
Gutters					
Downspouts					
Ponding					
Condensate Drain Lines					
c. Foam Coverings					
Bare Spots					
Exposed Foam					
Blisters					
Adhesion					
Cracks					
Pinholes					
Mechanical Damage					
d. Foam					
Blisters					
Cracks					
Mechanical Damage					
Bird Damage					
Storm Damage					
Soft and Spongy					
Wet					
(2) Flashing					
Base Flashing					
Counter Flashing					
Coping					
Metal Edge/Facia					
(3) Penetration					
Pipes					
A/C Units					
Vents					
Skylights					
Expansion					
Joints					
Ducts					
Walls					

*Indicate who performs repairs (“O” for Owner or “A” for Applicator/Contractor)

Roof Sketch Symbols

Use the following symbols when preparing a roof sketch (See SPFA-102,104, 138 and 139 for descriptions of some of these terms):

P>	-	Photographs	FT	-	Rough Foam Texture
O	-	Roof Drains	UC	-	Uncured Coatings
X	-	Mechanical Damage	DT	-	Flashing or Edge Treatment Defect
FB	-	SPF Blister	FC	-	SPF Cracks
CB	-	Coating Blister	CC	-	Coating Cracks
EX	-	Excessive Ponding	E	-	Exposed Foam
P	-	Pinholes	OS	-	Overspray
S#	-	Slit Number	SS	-	Soft or Spongy SPF
TC	-	Thin Coating			

Comments:

_____

_____

_____

_____