



**Spray Polyurethane
Foam Systems
for
New and Remedial Roofing**

RECOMMENDED
DESIGN CONSIDERATIONS
AND GUIDE SPECIFICATIONS

Spray Polyurethane Foam Alliance

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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 the products and services to our industry;
2. Review, research, develop and issue documents concerning new products, systems and services AND
3. To identify, explore, develop and communicate an understanding of technical issues facing our industry.

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DESIGN CONSIDERATIONS

GENERAL CONSIDERATIONS

The performance of a spray applied polyurethane foam roofing system can be affected by all the component parts of a roof structure, as well as the atmospheric conditions inside and outside the structure.

Proper structural design, specification review, contractor and material selection, coupled with the compatibility and positioning of the various components of a roof structure, are a necessity to produce a successful roofing system.

Consult with the respective material suppliers and the successful contractor to receive written confirmation of their agreement to all facets of the roofing system, including, but not limited to, material selection, drainage, expansion joints, load design, flashing details, deck preparation, etc.

SURFACE/DECK PREPARATION, PROCEDURES AND CONSIDERATIONS

Spray polyurethane foam can be successfully applied to most surfaces. However, the following general practices must be observed on all decks which are to receive spray applied polyurethane foam.

1. General Surface/Deck Preparation Procedures

- A. The roof deck shall be securely fastened to the building structure and conform to proper load limits of good engineering practices. Special attention should be focused on the deflection rate under all type roof conditions, including but not limited to, foot traffic, mechanical equipment utilization, as well as live and dead loads.
- B. When a primer and/or a vapor retarder is specified, there must be adequate adhesion between all components of the system to secure the entire system against wind uplift and movement.
- C. Prior to application of primer, vapor retarder or polyurethane foam, the deck shall be properly cured, dry, and free of loose dirt or any contaminants that may interfere with proper adhesion of any of these respective components.
- D. Deck contaminants, depending on their severity and quantity, may be removed by use of air pressure, vacuum equipment, hand power broom, chemical solvents, sandblasting, manual scraping, etc.

2. Wood Surfaces/Decks

- A. A pre-treatment with a primer is necessary to achieve maximum adhesion of the polyurethane foam to a wood deck.
- B. Joints in excess of 1/4" in width shall be sealed prior to the application of the respective primer, vapor retarder or polyurethane foam.

3. Metal Surfaces/Decks

- A. A pitch of 1/4" in 12" or more is recommended.
- B. A structural metal deck should not be lighter than 22 gauge.
- C. Sloped metal roof panels should not be lighter than 29 gauge.
- D. All joints should be correctly lapped, sealed and fastened.

- E. Underlayment, if specified for smoother application of polyurethane foam should be of sufficient width and thickness to span or fill flutes. Fastening shall be in accordance with applicable code requirements.

4. Concrete Surfaces/Decks

- A. In all cases, concrete should be free of laitance and chemical release agents.
- B. Priming is required on concrete surfaces, and it is recommended that due to the water of hydration that is present, poured concrete decks be permitted to cure for twenty-eight (28) days prior to the application of sprayed polyurethane foam.
- C. All joints should be filled and/or taped.
- D. Sprayed polyurethane foam is not recommended for lightweight or insulating concretes unless tests have been made to determine that adequate adhesion can be obtained or unless an overlayment is installed.

SELECTION OF PRIMER

Consult foam manufacturer for proper primer selection according to the surface to be sprayed.

SELECTION OF THE POLYURETHANE FOAM SYSTEM

A wide range of polyurethane foam systems is available in various densities, each exhibiting different temperature limitations, combustibility characteristic, etc. The use of these systems in combination with each other or with other conventional insulation products offers a wide range of economical installations.

As a purchaser, you should understand that most published data is run on laboratory-produced samples. The thickness of polyurethane foam sprayed, number of passes, temperatures of substrate, ambient temperatures, etc. have a pronounced effect on all properties.

From a fire safety standpoint, polyurethane foams can be used safely. It is important, however, that all persons associated with the design, fabrication, storage and installation understand the materials and environments involved.

Polyurethane foam insulation is combustible and should be treated as such. Flame spread rating provided for polyurethane products using small scale tests are not intended to reflect the hazards presented by this or any other materials under actual fire conditions. Care must be taken to ensure that the foam is not exposed to heat or flame.

SELECTION OF A PROTECTIVE COATING

When spray applied polyurethane foam is applied externally, as an integral part of the roofing system, it must be given a protective coating for weather protection.

Typically, the required protection is attained through application of an elastomeric liquid applied coating system, following the manufacturer's recommendations.

The protective coating shall be a system which will cure to form a water resistant protective membrane. The dry film thickness (DFT) of the protective coating shall be in compliance with the coating manufacturer's specification.

The properties of the cured protective coating shall meet the minimum design characteristics of the generic type specified. The protective coating shall be specifically manufactured for the weather protection of polyurethane foam as used in roofing applications.

You, as a specifier, should consider the following items in the selection of the coating materials.

1. Physical Characteristics

- A. Chemical resistance
 - B. Water vapor permeance
 - C. Tensile and elongation properties
 - D. Retention of physical properties upon aging
 - E. UV resistance
2. Performance Characteristics
- A. Environment in which to be used (abuse, hail resistance, etc.)
 - B. Life expectancy
 - C. Ease of maintenance
 - D. History of similar applications or laboratory data relating to the application in question
 - E. Adhesion to the polyurethane foam
 - F. Combustibility characteristics, individually and in combination with the selected polyurethane foam systems
 - G. Ability to withstand foot traffic
 - H. Aesthetic qualities

MAINTENANCE PROCEDURES

It is strongly recommended that maintenance procedures, including annual inspections, be established with your selected contractor for any roofing system to yield its full value.

CONTACT THE RESPECTIVE MANUFACTURERS/SUPPLIERS AND CONTRACTORS FOR THEIR RECOMMENDED MAINTENANCE PROCEDURES.

RECOMMENDED GUIDE SPECIFICATION FOR NEW AND REMEDIAL ROOFING

NOTE: This guide is designed to help the specifier achieve a successful polyurethane foam and coating roofing system. It is the responsibility of the specifier to consult with the manufacturer of material specified as to the manufacturer's specific recommendations.

PART 1 — GENERAL

This guide discusses the application of a seamless sprayed-in-place polyurethane foam with a protective coating for use as an insulated roofing system for new or retrofit roofing. Your contractor, selected systems manufacturer and code agencies can assist you, as each project must be assessed individually.

1.01 SCOPE OF WORK

Furnish all labor, materials, tools and equipment necessary for the application of a polyurethane foam roofing system, including accessory items, subject to the general provisions of the contract.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A.	Cast-in-Place Concrete	Section 03300
B.	Metal Decking	Section 05300
C.	Rough Carpentry	Section 06100
D.	Insulation	Section 07200
E.	Membrane Roofing	Section 07500
F.	Flashing and Sheet Metal	Section 07600
G.	Roof Specialties and Accessories	Section 07700
H.	Skylights	Section 07800
I.	Mechanical	Division 15
J.	Electrical	Division 16

1.03 QUALITY ASSURANCE

- A. Contractor Qualifications: The proposed contractor should provide information concerning projects similar in nature to the one proposed including location and person to be contacted. Some manufacturers of sprayed polyurethane foam systems and/or protective coatings have approval programs and/or licensing methods that could be required.
- B. Manufacturer Qualifications: Polyurethane foam and protective coating manufacturers shall show evidence of sufficient financial resources and manufacturing facilities to furnish materials on this project. References shall be required, sufficient project lists, warranties and code approvals shall be submitted for verification.
- C. Inspections: The polyurethane foam and protective coating manufacturers are to provide qualified representatives to monitor and inspect the installation of their products. Third party inspection of the installation is recommended. A list of SPFD inspector members is available.

1.04 SUBMITTALS

- A. Manufacturers to provide published data sheets or letter of certification that their products comply with the materials specified. This is to include primers (if required), polyurethane foam and protective coatings.

- B. Shop drawings on sheet metal, accessories, or other fabricated items.
- C. Manufacturer's application or installation instructions.
- D. Contractor/applicator certification from polyurethane foam supplier and/or protective coatings manufacturers and evidence of contractor/applicator qualification and experience. SEE SECTION 1.03A
- E. A specimen copy of the applicable warranty for the project. SEE SECTION 1.03B
- F. Approval and information guides for applicable local, or national codes and/or insurance acceptability, if required.
- G. Safety and handling instructions for storage, handling and use of the materials to include appropriate Materials Safety Data Sheets (MSDS).
- H. Field Quality Control Procedures to be utilized by the contractor/applicator to insure proper preparation and installation of polyurethane foam and protective coatings, detail work and follow-up inspection.
- I. SPI Spray Polyurethane Foam Division sprayed polyurethane foam surface visual guide.

1.05 MATERIALS, DELIVERY AND STORAGE

- A. Materials shall be delivered in the manufacturer's original, tightly sealed containers or unopened packages, all clearly labeled with the manufacturer's name, product identification, safety information, and batch or lot numbers where appropriate. Where materials are covered by a referenced specification, the labels shall bear the specification number, type and class, as applicable.
- B. Containers shall be stored out of the weather and direct sunshine where the temperatures are within the limits specified by the manufacturer.
- C. All materials shall be stored in compliance with local fire and safety requirements.

1.06 ENVIRONMENTAL CONDITIONS

- A. The polyurethane foam applications shall not proceed during periods of inclement weather. Do not apply the polyurethane foam below the temperature and/or above humidity specified by the manufacturer for ambient air and substrate.
- B. Do not apply protective coatings when there is ice, frost, surface moisture or visible dampness present on the surface to be coated. Prior to applying the coatings, check the polyurethane foam to insure that the surface is dry. Apply protective coatings in accordance with the coatings manufacturer's application instructions.
- C. Wind barriers may be used if wind conditions could affect the quality of the polyurethane foam or protective coating installation.

1.07 SEQUENCING AND SCHEDULING

IN NEW CONSTRUCTION projects the spray polyurethane foam is installed when the deck, parapet walls, rough openings, and curbs are completed. The type of skylight used will determine when skylights should be installed. Plumbing vents, drains, and electrical penetrations should all be in place. There should not be any other trades-people working on the roof when the spray polyurethane foam and coating are being installed.

1.08 WARRANTY

Warranty agreements vary in duration and content. If a warranty is desired, it is suggested that parameters be established as a prerequisite to the execution of a contract.

1.09 SAFETY REQUIREMENTS

- A. See SPI Bulletin AX-119, “MDI-Based Polyurethane Foam Systems: Guidelines for Safe Handling and Disposal.”
- B. Refer to appropriate Materials Safety Data Sheets (MSDS) for additional safety information.
- C. Before starting to apply spray polyurethane foam or coating, all HVAC equipment on the roof must be turned off. These units and any other potential sources of air entry into the building must be sealed.

PART 2 — PRODUCTS

2.01 POLYURETHANE FOAM

- A. The polyurethane foam to be applied shall be a two-component system made by combining an isocyanate (A) component with a polyol (B) component and shall possess the following physical characteristics:

CLOSED CELL TYPE POLYURETHANE FOAM

<u>PROPERTIES</u>	<u>ASTM TEST</u>	<u>METRIC UNITS</u>	<u>U.S UNITS</u>
Density (sprayed-in-place)	D-1692	45-48 (Kg/m ³)	2.8- 3.0 lbs/ft ³
Compressive Strength	D-1621	270 kPa	40psi (Minimum)lbs/in ²
Closed Cell content R-Value	D-2856 C-177, C-236, C-518	90%(Minimum)% Value 35 aged K·m ² /W	90%(Minimum)% Value 6.2 aged °F·hr·m ² /W
Flammability**	E-84		Not more than 75 FSI (flame spread index)

**This standard is used solely to measure and describe properties of products in response to heat and flame under controlled laboratory conditions This numerical flame spread rating is not intended to reflect hazards presented by this or any other material under actual fire conditions

- B. Polyurethane Foam Primers: Primers used shall be as recommended by the manufacturer of the spray foam materials specified.
- C. Fire Safety Requirements: See SPI Bulletin AX-119, “MDI-Based Polyurethane Foam Systems: Guidelines for Safe Handling and Disposal.”

2.02 PROTECTIVE COATING

A. The Elastomeric Coating System may be one or more of the following types:

1. Acrylics
2. Butyls
3. Chlorinated Synthetic Rubbers*
4. Silicones
5. Polyurethanes
6. Modified Asphalts

* **Note:** These coatings are frequently referred to be the trade as “Hypalon” or “Neoprene” coatings. The terms “Hypalon” and “Neoprene” are registered trademarks of the E. I. DuPont de Nemours Co.

(**NOTE:** Specifier shall choose system desired.)

B. Physical Properties: The Elastomeric Coating System shall possess the following physical characteristics (NOTE: Specifier shall list physical properties of chosen Elastomeric Coating System):

<u>PROPERTIES</u>	<u>ASTM TEST</u>	<u>VALUE</u>
Tensile Strength	D-412	_____
Elongation	D-412	_____
Hardness Shore “A”	D-2240	_____
Tear Resistance (lbs per lineal inch)	D-624	_____
Ultra Violet Exposure	G-151	_____
	G-153	_____
Moisture Vapor Transmission	E-96 Procedure E	_____
Fire Resistance of System**	E-108	_____

** This standard is used solely to measure and describe properties of products in response to heat and flame under controlled laboratory conditions. This numerical flame spread rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.

C. General: It is recommended that the coatings system be elastomeric in nature (at least 100% elongation). Within these generic coatings are both vapor retarder and non-vapor retarder systems.

1. A vapor retarder coating is one which has a perm rating of one perm or less based on ASTM 96-E (Perm inch method). A non vapor retardant coating is one which has a perm rating greater than one perm. For further information regarding perm rating and coating selection see “*Moisture Vapor Transmission*” paper. [SPFA Stock Number AY 118]

Note: Special consideration should be given to applications such as freezers and coolers which may exceed conventional moisture vapor drive conditions.

For further information concerning protective coatings refer to “*A Guide for Selection of Protective Coatings Over Sprayed Polyurethane Foam Roofing Systems.*” [SPFA Stock Number AY 102]

2.03 ACCESSORIES AND MISCELLANEOUS MATERIALS

- A. Flashings and waterproof coverings for expansion joints shall be compatible with specified polyurethane foam and elastomeric coating system and shall be as recommended by the manufacturers of the systems used.
- B. Miscellaneous materials such as adhesives, elastomeric caulking compounds, metal, vents and drains shall be a composite part of the roof system and shall be those recommended by the systems manufacturer.

- C. Granules (Optional): When used, shall be of the size and type and applied in the topcoat as recommended by the coating manufacturer.
- D. Board stock: If required over metal decks, fasten to achieve necessary wind uplift requirements.

PART 3 — EXECUTION

3.01 GENERAL

Guidelines as outlined by the manufacturer issuing the warranty shall be the final specification determinant.

3.02 SURFACE PREPARATION AND PRIMING

A. Built-up Roof (Retrofit)

1. All loose gravel, dust and residue shall be removed using power vacuum equipment, power sweeper, air blowing, or other suitable means.
2. The roof shall be thoroughly inspected or tested to determine if moisture is present within the roof assembly. Saturated insulation must be removed and replaced with compatible materials.
3. The existing roof shall be thoroughly inspected for adhesion between felts, insulation, and deck. Areas of poor adhesion should be fastened. Blisters, buckles, wrinkles and fish mouths shall be cut out and/or fastened.
4. All soft mastic or other materials that impede polyurethane adhesion shall be removed.
5. Remove or refasten all loose base flashing, counter flashing and gravel stops as required.
6. The need may exist for structural design analysis to determine expansion joint requirements. Existing expansion joints should be inspected and repaired if necessary.
7. Lightning rods shall be masked prior to foaming. Lightning rod cables shall not be embedded in the polyurethane foam and should be removed prior to foaming. Electrical and mechanical conduits should be relocated or raised above the finished roof surface.

B. Metal Deck

1. The metal roof deck shall be constructed of a minimum 22-gauge steel. Construction shall conform to local building codes.
2. Ferrous Metal: Sandblast iron and steel surfaces which are not primed, shop painted, or otherwise protected in accordance with SSPC SP-6, Commercial Blast Cleaning. Remove loose rust and unsound primer from shop-primed iron and steel surfaces by scraping or wire brushing.
3. Non-Ferrous Metal: Clean galvanized metal, aluminum, and stainless steel surfaces as recommended by the manufacturer issuing the warranty.

4. If the metal surface is free of loose scale, rust, weathered or chalking paint, it can be cleaned using compressed air jet, vacuum equipment, and hand or power broom to remove loose dirt. Grease, oil or other contaminants shall be removed with proper cleaning solutions.
5. Fluted metal decks require a suitable method of covering or filling the flutes prior to polyurethane foam application. Flutes may be covered with mechanically fastened board stock, open weave mesh fabric, or filled with precut board stock or spray applied polyurethane foam.

C. Concrete

1. Remove loose dirt, dust and debris by using compressed air, vacuum equipment or brooming. Oil, grease, form release agents or other contaminants shall be removed with proper cleaning solutions.
2. All joint openings in concrete decks that exceed 1/4 inch shall be grouted or caulked prior to application of polyurethane foam.
3. Priming is required on concrete surfaces, and it is recommended that poured concrete decks be permitted to cure for twenty-eight (28) days prior to the application of primer or sprayed polyurethane foam.
4. Sprayed polyurethane foam is not recommended for lightweight or insulating concretes unless tests have been made to determine that adequate adhesion can be obtained or unless an overpayment is installed.

D. Wood

1. Plywood shall be exterior grade not less than 1/2 inch thick, nailed firmly in place. Attachment must meet building code requirements for resistance to wind uplift.
2. Plywood shall contain no more than 18% water, as measured in accordance with ASTM D 4444-84, or ASTM D 4442-84.
3. All untreated and unpainted surfaces shall be primed with an exterior grade primer. Priming is required to minimize moisture absorption and eliminate potential polyurethane foam adhesion problems.
4. Plywood joints in excess of 1/4 inch shall be taped or filled with a suitable sealant material.
5. Deck shall be free of loose dirt, grease, oil or other contaminants prior to priming or foam application. Remove loose dirt or debris by use of compressed air, vacuum or brooming. No washing shall be permitted.
6. Tongue & Groove, Sheathing, Planking: Due to the frequency of joints, possibility of variable openings and effects of aging and shrinking, these surfaces must be overlaid with minimum 1/4 inch thick exterior grade plywood or suitable covering.

E. Other Surfaces (i.e. Gypsum Board, Isocyanurate Board)

1. These materials are generally used over fluted metal decks and must be fastened to achieve necessary wind uplift requirements.
2. Boards shall be firmly butted together along all edges without gaps or openings. Joints exceeding 1/4 inch shall be caulked with a suitable sealant material.
3. Special care must be taken to prevent these materials from getting wet in storage on the job site and after installation prior to being protected by polyurethane foam. Moisture exposure will damage these materials and may be a cause for replacement.
4. Remove loose dirt and debris by using compressed air, vacuum or light brooming. No power brooming is permitted due to possibility of damage.
5. The installed materials shall be protected from spills of contaminants such as oil, grease, solvents, etc., as these materials cause soiling that cannot be readily removed from the board surfaces.

3.03 POLYURETHANE FOAM APPLICATION

A. Inspection

1. Prior to application of the foam, the surface shall be inspected to insure that conditions required by Section 3.02 have been met.
2. Substrate shall have sufficient slope to eliminate excessive ponding water. Ponding is defined as "an area of 100 square feet or more which holds in excess of 1/2" of water as measured 24 hours after a rainfall." If the substrate does not have sufficient slope, then the ponding water must be eliminated by building in slope by the application of polyurethane foam, channeling the polyurethane foam or by the proper placement of drains, or a combination thereof.
3. The polyurethane foam application shall not proceed during periods of inclement weather. The applicator shall not apply the polyurethane foam below the temperature and/or humidity specified by the manufacturer for ambient air and substrate. Wind barriers may be used if wind conditions could affect the quality of installation.

B. Application

1. The spray polyurethane foam shall be applied in accordance with the manufacture's specification and instructions.
2. Areas to be built-up to remove ponding water are to be filled in with spray polyurethane foam before the specified thickness of polyurethane foam is applied to the entire roof surface. SEE SECTION 3.02A
3. The spray polyurethane foam must be applied in a minimal pass thickness of 1/2 inch.
4. Spray polyurethane foam thickness shall be a minimum of one inch (or more if specified). The polyurethane foam shall be applied uniformly over the entire surface with a tolerance of plus 1/4" per inch of thickness minus 0", except where variations are required to insure proper drainage or to complete a feathered edge.
5. The spray polyurethane foam shall be uniformly terminated a minimum of four (4) inches above the roofline at all penetrations (except drains, parapet walls, or building junctions). Foamed in place cants shall be smooth and uniform to allow positive drainage.

6. Detailing skylights is particularly important in that the spray polyurethane foam MUST be terminated below existing weep holes. DO NOT COVER WEEP HOLES WITH FOAM OR COATING.
7. The polyurethane foam surface shall be allowed to cure sufficiently. The full thickness of polyurethane foam in any area shall be completed prior to the end of each day. If due to weather conditions more than 24 hours elapse between polyurethane foam and coating application, the polyurethane foam shall be inspected for UV degradation, oxidation or contamination. If any of the above conditions exist, the surface shall be prepared in conformity with the recommendations of the manufacturer issuing the warranty.

C. Surface Finish

1. The final sprayed polyurethane foam surface shall be “smooth, orange peel, coarse orange peel, or verge of popcorn.” Polyurethane foam surfaces termed “popcorn” or “treebark” are not acceptable. These areas shall be removed and refoamed to an acceptable surface. (See photos on pages 28-30 of the master file.)
2. Any damage or defects to the polyurethane foam surface shall be repaired prior to the protective coating application.
3. The polyurethane foam surface shall be free of moisture, frost, dust, debris, oils, tars, grease or other materials that will impair adhesion of the protective coating.

3.04 PROTECTIVE COATING APPLICATION

A. Inspection

1. Prior to the application of the protective coating the polyurethane foam shall be inspected for suitability of base coat application as per Section 3.03. The polyurethane foam shall be clean, dry, and sound.

B. Application

1. Base Coat

- a.) The base coat shall be applied the same day as the polyurethane foam application when possible. In no case shall less than two hours elapse between application of the polyurethane foam and application of the base coat. If more than 24 hours elapse prior to the application of base coat, the polyurethane foam shall be inspected for UV degradation.
- b.) The polyurethane foam shall be free of dust, dirt, contaminants and moisture before application of the base coat.
- c.) The base coat shall be applied at a uniform thickness with the rate of application being governed by the polyurethane foam surface texture. Coatings shall be applied at such a rate as to give the minimum dry film thickness specified by the protective coating manufacturer.
- d.) The coating shall be allowed to cure and be inspected for pinholes, thinly coated areas, uncured areas or other defects. Any defects should be repaired prior to subsequent applications. The base coat shall be free of dirt, dust, water, or other contaminants before application of the topcoat.

- e.) The coating application shall not proceed during periods of inclement weather. The applicator shall not apply the protective coating below the temperature and/or above the humidity specified by the manufacturer for ambient air and substrate. Wind barriers may be used if wind conditions could affect the quality of installation.

2. Top Coat and/or Subsequent Coat

a.) Application

Subsequent coating should be applied in a timely manner to insure proper adhesion between coats. Surface texture of polyurethane foam will affect dry film thickness—additional material may be required in areas of coarse foam profile.

b.) Inspection

The cured dry film thickness of the finished multiple coat application shall be checked by taking slit samples and examining under magnification. Areas that are found to have less than the thickness specified shall require additional coating.

3.05 GRANULE APPLICATION (Optional)

When used shall be of the size and type and applied in the topcoat as recommended by the coating manufacturer.

3.06 WALKWAYS

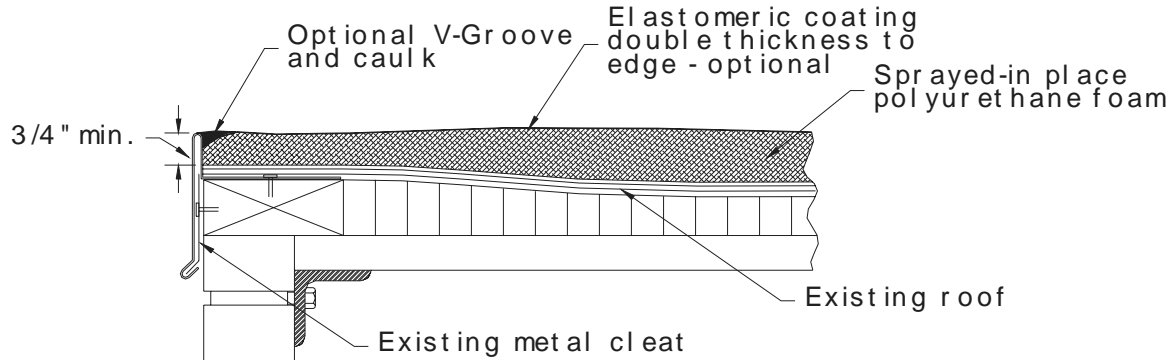
Walkways may be installed for heavy traffic areas and around frequently serviced roof top units. Breathable walk pads should be as recommended by the coating manufacturer.

3.07 SAFETY REQUIREMENTS

- A. See SPI Bulletin AX- 119, “*MDI-Based Polyurethane Foam Systems: Guidelines for Safe Handling and Disposal.*”
- B. Refer to appropriate Materials Safety Data Sheets (MSDS) for additional safety information.
- C. Before starting to apply spray polyurethane foam or coating, all HVAC equipment on the roof must be turned off. These units and any other potential sources of air entry into the building must be sealed.

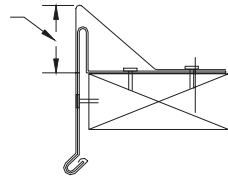
Detail Drawings

NEW & REMEDIAL ROOF EDGE



NOTE:
Spud clean existing BUR at edge to expose 3/4" min. gravel stop prime exposed gravel stop and secure as needed.

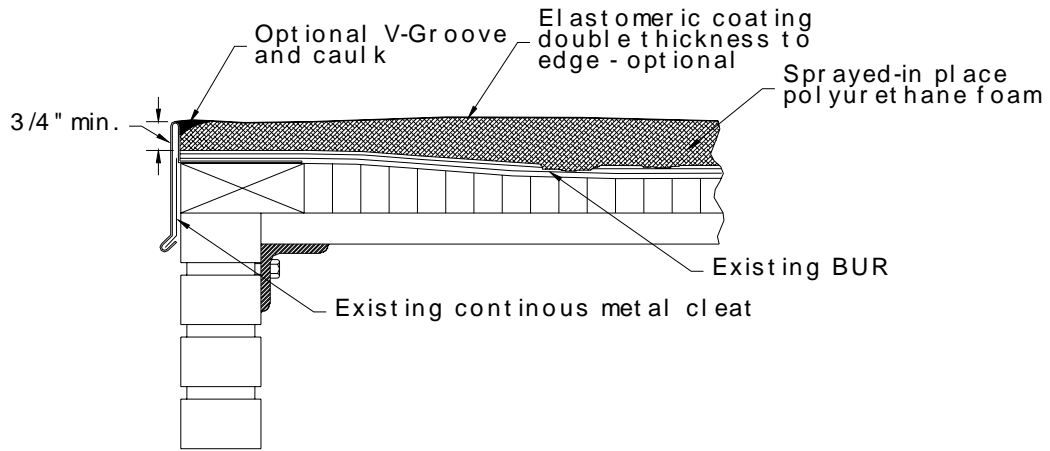
Height varies



New foam stop, bend per SMACNA specs., may be installed over sound existing metal edge for required height.

Detail Drawings

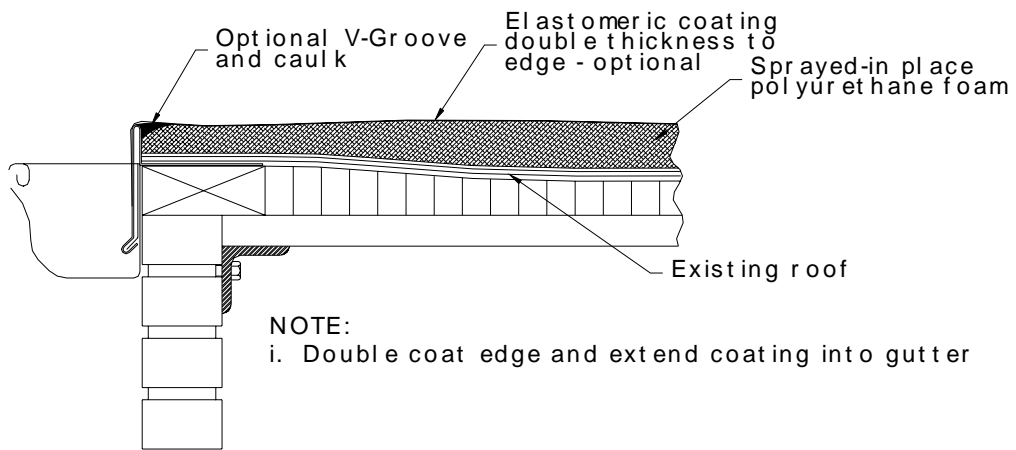
REMEDIAL TIE-IN TO EXISTING METAL EDGE



NOTE:
Spud clean existing BUR at edge to expose 3/4" min. gravel stop
prime exposed gravel stop and secure as needed

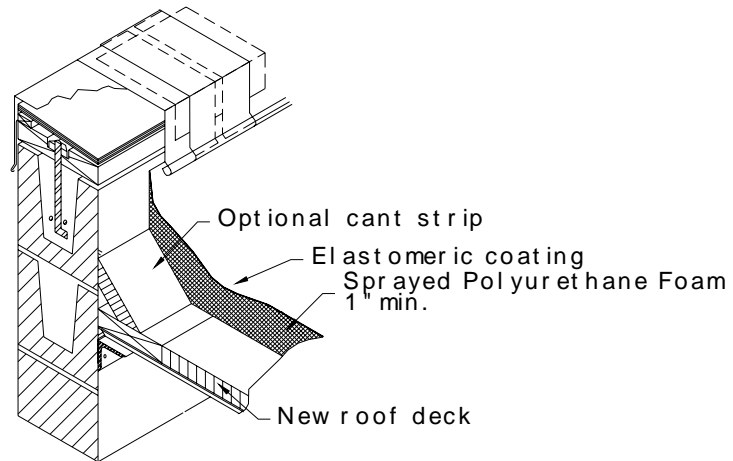
Detail Drawings

TYPICAL ROOF EDGE WITH GUTTER



Detail Drawings

NEW METAL PARAPET CAP



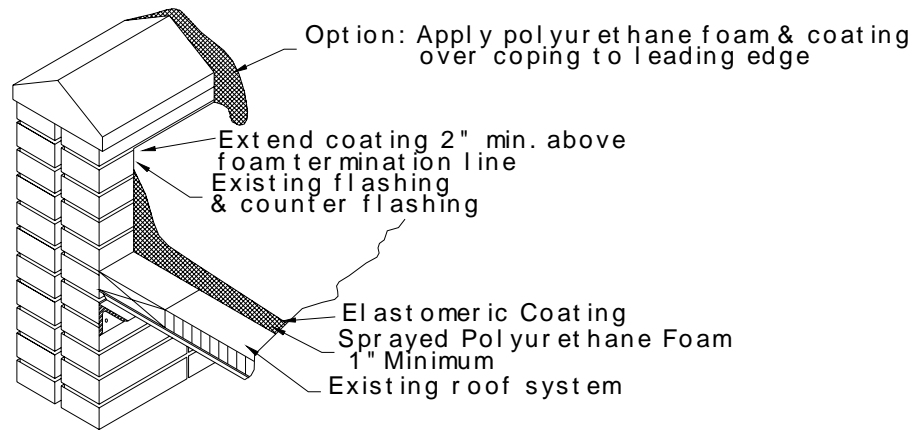
NOTE:

i; Free height shall be 8" above roof surface

ii; This detail should be used only when the deck is supported by the wall

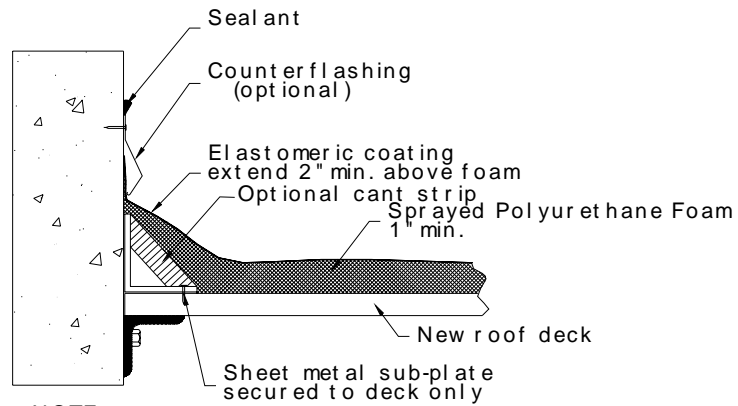
Detail Drawings

EXISTING PARAPET WITH COPING



Detail Drawings

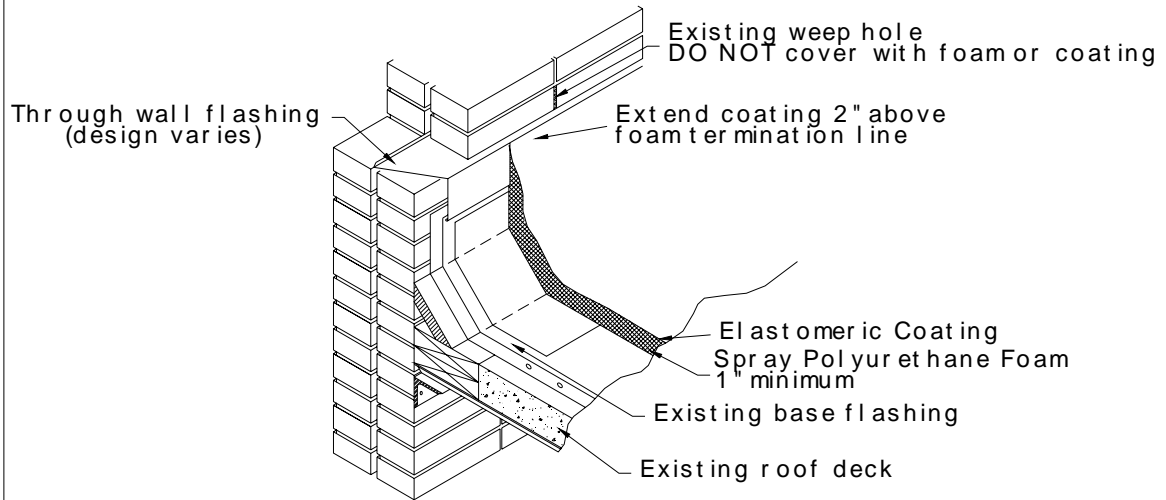
NEW FLASHING FOR WALL SUPPORTED DECK



NOTE:
This detail to be used only when the deck is supported by the wall

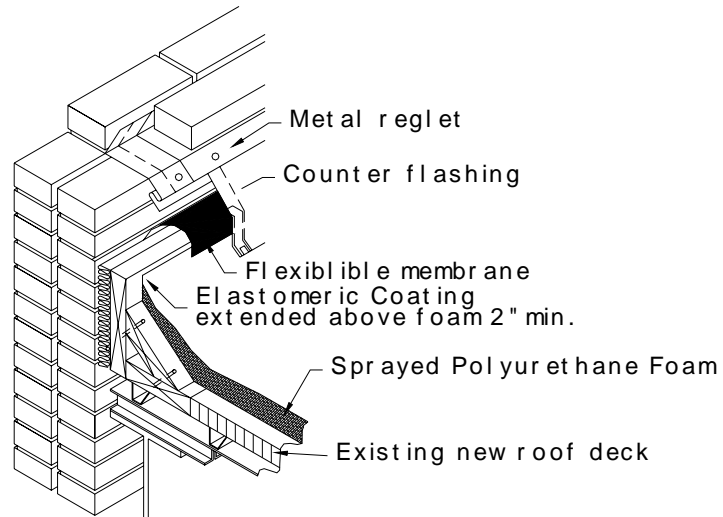
Detail Drawings

HIGH WALL REMEDIAL THROUGH WALL FLASHING



Detail Drawings

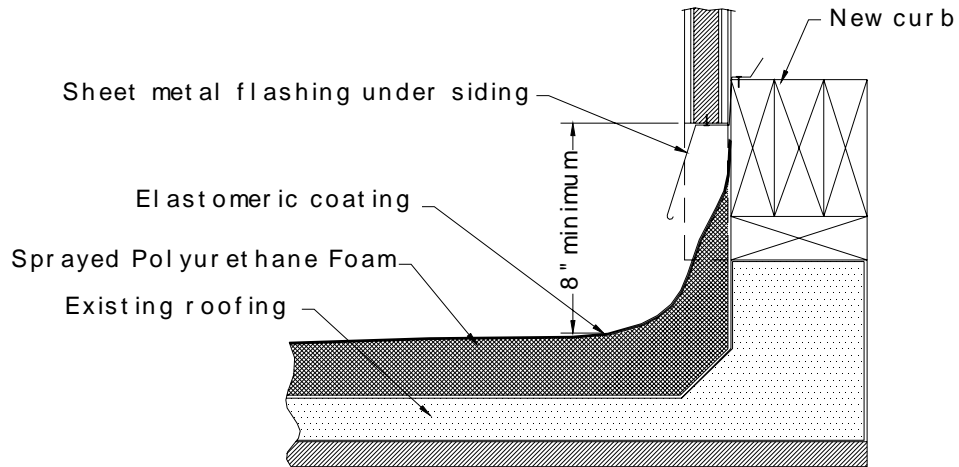
FLASHING FOR NEW, NON-WALL SUPPORTED DECK



NOTE:
Free height should be
8" above new roof surface

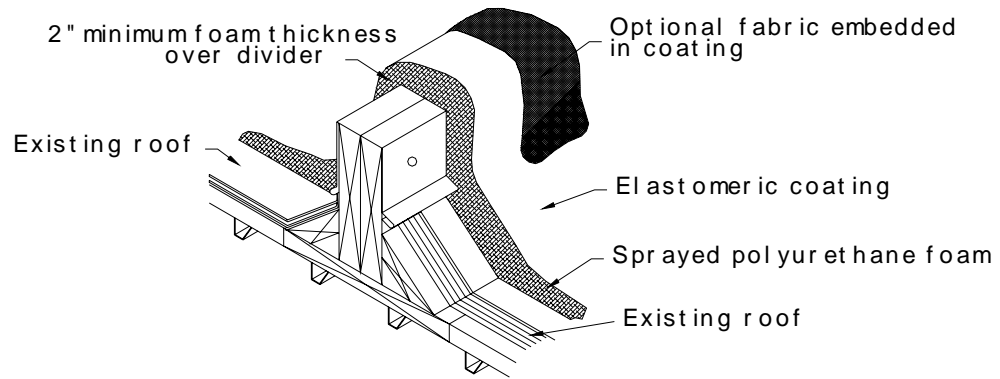
Detail Drawings

NEW OR REMEDIAL SIDING OR HIGH WALL



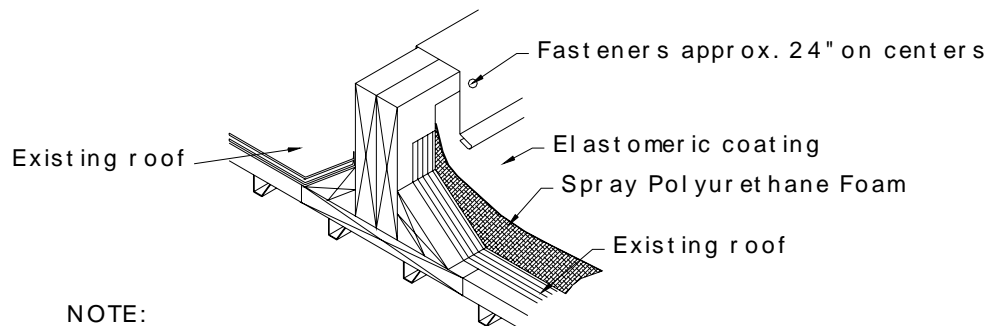
Detail Drawings

TYPICAL EXISTING AREA DIVIDER



Detail Drawings

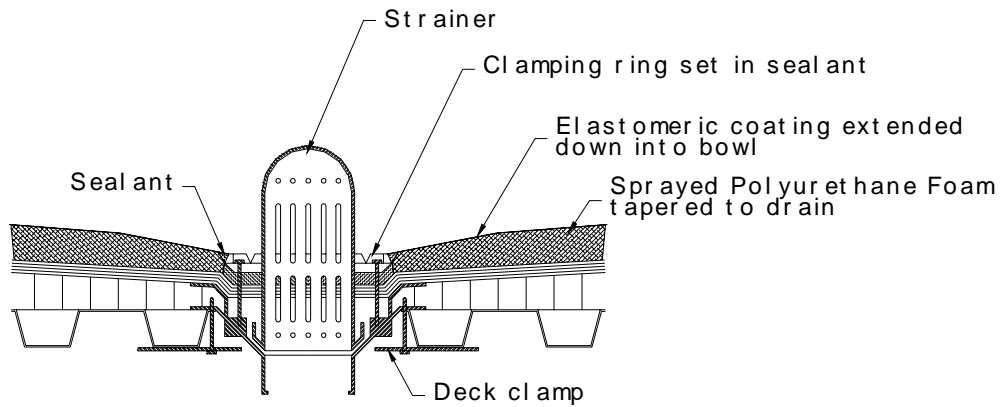
REMEDIAL AREA DIVIDER



NOTE:
This area divider is designed simply to separate the existing roof system from the new sprayed-in-place polyurethane foam roof

Detail Drawings

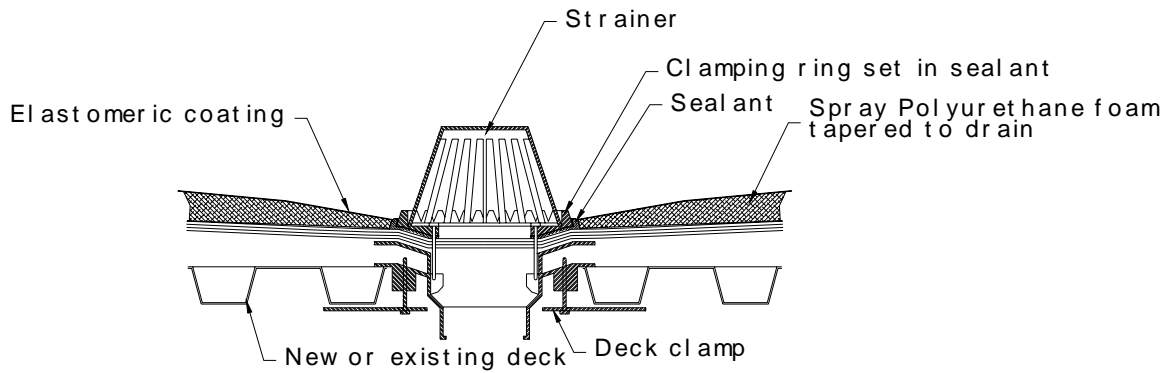
TYPICAL ROOF DRAIN



NOTE:
Mask clamping ring prior to spray foam application
V-cut foam at clamping ring and apply sealant

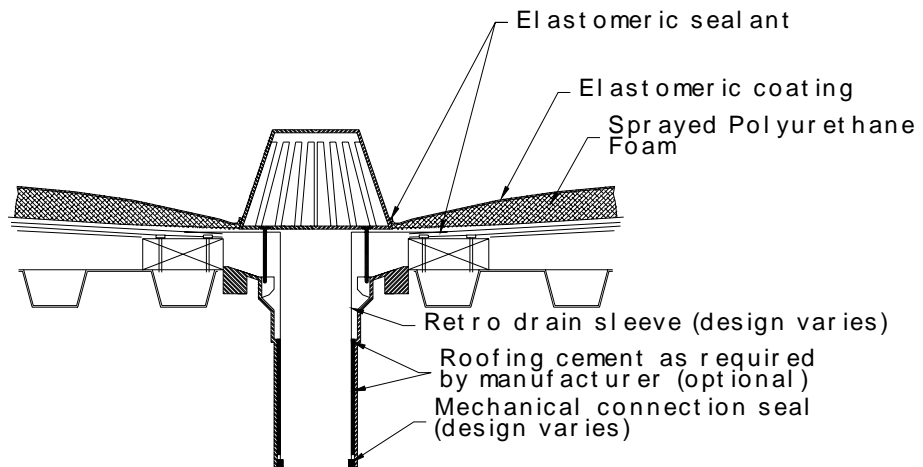
Detail Drawings

NEW OR REMEDIAL ROOF DRAIN



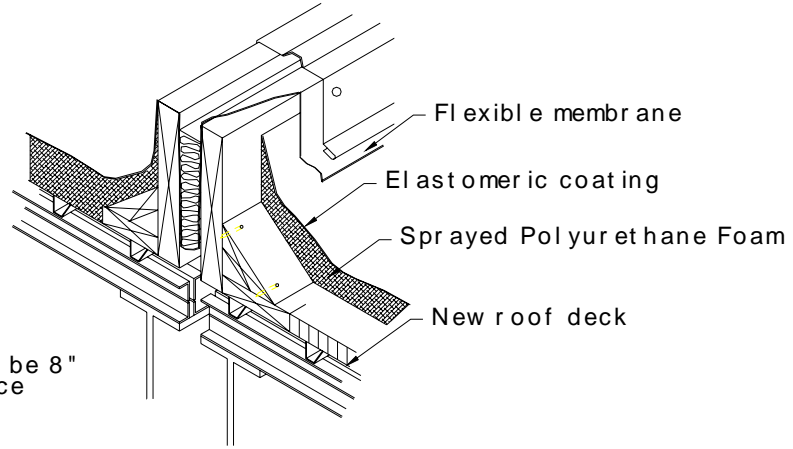
NOTE:
Prior to seating clamping ring, set in sealant
extend coating down into bowl

REMEDIAL DRAIN INSERT



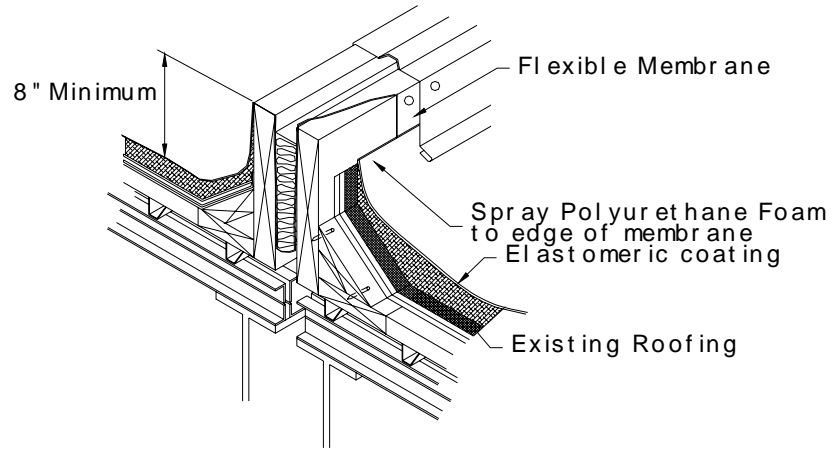
Detail Drawings

NEW EXPANSION JOINT



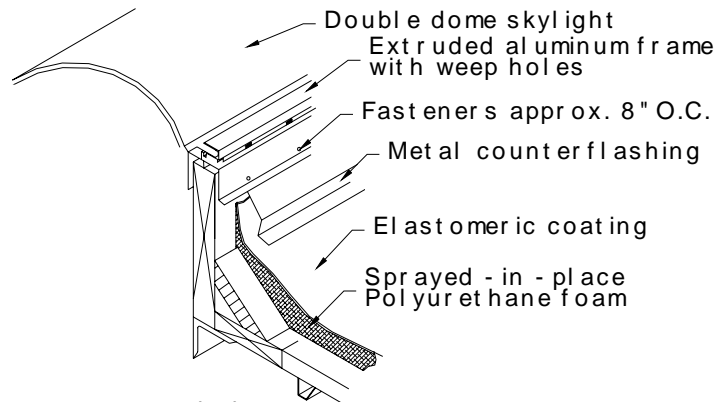
NOTE:
Free height shall be 8"
above roof surface

REMEDIAL EXPANSION JOINT



Detail Drawings

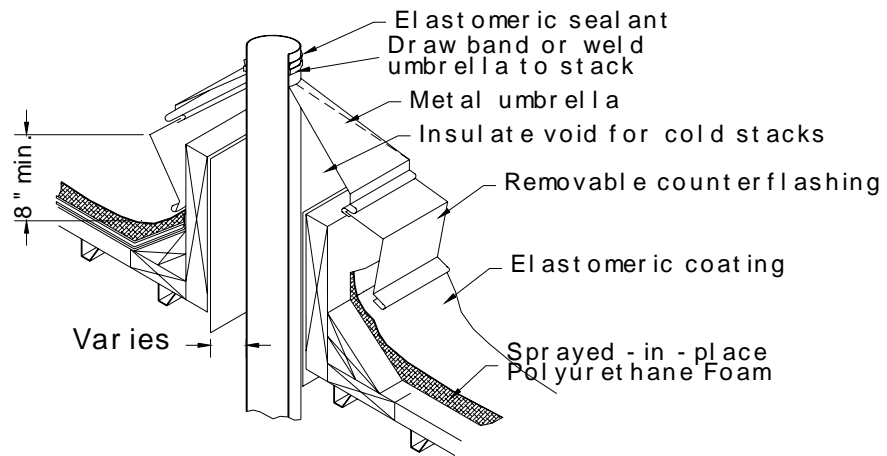
SKYLIGHT, HATCH OR SMOKE VENT CURB



NOTE:
On skylights, do not cover weep holes
with polyurethane foam or coating

Detail Drawings

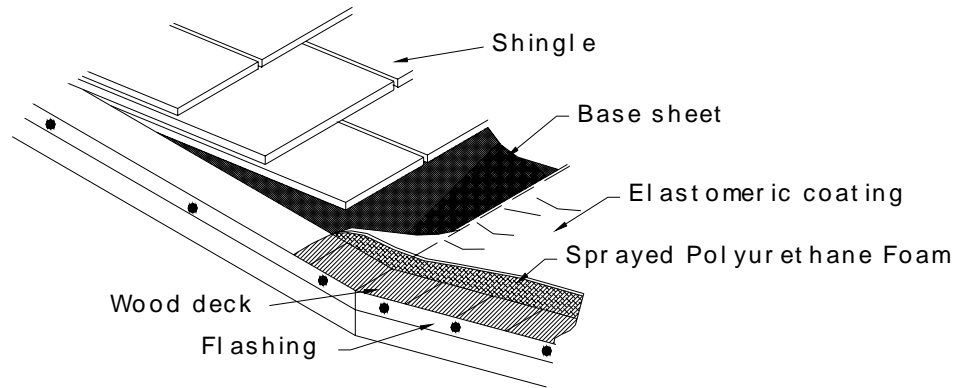
NEW OR REMEDIAL HOT STACK FLASHING



NOTE:
The metal sleeve and the clearance necessary will depend on the temperature of the material handled by the stack

Detail Drawings

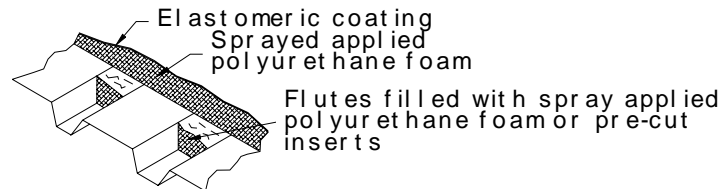
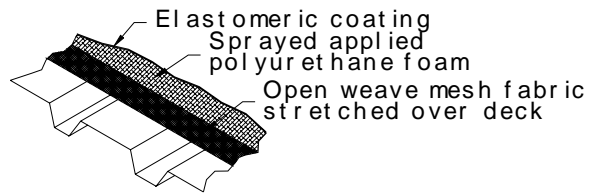
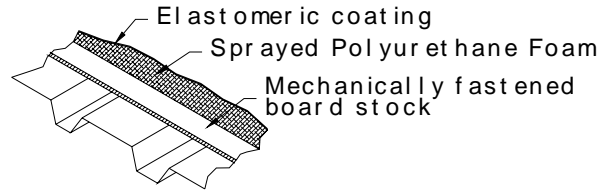
FLAT ROOF TO SHINGLE TIE IN



Note:
Sprayed polyurethane foam
must be applied beneath the
base sheet

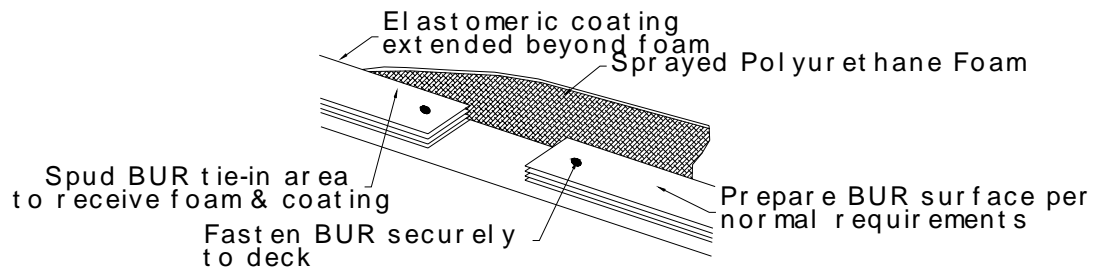
Detail Drawings

NEW AND REMEDIAL FLUTED METAL DECK



Detail Drawings

WATER STOP

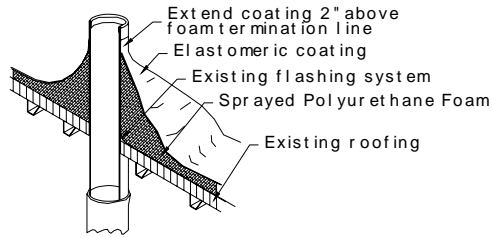


NOTE:
This detail to be used when
terminating a spuf roof onto a BUR roof

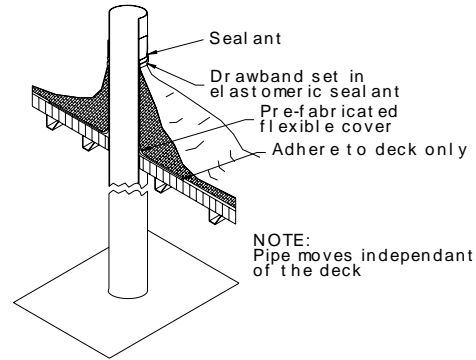
Detail Drawings

REMEDIAL PROTRUSION FLASHING

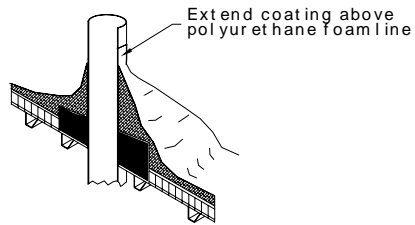
TYPICAL VENT PIPE



FOUNDATION SUPPORTED PIPE

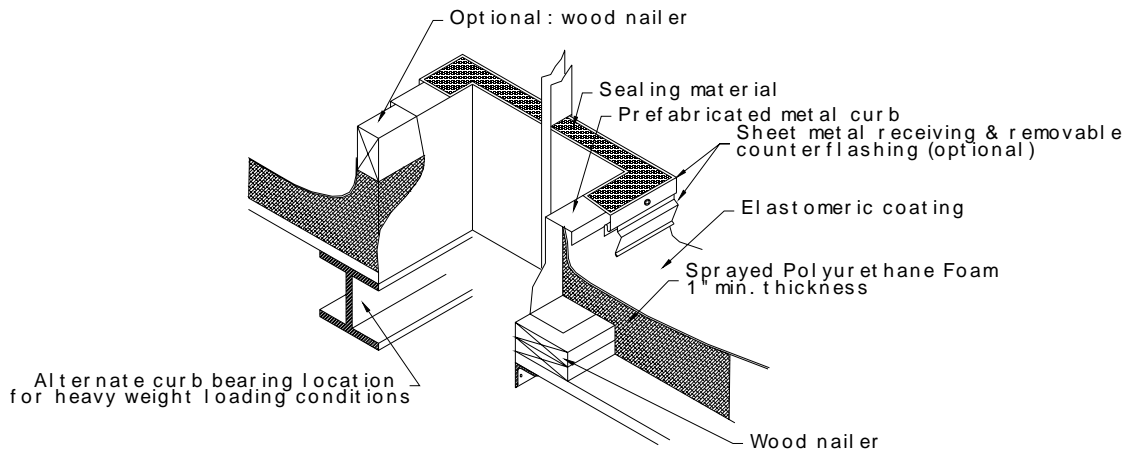


ENCAPSULATED PITCH POCKET



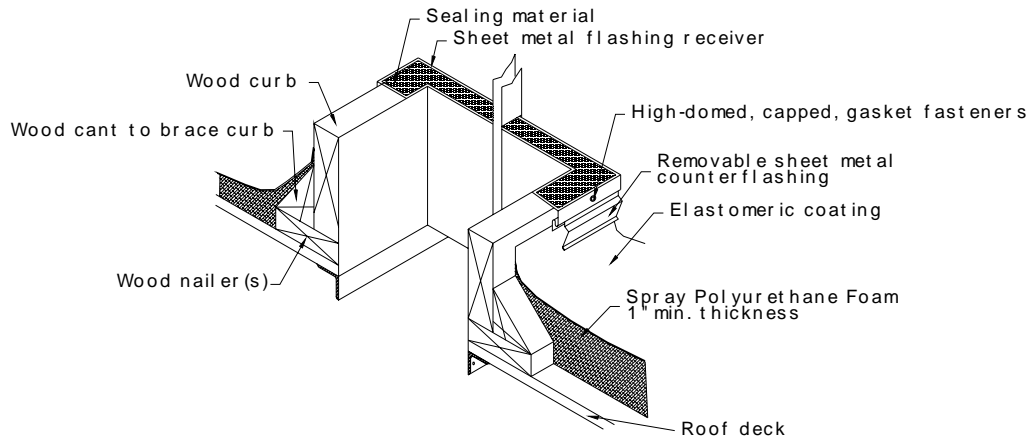
Detail Drawings

RAISED CURB DETAIL FOR ROOFTOP AIR HANDLING UNITS, SKYLIGHT, HATCH, SMOKE VENT CURB & DUCTS (PREFABRICATED METAL CURB)



Detail Drawings

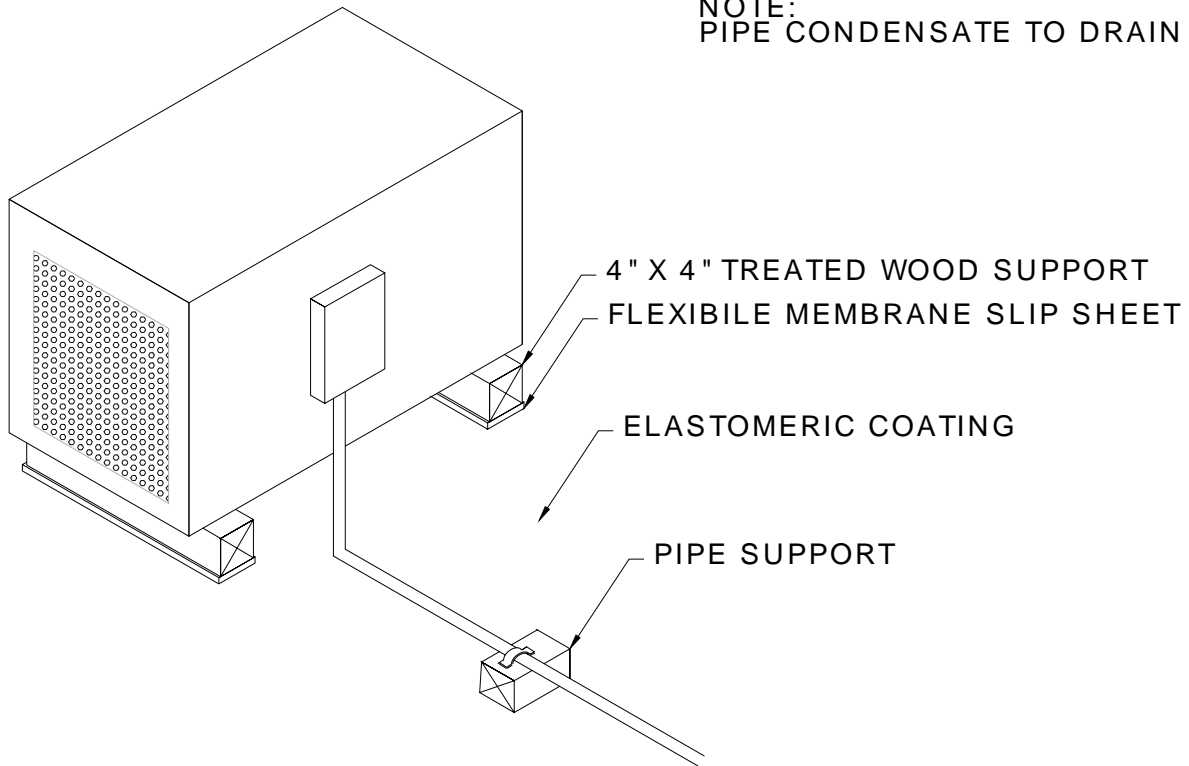
RAISED CURB DETAIL FOR ROOFTOP AIR HANDLING UNITS, SKYLIGHT, HATCH, SMOKE VENT CURB & DUCTS (JOB SITE CONSTRUCTION WOOD CURB)



Detail Drawings

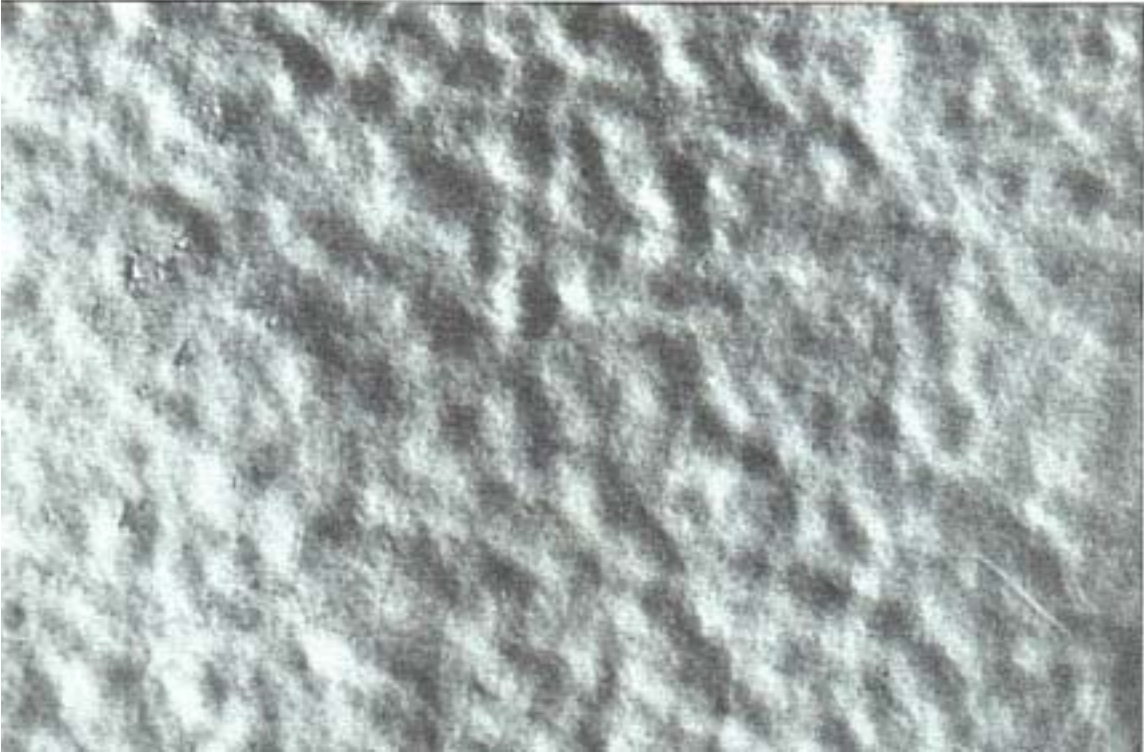
REMEDIAL AIR CONDITIONER TREATMENT

NOTE:
PIPE CONDENSATE TO DRAIN



Foam Textures

Smooth Textures



Orange Peel



Foam Textures

Course Orange Peel

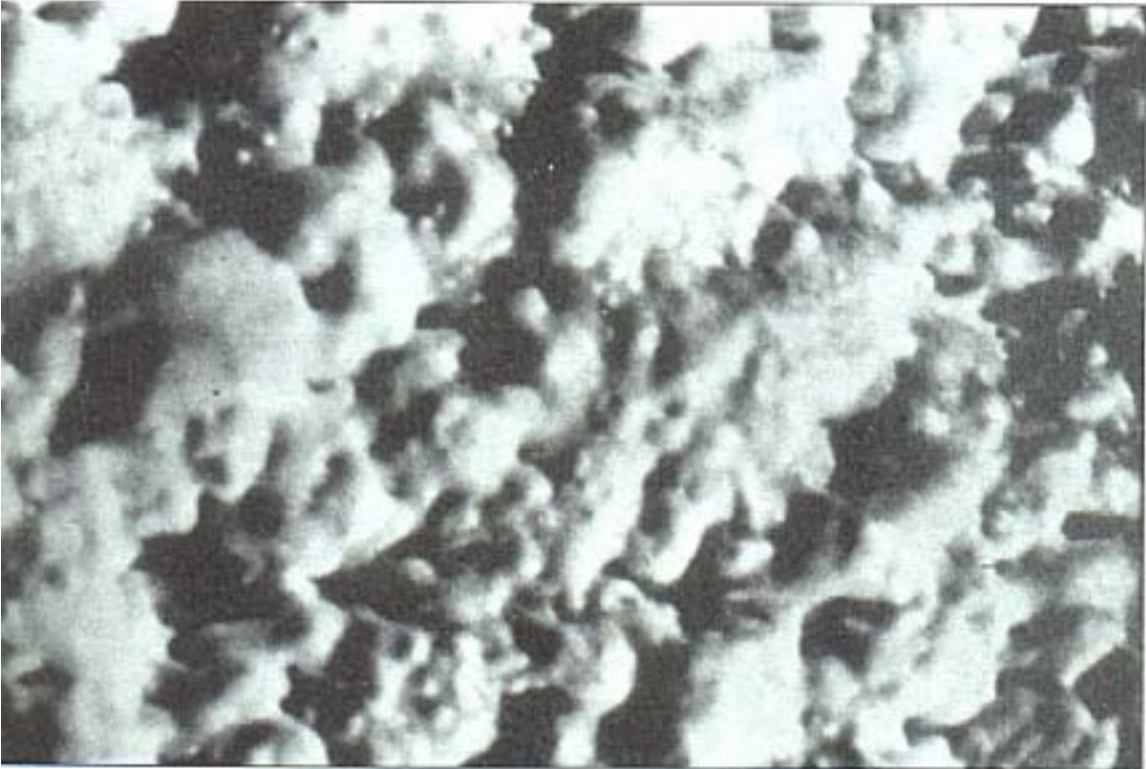


Verge of Popcorn



Foam Textures

Popcorn



Tree Bark



OTHER PROGRAMS AND SERVICES OFFERED BY SPFA

Professional Training

The Accreditation Program offers individual and company accreditation in five areas: Contractor, Distributor, Elastomeric Coating Supplier, Foam Supplier and Independent Inspector. The objectives of the program are to **PROVIDE** an established set of criteria; to **IDENTIFY AND RECOGNIZE** individuals and companies; and to **ENCOURAGE** responsibility for the quality of their work through self-education.

Technical Documents

- AY-102 A Guide for Selection of Protective Coatings Over Spray Polyurethane Foam Roofing Systems
- AY-103 Spray Polyurethane Foam Insulation Systems for Metal Service Vessels Operating Between -30°F and 200°F
- AY-104 Spray Polyurethane Foam Systems for New and Remedial Roofing
- AY-107 Spray Polyurethane Foam Blisters – Their Causes, Types, Prevention and Repair
- AY-110 Spray Polyurethane Foam Aggregate Systems for New and Remedial Roofing

- AY-111 Spray Polyurethane Foam Systems for Cold Storage Facilities Operating Between -40°F and 50°F
- AY-112 Spray Polyurethane Foam for Building Envelope Insulation and Air Seal
- AY-113 Contractor/Applicator Handbook
- AY-116 Spray Applied Polyurethane Foam and Elastomeric Coating Systems (10 min. VHS Video)
- AY-117 Spray Applied Polyurethane Foam and Aggregate Roof Systems (10 min. VHS Video)
- AY-118 Moisture Vapor Transmission
- AY-119 Glossary of Terms Common to the Spray Polyurethane Foam Industry
- AY-121 Spray Polyurethane Foam Estimating Reference Guide
- AY-122 The Renewal of Spray Polyurethane Foam and Coating Roof Systems
- AY-124 Wind Uplift Brochure
- AY-125 P-Rating Brochure
- AY-126 Thermal Barriers for Spray Polyurethane Foam Industry
- AY-127 Maintenance Manual for Spray Polyurethane Foam Roof Systems
- AY-129 SPF Roofing “Seamless Roofing & Insulation” 8 Page Color Brochure
- AY-130 SPF Roofing “Sustainable Roofing” 4 Page Color Brochure
- AY-131 Whole Wall Rating/Label for Metal Stud Wall Systems with SPF; Steady State Thermal Analysis
- AY-132 The SPF Roofing Systems – 11.5 min. Informative Video offers a comprehensive pictorial review of this most extraordinary roofing concept.

- AY-133 Maintenance Manual for Spray Polyurethane Foam Roof Systems – **Spanish Version**
- AY-134 Guideline for Insulating Metal Buildings with Spray Polyurethane Foam
- AX-171 Course 101-R Chapter 1: Health, Safety and Environmental Aspects of Spray Polyurethane Foam and Coverings. Video and Text

Association Newsletter published quarterly with a “Special Show Edition” for the annual conference offers articles, alerts, and technical information affecting the industry.

The SPFA Web Site is a direct communication to all member suppliers and contractors with web access. Up to date information is offered.... And as a member, you may link into the web site (www.sprayfoam.org)

A **“HOT-LINE” 800 number** is available for your use to answer those technical questions (800-523-6154). The SPFA sponsors research and development and product testing that allows approval for generic types of spray foams, coverings, and related products.