

ROOFING SPECIFICATION

1.0 General

The specification shall read in accordance with the terms of the General Conditions and Instructions.

2.0 Score of Work

2.1 The contractor shall provide all labour, material, tools and equipment necessary for the application of a polyurethane foam roofing system as specified.

2.2 Roofing contractor to act as General Contractor and be responsible for all sub-trades including payments of same.

2.3 Prepare roof to receive new sprayed urethane roofing system.

2.4 Install new polyurethane foam roofing system consisting of a catalyzed urethane primer on all surfaces related to urethane foam application. Spray applied polyurethane foam insulation and one coat urethane weather barrier coating as specified.

2.5 Protect surfaces of adjacent properties, landscaping, cars, etc., from damage during the course of work to completion.

2.6 Pay strict attention to detail, mask all areas where overspray or spill may occur.

2.7.1 Re-install all roof equipment that may be removed or lifted to facilitate application of roofing system to original operating condition.

3.0 General Roofing Requirements

3.1 The contractor shall be a member in good standing of the Canadian Urethane Foam Contractors Association. He shall be approved and/or licensed by the urethane foam and protective coatings manufacturers, PFSI, 440 Conestogo Road, Waterloo, Ontario N2L 4E2.

3.2 The contractor must inspect the roof carefully to familiarize himself with local conditions and any difficulties in relation to the execution of work, before submitting his bid. No claims for extras will be entertained for work which is readily apparent from a thorough on site inspection.

- 3.3 Roofing materials shall not be placed on the roof to the extent that, combined with weight of equipment and workmen, design live loads are exceeded.
- 3.4 Surfaces of walls, walks, pavements, windows, etc., shall be covered as necessary to prevent soiling or other damage resulting from application of roofing or transporting of materials.
- 3.5 When work is completed, the contractor shall at his expense remove from the site all temporary facilities, excess materials, rubbish and waste materials resulting from his operations and leave area in a clean condition.

4.0 Submittals With Tender

- 4.1 Product data sheet and/or application instructions on foam to be used; weather barrier coatings, primers, sealants, specialty items and shop drawings on sheet metal or other fabricated items.
- 4.2 A specimen copy of the applicable warranty to be used for the specified roof.

5.0 Materials Delivery And Storage

- 5.1 Materials shall be delivered in manufacturer's original tightly sealed containers or unopened packages, all clearly labeled with the manufacturer's name, product identification, approvals and batch or lot number where appropriate.
- 5.2 Materials shall be stored out of the weather and direct sunshine in their original, tightly sealed containers. Must be in an area where temperature is within the limits specified by the manufacturer of the materials.
- 5.3 Materials once opened or partially used shall be stored in accordance with instructions from the manufacturer.
- 5.3 All materials shall be stored in accordance with fire and safety requirements.
- 5.5 Contractor/applicators utilizing bulk storage methods for on site dispensing, shall submit proof that the products are as specified and that their product utilization is within manufacturers guidelines of acceptability, to the satisfaction of the specifier/owner. Products may not be used until this requirement is fulfilled.

6.0 Materials and Equipment

- 6.1 PRIMER – Prime-Tek 7073 – a single component, urethane primer which penetrates the surface and tenaciously adheres to irregular surfaces even with a minimum of surface preparation as distributed PFSI, 440 Conestogo Road, Waterloo, Ont. N2L 4E2, with the following properties:

Solids by Volume 50%
 Chemical Resistance Excellent to mild acids alkali, and solvents
 High temperature 185°F
 Number of Coats 1

6.2 Spray-in-Place Polyurethane Foam – Polarfoam PF-7203 is a two component spray rigid polyurethane foam system specially formulated for roofing applications having a smooth surface. This product contains the new generation of blowing agent HCFC (141b) and is used as thermal insulation for flat and slightly sloped roofs in commercial industrial and warehouse building, as supplied by PFSI, 440 Conestogo Rd., Waterloo, Ont. N2L 4E2.

Density 2.7-2.9 lbs./cu. Ft.
 % Closed cells 90% min.
 Thermal Resistance 7.8 .115 BTU/HR/sq. ft./Deg. F/In
 Thermal Resistance (aged) 6.5 .14 BTU/HR/sq. ft./Deg. F/In
 Water absorption .03 lbs./ft²/week
 Compressive strength 42 PSI/min.
 Dimension Stability
 Water vapour transmission 2-3 U.S. Perms
 Mixing ratio 1:1

Hybrid Fluid Applied Membrane – two component, 90-100% solids, urethane/poly urea, as distributed by PFSI, 440 Conestogo Road, Waterloo, Ont. N2L 4E2, with the following physical properties:

FLUID APLIED MEMBRANE

Physical Properties	Test Method	Result
Tensile	ASTM D 412	1600 psi
Elongation	ASTM D 412	300%
Permeability	ASTM E 96 B E	.025/Perm @ 30 mil
Hardness	ASTM D 2240, Shore A	95 ± 5
Weathering	QUV Weatherometer	Exposure equivalent to 15 years with no visible deterioration or change in physical properties.
Temperature Resistance		-40°F – 300°F

6.5 Sealants (Caulking) – Sealants to be used in conjunction with components of the roofing system, shall be of the same generic type or must be compatible with and capable of bonding with the foam and coating and/or other hardware components of the roof system and be opaque to ultraviolet light.

7.0 SURFACE PREPARATION

- 7.1 Metal deck must be free of heavy rust deposits. These may be reduced by wire brushing the surface. All loose paint must also be removed.

Before any surface preparation occurs, surface must be power washed then proceed with above then prime with 640 Rust Cote.

8.0 APPLICATION

Substrate Primer –

Application Rates: Substrate should be coated until it appears wet. Care should be taken not to flood or over apply primer. Yield is 200 to 300 square feet per gallon (1/2 to 1/3 gallon per 100 square feet.), depending on the porosity of the substrate.

Urethane Foam Application – Polarfoam PF-7203, available from PFSI, 440 Conestogo Rd., Waterloo, Ont. N2L 4E2. Spray apply to the entire roof surface a total thickness of 3” in passes of not less than 1/2” nor more than 1”.

Care should be taken to achieve the best possible surface texture, with the minimum acceptable standard being a coarse orange peel foam surface as it is illustrated by C.U.F.C.A. coating guidelines.

The finished surface shall be free of excessive ridge and crevices. Only occasional single pinholes shall be deemed acceptable. Any areas of numerous pinholes shall be back rolled with coating and closed before final acceptance.

Application shall not commence during inclement weather, when precipitation is imminent, or when the surface to be sprayed is not free of dew, frost or water. When the wind velocity exceeds 15 M.P.H., spraying shall not proceed without the use of an effective wind barrier. Employ due care to avoid overspray of the building, plants or automobiles.

The applicator shall spray only the amount of sprayed-in-place polyurethane foam in one day as can be coated with the specified base coating. The base coating shall be applied after the foam has cured for at least two hours and before it has been exposed to sunlight for not more than 72 hours.

Foam exposed for more than 72 hours and up to one week shall be broomed and then primed with #7073 Prime-Tek.

In the event foam is left uncoated for more than one week, it shall be heavily broomed and/or scarfed, primed as above, and an additional lift (a minimum of 1/2”) of new foam applied.

The installation of an approved water stop shall be required and also shall be properly fastened and caulked. Existing flashing shall be caulked and fastened properly as per owner requirements.

8.1 Top Coat Fluid Applied Membrane Application

Installation of Protective Top Coating(s)

1. Spray Equipment: This product must be applied with plural component spray equipment. The proportioning pump should be a positive displacement type set up in a 1:1 ratio, capable of maintaining dynamic pressure of 1,500 psi and fluid temperatures of 150°F during the maximum output of the proportioner. Fluid spray hoses should be of the dual heated type with temperature controls capable of maintaining 150°F fluid temperatures the full length to the spray gun. The heated hose assembly must be insulated and be the high-pressure type with designed working pressure to handle the maximum pressure delivered by the proportioner. The inside lining of the hose assembly must be of a material that is unaffected by the coating or solvents used for clean up. Contact PFSI for specific instructions and spray equipment recommendations.

2. Apply Top Coat to a minimum thickness of 50 TDM (Total Dry MILS). Double coat all flashings, penetrations, expansion joint covers, parapets and edge terminations. Refer to "Application" section of Technical Data Bulletins for application instructions.

3. Top Coat must cover all surfaces completely extending at least 2" beyond foam on vertical terminals. An extra pass of Top Coat is required at all edges and penetrations. Contractor needs to figure losses due to over spray, foam texture and wind, increasing estimated gallons required.

4. Top Coat total mils required must be completed within the same day. If coating application is delayed beyond that 4-hour period, consult PFSI for primer recommendations.

9.0 Quality Control

9.1 Exert sufficient control to ascertain that the coating materials are being applied at the prescribed thickness. During the progress of the job, make slit samplings of the membrane, measured with an optical comparator, to insure proper thickness of the coating pass.

9.2 Following project completion, arrange and pay the costs of a detailed inspection by either a representative of the coatings manufacturer or private testing laboratory experienced in evaluating polyurethane roofing systems.

- 9.3 This inspection shall include slit samples of the coating membrane to confirm thickness and adhesion. Minimum number of these samples shall be one per 5000 square feet.
- 9.5 Visual inspection shall confirm adherence to good detail practices at projections, drains, scuppers, and parapets as well as surface texture.
- 9.6 Following the final inspection, a written report of acceptance shall be issued prior to issuance of guarantee.

Warranty: A ten year product warranty will be issued upon proper inspection.