



MEMORANDUM

Date: April 5, 2000
To: Paul Fendt *MSK*
From: Michael Kluck and Stuart Currie
Subject: Port of Seattle Roofing Options
cc: Linda Logan
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Project File *SC*

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This memorandum summarizes research into potential roof coverings to prevent the leaching of zinc from the galvanized steel roofs of two warehouses located on property owned by the Port of Seattle at the Sea-Tac airport.

Introduction

Research into industrial roof coatings was performed in three ways. First, this issue was discussed with a representative of Stevens Roofing Systems who had previously attended a Port meeting. Second, Internet searches were conducted using various keywords and the resulting companies contacted for more specific information. Third, local roofing companies that advertised commercial roofing experience were contacted by telephone. Sources for which information was obtained is summarized in Table 1 (note that many contacts did not respond to requests for information).

Results

After compiling notes from multiple phone calls, Internet printouts, facsimiles, and information received in the mail, we identified several options for covering the roofs. Paint systems and synthetic coverings were the most common options recommended by nearly every company contacted. Paint systems typically involve a surface preparation step (pressure washing or rust treatment), followed by application of a primer, and one or two coats of an acrylic, urethane, or epoxy topcoat. Synthetic coverings include options such as spray-on primer/elastomer coatings with sealants for joints, seams and fasteners; pre-made sheets of a reinforced single-ply membrane that would be applied over a layer of insulation; and a spray-on polyurethane foam to be covered with an elastomer topcoat.

The costs for different coatings options vary considerably depending on the products used and labor estimations. Most contractors were reluctant to provide product pricing without first conducting a site visit. However, an attempt was made to obtain conservative gross estimates for different options. Prices ranged from \$0.22 - \$2.50 per square foot for paint systems to

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\$1.45 - \$3.50 per square foot for synthetic coverings. When extrapolated to estimate costs for application to both warehouses (combined roof surface area estimated at 2.2 acres or 95,835 ft²), potential costs range from \$21K - \$240K for painting and \$60K - \$330K for coverings (see Tables 2 and 3 for more details). Prices did not usually take into account labor/installation (if they did, they were a very rough estimate) because of the need for a site visit. Variables such as the shape of the roof, the durability of the roof, and the amount of preparation work needed would have to be taken into account.

Conclusion

There are a number of items to be considered if and when this roofing work is to be posted for bidding. These include:

- Product costs
- Application costs
- Lifetime and warranties
- Licensing and approval for building exteriors
- Physical condition and gauge of the current roofs
- Metals content and environmental soundness

Based on the research performed, it is expected that painting is less expensive than roof coverings, but would require more frequent maintenance. Synthetic coverings may be more environmentally-friendly (depending on the option utilized) and may have longer lifetimes, but involve a higher initial cost and more intensive pre-treatment (e.g., insulation to fill roof corrugation spacing). Evaluation of the proposed materials is necessary to ensure that alternatives do not release significant concentrations of metals or other pollutants into stormwater runoff.

Table 1. Sources for information regarding industrial roof covering alternatives.

Company	Location	Phone	Contact	Comments
Rainshield Roofing & Construction Co.	Belleveue	425-454-8433	Steve Mansfield	recommended single-ply covering
Adkisson Painting & Roof Care	Seattle	206-230-7801	Chris Adkisson	recommended paint system
Alpine Roofing, Inc.	Snohomish	425-377-0411	Jim Testerman	recommended paint system
Fields Roof Service, Inc.	Kent	253-852-4974	Gary Gilher	outlined 2 options - asphalt coating, or elastomeric membrane
Meyer Bros. Roofing, Inc.	Seattle	206-762-9418	Gene Meyer	outlined 3 options - paint system, elastomeric membrane, or retrofit with pretreated/inert roof material
Stevens Roofing Systems	Puyallup	253-841-0900	Bob Sallee (indep. rep)	recommended reinforced, single-ply covering
United Coatings	Spokane	509-535-1467	Steve D. Hart	fax: 509-535-6826 - recommended membrane
Somay Products, Inc.	Miami, FL	305-633-6333	Garth Parker	fax: 305-638-5524, recommended paint system
Inland Coatings, Inc.	Adel, IA	800-456-8467	www.liquidrubber.com	fax: 515-993-4324 - produce a membrane product
Mainland Industrial Coatings, Inc.	Texas City, TX	800-406-8849	www.spf-roofs.com	fax: 409-943-4655 - produce a sprayed polyurethane foam product

Table 2. Information regarding paint-system coverings for industrial roofs.

Company	Brand	Approx. cost/sq. ft.	Approx. cost / 2.2 acres	Install Included	Comments
Somay Products Inc.	System A	\$2.36	\$226,170.60	N	30-yr system - Carboline Rustbond epoxy universal primer, two coats of Carboline 2434 fluoroethane high gloss topcoat
	System B	\$0.44	\$42,167.40	N	Carboline Rustbond epoxy universal primer, two coats of Carboline 134HG high performance acrylic polyurethane high gloss topcoat
	System C	\$0.38	\$36,417.30	N	Carboline Rustbond epoxy universal primer, two coats of Pratt & Lambert Endu-thane S-28 acrylic/polyester/polyurethane high gloss topcoat
	System D	\$0.30	\$28,750.50	N	Carboline Rustbond epoxy universal primer, two coats of fungistatic acrylic eggshell Steri-Shield finish
	System F	\$0.22	\$21,083.70	N	Carboline Rustbond epoxy universal primer, two coats of acrylic latex semi-gloss topcoat
	DTM Primer/Topcoat	\$0.28	\$26,833.80	N	Kelly-Moore 5725 DTM (direct to metal) acrylic primer, two coats of 5780 DTM acrylic gloss topcoat
Adkisson Painting and Roof Care	Karnac (silvercoat)	\$0.25	\$23,958.75	N	No primer - Pressure wash, then the number of coats applied would depend on the state of the roof (i.e., the amount of rust, etc.)
		\$0.80	\$76,668.00	Y	Thin asphalt primer, aluminum-flake impregnated asphalt based topcoat
Alpine Roofing, Inc.		\$2.50	\$239,587.50		5-10 year system (depending on the quality of the roof prior to application) - High quality specialty primer, then two coats urethane or epoxy topcoat
Fields Roof Service, Inc.					
Meyer Bros. Roofing, Inc.					

Table 3. Information regarding membrane-type coverings for industrial roofs.

Company	Brand	Approx. cost/sq. ft.	Approx. cost / 2.2 acres	Install included	Comments
Somay Products, Inc.	System E	\$0.22	\$21,083.70	N	Carbolite Rustbond epoxy universal primer, two coats of white rubber roof coating 816-R1
Rainsfield Roofing & Construction Co.	Sanifel PVC	\$1.45	\$138,960.75	Y	ROUGH estimate, only three firms in area licensed to apply this material, this is approved for use on government buildings (meets enviro requirements)
Stevens Roofing Systems	TPO Revolution	\$1.50	\$143,752.50	Y	Reinforced, heat welded, single-ply membrane (approx. 1.14mm thick)
United Coatings	Roof Mate	\$0.60	\$57,501.00	Y	Preclean, Primer for rust (as needed), seal joints/seams/ fasteners, two coats of RoofMate acrylic membrane
Meyer Bros. Roofing, Inc.		\$3.50	\$335,422.50		20 - 30 year lifetime system - Preclean, primer, seal joints/ seams/ fasteners, 2 coat elastomeric topcoat
Inland Coatings, Inc.	RC-2000/ RS-2030	emailed for cost			Preclean, single spray-on application rubber roof coating (RC-2000), single spray-on application of clear roofing sealer (RS-2030)
Mainland Industrial Coatings, Inc.	SPF	emailed for cost			Preclean, spray application (on any pre-existing roof), elastomeric topcoat
Fields Roof Service, Inc.		\$1.70	\$162,919.50	Y	Brush-on application of a sealant for joints and fasteners followed by a brush-on application of elastomeric topcoat