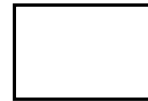


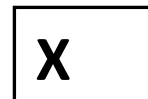
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Steven Heinje
Technical Director
QCP-LLC



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APPROVAL REPORT

APPROVAL TESTING OF PREMIUMCOAT WHITE FINISH COAT FOR USE AS A LIQUID APPLIED ROOF COVER AND MAINTENANCE COATING IN CLASS 1 RECOVER ROOF CONSTRUCTIONS PER FM APPROVALS STANDARD 4470

Prepared for:

Hydro-Stop, Inc.
1465 Pipefitter Street
Charleston, SC 29405

Project ID: 3046086

Class: 4470

Date of Approval: 1/18/2013

Authorized by:

A handwritten signature in cursive script that reads "Cynthia E. Frank".

Cindy Frank, AVP, Group Manager

FM Approvals
1151 Boston-Providence Turnpike
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Norwood, MA 02062

APPROVAL TESTING OF PREMIUMCOAT WHITE FINISH COAT FOR USE AS A LIQUID APPLIED ROOF COVER AND MAINTENANCE COATING IN CLASS 1 RECOVER ROOF CONSTRUCTIONS PER FM APPROVALS STANDARD 4470

from

**Hydro-Stop, Inc.
1465 Pipefitter Street
Charleston, SC 29405**

I INTRODUCTION

- 1.1 Hydro-Stop Inc. submitted their PremiumCoat White Finish Coat to determine if it meets the Approval requirements of the **Standard** listed below for use in selected Class 1 roof deck constructions when installed as a liquid applied roof cover in recover assemblies and as a maintenance coating.
- 1.2 Previous Approval had been granted to the PremiumCoat White Finish Coat as a liquid applied roof cover in selected constructions. See FM Approvals report 3000150, which contains data for Leakage and Foot Traffic testing.
- 1.3 This Report may be reproduced only in its entirety and without modification.

1.4 Standard:

Title	Class Number	Date
Approval Standard for Single-Ply, Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for use in Class 1 and Noncombustible Roof Deck Construction	4470	June 2012

- 1.5 Examination included Simulated ASTM E 108, Hail/UV/Hail. See Section 3.1.1 for testing waived.
- 1.6 Tests show that the submitted PremiumCoat White Finish Coat roof cover as tested, meets the Approval requirements of the **Standard** listed above for use in Class 1 recover roof constructions as a liquid applied roof cover and as a maintenance coating.
- 1.7 **Listings:** The tested constructions meet the Approval criteria of FM Approvals when installed as specified in the **CONCLUSIONS** of this report and will be listed in RoofNav.

II DESCRIPTION

All products are as described in RoofNav. Proprietary formulations, specifications and drawings are on file at FM Approvals.

III EXAMINATIONS AND TESTS

- 3.1 Samples were submitted for examination and testing as follows:
 - 3.1.1 Tests conducted were as required by the **Standard** listed in paragraph 1.4 above.

Interior Fire Resistance:	Waived**
Corrosion:*	Waived*
ASTM E 108:	Not waived
Simulated Wind Uplift:	Waived***

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Susceptibility to Hail	Not waived
Resistance to Leakage:	3000150
Resistance to Foot Traffic Damage:	3000150
Susceptibility to Heat Damage	Waived*

* No fasteners nor insulations are used.

** Waived due to the fact that less than one inch (25 mm) of new insulation is being added in recover.

*** Waived due to the wind classification being limited to the existing roofing assembly.

- 3.1.2 All components were produced under the FM Approvals Surveillance Audit program as indicated by FM Approvals labels. All samples were considered to be representative of standard production and were examined and tested as indicated below.
- 3.1.3 Components incorporated into test samples were selected by FM Approvals personnel. Test samples were prepared by, or under the supervision of, FM Approvals personnel.
- 3.1.4 All data is on file at FM Approvals under 3046086 along with other documents and correspondence applicable to this program.
- 3.2 ASTM E 108 Spread of Flame Tests
- 3.2.1 The fire tests from above the roof cover were conducted in accordance with ASTM E 108 Spread of Flame Tests.
- 3.2.1.1 Sample size was 3-1/3 by 8 ft. (1.0 by 2.4 m).
- 3.2.1.2 The wind velocity over the top of the standard panel was adjusted to 12 ± 0.5 mph (5.3 ± 0.2 m/s).
- 3.2.1.3 Flame exposure: The flame was adjusted to $1400 \pm 50^\circ\text{F}$ ($760 \pm 28^\circ\text{C}$) for Class A tests. The flame temperature was measured by a thermocouple located 1 in. (25.4 mm) above the surface of the standard panel and 1/2 in. (13 mm) toward the flame source from the lower edge of the standard panel. The flame was applied to each test panel for 10 minutes.
- 3.2.1.4 During and after the application of the flame, each panel was observed for the distance of maximum flame spread, glowing brands and other damage.
- 3.2.2 Four 3-1/3 by 8 ft. (1.0 by 2.4 m) test samples were prepared. The components and sequence of installation were as follows:

Samples No. 1 & 2:

- 1/2 in. (13 mm) plywood
- 1.5 in. (38 mm) thick AC Foam II isocyanurate roof insulation, installed loose
- 1.5 in. (38 mm) thick AC Foam II isocyanurate roof insulation, installed loose
- 0.060 in. (1.5 mm) thick UltraPly TPO roof cover mechanically attached
- PremiumCoat Foundation Coat applied by brush at a rate of 20 ft²/gal (0.49 m²/L) with the PremiumCoat Fabric imbedded in the Foundation Coat
- PremiumCoat Foundation Coat applied by brush at a rate of 20 ft²/gal (0.49 m²/L)
- PremiumCoat White Finish Coat applied by roller in 2 coats at a total rate of 70 ft²/gal (1.7 m²/L)

Samples No. 3 & 4:

- 1/2 in. (13 mm) plywood
- 1.5 in. (38 mm) thick AC Foam II isocyanurate roof insulation, installed loose
- 1.5 in. (38 mm) thick AC Foam II isocyanurate roof insulation, installed loose
- 0.060 in. (1.5 mm) thick S327 roof cover mechanically attached
- PremiumCoat Foundation Coat applied by brush at a rate of 20 ft²/gal (0.49 m²/L) with the PremiumCoat Fabric imbedded in the Foundation Coat
- PremiumCoat Foundation Coat applied by brush at a rate of 20 ft²/gal (0.49 m²/L)

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- PremiumCoat White Finish Coat applied by roller in 2 coats at a total rate of 70 ft²/gal (1.7 m²/L)

Test Results:

<u>Sample & Slope:</u>	<u>Max Flame Spread:</u>	<u>Class Passed:</u>
1 – 1 in 12	32 in. (812 mm)	A
2 – 1 in 12	40 in. (1.0 m)	A
3 – 2 in 12	65 in. (1.6 m)	A
4 – 2 in 12	61 in. (1.5 m)	A

3.2.3 Deck exposure, flying brands and significant lateral flame spread were not observed during the tests.

3.3 FM Approvals Simulated Hail Damage Test

3.3.1 Testing was conducted using the FM Approvals Simulated Hail Damage Test Apparatus to evaluate the ability of the roof cover to withstand a hailstorm without damage.

3.3.2 For the severe hail damage test, a 2.0 in. (51 mm) diameter steel ball weighing 1.19 lbs. (0.540 g) was dropped on the test sample from a height of 141.5 in. (3595 mm) onto the sample. This procedure was repeated several times on various sections of the sample. After each drop the sample was inspected for damage to the roof cover. Following initial testing, the sample was conditioned (weathered) for 1000 hours in the FM Approvals Ultraviolet Weatherometer. The initial procedure was then repeated on the conditioned sample.

3.3.3 After each drop, the sample is inspected and there must be no evidence of splitting, delamination or rupture of the roof cover.

3.3.4 Two 2 by 4 ft. (0.6 by 1.2 m) samples were prepared. The components and sequence of installation were as follows:

Sample No. 1:

- 0.50 in. (13 mm) thick Dens Deck substrate
- 0.060 in. (1.5 mm) thick UltraPly TPO roof cover mechanically attached
- PremiumCoat Foundation Coat applied by brush at a rate of 20 ft²/gal (0.49 m²/L) with the PremiumCoat Fabric imbedded in the Foundation Coat
- PremiumCoat Foundation Coat applied by brush at a rate of 20 ft²/gal (0.49 m²/L)
- PremiumCoat White Finish Coat applied by roller in 2 coats at a total rate of 70 ft²/gal (1.7 m²/L)

Sample No. 2:

- 0.50 in. (13 mm) thick Dens Deck substrate
- 0.080 in. (2.0 mm) thick S327 roof cover mechanically attached
- PremiumCoat Foundation Coat applied by brush at a rate of 20 ft²/gal (0.49 m²/L) with the PremiumCoat Fabric imbedded in the Foundation Coat
- PremiumCoat Foundation Coat applied by brush at a rate of 20 ft²/gal (0.49 m²/L)
- PremiumCoat White Finish Coat applied by roller in 2 coats at a total rate of 70 ft²/gal (1.7 m²/L)

Sample No.	Hail Rating
1	Severe/Pass
2	Severe/Pass

3.3.5 No damage to the roof cover on the test panel described in 3.3.4 above was observed after each drop of the simulated hail impactor before or after conditioning (weathering).

IV MARKING

- 4.1 The manufacturer shall mark each container with the manufacturer's name and product trade name. In addition, the container must be marked with the Approval Mark of FM Approvals.
- 4.2 Markings denoting Approval by FM Approvals shall be applied by the manufacturer only within and on the premises of manufacturing locations that are under the FM Approvals Facilities and Procedures Audit program.
- 4.3 The manufacturer agrees that use of the FM Approvals name or Approval Mark is subject to the conditions and limitations of the Approval by FM Approvals. Such conditions and limitations must be included in all references to Approval by FM Approvals.

V REMARKS

- 5.1 The securement of the roof system must be enhanced at the building corners and perimeter as outlined in FM Global Property Loss Prevention Data Sheet 1-29.
- 5.2 The roof cover must be installed using a roof perimeter flashing system Approved by FM Approvals. See RoofNav

VI FACILITIES AND PROCEDURES AUDITS

The Hydro-Stop manufacturing locations in North Charleston, SC and Phoenix, AZ are subject to periodic audit inspections to determine that the quality and uniformity of the materials have been maintained and will provide the same level of performance as originally Approved. The facility and quality control procedures in place have been found to be satisfactory to manufacture product identical to that examined and tested as described in this report.

VII MANUFACTURER'S RESPONSIBILITIES

- 7.1 To assure compliance with his procedures in the field, the manufacturer shall supply to the roofer such necessary instruction or assistance required to produce the desired performance achieved in the tests.
- 7.2 The manufacturer shall notify FM Approvals of any planned change in the Approved products, prior to general sale or distribution, using Form 797, Approved Product Revision Report.

VIII DOCUMENTATION

No new critical documents have been created as a result of this project as all components used are Approved by FM Approvals.

IX CONCLUSIONS:

- 9.1 Test results from this and previous programs indicate that the PremiumCoat Foundation Coat with the PremiumCoat Fabric and PremiumCoat White Finish Coat meets the requirements of FM Approvals Standard 4470 when installed as a liquid applied roof cover or maintenance coating when installed as follows:

Substrate: Existing FM Approved TPO and PVC single ply roof covers.
Base Coat: PremiumCoat Foundation Coat applied by brush at a rate of 20 ft²/gal (0.49 m²/L).
Ply: PremiumCoat Fabric laid into wet FoundationCoat.

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- 2nd Base Coat: PremiumCoat Foundation Coat applied by brush at a rate of 20 ft²/gal (0.49 m²/L).
Top Coat: PremiumCoat White Finish Coat applied by roller in 2 coats at a total rate of 70 ft²/gal (1.7 m²/L).
Hail Rating: SH
ASTM E 108: Meets Class A Existing FM Approved TPO to a maximum slope of 1 in 12.
Meets Class A Existing FM Approved PVC to a maximum slope of 2 in 12.
Wind Uplift: Meets wind classification of existing assembly.
- 9.2 Refer to RoofNav for details of all Approved constructions.
- 9.3 Tests show that the tested roof constructions in and of themselves create a need for automatic sprinklers.
- 9.4 Since a duly signed Master Agreement is on file for this customer, Approval is effective as of the date of this report.
- 9.5 Continued Approval will depend upon satisfactory field experience and periodic Facilities and Procedures Audits.

TESTING SUPERVISED BY: D.L. Alves

PROJECT DATA RECORD: 3046086

ATTACHMENTS: None

ORIGINAL PROJECT DATA: 3000150

REPORT BY:



D.L. Alves
Senior Engineer - Materials Group

REPORT REVIEWED BY:



P.J. Smith, P.E., Asst. Vice President
Technical Team Manager - Materials Group