



MIAMI-DADE COUNTY, FLORIDA
METRO-DADE FLAGLER BUILDING

BUILDING CODE COMPLIANCE OFFICE
METRO-DADE FLAGLER BUILDING
140 WEST FLAGLER STREET, SUITE 1603
MIAMI, FLORIDA 33130-1563
(305) 375-2901 FAX (305) 375-2908

PRODUCT CONTROL NOTICE OF ACCEPTANCE

Bitec
No. 2 Industrial Park Dr.
Morrilton AR 72110

CONTRACTOR LICENSING SECTION
(305) 375-2527 FAX (305) 375-2558

CONTRACTOR ENFORCEMENT SECTION
(305) 375-2966 FAX (305) 375-2908

PRODUCT CONTROL DIVISION
(305) 375-2902 FAX (305) 372-6339

Your application for Product Approval of:

Bitec Modified Bitumen Roof System over L/weight Insulating Concrete

under Chapter 8 of the Code of Miami-Dade County governing the use of Alternate Materials and Types of Construction, and completely described herein, has been recommended for acceptance by the Miami-Dade County Building Code Compliance Office (BCCO) under the conditions specified herein.

This approval shall not be valid after the expiration date stated below. BCCO reserves the right to secure this product or material at anytime from a jobsite or manufacturer's plant for quality control testing.

If this product or material fails to perform in the approved manner, BCCO may revoke, modify, or suspend the use of such product or material immediately. BCCO reserves the right to revoke this approval, if it is determined BCCO that this product or material fails to meet the requirements of the South Florida Building Code.

The expense of such testing will be incurred by the manufacturer.

Acceptance No.: 99-0923.01

Expires: 08/14/2003

Raul Rodriguez
Chief Product Control Division

THIS IS THE COVERSHEET, SEE ADDITIONAL PAGES FOR SPECIFIC AND GENERAL CONDITIONS

BUILDING CODE & PRODUCT REVIEW COMMITTEE

This application for Product Approval has been reviewed by the BCCO and approved by the Building Code and Product Review Committee to be used in Dade County, Florida under the conditions set forth above.

Francisco J. Quintana, R.A.
Director

Miami-Dade County
Building Code Compliance Office

Approved: 03/31/2000

1 of 13



**PRODUCT CONTROL NOTICE OF ACCEPTANCE
ROOFING SYSTEM APPROVAL**

Applicant:
Bitec, Inc.
P.O. Box 497
Morrilton, AR 72110

Product Control No.: 99-0923.01
Approval Date: March 31, 2000
Expiration Date: August 14, 2003

Category: Membrane Roofing System
Sub-Category: Built-up Roofing
Type: Modified Bitumen
Sub-Type: APP, SBS

Insulation Types:

- Fibrous glass
- Perlite
- Fiberboard
- Polyisocyanurate

Maximum Design Pressures

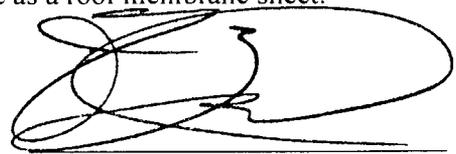
<u>Material</u>	<u>Design Pressure</u>
Lightweight Concrete	-45 psf

Maximum Fire Classification

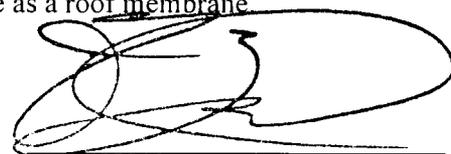
See General Limitation #1

**TRADE NAMES OF PRODUCTS MANUFACTURED OR
LABELED BY APPLICANT**

Product	Dimensions	Test Specification	Product Description
Beta Base	3 sq. roll	ASTM D 4601	Fiberglass base sheet
APM-4.5T	25.58 x 3.28'; roll weight: 92lbs.	ASTM D 5147	APP mineral surfaced modified bitumen membrane reinforced with polyester for use as a roof membrane sheet.


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Roofing Product Control Examiner

Product	Dimensions	Test Specification	Product Description
APM-4T	32.8 x 3.28'; roll weight: 107 lbs.	ASTM D 5147	APP mineral surfaced modified bitumen membrane reinforced with polyester for use as a roof membrane sheet.
MDA	32.8 x 3.28'; roll weight: 107 lbs.	ASTM D 5147	APP colored pattern mineral surfaced modified bitumen membrane reinforced with polyester for use as a roof membrane sheet.
APS-4T	33.5 x 32.8'; roll weight: 90 lbs.	ASTM D 5147	APP modified bitumen membrane reinforced with polyester for use as an interply or roof membrane sheet.
FA-2T	49.2 x 3.28'; roll weight: 70 lbs.	ASTM D 5147	APP modified bitumen membrane reinforced with fiberglass for use as a base sheet or interply membrane.
MAC 300		PA 121	Aluminum roof coating
MAC 200		PA 121	Aluminum roof coating.
SPM-3.5H	33.9 x 3.28'; roll weight: 100 lbs.	ASTM D 5147	SBS mineral surfaced modified bitumen membrane reinforced with polyester for use as a roof membrane sheet.
SPM-4H	32.8 x 3.28'; roll weight: 105 lbs.	ASTM D 5147	SBS mineral surfaced modified bitumen membrane reinforced with polyester for use as a roof membrane sheet.
MDS	32.8 x 3.28'; roll weight: 107 lbs.	ASTM D 5147	SBS colored pattern mineral surfaced modified bitumen membrane reinforced with polyester for use as a roof membrane sheet.
SPM-4.5T	25.58 x 3.28'; roll weight: 92 lbs.	ASTM D 5147	SBS mineral surfaced modified bitumen membrane reinforced with polyester for use as a roof membrane sheet.
SPS-3H	33.5 x 32.8'; roll weight: 73 lbs	ASTM D 5147	SBS modified bitumen membrane reinforced with polyester for use as an interply or roof membrane sheet.
SFM-3.5H	33.9 x 3.28'; roll weight: 100 lbs.	ASTM D 5147	SBS modified bitumen, mineral surface membrane reinforced with fiberglass for use as a roof membrane



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Roofing Product Control Examiner

Product	Dimensions	Test Specification	Product Description
SFM-3.5H-FR	33.9 x 3.28'; roll weight: 103 lbs.	ASTM D 5147	SBS modified bitumen, mineral surface membrane reinforced with fiberglass for use as a roof membrane sheet.
FS-2H	49.2 x 3.28'; roll weight: 70 lbs.	ASTM D 5147	SBS modified bitumen membrane reinforced with fiberglass for use as a base sheet or interply membrane.

EVIDENCE SUBMITTED

<u>Test Agency</u>	<u>Test Identifier</u>	<u>Description</u>	<u>Date</u>
BDA Laboratorium	87-L-1253	Physical Properties	09/01/87
Factory Mutual Research Corporation	J.I. # 0Q3A3.AM	Wind Uplift and Fire Classification	03/23/89
Factory Mutual Research Corporation	J.I. # 0B3A7.AM		12/30/96
South Florida Test Service	BITC-1-X-584	Physical Properties	04/19/89
Dynatech Engineering, Inc.	06.94.07	Wind Uplift Testing	06/07/94
Underwriters Laboratories, Inc.	R12321 (N)	Fire Classification Compliance	02/25/93
Exterior Research & Design, LLC.	#10650.10.97-1	Wind Uplift PA 114(D) & (J)	10/15/97



SYSTEMS

- Membrane Type:** APP
- Deck Type 4I:** Lightweight Insulating Concrete, Insulated, New Construction or Reroof
- Deck Description:** Elastzell Cellular Lightweight 300 psi Concrete over steel or concrete structure
- System Type A:** Anchor sheet mechanically fastened; one or more layers of insulation adhered with approved asphalt.

All General and System Limitations apply.

Deck Minimum 22 ga. Type B Grade E slotted steel decking attached to ¼” thick structural steel supports spaced 5 ft. o.c. fastened with 5/8” puddle welds spaced 6” o.c. to steel supports. Steel deck side laps shall be fastened 18” o.c. between supports with Traxx/ I fasteners.

<u>Insulation Base Layer</u>	<u>Fastener Type</u>	<u>Fastening Detail No.</u>	<u>Fasteners Per Board</u>	<u>Fastener Density</u>
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One or more layers of any of the following insulations:

Approved Type(s): ACFoam II				
Minimum: 4' x 4' x 1.5"	N/A	N/A	N/A	N/A

<u>Insulation Base or Top Layer</u>	<u>Fastener Type</u>	<u>Fastening Detail No.</u>	<u>Fasteners Per Board</u>	<u>Fastener Density</u>
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One or more layers of any of the following insulations:

Approved Type(s): **Standard or Wide Flute Fiberglass Roof Insulation, Standard or Wide Flute Fiber Glass Roof Insulation**

Minimum: 4' x 4' x 15/16"	N/A	N/A	N/A	N/A
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Approved Type(s): **Celotherm, ConPerl, GAFTEMP Permalite, Fesco Board**

Minimum: 2' x 4' x ¾"	N/A	N/A	N/A	N/A
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Approved Type(s): **Armor Board Regular, Esgard, Celotex Fiberboard, GAFTEMP Fiberboard, Huebert Fiberboard, Kop-R Wood Fiber**

Minimum: 4' x 4' x 1"	N/A	N/A	N/A	N/A
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Approved Type(s): **Celotex High Density Wood Fiberboard**

Minimum: 4' x 4' x ½"	N/A	N/A	N/A	N/A
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Note: All insulation shall be adhered to the anchor sheet in full moppings of approved hot asphalt within the EVT range and at a rate of 20-40 lbs. Please refer to Miami-Dade County Roofing Application Standard RAS 117 for insulation attachment. Insulations listed as


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base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels may be used as a top layer placed with the polyisocyanurate side facing down.

- Anchor Sheet: One ply of GAFGLAS #75 fastened to the deck as described below:
- Fastening #1: Fasten base sheet with ES Products FM-90 Fasteners spaced 7" o.c. in a 4" side lap and 7" o.c. in two staggered rows in the center of the sheet.
- Base Sheet: One or more plies of PermaPly No. 28, Glas Base, VaporBar, GAFGLAS #75 adhered to the insulated substrate with a full mopping of approved asphalt at an application rate of 25 lb./sq. ± 15%.
- Ply Sheet: (Optional or as specified) One ply of FA-2T or APS-4T torch applied one or more plies of GlasPly IV or GlasPly Premier adhered with a full mopping of asphalt at an application rate of 25 lb./sq. ± 15%.
- Membrane: One ply of MDA, APS-4T, APM-4T, or APM-4.5T torch applied.
- Surfacing: (Optional) Install one of the following as required for fire rating:
1. APOC 212, Henry 520, Karnak 97 or 97AF, MAC 200, Monsey ProGrade Aluminum or Grundy al MB applied at a rate of 1 ½ gal./sq.
2. Install 400 lb./sq. gravel or 300 lb./sq. slag in a flood coat of approved asphalt at an application rate of 60 lb./sq..
- Maximum Design Pressure: -45 psf (See General Limitations #7.)
- Maximum Fire Classification: See General Limitation #1.
- Maximum Slope: See General Limitation #1.



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- Membrane Type:** SBS
- Deck Type 4I:** Lightweight Insulating Concrete, Insulated, New Construction or Reroof
- Deck Description:** Elastzell Cellular Lightweight 300 psi Concrete over steel or concrete structure.
- System Type A:** Anchor sheet mechanically fastened; one or more layers of insulation adhered with approved asphalt.

All General and System Limitations apply.

Deck Minimum 22 ga. Type B Grade E slotted steel decking attached to ¼” thick structural steel supports spaced 5 ft. o.c. fastened with 5/8” puddle welds spaced 6” o.c. to steel supports. Steel deck side laps shall be fastened 18” o.c. between supports with Traxx/ I fasteners.

<u>Insulation Base Layer</u>	<u>Fastener Type</u>	<u>Fastening Detail No.</u>	<u>Fasteners Per Board</u>	<u>Fastener Density</u>
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One or more layers of any of the following insulations:

Approved Type(s): ACFoam II				
Minimum: 4' x 4' x 1.5"	N/A	N/A	N/A	N/A

<u>Insulation Base or Top Layer</u>	<u>Fastener Type</u>	<u>Fastening Detail No.</u>	<u>Fasteners Per Board</u>	<u>Fastener Density</u>
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One or more layers of any of the following insulations:

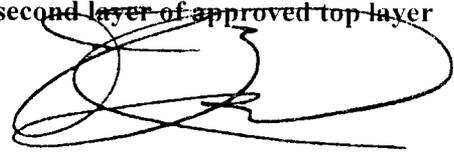
Approved Type(s): Standard or Wide Flute Fiberglass Roof Insulation, Standard or Wide Flute Fiber Glass Roof Insulation				
Minimum: 4' x 4' x 15/16"	N/A	N/A	N/A	N/A

Approved Type(s): Celotherm, ConPerl, GAFTEMP Permalite, Fesco Board				
Minimum: 2' x 4' x ¾"	N/A	N/A	N/A	N/A

Approved Type(s): Armor Board Regular, Esgard, Celotex Fiberboard, GAFTEMP Fiberboard, Huebert Fiberboard, Kop-R Wood Fiber				
Minimum: 4' x 4' x 1"	N/A	N/A	N/A	N/A

Approved Type(s): Celotex High Density Wood Fiberboard				
Minimum: 4' x 4' x ½"	N/A	N/A	N/A	N/A

Note: All insulation shall be adhered to the anchor sheet in full moppings of approved hot asphalt within the EVT range and at a rate of 20-40 lbs. Please refer to Miami-Dade County Roofing Application Standard RAS 117 for insulation attachment. Insulations listed as base layer only shall be used only as base layers with a second layer of approved top layer



insulation installed as the final membrane substrate. Composite insulation panels may be used as a top layer placed with the polyisocyanurate side facing down.

- Anchor Sheet: One ply of GAFGLAS #75 fastened to the deck as described below:
- Fastening #1: Fasten base sheet with ES Products FM-90 Fasteners spaced 7" o.c. in a 4" side lap and 7" o.c. in two staggered rows in the center of the sheet.
- Base Sheet: One or more plies of PermaPly No. 28, Glas Base, VaporBar, GAFGLAS #75 adhered to the insulated substrate with a full mopping of approved asphalt at an application rate of 25 lb./sq. \pm 15%.
- Ply Sheet: (Optional or as specified) One ply of FS-2H or SPS-3H or one or more plies of GlasPly IV or GlasPly Premier adhered with a full mopping of approved asphalt at an application rate of 25 lbs./sq. \pm 15%.
- Membrane: One ply of SPM-4.5T torch welded, or one ply of MDS, SPM-3.5H, SFM-3.5H, SFM-3.5H-FR or SPS-3H adhered with a full mopping of approved asphalt at an application rate of 25 lb./sq. \pm 15%.
- Surfacing: (Optional) Install one of the following as required for fire rating:
1. Karnak 97 or 97AF, MAC 200, MAC 300, Monsey ProGrade Aluminum or Grundy al MB applied at a rate of 1 ½ gal./sq.
 2. 400 lb./sq. gravel or 300 lb./sq. slag in a flood coat of approved asphalt at an application rate of 60 lb./sq..
- Maximum Design Pressure: -45 psf (See General Limitations #7.)
- Maximum Fire Classification: See General Limitation #1.
- Maximum Slope: See General Limitation #1.



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Membrane Type: APP

Deck Type 4: Lightweight Insulating Concrete, New Construction or Reroof

Deck Description: Elastizell Lightweight 300 psi Concrete over steel or concrete structure

System Type E: Base sheet mechanically fastened.

All General and System Limitations apply.

Deck Minimum 22 ga. Type B Grade E slotted steel decking attached to ¼” thick structural steel supports spaced 5 ft. o.c. fastened with 5/8” puddle welds spaced 6” o.c. to steel supports. Steel deck side laps shall be fastened 18” o.c. between supports with Traxx/ I fasteners.

Base Sheet: One or more plies of GAFGLAS #75 fastened to the deck as described below:

Fastening #1: Fasten base sheet with ES Products FM-90 Fasteners spaced 7” o.c. in a 4” side lap and 7” o.c. in two staggered rows in the center of the sheet.

Ply Sheet: (Optional or as specified) One ply of FA-2T or APS-4T torch applied one or more plies of GlasPly IV or GlasPly Premier adhered with a full mopping of asphalt at an application rate of 25 lb./sq. ± 15%.

Membrane: One ply of MDA, APS-4T, APM-4T, or APM-4.5T torch applied.

Surfacing: (Optional) Install one of the following as required for fire rating:

1. APOC 212, Henry 520, Karnak 97 or 97AF, MAC 200, Monsey ProGrade Aluminum or Grundy al MB applied at a rate of 1 ½ gal./sq.
2. Install 400 lb./sq. gravel or 300 lb./sq. slag in a flood coat of approved asphalt at an application rate of 60 lb./sq..

Maximum Design Pressure: -45 psf (See General Limitations #7.)

Maximum Fire Classification: See General Limitation #1.

Maximum Slope: See General Limitation #1.



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Roofing Product Control Examiner

Membrane Type: SBS

Deck Type 4: Lightweight Insulating Concrete, New Construction or Reroof

Deck Description: Elastizell Lightweight 300 psi Concrete over steel or concrete structure

System Type E: Base sheet mechanically fastened.

All General and System Limitations apply.

Deck Minimum 22 ga. Type B Grade E slotted steel decking attached to ¼" thick structural steel supports spaced 5 ft. o.c. fastened with 5/8" puddle welds spaced 6" o.c. to steel supports. Steel deck side laps shall be fastened 18" o.c. between supports with Traxx/ I fasteners.

Base Sheet: One or more plies of GAFGLAS #75 fastened to the deck as described below:

Fastening #1: Fasten base sheet with ES Products FM-90 Fasteners spaced 7" o.c. in a 4" side lap and 7" o.c. in two staggered rows in the center of the sheet.

Ply Sheet: (Optional or as specified) One ply of FS-2H or SPS-3H or one or more plies of GlasPly IV or GlasPly Premier adhered with a full mopping of approved asphalt at an application rate of 25 lbs./sq. ± 15%.

Membrane: One ply of SPM-4.5T torch welded, or one ply of MDS, SPM-3.5H, SFM-3.5H, SFM-3.5H-FR or SPS-3H adhered with a full mopping of approved asphalt at an application rate of 25 lb./sq. ± 15%.

Surfacing: (Optional) Install one of the following as required for fire rating:

1. Karnak 97 or 97AF, MAC 200, MAC 300, Monsey ProGrade Aluminum or Grundy al MB applied at a rate of 1 ½ gal./sq.
2. 400 lb./sq. gravel or 300 lb./sq. slag in a flood coat of approved asphalt at an application rate of 60 lb./sq..

Maximum Design Pressure: -45 psf (See General Limitations #7.)

Maximum Fire Classification: See General Limitation #1.

Maximum Slope: See General Limitation #1.



Lightweight Insulating Concrete System Limitations:

- 1 If mechanical attachment to the structural deck through the lightweight insulating concrete is proposed, a field withdrawal resistance testing shall be performed to determine fastener patterns and density. All testing and fastening design shall be in compliance with Miami-Dade County Protocol PA 105 and Miami-Dade County Roofing Application Standard RAS 117.



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GENERAL LIMITATIONS

- 1 Fire classification is not part of this acceptance, refer to a current Approved Roofing Materials Directory for fire ratings of this product.
- 2 Insulation may be installed in multiple layers. The first layer shall be attached in compliance with Product Control Approval guidelines. All other layers shall be adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq., or mechanically attached using the fastening pattern of the top layer
- 3 All standard panel sizes are acceptable for mechanical attachment. When applied in approved asphalt, panel size shall be 4' x 4' maximum.
- 4 An overlay and/or recovery board insulation panel is required on all applications over closed cell foam insulations when the base sheet is fully mopped. If no recovery board is used the base sheet shall be applied using spot mopping with approved asphalt, 12" diameter circles, 24" o.c.; or strip mopped 8" ribbons in three rows, one at each sidelap and one down the center of the sheet allowing a continuous area of ventilation. Encircling of the strips is not acceptable. A 6" break shall be placed every 12' in each ribbon to allow cross ventilation. Asphalt application of either system shall be at a minimum rate of 12 lbs./sq. **Note: Spot attached systems shall be limited to a maximum design pressure of -45 psf.**
- 5 Fastener spacing for insulation attachment is based on a Minimum Characteristic Force (F') value of 275 lbf., as tested in compliance with PA 105. If the fastener value, as field-tested, are below 275 lbf. insulation attachment shall not be acceptable.
- 6 Fastener spacing for mechanical attachment of anchor/base sheet or membrane attachment is based on a minimum fastener resistance value in conjunction with the maximum design value listed within a specific system. Should the fastener resistance be less than that required, as determined by the Building Official, a revised fastener spacing, prepared, signed and sealed by a Florida Registered Engineer or Architect may be submitted. Said revised fastener spacing shall utilize the withdrawal resistance value taken from Miami-Dade County Protocol PA 105 and calculations in compliance with Miami-Dade Roofing Application Standard PA 117.
- 7 Perimeter and corner areas shall comply with the enhanced uplift pressure of these areas, as calculated in compliance with Chapter 23 of the South Florida Building Code. Fastener densities shall be increase for both insulation and base sheet as calculated in compliance with Miami-Dade County Roofing Application Standard RAS 117. **(When this limitation is specifically referred within this NOA, General Limitation #9 will not be applicable.)**
- 8 All attachment and sizing of perimeter nailers, metal profile, and/or flashing termination designs shall conform with Miami-Dade County Roofing Application Standard PA 111 and the wind load requirements of Chapter 23 of the South Florida Building Code.
- 9 The maximum designed pressure limitation listed shall be applicable to all roof pressure zones (i.e. field, perimeters, and corners). Neither rational analysis, nor extrapolation shall be permitted for enhanced fastening at enhanced pressure zones (i.e. perimeters, extended corners and corners). **(When this limitation is specifically referred within this NOA, General Limitation #7 will not be applicable.)**



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Roofing Product Control Examiner

Bitec, Inc.
P.O. Box 497
Morrilton, AR 72110

ACCEPTANCE NO: 99-0923.01
APPROVED: March 31, 2000
EXPIRES: August 14, 2003

NOTICE OF ACCEPTANCE STANDARD CONDITIONS

- 1 Renewal of this Acceptance (approval) shall be considered after a renewal application has been filed and the original submitted documentation, including test supporting data, engineering documents, are no older than eight (8) years.
- 2 Any and all approved products shall be permanently labeled with the manufacturer's name, city, state, and the following statement: "Miami-Dade County Product Control Approved", or as specifically stated in the specific conditions of this Acceptance.
- 3 Renewals of Acceptance will not be considered if:
 - a) There has been a change in the South Florida Building Code affecting the evaluation of this product and the product is not in compliance with the code changes;
 - b) The product is no longer the same product (identical) as the one originally approved;
 - c) If the Acceptance holder has not complied with all the requirements of this acceptance, including the correct installation of the product;
 - d) The engineer who originally prepared, signed and sealed the required documentation initially submitted, is no longer practicing the engineering profession.
- 4 Any revision or change in the materials, use, and/or manufacture of the product or process shall automatically be cause for termination of this Acceptance, unless prior written approval has been requested (through the filing of a revision application with appropriate fee) and granted by this office.
- 5 Any of the following shall also be grounds for removal of this Acceptance:
 - a) Unsatisfactory performance of this product or process;
 - b) Misuse of this Acceptance as an endorsement of any product, for sales, advertising or any other purposes.
- 6 The Notice of Acceptance number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the Notice of Acceptance is displayed, then it shall be done in its entirety.
- 7 A copy of this Acceptance as well as approved drawings and other documents, where it applies, shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at all times. The copies need not be resealed by the engineer.
- 8 Failure to comply with any section of this Acceptance shall be cause for termination and removal of Acceptance.
- 9 This Acceptance contains pages 1 through 13.

END OF THIS ACCEPTANCE



Frank Zuloaga, RRC
Roofing Product Control Examiner