

HURRICANE MITIGATION RETROFITS – REROOF OPTIONS

RE: “Secondary Water Barrier” – Additional Options pursuant to the intent of HB 7057

The goal of this document is to assist in creating a level playing field for products that meet the intent of HB 7057 and to provide a clearer understanding of available products that have passed, or can pass the requirements of the following testing criteria options. These tests are based upon current testing criteria, and are presently used by manufactures of roofing products.

In addition a “Secondary Water Barrier” it would appear, based upon the intent of HB 7057, should be required to meet a level of wind resistance and where applicable, nail sealibility. Most of the products listed below have passed all, or the majority of all of the tests listed. The majority that have not tested to one or two of these requirements will pass once tested.

A number of the products currently approved by FBC have been tested to minimum standards and would be successful once tested to one of the more complete testing criteria options listed. The testing criteria options listed are a combination of currently available testing criteria from (ASTM, ICC-ES, and Miami/Dade) and provide for a “Secondary Water Barrier” that out performs the criteria of any individual standard. Hopefully this will assist the FRSA and Florida Building Commission with the unique opportunity to assess and adopt a standard for a “Secondary Water Barrier System(s)”.

These additional options are not intended to preclude products or systems that meet and or exceed the testing criteria listed. They are intended to promote the development of technologies and products that provide increased safety and protection for property owners and the reduction in damage to homes and structures, reduce losses, and accomplish the intent of HB7057.

Requirements of a Secondary Water Barrier:

A water resistant /roof underlayment layer or product that is fastened to the surface of the substrate to which the primary roof covering is affixed that will resist water intrusion through seams in the plywood or other deck covering.

Definition of a Secondary Water Barrier:

A water resistant /roof underlayment layer or product that provides protection to the structure to which it is affixed in the event the primary roof covering is damaged, removed, or penetrated by wind driven rain as the result of hurricane force winds.

Current Requirements:

201.2 Roof secondary water barrier for site-built single family residential structures. A secondary water barrier shall be installed using one of the following methods when roofing replacement when reroofing.

- a) All joints in roof sheathing or decking shall be covered with a minimum 4 in. wide strip of self-adhering polymer modified bitumen tape applied directly to the sheathing or decking. The deck and self adhering polymer modified bitumen tape shall be covered with one of the underlayment systems approved for the particular roof covering to be applied to the roof
- b) The entire roof deck shall be covered with an approved self-adhering polymer modified bitumen cap sheet. No additional underlayment shall be required on top of the cap sheet for new installations.

EXCEPTIONS:

1. An asphalt impregnated 30# felt underlayment installed with nails and tin-tabs as required for the HVHZ and covered with either an approved self-adhering polymer modified bitumen cap sheet or an approved cap sheet applied using an approved hot-mop applications shall be deemed to meet the requirements of the secondary water barrier.

Additional options with clarifications and currently available products:

1. One Layer: Secondary Water Barrier System:

For installation under Asphalt Shingles, Metal, and Quarry Slate: install one layer of a water resistant/roof underlayment or product meeting the attached testing criteria. Installed as follows (or per manufacturers tested criteria for appropriate wind zone). For a 36" width roof underlayment, install with ring shank nails having a minimum 20 rings per inch, a minimum head diameter of 3/8" thru 1-5/8" tin caps, or ring shank metal cap nails having a 1" diameter, and long enough to penetrate the deck per code. Space nails 6" o. c. within minimum 3" wide side laps, and 12" o. c. in two equally spaced staggered rows in the field. For 48" width roof underlayment nail 10" o. c. in three equally spaced staggered rows in the field. To prevent water intrusion between vertical and horizontal seams in the underlayment sheet, apply/install (or factory apply) over or between all

vertical and horizontal laps a 2" wide Pressure Sensitive Adhesive/Self Adhering tape (see tape manufactures below) meeting the same testing criteria as Option 3 below; Pressure Sensitive Adhesive/Self-Adhering Layer: Secondary Water Barrier System or cut from a roll of water resistant/roof underlayment layer meeting the same testing criteria.

2. Double Layer: Secondary Water Barrier System

For installation beneath Asphalt Shingles, Metal, Quarry Slate and Roof Tile: install two layers of a water resistant/roof underlayment or product meeting the attached testing criteria. Install in shingle fashion, with ring shank nails having a minimum 20 rings per inch, a minimum head diameter of 3/8". thru 1-5/8" tin caps, or ring shank metal cap nails having a 1" diameter cap and long enough to penetrate the deck per code, spaced 6" o. c within minimum 3" wide side laps and one row spaced 12" o. c. centered in the field

Tests for Single and Double Layer Secondary Water Barrie(s)

Property	Criteria
1. Pliability	ASTM D226-97a
2. Tensile Strength	ASTM D1970-01/ ICC ES AC48
3. Tear Resistance	ASTM D 4073/ D 1970 or ASTM D 1938/TAS 104-95
4. Dimensional Stability	TAS 104-95
5. Accelerated Aging	ICC ES AC48 or TAS 104-95
6. Ultraviolet Exposure	ICC ES AC48 or TAS 104-95
7. Breaking Strength, Control	ASTM D2523/TAS 104-95
8. Breaking Strength, Heat Aged	ASTM D2523/TAS 104-95
9. Breaking Strength, QUV	ASTM D2523/TAS 104-95
10. Breaking Strength, ACC Weather	ASTM D2523/TAS 104-95
11. Elongation, Control	ASTM D2523/TAS 104-95*
12. Elongation, Heat Aged	ASTM D2523/TAS 104-95
13. Elongation, QUV	ASTM D2523/TAS 104-95
14. Elongation, AAW	ASTM D2523/TAS 104-95
15. Liquid Water Transmission	ASTM D4869-02
16. Water Absorption	ASTM D570 or TAS 104-95
17. Low Temp. Flexibility	ASTM D1970(7.7) or TAS 104-95
18. Wind Uplift or Rupture	FM Standard 4470 or TAS 114 or TAS 117B**
19. UV Resistance	ICC AC48 or TAS 104-95
20. Cycling Elongation	ICC AC48 or TAS 104-95

21. Water Vapor Transmission	ASTM E-96 -00 Dessicant Method
22. Unroll-ability	ASTM D226-97a
23. Self-Sealability/Nail	ASTM 1970-01
24. Puncture Resistance-single layer	ICBO AC08 or TAS 104-95 Over ½"thick Plywood
25. Puncture Resistance-double layer	ICBO AC08 or TAS 104-95
26. Thickness	ASTM 1970, or TAS 104-95
27. Granule Adhesion	ASTM D5147 or TAS 104-95
28. Tile Slippage-double layer	TAS 104-95

* Synthetic Polypropylene or Polyethylene woven polymer coated underlayments minimum 12% MD 12% XMD. These values exceed the requirements for organic reinforced or fiberglass reinforced polymer modified bitumen underlayments per this test.

**Meet or exceed 30/90 w/hot asphalt system for options listed

Companies meeting all or some of the requirements listed above.

Alpha Protech - Alpha Protector SUL™

BBA Fiberweb – Typrar Roof Wrap™

Fabrene – Matrix UL™, Resistor Plus™ and Fabrene UDL™

Firstline Corporation – RoofTex™ & Plydry™

Fortafiber - RoofTex 30B™ & Catwalk 30™

GAF – Deck-Armor™

Intertape – Nova Seal™

Interwrap – Titanium UDL 50™

Kirsch Building Products LLC – Sharkskin Comp™, Sharkskin Ultra™

Polyglass - PolyProtector UDL™

Rosenlew _ RoofTopGuard II™

SDP – Palisade UDL™

System Components – Feltex™

W.R. Grace – Tri-Flex 30™

3. Pressure Sensitive Adhesive/Self-Adhering Layer*: Secondary Water Barrier System

For installation beneath Asphalt Shingles, Metal, Quarry Slate and Roof Tile: install one layer of a water resistant/roof underlayment layer meeting the following testing criteria.

4. Pressure Sensitive Adhesive/Self-Adhering Layer* over mechanically fastened base sheet: Secondary Water Barrier System

For installation beneath Asphalt Shingles, Metal, Quarry Slate and Roof Tile: install one layer of a PSA/SA water resistant/roof underlayment layer over one layer of Type 30 asphalt impregnated felt or roofing underlayment meeting ASTM D-226 or ICC AC 188, meeting the following testing criteria**. Fasten Type 30 asphalt/roof underlayment layer with ring shank nails having a minimum 20 rings per inch, a minimum head diameter of 3/8" and long enough to penetrate the deck per code thru 1-5/8" tin caps or ring shank metal cap nails having 1" diameter caps per code.

****Important note:**

Per the current code self-adhered roofing underlayments have not been required to provide testing data showing they in fact meet the same adhesion values attached to an anchor sheet, as they do when installed over plywood. Recommendation is made that this testing be done.

Tests for Self Adhering Secondary Water Barrier

Property	Criteria
1. Tensile Strength	ASTM D 1970-01/ ICC ES AC48
2. Tear Resistance	ASTM D 4073/D 1970ASTM or D 1938/TAS 103-95
3. Dimensional Stability	TAS 103-95
4. Accelerated Aging	ICC AC48 or TAS 103-95
5. Breaking Strength, Control	ASTM D2523/TAS 103-95
6. Breaking Strength, Heat Aged	ASTM D2523/TAS 103-95
7. Breaking Strength, QUV	ASTM D2523/TAS 103-95
8. Breaking Strength, ACC Weather	ASTM D2523/TAS 103-95
9. Elongation, Control	ASTM D2523/TAS 103-95**
10. Elongation, Heat Aged	ASTM D2523/TAS 103-95
11. Elongation, QUV	ASTM D2523/TAS 103-95
12. Elongation, AAW	ASTM D2523/TAS 103-95
13. Water Absorption	ASTM D570 or TAS 103-95
14. Low Temp. Flexibility	ASTM D1970(7.7)/TAS 103-95
15. Wind Uplift	TAS 124
16. UV Resistance	ICC AC48 or TAS 103-95
17. Cycling Elongation	ICC AC48 or TAS 103-95
18. Water Vapor Transmission	ASTM E-96 -00 Dessicant Method
19. Compound Stability	ASTM D 5147 or TAS 103-95
20. Peel Resistance, Control	ASTM C 794/ICC AC48 or ASTM D1970 (7.4)/TAS 103-95
21. Peel Resistance, Post UV	ASTM C 794/ICC AC48 or ASTM D1970 (7.4)/TAS 103-95

22. Peel Resistance, AAW	ASTM C 794/ICC AC48 or ASTM D1970 (7.4)/TAS 103-95
23. Puncture Resistance	ICBO AC08 or TAS 103-95
24. Self-Sealability/Nail	ASTM 1970-01
25. Crack Cycling	ICC AC48 or TAS 103-95
26. Granule Adhesion	ASTM D5147 or TAS 103-95
27. Tile Slippage Resistance	TAS 103-95

*Not limited to a modified bitumen products

** Synthetic Polypropylene or Polyethylene woven polymer coated underlayments minimum 12% MD 12% XMD. These values exceed the requirements for organic reinforced or fiberglass reinforced polymer modified bitumen underlayments per this test.

Companies meeting all or some of the requirements listed above.

Allied Building Products – Tri-Built HT™

AKIW, Inc. – Disaster Pruf™

Carlisle – WIP 100, CCW WIP 300 HT, WIP 200, WIP 400, WIP 400

CertainTeed – Winter Guard HT™, Winter Guard Sand™, Winter Guard Granular™

Co-Fair – SB – 60™, Wind & Water Guard™

GAF – Stormguard™, Weatherwatch™, Metalmate™

John-Manville – Ice & Water Guard™

Kirsch Building Products LLC – Sharkskin Ultra SA™/Sharkskin Ultra™/SA™ -System

MFM Building Products – STS Underlayment™, Wind & Water Seal™

Northern Elastomeric – Guardian Roof Armor Granular™, AC Tile Seal™

Owens Corning – WeatherLock Metal Underlayment™, WeatherLock G, WeatherLock PM™

PolyGlass – Polystick P™, Basik™, IR/IRX™, TU™, TU Plus™ or MU™

Protecto Wrap – Rain Proof 40™, Rain Proof 60™

Tamko – TW Tile & Metal™, TW Moisture Guard™

Tarco Specialty Products – Fast 90™, PS200™

US Ply, Inc. – Rapid Grip HT™ and Rapid Grip MS™

W.R. Grace – Ice and Water Shield™, Grace Basik™

Tape: pressure sensitive adhesive/ self-adhering tape manufactures.

Tape Companies meeting the requirements of the current 4” wide tape installation at all joints in the roof sheathing per a) Current Requirements and the 2” wide tape requirements for sealing all underlayment laps per option 1 above, can be found below to name a few.

Adhesive Applications, Inc.
Adhesives Research, Inc.
American Biltrite, Inc.
Arlon
Avery Dennison
Cantech Industries, Inc.
Carlisle
Compac Corporation
Covalence Adhesives
Intertape Polymer Group Inc.
Adhesive Applications, Inc.
MACTac North America
Main Tape Company, Inc.
MFM Building Products
Permacel, A Nitto Denko Company
Protecto Wrap
Q'SO, Inc.
Saint-Gobain Performance Plastics
Scapa North America
Sekisui TA Technologies, LLC
Shurtape Technologies LLC
Specialty Tapes, LLC
Syntac Coated Products, LLC
Tesa Tape, Inc.
3M
Venture Tape Corp.
Wooster Products, Inc.
W.R. Grace

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