BUILDING CODE COMPLIANCE OFFICE (BCCO)
PRODUCT CONTROL DIVISION

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

NOTICE OF ACCEPTANCE (NOA)

Honeywell International Inc.
2000 Regency Parkway, suite 255
Cary, NC 27511

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed by Miami-Dade County Product Control Division and accepted by the Board of Rules and Appeals (BORA) to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Division (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. BORA reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Division that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein, and has been designed to comply with the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: Millenium Coal Tar Membrane Modified Bitumen over Steel

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA 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 NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This consists of pages 1 through 11.
The submitted documentation was reviewed by Frank Zuloaga, RRC.

ROOFING ASSEMBLY APPROVAL

Category:	Roofing
Sub-Category:	Modified Bitumen
Materials:	Fiberglass/Organic
Deck Type:	Steel
Maximum Design Pressure	**-55 psf**
Fire Classification:	See General Limitation #1

TABLE 1
TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

Product	Dimensions	Test Specification	Product Description
Armor Board High Density Fiberboard	various	PA 110	High density wood fiber insulation board.
Armor Lite Perlite	various	PA 110	Perlite roof insulation board.
Armor-R Glas	various	PA 110	Fiberglass roof insulation.
Armor-R Plus	various	PA 110	Polyisocyanurate foam roof insulation.
Black Armor Aluminum Coating		ASTM D 2824	Asbestos free, fibrated aluminum/asphalt roof coating, to coat smooth surface membranes.
Black Armor Asphalt Primer		ASTM D 41	Cut back, asphalt based coating used to facilitate adhesion of dissimilar materials.
Black Armor Glass Fiber Base Sheet	324 sq. ft.	ASTM D 4601 type II	Asphalt coated, glass fiber mat for use as a base sheet in built-up roof systems.
Black Armor Granulated Reinforced Base Flashing	various		Nonwoven polyester, asphalt coated flashing for use in coal tar and asphalt built-up roof systems.
Black Armor Modified Base Flashing	100 sq. ft.		160 mil APP modified bitumen membrane reinforced with non-woven polyester mat for torch application.
Black Armor Organic Base Sheet	216 sq. ft.	ASTM D 2626	Asphalt saturated and coated #43 organic felt base sheet for use in modified bitumen and conventional built-up roof systems.
Black Armor Reinforced Base Flashing	150 sq. ft.		Nonwoven polyester mat coated and saturated with asphalt for use in built-up roof systems.
Black Armor TC Glass Fiber Felt	540 sq. ft. roll	ASTM D 2178	Glass fiber coal tar coated base sheet for use in conventional built-up roof systems.
Black Armor TC Premium Glass Fiber Felt	540 sq. ft.; roll weight: 65 lbs.	ASTM D 2178 type VI	Glass fiber, coal tar coated ply sheet for use in conventional built-up roof systems.
Black Armor Tar Mastic		ASTM D 5693	Coal tar based asbestos-free roof cement.

Product	Dimensions	Test Specification	Product Description
Black Armor Tarred Felt	432 sq. ft.; roll weight: 60 lbs.	ASTM D 227	Organic fiber sheet saturated with coal tar for use in coal tar built-up roof systems.
Coal Tar Roofing and Waterproofing Pitch		ASTM D 450 type I, II	Coal tar adhesive used in modified and conventional built-up roofing applications.
Millennium GMC	75 sq. ft.; roll weight: 75 lbs.	proprietary	Coal tar membrane with non-woven fiberglass reinforcement for use as a modified bitumen membrane. Applied in hot coal tar pitch, hot air heat welded, or in Millennium Adhesive.
Millennium GMC-FR	75 sq. ft.; roll weight: 75 lbs.	proprietary	Coal tar membrane with non-woven fiberglass reinforcement for use as a modified bitumen membrane. Applied in hot coal tar pitch, hot air heat welded, or in Millennium Adhesive.
Millennium SM	100 sq. ft.; roll weight: 84 lbs.	proprietary	Coal tar membrane reinforced with non-woven fiberglass and lightly surfaced with sand. For use as a modified bitumen membrane. Applied in hot coal tar pitch, hot air heat welded, or in Millennium Adhesive.
Millennium BS	150 sq. ft.; roll weight: 81 lbs.	proprietary	Coal tar membrane reinforced with non-woven fiberglass and lightly surfaced with sand. For use as a modified bitumen membrane. Applied in hot coal tar pitch or in Millennium Adhesive.
Millennium SPM	100 sq. ft.; roll weight 75 lbs.	proprietary	Coal tar membrane with polyester reinforcement for use as a modified bitumen membrane. Applied in hot coal tar pitch, hot air heat welded, or in Millennium Adhesive.
Millennium SPM	75 sq. ft.; roll weight: 75 lbs.	proprietary	Coal tar membrane with polyester reinforcement for use as a modified bitumen membrane. Applied in hot coal tar pitch, hot air heat welded, or in Millennium Adhesive.
Millennium Adhesive	N/A	proprietary	Modified Coal tar adhesive

TABLE 2

APPROVED INSULATIONS:

Product	Dimensions	Test Specification	Product Description	Manufacturer
Pyrox	various	PA 110	Polyisocyanurate foam insulation	Apache Products Co. (with current NOA)
ACFoam II	various	PA 110	Polyisocyanurate foam insulation	Atlas Energy Products (with current NOA)
Multi-Max	various	PA 110	Polyisocyanurate foam insulation	Rmax, Inc. (with current NOA)
Hy-Therm Nail-line	various	PA 110	Polyisocyanurate foam insulation	Celotex Corp. (with current NOA)
Hy-Therm AP	various	PA 110	Polyisocyanurate foam insulation	Celotex Corp. (with current NOA)
ISO 95+	various	PA 110	Polyisocyanurate foam insulation	Firestone (with current NOA)
E'NRG'Y-2 Plus	various	PA 110	Polyisocyanurate foam insulation	Johns Manville (with current NOA)
E'NRG'Y-2	various	PA 110	Polyisocyanurate foam insulation	Johns Manville (with current NOA)
E'NRG'Y-2 Composite	various	PA 110	Polyisocyanurate foam insulation	Johns Manville (with current NOA)
Fiberglas	various	PA 110	Fiber Glass roof insulation.	Johns Manville (with current NOA)
EPS	various	PA 110	Extruded polystyrene insulation	Generic (with current NOA)
High Density Wood Fiberboard	various	PA 110	Wood fiber insulation board	See Approved Systems Listings
Perlite Insulation	various	PA 110	Perlite insulation board	See Approved Systems Listings
Dens-Deck	4' x 8'	PA 110	Gypsum board	Georgia-Pacific (with current NOA)
Overlayment Board	4' x 8'	PA 110	Gypsum board	Georgia-Pacific (with current NOA)
Type X Gypsum	various		Fire resistant rated gypsum	Generic (with current NOA)

TABLE 3

APPROVED FASTENERS:

Product	Descriptions	Dimensions	Manufacturer
DekFast	Carbon Steel, Sentri (black)	Various	Construction Fasteners (with current NOA)
Olympic	Carbon Steel, CR-10 or Answer Coating (black)	Various	Olympic Fasteners (with current NOA)
Roofgrip	Carbon Steel, SPEX (blue , gray) or Climaseal (black, blue or red)	Various	ITW Buildex Corp. (with current NOA)
Anchorbond	Carbon Steel, Sentri (black)	Various	The Celotex Corp. (with current NOA)
Tru-Fast	Carbon Steel Tru-Kote Coating	Various	The Tru-Fast Corp. (with current NOA)
Insul-fixx	Steel, Tuff-Tite (black or purple)	Various	SFS Stadler Inc. (with current NOA)
Hextra	Carbon Steel, SPEX (black) or Climaseal (blue)	Various	ITW Buildex Corp. (with current NOA)
Ultrafast	Carbon Steel with SPEX (black) coating	Various	Johns Manville (with current NOA)
Anchorbond Fastener	Insulation fastener and metal or plastic plate	various	Celotex Corp. (with current NOA)
Gripdek Fastener	Insulation fastener	various	ITW Buildex (with current NOA)
Rawl Fasteners #12	Insulation fastener for steel and wood decks	various	The Rawlplug Company Inc. (with current NOA)
Rawl Fasteners #14	Insulation fastener for use in steel, wood or concrete	various	The Rawlplug Company Inc. (with current NOA)

EVIDENCE SUBMITTED:

Test Agency	Test Identifier	Description	Date
Dynatech Engineering Corporation	3.94.23	Wind Uplift Resistance	03.23.94
Dynatech Engineering Corporation	07.94.12	Wind Uplift Resistance	07.12.94
Dynatech Engineering Corporation	4501-3.95-1	Wind Uplift Resistance	03.01.95
Dynatech Engineering Corporation	4500-3.95-1	Wind Uplift Resistance	03.01.95
Factory Mutual Research Corporation	FM Approval Guide Listings	Current Insulation Fastening Requirements	Published Annually

Test Agency	Test Identifier	Description	Date
Factory Mutual Research Corporation	J.I. #2X1A6.AM and Letter	Wind Uplift Resistance	04.11.94
Underwriters Laboratories, Inc.	UL Materials and Systems Directory Listings R13503(N)	Fire Classification Compliance	Published Annually
Exterior Research & Design, LLC.	#4502.09.96-1	Protocol PA 114(D)	09.15.96
Exterior Research & Design, LLC.	#4504.04.97-1	Protocol PA 114(J)	04.14.97
Factory Mutual Research Corporation	3003320	Class 4470	09.10.994

APPROVED ASSEMBLIES:

Deck Type 2I: Steel, Insulated, New Construction

Deck Description: 18-22 ga. steel

System Type B: Base layer of insulation mechanically fastened, optional top layer adhered with approved asphalt or coal tar pitch.

All General Limitations apply.

Insulation Base Layer only	Fastener Density ft²	Fastener Type
AC-Foam II, Armor-R Plus		
Minimum: 1.3" thick	1:3	See any approved fastener in table 3
E'NRG'Y 2		
Minimum: 1.4" thick	1:3	DekFast
	1:3	Olympic
	1:3	Gripdek
	1:3	Roofgrip
	1:3	Anchorbond
	1:3	Olympic/G2
	1:4	Tru-Fast
ISORoc		
Minimum: 1.5" thick	1:2.67	See any approved fastener in table 3
E'NRG'Y 2 Plus		
Minimum: 1.5" thick	1:4	DekFast
	1:4	Tru-Fast
	1:4	Insulfixx
	1:3	Gripdek
	1:3	Roofgrip
	1:3	Anchorbond
	1:3	Olympic/G2
Multi-Max		
Minimum: 1.5" thick	1:2.9	See any approved fastener in table 3

Insulation Base or Top Layer	Fastener Density ft²	Fastener Type
Perlite, Armor Lite Perlite		
Minimum: ¾" thick	1:2	See any approved fastener in table 3
Fiberglas, Armor-R Glas		
Minimum: $^{15}/_{16}$" thick	1:2.67	See any approved fastener in table 3

Note: Base layer shall be mechanically attached with fasteners and density described above. Insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners per board shall be increased maintaining the same fastener density (See Roofing Application Standard RAS 117 for fastener details).

Insulation Top Layer Only	Fastener Density ft²	Fastener Type
Any approved insulation noted above for top layer option.		
High Density Wood Fiber, Armor Board High Density Fiberboard		
Minimum: ½" thick	N/A	N/A

Note: Apply optionaltop layer of insulation in a full mopping of any approved mopping hot asphalt or coal tar pitch within the EVT range and at a rate of 20-40 lbs/100 ft^2. Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation 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.

Base Sheet: (Optional) Black Armor Organic Base Sheet, Millennium SM, BS, SPM,or TC Standard or Premium Glass Fiber Felt adhered in a full mopping of coal tar pitch applied at not less than 20 lbs./sq. or in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. to a wood fiber, perlite, fiberglass or rockwool insulation substrate; or Millennium SM, BS or SPM adhered with Millennium adhesive applied at a rate of 1.5-2 gal/sq.

Ply Sheet: Two or more plies of Black Armor Tarred Felt, TC Standard or Premium Glass Fiber Felt, Type G1 or Glass Fiber Felt adhered in a full mopping of hot coal tar pitch applied at not less than 20 lbs./sq. to a wood fiber, perlite, fiberglass or rockwool insulation substrate or to base sheet, or one or two plies of Millennium SM, BS, or SPM adhered in a full mopping of hot coal tar pitch applied at not less than 20 lbs/sq, hot air heat welded or Millennium Adhesive at a rate of 1.5-2 gal/sq. to the base sheet.

Cap Sheet: (Optional) One ply of Millennium GMC, GMC-FR, SPM, GPM or SM hot air heat welded applied according to manufacturer's instructions or adhered in a full mopping of approved coal tar applied within the EVT range and at a rate of 20-40 lbs./sq. or Millennium Adhesive at a rate of 1.5-2 gal/sq. or one ply of TC Standard or Premium Glass Fiber Felt applied in coal tar pitch.

Surfacing: (Where required for fire classification; not required where granular FR cap sheet is used) Flood coat of hot coal tar pitch at an application rate of 70 lbs./sq.; plus gravel or slag at application rates of 400 and 300 lbs./sq., respectively.

Maximum Design Pressure: **-55 psf;** (See General Limitation #9.)

Deck Type 2I: Steel, Insulated, New Construction

Deck Description: 18-22 ga. steel

System Type C: One or more layers of insulation simultaneously fastened.

All General Limitations apply.

Insulation Base Layer Only	Fastener Density ft²	Fastener Type
AC-Foam II, Armor-R Plus, E'NRG'Y 2, E'NRG'Y 2 Plus, Multi-Max Minimum: 1"		
High Density Wood Fiber, Armor Board High Density Fiberboard Minimum: ½" thick	N/A	N/A

Note: All layers shall be simultaneously attached; see top layer below for fasteners and density.

Insulation Base or Top Layer	Fastener Density ft²	Fastener Density
ISORoc Minimum: 1.5" thick	1:2.67	See any approved fastener in Table 3
Perlite, Armor Lite Perlite Minimum: ¾" thick	1:2	See any approved fastener in Table 3

Insulation Base or Top Layer	Fastener Density ft²	Fastener Density
Fiberglas, Armor-R Glas Minimum: $^{15}/_{16}$" thick	1:2.67	See any approved fastener in Table 3

Note: All layers of insulation shall be mechanically attached using the fastener density listed above. The insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet: (Optional) Black Armor Organic Base Sheet, Millennium SM, BS, SPM,or TC Standard or Premium Glass Fiber Felt adhered in a full mopping of coal tar pitch applied at not less than 20 lbs./sq.; or Black Armor Organic Base Sheet or in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. to a wood fiber, perlite, fiberglass or rockwool insulation substrate; or Millennium SM, BS or SPM adhered with Millennium adhesive applied at a rate of 1.5-2 gal/sq.

Ply Sheet: Two or more plies of Black Armor Tarred Felt, TC Standard or Premium Glass Fiber Felt, Type G1 or Glass Fiber Felt adhered in a full mopping of hot coal tar pitch applied at not less than 20 lbs./sq. to a wood fiber, perlite, fiberglass or rockwool insulation substrate or base sheet, or one or two plies of Millennium SM, BS, or SPM adhered in a full mopping of hot coal tar pitch applied at no less than 20 lbs/sq or hot air heat welded or Millennium Adhesive at a rate of 1.5-2 gal/sq. to the base sheet.

Surfacing: (Where required for fire classification; not required where granular FR cap sheet is used) Flood coat of hot coal tar pitch at an application rate of 70 lbs./sq.; plus gravel or slag at application rates of 400 and 300 lbs./sq., respectively.

Maximum Design Pressure: **-45 psf;** (See General Limitation #9.)

STEEL DECK 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 Testing Application Standard TAS 105 and Roofing Application Standard RAS 117, calculations shall be signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant.
2. For steel deck application where specific deck construction is not referenced: The deck shall be a minimum 22 gage attached with 5/8" puddle welds with weld washers at every flute with maximum deck spans of 5 ft. o.c.

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 Testing Application Standard TAS 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 Professional Engineer, Registered Architect, or Registered Roof Consultant may be submitted. Said revised fastener spacing shall utilize the withdrawal resistance value taken from Testing Application Standards TAS 105 and calculations in compliance with Roofing Application Standard RAS 117.
7. Perimeter and corner areas shall comply with the enhanced uplift pressure requirements of these areas. Fastener densities shall be increased for both insulation and base sheet as calculated in compliance with Roofing Application Standard RAS 117. Calculations prepared, signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant **(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 Roofing Application Standard RAS 111 and applicable wind load requirements.
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.)**

END OF THIS ACCEPTANCE