AAMA/NWWDA 101/I.S. 2-97
TEST REPORT

Rendered to:

SPECIALTY WINDOWS

SERIES/MODEL: Series 1900
TYPE: PVC Single Hung

Title of Test	Summary of Results
Rating	H-R50 44 x 96
Overall Design Pressure	50 psf
Operating Force	8 lbs max.
Air Infiltration	0.08 cfm/ft^2
Water Resistance	7.50 psf
Structural Test Pressure	±75.0 psf
Deglazing	Pass
Forced Entry Resistance	Pass Level 10

Reference should be made to full report for test specimen description and data.

Allen N. Reuss
30 APRIL 2002

Report No: 07-30215.02
Report Date: 04/30/02
Expiration Date: 11/08/05

Test Specimen Description: (Continued)

Glazing Details: The fixed sash was interior wet glazed with silicone and secured with interior PVC snap in beads. The operable sash were exterior wet glazed with silicone with exterior and secured with exterior PVC glazing beads.

Weatherstripping:

Description	Quantity	Location
Bulb (P82060-F)	1 Row	Lift rail
0.290" high by 0.187" back pile with center fin	1 Row	Sill and operable sash meeting rail
0.290" high by 0.187" back pile with center fin	2 Rows	Bottom sash stile

Frame Construction: The frame was constructed of extruded PVC members with mitered and thermally welded corners. The fixed meeting rail was secured with #6 by 1-1/2" steel screws through exterior of jamb into aluminum reinforcement at midpoint of jambs (two total).

Sash Construction: The sash was constructed of extruded PVC members with mitered and thermally welded corners.

Screen Construction: The screen frame was constructed of extruded aluminum with PVC corner keys. Fiberglass mesh was secured with a flexible spline.

Hardware:

Description	Quantity	Location
Cam lock	2	8" from jambs, 25" apart
Tilt latch	2	Upper sash corners
Tilt pin	2	Lower sash corners
Coil balance	2	One in each jamb

Allen N. Reeves
30 APRIL 2002

Test Specimen Description: (Continued)

Drainage: Sloped sill

Description	Quantity	Location
1" wide by 1/8" high weepslot	2	Screen slot
3/8" wide by 3/16" high weepslot	2	Bottom lift rail
1/4" hole	2	Fixed meeting rail

Installation: The test sample was installed into a nominal 2" by 12" #2 Southern pine wood buck with #6 by 1-1/2" steel screws into jambs, 6" up from sill and 6" down from head, (four total). Exterior perimeter was sealed with silicone.

Test Results: The results are tabulated as follows.

Paragraph	Title of Test	Results	Allowed
2.2.1.6.1	Operating Force Lower Sash	8 lbs	30 lbs max.
2.1.2	Air Infiltration (ASTM E 283-91) (See Note #1) @ 1.56 psf (25 mph)	0.08 cfm/ft^2	0.30 cfm/ft^2 max.
2.1.3	Water Resistance (ASTM E 547-00) (with and without screen) WTP = 2.86 psf	No leakage	No leakage
2.1.4.1	Uniform Load Deflection (ASTM E 330-97) (Measurements reported were taken on the fixed meeting rail)		
	@ 15.0 psf (positive)	0.17"	0.22" max.
	@ 15.0 psf (negative)	0.16"	0.22" max.
2.1.4.2	Uniform Load Structural (ASTM E 330-97) (Measurements reported were taken on the fixed meeting rail)		
	@ 22.5 psf (positive)	0.02"	0.15" max.
	@ 22.5 psf (negative)	0.02"	0.15" max.

Note #1: The tested specimen meets the performance levels specified in AAMA/NWWDA 101/I.S. 2-97 for air infiltration

Allen N. Rees
30 APRIL 2002

Test Results: (Continued)

Paragraph	Title of Test	Results	Allowed
2.2.1.6.2	Deglazing Test (ASTM E 987-88) In operating direction @ 70 lbs		
	Lower Sash		
	Meeting Rail	0.04"/8%	0.50"/100%
	Bottom Rail	0.04"/8%	0.50"/100%
	In remaining direction @ 50 lbs		
	Right stile	0.02"/4%	0.50"/100%
	Bottom Rail	0.02"/4%	0.50"/100%
2.1.7	Welded Corner Test	Meets as stated	Meets as stated
2.1.8	Forced Entry Resistance (ASTM F 588-97) (Unit was tested with single and double locks)		
	Type A Grade 10		
	Lock Manipulation Test	No entry	No entry
	Test A1 through A7	No entry	No entry
	Lock Manipulation Test	No entry	No entry
Optional Performance:			
4.3	Water Resistance (ASTM E 547-00) (with and without screen) WTP =7.50 psf	No leakage	No leakage
4.4.1	Uniform Load Deflection (ASTM E 330-97) (Measurements reported were taken on the fixed meeting rail)		
	@ 50.0 psf (positive)	0.69"*	0.22" max.
	@ 50.0 psf (negative)	0.64"*	0.22" max.
4.4.2	Uniform Load Structural (ASTM E 330-97) (Measurements reported were taken on the fixed meeting rail)		
	@ 75.0 psf (positive)	0.15"	0.15" max.
	@ 75.0 psf (negative)	0.15"	0.15" max.

**Exceeds L/175 for deflection, but meets all other test requirements.*

Allen N. Reuss
30 APRIL 2002

This report is reissued in the name of Specialty Windows through written authorization of Dayton Technologies, LLC to whom the original report was rendered. The original Dayton Technologies, LLC Report No. is 07-30215.01.

Detailed drawings, representative samples of the test specimen, and a copy of this report will be retained by ATI for a period of four years. The above results were secured by using the designated test methods and they indicate compliance with the performance requirements of the above referenced specification. This report does not constitute certification of this product, which may only be granted by the certification program administrator.

For ARCHITECTURAL TESTING, INC.:

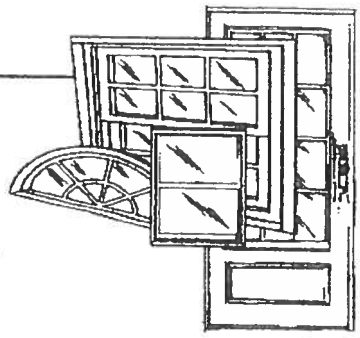
Larry D. Mankin PLH
Larry D. Mankin
Technician

Allen N. Reeves
Allen N. Reeves, P.E.
Director - Engineering Services
30 APRIL 2002

LDM:nlb
07-30215.02

CERTIFIED TESTING LABORATORIES

Architectural Division • 7252 Narcoossee Rd. • Orlando, FL 32822
(407)-384-7744 • Fax (407)-384-7751
Web Site: www.ctlarch.com
E-mail: ctlarch@bellsouth.net



Report Number: CTLA-619W
Report Date October 26, 2000

STRUCTURAL PERFORMANCE TEST REPORT

Client: **Specialty Window of Florida**
690 Heinberg Street
Pensacola, Florida 32501

Product Type and Series: Series Vinyl Fin Frame Picture Window F-HC 80 (85" x 85")

Test Specifications: AAMA/NWWDA 101/I.S. 2-97 "Voluntary Specification for Aluminum Vinyl (PVC) and Wood Window and Glass Door".

Test Specimen

Frame: The vinyl fin frame measured 85.25" x 85.25" overall, miter and welded corner construction. With clear lite opening measuring 82" x 82".

Glazing: 1/4" Tempered glass. Interior glazed with silicone backbedding compound.

Sealant: Silicone caulk was used on perimeter of main frame

Weepholes: N/A

Reinforcement: N/A

Additional Description: N/A

Screen: N/A

Installation: Fifty six (56) # 10 x 2" phillips pan head were used to secure the specimen to the wooden test buck. Fourteen (14) in each of the main frame member located 4",11",15",23",29",35",41",47", 53",59",65",71",77",and 83", measuring from left to right head and sill and measuring from head to sill on jambs.

Surface Finish: White

Performance Test Results

Paragraph No	Title of Test	Method	Measured	Allowed
2.1.2	Air Infiltration @ 6.24 psf	ASTM E283-91	.0 cfm/ft²	.3 cfm/ft²
	The tested specimen exceeds the performance levels specified in AAMA/NWWDA 101/I.S. 2-97 for Air Infiltration.			
2.1.3/4.3	Water Resistance 5.0 gph/ft² WTP=12PSF	ASTM E547-93 Four (4), five minute cycles	No Entry	No Entry
		ASTM E331-93 Fifteen (15)minute duration	No Entry	No Entry
2.1.4.2/4.4.2	Uniform Load Structural Permanent Deformation	ASTM E330-90 Ten (10) seconds loads		
	@ 120 psf Positive		.00"	.336"
	@ 120 psf Negative		.00"	.336"
2.1.7	Corner Weld Test	AAMA 101/I.S.2-97	Passed	Passed
2.1.8	Forced Entry Resistance T-1 = 10 minutes.	ASTM F588-97 Test D Window Assemblies	Passed	Passed
	Tools used: A spatula (10.1.1.1) and a piece of stiff wire (10.1.1.2) The test specimen meets the performance Grade 40			

Test Date: October 17, 2000

Test Completion Date: October 17, 2000

Remarks: Detailed drawings were available for laboratory records and comparison to the test specimen at the time of this report. A copy of this report along with representative sections of the test specimen will be retained by CTL for a period of four (4) years. The results obtained apply only to the specimen tested.

This test report does not constitute certification of this product, but only that the above test results were obtained using the designated test methods and they indicate compliance with the performance requirements (paragraphs as listed) of the above referenced specifications.

Certified Testing Laboratories assumes that all information provided by the clients is accurate and that the physical and chemical properties of the components as stated by the manufacture.

Certified Testing Laboratories, Inc.

Christopher Bennett
Lab Manager
Architectural Division

P.E.
11/7/00

cc NAMI (2)
Specialty (2)
Ramesh Patel P.E.
File

GAF MATERIALS CORPORATION

TIMBERLINE® Ultra SHINGLES

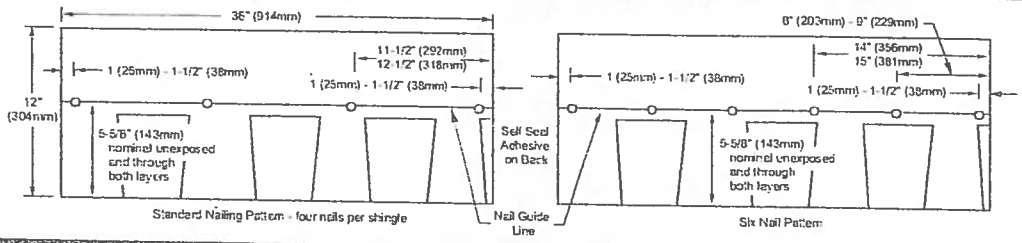
TIMBERLINE® 40 SHINGLES

TIMBERLINE® 30 SHINGLES

APPLICATION INSTRUCTIONS

Timberline® Series shingles come in either 36" (914mm) or 36-15/16" (938mm) lengths, depending on shingle brand. Application instructions apply to both.

These shingles must be nailed a nominal 5-5/8" (143mm) from bottom of shingles, as shown, to allow for penetration through the double ply area just above the tabs. Nails should remain unexposed.



GENERAL INSTRUCTIONS

• **ROOF DECKS:** For use on new or reroofing work over well seasoned, supported wood deck, tightly-constructed with maximum 6" (152mm) wide lumber, having adequate nail-holding capacity and smooth surface. Plywood decking as recommended by The Engineered Wood Assn. is acceptable. Plywood decks for Class A installations must be 3/8" (10mm) thick or greater with underlayments as noted below. Shingles must not be fastened directly to insulation or insulated deck unless authorized in writing by GAF Materials Corporation. Roof decks and existing surfacing material must be dry prior to application of shingles.

• **UNDERLAYMENT:** Underlayment beneath shingles has many benefits, including preventing wind driven rain from reaching the interior of the building and preventing sap in some wood decking from reacting with asphalt shingles. Underlayment is also required by many code bodies. Consult your local building department for its requirements. Where an underlayment is to be installed, a breather-type underlayment such as GAFMC's Shingle-Mate® underlayment is recommended. Underlayment must be installed flat, without wrinkles.

• **FASTENERS:** Use of nails is recommended. (Staple specifications and application instructions are available from GAF Materials Corporation, Contractor Services Dept., 1361 Alps Road, Wayne, NJ 07470.) Use only zinc coated steel or aluminum, 10-12 gauge, barbed, deformed or smooth shank roofing nails with heads 3/8" (10mm) to 7/16" (12mm) in diameter. Fasteners should be long enough to penetrate at least 3/4" (19mm) into wood decks or just through the plywood decks. Fasteners must be driven flush with the surface of the shingle. Over driving will damage the shingle. Raised fasteners will interfere with the sealing of the shingles. For normal installation, four fasteners must be installed per shingle, a nominal 5-5/8" (143mm) up from the bottom of the shingle, to penetrate both layers of the shingle. Fasteners must be installed approximately 1"- 1 1/2" (25-38mm) and 11-1/2"-12-1/2" (292-318mm) from each side.

• **WIND RESISTANT:** These shingles have a special thermal sealant that firmly bonds the shingles together after application when exposed to sun and warm temperatures. Shingles installed in Fall or Winter may not seal until the following Spring. If shingles are damaged by winds before sealing or are not exposed to adequate surface temperatures, or if the self-sealant gets dirty, the shingles may never seal. Failure to seal under these circumstances results from the nature of self-sealing shingles and is not a manufacturing defect. To insure immediate sealing, apply 4 quarter-sized dabs of shingle tab adhesive on the back of the shingle 1" (25mm) and 13" (330mm) in from each side and 1" (25mm) up from bottom of the shingle. The shingle must be pressed firmly into the adhesive.

NOTE: Application of excess tab adhesive can cause blistering of the shingle.

For maximum wind resistance along rakes, cement shingles to underlayment and each other in a 4" (102mm) width of asphalt plastic roof cement.

NOTE: The film strips on the back of each shingle are to prevent sticking together of the shingles while in the bundle. Their removal is NOT required during application.

• **CANADIAN COLD WEATHER APPLICATIONS:** CSA 123.5-M90 mandates that shingles applied between September 1 and April 30 shall be adhered with a compatible field-applied adhesive. See Wind Resistant for GAF Materials Corporation's recommendations for the application of that adhesive.

• **MANSARD AND STEEP SLOPE APPLICATIONS:** For roof slopes greater than 21" (1750mm/m) per foot (do NOT use on vertical side walls), shingle sealing must be enhanced by hand sealing. After fastening the shingle in place, apply 4 quarter-sized dabs of shingle tab adhesive as indicated in Wind Resistant above. The shingle must be pressed firmly into the adhesive.

• **EXPOSURE:** 5" (127mm)

• **THROUGH VENTILATION:** All roof structures must be provided with through ventilation to prevent entrapment of moisture laden air behind roof sheathing. Ventilation provisions must at least meet or exceed current F.H.A., H.U.D. or local code minimum requirements.

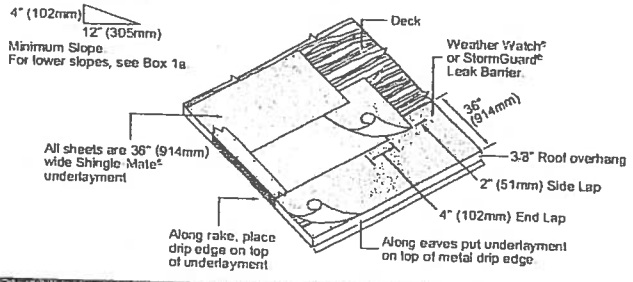
• **NON-CORRODING METAL DRIP EDGES:** Recommended along rake and eave edges on all decks, especially plywood decks.

• **ASPHALT PLASTIC CEMENT:** For use as shingle tab adhesive. Must conform to ASTM D4586 Type I or II.

1 Underlayment: Standard Slope–4/12 (333mm/m) or more

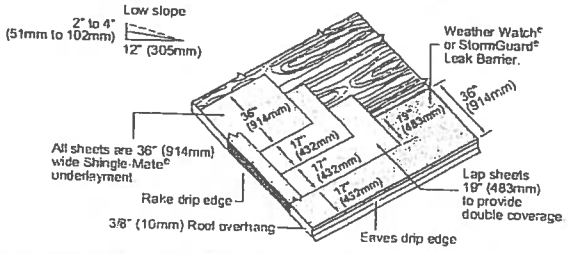
Application of underlayment: Cover deck with one layer of underlayment installed without wrinkles. Use only enough nails to hold underlayment in place until covered by shingles.

Application of eave flashing: Install eave flashing such as GAF Materials Corporation Weather Watch® or StormGuard® Leak Barrier in localities where leaks may be caused by water backing up behind ice or debris dams. Eave flashing must overhang the roof edge by 3/8" (10mm) and extend 24" (610mm) beyond the inside wall line.



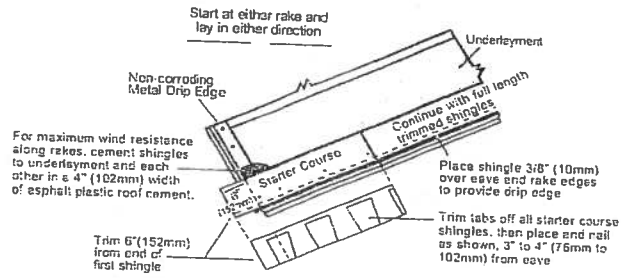
1a Underlayment: Low Slope 2/12-4/12 (167mm-333mm/m)

Application of underlayment and eave flashing: Completely cover the deck with two layers of underlayment as shown. Use only enough nails to hold underlayment in place until covered by shingles. Use blind nailing for eave flashings. At eaves and where ice dams can be expected, use one layer of GAF Materials Corporation Weather Watch® or StormGuard® Leak Barrier. Eave flashing must overhang the roof edge by 3/8" (10mm) and extend 24" (610mm) beyond the inside wall line. Where ice dams or debris dams are not expected, install 2 plies of Shingle-Mate® underlayment.



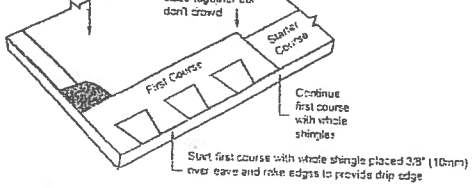
2 Starter Course

Apply as shown.



3 First Course

Start and continue with full shingles laid flush with the starter course. Shingles may be laid from left to right or right to left. DO NOT lay shingles straight up the roof since this procedure can cause an incorrect color blend on the roof and may damage the shingles.



received
3.27.02

333 Pfingsten Road
Northbrook, Illinois 60062-2096
United States Country Code (1)
(847) 272-8800
FAX No. (847) 272-8129
http://www.ul.com

Underwriters Laboratories Inc.®

March 4, 2002

GAF Materials Corporation
Mr Randall Ziegler
1361 Alps Road
Wayne, NJ 07470

Our Reference: R21

Subject: UL Listed products

Dear Mr Ziegler:

This is is response to your request to identify some of the products that are curently Listed with Underwriters Laboratories relating to various Standards. Following are those products:

Royal Sovereign®
Marquis®/Marquis® WeatherMax®
SLATELINE®
Grand canyon™
Grand Sequoia®
Country Mansion™
Country Estates™
Timberline 30™
Timberline Select™ 40
Timberline Ultra™
Sentinel®
The above products have been tested to ASTM D3462 , Class A UL790/ASTM E108 and UL 997/ ASTM D3161(secured with 4 nails)with velocities up to 110 mph and have successfully met those test criteria.

If you have any questions please feel free to contact the writer.

Very truly yours,

Roger Anderson (Ext. 43283)
Senior Engineering Associate
Conformity Assessment Services- 3011E-NBK

Reviewed by,

Douglas C. Miller (Ext. 43262)
Engineering Group Leader
Conformity Assessment Services- 3011E-NBK

** TOTAL PAGE.01 **

GAF MATERIALS CORPORATION

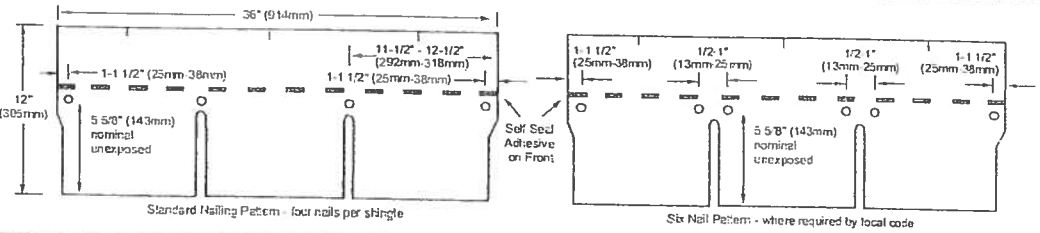
MARQUIS WeatherMax® SHINGLES

ROYAL SOVEREIGN® SHINGLES

SENTINEL® SHINGLES

APPLICATION INSTRUCTIONS

Note: These shingles must be nailed a nominal 5 5/8" (143mm) from bottom of shingles, not in or above self seal, as shown. Nails should remain unexposed.



GENERAL INSTRUCTIONS

- **ROOF DECKS:** For use on new or reroofing work over well-seasoned, supported wood deck, tightly-constructed with maximum 6" (152mm) wide lumber, having adequate nail-holding capacity and smooth surface. Plywood decking as recommended by The Engineered Wood Assn. is acceptable. Plywood decks for Class A installations must be 3/8" (10mm) thick or greater with underlayments as noted below. Shingles must not be fastened directly to insulation or insulated deck unless authorized in writing by GAF Materials Corporation. Roof decks and existing surfacing material must be dry prior to application of shingles.
- **UNDERLAYMENT:** Underlayment is required on new construction and required for reroofing when old roof is removed from the deck. Use only "breather type" material like GAF Materials Corporation Shingle-Mate™ Underlayment or equivalent. Underlayments must be installed flat, without wrinkles.
- **FASTENERS:** Use of nails is recommended. (Staple specifications and application instructions are available from GAF Materials Corporation, Contractor Services Dept., 1361 Alps Road, Wayne, NJ 07470.) Use only zinc coated steel or aluminum, 10-12 gauge, barbed, deformed or smooth shank roofing nails with heads 3/8" (10mm) to 7/16" (12mm) in diameter. Fasteners should be long enough to penetrate at least 3/4" (19mm) into wood decks or just through the plywood decks. Fasteners must be driven flush with the surface of the shingle. Over driving will damage the shingle. Raised fasteners will interfere with the sealing of the shingles. For normal installation, four fasteners must be installed per shingle, a nominal 5 5/8" (143mm) up from the bottom of the shingle. Fasteners must be installed approximately 1"- 1 1/2" (25-38mm) and 11 1/2"- 12 1/2" (292-318mm) from each side.
- **WIND RESISTANT:** These shingles have a special thermal sealant that firmly bonds the shingles together after application when exposed to sun and warm temperatures. Shingles installed in Fall or Winter may not seal until the following Spring. If shingles are damaged by winds before sealing or are not exposed to adequate surface temperatures, or if the self-sealant gets dirty, the shingles may never seal. Failure to seal under these circumstances results from the nature of self-sealing shingles and is not a manufacturing defect. To insure immediate sealing, apply 2 quarter-sized dabs of shingle tab adhesive on the back of each tab, approximately 1" (25mm) from end and 1" (25mm) up from bottom of each tab corner. The shingle must be pressed firmly into the adhesive.

NOTE: Application of excess tab adhesive can cause blistering of the shingle.

For maximum wind resistance along rakes, cement shingles to underlayment and each other in a 4" (102mm) width of asphalt plastic roof cement.

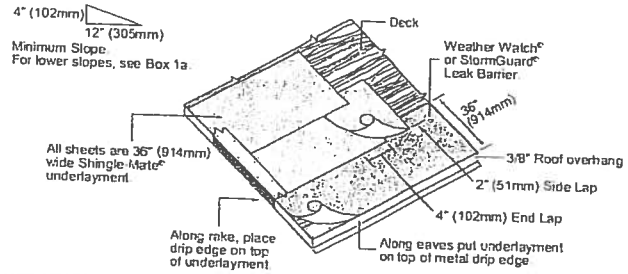
NOTE: The film strips on the back of each shingle are to prevent sticking together of the shingles while in the bundle. Their removal is NOT required during application.

- **CANADIAN COLD WEATHER APPLICATIONS:** CSA A123.5-M90 mandates that shingles applied between September 1 and April 30 shall be adhered with a compatible field applied adhesive. See Wind Resistant for GAF Materials Corporation's recommendations for the application of that adhesive.
- **MANSARD AND STEEP SLOPE APPLICATIONS:** For roof slopes greater than 21" (1750mm/m) per foot (do NOT use on vertical side walls), shingle sealing must be enhanced by hand sealing. After fastening the shingle in place, apply 2 quarter-sized dabs of shingle tab adhesive as indicated in Wind Resistant above. The shingle must be pressed firmly into the adhesive.
- **EXPOSURE:** 5" (127mm)
- **THROUGH VENTILATION:** All roof structures must be provided with through ventilation to prevent entrapment of moisture laden air behind roof sheathing. Ventilation provisions must at least meet or exceed current F.H.A., H.U.D. or local code minimum requirements.
- **NON-CORRODING METAL DRIP EDGES:** Recommended along rake and eave edges on all decks, especially plywood decks.
- **ASPHALT PLASTIC CEMENT:** For use as shingle tab adhesive. Must conform to ASTM D4586 Type I or II.

1 Underlayment: Standard Slope–4/12 (333mm/m) or more

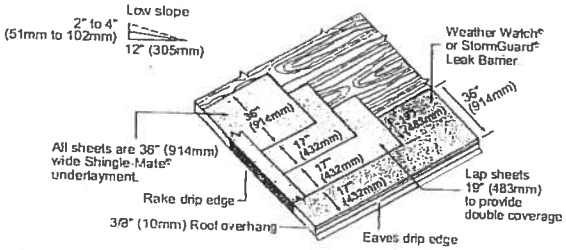
Application of underlayment: Cover deck with one layer of underlayment installed without wrinkles. Use only enough nails to hold underlayment in place until covered by shingles.

Application of eave flashing: Install eave flashing such as GAF Materials Corporation Weather Watch™ or StormGuard™ Leak Barrier in localities where leaks may be caused by water backing up behind ice or debris dams. Eave flashing must overhang the roof edge by 3/8" (10mm) and extend 24" (610mm) beyond the inside wall line.



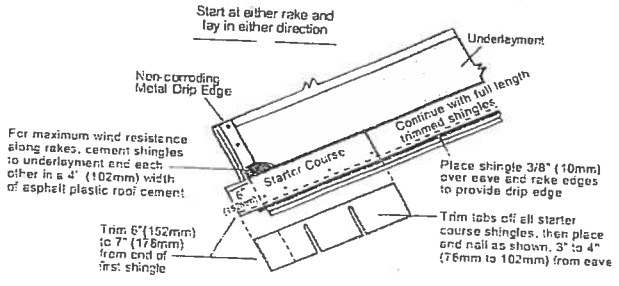
1a Underlayment: Low Slope 2/12-4/12 (167mm-333mm/m)

Application of underlayment and eave flashing: Completely cover the deck with two layers of underlayment as shown. Use only enough nails to hold underlayment in place until covered by shingles. Use blind nailing for eave flashings. At eaves and where ice dams can be expected, use one layer of GAF Materials Corporation Weather Watch™ or StormGuard™ Leak Barrier. Eave flashing must overhang the roof edge by 3/8" (10mm) and extend 24" (610mm) beyond the inside wall line. Where ice dams or debris dams are not expected, install 2 plies of Shingle-Mate™ underlayment.



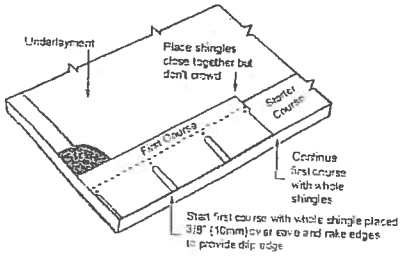
2 Starter Course

Use of any GAF MC 3-tab Shingle is recommended. Apply as shown.



3 First Course

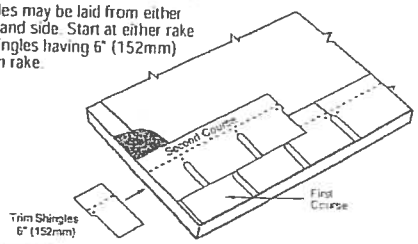
Start and continue with full shingles laid flush with the starter course. Shingles may be laid from left to right or right to left. DO NOT lay shingles straight up the roof since this procedure can cause an incorrect color blend on the roof and may damage the shingles.



4 Second Course

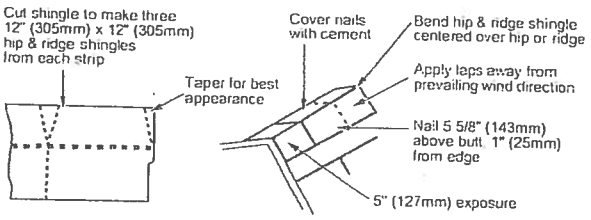
Start and continue second course and all even numbered courses as shown. Position the shingle on the top of the cutouts of the underlying shingle so that there will be 5" (127mm) of each shingle exposed. Strike a chalk line about every 6 courses to check parallel alignment with eaves. Factory applied self-sealing dots on lower courses are designed to seal down the shingle tabs in an upper course.

NOTE: Shingles may be laid from either left or right hand side. Start at either rake edge with shingles having 6" (152mm) trimmed from rake.

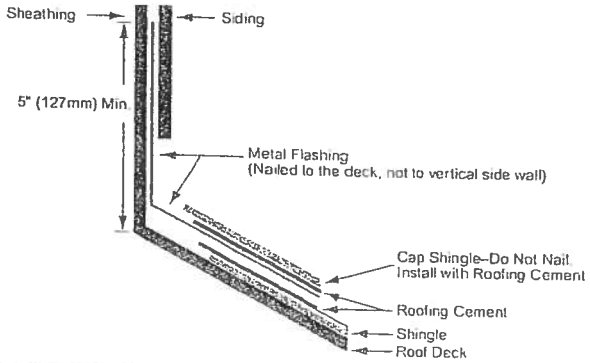


5 Hip and Ridge

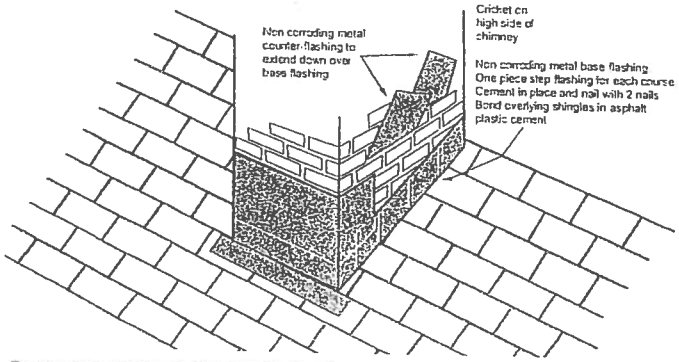
Use GAF hip & ridge shingles, or cut hip & ridge shingles from these full shingles, and apply as shown. Position laps away from prevailing wind direction.



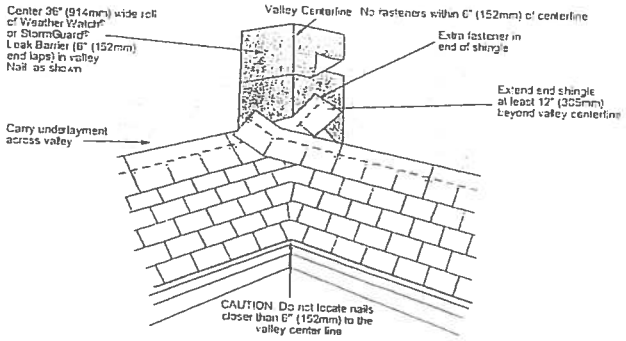
6 Wall Flashing (Sloped Roof to Vertical Wall)



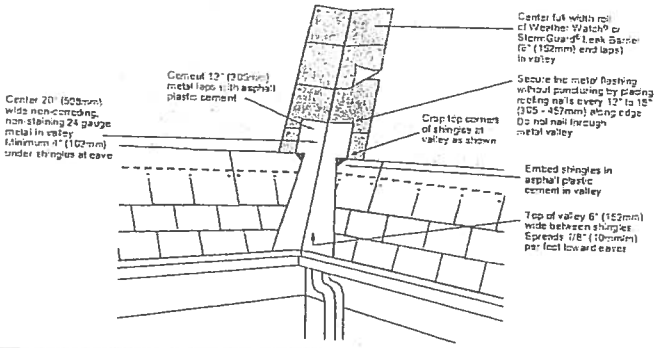
7 Chimney Flashing



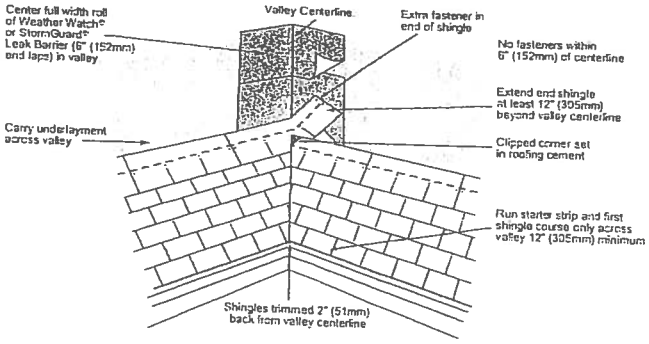
8 Valley Construction - Closed or Woven Valley



9 Valley Construction–Open Cut



10 Valley Construction–Closed Cut



Precautionary Notes

These shingles are fiberglass, self-sealing asphalt shingles. Because of the natural characteristics of the high quality waterproofing material used, these shingles will be stiff in cold weather and flexible in hot weather.

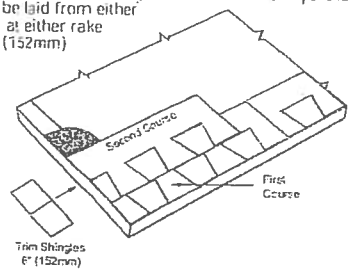
1. Bundles should not be dropped on edge nor should attempt be made to separate shingles by "breaking" over ridge or other bundles.
2. Handle carefully. Shingles can easily be broken in cold weather or their edges damaged in hot weather.
3. All exposed materials must be of Class A type.
4. Storage should be in a covered, ventilated area–maximum temperature 110°F (43°C.) Store on flat surface and use weight equalization boards if pallets are to be double stacked. Shingles must be protected from weather when stored at job site. Do not store near steam pipes, radiators, etc., or in sunlight. All rolled product must be stored on ends.
5. If shingles are to be applied during PROLONGED COLD periods or in areas where airborne dust or sand can be expected before sealing occurs, the shingles MUST be hand sealed. See Wind Resistant instructions.

Re-Roofing

If old asphalt shingles are to remain in place, nail down or cut away all loose, curled or lifted shingles; replace with new; and just before applying the new roofing, sweep the surface clean of all loose debris. Since any irregularities may show through the new shingles, be sure the underlying shingles provide a smooth surface. Fasteners must be of sufficient length to penetrate the wood deck at least 3/4" (19mm) or just through plywood. Follow other above instructions for application. *Note*: Shingles can be applied over wood shingles when precautions have been taken to provide an acceptable smooth surface. This includes cutting back old shingles at eaves and rakes and installing new wood edging strips as needed. Make surface smooth and use beveled wood strips if necessary. Install #30 underlayment to maintain Class A rating.

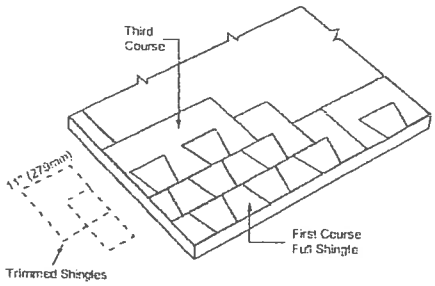
4 Second Course

Start and continue second course as shown. Trim 6" (152mm) from the end of the shingle. Position the shingles in the second and subsequent courses flush with the tops of the wide cutouts. This results in a 5" (127mm) exposure. Continue with full width shingles across the roof. Strike a chalk line about every 6 courses to check parallel alignment with eaves. NOTE: Shingles may be laid from either left or right hand side. Start at either rake edge with shingles having 6" (152mm) trimmed from rake.



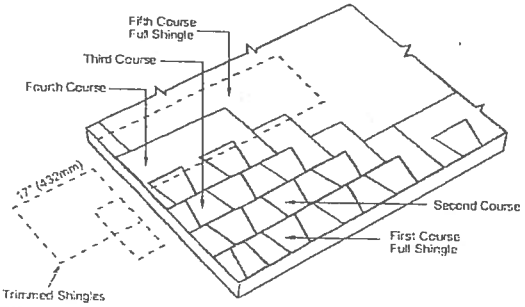
5 Third Course

Trim 11" (279mm) from the first shingle in the course then continue with full shingles across the roof.



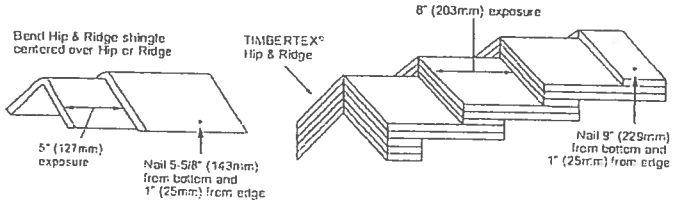
6 Fourth Course and Remaining Courses

Trim 17" (432 mm) from first shingle in the course, then continue with full shingles across the roof. Fifth and subsequent courses repeat full shingle instructions from Step 3.

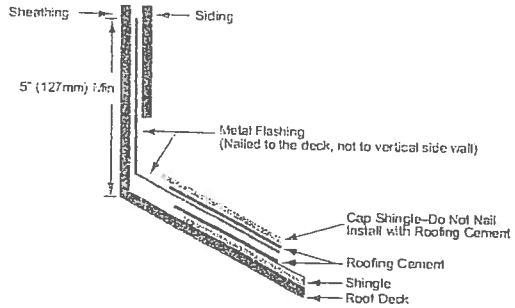


7 Hip and Ridge

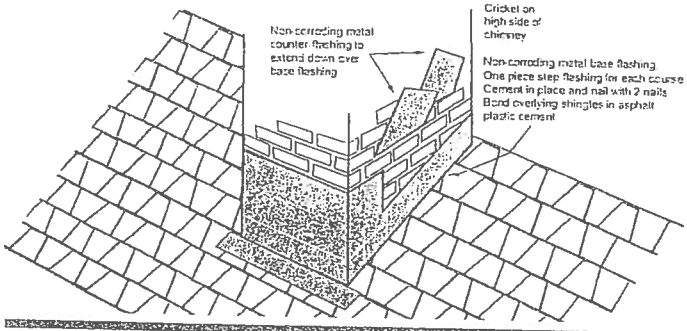
For single layer application, use hip and ridge shingles and apply as shown. To enhance appearance, use GAF TIMBERTEX® or a double layer application of Universal Hip & Ridge. (One bundle of TIMBERTEX® Hip & Ridge covers 20 lineal ft.–6.1 meters.) For double application, start with triple thickness of precut Hip & Ridge shingles and continue remainder with double thickness. Fasten in same manner as single application shown. Apply laps away from prevailing wind direction.



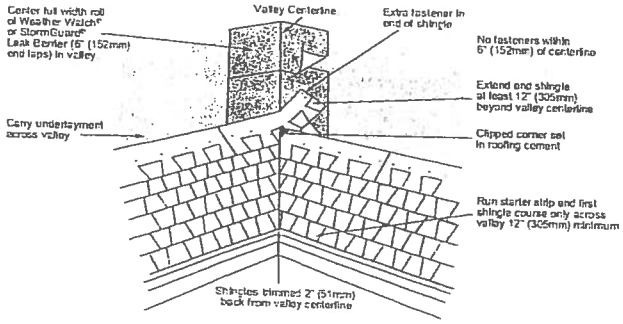
8 Wall Flashing (Sloped Roof to Vertical Wall)



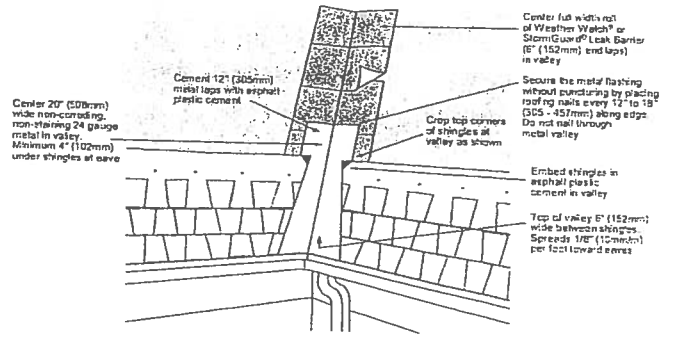
9 Chimney Flashing



10 Valley Construction–Closed Cut



11 Valley Construction–Open



Precautionary Notes

Timberline® Series shingles are fiberglass, self-sealing asphalt shingles. Because of the natural characteristics of the high quality waterproofing material used, these shingles will be stiff in cold weather and flexible in hot weather.

1. Bundles should not be dropped on edge nor should attempt be made to separate shingles by "breaking" over ridge or other bundles.
2. Handle carefully. Shingles can easily be broken in cold weather or their edges damaged in hot weather.
3. All exposed materials must be of Class A type.
4. Storage should be in a covered, ventilated area–maximum temperature 110°F (43°C.) Store on flat surface and use weight equalization boards if pallets are to be double stacked. Shingles must be protected from weather when stored at job site. Do not store near steam pipes, radiators, etc., or in sunlight. All rolled product must be stored on ends.
5. If shingles are to be applied during PROLONGED COLD periods or in areas where airborne dust or sand can be expected before sealing occurs, the shingles MUST be hand sealed. See Wind Resistant instructions.

Re-Roofing

If old asphalt shingles are to remain in place, nail down or cut away all loose, curled or lifted shingles; replace with new; and just before applying the new roofing, sweep the surface clean of all loose debris. Since any irregularities may show through the new shingles, be sure the underlying shingles provide a smooth surface. Fasteners must be of sufficient length to penetrate the wood deck at least 3/4" (19mm) or just through plywood. Follow other above instructions for application.

Note: Shingles can be applied over wood shingles when precautions have been taken to provide an acceptable smooth surface. This includes cutting back old shingles at eaves and rakes and installing new wood edging strips as needed. Make surface smooth and use beveled wood strips if necessary. Install #30 underlayment to maintain Class A rating.

This product is sold with an express LIMITED WARRANTY only. A copy of the LIMITED WARRANTY stating its terms and restrictions is printed on the product wrapper or may be obtained from the distributor of this product or directly from GAF Materials Corporation. Any deviation from printed instructions shall be the responsibility of applicator and/or specifier.

ENGLISH 121201

TAMKO
ROOFING PRODUCTS

received
3.27.02

FEB - 4 REC'D

January 31, 2002

TO: OUR FLORIDA CUSTOMERS:

Effective February 1, 2002, the following TAMKO shingles, as manufactured at TAMKO's Tuscaloosa, Alabama, facility, comply with ASTM D-3161, Type I modified to 110 mph. Testing was conducted using four nails per shingle. These shingles also comply with Florida Building Code TAS 100 for wind driven rain.

- Glass-Seal AR
- Elite Glass-Seal AR
- ASTM Heritage 30 AR (formerly ASTM Heritage 25 AR)
- Heritage 40 AR (formerly Heritage 30 AR)
- Heritage 50 AR (formerly Heritage 40 AR)

All testing was performed by Florida State certified independent labs.

Please direct all questions to TAMKO's Technical Services Department at 1-800-641-4691.

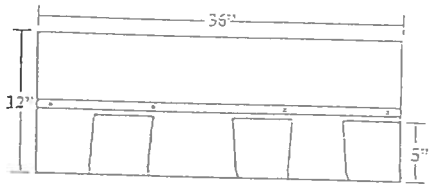
TAMKO Roofing Products, Inc.

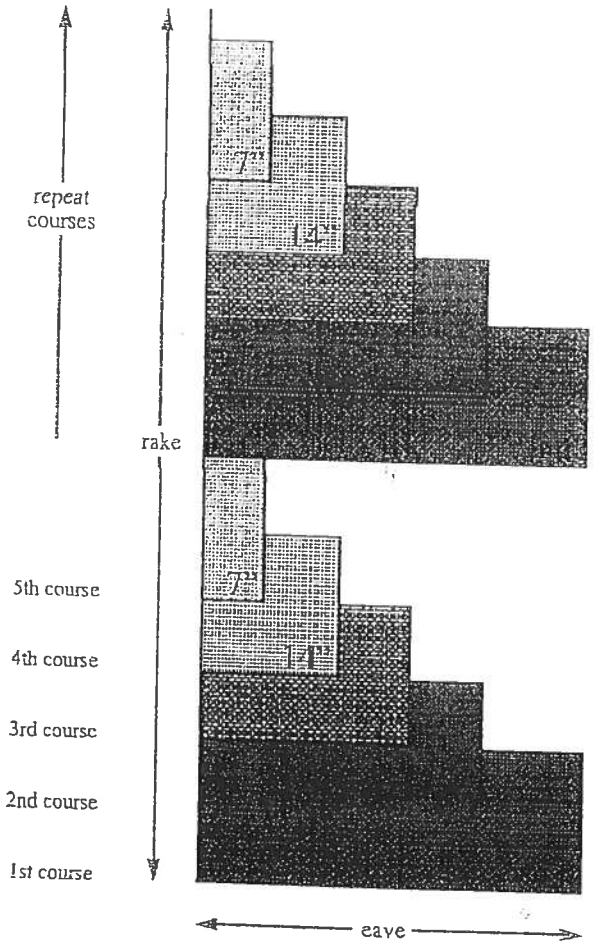
CORPORATE HEADQUARTERS
220 W. FOURTH STREET P.O. BOX 1404 JOPLIN, MO 64802-1404 800-641-4691 FAX 800-841-1925

TAMKO
ROOFING PRODUCTS

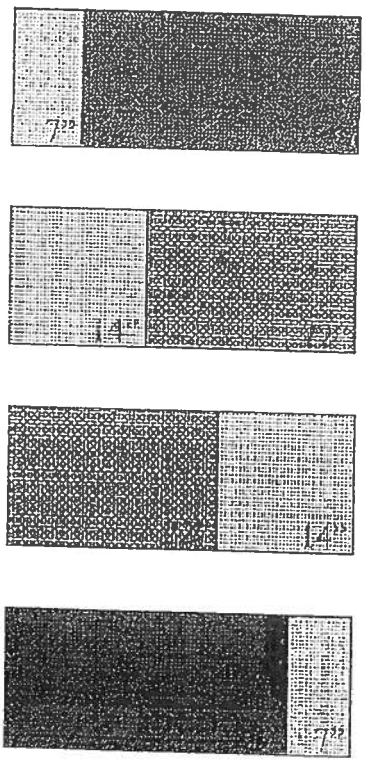
Application Instructions For Heritage® 40 & 30 Series Shingles

SPECIFICATIONS (APPROX.)	
Length	36"
Width	12"
Bundles per Sq.	4
Shingles per Sq.	80
Shingles per Bundle	20
Coverage per Sq. (Sq. Ft.)	100
Exposure	5"





The 4 cuts in the first 10 courses:



In the first 10 courses, there are 4 cuts and no waste.

When you reach the other side of the roof, whatever has to be trimmed off can be used in the field of roofing.

For additional application information consult the application instructions printed on the product package.

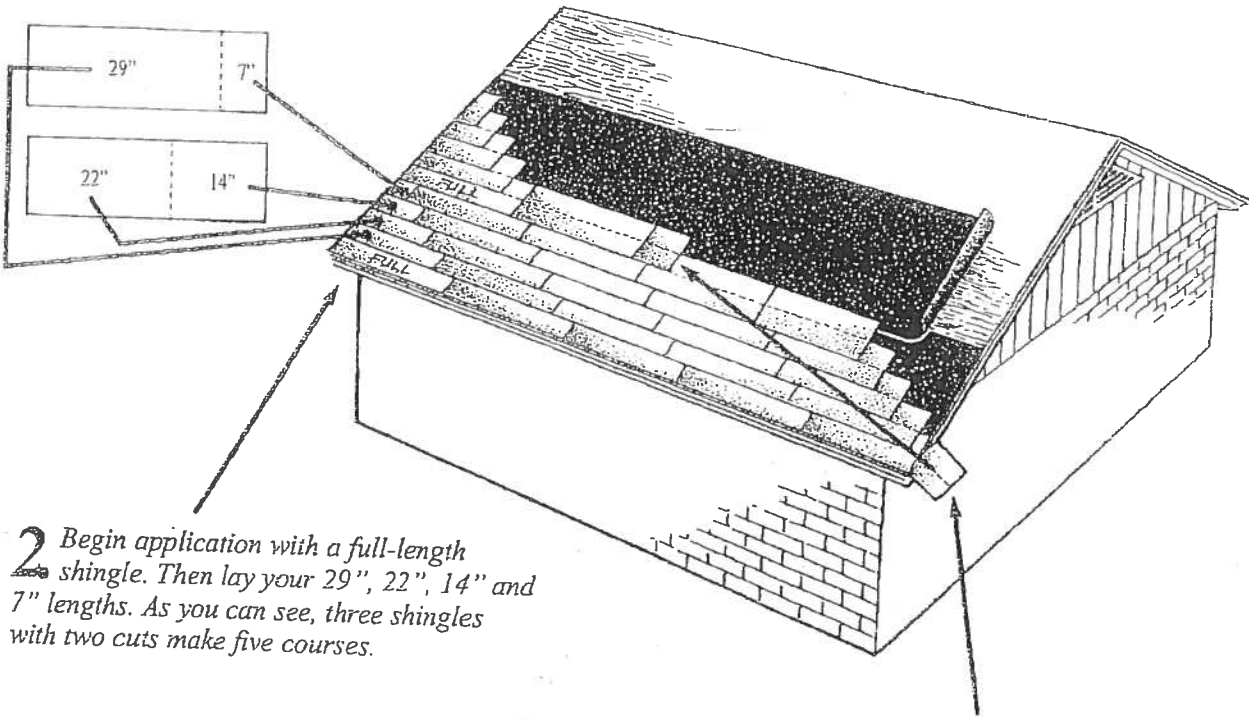
NOTE: These application instructions apply only to Heritage 40, Heritage 30, Heritage 40 AR, and Heritage 30 AR shingles.

TAMKO
ROOFING PRODUCTS

Application Instructions For Heritage® 40 & 30 Series Shingles

With two simple cuts, you can create five courses out of three Heritage shingles with no waste. Fewer cuts mean labor savings and faster application. The TAMKO method also eliminates unsightly zipper patterns. And because you can work any piece over 8" long back into the field of roofing, you'll save money on materials. For the best-looking roof with the least waste, rely on TAMKO and the Heritage Series.

1. Cut your first shingle to make a 29" and a 7" length. Cut a second shingle to make a 22" and a 14" length.



2. Begin application with a full-length shingle. Then lay your 29", 22", 14" and 7" lengths. As you can see, three shingles with two cuts make five courses.

3. Continue working your way across the roof. When you make your final cut at the roof's edge, flip any pieces that are 8" or longer back onto the roof. These pieces can be worked in anywhere without creating zippers or color variations.

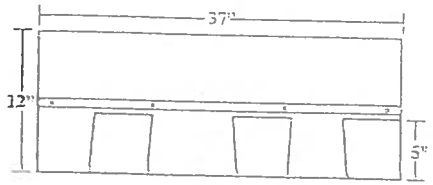
NOTE: Do not align joints of shingle courses when working in cut pieces. Joints should be no closer than 4" from one another.

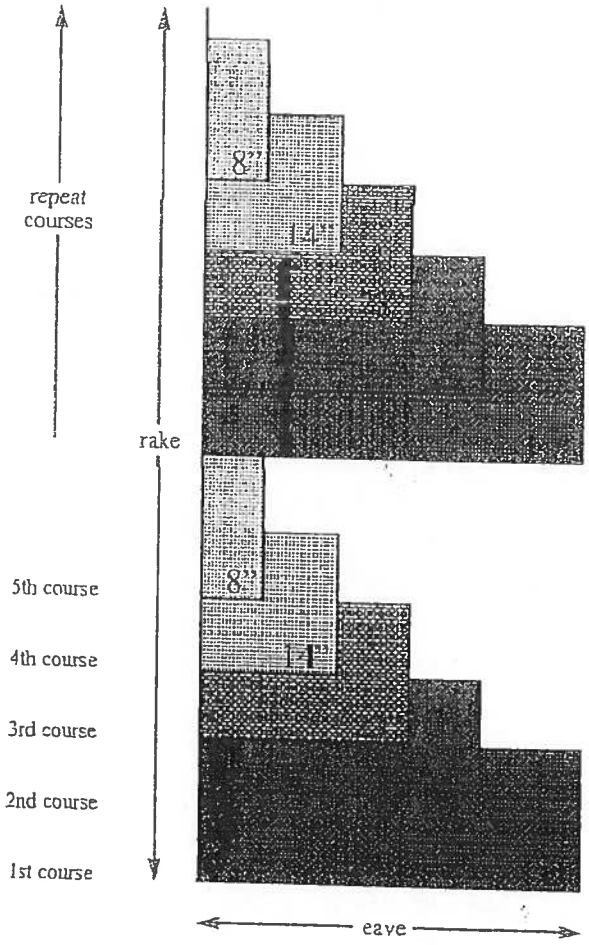
997494

TAMKO
ROOFING PRODUCTS

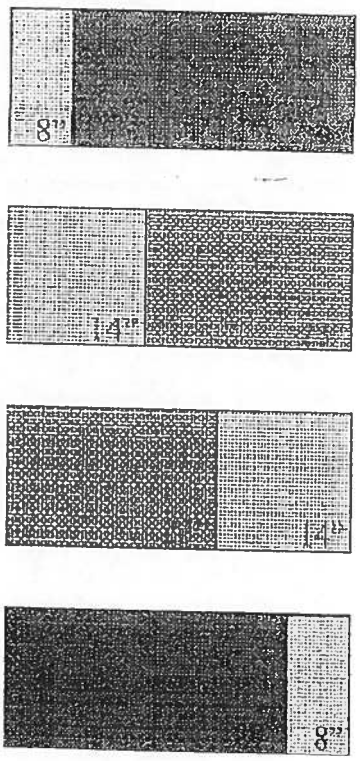
Application Instructions For Heritage® 25 Series Shingles

SPECIFICATIONS (APPROX.)	
Length	37"
Width	12"
Bundles per Sq.	3
Shingles per Sq.	78
Shingles per Bundle	26
Coverage per Sq. (Sq. Ft.)	100
Exposure	5"





The 4 cuts in the first 10 courses:



In the first 10 courses, there are 4 cuts and no waste.

When you reach the other side of the roof, whatever has to be trimmed off can be used in the field of roofing.

For additional application information consult the application instructions printed on the product package.

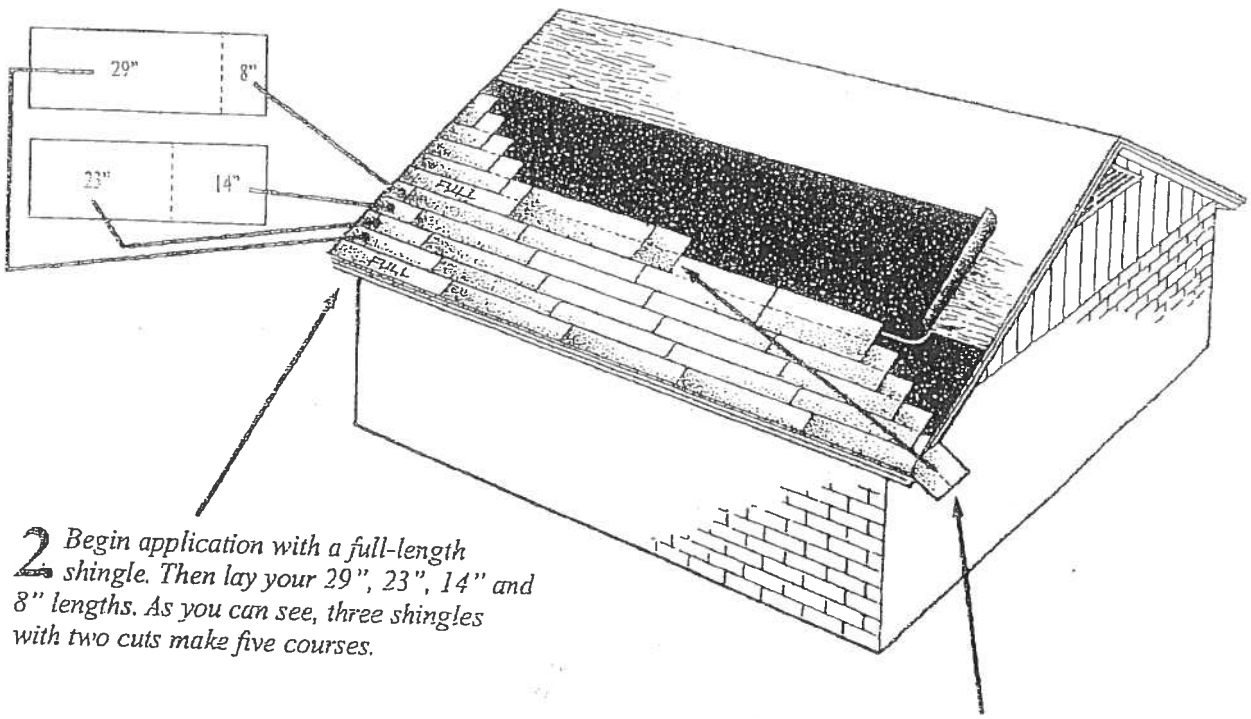
NOTE: These application instructions apply only to Heritage 25 and Heritage 25 AR shingles.

TAMKO
ROOFING PRODUCTS

Application Instructions For Heritage® 25 Series Shingles

With two simple cuts, you can create five courses out of three Heritage shingles with no waste. Fewer cuts mean labor savings and faster application. The TAMKO method also eliminates unsightly zipper patterns. And because you can work any piece over 8" long back into the field of roofing, you'll save money on materials. For the best-looking roof with the least waste, rely on TAMKO and the Heritage Series.

1. Cut your first shingle to make a 29" and an 8" length. Cut a second shingle to make a 23" and a 14" length.



2. Begin application with a full-length shingle. Then lay your 29", 23", 14" and 8" lengths. As you can see, three shingles with two cuts make five courses.

3. Continue working your way across the roof. When you make your final cut at the roof's edge, flip any pieces that are 8" or longer back onto the roof. These pieces can be worked in anywhere without creating zippers or color variations.

NOTE: Do not align joints of shingle courses when working in cut pieces. Joints should be no closer than 4" from one another.

997493

TAMKO®
ROOFING PRODUCTS

Application Instructions for

- Glass-Seal
- Glass-Seal AR
- Elite Glass-Seal®
- Elite Glass-Seal® AR

THREE-TAB ASPHALT SHINGLES

THESE ARE THE MANUFACTURER'S APPLICATION INSTRUCTIONS FOR THE ROOFING CONDITIONS DESCRIBED. TAMKO ROOFING PRODUCTS, INC. ASSUMES NO RESPONSIBILITY FOR LEAKS OR OTHER ROOFING DEFECTS RESULTING FROM FAILURE TO FOLLOW THE MANUFACTURER'S INSTRUCTIONS.
THIS PRODUCT IS COVERED BY A LIMITED WARRANTY, THE TERMS OF WHICH ARE PRINTED ON THE WRAPPER.
IN COLD WEATHER (BELOW 40°F), CARE MUST BE TAKEN TO AVOID DAMAGE TO THE EDGES AND CORNERS OF THE SHINGLES.

IMPORTANT: It is not necessary to remove the plastic strip from the back of the shingles.

1. ROOF DECK

These shingles are for application to roof decks capable of receiving and retaining fasteners, and to inclines of not less than 2 in. per foot. For roofs having pitches 2 in. per foot to less than 4 in. per foot, refer to special instructions titled "Low Slope Application". Shingles must be applied properly. TAMKO assumes no responsibility for leaks or defects resulting from improper application, or failure to properly prepare the surface to be roofed over.

NEW ROOF DECK CONSTRUCTION: Roof deck must be smooth, dry and free from warped surfaces. It is recommended that metal drip edges be installed at eaves and rakes.

PLYWOOD: All plywood shall be exterior grade as defined by the American Plywood Association. Plywood shall be a minimum of 3/8 in. thickness and applied in accordance with the recommendations of the American Plywood Association.

SHEATHING BOARDS: Boards shall be well-seasoned tongue-and-groove boards and not over 6 in. nominal width. Boards shall be a 1 in. nominal minimum thickness. Boards shall be properly spaced and nailed.

2. VENTILATION

Inadequate ventilation of attic spaces can cause accumulation of moisture in winter months and a build up of heat in the summer. These conditions can lead to:

1. Vapor Condensation
2. Buckling of shingles due to deck movement.
3. Rotting of wood members.
4. Premature failure of roof.

To insure adequate ventilation and circulation of air, place louvers of sufficient size high in the gable ends and/or install continuous ridge and soffit vents.
FHA minimum property standards require one square foot of net free ventilation area to each 150 square feet of space to be vented, or one square foot per 300 square feet if a vapor barrier is installed on the warm side of the ceiling or if at least one half of the ventilation is provided near the ridge. If the ventilation openings are screened, the total area should be doubled.

IT IS PARTICULARLY IMPORTANT TO PROVIDE ADEQUATE VENTILATION.

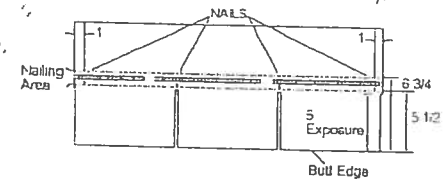
3. FASTENING

NAILS: TAMKO recommends the use of nails as the preferred method of application.
WIND CAUTION: Extreme wind velocities can damage these shingles after application when proper sealing of the shingles does not occur. This can especially be a problem if the shingles are applied in cooler months or in areas on the roof that do not receive direct sunlight. These conditions may impede the sealing of the adhesive strips on the shingles. The inability to seal down may be compounded by prolonged cold weather conditions and/or blowing dust. In these situations, hand sealing of the shingles is recommended. Shingles must also be fastened according to the fastening instructions described below.

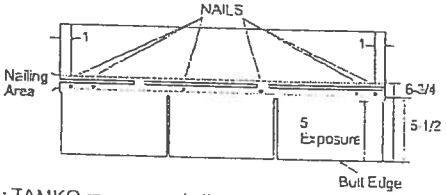
Correct placement of the fasteners is critical to the performance of the shingle. If the fasteners are not placed as shown in the diagram and described below, TAMKO will not be responsible for any shingles blown off or displaced. TAMKO will not be responsible for damage to shingles caused by winds or gusts exceeding gale force. Gale force shall be the standard as defined by the U.S. Weather Bureau.

FASTENING PATTERNS: Fasteners must be placed above or below the factory applied sealant in an area between 5-1/2" and 6-3/4" from the butt edge of the shingle. Fasteners should be located horizontally according to the diagram below. Do not nail into the sealant. TAMKO recommends nailing below the sealant whenever possible for greater wind resistance.

1) Standard Fastening Pattern. (For use on decks with slopes 2 in. per foot to 21 in. per foot.) One fastener 1 in. back from each end and one 12 in. back from each end of the shingle for a total of 4 fasteners. (See standard fastening pattern illustrated below).



2) Mansard or High Wind Fastening Pattern. (For use on decks with slopes greater than 21 in. per foot.) One fastener 1 in. back from each end and one fastener 10-1/2 in. back from each end and one fastener 13-1/2 in. back from each end for a total of 6 fastener per shingle. (See Mansard fastening pattern illustrated below.)



NAILS: TAMKO recommends the use of nails as the preferred method of application. Standard type roofing nails should be used. Nail shanks should be made of minimum 12-gauge wire, and a minimum head diameter of 3/8 in. Nails should be long enough to penetrate 3/4 in.

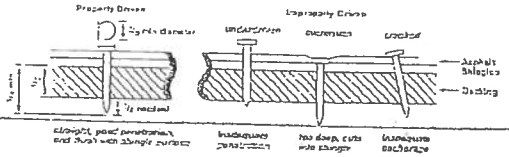
(Continued)

(CONTINUED from Pg. 1)

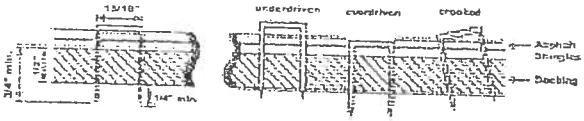
• Glass-Seal • Glass-Seal AR • Elite Glass-Seal® • Elite Glass-Seal® AR

THREE-TAB ASPHALT SHINGLES

into the roof deck. Where the deck is less than 3/4 in. thick, the nails should be long enough to penetrate completely through plywood decking and extend at least 1/8 in. through the roof deck. Drive nail head flush with the shingle surface.



STAPLES: If staples are used in the attaching process, follow the above instructions for placement. All staples must be driven with pneumatic staplers. The staple must meet the following minimum dimensional requirements. Staples must be made from a minimum 16 gauge galvanized wire. Crown width must be at least 15/16 in. (staple crown width is measured outside the legs). Leg length should be a minimum of 1-1/4 in. for new construction and 1-1/2 in. for reroofing thus allowing a minimum deck penetration of 3/4 in. The crown of the staple must be parallel to the length of the shingle. The staple crown should be driven flush with the shingle surface. Staples that are crooked, underdriven or overdriven are considered improperly applied.



CAUTION: DO NOT FASTEN INTO THE FACTORY APPLIED ADHESIVE.

4. UNDERLAYMENT

UNDERLAYMENT: An underlayment consisting of asphalt saturated felt must be applied over the entire deck before the installation of TAMKO shingles. Failure to add underlayment can cause premature failure of the shingles which is not covered by TAMKO's limited warranty. Apply the felt when the deck is dry. On roof decks 4 in. per foot and greater apply the felt parallel to the eaves lapping each course of the felt over the lower course at least 2 in. Where ends join, lap the felt 4 in. If left exposed, the underlayment felt may be adversely affected by moisture and weathering. Laying of the underlayment and the shingle application must be done together.

Products which are acceptable for use as underlayment are:

- TAMKO No. 15 Asphalt Saturated Organic Felt
- A non-perforated asphalt saturated organic felt which meets ASTM: D226, Type I
- Any TAMKO non-perforated asphalt saturated organic felt

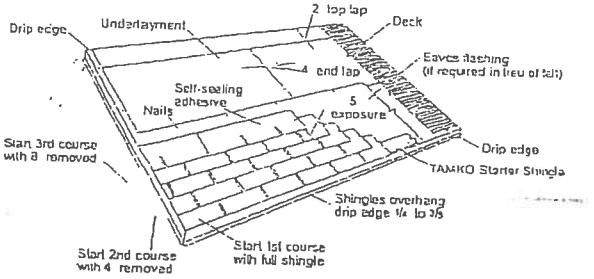
In areas where ice builds up along the eaves or a back-up of water from frozen or clogged gutters is a potential problem, TAMKO's Moisture Guard Plus® waterproofing underlayment (or any specialty eaves flashing product) may be applied to eaves, rakes, ridges, valleys, around chimneys, skylights or dormers to help prevent water damage. Contact TAMKO's Technical Services Department for more information.

TAMKO does not recommend the use of any substitute products as shingle underlayment.

5. APPLICATION INSTRUCTIONS

STARTER COURSE: A starter course may consist of TAMKO Shingle Starter, self-sealing type shingles or a 9 inch wide strip of mineral surface roll roofing. If self-sealing shingles are used, remove the exposed tab portion and install with the factory applied adhesive adjacent to the eaves. Attach the starter course with approved fasteners along a line parallel to and 3 in. to 4 in. above the eaves edge. The starter course should overhang both the eaves and rake edges 1/4 in. to 3/8 in. If a roll roofing is used, seal down the shingles in the first course by applying adhesive cement in four spots equally spaced to the surface of the starter strip and press the shingle down on the spots of cement. Plastic cement should be used sparingly, as excessive amounts may cause blistering.

SHINGLE APPLICATION: There are three different offset methods for applying strip shingles: the 4-inch method, the 5-inch method and the 6-inch method. By removing different lengths from the first shingle, cutouts in one course of shingles do not line up directly with those of the course below. It is recommended that the shingles be laid according to one of these methods consistent with procedures outlined in ARMA's Residential Asphalt Roofing Manual. This panel will feature the 4-inch method. For information regarding the other methods, please refer to the ARMA Residential Asphalt Roofing Manual.
CAUTION: Never use an alignment system where shingle joints are closer than 4 in. to one another.



6. LOW SLOPE APPLICATION

On pitches 2 in. per foot to 4 in. per foot cover the deck with two layers of asphalt saturated felt. Begin by applying the felt in a 19 in. wide strip along the eaves and overhanging the drip edge by 1/4 to 3/4 in. Place a full 36 in. wide sheet over the 19 in. wide starter piece, completely overlapping it. All succeeding courses will be positioned to overlap the preceding course by 19 in. If winter temperatures average 25°F or less, thoroughly cement the felts to each other with plastic cement from eaves and rakes to a point of a least 24 in. inside the interior wall line of the building. As an alternative, TAMKO's Moisture Guard Plus® self-adhering waterproofing underlayment may be used in lieu of the cemented felts.

7. MANSARD ROOF OR STEEP SLOPE ROOF

If the slope exceeds 21 in. per foot (60°), each shingle must be sealed

(Continued)

(CONTINUED from Pg. 2)

• Glass-Seal • Glass-Seal AR • Elite Glass-Seal® • Elite Glass-Seal® AR

THREE-TAB ASPHALT SHINGLES

with quick setting asphalt adhesive cement immediately upon installation. Spots of cement must be equivalent in size to a $.25 piece and applied to shingles with a 5 in. exposure, use 6 fasteners per shingle. See Section 3 for the Mansard Fastening Pattern.

8. RE-ROOFING

Before re-roofing, be certain to inspect the roof decks. All plywood shall meet the requirements listed in Section 1.

Nail down or remove curled or broken shingles from the existing roof. Replace all missing shingles with new ones to provide a smooth base. Shingles that are buckled usually indicate warped decking or protruding nails. Hammer down all protruding nails or remove them and refasten in a new location. Remove all drip edge metal and replace with new.

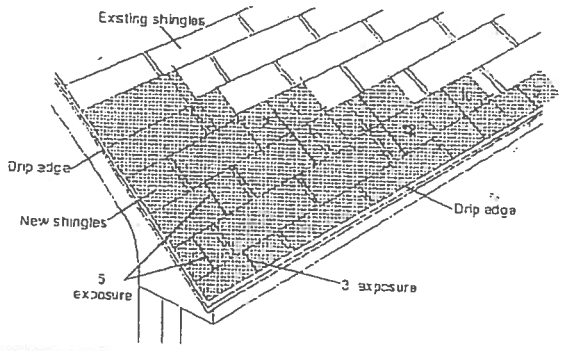
If re-roofing over an existing roof where new flashing is required to protect against ice dams (freeze/thaw cycle of water and/or the backup of water in frozen or clogged gutters), remove the old roofing to a point at least 24 in. beyond the interior wall line and apply TAMKO's Moisture Guard Plus® waterproofing underlayment. Contact TAMKO's Technical Services Department for more information.

The nesting procedure described below is the preferred method for re-roofing over square tab strip shingles with a 5 in. exposure.

Starter Course: Begin by using TAMKO Shingle Starter or by cutting shingles into 5 x 36 inch strips. This is done by removing the 5 in. tabs from the bottom and approximately 2 in. from the top of the shingles so that the remaining portion is the same width as the exposure of the old shingles. Apply the starter piece so that the self-sealing adhesive lies along the eaves and is even with the existing roof. The starter strip should be wide enough to overhang the eaves and carry water into the gutter. Remove 3 in. from the length of the first starter shingle to ensure that the joints from the old roof do not align with the new.

First Course: Cut off approximately 2 in. from the bottom edge of the shingles so that the shingles fit beneath the existing third course and align with the edge of the starter strip. Start the first course with a full 36 in. long shingle and fasten according to the instructions printed in Section 3.

Second and Succeeding Courses: According to the off-set application method you choose to use, remove the appropriate length from the rake end of the first shingle in each succeeding course. Place the top edge of the new shingle against the butt edge of the old shingles in the courses above. The full width shingle used on the second course will reduce the exposure of the first course to 3 in. The remaining courses will automatically have a 5 in. exposure.



9. VALLEY APPLICATION

Over the shingle underlayment, center a 36 in. wide sheet of TAMKO Nail-Fast® or a minimum 50 lb. roll roofing in the valley. Nail the felt only where necessary to hold it in place and then only nail the outside edges.

IMPORTANT: PRIOR TO INSTALLATION WARM SHINGLES TO PREVENT DAMAGE WHICH CAN OCCUR WHILE BENDING SHINGLES TO FORM VALLEY.

- Apply the first course of shingles along the eaves of one of the intersecting roof planes and across the valley.

Note: For proper flow of water over the trimmed shingle, always start applying the shingles on the roof plane that has the lower slope or less height.

- Extend the end shingle at least 12 in. onto the adjoining roof. Apply succeeding courses in the same manner, extending them across the valley and onto the adjoining roof.
- Do not trim if the shingle length exceeds 12 in. Lengths should vary.
- Press the shingles lightly into the valley.
- Use normal shingle fastening methods.

Note: No fastener should be within 6 in. of the valley centerline, and two fasteners should be placed at the end of each shingle crossing the valley.

- To the adjoining roof plane, apply one row of shingles extending it over previously applied shingles and trim a minimum of 2 in. back from the centerline of the valley.

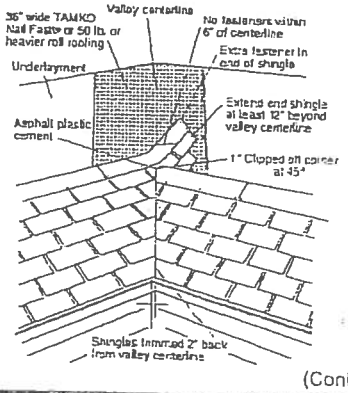
Note: For a neater installation, snap a chalkline over the shingles for guidance.

- Clip the upper corner of each shingle at a 45-degree angle and embed the end of the shingle in a 3 in. wide strip of asphalt plastic cement. This will prevent water from penetrating between the courses by directing it into the valley.

- ***CAUTION:*** *Adhesive must be applied in smooth, thin, even layers.*

Excessive use of adhesive will cause blistering to this product.

TAMKO assumes no responsibility for blistering.



(Continued)

TAMKO ROOFING PRODUCTS

(CONTINUED from Pg. 3)

• Glass-Seal • Elite Glass-Seal®
• Glass-Seal AR • Elite Glass-Seal® AR

THREE-TAB ASPHALT SHINGLES

FOR ALTERNATE VALLEY APPLICATION METHODS, PLEASE CONTACT TAMKO'S TECHNICAL SERVICES DEPARTMENT.

16. HIP AND RIDGE FASTENING DETAIL

Apply the shingles with a 5 in. exposure beginning at the bottom of the hip or from the end of the ridge opposite the direction of the prevailing winds. Secure each shingle with one fastener 5-1/2 in. back from the exposed end and 1 in. up from the edge. Do not nail directly into the sealant.

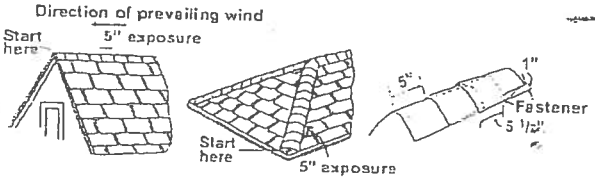
TAMKO recommends the use of TAMKO Hip & Ridge shingle products. Where matching colors are available, it is acceptable to use TAMKO's Glass-Seal or Elite Glass-Seal shingles cut down to 12 in. pieces.

NOTE: AR type shingle products should be used as Hip & Ridge on Glass-Seal AR and Elite Glass-Seal AR shingles.

Fasteners should be 1/4 in. longer than the one used for shingles.

IMPORTANT: PRIOR TO INSTALLATION, CARE NEEDS TO BE TAKEN TO PREVENT DAMAGE WHICH CAN OCCUR WHILE BENDING SHINGLES IN COOL WEATHER.

THESE ARE THE MANUFACTURER'S APPLICATION INSTRUCTIONS FOR THE ROOFING CONDITIONS DESCRIBED. TAMKO ROOFING PRODUCTS, INC. ASSUMES NO RESPONSIBILITY FOR LEAKS OR OTHER ROOFING DEFECTS RESULTING FROM FAILURE TO FOLLOW THE MANUFACTURER'S INSTRUCTIONS.



THIS PRODUCT IS COVERED BY A LIMITED WARRANTY. THE TERMS OF WHICH ARE PRINTED ON THE WRAPPER.

IMPORTANT - READ CAREFULLY BEFORE OPENING BUNDLE

In this paragraph "You" and Your" refer to the installer of the shingles and the owner of the building on which these shingles will be installed. This is a legally binding agreement between You and TAMKO Roofing Products, Inc. ("TAMKO"). By opening this bundle You agree: (a) to install the shingles strictly in accordance with the instructions printed on this wrapper; or (b) that shingles which are not installed strictly in accordance with the instructions printed on this wrapper are sold "AS IS" and are not covered by the limited warranty that is also printed on this wrapper, or any other warranty, including, but not limited to (except where prohibited by law) implied warranties of MERCHANTABILITY and FITNESS FOR USE.

ELK
Premium Roofing

March 6, 2002

Subject: Elk Product Approval Information

All Prestique® and Capstone® products manufactured in Tuscaloosa, AL are certified under the Miami – Dade County Building Code Office (BCCO). These products also meet the requirements for the Florida Building Code since they are MD approved. The following test protocols must be passed by each of the products in order for MD product certification:
ASTM D3462
PA 100 (110 mph uplift and wind driven rain resistance)
PA 107 (Modified ASTM D3161 - 110 mph wind uplift resistance)

The nailing patterns that were used during the PA 100 and PA 107 wind test protocols for the Prestique and Capstone products are listed below. Also listed below are the Miami – Dade Notice of Acceptance Numbers (NOA).

Raised Profile, Prestique High Definition, Prestique 25, or Prestique 30 –
PA 100 = 4 nails
PA 107 = 5 nails
MD NOA# = 01-1226.04

Prestique I 35 or Prestique I* –
PA 100 = 4 nails
PA 107 = 5 nails
MD NOA# = 01-1226.05

Prestique Plus or Prestique Gallery Collection* –
PA 100 = 4 nails
PA 107 = 4 nails
MD NOA# = 01-1226.03

Capstone*
PA 100 = 4 Nails
PA 107 = 4 Nails
MD NOA# = 01-0523.01
* As per the Elk Limited Warranty, six nails are required for the Elk high wind warranty.

If there are any questions please contact:

Mike Reed – Technical Manager (205) 342-0287 or Daniel DeJarnette – QA Engineer (205) 342-0298

PRESTIQUE® HIGH DEFINITION®

High Definition

Product size	13¼"x 39⅜"	50-year limited warranty period; non-prorated coverage for shingles and application labor for the initial 5 years, plus an option for transferability*; prorated coverage for application labor and shingles for balance of limited warranty period; 5-year limited wind warranty*.
Exposure	5⅝"	
Pieces/Bundle	16	
Bundles/Square	4/98.5 sq ft.	
Squares/Pallet	11	

High Definition

Product size	13¼"x 39⅜"	40-year limited warranty period; non-prorated coverage for shingles and application labor for the initial 5 years, plus an option for transferability*; prorated coverage for application labor and shingles for balance of limited warranty period; 5-year limited wind warranty*
Exposure	5⅝"	
Pieces/Bundle	16	
Bundles/Square	4/98.5 sq ft.	
Squares/Pallet	14	

High Definition

Product size	13¼"x 38¾"	30-year limited warranty period; non-prorated coverage for shingles and application labor for the initial 5 years, plus an option for transferability*; prorated coverage for application labor and shingles for balance of limited warranty period; 5-year limited wind warranty*.
Exposure	5⅝"	
Pieces/Bundle	22	
Bundles/Square	3/100 sq ft.	
Squares/Pallet	16	

RAISED PROFILE™

Product size	13¼"x 38¾"	30-year limited warranty period; non-prorated coverage for shingles and application labor for the initial 5 years, plus an option for transferability*; prorated coverage for application labor and shingles for balance of limited warranty period; 5-year limited wind warranty*.
Exposure	5⅝"	
Pieces/Bundle	22	
Bundles/Square	3/100 sq ft.	
Squares/Pallet	16	

HIP AND RIDGE SHINGLES

Size: 12" x 12"
Exposure: 6⅝"
Pieces/Bundle: 45
Coverage: 4 Bundles = 100 linear feet

52 Bundles/Pallet
18 Pallets/Truck
936 Bundles/Truck
19 Pieces/Bundle
1 Bundle = 120.33 linear feet

Available Colors: Antique Slate, Weatheredwood, Shakewood, Sablewood, Hickory, Barkwood**, Forest Green, Wedgewood**, Birchwood**, Sandalwood.
Gallery Collection: Balsam Forest™, Weathered Sage™, Sienna Sunset™.

All Prestique, Raised Profile and Seal-A-Ridge roofing products contain Elk WindGuard® sealant. WindGuard activates with the sun's heat, bonding shingles into a wind and weather resistant cover that resists blow-offs and leaks.

Check for availability with built-in StainGuard® treatment to inhibit the discoloration of roofing granules caused by the growth of certain types of algae. Not available in Sablewood.

All Prestique and Raised Profile shingles meet UL® Wind Resistant (UL 997) and Class "A" Fire Ratings (UL 790); and ASTM Specifications D 3018, Type-I; D 3161, Type-I; E 108 and the requirements of ASTM D 3462.

All Prestique and Raised Profile shingles meet the latest Metro Dade building code requirements.

***See actual limited warranty for conditions and limitations.**
****Check for product availability.**

SCOPE: Work includes furnishing all labor, materials and equipment necessary to complete installation of (name) shingles specified herein. Color shall be (name of color). Hip and ridge type to be Elk Seal-A-Ridge with formula *FLX*.

All exposed metal surfaces (flashing, vents, etc.) to be painted with matching Elk roof accessory paint.

PREPARATION OF ROOF DECK: Roof deck to be dry, well-seasoned 1" x 6" (25.4mm x 152.4mm) boards, exterior-grade plywood (exposure 1 rated sheathing) at least 3/8" (9.525mm) thick conforming to the specifications of the American Plywood Association; 7/16" (11.074mm) oriented strandboard; or chipboard. Most fire retardant plywood decks are NOT approved substrates for Elk shingles. Consult Elk Field Service for application specifications over other decks and other slopes.

MATERIALS: Underlayment for standard roof slopes, 4" per foot (101.6/304.8mm) or greater: apply non-perforated No. 15 or 30 asphalt-saturated felt underlayment. For low slopes [4" per foot (101.6/304.8mm) to a minimum of 2" per foot (50.8/304.8mm)], use two plies of underlayment overlapped a minimum of 19". Fasteners shall be of sufficient length and holding power for securing material as required by the application instructions printed on shingle wrapper.

For areas where algae is a problem, shingles shall be (name) with StainGuard treatment, as manufactured by the Elk Tuscaloosa plant. Hip and ridge type to be Seal-A-Ridge with formula *FLX* with StainGuard treatment.

Complete application instructions are published by Elk and printed on the back of every shingle bundle. All warranties are contingent upon the correct installation as shown on the instructions. These instructions are the minimum required to meet Elk application requirements. In some areas, building codes may require additional application techniques or methods beyond our instructions. In these cases, the local code must be followed. Under no circumstances will Elk accept application requirements less than those contained in its application instructions.

For specifications in CSI format, call 800.354.SPEC (7732) or e-mail specinfo@elkcorp.com.

SOUTHEAST & ATLANTIC OFFICE:
800.945.5551

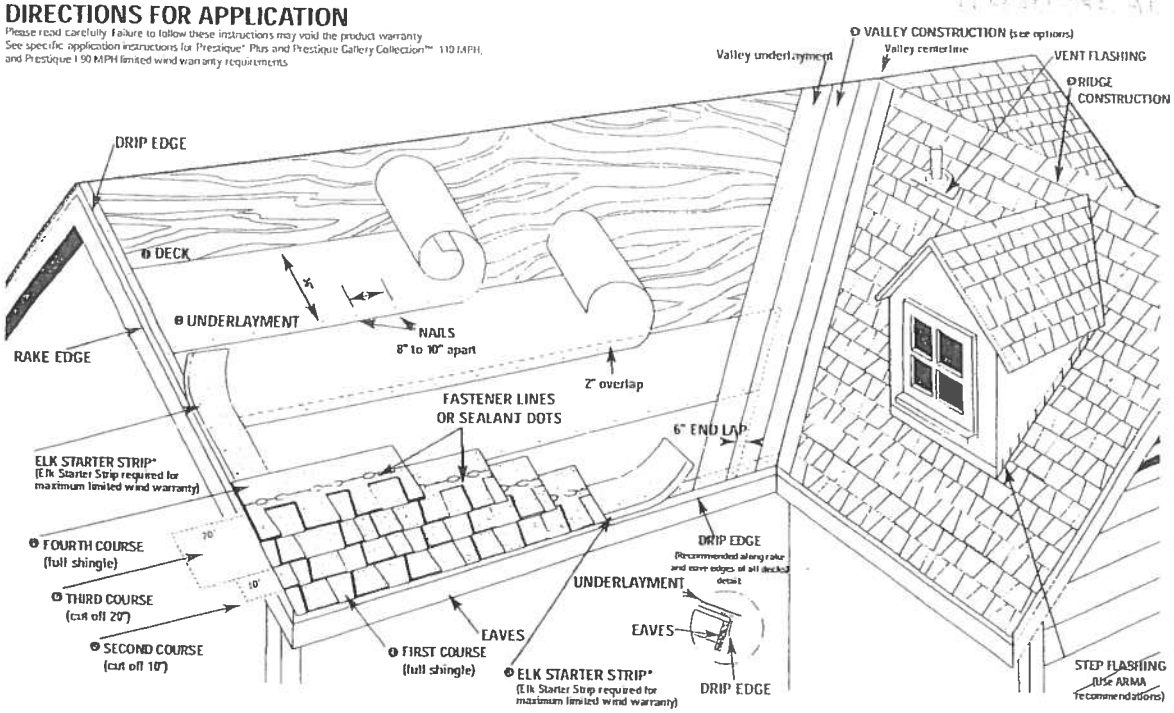
CORPORATE HEADQUARTERS:
800.354.7732

PLANT LOCATION:
800.945.5545

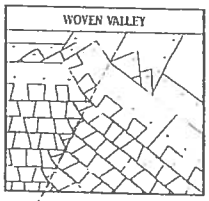
ELK
www.elkcorp.com

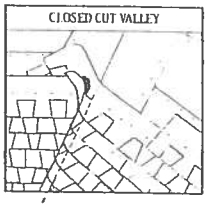
DIRECTIONS FOR APPLICATION

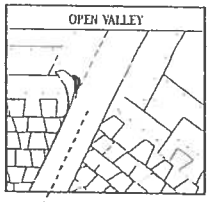
Please read carefully. Failure to follow these instructions may void the product warranty.
See specific application instructions for Prestique® Plus and Prestique Gallery Collection™ 110 MPH and Prestique I 90 MPH limited wind warranty requirements.



⑥ VALLEY CONSTRUCTION OPTION (California Open and California Closed are also acceptable) NOTE: For complete ARMA valley installation details, see ARMA Residential Asphalt Roofing Manual







DIRECTIONS FOR APPLICATION

These application instructions are the minimum required to meet Elk's application requirements. Your failure to follow these instructions may void the product warranty. In some areas, the building codes may require additional application techniques or methods beyond our instructions. In these cases, the local code must be followed. Under no circumstances will Elk accept application requirements that are less than those printed here. Shingles should not be jammed tightly together. All attics should be properly ventilated. Note: It is not necessary to remove tape on back of shingle.

① DECK PREPARATION

Roof decks should be dry, well seasoned 1" x 6" boards or exterior grade plywood minimum 3/8" thick and conform to the specifications of the American Plywood Association or 7/16" oriented strandboard, or 7/16" chipboard.

② UNDERLAYMENT

Apply underlayment (Non-Perforated No. 15 or 30 asphalt saturated felt). Cover drip edge at eaves only.

For low slope (2/12 up to 4/12), completely cover the deck with two plies of underlayment overlapping a minimum of 19". Begin by fastening a 19" wide strip of underlayment placed along the eaves. Place a full 36" wide sheet over the starter, horizontally placed along the eaves and completely overlapping the starter strip.

EAVE FLASHING FOR ICE DAMS (ASK A ROOFING CONTRACTOR, REFER TO ARMA MANUAL OR CHECK LOCAL CODES)

For standard slope (4/12 to less than 21/12), use coated roll roofing of no less than 50 pounds over the felt underlayment extending from the eave edge to a point at least 24" beyond the inside wall of the living space below or one layer of a self-adhered eave and flashing membrane.

For low slope (2/12 up to 4/12), use a continuous layer of asphalt plastic cement between the two plies of underlayment from the eave edge up roof to a point at least 24" beyond the inside wall of the living space below or one layer of a self-adhered eave and flashing membrane.

Consult the Elk Field Service Department for application specifications over other decks and other slopes.

③ STARTER SHINGLE COURSE

USE AN ELK STARTER STRIP OR A STRIP SHINGLE INVERTED WITH THE HEADLAP APPLIED AT THE EAVE EDGE. With at least 4" trimmed from the end of the first shingle, start at the rake edge overhanging the eave 1/2" to 3/4". Fasten 2" from the lower edge and 1" from each side. Shingles may be applied with a course alignment of 45° on the roof.

④ FIRST COURSE

Start at rake and continue course with full shingles laid flush with the starter course.

⑤ SECOND COURSE

Start at the rake with the shingle having 10" trimmed off and continue across roof with full shingles.

⑥ THIRD COURSE

Start at the rake with the shingle having 20" trimmed off and continue across roof with full shingles.

⑦ FOURTH COURSE

Start at the rake and continue with full shingles across roof.

FIFTH AND SUCCEEDING COURSES.

Repeat application as shown for second, third, and fourth courses. Do not rack shingles straight up the roof.

⑥ VALLEY CONSTRUCTION

Open, woven and closed cut valleys are acceptable when applied by Asphalt Roofing Manufacturing Association (ARMA) recommended procedures. For metal valleys, use 36" wide vertical underlayment prior to applying 18" metal flashing (secure edge with nails). No nails are to be within 6" of valley center.

⑧ RIDGE CONSTRUCTION

For ridge construction use Class "A" Seal-A-Ridge® with formula *FLX*™ (See ridge package for installation instructions.)

FASTENERS

While nailing is the preferred method for Elk shingles, Elk will accept fastening methods according to the following instructions.

Always nail or staple through the fastener line or on products without fastener lines, nail or staple between and in line with sealant dots.

NAILS: Corrosive resistant, 3/8" head, minimum 12-gauge roofing nails. Elk recommends 1-1/4" for new roofs and 1-1/2" for roof-overs. In cases where you are applying shingles to a roof that has an exposed overhang, for new roofs only, 3/4" ring shank nails are allowed to be used from the eave's edge to a point up the roof that is past the outside wall line. 1" ring shank nails allowed for re-roof.

STAPLES: Corrosive resistant, 16-gauge minimum, crown width minimum of 15/16". Note: An improperly adjusted staple gun can result in raised staples that can cause a fish-mouthed appearance and can prevent sealing.

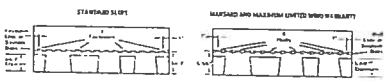
Fasteners should be long enough to obtain 3/4" deck penetration or penetration through deck, whichever is less.

MANSARD APPLICATIONS

Correct fastening is critical to the performance of the roof. For slopes exceeding 60° (or 21/12) use six fasteners per shingle. Locate fasteners in the fastener area 1" from each side edge with the remaining four fasteners equally spaced along the length of the double thickness (laminated) area. Only fastening methods according to the above instructions are acceptable.

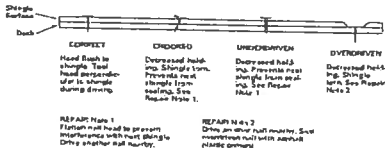
LIMITED WIND WARRANTY

- For a Limited Wind Warranty, all Prestique and Raised Profile™ shingles must be applied with 4 properly placed fasteners, or in the case of mansard applications, 6 properly placed fasteners per shingle.
- For a Limited Wind Warranty up to 110 MPH for Prestique Gallery Collection or Prestique Plus or 90 MPH for Prestique I, shingles must be applied with 6 properly placed NAILS per shingle. SHINGLES APPLIED WITH STAPLES WILL NOT QUALIFY FOR THIS ENHANCED LIMITED WIND WARRANTY. Also, Elk Starter Strip shingles must be applied at the eaves and rake edges to qualify Prestique Plus, Prestique Gallery Collection and Prestique I shingles for this enhanced Limited Wind Warranty. Under no circumstances should the Elk Shingles or the Elk Starter Strip overhang the eaves or rake edge more than 3/4 of an inch.



HELP STOP BLOW-OFFS AND CALL-BACKS

A minimum of four fasteners must be driven into the DOUBLE THICKNESS (laminated) area of the shingle. Nails or staples must be placed along – and through – the "fastener line" or on products without fastener lines, nail or staple between and in line with sealant dots. CAUTION: Do not use fastener line for shingle alignment.



Refer to local codes which in some areas may require specific application techniques beyond those Elk has specified.

All Prestique and Raised Profile shingles have a U.L.® Wind Resistance Rating when applied in accordance with these instructions using nails or staples on re-roofs as well as new construction.

CAUTION TO WHOLESALER: Careless and improper storage or handling can harm fiberglass shingles. Keep these shingles completely covered, dry, reasonably cool, and protected from the weather. Do not store near various sources of heat. Do not store in direct sunlight until applied. DO NOT DOUBLE STACK. Systematically rotate all stock so that the material that has been stored the longest will be the first to be moved out.

ELK

www.elkcorp.com

Lake City Glass, Inc.

P. O. Box 114 ~ Lake City, FL 32056
Phone 386-752-6204 ~ Fax 386-752-5952 ~ Email lcglass@isgroup.net
1-877-735-7720

April 08, 2002

To: All Contractors

Since the new windload code has been enforced for the State of Florida we have had several calls wanting information regarding the test reports and pricing. The following prices and enclosures should answer most of your questions. However, if you need further information please contact myself or Carl Bullard, Jr. We will be happy to assist you.

Contractor Prices:
Stratford Series

16 x 7 Raised Panel Steel Door (non-windload)	$425.00
9 x 7 Raised Panel Steel Door (non-windload)	$325.00
8 x 7 Raised Panel Steel Door (non-windload)	$295.00

For 110 mph windload add:

16 x 7	$125.00
9 x 7	$ 45.00
8 x 7	$ 45.00

Note glass, inserts, and insulation are extra, please call for pricing. The above prices do not include sales tax.

Sincerely,

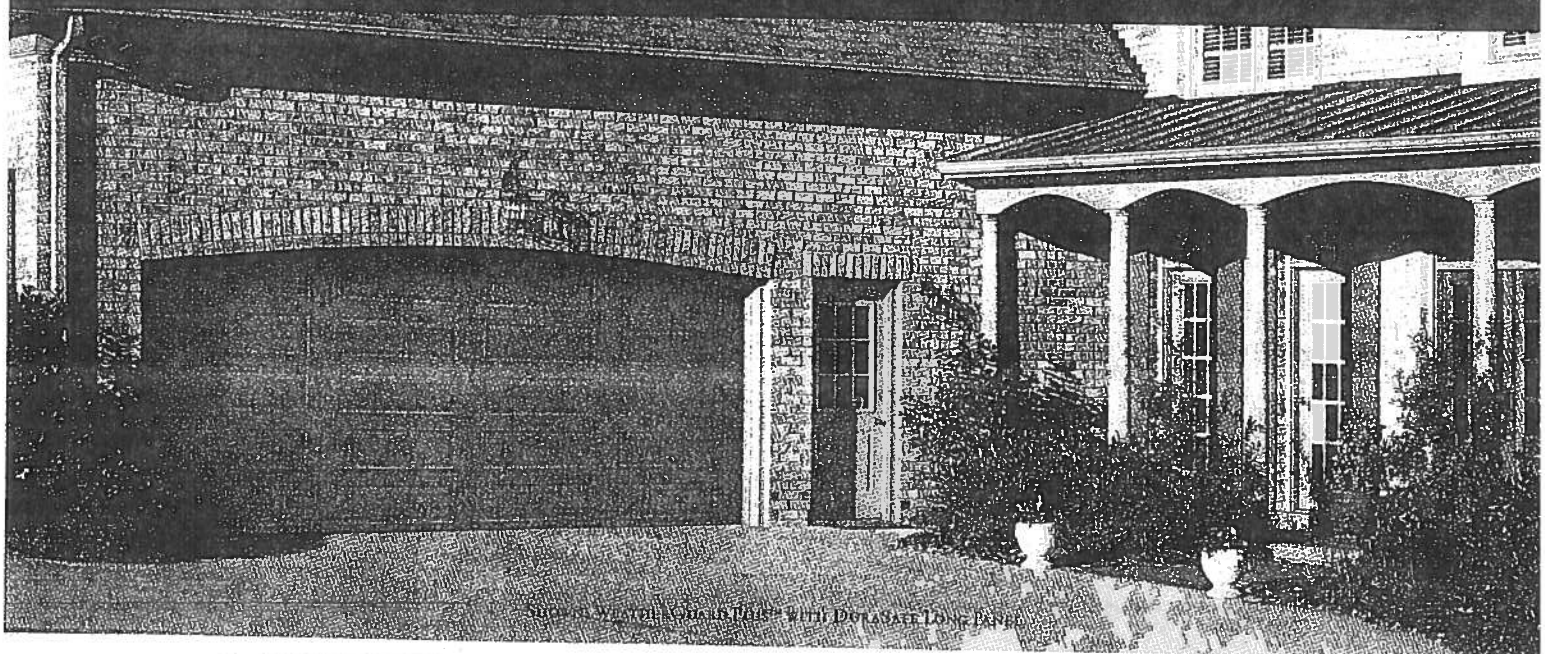
Mandie Jo Page, Office Manager

Enc.: 4
cc: file

Amarr®
GARAGE DOORS

BEST

WeatherGuard™ Series
Featuring our **DuraSafe System**



Shown: WeatherGuard Plus™ with DuraSafe Long Panel

WeatherGuard Plus™ with **DuraSafe**

The WeatherGuard Plus offers discerning homeowners a masterful combination of premium features. Superior triple-layer construction, 2" (5.1 cm) polystyrene insulation, an R-value of 8.34, and unmatched beauty put the WeatherGuard Plus at the top of its class.

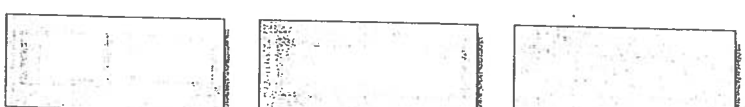
WeatherGuard™ with **DuraSafe**

Top-quality triple-layer construction and 1 3/8" (3.5 cm) polystyrene insulation make our WeatherGuard steel door strong, quiet, and energy efficient. Featuring an R-value of 5.73, the WeatherGuard is the perfect addition to your home for years of trouble free service and great looks.

Shown: WeatherGuard™ with DuraSafe Short Panel with optional ...

Design Elements

The WeatherGuard Series doors are available with a raised short, raised long, or flush panel design in your choice of four colors.*



Raised Short Panel | Raised Long Panel | Flush Panel

White | Brown | Almond | Sandtone

* Actual paint colors may vary from samples shown.

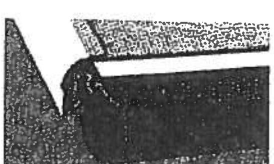
Bottom Seal
New aluminum bottom seal means easy and fast installation and maintenance... as well as a better seal against the elements.

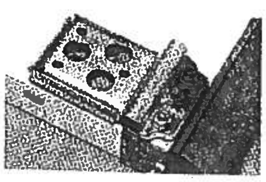
Bottom Bracket
New tamper resistant bottom bracket helps prevent accidents, yet allows for roller maintenance/change without disassembly. Full length roller tube prevents slip-outs.

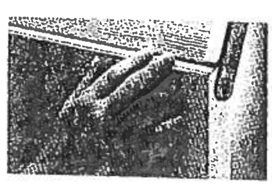
Door Sections
The section joint of the future: today. New section profile assures pinch resistance both inside and out, exceeding industry standards - neither fingers nor weather gets in.

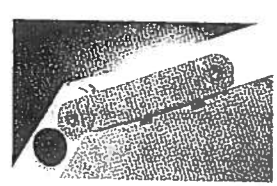
Center Hinge
Flush mount inboard design center hinges provide pinch resistant protection and a low profile clean look on the inside of the door.

End Hinge
With most of its action hidden inside the door, our re-engineered end hinges leave no room for even the smallest fingers.







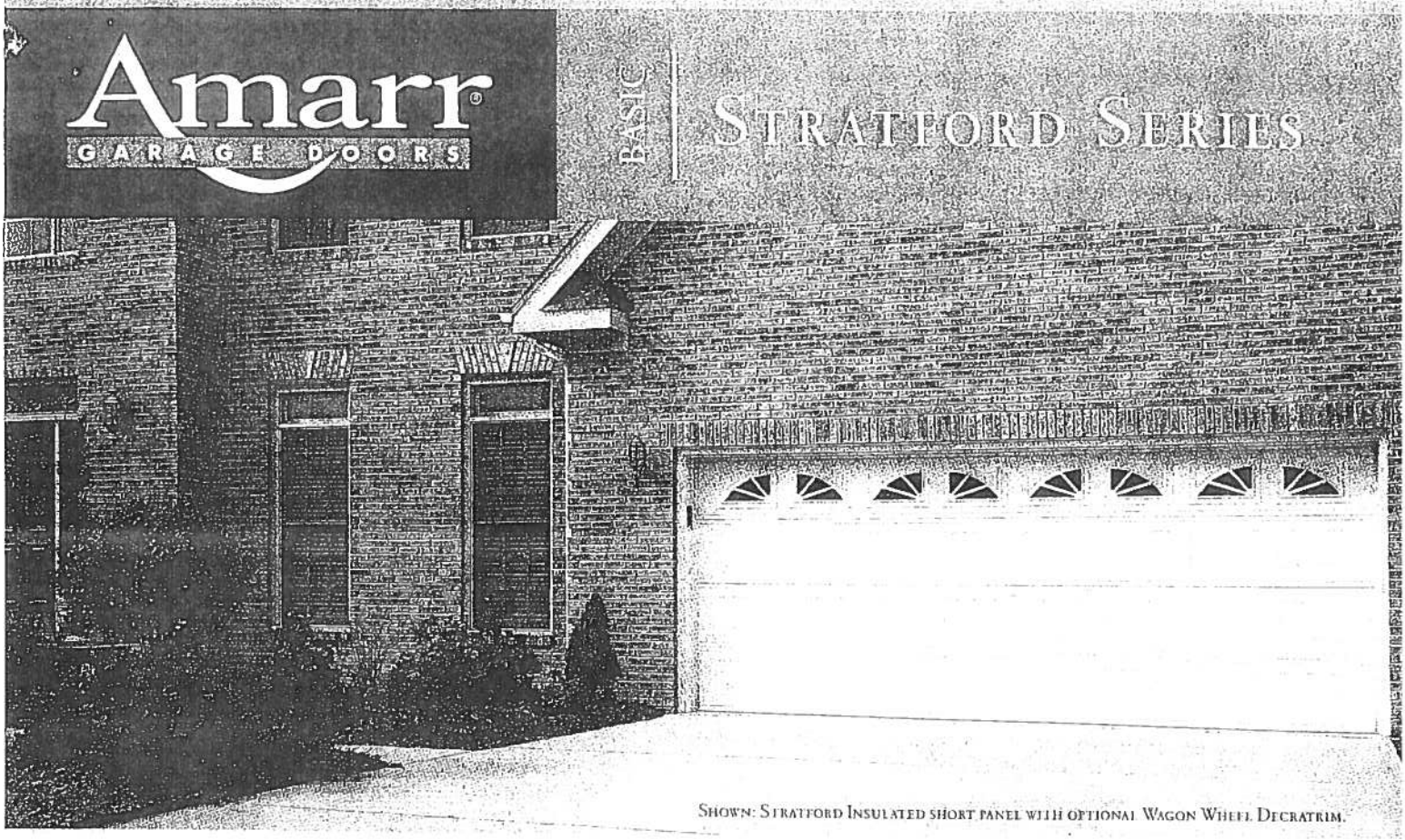


Amarr DuraSafe doors under 8'9" will be supplied with DuraSafe hardware. DASMA standards for pinch-resistance do not apply to doors over 8' high since the potential pinch points are above typical grasping heights; Amarr doors over 8'9" are supplied with conventional hardware. The Bottom Bracket, Door Sections, Center Hinge and End Hinge shown above are patented. Doors shown are electrically operated. Non-electrically operated doors should have exterior and interior lift handles attached to the door.

Amarr
GARAGE DOORS

BACK

STRATFORD SERIES



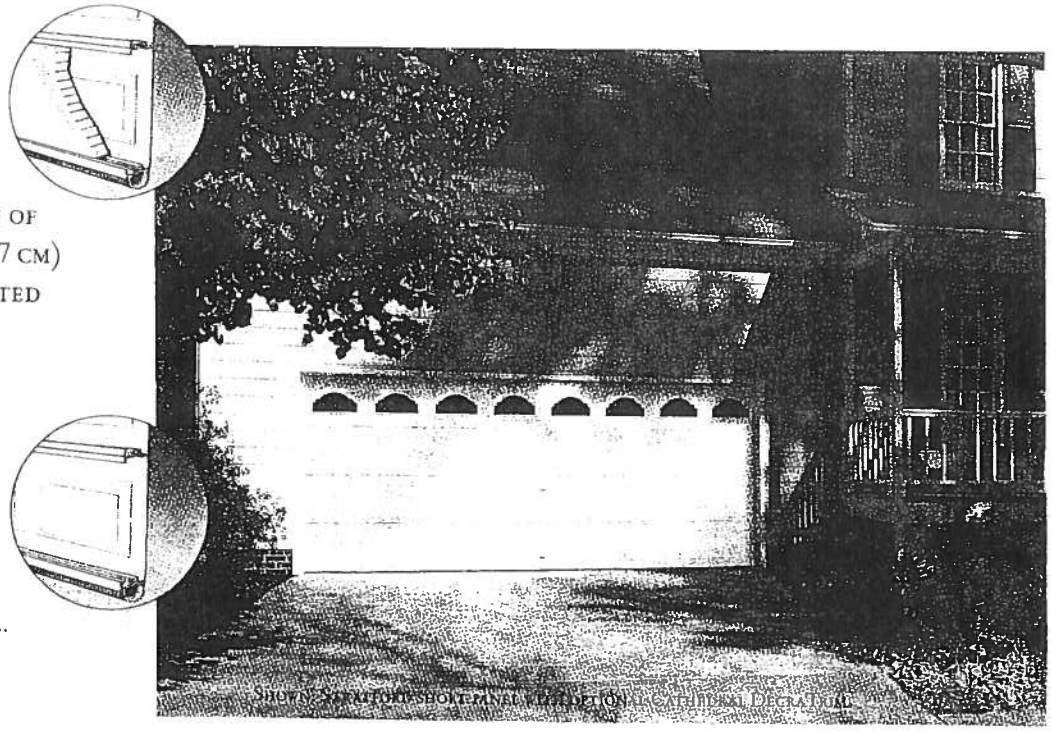
SHOWN: STRATFORD INSULATED SHORT PANEL WITH OPTIONAL WAGON WHEEL DECRATRIM.

STRATFORD INSULATED

THE 2" (5.1 CM) THICK STRATFORD INSULATED PROVIDES HOMEOWNERS EXCELLENT THERMAL PROTECTION AND HANDSOME GOOD LOOKS. FEATURES INCLUDE DOUBLE-LAYER CONSTRUCTION OF STURDY 25-GAUGE STEEL, AND 1 7/16" (3.7 CM) POLYSTYRENE INSULATION WITH LAMINATED BACKING AND AN R-VALUE OF 5.65.

STRATFORD

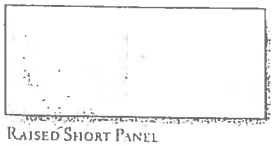
A SUPERLATIVE ADDITION TO ANY HOME, THE STRATFORD'S DURABLE SINGLE-LAYER CONSTRUCTION, 25-GAUGE STEEL, AND ATTRACTIVE DESIGN PROVIDE HOMEOWNERS WITH EXCEPTIONAL VALUE.



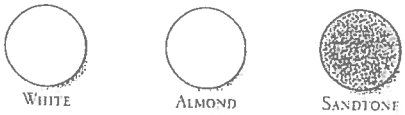
SHOWN: STRATFORD SHORT PANEL WITH OPTIONAL CATHEDRAL DECRATRIM.

DESIGN ELEMENTS

THE STRATFORD SERIES DOORS ARE AVAILABLE WITH A RAISED SHORT PANEL DESIGN IN YOUR CHOICE OF THREE COLORS.*



RAISED SHORT PANEL



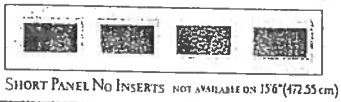
WHITE ALMOND SANDTONE

* ACTUAL PAINT COLORS MAY VARY FROM SAMPLES SHOWN.

DecraTrim Window Accents

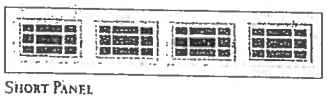
Add visual interest to your windows with a variety of color-matched, easy-to-snap-in DecraTrim inserts.

GLAZED WINDOW



Short Panel No Inserts not available on 156" (477.55 cm) 158" (477.52 cm)

PRAIRIE

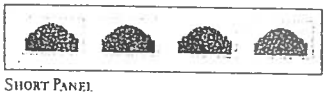


Short Panel

CASCADE

Short Panel

CATHEDRAL



Short Panel

WATERFORD

Short Panel

WAGON WHEEL

Short Panel

SUNRAY

Short Panel

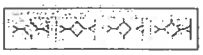
FULL SUNRAY

Short Panel — only available on 16' (487.68 cm) 17' (518.16 cm) 18' (548.64 cm)

DecraGlass™ Windows

Add a touch of elegance with translucent, tempered DecraGlass, featuring V-groove etching.

CHALET

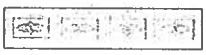


Brass Came & Etched Design

RIVIERA

V-Groove Etched Design

VICTORIAN



V-Groove Etched Design

DecraTrim and DecraGlass Windows not available for 15'6" and 15'8" short panel doors.

The Amarr Philosophy

Since 1951, we have successfully raised the standards of quality, value, and dependability in our industry. Today, with the same promise of individual attention and great value for all our customers, we remain committed to offering products and services that raise those standards even higher.

Richard A. Brenner
President

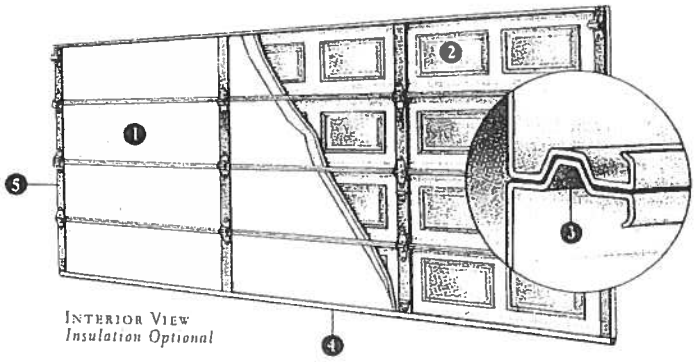
Photos and drawings shown meet future DASMA 116 requirements. Your door may be supplied with fewer lift handles. To continue its program of quality and design improvements, Amarr reserves the right to change specifications and designs without notice and without incurring obligations.

BASIC

Stratford Series

Product Classification	BEST WeatherGuard	BETTER Heritage	BASIC Stratford

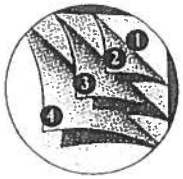
Even our most basic door offers you durable, heavy-gauge steel construction. Available with or without insulation, the Stratford Series also allows you to customize with our broad selection of window and trim options.



Interior View
Insulation Optional

1. Stratford Insulated doors feature an exterior layer of heavy-gauge steel and an interior layer of insulation.
2. Stratford non-insulated doors consist of a single layer of heavy-gauge steel.
3. Tongue-and-groove joints seal the gap between sections more tightly than ship-lap joints. They eliminate drafts and offer stability and superior protection against the elements.
4. The weather seal, held in place with an aluminum retainer, provides a flexible, contoured vinyl seal between the door and floor to help prevent outside air, dirt, dust, and moisture from seeping in.
5. Galvanized end and center stiles are both durable and functional.

Every Amarr Door Is Built For Good



1 Every Amarr garage door is constructed of rugged, real gauge steel. Beware of nominal gauge steel numbers.
2 We help prevent rusting with the best process available: hot-dip galvanizing.
3–4 Amarr doors feature a two-step paint system that includes (3) a primer coat and (4) a tough polyester top-coat that requires no painting.
Warranted To Last: Amarr's powerful warranties cover paint, finish, adhesive, and hardware.

15-Year Limited Warranty

The Stratford Series features a limited 15 year warranty on paint and finish, and 1-year on hardware.

Amarr Garage Doors
Built For Good.™

5931 Grassy Creek Blvd.
Winston-Salem, NC 27105

336.744.5100 • 800.503.DOOR
Fax 336.744.0895 • www.amarr.com

Your Local Amarr Dealer:

P. O. BOX 114
LAKE CITY, FL 32056-011

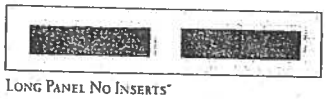
Printed in USA Form #5040101/75M/HA

DecraTrim Window Accents

Add visual interest to your windows with a variety of color-matched, easy-to-snap-in DecraTrim inserts available in either short or long panel designs.

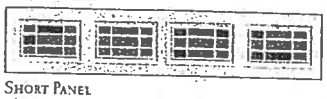
GLAZED WINDOW

Short Panel No Inserts (Not available on 15'6" (472.55 cm) 15'8" (477.52 cm))



Long Panel No Inserts*

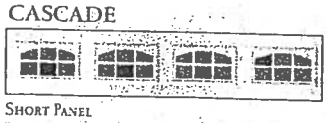
PRAIRIE



Short Panel

Long Panel*

CASCADE



Short Panel

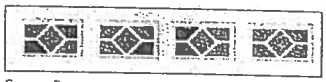
Long Panel*

CATHEDRAL

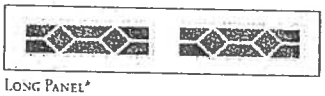
Short Panel

Long Panel*

WATERFORD



Short Panel



Long Panel*

WAGON WHEEL

Short Panel

Long Panel*

SUNRAY

Short Panel

Long Panel*

FULL SUNRAY

Short Panel

Only available on 16' (487.68 cm) 17' (518.16 cm) 18' (548.64 cm)

Long Panel*

Only available on 15' (457.20 cm), 15'6" (472.44 cm), 15'8" (477.52 cm), 16' (487.68 cm), 17' (518.16 cm), 18' (548.64 cm)

DecraGlass™ Windows

Add a touch of elegance with translucent, tempered DecraGlass, featuring V-groove etching. (Available in short or long panel.)

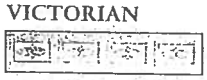
CHALET

Brass Came & Etched Design

RIVIERA

V-Groove Etched Design

VICTORIAN



V-Groove Etched Design

DecraTrim and DecraGlass Windows not available for 15'6" and 15'8" short panel doors.

The Amarr Philosophy

Since 1951, we have successfully raised the standards of quality, value, and dependability in our industry. Today, with the same promise of individual attention and great value for all our customers, we remain committed to offering products and services that raise those standards even higher.

Richard A. Brenner, President

To Continue its Program of Quality and Design Improvements, Amarr Reserves the Right to Change Specifications and Designs Without Notice and Without Incurring Obligations.

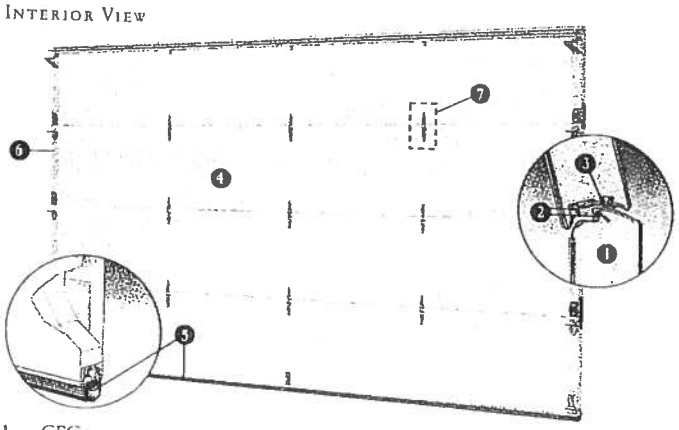
BEST | WeatherGuard™ Series

featuring our DuraSafe System

Product Classification	BEST WeatherGuard	BETTER Heritage	BASIC Stratford

DuraSafe System features include inboard design center hinges and end hinges, new pinch resistant sections, and tamper proof bottom bracket. These features result in a new state of the art design for overall homeowner safety, as well as a more finished interior appearance.

Interior View



1. CFC-free and environmentally safe polystyrene insulation provides an energy-saving barrier against extreme temperatures.
2. WeatherGuard PRO-Bond unites exterior and interior steel surfaces to create a thermal barrier against heat and cold.
3. Exclusive Amarr Wear-Seal features an air-tight thermal seal between individual door sections, eliminating drafts and extending the life of your door.
4. A finished interior of painted steel and flush hinge design makes your door look great both inside and out.
5. The Weather Seal, held in place with an aluminum retainer, provides a flexible, contoured vinyl seal between the door and floor to help prevent outside air, dirt, dust, and moisture from seeping in.
6. Painted end stiles add a finished touch to your garage.
7. Steel support plates are located under each hinge location and are pre-punched for hinge attachment.

Every Amarr Door Is Built For Good

1 Every Amarr garage door is constructed of rugged, real gauge steel. Beware of nominal gauge steel numbers.
2 We help prevent rusting with the best process available: hot-dip galvanizing.
3-4 Amarr doors feature a two-step paint system that includes (3) a primer coat and (4) a tough polyester top-coat that requires no painting.
Warranted To Last: Amarr's powerful warranties cover paint, finish, adhesive, and hardware.

Lifetime Limited Warranty

The WeatherGuard Plus comes with a limited lifetime warranty on paint, finish, and hardware.
The WeatherGuard features a limited lifetime warranty on paint and finish, and a 3-year hardware warranty.

Amarr

Built For Good.™

5931 Grassy Creek Blvd.
Winston-Salem, NC 27105
336.744.5100 • 800.503.DOOR
Fax 336.744.0895 • www.amarr.com

Your Local Amarr Dealer:

LAKE CITY GLASS
P. O. BOX 114
LAKE CITY, FL 32056-0114

Printed in USA Form #5050101/75M/HA

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

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

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

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

PRODUCT CONTROL NOTICE OF ACCEPTANCE

Premdor Entry Systems
911 E. Jeferson, P.O. Box 76
Pittsburgh ,KS 66762

Your application for Notice of Acceptance (NOA) of:
Entergy 6-8 S-W/E Inswing Opaque Double w/sidelites Residential Insulated Steel Door
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 NOA shall not be valid after the expiration date stated below. BCCO reserves the right to secure this product or material at any time 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 by 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.: 01-0314.24
EXPIRES: 04/02/2006

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 Miami-Dade County, Florida under the conditions set forth above.

Francisco J. Quintana, R.A.
Director
Miami-Dade County
Building Code Compliance Office

APPROVED: 06/05/2001

Premdor Entry Systems

ACCEPTANCE No.: 01-0314.24

APPROVED : JUN 0 5 2001

EXPIRES : April 02, 2006

NOTICE OF ACCEPTANCE: SPECIFIC CONDITIONS

1. SCOPE

1.1 This renews the Notice of Acceptance No. 00-0321.26 which was issued on April 28, 2000. It approves a residential insulated door, as described in Section 2 of this Notice of Acceptance, designed to comply with the South Florida Building Code (SFBC), 1994 Edition for Miami-Dade County, for the locations where the pressure requirements, as determined by SFBC Chapter 23, do not exceed the Design Pressure Rating values indicated in the approved drawings.

2. PRODUCT DESCRIPTION

2.1 The Series Entergy 6-8 S-W/E Inswing Opaque Double Residential Insulated Steel Doors with Sidelites-Impact Resistant Door Slab Only and its components shall be constructed in strict compliance with the following documents: Drawing No 31-1029-EW-I, Sheets 1 through 6 of 6, titled "Premdor (Entergy Brand) Double Door with Sidelites in Wood Frames with Bumper Threshold (Inswing)," prepared by manufacturer, dated 7/29/97 with revision C dated 01/11 00, bearing the Miami-Dade County Product Control approval stamp with the Notice of Acceptance number and approval date by the Miami-Dade County Product Control Division. These documents shall hereinafter be referred to as the approved drawings.

3. LIMITATIONS

3.1 This approval applies to single unit applications of pair of doors and single door only, as shown in approved drawings. Single door units shall include all components described in the active leaf of this approval.

3.2 Unit shall be installed only at locations protected by a canopy or overhang such that the angle between the edge of canopy or overhang to sill is less than 45 degrees. Unless unit is installed in non-habitable areas where the unit and the area are designed to accept water infiltration.

4. INSTALLATION

4.1 The residential insulated steel door and its components shall be installed in strict compliance with the approved drawings.

4.2 Hurricane protection system (shutters):

4.2.1 Door: the installation of this unit **will not require** a hurricane protection system.

4.2.2 Sidelite: the installation of this unit **will require** a hurricane protection system.

5. LABELING

5.1 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".

6. BUILDING PERMIT REQUIREMENTS

6.1 Application for building permit shall be accompanied by copies of the following:

6.1.1 This Notice of Acceptance

6.1.2 Duplicate copies of the approved drawings, as identified in Section 2 of this Notice of Acceptance, clearly marked to show the components selected for the proposed installation.

6.1.3 Any other documents required by the Building Official or the South Florida Building Code (SFBC) in order to properly evaluate the installation of this system.

Manuel Perez

Manuel Perez, P.E. Product Control Examiner
Product Control Division

Premdor Entry Systems

ACCEPTANCE No.: 01-0314.24

APPROVED : JUN 05 2001

EXPIRES : April 02, 2006

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 time. The engineer needs not reseal the copies.

8. Failure to comply with any section of this Acceptance shall be cause for termination and removal of Acceptance.

9. This Notice of Acceptance consists of pages 1, 2 and this last page 3.

END OF THIS ACCEPTANCE

Manuel Perez, P.E., Product Control Examiner
Product Control Division

MIAMI-DADE

MIAMI-DADE COUNTY, FLORIDA
METRO-DADE FLAGLER BUILDING

BUILDING CODE COMPLIANCE OFFICE
METRO-DADE FLAGLER BUILDING
140 WEST FLAGLER STREET, SUITE 1603
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911 E. Jeferson, P.O. Box 76
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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 NOA shall not be valid after the expiration date stated below. BCCO reserves the right to secure this product or material at any time 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 by 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.: 01-0314.18
EXPIRES: 04/02/2006

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 Miami-Dade County, Florida under the conditions set forth above.

Francisco J. Quintana, R.A.
Director
Miami-Dade County
Building Code Compliance Office

APPROVED: 06/05/2001

Premdor Entry Systems

ACCEPTANCE No.: 01-0314.18

APPROVED : JUN 0 5 2001

EXPIRES : April 02, 2006

NOTICE OF ACCEPTANCE: SPECIFIC CONDITIONS

1. SCOPE

1.1 This **renews** the Notice of Acceptance No. 00-0321.20 which was issued on April 28, 2000. It approves a residential insulated door, as described in Section 2 of this Notice of Acceptance, designed to comply with the South Florida Building Code (SFBC), 1994 Edition for Miami-Dade County, for the locations where the pressure requirements, as determined by SFBC Chapter 23, do not exceed the Design Pressure Rating values indicated in the approved drawings.

2. PRODUCT DESCRIPTION

2.1 The **Series Entergy 6-8 S-W/E Inswing Opaque Single Residential Insulated Steel Door with Sidelites- Impact Resistant Door Slab Only** and its components shall be constructed in strict compliance with the following documents: Drawing No 31-1020-EW-I, Sheets 1 through 6 of 6, titled "Premdor (Entergy Brand) Wood Edge Single Door in Wood Frames with a Bumper Threshold (Inswing)," prepared by manufacturer, dated 7/29/97 with revision C dated 01/15/01, bearing the Miami-Dade County Product Control approval stamp with the Notice of Acceptance number and approval date by the Miami-Dade County Product Control Division. These documents shall hereinafter be referred to as the approved drawings.

3. LIMITATIONS

3.1 This approval applies to single unit applications of single door only, as shown in approved drawings.

3.2 Unit shall be installed only at locations protected by a canopy or overhang such that the angle between the edge of canopy or overhang to sill is less than 45 degrees. Unless unit is installed in non-habitable areas where the unit and the area are designed to accept water infiltration.

4. INSTALLATION

4.1 The residential insulated steel door and its components shall be installed in strict compliance with the approved drawings.

4.2. Hurricane protection system (shutters):

4.2.1 Door: the installation of this unit **will not require** a hurricane protection system.

4.2.2 Sidelite: the installation of this unit **will require** a hurricane protection system.

5. LABELING

5.1 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".

6. BUILDING PERMIT REQUIREMENTS

6.1 Application for building permit shall be accompanied by copies of the following:

6.1.1 This Notice of Acceptance

6.1.2 Duplicate copies of the approved drawings, as identified in Section 2 of this Notice of Acceptance, clearly marked to show the components selected for the proposed installation.

6.1.3 Any other documents required by the Building Official or the South Florida Building Code (SFBC) in order to properly evaluate the installation of this system.

Manuel Perez

Manuel Perez, P.E. Product Control Examiner
Product Control Division

Premdor Entry Systems

ACCEPTANCE No.: 01-0314.18

APPROVED : JUN 05 2001

EXPIRES : April 02, 2006

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 time. The engineer needs not reseal the copies.

8. Failure to comply with any section of this Acceptance shall be cause for termination and removal of Acceptance.

9. This Notice of Acceptance consists of pages 1, 2 and this last page 3.

END OF THIS ACCEPTANCE

Manuel Perez

Manuel Perez, P.E., Product Control Examiner
Product Control Division

CAPITOL WINDOWS AND DOORS

- Series 3540 Single Hung and Fixed Windows
- Series 8540 Single Hung and Fixed Windows

NOTE: SEE INDIVIDUAL TEST REPORT(S) FOR DP RATINGS AND MAXIMUM ALLOWABLE SIZES.

INSTALLATION INSTRUCTIONS FOR "APPROVED FOR FLORIDA" **VINYL** FIN WINDOWS

1. Storage: Do not lay windows flat, lean multiple units against poles, or store in the sun before installing.

2. Handle units one at a time in the closed and locked position. Place a continuous bead of adhesive caulk such as silicone or urethane on the back side of "nail fins" (mounting flanges) before placing in opening.

3. Place shims under corners of sill. In the closed and locked position, set unit into opening and make sure that there is 3/16" ± 1/16" clearance around the frame. Starting at the center of the longest frame member, place #8 sheet metal or wood screws (with a minimum of 1" penetration into the framing) in every other pre-punched slot which are on 4" to 5" centers (max. spacing 10"). Make sure that screws are driven in straight in order to avoid twisting or bowing. Make sure that the head and sill are straight and level and the jambs are straight and plumb. Check operation of unit frequently as fasteners are set.

4. **Note: Adherence to the above screw spacing and caulk requirements will allow this product to be used for design pressures (DP's) up to and including ± 47.2**

5. Caulk entire perimeter of the fin to mounting surface joint. Also caulk over screw heads and unused slots. Note: This step can be eliminated if 4" wide adhesive type flashing is used (sill 1st., jambs 2nd, head 3rd.)

6. Fill voids between window frame and construction with loose batten type insulation or non-expanding aerosol foam specifically formulated for windows. The use of expanding aerosol type insulating foam, which can bow the frame, voids all stated warranties. The use of muriatic acid for brick clean-up may damage the coil spring sash balance system. Windows must be masked off to avoid muriatic acid exposure, which will void the warranty.

7. Remove plaster, mortar, paint and any other debris that may have collected on the unit and make sure that sash/vent tracks are also clean. Do not use abrasives, solvents, ammonia, vinegar, alkaline, or acid solutions for clean-up, especially with insulated glass units as their use could cause chemical breakdown of the glass seal. Take care not to scratch glass, scratches severely weaken glass and it could eventually break from thermal expansion and contraction. Clean units with water and mild detergent.

8. For structures finished in brick or stone, allow ¼" gap under the sill, then caulk this joint when complete. Also caulk the head and jamb joints in the same manner.

9. If one or more holes are field drilled (by others) in any area of the window sill for any purpose (such as security systems), the warranty will be void. Adding holes can cause water leaks and interior damage.

- CAUTION -

Capitol Windows & Doors or its representatives are unable to control and cannot assume responsibility for the selection and placement of their products in a building or structure in a manner required by laws, statutes, and/or building codes. The purchaser is solely responsible for knowledge of and adherence to the same. BetterBilt window products are not provided with safety glazing unless specifically ordered with such. Many laws and codes require safety glazing (tempered glass) near doors, bathtubs, and shower enclosures. Also be aware of other code requirements such as emergency egress, structural performance, and energy performance.

Headquarters: MI Home Products, 650 West Market St., Gratz, PA 17030 (717) 365-3300 www.mihp.com

FL 721

June 24, 2003

Architectural Testing

ANSI/AAMA/NWWDA 101/I.S.2-97
TEST REPORT

Rendered to:

MI WINDOWS AND DOORS, INC.

SERIES/MODEL: 3540
PRODUCT TYPE: PVC Triple Single Hung

Title	Summary of Results
Rating	H-R30* 108 x 74
Operating Force	17 lbf max.
Air Infiltration	0.11 cfm/ft^2
Water Resistance Test Pressure	4.50 psf
Uniform Load Deflection Test Pressure	±47.2 psf
Uniform Load Structural Test Pressure	+52.5 psf, -70.8 psf
Forced Entry Resistance	Grade 10

Reference should be made to ATI Report No. 50172.01-122-47 for complete test specimen description and data.

130 Derry Court
York, PA 17402-9405
phone: 717-764-7700
fax: 717-764-4129
www.archtest.com

Architectural Testing

ANSI/AAMA/NWWDA 101/I.S.2-97 TEST REPORT

Rendered to:

MI WINDOWS AND DOORS, INC.
P.O. Box 370
Gratz, Pennsylvania 17030-0370

Report No.:	50172.01-122-47
Revision 1:	08/30/04
Test Dates:	06/11/04
Through:	07/07/04
Report Date:	07/27/04
Expiration Date:	07/07/08

Project Summary: Architectural Testing, Inc. (ATI) was contracted by MI Windows and Doors, Inc. to witness testing on a Series/Model 3540, triple single hung window at MI Windows and Doors, Inc. test facility in Elizabethville, Pennsylvania. The sample tested successfully met the performance requirements for a H-R30* 108 x 74 rating. Reference should be made to Report No. 01-45617.02 for Gateway Performance results. Test specimen description and results are reported herein.

***General Note**: An asterisk (*) next to the performance grade indicates that the size tested for optional performance was smaller than the Gateway test size for the product type and class.*

Test Specification: The test specimen was evaluated in accordance with ANSI/AAMA/NWWDA 101/I.S.2-97, *Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors.*

Test Specimen Description:

Series/Model: 3540

Product Type: PVC Triple Single Hung

Overall Size: 8' 11-5/8" wide by 6' 1-3/4" high

Interior Sash Size (3): 2' 9-3/4" wide by 3' 0-1/8" high

Fixed Daylight Opening Size (3): 2' 7-3/4" wide by 2' 9-3/16" high

Screen Size: 2' 9" wide by 2' 11-1/4" high

Overall Area: 55.1 ft^2

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Test Specimen Description: (Continued)

Finish: All PVC was white.

Glazing Details: All glazing consisted of 7/8" thick sealed insulating glass units that were comprised of two sheets of 3/32" thick clear annealed glass and a metal reinforced butyl spacer system. The glass was interior glazed against a double-sided adhesive glazing tape and secured with vinyl glazing beads.

Weatherstripping:

Description	Quantity	Location
0.187" backed by 0.250" high polypile	1 Row	Meeting rail, stiles
0.187" backed by 0.250" high polypile	1 Row	Sill leg
0.187" backed by 0.310" high polypile	1 Row	Stiles
0.187" backed, 1/4 foam filled single leaf vinyl bulb gasket	1 Row	Bottom rail
0.187" backed, 1/8 foam filled vinyl bulb gasket	1 Row	Fixed meeting rail

Frame Construction: The frame was constructed of extruded PVC members. Corners were mitered and welded. End caps were utilized on the ends of the meeting rail and secured with three #6 by 5/8" screws per cap. The fixed meeting rail was then secured to the frame utilizing three #6 by 5/8" screws.

Sash Construction: The sash was constructed of extruded PVC members. Corners were mitered and welded.

Screen Construction: The screen was constructed of roll-formed aluminum. Corners were square-cut and secured with vinyl corner keys. The mesh was secured with a flexible vinyl spline.

Test Specimen Description: (Continued)

Hardware:

Description	Quantity	Location
Constant force balances	6	One per jamb
Metal cam locks with adjacent keepers	6	Meeting rail, 7" from each end
Plastic tilt latches	6	Each end of the interior meeting rail
Metal pivot pins	6	Each end of the bottom rail

Drainage:

Description	Quantity	Location
3/32" by 1/2" weepslot	12	Bottom rail, 2 at each end
1/8" by 1" weepslot	2	Sill, 3" from each end
3/16" by 1/2" weepslot	2	Screen track, 2-1/2" from each end

Reinforcement: The interior meeting rail and bottom rail utilized a roll-formed "I beam" steel reinforcement (Drawing #GVL-451-020). The fixed meeting rail utilized a steel reinforcement (Drawing #RF-104S-020). The intermediate frame rails utilized a steel reinforcement (Drawing #2.75x.125 steel plate).

Installation: The unit was installed into a wood test buck. The nail fin was set against a silicone bedding and fastened to the buck with #6 by 1-5/8" screws, 2" from corners and 8" on center. 3/4" washers were utilized along the entire length of the sill, at midspan of the head and jambs, and at all corners.

Test Results: The results are tabulated as follows:

Paragraph	Title of Test - Test Method	Results	Allowed
2.2.6.1.1	Operating Force	17 lbf	30 lbf max.
2.1.2	Air Infiltration per ASTM E 283 1.57 psf (25 mph)	0.11 cfm/ft^2	0.3 cfm/ft^2 max.

***Note #1**: The tested specimen meets (or exceeds) the performance levels specified in ANSI/AAMA/NWWDA 101/I.S.2-97 for air infiltration.*

Test Results: (Continued)

Paragraph	Title of Test - Test Method	Results	Allowed
2.1.3	Water Resistance per ASTM E 547 (with and without screen)		See Note #2

***Note #2**: The client opted to start at a pressure higher than the minimum required. Those results are listed under "Optional Performance".*

2.1.4.1	Uniform Load Deflection per ASTM E 330 (Deflections reported were taken on the mullion) (Loads were held for 52 seconds)		
	35.0 psf (positive)	0.39"	See Note #3
	35.0 psf (negative)	0.54"	See Note #3

***Note #3**: The Uniform Load Deflection test is not a requirement of ANSI/AAMA/NWWDA 101/I.S.2-97 for this product designation. The deflection data is recorded in this report for special code compliance and information only.*

2.1.4.2	Uniform Load Structural per ASTM E 330 (Permanent sets reported were taken on the mullion) (Loads were held for 10 seconds)		
	52.5 psf (positive)	<0.01"	0.27" max.
	52.5 psf (negative)	0.07"	0.27" max.
2.2.6.1.2	Deglazing Test per ASTM E 987 In operating direction - 70 lbs		
	Interior meeting rail	0.13"/26%	0.50"/100%
	Bottom rail	0.11"/22%	0.50"/100%
	In remaining direction - 50 lbs		
	Left stile	0.09"/18%	0.50"/100%
	Right stile	0.10"/20%	0.50"/100%
2.1.7	Welded Corner Test	Meets as stated	Meets as stated

Test Results: (Continued)

Paragraph	Title of Test - Test Method	Results	Allowed
2.1.8	Forced Entry Resistance per ASTM F 588		
	Type: A	Grade: 10	
	Lock Manipulation Test	No entry	No entry
	Test A1	No entry	No entry
	Test A2	No entry	No entry
	Test A3	No entry	No entry
	Test A4	No entry	No entry
	Test A5	No entry	No entry
	Test A7	No entry	No entry
	Lock Manipulation Test	No entry	No entry
Optional Performance			
4.3	Water Resistance per ASTM E 547 (with and without screen) 4.50 psf	No leakage	No leakage
4.4.1	Uniform Load Deflection per ASTM E 330 (Deflections reported were taken on the mullion) (Loads were held for 52 seconds)		
	47.2 psf (positive)	0.73"	See Note #3
	47.2 psf (negative)	0.92"	See Note #3
4.4.2	Uniform Load Structural per ASTM E 330 (Permanent sets reported were taken on the mullion) (Loads were held for 10 seconds)		
	52.5 psf (positive)	<0.01"	0.27" max.
	70.8 psf (negative)	0.21"	0.27" max.

Detailed drawings, representative samples of the test specimen, and a copy of this report will be retained by ATI for a period of four years from the original test date. The above results were secured by using the designated test methods and they indicate compliance with the performance requirements of the above referenced specification. This report does not constitute certification of this product, which may only be granted by the certification program administrator. This report may not be reproduced, except in full, without the approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC:

Digitally Signed by: Jeramie D. Grabosch

Jeramie D. Grabosch
Technician

Digitally Signed by: Steven M. Urich

Steven. M. Urich, P.E.
Senior Project Engineer

JDG:vlm

Architectural Testing

ANSI/AAMA/NWWDA 101/I.S.2-97
TEST REPORT

Rendered to:

MI HOME PRODUCTS, INC.

SERIES/MODEL: 3540 Picture Window
with Continuous Head and Sill
PRODUCT TYPE: PVC Triple Fixed Window

Title	Summary of Results
Rating	F-C40 108 x 74
Uniform Load Deflection Test Pressure	±47.0 psf
Uniform Structural Load Test Pressure	±70.5 psf

Reference should be made to ATI Report Identification No. 01-51007.02 for complete test specimen description and data.

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York, PA 17402-9405
phone: 717-764-7700
fax: 717-764-4129
www.archtest.com

Architectural Testing

ANSI/AAMA/NWWDA 101/I.S.2-97 TEST REPORT

Rendered to:

MI HOME PRODUCTS, INC.
P.O. Box 370
650 West Market Street
Gratz, Pennsylvania 17030

ATI Report Identification No.: 01-51007.02
Test Date: 04/30/04
Report Date: 06/12/04
Expiration Date: 04/30/08

Project Summary: Architectural Testing, Inc. (ATI) was contracted by MI Home Products, Inc to witness testing on a Series/Model 3540 Picture Window with Continuous Head and Sill, PVC triple fixed window at MI Home Products, Inc.'s test facility in Elizabethville, Pennsylvania. The sample tested successfully met the performance requirements for a F-C40 108 x 74 rating. Test specimen description and results are reported herein. Reference should be made to ATI Report Identification No. 01-51007.01 for air infiltration and water penetration test results.

Test Specification: The test specimen was evaluated in accordance with ANSI/AAMA/NWWDA 101/I.S.2-97, *Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors.*

Test Specimen Description:

Series/Model: 3540 Picture Window with Continuous Head and Sill

Product Type: PVC Triple Fixed Window

Overall Size: 8' 11-9/16" wide by 6' 1-1/2" high

Daylight Opening Size (3): 2' 7-3/4" wide by 5' 9-1/2" high

Overall Area: 54.90 ft^2

Finish: All PVC was white.

Glazing Details: The window utilized 7/8" thick, sealed insulating glass units fabricated of two sheets of 1/8" thick, clear annealed glass and metal reinforced butyl spacer system. The glass was interior glazed against a dual-sided adhesive foam tape and secured utilizing extruded snap-in glazing beads.

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fax: 717-764-4129
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Test Specimen Description: (Continued)

Frame Construction: The frame was constructed of extruded PVC members with mitered and welded corners. An extruded PVC snap-in filler piece was utilized around the entire interior perimeter of the each opening. The mullions were coped, butted, sealed with single-sided adhesive foam pads and secured to the head and sill utilizing two #8 by 2-1/2" long screws and two #8 by 1-1/4" screws. Sealant was utilized at the exterior face of the mullion to jamb joinery.

Drainage:

Description	Quantity	Location
5/8" wide by 1/4" high weepslot	2 Per window	Corners of the sill draining the interior sill hollow
5/8" wide by 1/4" high weepslot	2 Per window	Corners of the sill draining the intermediate sill hollow
1" long by 1/8" high weepslot	2 Per window	Exterior sill face draining the exterior sill hollow
1/2" long by 3/16" high weepslot	2 Per window	2" from corners draining the glazing pocket
1/2" long by 1/8" high weepslot	2 Per window	1" from corners draining the glazing channel

Reinforcement: A 1/8" by 2-1/2" strip of steel was utilized in the mullions.

Installation: The window was installed into a Spruce-Pine-Fir wood test buck utilizing an integral nailing fin. The nailing fin was bedded in silicone and secured to the test buck utilizing 1-5/8" wood screws 3" from the corners and 8" on center. Washers were utilized at the corners and midspan of the head, jambs and entire sill. A 3/4" by 3/4" wood blind stop was secured to the sill utilizing 1-5/8" wood screws 2" from the end and 8" on center.

Test Results:

The results are tabulated as follows:

Paragraph	Title of Test - Test Method	Results	Allowed
Optional Performance			
4.4.1	Uniform Load Deflection per ASTM E 330 (Deflections reported were taken on the mullion) (Loads were held for 52 seconds)		
	47.0 psf (positive)	0.63"	See Note #2
	47.0 psf (negative)	0.69"	See Note #2
4.4.2	Uniform Load Structural per ASTM E 330 (Permanent sets reported were taken on the mullion) (Loads were held for 10 seconds)		
	70.5 psf (positive)	0.03"	0.28" max.
	70.5 psf (negative)	0.11"	0.28" max.

***Note #2**: The Uniform Load Deflection test is not a requirement of ANSI/AAMA/NWWDA 101/I.S.2-97 for this product designation. The deflection data is recorded in this report for special code compliance and information only.*

Detailed drawings, representative samples of the test specimen, and a copy of this report will be retained by ATI for a period of four years from the original test date. The above results were secured by using the designated test methods and they indicate compliance with the performance requirements of the above referenced specification. This report does not constitute certification of this product, which may only be granted by the certification program administrator. This report may not be reproduced, except in full, without the approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC:

Digitally Signed by: Eric Westphal

Eric Westphal
Technician

Digitally Signed by: Steven M. Urich

Steven M. Urich, P.E.
Senior Project Engineer

EW:nlb
01-51007.02

CAPITOL WINDOWS AND DOORS

- Series 165 Single Hung and Fixed Windows
- Series 650 Single Hung and Fixed Windows
- Series 168 Horizontal Slider and Fixed Windows
- Series 680 Horizontal Slider and Fixed Windows

NOTE: SEE INDIVIDUAL TEST REPORT(S) FOR DP RATINGS AND MAXIMUM ALLOWABLE SIZES.

INSTALLATION INSTRUCTIONS FOR "APPROVED FOR FLORIDA" ALUMINUM FIN WINDOWS

Capitol Windows & Doors appreciates your recent purchase of a maintenance free prime window, which will not rust, rot, mildew, or warp. This is a quality product that left our factory in good condition – proper handling and installation are just as important as good design and workmanship. Please follow these recommendations to allow this product to complete its function.

1 Handle units one at a time in the closed and locked position and take care not to scratch frame or glass or to bend the nailing fin. Place a continuous bead of caulk on the back side of nail fin (mounting flange).

2. Set unit plumb and square into opening and make sure that there is 3/16" ± 1/16" clearance around the frame. Fasten unit into opening in the closed and locked position, making sure that fasteners are screwed in straight in order to avoid twisting or bowing of the frame. Make sure that sill is straight and level. Check operation of unit frequently as fasteners are set.

3. Use # 8 sheet metal or wood screws with a minimum of 1" penetration into the framing (stud). Place first screws (two at each corner) 3" from end of fin. For positive and negative DPs (design pressures) up to **35**, do not exceed **24"** spacing of additional screws. For DPs from **35.1** to **50**, do not exceed **18"** spacing.

4. Caulk entire perimeter of fin to mounting surface joint and caulk over screw heads.
Note: this step can be eliminated if 4" wide adhesive type flashing is used (sill 1st., jambs 2nd., head 3rd.).

5. Fill voids between frame and construction with loose batten type insulation or non-expanding aerosol foam specifically formulated for windows and doors to eliminate drafts. The use of expanding aerosol type insulating foam, which can bow the frame, waives all stated warranties.

6. Remove plaster, mortar, paint, and debris that has collected on the unit and make sure that sash/vent tracks and interlocks are also clean. Do not use abrasives, solvents, ammonia, vinegar, alkaline, or acid solutions for clean-up, especially with insulated glass units as their use could cause chemical breakdown of the glass seal. Take care not to scratch glass; scratches severely weaken glass and it could eventually break from thermal expansion and contraction. Clean units with water and mild detergent.

- CAUTION -

Capitol Windows & Doors or its representatives are unable to control and cannot assume responsibility for the selection and placement of their products in a building or structure in a manner required by laws, statutes, and/or building codes. The purchaser is solely responsible for knowledge of and adherence to the same. BetterBilt window products are not provided with safety glazing unless specifically ordered with such. Many laws and codes require safety glazing (tempered glass) near doors, bathtubs, and shower enclosures. Also be aware of other code requirements such as emergency egress and structural / energy performance.

Corporate Headquarters:
M.I. Home Products
650 West Market St.
Gratz, PA 17030-0370
(717) 365-3300

www.mihp.com

STEVEN M. URICH CERTIFICATE No. 57795 STATE OF FLORIDA PROFESSIONAL ENGINEER

ML 221
JULY 29, 2003

Rev. 7-24-03

AAMA/NWWDA 101/I.S.2-97
TEST REPORT

Rendered to:

MI HOME PRODUCTS, INC.

SERIES/MODEL: 450/650/850 Drop In Glazing
TYPE: Aluminum Single Hung Window

Title	Summary of Results
AAMA Rating	H-LC30-53 x 90
Operating Force	24 lb max.
Air Infiltration	0.11 cfm ft²
Water Resistance Test Pressure	6.75 psf
Uniform Load Deflection Test Pressure	+32.8 psf -47.2 psf
Uniform Load Structural Test Pressure	+49.2 psf -70.8 psf
Deglazing	Passed
Forced Entry Resistance	Grade 10

Reference should be made to ATI Report No. 01-248.01 for complete test specimen description and data.

Architectural Testing

AAMA/NWWDA 101/I.S.2-97 TEST REPORT

Rendered to:

MI HOME PRODUCTS, INC.
P.O. Box 370
650 West Market Street
Gratz, Pennsylvania 17030-0370

Report No: 01-22487.01
Test Date: 08.14.02
And: 08.15.02
Report Date: 10.02.02
Expiration Date: 08.15.06

Project Summary: Architectural Testing, Inc. (ATI) was contracted by MI Home Products, Inc. to perform tests on a Series Model 450/650/850 Drop In Glazing, aluminum single hung window at their facility in Elizabethville, Pennsylvania. The sample tested successfully met the performance requirements for a H-LC30 53 x 90 rating.

Test Specification: The test specimen was evaluated in accordance with AAMA/NWWDA 101/I.S.2-97, *Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors*.

Test Specimen Description:

Series Model: 450/650/850 Drop In Glazing

Type: Aluminum Single Hung Window

Overall Size: 4' 5-1/8" wide by 5' 5-5/8" high

Interior Sash Size: 4' 2-3/4" wide by 3' 8-7/8" high

Fixed Daylight Opening Size: 4' 0" wide by 3' 5-3/8" high

Screen Size: 4' 0-3/4" wide by 3' 8-3/4" high

Finish: The unit was white.

Glazing Details: The specimen utilized 5/8" thick, sealed insulating glass constructed from two sheets of 3/32" thick, clear annealed glass and a metal reinforced butyl spacer system. The lites were interior glazed against double-sided adhesive foam tape and secured with PVC snap in glazing beads.

[illegible]

Test Specimen Description (Continued)

Weatherstripping:

Description	Quantity	Location
0.190" high by 0.187" polypile with center fin	1 Row	Fixed meeting rail interlock
0.190" high by 0.187" polypile with center fin	2 Rows	Interior sash stiles
1/4" vinyl foam-filled bulb seal	1 Row	Interior sash bottom rail
5/8" wide by 7/8" long polypile plug	4 Pieces	Interior sash, all corners

Frame Construction: The frame was constructed of extruded aluminum. Each corner was coped, butted, sealed, and fastened with two #8 x 1" screws per corner through the head and sill into jamb screw boss. End caps were utilized on the ends of the meeting rail and secured with two 1-1/4" screws per cap. Meeting rail was then secured to the frame utilizing two 1-1/4" screws.

Sash Construction: The sash was constructed of extruded aluminum. Each corner was coped, butted, and fastened with one #8 x 1-1/4" screw per corner.

Screen Construction: The screen was constructed of roll-formed aluminum with keyed corners. The fiberglass mesh was secured with a flexible spline.

Hardware:

Description	Quantity	Location
Metal cam lock	2	Interior sash, 6-1/2" from top rail ends
Spring-loaded coil balance	2	One per jamb
Plastic tilt latch	2	Interior sash top rail ends
Metal tilt latch pin	2	Interior sash bottom rail ends
Screen spring-loaded retainer pin	2	6-3/4" from rails on stiles

Test Specimen Description: (Continued)

Drainage: Sloped sill.

Reinforcement: No reinforcement was utilized.

Installation: The specimen was installed into a #2 2 x 8 Spruce-Pine-Fir wood buck. #8 x 1-5/8" drywall screws were placed 3" from corners and 15" on center around nailing fin. Polyurethane was used as a sealant around the exterior perimeter.

Test Results:

The results are tabulated as follows:

Paragraph	Title of Test - Test Method	Results	Allowed
2.2.1 e.1	Operating Force	24 lbs	35 lbs max.
2.1.2	Air Infiltration (ASTM E 283-91) @ 1.57 psf (25 mph)	0.11 cfm/ft^2	0.3 cfm/ft^2 max.

Note #1 – The tested specimen meets the performance levels specified in AAMA/NWWDA 101/I.S.2-97 for air infiltration.

2.1.3	Water Resistance (ASTM E 547-00) (with and without screen) WTP = 3.75 psf	No leakage	No leakage
2.1.4.1	Uniform Load Deflection (ASTM E 330-97) (Measurements reported were taken on the meeting rail) (Loads were held for 52 seconds) @ 25.0 psf (positive) @ 25.0 psf (negative)	0.64"* 0.54"*	0.29" max. 0.29" max.

**Exceeds L/175 for deflection, but meets all other test requirements.*

2.1.4.2	Uniform Load Structural (ASTM E 330-97) (Measurements reported were taken on the meeting rail) Loads were held for 10 seconds) @ 37.5 psf (positive) @ 37.5 psf (negative)	0.04" 0.03"	0.29" max. 0.29" max.

Test Results:

Paragraph	Title of Test - Test Method	Results	Allowed
2.2.1.6.2	Deglazing Test (ASTM E 987-88) In operating direction at 50 lbs		
	Interior sash meeting rail	0.12" 25%	0.50" (50%)
	Interior sash bottom rail	0.12" 25%	0.50" (50%)
	In remaining direction at 50 lbs		
	Interior sash right stile	0.06" 12%	0.50" (50%)
	Interior sash left stile	0.06" 12%	0.50" (50%)
2.1.8	Forced Entry Resistance (ASTM F 588-97) Type: A Grade: 10		
	Lock Manipulation Test	No entry	No entry
	Test A1 through A5	No entry	No entry
	Test A7	No entry	No entry
	Lock Manipulation Test	No entry	No entry

Optional Performance

4.3	Water Resistance (ASTM E 547-00) (with and without screen) WTP – 6.75 psf	No leakage	No leakage
4.4.1	Uniform Load Deflection (ASTM E 330-97) (Measurements reported were taken on the meeting rail) (Loads were held for 33 seconds)		
	@ 32.8 psf (positive)	0.85"*	0.29" max.
	@ 47.2 psf (negative)	0.87"*	0.29" max.

**Exceeds L/175 i.w. deflection, but meets all other test requirements*

4.4.2	Uniform Load Structural (ASTM E 330-97) (Measurements reported were taken on the meeting rail) (Loads were held for 10 seconds)		
	@ 49.2 psf (positive)	0.09"	0.29" max.
	@ 70.8 psf (negative)	0.12"	0.29" max.

Detailed drawings, representative samples of the test specimen, and a copy of this report will be retained by ATI for a period of four years. The above results were secured by using the designated test methods and they indicate compliance with the performance requirements of the above referenced specification. This report does not constitute certification of this product, which may only be granted by the certification program administrator. This report may not be reproduced except in full without the approval of Architectural Testing.

For ARCHITECTURAL TESTING, INC:

Mark A. Hess
Technician

MAH:mb
01-42487.01

Allen N. Reeves, P.E.
Director - Engineering Services

11 OCTOBER 2002

AAMA/NWWDA 101/I.S.2-97
TEST REPORT SUMMARY

Rendered to:

MI HOME PRODUCTS, INC.

SERIES/MODEL: 650
TYPE: Aluminum Picture Window

Title of Test	Results
Rating	F-R45 60 x 80
Overall Design Pressure	[illegible]25.0 psf -47.2 psf
Air Infiltration	0.04 cfm/ft²
Water Resistance	8.25 psf
Structural Test Pressure	+67.5 psf -70.8 psf
Forced Entry Resistance	Grade 10

Reference should be made to Report No. 01-[illegible] dated 04/2[illegible]/02 for complete test specimen description and data.

For ARCHITECTURAL TESTING, INC.

Mark A. Hess, Technician

MAH:[illegible]

Architectural Testing

AAMA/NWWDA 101/I.S.2-97 TEST REPORT

Rendered to:

MI HOME PRODUCTS, INC.
650 West Market Street
P.O. Box 370
Gratz, Pennsylvania 17030-0370

Report No: 01-41135.01
Test Date: 03/07/02
Report Date: 03/26/02
Expiration Date: 03/07/06

Project Summary: Architectural Testing, Inc. (ATI) was contracted by MI Home Products, Inc. to perform tests on Series Model 650, aluminum picture window at their facility located in Elizabethville, Pennsylvania. The samples tested successfully met the performance requirements for a R-R45 60 x 80 rating.

Test Specification: The test specimen was evaluated in accordance with AAMA/NWWDA 101/I.S.2-97, *Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors*.

Test Specimen Description:

Series/Model: 650

Type: Aluminum Picture Window

Overall Size: 5'-0" wide by 6'-8" high

Daylight Opening Size: 4'-9-1/2" wide by 6'-5-1/4" high

Finish: A1 aluminum white

Glazing Details: The test specimen utilized 7/8" thick, sealed insulating glass constructed with two sheets of 1/8" thick clear annealed glass and a metal reinforced butyl spacer system. The glass was interior glazed against double-sided adhesive foam tape and secured with aluminum snap-in glazing beads.

Allen N. Keen
APR 2002

Test Specimen Description (Continued)

Frame Construction: The frame was constructed of extruded aluminum with coped, butted, and sealed corners fastened with two #8 x 1" screws through the head and sill into each jamb screw boss.

Reinforcement: No reinforcement was utilized.

Installation: The test specimen was installed into a 2 x 8 #2 Spruce-Pine-Fir wood test buck. #8 x 2-1/2" installation screws were utilized 18" on center around the interior perimeter. Polyurethane was utilized to seal the exterior.

Test Results:

The results are tabulated as follows:

Paragraph	Title of Test - Test Method	Results	Allowed
2.1.2	Air Infiltration (ASTM E 283-91) @ 1.57 psf (25 mph)	0.004 cfm/ft²	0.3 cfm/ft² max.

Note #1: The tested specimen meets the performance levels specified in AAMA/WHI/NWWDA 101/I.S. 2-97 for air infiltration.

2.1.3	Water Resistance (ASTM E 547-00) WTP = 2.86 psf	No leakage	No leakage
2.1.4.1	Uniform Load Deflection (ASTM E 330-97) (Measurements reported were taken on the jamb) (Loads were held for 32 seconds) @ 25.7 psf (positive) @ 34.3 psf (negative)	0.01" 0.01"	0.41" max. 0.41" max.
2.1.4.2	Uniform Load Structural (ASTM E 330-97) (Measurements reported were taken on the jamb) (Loads were held for 10 seconds) @ 38.9 psf (positive) @ 52.1 psf (negative)	0.01" 0.01"	0.29" max. 0.29" max.

Test Results: (Continued)

Paragraph	Title of Test - Test Method	Results	Allowed
2.1.8	Forced Entry Resistance (ASTM F 588-97)		
	Type: D Grade: 10		
	Hand and Tool Manipulation Test	No entry	No entry
Optional Performance			
4.4	Water Resistance (ASTM E 547-00) WTP = 8.25 psf	No leakage	No leakage
4.4.1	Uniform Load Deflection (ASTM E 330-97) (Measurements reported were taken on the jamb) (Loads were held for 33 seconds)		
	@ 45.0 psf (positive)	0.02"	0.41" max.
	@ -47.2 psf (negative)	0.02"	0.41" max.
4.4.2	Uniform Load Structural (ASTM E 330-97) (Measurements reported were taken on the jamb) (Loads were held for 10 seconds)		
	@ 67.5 psf (positive)	0.01"	0.29" max.
	@ -70.8 psf (negative)	0.02"	0.29" max.

Detailed drawings, representative samples of the test specimen, and a copy of this report will be retained by A.T.I. for a period of four years. The above results were secured by using the designated test methods and they indicate compliance with the performance requirements of the above referenced specification. This report does not constitute certification of this product, which may only be granted by the certification program administrator.

For ARCHITECTURAL TESTING, INC.

Mark A. Hess
Technician

Allen N. Reeves, P.E.
Director - Engineering Services
4 APRIL 2002