



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

ROOFING PRODUCTS SPECIFICATIONS - TUSCALOOSA, AL

PRESTIQUE®
HIGH DEFINITION®

RAISED PROFILE™

High Definition

Product size	13 1/2" x 39 3/4"	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	5 1/2"	
Pieces/Bundle	16	
Bundles/Square	4/90 sq. ft.	
Squares/Pallet	11	

Product size	13 1/2" x 30 3/4"	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	5 1/2"	
Pieces/Bundle	22	
Bundles/Square	3/100 sq. ft.	
Squares/Pallet	16	

High Definition

Product size	13 1/2" x 39 3/4"	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	5 1/2"	
Pieces/Bundle	16	
Bundles/Square	4/90.5 sq. ft.	
Squares/Pallet	14	

HIP AND RIDGE SHINGLES

Size:	12" x 12"
Exposure:	6 1/2"
Pieces/Bundle:	45
Coverage:	4 Bundles = 100 linear feet

High Definition

Product size	12" x 30 3/4"	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	5 1/2"	
Pieces/Bundle	22	
Bundles/Square	3/100 sq. ft.	
Squares/Pallet	16	

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

Available Colors: Antique Slate, Weathered Wood, Shakeswood, Sablewood, Hickory, Burswood™, Forest Green, Wedgewood™, Birchwood™, Sandalwood, Colony Collection: Balsam Forest, Weathered Sage, Sierra 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 507) and Class "A" Fire Ratings (UL 780); and ASTM Specifications D 3018, Type-I; D 3181, 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.

Premasonry or Roof Deck: Roof deck to be dry, well-seasoned 1" x 6" (25.4mm x 152.4mm) boards, minimum grade plywood (exposure treated sheathing) or least 3/8" (9.5mm) thick conforming to the specifications of the American Plywood Association: 7/16" (10.7mm) oriented strandboard; or shipboard. Most fire retardant plywood decks are NOT approved substrates for Elk shingles. Consult Elk Field Service for application instructions 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) in a minimum of 2" per foot (50.8/304.8mm); use two plies of underlayment overlapped a minimum of 15". Fasteners shall be of sufficient length and pulling 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 800.354.5545 or e-mail specinfo@elkcorp.com.

SOUTHEAST &
ATLANTIC OFFICE:
800.945.5551

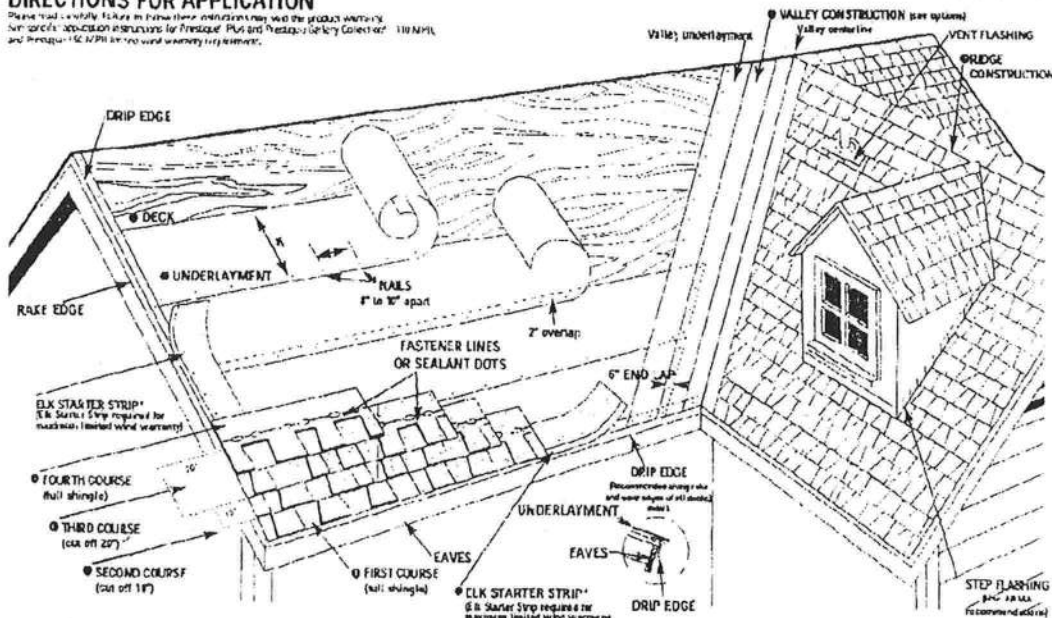
CORPORATE HEADQUARTERS:
800.354.7732

PLANT LOCATION:
800.945.5545

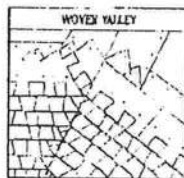
ELK
www.elkcorp.com

DIRECTIONS FOR APPLICATION

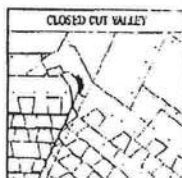
These instructions apply to the Elk Starter Strip and the product warranty. For specific application instructions for Prestique Plus and Prestique Gallery Collection, see ARMA and Presque 150 MPH and Presque 150 MPH and Presque 150 MPH.



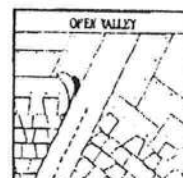
A VALLEY CONSTRUCTION OPTION (California Open and California Closed are also acceptable). Nails for complete ARMA valley installation details, see ARMA Residential Asphalt Roofing Manual.



VALLEY CENTER LINE



VALLEY CENTER LINE



VALLEY CENTER LINE

DIRECTIONS FOR APPLICATION

These application instructions are the minimum required to meet Elk 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 minimums. 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 laminated together. All shingles should be properly vented. Note: It is not necessary to remove tape on back of shingle.

DECK PREPARATION

Roof decks should be dry, well-seasoned 1" x 6" boards or equivalent plywood minimum 3/4" thick and conform to the specifications of the American Plywood Association or 2x10" framed sheathing or 1/2" OSB.

UNDERLAYMENT

Apply underlayment (Non-Preferred: No. 15 or 30 asphalt surfaced felt). Cover drip edge at eaves only. For low slope (1/2" up to 4/12), compactly cover deck with one ply of underlayment overlapping a minimum of 12". Begin by fastening a 12" wide strip of underlayment placed along the eaves. Then 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 2/12), 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 felt (remnant between the two plies of underlayment from the eave edge up roof in a "V" or "W" 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.

STARTER SHINGLE COURSE

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

FIRST COURSE

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

SECOND COURSE

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

THIRD COURSE

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

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 rest shingles straight up the roof.

VALLEY CONSTRUCTION

Open wooden and closed cut valleys are acceptable when applied by Asphalt Roofing Manufacturers Association (ARMA) recommended procedures. For metal valleys, use 36" wide vertical underlayment prior to applying 10" metal flashing (secure with nails). No nails due to be within 6" of valley center.

RIDGE CONSTRUCTION

For ridge construction use Class "A" Seal-A-Ridge (with format: 1/2" (one ridge package) or less than 1/2" instructions.)

FASTENERS

Write 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 roofs over. 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, 15-gauge minimum, crown width minimum of 15/16". Note: An improperly adjusted staple gun can result in raised staples that can cause a fish-mailed appearance and can prevent sealing. Fasteners should be long enough to obtain 3/4" deck penetration or penetration through deck, whichever is less.

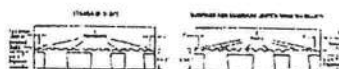
MANSARD APPLICATIONS

Correct fastening is critical to the performance of the roof. For slopes exceeding 10° (or 2/12) 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 Presque Plus shingles must be applied with 6 properly placed fasteners, or in the case of laminated applications, 6 properly placed fasteners per shingle.

For a Limited Wind Warranty up to 110 MPH for Prestique Gallery Collection or Presque 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 angles in quality Prestique Plus, Prestique Gallery Collection and Presque 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 24" of eaves.



HELP STOP BLOW-OFFS AND CALL BACKS

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

FASTENER	QUANTITY	LOCATION	UNDERLAYMENT	FASTENING
1" x 6" x 12" (12" x 6" x 12")	1	1" from eave edge	1" from eave edge	1" from eave edge
1" x 6" x 12" (12" x 6" x 12")	1	1" from eave edge	1" from eave edge	1" from eave edge
1" x 6" x 12" (12" x 6" x 12")	1	1" from eave edge	1" from eave edge	1" from eave edge
1" x 6" x 12" (12" x 6" x 12")	1	1" from eave edge	1" from eave edge	1" from eave edge

Refer to local codes which in some areas may require specific application techniques beyond those Elk has specified. All Prestique and Presque Plus shingles have a UL Wind Resistance Rating when applied in accordance with these instructions using nails or staples on re-roof 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.

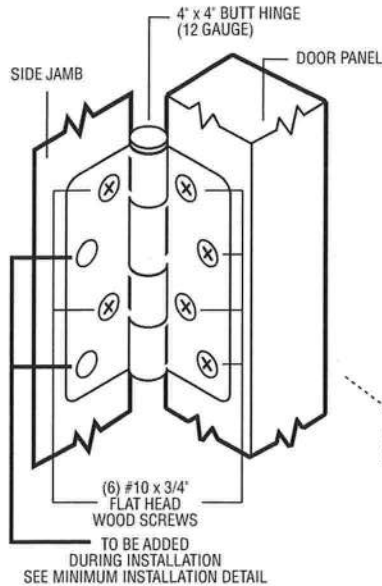
© 2002 Elk Corporation or its affiliates.

All trademarks, including Elk, are the property of Elk Corporation or its affiliates. All other trademarks are the property of their respective owners. Elk is a registered trademark of Elk Corporation.

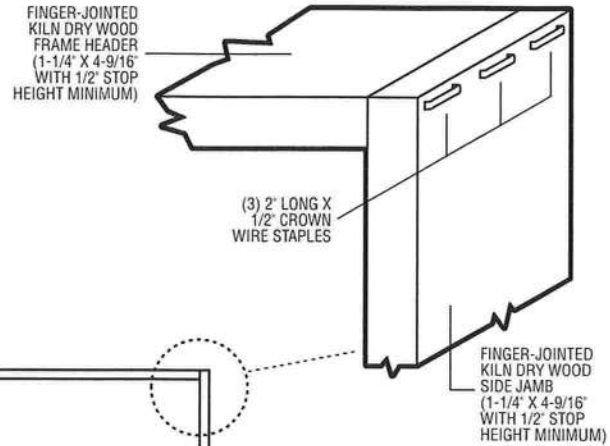
ELK
www.elkcorp.com

INSWING UNIT WITH SINGLE DOOR

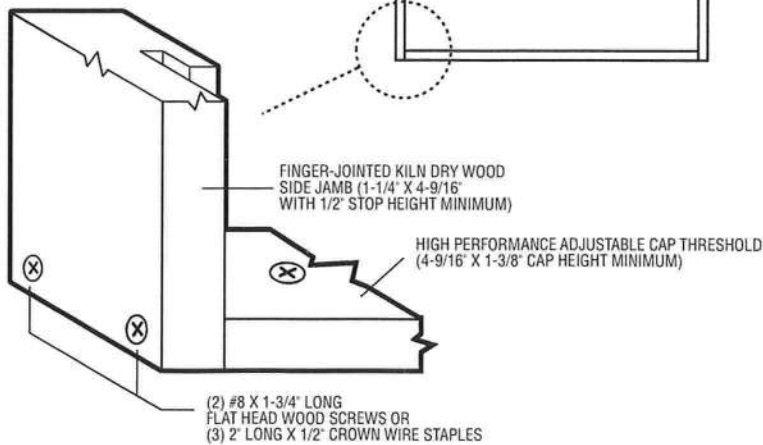
TYPICAL HINGE ATTACHMENT



TYPICAL HEADER & SIDE JAMB ATTACHMENT



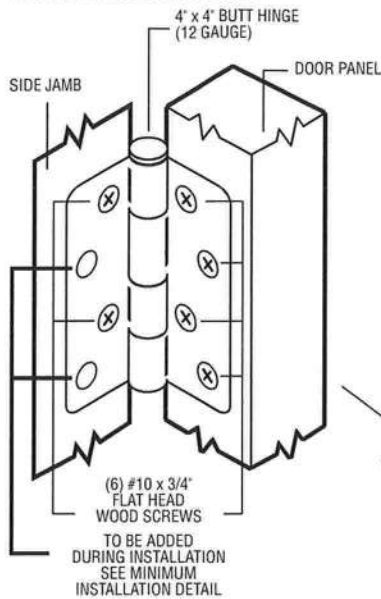
TYPICAL THRESHOLD & SIDE JAMB ATTACHMENT



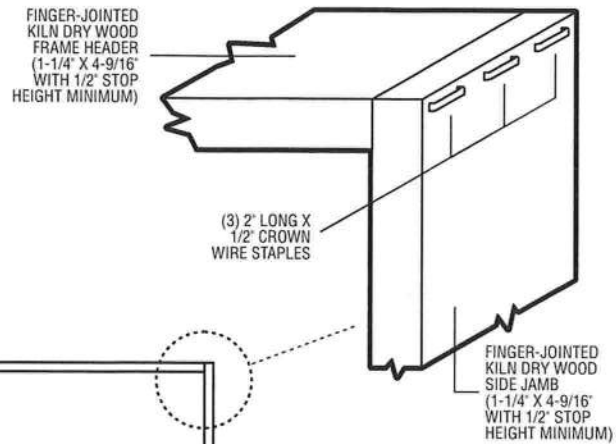
Test Data Review Certificate
#3026447A; #3026447B;
#3026447C and COP/Test Report
Validation Matrix #3026447A-001,
002, 003; #3026447B-001, 002,
003; #3026447C-001, 002, 003
provides additional information -
available from the ITS/WH website
(www.ettsemko.com), the Masonite
website (www.masonite.com) or
the Masonite technical center.

OUTSWING UNITS WITH SINGLE DOOR

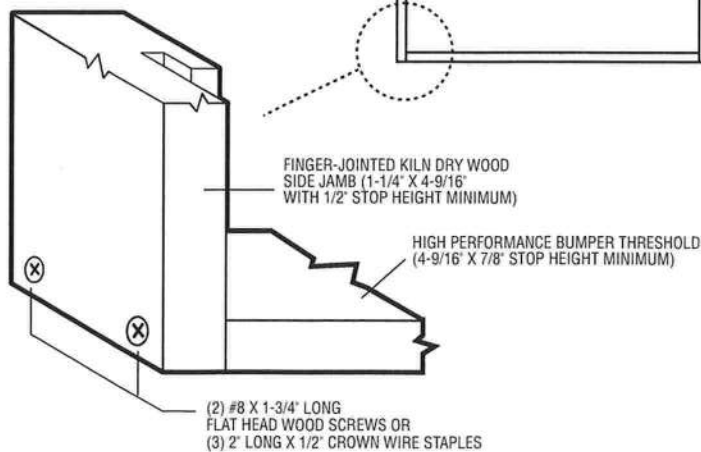
TYPICAL HINGE ATTACHMENT



TYPICAL HEADER & SIDE JAMB ATTACHMENT



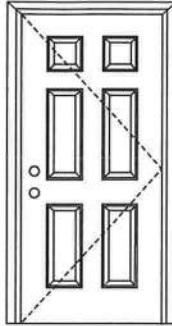
TYPICAL THRESHOLD & SIDE JAMB ATTACHMENT



Test Data Review Certificate
#3026447A; #3026447B;
#3026447C and COP/Test Report
Validation Matrix #3026447A-001,
002, 003; #3026447B-001, 002,
003; #3026447C-001, 002, 003
provides additional information -
available from the ITS/WH website
(www.etlsemko.com), the Masonite
website (www.masonite.com) or
the Masonite technical center.

X

Opaque Inswing Unit

COP-WL-JH4101-02**WOOD-EDGE STEEL DOORS****APPROVED ARRANGEMENT:****Note:**

Units of other sizes are covered by this report as long as the panel used does not exceed 3'0" x 6'8".



Test Data Review Certificate #3026447A and COP/Test Report Validation Matrix #3026447A-001 provides additional information - available from the ITS/WH website (www.ettsemko.com), the Masonite website (www.masonite.com) or the Masonite technical center.

Single Door

Maximum unit size = 3'0" x 6'8"

Design Pressure

+66.0/-66.0

limited water unless special threshold design is used.

Large Missile Impact Resistance

Hurricane protective system (shutters) is NOT REQUIRED.

Actual design pressure and impact resistant requirements for a specific building design and geographic location is determined by ASCE 7-national, state or local building codes specify the edition required.

MINIMUM ASSEMBLY DETAIL:

Compliance requires that minimum assembly details have been followed – see MAD-WL-MA0001-02.

MINIMUM INSTALLATION DETAIL:

Compliance requires that minimum installation details have been followed – see MID-WL-MA0001-02.

APPROVED DOOR STYLES:

Flush



Arch Top 3-panel



3-panel



6-panel



New England 4-panel



Eyebrow 4-panel



8-panel



9-panel



15-panel



5-panel



5-panel with scroll



Eyebrow 5-panel



Eyebrow 5-panel with scroll

Johnson
EntrySystems

June 17, 2002

Our continuing program of product improvement makes specifications, design and product detail subject to change without notice.



Exclusively from

Masonite
Masonite International Corporation

X

Opaque Inswing Unit

COP-WL-JH4101-02

WOOD-EDGE STEEL DOORS

CERTIFIED TEST REPORTS:

NCTL 210-2185-1, 2, 3

Certifying Engineer and License Number: Barry D. Portney, P.E. / 16258.

Unit Tested in Accordance with Miami-Dade BCCO PA201, PA202 and PA203.

Door panels constructed from 26-gauge 0.017" thick steel skins. Both stiles constructed from wood. Top end rails constructed of 0.041" steel. Bottom end rails constructed of 0.021" steel. Interior cavity of slab filled with rigid polyurethane foam core.

Frame constructed of wood with an extruded aluminum threshold.

PRODUCT COMPLIANCE LABELING:

TESTED IN ACCORDANCE WITH
MIAMI-DADE BCCO
PA201, PA202 & PA203

COMPANY NAME
CITY, STATE

To the best of my knowledge and ability the above side-hinged exterior door unit conforms to the requirements of the 2001 Florida Building Code, Chapter 17 (Structural Tests and Inspections).



State of Florida, Professional Engineer
Kurt Balthazor, P.E. – License Number 56533



Test Data Review Certificate #3026447A and COP/Test Report Validation Matrix #3026447A-001 provides additional information - available from the ITS/WH website (www.itswh.com), the Masonite website (www.masonite.com) or the Masonite technical center.

2

Johnson
EntrySystems

June 17, 2002
Our continuing program of product improvement makes specifications, design and product detail subject to change without notice.



Exclusively from
Masonite
Masonite International Corporation

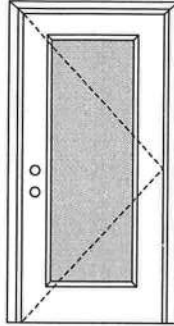
X

Glazed Outswing Unit

COP-WL-JH4161-02

WOOD-EDGE STEEL DOORS

APPROVED ARRANGEMENT:

**Note:**

Units of other sizes are covered by this report as long as the panel used does not exceed 3'0" x 6'8".



Test Data Review Certificate #3026447A and COP/Test Report Validation Matrix #3026447A-001 provides additional information - available from the ITS/WH website (www.itssemko.com), the Masonite website (www.masonite.com) or the Masonite technical center.

Single Door

Maximum unit size = 3'0" x 6'8"

Design Pressure

+40.5/-40.5

Limited water unless special threshold design is used.

Large Missile Impact Resistance

Hurricane protective system (shutters) is **REQUIRED**.

Actual design pressure and impact resistant requirements for a specific building design and geographic location is determined by ASCE 7-national, state or local building codes specify the edition required.

MINIMUM ASSEMBLY DETAIL:

Compliance requires that minimum assembly details have been followed – see MAD-WL-MA0011-02 and MAD-WL-MA0041-02.

MINIMUM INSTALLATION DETAIL:

Compliance requires that minimum installation details have been followed – see MID-WL-MA0001-02.

APPROVED DOOR STYLES:

1/4 GLASS:

100 Series



133, 135 Series



136 Series



680 Series



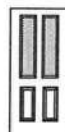
822 Series

1/2 GLASS:

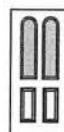
105 Series*



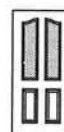
106, 160 Series*



129 Series*



200 Series*



12 R/L, 23 R/L, 24 R/L Series*



107 Series*



108 Series



304 Series

*This glass kit may also be used in the following door styles: 5-panel; 5-panel with scroll; Eyebrow 5-panel; Eyebrow 5-panel with scroll.

Johnson
EntrySystems

June 17, 2002

Our continuing program of product improvement makes specifications, design and product detail subject to change without notice.



Exclusively from

Masonite
Masonite International Corporation

X

Glazed Outswing Unit

COP-WL-JH4161-02

WOOD-EDGE STEEL DOORS**APPROVED DOOR STYLES:****3/4 GLASS:**

404 Series



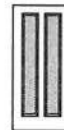
410 Series



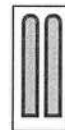
450 Series

FULL GLASS:

109 Series

114, 120, 122
Series

152 Series



149 Series



300 Series

CERTIFIED TEST REPORTS:

NCTL 210-1897-7, 8, 9, 10, 11, 12; NCTL 210-1864-5, 6, 7, 8; NCTL 210-2178-1, 2, 3

Certifying Engineer and License Number: Barry D. Portney, P.E. / 16258.

Unit Tested in Accordance with Miami-Dade BCCO PA202.

Evaluation report NCTL-210-2794-1

Door panels constructed from 26-gauge 0.017" thick steel skins. Both stiles constructed from wood. Top end rails constructed of 0.041" steel. Bottom end rails constructed of 0.021" steel. Interior cavity of slab filled with rigid polyurethane foam core. Slab glazed with insulated glass mounted in a rigid plastic lip lite surround.

Frame constructed of wood with an extruded aluminum bumper threshold.

PRODUCT COMPLIANCE LABELING:

TESTED IN
ACCORDANCE WITH
MIAMI-DADE BCCO PA202

COMPANY NAME
CITY, STATE

To the best of my knowledge and ability the above side-hinged exterior door unit conforms to the requirements of the 2001 Florida Building Code, Chapter 17 (Structural Tests and Inspections).

State of Florida, Professional Engineer
Kurt Balthazor, P.E. – License Number 56533



Test Data Review Certificate #3026447A and COP/Test Report Validation Matrix #3026447A-001 provides additional information - available from the ITS/WH website (www.etsmko.com), the Masonite website (www.masonite.com) or the Masonite technical center.

2

Johnson
EntrySystems

June 17, 2002
Our continuing program of product improvement makes specifications, design and product detail subject to change without notice.



Exclusively from

Masonite International Corporation

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

Rendered to:

MI HOME PRODUCTS, INC.

**SERIES/MODEL: 450/650/850
TYPE: H-C30 54 x 90; H-C40 52 x 72***

Title of Test	Summary of Results	
	Test Specimen #1	Test Specimen #2
AAMA Rating	H-C30 54 x 90	H-C40 52 x 72*
Uniform Load Deflection Test Pressure	35.0 psf	47.0 psf
Operating Force	20 lb max.	N/A
Air Infiltration	0.27 cfm/ft ²	N/A
Water Resistance Test Pressure	5.25 psf	6.0 psf
Uniform Structural Load Test Pressure	45.0 psf	70.5 psf
Deglazing	Passed	N/A
Forced Entry Resistance	Grade 10	N/A

Reference should be made to ATI Report No. 01-37589.02 for complete test specimen description and data.

Allen M. Rung
24 JUNE 2002



Architectural Testing

TEST REPORT

Rendered to:

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

Report No: 01-37589.02
Test Date: 06/15/00
Thru: 06/29/00
Report Date: 06/06/02
Expiration Date: 06/29/04

Project Summary: Architectural Testing, Inc. (ATI) was contracted by MI Home Products, Inc. to witness performance testing on two Series/Model 450/650/850, aluminum single hung windows at their facility in Elizabethville, Pennsylvania. The samples tested successfully met the performance requirements for the following ratings: Test Specimen #1: H-C30 54 x 90; Test Specimen #2: H-C40 52 x 72*.

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 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

Type: Aluminum Single Hung Window

Test Specimen #1: Gateway Performance Specimen H-C30 54 x 90 rating

Overall Size: 4' 6-1/2" wide by 7' 6-1/2" high

Active Sash Size: 4' 4" wide by 3' 9-3/4" high

Fixed Daylight Opening Size: 4' 1-1/2" wide by 3' 6-1/2" high

Screen Size: 4' 2-1/4" wide by 3' 8-1/2" high

130 Derry Court
York, PA 17402-9405
phone: 717.764.7700
fax: 717.764.4129
www.archtest.com

Allen M. Reuser
28 JUNE 2002



Test Specimen Description: (Continued)

Test Specimen #2: H-C40 52 x 72*

Overall Size: 4' 4-1/4" wide by 6' 0" high

Active Sash Size: 4' 2" wide by 3' 0-1/2" high

Fixed Daylight Opening Size: 3' 11-1/2" wide by 2' 9-1/2" high

Screen Size: 4' 0" wide by 2' 11" high

The following descriptions apply to all specimens.

Finish: All aluminum was painted.

Glazing Details: The lites utilized 5/8" thick sealed insulating glass units fabricated from two sheets of 3/32" clear annealed glass and an intercept™ spacer system. The sash was channel glazed with a flexible gasket. The fixed lite was interior glazed onto single-sided adhesive foam tape and secured with extruded PVC glazing beads.

Weatherstripping:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
0.210" high by 0.270" backed polypile with center fin	1 Row	Fixed meeting rail
0.250" high by 0.187" backed polypile with center fin	2 Rows	Stiles
0.300" diameter by 0.187" backed foam filled vinyl bulb gasket	1 Row	Bottom rail
0.400" high by 1/2" square polypile dust plug	4	One on each sash corner

Frame Construction: Series/Model 450 frame was constructed of thermally broken extruded aluminum with coped, butted and sealed corners. The fixed meeting rail was constructed of an extruded aluminum member with coped, butted and sealed ends fastened with two #8 x 1/4" screws. Series/Model 650 frame was constructed of extruded aluminum. Series/Model 850 frame was constructed of thermally broken extruded aluminum members.

Sash Construction: The Series/Model 450 sash members were constructed of thermally broken extruded aluminum members with coped, butted and sealed corners fastened with one #8 x 1-1/4" screw. Series/Model 650 sash was constructed of extruded aluminum. Series/Model 850 sash was constructed of extruded aluminum.

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

Allen M. Reimer
29 JUNE 2002

**Test Specimen Description: (Continued)****Hardware:**

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
Plastic snap latch	1	Midspan of bottom rail
Block and tackle balance system	2	One per jamb
Plastic tilt latch	2	One on each end of sash meeting rail
Metal pivot bar	2	One on each end of bottom rail

Drainage: Sloped sill**Reinforcement:** No reinforcement.

Installation: The test unit was installed into the nominal 2" x 8" Spruce-Pine-Fir #2 wood test buck utilizing the nailing fin secured with 1" long galvanized roofing nails, 6" from each corner and every 18" on center. The nailing fin was also bedded in polyurethane. The exterior perimeter was blind stopped with wood members and secured with #8 x 3" screws every 24" on center.

Test Results:

The results are tabulated as follows:

<u>Paragraph</u>	<u>Title of Test - Test Method</u>	<u>Results</u>	<u>Allowed</u>
<u>Test Specimen #1:</u> Gateway Performance Specimen H-C30 54 x 90			
2.2.1.6.1	Operating Force	20 lbs	45 lbs max
	Air Infiltration (ASTM E 283) @ 1.57 psf (25 mph)	0.27 cfm/ft ²	0.30 cfm/ft ² max.
	Water Resistance (ASTM E 547) (with and without screen) WTP = 4.5 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) (Loads were held for 33 seconds)		
	@ 35.0 psf (positive)	0.27"	0.30" max.
	@ 35.0 psf (negative)	0.73"*	0.30" max.

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

Allen M. Rivas
22 JUNE 2007

Test Results:

<u>Paragraph</u>	<u>Title of Test - Test Method</u>	<u>Results</u>	<u>Allowed</u>
<u>Test Specimen #1:</u> Gateway Performance Specimen H-C30 54 x 90 (Continued)			
2.1.4.2	Uniform Load Structural (ASTM E 330-97) (Measurements reported were taken on the fixed meeting rail) (Loads were held for 10 seconds) @ 45.0 psf (positive) @ 45.0 psf (negative)	0.03" 0.04"	0.21" max 0.21" max
2.2.1.6.2	Deglazing Test (ASTM E 987-88) In operating direction at 70 lbs Meeting rail Bottom rail In remaining direction at 50 lbs Left stile Right stile	0.06"/12% 0.06"/12% 0.06"/12% 0.06"/12%	0.50"/100% 0.50"/100% 0.50"/100% 0.50"/100%
2.1.8	Forced Entry Resistance (ASTM F 588-97) Type: A Grade: 10 Lock Manipulation Test Test A1 thru A5 Test A7 Lock Manipulation Test	No entry No entry No entry No entry	No entry No entry No entry No entry

Allen M. Rivera
22 JUL 15 2007

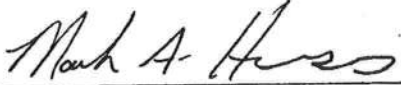


Test Results:


<u>Paragraph</u>	<u>Title of Test - Test Method</u>	<u>Results</u>	<u>Allowed</u>
<u>Test Specimen #1:</u> Gateway Performance Specimen H-C30 54 x 90 (Continued)			
<u>Optional Performance</u>			
4.3	Water Resistance (ASTM E 547) (with and without screen) WTP = 5.25 psf	No leakage	No leakage
<u>Test Specimen #2:</u> H-C40 52 x 72*			
<u>Optional Performance</u>			
4.3	Water Resistance (ASTM E 547 and ASTM E 331) (with and without screen) WTP = 6.0 psf	No leakage	No leakage
	Uniform Load Deflection (ASTM E 330) (Measurements reported were taken on the fixed meeting rail) (Loads were held for 33 seconds)		
	@ 47.0 psf (positive)	0.04"	0.30" max.
	@ 47.0 psf (negative)	0.03"	0.30" max.
	Uniform Load Structural (ASTM E 330) (Measurements reported were taken on the fixed meeting rail) (Loads were held for 10 seconds)		
	@ 70.5 psf (positive)	0.07"	0.21" max.
	@ 70.5 psf (negative)	0.04"	0.21" 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.

For ARCHITECTURAL TESTING, INC


Mark A. Hess
Technician

MAH:baw
01-37589.02


Allen N. Reeves, P.E.
Director - Engineering Services
24 JUNE 2002



DOCUMENT CONTROL ADDENDUM #01-37589.00

Current Issue Date: 06/06/02

Report No.: 01-37589.01

Requested by: Scott Gill, MI Home Products, Inc.

Purpose: AAMA/NWWDA 101/I.S.2-97 testing on Series/Model 450, aluminum single hung window.

Issued Date: 09/11/00

Comments: Certification copy to John Smith at Associated Laboratories, Inc.

Report No.: 01-37589.02

Requested by: William Emley, MI Home Products, Inc.

Purpose: Revised Report No. 01-37589.01.

Issued Date: 06/06/02

Comments: Added Series/Model 650/850. Florida P.E. seal required on report
Certification copy to John Smith at Associated Laboratories, Inc.

Allen M. Reiman
7th JUNE 2007