# Part 1 General

# Section Includes

## Ultimate Bi-fold Door top hung system and frame complete with hardware, glazing, weather strip, grilles-between-the-glass, simulated divided lite, raised/flat panels, trim, attachments, and accessories

# Related Sections

## Section 01 33 00 – Submittal Procedures: Shop Drawings, Product Data, and Samples

## Section 01 62 00 – Product Options

## Section 01 63 00 – Product Substitution Procedures

## Section 01 65 00 – Product Delivery

## Section 01 66 00 – Product Storage and Handling Requirements

## Section 01 71 00 – Examination and Preparation

## Section 01 73 00 - Execution

## Section 01 74 00 – Cleaning and Waste Management

## Section 01 75 00 – Starting and Adjusting

## Section 01 76 00 – Protecting Installed Construction

## Section 06 22 00 – Millwork: Wood trim other than furnished by door and frame manufacturer

## Section 07 92 00 – Joint Sealants: Sill sealant and perimeter caulking

## Section 08 71 00 – Door Hardware: Hardware other than furnished by door and frame manufacturer

## Section 09 90 00 – Paints and Coatings: Paint and stain other than finish

# References

## American Society for Testing and Materials (ASTM):

### E283: Standard Test Method for Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors

### E330: Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference

### E547: Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic

### E2190: Specification for Sealed Insulated Glass Units

### C1036: Standard Specification for Flat Glass

### E 2112: Standard Practice for Installation of Exterior Windows, Doors, and Skylights

### E1996: Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Storm Shutters Impacted by Windborne Debris in Hurricanes. (IZ3 units only)

### E1886: Standard Test Method for Performance of Exterior Windows, Curtain Walls, Door and Storm Shutters Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials. (IZ3 units only)

## American Architectural Manufacturer’s Association / Window and Door Manufacturer’s Association (AAMA / WDMA/CSA):

### AAMA/WDMA/CSA 101/I.S.2/A440-05: Standard/Specification for windows, doors, and unit skylights

### AAMA/WDMA/CSA 101/I.S.2/A440-08: North American Fenestration, Standard/Specification for windows, doors, and skylights

### AAMA/WDMA/CSA 101/I.S.2/A440-11: North American Fenestration, Standard/Specification for windows, doors, and skylights

## WDMA I.S.4: Industry Standard for Water Repellent Preservative Treatment for Millwork

## Window and Door Manufacturer’s Association (WDMA): 101/I.S.2 WDMA Hallmark Certification Program

## Sealed Insulating Glass Manufacturer’s Association / Insulating Glass Certification Council (SIGMA/IGCC)

## American Architectural Manufacturer’s Association (AAMA): 2605: Voluntary Specification for High Performance Organic Coatings on Architectural Extrusions and Panels

## National Fenestration Rating Council (NFRC):

### 101: Procedure for Determining Fenestration Product Thermal Properties

### 200: Procedure for Determining Solar Heat Gain Coefficients at Normal Incidence

## Window Covering Manufacturer’s Association

### A100.0: American National Standard for Safety of Corded Window Covering Products

# System Description

## Design and Performance Requirements:

### Units shall be designed to comply with WDMA certification per ASTM E 1996 and AAMA/WDMA/CSA 101/I.S.2/A440-05, 08 & 11

### Air leakage shall not exceed (≤.3) cfm per square foot of overall frame when tested at 1.57 psf according to ASTM E283

### No water penetration when tested at (DP55-8.25) psf according to ASTM E547

### Units shall be designed to comply with ASTM E1996 for Wind Zone 3, Missile Level D impact and cycle (+DP55/-DP65) psf

### Units shall be designed to comply with ASTM E330 for structural performance, when tested to +82.5/-97.5) psf

# Submittals

## Shop Drawings: Submit shop drawings under provision of Section 01 33 00.

## Product Data: Submit product data for certified options under provision of CSI MasterFormat Section 01 33 00. Product performance rating information may be provided via quote, performance rating summary (NFRC Data), or certified performance grade summary (WDMA Hallmark data).

## Samples:

1. Submit corner section under provision of CSI MasterFormat Section 01 33 00.
2. Specified performance and design requirements under provisions of CSI MasterFormat Section 01 33 00.

# Quality Assurance

## Requirements: consult local code for IBC [International Building Code] and IRC [International Residential Code] adoption year and pertinent revisions

# Delivery

## Comply with provisions of Section 01 65 00

## Deliver in original packaging and protect from weather

# Storage and Handling

## Prime and seal wood surfaces, including to be concealed by wall construction, if more than thirty (30) days will expire between delivery and installation. Seal unfinished top and bottom edges of door panels if panels are stored at the job site more than one (1) week.

## Store door panels flat on a level surface in a clean and dry storage area above ground to protect from weather under provision of Section 01660

## Condition doors to local average humidity before hanging

# Warranty

# **Complete and current warranty information is available at marvin.com/warranty. The following summary is subject to the terms, condition, limitations and exclusions set forth in the Marvin Windows and Door Limited Warranty and Products in Coastal Environments Limited Warranty Supplement:**

## Clear insulating glass with stainless steel spacers is warranted against seal failure caused by manufacturing defects and resulting in visible obstruction through the glass for twenty (20) years from the original date of purchase. Glass is warranted against stress cracks caused by manufacturing defects from ten (10) years from the original date of purchase.

## Standard exterior aluminum cladding finish is warranted against manufacturing defects resulting in chalk, fade and loss of adhesion (peel) per the American Architectural Manufacturer’s Association (AAMA) Specification 2605-11 Section 8.4 and 8.9 for twenty (20) years from the original date of purchase.

##  Interior finish is warranted to be free from finish defects for a period of five (5) years from the original date of purchase.

## Hardware another non-glass components are warranted to be free from manufacturing defects for ten (10) years from the original date of purchase.

# Part 2 Products

# Manufactured Units

## Description: Factory-assembled Ultimate Bi-Fold Door/s, as manufactured by Marvin Windows and Doors, Ripley, Tennessee.

### 1 to 16 panel options

### 91 configurations including: Left, right, or center operation

### Some configurations include an access panel like traditional swinging door

# Frame Description

## Frame consists of jamb(s), head jamb, and sill – Constructed of finger-joined, edge-glued core with clear pine to the interior and extruded aluminum to the exterior. Finger-joint material may be used on header lengths over 12’. Alternative wood species include Mahogany, Vertical Grain Douglas Fir, Mixed Grain Douglas Fir, Cherry or White Oak. Standard frame head and jambs are pine core with alternate species veneer.

### Kiln-dried to moisture content no greater than twelve (12) percent at time of fabrication

### Water repellant, preservative treated in accordance with WDMA I.S.4.

## Frame exterior aluminum clad with 0.050” (1.3mm) thick extruded aluminum

## Jamb depth: 5 9/16” (142mm)

## Interior frame thickness: 1 1/16” (27mm)

## Sills

### Performance Sill is glass-filled polyurethane (beige or bronze). Extruded aluminum sill insert. 6 21/32” (169mm) wide x 2 5/32” (55mm) high

# Panel Description

## Constructed of finger-jointed, edge-glued core with clear pine to the interior and extruded aluminum to the exterior.

### Kiln-dried to moisture content no greater than twelve (12) percent at time of fabrication

### Water repellant, preservative treated in accordance with WDMA I.S.4.

## Sash exterior aluminum clad with 0.050” (1.3mm) thick extruded aluminum

## Panel thickness: 2 1/4” (57)

## Top and bottom rail height and stile width: 4 ¾” (121) – For top and bottom rail material: Finger-join core is used for Pine, Vertical Grain Douglas Fir, Mahogany and Cherry. LVL is used for White Oak. For stiles material: LVL is used for all species.

## Panel corners glued and fastened with 5/8” x 4 inch (16mm by 102mm) fluted hardwood dowels. Removable interior vinyl glazing stops with non finger-jointed wood covers. No visible fasteners.

# Glazing

## Select quality complying with ASTM C 1036. Shall comply with 16 CFR 1201 Safety Standard for Architectural Glazing Materials.

## Glazing Method: Tempered insulating glass (altitude adjusted)

## Gas fill: Air with capillary tubes, Argon

## Standard interior wood cope sticking: Ogee (with the option of Square)

## Optional glazing: Clear, Bronze, Gray, Green, Obscure, Low E2, Low E3, Low E1,

## Glazing Seal: Silicone bedding exterior

# Finish

## Exterior: Aluminum Clad. Fluoropolymer modified acrylic topcoat over a primer. Available in all exterior aluminum clad colors. Meets AAMA 2605 requirements.

### Aluminum clad color options: Bahama Brown, Bronze, Cadet Gray, Cascade Blue, Cashmere, Clay, Coconut Cream, Ebony, Evergreen, Gunmetal, Hampton Sage, Pebble Gray, Sierra White, Stone White, Suede, Wineberry, Bright Silver (pearlescent), Copper (pearlescent), Liberty Bronze (pearlescent)

### Custom colors: Contact your Marvin representative

## Interior Finish Options:

### Prime: Factory-applied water-borne acrylic primer. Meets WDMA TM-11 requirements.

### Painted Interior Finish. Factory-applied water-borne acrylic enamel. Available on Pine product only. Available in White or Designer Black. Meets WDMA TM-14 requirements.

### Factory-applied water-borne acrylic enamel clear coat. Applied in two separate coats with light sanding between coats. Available on Pine, Mahogany, Vertical Grain Douglas Fir, Mixed Grain Douglas Fir (frame only), Cherry, White Oak. Meets WDMA TM-14 requirements.

### Factory-applied water-borne stain. Stain applied over a wood (stain) conditioner. A water-borne acrylic enamel clear coat applied in two separate coats, with light sanding coats, applied over the stain. Available on Pine, Mahogany, Vertical Grain Douglas Fir, Mixed Grain Douglas Fir (frame only), Cherry, White Oak. Colors available: Wheat, Honey, Hazelnut, Leather, Cabernet, or Espresso. Meets WDMA TM-14 requirements.

# Hardware

## Hinges

### Includes pivot, hinge, offset hinge, end carrier and intermediate sets

### Material: Aluminum hinge leaves with stainless steel carriers

### Painted finish: White, Satin Nickel, Dark Bronze

### Anodized finish: Matte Black

### Optional mixed finishes available

## End carrier: Top end carrier and bottom end guide

## Intermediate carrier set: Intermediate carrier, concealed intermediate guide

## Handle set (Consumer Choice): Contemporary default, Optional Traditional handle set

## Multi-point locking system applied to active panel(s)

### 2 3/8” (61mm) backset with latch engagement

### 3 locking points: deadbolt, sill bolt, and head bolt

### Contemporary handle set finish options (Default) – available in Painted finishes (Matte Black, Dark Bronze) and Metal finishes (Oil Rubbed Bronze PVD, Satin Nickle PVD). Architectural Hardware available in all finishes except brass.

### Traditional handle set finish options (Optional) – available in Painted finishes (White, Dark Bronze, Matte Black) and Metal finishes (Oil Rubbed Bronze, Oil Rubbed Bronze PVD, Satin Nickle PVD). Architectural Hardware available in all finishes except brass.

## Folding Panel Handle

### Interior Active pull – Low profile mounted handle provides a 90-degree rotational action that engages/disengages the locking points on the panel. Handles are non-handed

### Material: Zinc.

### Available colors: Painted: Matte Black, Dark Bronze, White, or Plated: Satin Nickel

## Magnetic door catch assembly: Field applied only

### Housing color matches cladding color, with black magnet

# Screen

## Scenic Door Ultimate Sliding Screen is optional

### Interior application only.

## Frame Colors

### Available in three standard colors: White, Bronze, and Black. Options: Screen Sill will default to the screen frame color, but screen sill can be any of the three colors.

### Handle pull colors: Black or White

## Mesh

### Material: Vinyl-coated polyester

### Color: Charcoal

## Sill: Aluminum sill with Rubber Insert

## Size and Configurations

### Uni-Directional, opens from left to right or right to left. Screen is handed and dependent on installation method. Maximum Screen Frame OM Width is 152 17/64” (3868mm).

### Bi-Parting, two screens open from each side and meet together. Maximum Screen Frame OM Width is 296 17/64” (7524 mm). Maximum Screen Frame OM Height for all configurations is 125 5/32” (3179mm).

# Weather Strip

## All units are constructed with vinyl weather strip at all panel perimeter joins. Weather strip exposed to the exterior will be a UV (ultraviolet) resistant materials

## Sill weather strip – foam-filled leaf. Available colors: Beige for beige sill, Black for bronze sill

## Jamb and Head Jamb weather strip – foam-filled leaf. Available colors: Beige or Black

## Panel weather strip:

### Bottom rail cap weather strip – foam-filled leaf. Available colors: Beige (for beige performance sills), Beige (for clear anodized low profile sill), Black (for bronze sills)

### Top rail cap weather strip – Bulb. Available colors: Beige or Black.

### Stile weather strip – Bulb (bi-parting swinging panel), Foam-filled bulb (exterior), Foam-filled leaf (exterior), Foam-filled leaf (interior), Rigid vinyl (bi-parting inactive panel). Available colors: Beige or Black.

## Astragal weather strip – Bulb. Available colors: Beige or Black)

# Simulated Divided Lites (SDL)

## 7/8” (22mm) wide, 1 1/8” (29mm) wide, 1 15/16” (49mm) wide

## With or without spacer bars

## Finish: Match panel finish

## Sticking

### Standard: Ogee

### Optional: Square

## Pattern: Rectangular, Custom lite layout

## Match panel finish

## Muntins adhere to glass with double coated acrylic foam tape

# Grilles-Between-the–Glass (GBG)

## 23/32” contoured aluminum bar

### Exterior colors: matches panel aluminum clad color. The exterior GBG color is designed to best match the Marvin aluminum clad colors when used with Low E2 glass. The use of different types of glazing may alter the exterior GBG color appearance.

### Interior colors: White is default color. Optional colors: Bronze, Pebble Gray, Sierra White, Ebony (only available with Ebony exterior)

### Pattern: Rectangular: Custom lite layout

### Optional flat aluminum spacer bar, contact your Marvin representative.

# Raised or Flat Panels

## 0.080” aluminum to the exterior with foam backing and laminated veneer to interior for stamped raised panel. Available bare wood or selected interior finish. Available in all aluminum clad colors for exterior. Aluminum clad colors meeting AAMA 2605 requirements.

## 0.125” aluminum to the exterior with foam backing and laminated veneer to interior for flat panel. Available bare wood or selected interior finish. Available in all aluminum clad colors for exterior. Aluminum clad colors meeting AAMA 2605 requirements.

## Utilizes 4 ¾” intermediate rail. Visible panel height is 12 1/64” (305mm).

## Raised and Flat panels are only available with traditional (8 1/8”) bottom rail.

# Accessories and Trim

## Installation: Product specific installation instructions shall be provided with each unit

## Aluminum Extrusions:

### Profile: Brick mould casing, flat casing, frame expander, jamb extender, mullion cover, mullion expander, as indicated on drawings.

### Finish: Match exterior frame finish.

# Part 3 Execution

# Examination

## Verification of Condition: Before installation, verify openings are plumb, square and of proper dimensions as required in Section 01 71 00. Report frame defects or unsuitable conditions to the General contractor before proceeding.

## Acceptance of Condition: Beginning on installation confirms acceptance of existing conditions.

# Installation

## Comply with Section 01 73 00.

## Assemble and install window/door unit(s) according to manufacturer’s instruction and reviewed shop drawing.

## Install sealant and related backing materials at perimeter of unit or assembly in accordance with Section 07 92 00 Joint Sealants. Do not use expansive foam sealant.

## Install accessory items as required.

## Use finish nails to apply wood trim and mouldings.

# Field Quality Control

## Remove visible labels and adhesive residue according to manufacturer’s instruction.

## Unless otherwise specified, air leakage resistance tests shall be conducted at a uniform static pressure of 75 Pa (~1.57 psf). The maximum allowable rate of air leakage shall not exceed 2.3 L/sm2 (~0.45 cfm/ft2).

## Unless otherwise specified, water penetration resistance testing shall be conducted per AAMA 502 and ASTM E1105 at 2/3 of the fenestration products design pressure (DP) rating using “Procedure B” – cyclic static air pressure difference. Water penetration shall be defined in accordance with the test method(s) applied.

# Cleaning

## Remove visible labels and adhesive residue according to manufacturer’s instruction.

## Leave windows and glass in a clean condition. Final cleaning as required in Section 01 74 00.

# Protecting Installed Construction

## Comply with Section 07 76 00.

## Protecting windows from damage by chemicals, solvents, paint or other construction operations that may cause damage.

End of Section