

ENTRANCES & FRAMING



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Kawneer offers a comprehensive line of architectural aluminum building products and systems for commercial construction – entrances, framing systems, windows and curtain wall systems.

Hurricane Resistant and Blast Mitigation Products

Kawneer offers single-source responsibility with a comprehensive group of independently tested hurricane resistant and blast mitigation products. Many hurricane resistant products have received Notices of Acceptance (NOAs) issued by Miami-Dade County BCCO and Florida Product Approvals. Blast mitigation products meet requirements of the General Services Administration (GSA), Interagency Security Committee (ISC) and Department of Defense (DoD). For more information, visit Kawneer.com.

ADA Accessibility Guidelines

Kawneer entrances include options such as hardware, door controls and threshold heights that satisfy the guidelines of the Americans with Disabilities Act (ADA). Entrances are easily configured to meet ADA traffic control guidelines and state and local building accessibility codes.

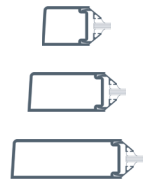
Kawneer's Limited Lifetime Welded Door Corner Warranty

Every door with welded corner joinery comes with a limited lifetime warranty, including 190/350/500 Standard Entrances, 350/500 Heavy Wall™ Entrances, 350/500 Tuffline™ Entrances, Flushline™ Entrances and 260/360/560 Insulclad™ Thermal Entrances. The corner joinery limited warranty is good for the life of the door under normal operation. The limited lifetime warranty is transferable from building owner to building owner and is in addition to the standard two-year warranty covering each Kawneer door.

190/350/500 Standard Entrances

A single-source, easily adaptable package of door, door frame and hardware

Our 190/350/500 Standard Entrances have been designed for accessibility, durability, flexibility and continuous use. These entrance systems can be fabricated with a myriad of hardware options to meet the most stringent design requirements.



190 Narrow Stile: engineered for moderate traffic | Slim-look 2-1/8" vertical stiles with 2-1/4" top rail and 3-7/8" bottom rail

350 Medium Stile: provides extra strength for high traffic | Vertical stiles and top rail 3-1/2" with 6-1/2" bottom rail

500 Wide Stile: monumental visual statement for heaviest traffic | Vertical stiles and top rail 5" with 6-1/2" bottom rail

All three entrances feature welded corner construction with sigma deep penetration and fillet welds, plus corner mechanical fastenings | Door operation is single/double acting with maximum security locks or touch bar panics standard | Architect's Classic 1" round bent bar push/pull hardware in various finishes and sizes | Infills range from 1/4" to 1" | Door frames feature Sealair bulb polymeric weather stripping | Tested to NFRC thermal standards

AA™250/425 Thermal Entrances

Narrow and wide stile entrances designed to provide thermal performance to meet the most stringent requirements of the IECC and ASHRAE 90.1 standards.

AA250: 2-1/2" vertical stiles and top rail with 3-7/8" bottom rail

AA425: 4-1/4" vertical stiles and top rail with 6-1/2" bottom rail



Thermal breaks in the door, door frame and threshold isolate the interior metal components from the exterior metal components | Door rail and stile design with a double air cavity provides an added layer to the thermal barrier | Dual weathering around the perimeter of the door in conjunction with a low conductance polymer door stop minimizes air infiltration | Entrance is single acting and mounted on offset pivots, butt hinges or continuous geared hinges | Accepts 1" glazing infill | Optional 10" bottom rail | Horizontal cross rails of 1-3/8" and 8-1/4" | Tested to NFRC thermal standards | Tested for large missile impact for windborne debris



500 Wide Stile Entrance, 1600 Wall System™1 Curtain Wall
Carmel High School Theatre, Carmel, California
Architect: Kasavan Architects, Salinas, California
Glazing Contractor: Atascadero Glass, Atascadero, California
Photography: © Brett Drury



350 Medium Stile Paneline™ Entrances, Trifab™ VG (VersaGlaze™) 451T Framing, 1600 Wall System™1 Curtain Wall
Hurst Conference Center, Hurst, Texas
Architect: Ron Hobbs Architects, Garland, Texas
Glazing Contractor: Alliance Glass and Mirror Ltd., Keller, Texas
Photography: © Wes Thompson



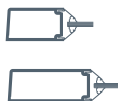
190 Narrow Stile Entrance (with high bottom rail) and Trifab™ VG (VersaGlaze™) 451T Framing used for auto showroom entrance application
Weeks Automotive/Danbury Audi, Danbury, Connecticut
Architect: Austin Patterson Disston Architects, LLC, Southport, Connecticut
Glazing Contractor: Advanced Performance Glass, Inc., South Windsor, Connecticut
Photography: © CJBerg Photographics

For over a century, Kawneer has been recognized as an innovator. Since that time, we've balanced experience with change and continuous improvement. We strive every day to develop solutions that promote integrated, sustainable building practices, and we are dedicated to providing the tools our customers need to succeed. Welded door corners, unique thermal breaks, cutting-edge design and fabrication flexibility are just a few examples of how we have responded to customer needs.

350/500 Heavy Wall™ Entrances

Medium and wide stile doors designed for durability in heavy-traffic areas

Heavy Wall™ entrance doors are designed for high-traffic applications such as schools, universities and office buildings | Door and frame have 3/16" walls throughout for added durability and strength | Door is 2" deep | Vertical stiles and top rails 3-1/2" and bottom rail 6-1/2" | Accepts glazing infills from 1/4" to 1" | Incorporates Kawneer's standard welded corner construction | Blast tested per ASTM F 1642 | Tested for large missile impact for windborne debris



350/500 Tuffline™ Entrances

Heavy-duty medium and wide stile doors engineered to withstand high traffic in schools, universities, malls and supermarkets

Constructed for unequalled strength with 3/16" walls throughout door and frame | 3-1/2" wide stiles and 3-3/8" top rail on 350 door | 5" wide stiles and top rail on 500 door | 2" deep door sections and 6-3/4" bottom rail | Door heights range from 7' to 9'; widths from 3' to 4' | Door frame face width is 2", depth is 4-1/2" | Accepts glazing infills of 1/4" to 1" | Complete package of door, door frame and hardware | Kawneer's welded corner construction resists both the lever arm and torsion forces all doors experience | Tested to NFRC thermal standards



350/500 IR Entrances

Medium and wide entrances designed for hurricane prone regions provide extra strength to meet the stringent code requirements for windborne debris and blast protection

1-3/4" deep with 3-1/2" or 5" vertical stiles and top rails and 6-1/2" bottom rails | Optional 7-1/2" and 10" bottom rails available | Square glass stops with options for interior silicone, 3M VHB tape or dry gaskets for impact resistant glazing | Single acting with offset pivots, butt hinges or continuous geared hinge | M.S. 3-point locks, M.S. locks with manual flush bolts or panic hardware options | Adjustable astragal and bottom rail sweep | Kawneer Sealair bulb polymeric weather stripping in door frames | Tested to meet current codes requiring protection of openings in windborne debris regions: ASTM E 1886, E 1996 and Florida Building Code TAS 201, 202 and 203 | Blast tested per ASTM F 1642 | Kawneer's welded corner construction resists both the lever arm and torsion forces all doors experience | Tested to NFRC thermal standards



2000T Terrace Doors

Designed for use in condominiums, lofts, apartments and hotels

Single or pair – outswing or inswing | 2-1/4" deep door rails and stiles | Thermally broken door and frame | Tested per NAFS, AAMA/WDMA/CSA 101/I.S.2/A440 | Thermal tested per CAN/CSA A-440, AAMA 1503 and NFRC 100 | Stainless steel multi-point locks and options | Contemporary lever handle with finish options | Mitered door and frame corners with rigid heavy-duty clips | Three-way adjustable butt hinge | Double weatherstripping | Accommodates 1/4" to 1-1/8" infills | Low-profile threshold (single or pair – outswing doors only) | Factory glazed | Kawneer standard and custom finishes and colors | Two-color option | Tested to NFRC thermal standards



2000T Terrace Doors, Arconic – Reynobond® ACM 4 mm PE and 4 mm FR Panels
W Hotel, Austin, Texas
LEED® registered project
Architects: Andersson-Wise Architects, Design Architect, Austin, Texas, and BOKA Powell, Architect of Record, Dallas, Texas
Glazing Contractor: Win-Con Enterprises, New Braunfels, Texas
Photography: © CJBerg Photographics



500 Tuffline™ Entrances and Trifab™ VG (VersaGlaze™) 451T Framing
Pennsylvania State University School of Architecture and Landscape Architecture (SALA), State College, Pennsylvania
LEED® Gold certified
Architect: Overland Partners Architects, San Antonio, Texas
Glazing Contractor: Nittany Building Specialties, Port Matilda, Pennsylvania
Photography: © CJBerg Photographics

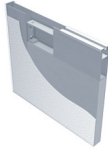


350 Heavy Wall™ Entrances
Kauffman Stadium, Kansas City, Missouri
Architect: Populous, Kansas City, Missouri
Glazing Contractor: The Bratton Corporation, Kansas City, Missouri
Photography: © Mark Kempf

Flushline™ Entrances

Single-acting entrances provide durability with design flexibility for applications such as schools and manufacturing facilities and applications where hurricane impact and blast protection is required

Offers a flush appearance with a face sheet of fiberglass-reinforced polyester (FRP) or aluminum in a variety of colors and captured on four sides by integral, extruded reglets | Heights range from less than 7' to a maximum of 10' | Widths vary from approximately 3' to 4' | Additional strength is achieved by the urethane foam core that interlocks with the aluminum and creates an extremely stable, durable entrance door | Paneline™ Exit Device with minimal 1-1/8" projection is available | Door vision lites are available in aluminum frames with 1/4" or 1" infill | Tested to NFRC thermal standards | 5 lb. per cubic foot poured-in-place closed-cell rigid urethane foam core (meets ASTM E84 rating with ≤ 450 smoke density and ≤ 25 flame spread) | Tested for both large and small missile impact for windborne debris and blast mitigation



Paneline™ and Paneline™ EL Exit Devices

The only clues that this is an exit device are the "push" indication and unlocking action

Paneline™ Exit Devices have been large-missile hurricane impact and cycle tested.

Pressure on the push panel quickly releases the door for emergency egress | Offers improved safety since Paneline™ cannot be chained or blocked | Available with 190/350/500 Standard Entrances, 350 Heavy Wall™ Entrances, 350/500 Tuffline™ Entrances and Flushline™ Entrances | Optional matching dummy panels are available for vestibule doors and fixed panels are available for side lites | Available with electric option for access control



260/360/560 Insulclad™ Thermal Entrances

Narrow, medium and wide stile, providing thermal efficiency for the entire building façade

Both the door and frame are thermally broken |

Complete package of door, fully integrated door frame (with or without transoms) and integrated hardware |

Stile face widths of 2-1/8", 3-1/2" and 5" | Door heights range from approximately 7' to 8' and widths from 3' to 3' 6"

| Kawneer standard welded corner construction | Engineered for use with Kawneer's Trifab™ VG 451T Framing Systems and 1600 Wall Systems™ | Entrance is single acting and mounted on offset pivots, butt or continuous geared hinges | Accepts glazing infill of 1" | Tested to NFRC thermal standards



Flushline™ Entrance

Converse Hall, James Madison University, Harrisonburg, Virginia

Architect: Moseley Harris & McClintock, Harrisonburg, Virginia

Glazing Contractor: Glass & Metals, Inc., Harrisonburg, Virginia

Photography: © Gordon Schenck, Jr.



560 Insulclad™ Thermal Entrances, 1600UT System™1

Curtain Wall, Trifab™ 451UT Framing

Community College of Denver – Confluence Building

Architect: OZ Architecture, Denver, Colorado

Glazing Contractor: Horizon Glass & Glazing Co., Inc., Denver, Colorado

Photography: © CJBerg Photography



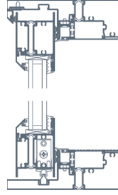
Left to right:

EPT (electric power transfer) mounted to door in retrofit application; Paneline™ EL Concealed Rod Push Panel; Paneline™ EL Outside Control Switch

AA™3200 Thermal Sliding Doors

A high-performance sliding door that meets thermal, coastal and impact resistant requirements

Available in both high performance (HP) and impact resistant (IR) versions | An IsoWeb™ thermal break meets current energy codes and allows a dual finish | Accommodates 1" insulating and 1-5/16" insulating/laminated glass for improved thermal, acoustic and impact performance | Large wheel, stainless steel tandem roller with precision ground sealed bearings provides smoother operation even on large/heavy panels | Corrosion-resistant stainless steel locks and fasteners | 2-1/4" standard sill provides an aesthetically pleasing smaller sightline | Slab-to-slab operable panels can span up to 10' tall | Unique beveled profiles create architectural shadow lines, allowing commercial product to receive mid- to high-rise residential acceptance | Multiple configurations: OX, XO, OXO, OXXO and OXOO | Tested to NFRC thermal standards

**990 Sliding Doors**

Engineered for rain-battered high- and low-rise applications

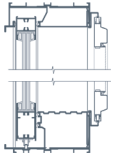
Features an adjustable steel ball-bearing, tandem-roller assembly to assure trouble-free, smooth operation and positive weatherseals on all sides | The manual sliding 990 is a complete system of door, door frame and hardware, available in four configurations | Stile face width is 2-1/2" (63.5 mm) and the door accepts infills from 3/16" to 1" (4.8 mm to 25.4 mm) | Withstands water infiltration at 10 PSF and meets or exceeds all criteria established by AAMA for ratings of C30, HC40 and HC60

**HPST™ and HPX Monumental Sliding Doors**

High performance designed to meet extreme conditions *HPST™ and HPX Monumental Sliding Doors have been hurricane impact and cycle tested.*

HPST™ Sliding Doors are available in four different performance ranges for low- and medium-rise applications | Tested for Performance Class and Grade HC60, HC80, HC100 and HC120 | Small-missile impact and cycle tested

HPX Sliding Doors are designed for high-rise coastal applications requiring greater wind load and superior water performance | Tested for Performance Class and Grade HC160 | Large- and small-missile impact and cycle tested



HPST™

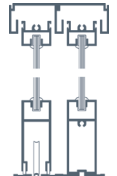
1010/1010C and 1040 Sliding Mall Fronts

For single- and multi-track interior and exterior applications

Available with both fixed and operable panels

The **1010/1010C Sliding Mall Front** has a low-profile multi-track that can be recessed or surface applied | Interior applications only | Accepts infills from 1/4" to 1"

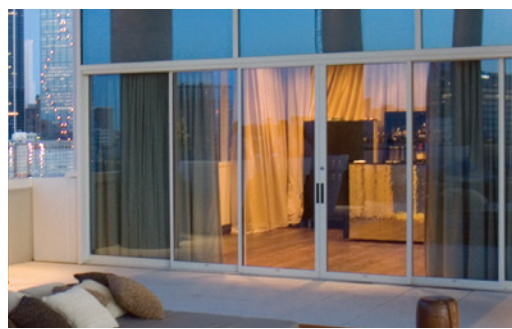
The **1040 Sliding Mall Front** is a single-track unit with three stacking options: parallel staggered, parallel even and 90° | Accepts 1/4" infills



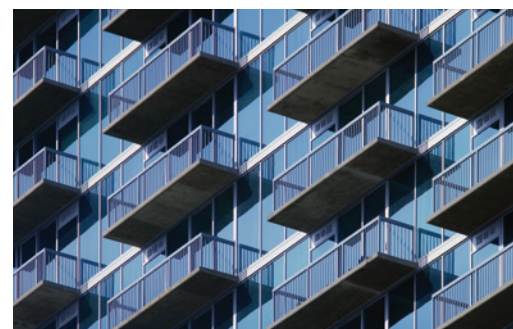
1010

**990 Sliding Doors**

Hurst Conference Center, Hurst, Texas
Architect: Ron Hobbs Architects, Garland, Texas
Glazing Contractor: Alliance Glass and Mirror Ltd., Keller, Texas
Photography: © Wes Thompson

**1010 Sliding Mall Front (modified)**

W Dallas Victory Hotel & Residence, Dallas, Texas
Architect: HKS, Inc., Dallas, Texas
Customer: Win-Con Enterprises, Inc., New Braunfels, Texas
Photography: © Blake Marvin - HKS, Inc.

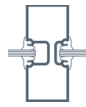
**HPST™ Monumental Sliding Doors (modified)**

Realm Condominiums, Atlanta, Georgia
Architect: The Preston Partnership, LLC, Atlanta, Georgia
Glazing Contractor: Glass Systems Inc., Lithonia, Georgia
Photography: © Jim Roof

FRAMING

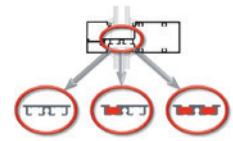
Trifab™ 400 Framing System

Proven solution for storefront and low-rise applications
1-3/4" x 4" frame members | Accepts 1/8", 1/4" and 3/8"
monolithic infills | May be flush glazed from the inside
or outside | Choice of screw spline, shear block or stick
fabrication



Trifab™ 601, 601T and 601UT Framing Systems

Larger, more versatile span delivers more
thermal options and more design choices



Three-in-one framing series includes the non-thermal Trifab™ 601, the single IsoLock™ thermal break Trifab™ 601T and the dual IsoLock™ thermal break Trifab™ 601UT | The greater system depth combined with three thermal performance options make this one of the most versatile framing systems available | 2" x 6" frame members accept infills up to 1-1/8" | Tested to NFRC thermal standards | Glass pockets are aligned to the 4-1/2"-deep center set Trifab™ framing systems, allowing integration of the two system depths on the same façade | Screw spline fabrication | High-performance (HP) flashing and HP interlock clip are engineered to eliminate the perimeter sill fasteners and their associated blind seals | U-factors, CRF values and STC ratings for Trifab™ 601T and 601UT vary and depend on glass | Project-specific U-factors are easily calculated using technical charts (see Kawneer.com or Architectural Manual)

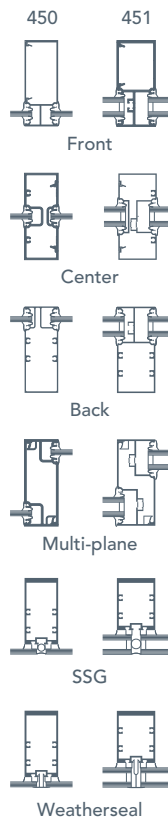
Trifab™ VG (VersaGlaze™) 450, Trifab™ VG 451, Trifab™ VG 451T and Trifab™ 451UT Framing Systems

Built on the proven and successful Trifab™ platform, these framing systems offer design versatility with unmatched fabrication flexibility

Trifab VG 450: 1-3/4" x 4-1/2" frame members accept 1/8", 1/4" and 3/8" monolithic infills

Trifab VG 451, 451T and Trifab 451UT: 2" x 4-1/2" frame members accept infills up to 1-1/8" | Tested to NFRC thermal standards

Choice of front, center, back or multi-plane glass applications with VG frames | Choice of screw spline, shear block, stick or punched opening fabrication | High-performance (HP) flashing and HP interlock clip are engineered to eliminate the perimeter sill fasteners and their associated blind seals and are compatible with all glass planes | Flush glazed from either the inside or outside | Weatherseal is not silicone, but an ABS/Geloy™ extrusion offering a consistent sightline of 15/16" at every glass joint | Weatherseal allows complete inside glazing with no scaffolding or swing stages to run typical exterior silicone weatherseal | Trifab™ 451UT is designed for the most demanding thermal performance and employs a dual IsoLock™ thermal break | IsoLock™ thermal break option (Trifab™ VG 451T) and dual IsoLock™ thermal break (Trifab™ 451UT) are designed to AAMA TIR-A8 and tested to AAMA 505 | U-factors, CRF values and STC ratings for Trifab™ VG 451T and 451UT vary and depend on glass and/or glass plane | Trifab™ 451 and 451T-IR tested to ASTM E 1996 Wind Zone 3, Level D requirements | Project-specific U-factors are easily calculated using technical charts (see Kawneer.com or Architectural Manual)



Trifab™ VG 451 Center Glazed Framing and 1600 Wall System™2 Curtain Wall
Gateway Corporate Center, Coppell, Texas
Architect: O'Brien & Assoc., Dallas, Texas
Glazing Contractor: B&B Glass Inc., Dallas, Texas
Photography: © Wes Thompson



Trifab™ 400 Framing System used in interior application
Heifer International World Headquarters, Little Rock, Arkansas
LEED®* Platinum certified
Architect: Polk Stanley Rowland Curzon Porter Architects, Ltd., Little Rock, Arkansas
Glazing Contractor: ACE Glass Co., Inc., Little Rock, Arkansas
Photography: © Timothy Hursley



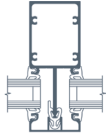
Trifab™ VG 451T, 500 Heavy Wall™ Entrances with 10" bottom rail, Versoleil™ SunShades
Hope Clinic, Lawrenceville, Georgia
Architect: Lindsay Pope Brayfield Clifford & Associates, Lawrenceville, Georgia
Glazing Contractor: Capital City Glass, Inc., Lawrenceville, Georgia
Photography: © Creative Sources Photography/
Rion Rizzo

EnCORE™ Thermal Framing System

The two-piece, face-and-gutter system that offers thermal economy with numerous design options

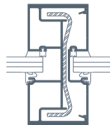
Offers a broad selection of system depths and a 1-3/4" sightline | Accepts 1/4" and 1" glazing infills and can be quickly adapted to accept other infills in 1/8" increments |

Two-piece assembly easily accommodates two-color finish options and curved applications | Glazing plane can be to the exterior or centered in the mullion | Can be structural silicone glazed | Choice of screw spline, shear block or punched opening fabrication | Type A (vertical members run through) or Type B (head and sill members run through) | Project-specific U-factors are easily calculated using technical charts (see Kawneer.com or Architectural Manual) | Tested to NFRC thermal standards

**IR 500/501 Framing System**

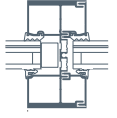
A center-glazed storefront framing system for hurricane impact/windborne debris requirements

2-1/2" x 5" frame members accept 9/16" and 5/8" impact or 1/4" non-impact infills (IR 500) | 2-3/4" x 5" frame members accept 1-5/16" impact or 1" non-impact infills (IR 501) | Flush glazed from the outside, with options for interior silicone seal or dry gasket | Screw spline fabrication | High-performance sill flashing | IR 501 tested to NFRC thermal standards | Hurricane impact and cycle tested | Blast tested per ASTM F 1642 | 350 IR singles or pairs of entrances available with 3-point lock, touch bar panics or Paneline™ panics

**IR 501T/501UT Thermal Framing System**

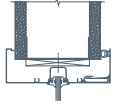
A center-glazed thermally broken storefront framing system for hurricane impact/windborne regions and blast mitigation projects

2-3/4" x 5" frame members accept 1-5/16" insulating laminated glass | Flush glazed from the exterior | Screw spline fabrication | High-performance sill flashing | Dual IsoLock™ thermal break for maximum thermal performance | Large- and small-missile hurricane impact and cycle tested | Tested to NFRC thermal standards | Blast tested per ASTM F 1642

**InFrame™ Interior Framing System**

An interior framing system that captures drywall 2" (50.8 mm) sightline x 6" (152.4 mm) depth members accept 1/8", 1/4" or 3/8" infill | Screw spline joinery |

Wraparound perimeter profile captures drywall | Accommodates standard Kawneer entrances | Features perimeter bulb gasket to compensate for variations in drywall thickness and inconsistencies



EnCORE™ Thermal Framing System
Manitowoc Public Library, Manitowoc, Wisconsin
Architect: Engberg Anderson Design, Milwaukee, Wisconsin
Glazing Contractor: Sheboygan Glass Company, Inc., Sheboygan, Wisconsin
Photography: © Bob Freund



IR 500 Framing System
Tarpon Springs Public Safety Building, Tarpon Springs, Florida
Architect: Gee & Jenson Engineers Architects Planners Inc., West Palm Beach, Florida
Glazing Contractor: Ashe Glass & Mirror, Temple Terrace, Florida
Photography: © Gordon Schenck



Trifab™ VG 451T (Thermal) Rear Glazed Framing
Preston Pointe, Louisville, Kentucky
Architect: Potter & Associates Architects PLLC, Louisville, Kentucky
Glazing Contractor: Kentucky Mirror & Plate Glass Company, Louisville, Kentucky
Photography: © Moberly Photography Inc.



HPS™ Monumental Sliding Doors
 Atlantis Casino & Resort, Paradise Island (Nassau), Bahamas
Architect: HKS, Inc., Dallas, Texas
Glazing Contractor: Commonwealth Building Supply Ltd.,
 Nassau, Bahamas
Photography: © Gordon Schenck

FINISHES

ANODIZED FINISHES

Long-lasting, protective coatings resist abrasion, corrosion and UV rays, and meet or exceed AAMA 611

Architectural Metals

Light satin is a Class I finish with a chrome-like brightness and light brushed texture | Available on a variety of products

Permanodic™ Clear Finishes

Available in Anodized Class I (#14) or Class II (#17)

Permanodic™ Color Finishes

Available in clear (Class I and Class II) and color (Class I) choices, including champagne, black, light bronze, medium bronze and dark bronze

PAINTED FINISHES

Fluoropolymer Coatings – Enduring color with high performance and durability

Available in many standard choices and unlimited custom colors | These include Permafluor™ and Permadize™ finishes, which meet or exceed AAMA 2604 or AAMA 2605

Powder Coatings – Create a green element with solvent-free high performance, durability and scratch resistance

Permacoat™ finishes available in 24 standard colors | Powder coatings meet or exceed AAMA 2604

NOTICE

Laws and building and safety codes governing the design and use of windows, glazed entrance, framing, curtain wall and overhead glazing products vary widely. Kawneer does not control the selection of product configuration, operating hardware or glazing materials, and assumes no responsibility thereof.

Information contained in this catalog is subject to change without notice.

OTHER PRODUCTS FROM KAWNEER

Curtain Wall & Overhead Glazing 08 44 00; Windows 08 51 00

FOR MORE INFORMATION

Visit Kawneer.com for more detailed information, including the most current Guide Specifications, CAD libraries and BIM product models.

COVER PHOTO:

Trifab™ 451 Framing System, 500 Wide Stile Entrances with 10" Bottom Rails (interior application shown)

North American corporate headquarters of Saint-Gobain and CertainTeed, Malvern, Pennsylvania

Architect: Bernardon, Kennett Square, Pennsylvania and Jacobs, Philadelphia, Pennsylvania

Glazing Contractor: Malvern Glass, Malvern, Pennsylvania

Photography: © Jeffrey Totaro

Architectural Manual

ULTRA™
Series

Fiberglass Windows & Patio Doors



Clearly the best.®



Instructions on how to use this manual:

This document has been designed for easy navigation and to quickly click to the section you need. Here's some important tips on using this document:

- Any item print in **red**, will click through to the corresponding item.
- Click to any item in the Table of Contents on **page 3**. Click on the Milgard logo at the top of any page to return to the Table of Contents - FULL MANUAL ONLY.
- From each section's Quick Links page, click to any Drawing listed.
- From any Drawing page, click the "Go Back to Quick Links" box on the bottom right of the page to return to the list of drawings.
- Click on the links on the bottom of the page to go to Revit, SketchUp . PDF and .DWG files. Please note that you must have internet access for these links and you will be re-directed to the Milgard site.
- This document can also be navigated from Adobe Acrobat Bookmarks.

Revit, SketchUp, .PDF and .DWG files can be accessed
at **milgard.com/professionals** or clicking here:

[Ultra™ Series Architectural Library](#)

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About Ultra™ Series

Fiberglass itself is nothing new. It's been floating boats and adding strength to ladders for years. But until recently, the complex profiles required for window and door designs have been impossible to attain with fiberglass.

Milgard's research and design team faced this challenge and engineered a window and door system that's impervious to water, cold, heat, insects, salt air and ultraviolet rays. The end result: efficient windows and doors that maintain their beauty in every season, in any climate.

New Construction vs. Retrofit

Ultra Series can be used for new construction or retrofit applications as it offers block frame and Z-bar frames in addition to nail fins.

Screens

Ultra Series comes with standard screens or PureView® premium mesh screens with a pull rail frame as an upgrade option.

Warranty

Ultra Series comes standard with the Full Lifetime Warranty including parts and labor, and with Glass Breakage Coverage.

Components

Available Operating Styles

Find frame styles for each operating style:

Awning

Fixed Awning

Casement

Fixed Casement

Horizontal Sliding (Half Vent)

Double Horizontal Sliding

Single Hung

Picture/Radius

Bay/Bow

Sliding Patio Door

Swing Patio Door

Feature/Benefit Snapshot

Fiberglass: A structural material with superior strength and thermal performance characteristics, ideal for intricate window and door frame profiles. So durable, we use diamond-tipped saw blades to cut our frame stock. Frame stock is produced using a process known as pultrusion. Glass rovings and mats are pulled at tremendous forces through a resin bath and a series of dies. These materials combine and catalyze to provide unparalleled tensile and torsional strength.

- Up to 3 times stronger than wood; up to 8 times stronger than vinyl.
- Minimal thermal expansion/contraction across large temperature extremes – matches movement of glass, relieving virtually all stresses on the glazing unit to protect glazing seals and ensure smooth operation.
- Dark colors do NOT cause adverse frame movement – perfect for projects calling for even black exterior frame color.
- Wet-glazed silicone sealant glazing method for superior, permanent weather seal.
- No swelling, cracking, binding, twisting or rotting like wood.
- Milgard EdgeGuardMax™ insulating glass units come standard on all fiberglass windows and doors.
- 7/8" thick glazing unit – ASTM E-774-81 Class A rating – sealed with long-life butyl sealant.
- Every order is custom built – at standard lead times. Perfect for replacement applications, with dimensions accepted down to 1/16" increments.
- Incredible frame strength provides light commercial and commercial structural ratings – making fiberglass windows and doors suitable in many commercial project applications.
- Multiple hardware finishes to choose from in both the window and door line.
- Window and window/door configurations are factory mulled for ease of field installation – large sizes ship open for field glazing where

weight and safety is a factor.

- Numerous glass options available – including tempered, obscures, tints, laminated, etc.
- All operating hardware utilizes top-quality components and fasteners.
- Fiberglass doors use multi-point locking hardware to provide enhanced security.

Ultra Series windows and patio doors face the elements with a sturdy pultruded fiberglass frame that won't warp, rot, swell, peel or mildew. The frame makes your windows stronger and more resistant to impact and settling. It's strong like aluminum, energy efficient as wood and low maintenance as vinyl.

Frame Specifications

From inside of frame to nail flange is 2-7/8", and from outside of window frame to include nail fin is 1-3/8", to give you a 4-1/4" overall frame depth.

Joined frame and liners are available in standard widths of 4-9/16" or 6-9/16" for standard wall construction. Other custom widths are also available, subject to engineering review.

Wood Jamb Extensions

Wood jamb extensions are an optional feature with Ultra fiberglass windows and are available in both clear solid wood, wood with a premium veneer applied or preprimed finger jointed wood.

Nail-On Fin

A 1-1/4" pre-punched, flexible nail flange extends around the perimeter frame, securing the window in rough openings. The 3110 and 3110U Series is available without nailing fin or with Z-Bar flush fin retrofit trim for use as a replacement window.

Other Components

Glazing Material

Wet-glazed silicone sealant adheres glass in place, which seals and cushions the glass. Rigid vinyl setting blocks are used to support the unit above the sill, preventing glass slippage and glass-to-frame contact. Pultruded fiberglass glazing (snap-in) bead is applied around the exterior edge.

Glass

Insulating dual glazed panes, 7/8" in overall thickness, are butyl sealed for energy efficiency, with Milgard SunCoat™ Low-E insulating glass standard in all glazing units.

Weatherstripping

Foam filled seal and silicone-treated, water-repellent polypropylene fin seal weatherstripping provides a durable, weather-tight seal. This weatherstripping is installed around the entire perimeter of the vent panel.

Roller Assembly

Adjustable self-lubricating, wear resistant, dual nylon rollers provide flexible, free-wheeling, smooth and silent operation. Rollers are engineered for reduction of friction and elimination of torque on the ventilator frame.

Balancer Assembly

The ventilator operates on concealed block and tackle balancers, allowing the vent to remain open in any position. The balancer is installed in the jamb on each side of the window.

Locking Assembly

Cam lock or Positive Action™ Lock mechanism may be specified as an option.

Weep System

Primary weep system is located in hollow sill construction. Baffled weep holes drain water from track and help prevent blow-back, or water seeping to the inside caused by a combination of wind and rain. A secondary baffled weep system is located in the pultruded fiberglass glazing bead.

Vent Panel

The ventilator has an "L"-shaped lip that fully interlocks with the vertical meeting rail, adding security and preventing weather penetration. Its roller assembly rides on a monorail track for easy operation and durability. This raised track in the frame sill helps keep the ventilator system free from interference by foreign particles that may collect in the sill.

Screens

Screen frames are cambered aluminum, reinforced with rigid plastic corner clips. Screen frames are available to match the exterior color. Optional PureView fiberglass screen mesh is low visibility, strong, durable and easy to replace. Two pulls located on the screen allow you to install from inside of house.

Sizing

All windows are factory-sized to fit in a framed opening, whether new or created by removing an existing window. Windows will be 1/2" smaller than the framed (rough) opening to allow 1/4" clearance on all sides (tolerance at +/- 1/16"). Built to rough opening size, with 1/2" deductions automatically made, no complex calculations are required for ordering.

Options

Grids

Ultra series windows and doors offer multiple grid configurations from seven different grid options.

Grid patterns placed inside the glazing unit include 5/8" wide flat grids and 1-1/16" wide sculptured pattern grids.

Grid patterns that simulate true divided lites are 1-1/8" Legacy, 1-1/8" Craftsman, 1-1/8" Vintage and 3/4" Vintage. Snap-in wood grids attach to the interior side of the window or door and remove for easy cleaning. (See page 11 for patterns)

Specify requirements for matching grid patterns at the time of order. If match requirements are not specified, the grids may not line up with those in another size or series of window.

Unless otherwise specified, the grids will divide the window equally, with the bars set between 8-3/4" and 12" apart. A 4'0" x 3'0" picture window would be four squares wide by three squares high. A 4'0" x 3'0" single-hung would be four wide x four high because of the intermediate horizontal bar.

Brickmould

A 2" wide x 1-1/2" thick factory-primed wood brickmould trim is an available option for a finished exterior appearance.

Hardware

Hardware is available in both painted and metal finishes. (See pages 8-9)

Energy Packages

Milgard adheres to ENERGY STAR® v6 requirements to meet or exceed U-Factor and Solar Heat Gain Coefficient (SHGC) criteria for all ENERGY STAR®

zones.

Milgard also offers high energy performance options for the ultimate in energy efficiency. Energy efficient windows could include one or more of the following features based on your climate.

- SunCoat® or SunCoatMAX®
- EdgeGardMAX®
- Argon or Krypton
- 4th Surface
- Triple Glaze

For more details on Milgard Energy Efficient packages, visit www.milgard.com/learn/energy-efficiency/energy-efficient-components

To check the energy performance of all Milgard windows and doors, use our Energy Calculator at:

milgard.com/energy-calculator

Full Lifetime Warranty and Glass Breakage Coverage

Full Lifetime Warranty is available on Ultra Series with Glass Breakage Coverage. For complete warranty details visit milgard.com.

Caution: The use of petroleum based fuels or solvents as release agents in stucco wall installations or glass cleaning will chemically attack materials used in seals and other components, and voids the Milgard Warranty. The use of wax-based release agents is recommended.

Expanding foam for insulation purposes should not be used. Backer rod or loose packed fiberglass bat insulation is recommended.

Window Hardware

Our window hardware is attractive, durable, secure and easy to operate. All hardware is available in these styles and your choice of finishes.

Single Hung and Horizontal Slider



Your choice of Positive Action Lock (left) shown in White or Cam Lock (right) shown in Clay

Casement and Awning



Standard Handle shown in Dark Bronze
Folding Handle (upgrade) shown in Clay

Sash lock shown in
Brass

Window Hardware Finishes

White

Clay

Brass

Brushed Chrome

Dark Bronze

Door Hardware

Coordination and consistency are important to a well designed home. That's why we are offering our patio door hardware in these styles with the same finishes available for Ultra and WoodClad windows.

Swing Door Handles (interior & exterior)

Sliding Door Handles (interior & exterior)



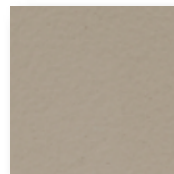
Sidelite Handle



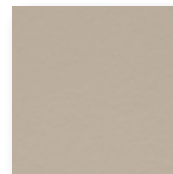
Door Hardware Finishes



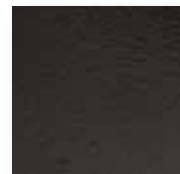
White



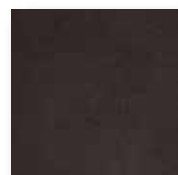
Tan



Clay



Slate Black



Oil Rubbed
Bronze



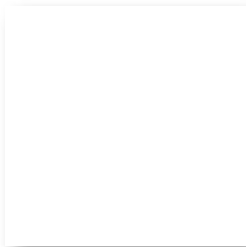
Brushed
Chrome



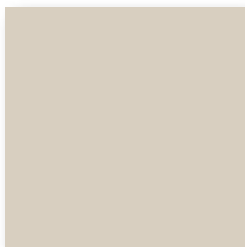
Satin
Nickel

Frame Colors

Interior Frame Colors



White
with any exterior
color



Harmony
with Harmony
exterior only

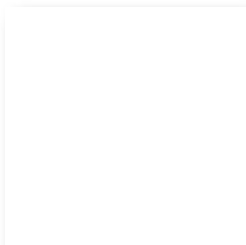


Bark
with Bark
exterior only

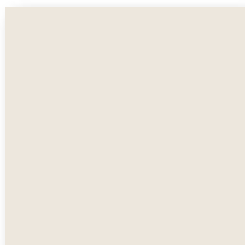


Black Bean
with Black Bean
exterior only

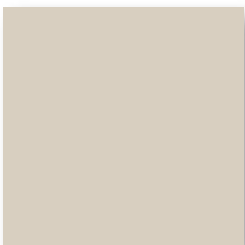
Exterior Frame Colors - White interior only



Frost



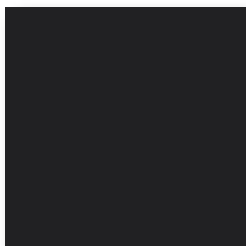
Sand



Harmony



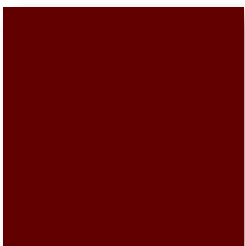
Bark



Black Bean



Fern



Cinnamon

Colors shown are approximate due to printing limitations.

Grids

Express your creativity and dramatically increase curb appeal with our virtually endless grid options. Choose flat or sculptured grids inside our insulated glass units for easy cleaning.



Flat Grid



Craftsman



1-1/8" Vintage



Sculptured



Legacy



3/4" Vintage

Full Lifetime Warranty

At Milgard, we build our windows and doors to last. With the dedication to quality that we put into building the best windows in the business, it wouldn't make sense to back them with anything but the best warranty in the business. That's why we back every properly installed window and door for as long as the homeowner owns their home—including parts and labor. Ultra Series windows and doors also come standard with Glass Breakage Coverage. We also offer a 10-year limited warranty for commercial projects. It's why you can be sure you won't find any windows better than Milgard.

For complete warranty details, visit milgard.com.



Why Milgard?

Milgard is one of the largest and most trusted names in windows and doors. For the last 50 years, we've demonstrated our commitment to innovation, quality and service.

While our coverage is extensive, our service is local. Milgard has multiple locations throughout the Western U.S. and Western Canada. Our belief is that by being close to our customers, we can provide them better service. This means faster lead and delivery time, as well as faster response to any warranty situations. We're there for you long after the job has been completed. Milgard also has a comprehensive network of qualified dealers and offers some of the best training in the industry.

Casement Window



A casement window swings outward like a door, hinged on right or left side. Casement windows can be used alone or in tandem with other Ultra Series windows for virtually any design specification.

Ultra Series fiberglass windows and doors offer outstanding insulating properties and low maintenance, plus they stand up to weather, insects, and ultraviolet rays, and maintain their beauty through every season. The windows will maintain their color and shape and can be constructed to your exact size specifications, subject to engineering review. All Milgard Ultra Series windows are made to order at no additional charge.

Please also see:

[Awning/Casement Hardware](#)

[Frame Colors](#)

[Full Lifetime Warranty](#)

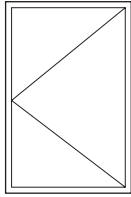
[Energy Packages](#)

[Accessories](#)

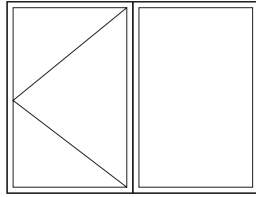


Casement Window

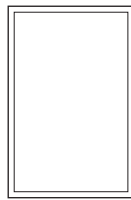
Configurations



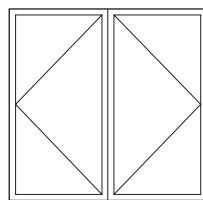
Full Casement



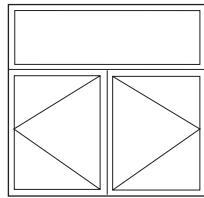
Single Casement



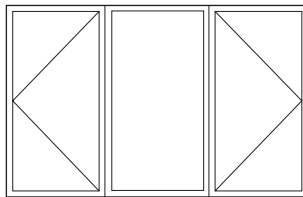
Fixed Casement



Double Casement



Double bottom Casement



Double Casement/Picture

Minimum/Maximum Sizes

FULL CASEMENT

- Min 1'6" Max 3'5" or 2'6"

DOUBLE CASEMENT

- Min 3'2" Max 6'5" or 5'6"

15 square feet maximum vent size

- Min vent width 1'6" - Max vent width 3'
- Min vent height 1'6" - Max vent height 6'

Minimum egress for casement is 2'4" or 3'3"

NOTE: For engineering approval contact your Milgard representative for any configuration over 40 square feet. Each Milgard Manufacturing plant reserves the right to alter or change sizes and configurations according to location capabilities. Ask your Milgard rep about specialty applications. Windows over 40 square feet shipped open for field glazing. Varies by location.

Not all frame styles available at all Milgard locations. Contact your Milgard Representative for more information.

Drawings - Quick Links

Casement Window

58—1-3/8" Fin Setback

59—1" Fin Setback

60—1-3/4" Contour Z-Bar

61—2-1/4" Contour Z-Bar

62—Block Frame

Revit, SketchUp, .PDF and .DWG files can be accessed
at milgard.com/professionals or clicking here:

[Ultra Series Architectural Library](#)

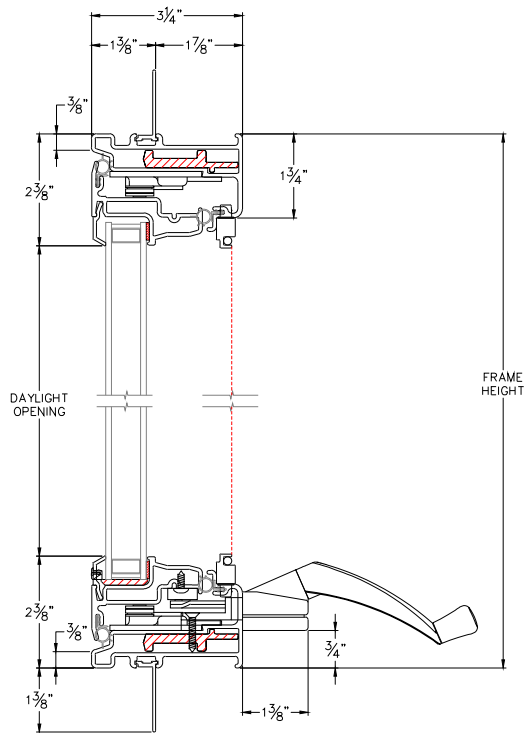
Casement Window

1-3/8" Fin Setback

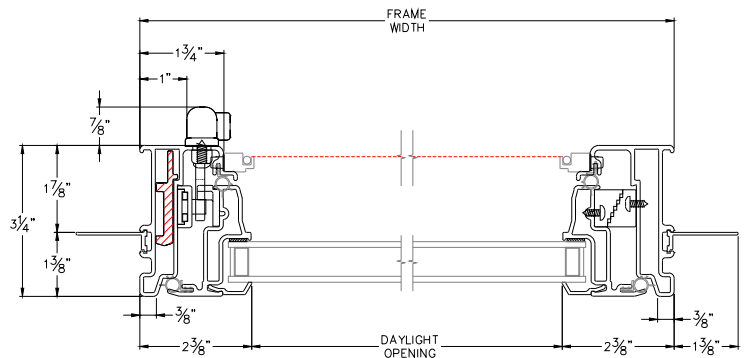
CAD File Scale	View	File Name	Units
NTS	Horizontal & Vertical	3510U-02 FC	Inch

More Technical Documents can be found at milgard.com/professionals
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CASEMENT SERIES 3510



HEAD & SILL



JAMBS

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Ultra Series Architectural Library

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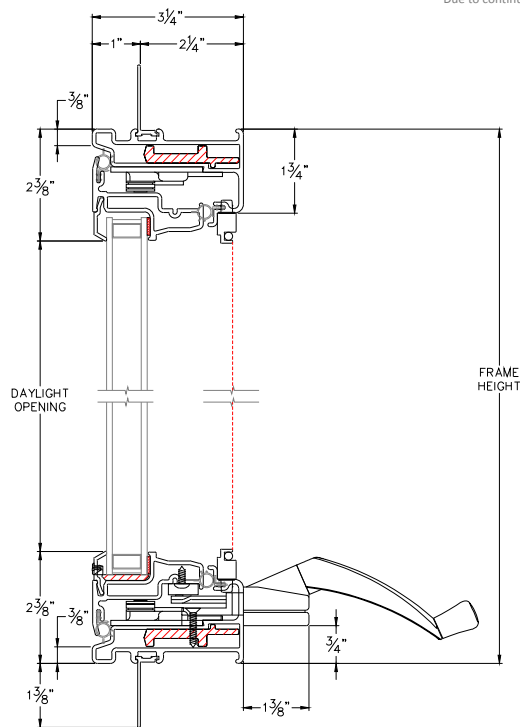
Casement Window

1" Fin Setback

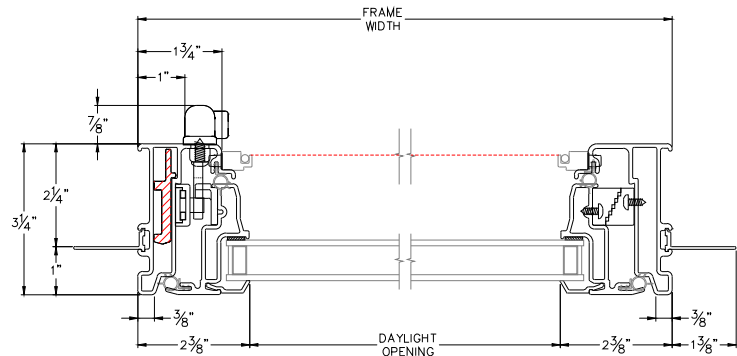
CAD File Scale	View	File Name	Units
NTS	Horizontal & Vertical	3510U-03 FC	Inch

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CASEMENT SERIES 3510



HEAD & SILL



JAMBS

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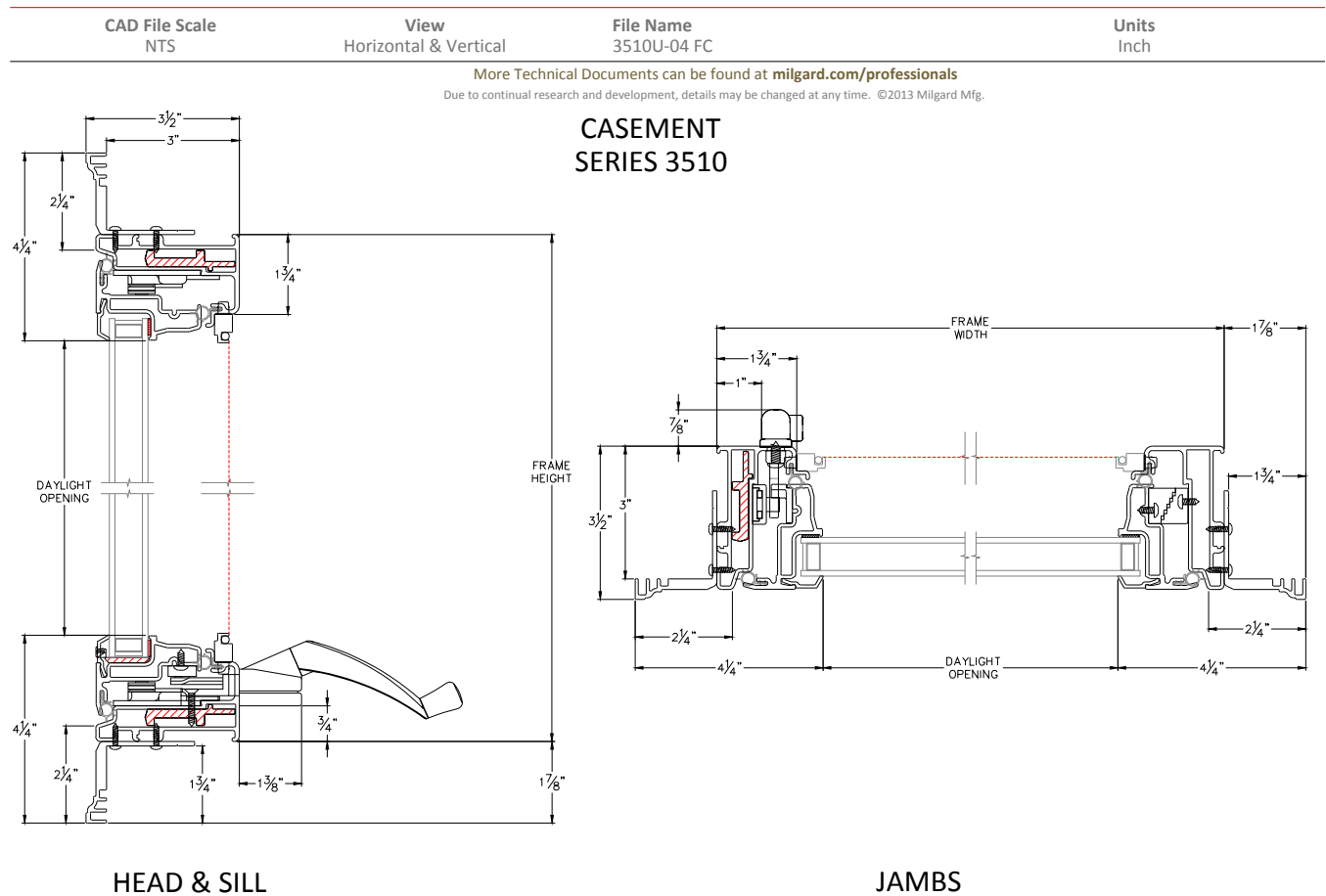
Ultra Series Architectural Library

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Casement Window

1-3/4" Contour Z-Bar



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Ultra Series Architectural Library

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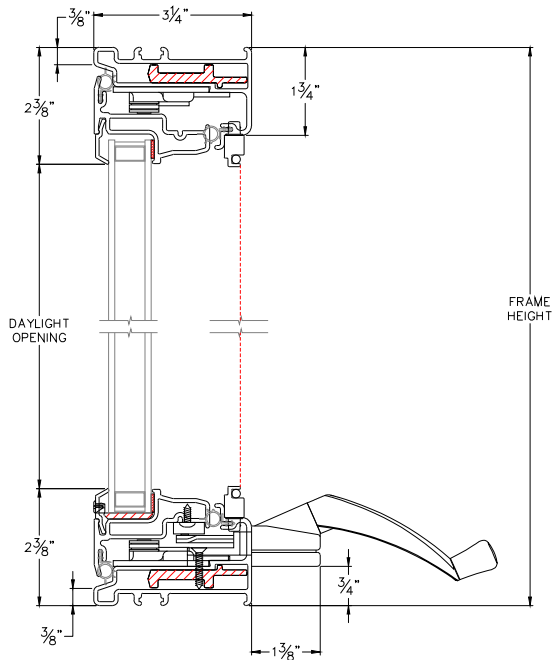
Casement Window

Block Frame

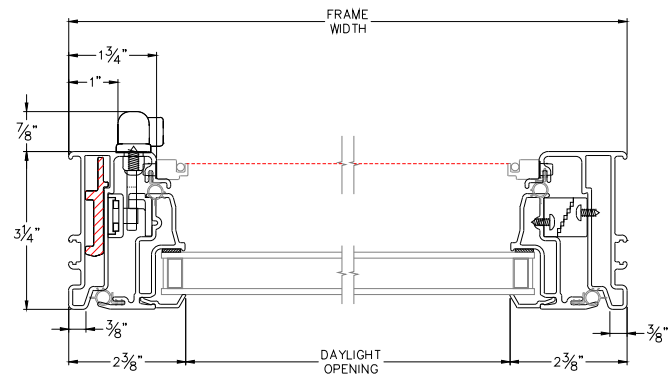
CAD File Scale	View	File Name	Units
NTS	Horizontal & Vertical	3510U-01 FC	Inch

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CASEMENT SERIES 3510



HEAD & SILL



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DESCRIPTION

The patented Lumark Crosstour™ LED Wall Pack Series of luminaires provides an architectural style with super bright, energy efficient LEDs. The low-profile, rugged die-cast aluminum construction, universal back box, stainless steel hardware along with a sealed and gasketed optical compartment make the Crosstour impervious to contaminants. The Crosstour wall luminaire is ideal for wall/surface, inverted mount for façade/canopy illumination, post/bollard, site lighting, floodlight and low level pathway illumination including stairs. Typical applications include building entrances, multi-use facilities, apartment buildings, institutions, schools, stairways and loading docks test.

SPECIFICATION FEATURES

Construction

Slim, low-profile LED design with rugged one-piece, die-cast aluminum hinged removable door and back box. Matching housing styles incorporate both a small and medium design. The small housing is available in 12W, 18W and 26W. The medium housing is available in the 38W model. Patented secure lock hinge feature allows for safe and easy tool-less electrical connections with the supplied push-in connectors. Back box includes three half-inch, NPT threaded conduit entry points. The universal back box supports both the small and medium forms and mounts to standard 3-1/2" to 4" round and octagonal, 4" square, single gang and masonry junction boxes. Key hole gasket allows for adaptation to junction box or wall. External fin design extracts heat from the fixture surface. One-piece silicone gasket seals door and back box. Minimum 5" wide pole for site lighting application. Not recommended for car wash applications.

Optical

Silicone sealed optical LED chamber incorporates a custom engineered mirrored anodized reflector providing high-efficiency illumination. Optical assembly includes impact-resistant tempered glass and meets IESNA requirements for full cutoff compliance. Available in seven lumen packages; 5000K and 4000K CCT.

Electrical

LED driver is mounted to the die-cast housing for optimal heat sinking. LED thermal management system incorporates both conduction and natural convection to transfer heat rapidly away from the LED source. 12W, 18W, 26W and 38W series operate in -40°C to 40°C [-40°F to 104°F]. High ambient 50°C models available. Crosstour luminaires maintain greater than 89% of initial light output after 72,000 hours of operation. Three half-inch NPT threaded conduit entry points allow for thru-branch wiring. Back box is an authorized

electrical wiring compartment. Integral LED electronic driver incorporates surge protection. 120-277V 50/60Hz or 347V 60Hz models.

Finish

Crosstour is protected with a Super durable TGIC carbon bronze or summit white polyester powder coat paint. Super durable TGIC powder coat paint finishes withstand extreme climate conditions while providing optimal color and gloss retention of the installed life.

Warranty

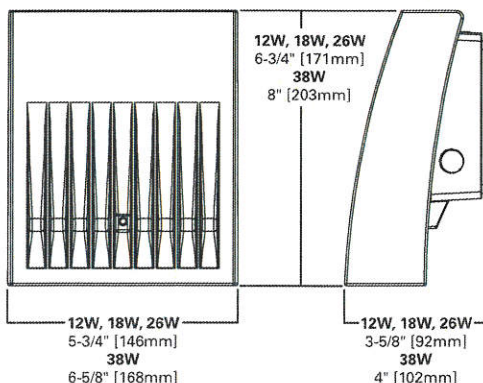
Five-year warranty.



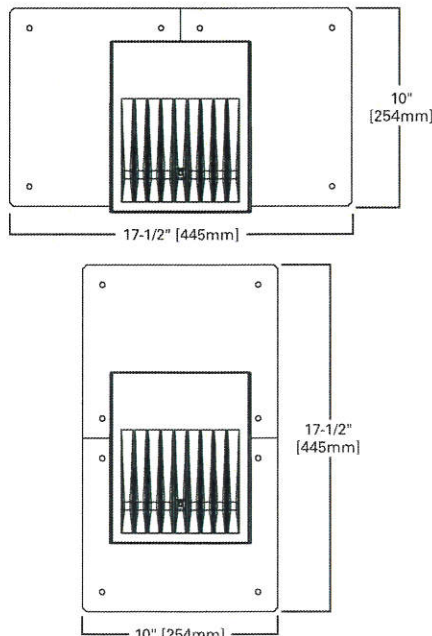
XTOR CROSSTOUR LED

APPLICATIONS:
WALL / SURFACE
POST / BOLLARD
LOW LEVEL
FLOODLIGHT
INVERTED
SITE LIGHTING

DIMENSIONS



ESCUTCHEON PLATES



CERTIFICATION DATA

UL/cUL Wet Location Listed
LM79 / LM80 Compliant
ROHS Compliant
ADA Compliant
NOM Compliant Models
IP66 Ingressed Protection Rated
Title 24 Compliant
DesignLights Consortium™ Qualified*

TECHNICAL DATA

40°C Maximum Ambient Temperature
External Supply Wiring 90°C Minimum

EPA

Effective Projected Area (Sq. Ft.):
XTOR1B, XTOR2B, XTOR3B=0.34
XTOR4B=0.45

SHIPPING DATA:

Approximate Net Weight:
3.7 – 5.25 lbs. [1.7 – 2.4 kgs.]



D-Series Size 0 LED Area Luminaire



Specifications

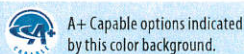
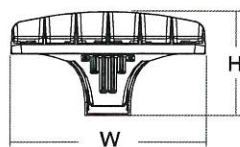
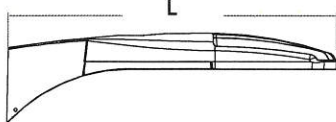
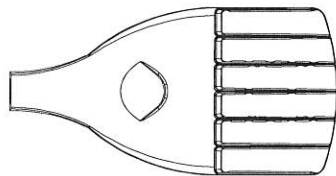
EPA: 0.95 ft²
(.09 m²)

Length: 26"
(66.0 cm)

Width: 13"
(33.0 cm)

Height: 7"
(17.8 cm)

Weight (max): 16 lbs
(7.25 kg)



Catalog Number
Notes
Type

A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and system-level interoperability.

- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency
- This luminaire is A+ Certified when ordered with DTL® controls marked by a **shaded background**. DTL DLL equipped luminaires meet the A+ specification for luminaire to photocontrol interoperability¹
- This luminaire is part of an A+ Certified solution for ROAM® or XPoint™ Wireless control networks, providing out-of-the-box control compatibility with simple commissioning, when ordered with drivers and control options marked by a **shaded background**¹

To learn more about A+, visit www.acuitybrands.com/aplus.

- See ordering tree for details.
- A+ Certified Solutions for ROAM require the order of one ROAM node per luminaire. Sold Separately: [Link to Roam](#); [Link to DTL DLL](#)

Ordering Information

EXAMPLE: DSX0 LED P6 40K T3M MVOLT SPA DDBXD

DSX0 LED

Series	LEDs	Color temperature	Distribution	Voltage	Mounting
DSX0 LED	Forward optics	30K 3000 K	T1S Type I short	MVOLT ^{4,5}	Shipped included SPA Square pole mounting RPA Round pole mounting WBA Wall bracket SPUMBA Square pole universal mounting adaptor ⁸ RPUMBA Round pole universal mounting adaptor ⁸ Shipped separately KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish) ⁹
	P1 P4 P7	40K 4000 K	T2S Type II short		
	P2 P5	50K 5000 K	T2M Type II medium		
	P3 P6	AMBPC Amber phosphor converted ²	T3S Type III short		
	Rotated optics		T3M Type III medium		
	P10 ¹ P12 ¹		T4M Type IV medium		
	P11 ¹ P13 ¹		TFTM Forward throw medium		
			T5VS Type V very short		

Control options	Other options	Finish ^(required)
Shipped installed NLTAIR2 nLight AIR generation 2 enabled ¹⁰ PER NEMA twist-lock receptacle only (control ordered separate) ¹¹ PER5 Five-wire receptacle only (control ordered separate) ^{11,12} PER7 Seven-wire receptacle only (control ordered separate) ^{11,12} DMG 0-10V dimming extend out back of housing for external control (control ordered separate) PIR Bi-level, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc ^{5,13,14} PIRH Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 5fc ^{5,13,14} PIRHN Network, Bi-Level motion/ambient sensor ¹⁵ PIR1FC3V Bi-level, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc ^{5,13,14}	PIRH1FC3V Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc ^{5,13,14} BL30 Bi-level switched dimming, 30% ^{5,16,17} BL50 Bi-level switched dimming, 50% ^{5,16,17} PNMTDD3 Part night, dim till dawn ^{5,18} PNMTSD3 Part night, dim 5 hrs ^{5,18} PNMT6D3 Part night, dim 6 hrs ^{5,18} PNMT7D3 Part night, dim 7 hrs ^{5,18} FAO Field adjustable output ¹⁹	Shipped installed HS House-side shield ²⁰ SF Single fuse (120, 277, 347V) ⁶ DF Double fuse (208, 240, 480V) ⁶ L90 Left rotated optics ¹ R90 Right rotated optics ¹ DDL Diffused drop lens ²⁰ Shipped separately BS Bird spikes ²¹ EGS External glare shield ²¹
		DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white