



Specification Guide

Door & Door Hardware

New Construction, Renovations

Replacements

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Hollow Metal

Requirements

Exterior Frames

- 14 Gage Galvanized Steel
- Heavy Weight Hinge Reinforcement

Interior Frames

- 16 Gage Steel
- Heavy Weight Hinge Reinforcements

Exterior Doors

- 16 Gage Galvanized Steel
- Heavy Weight Hinge Reinforcement
- Must have Flush Top Cap
- Must Have 14 Gage Closer Reinforcement

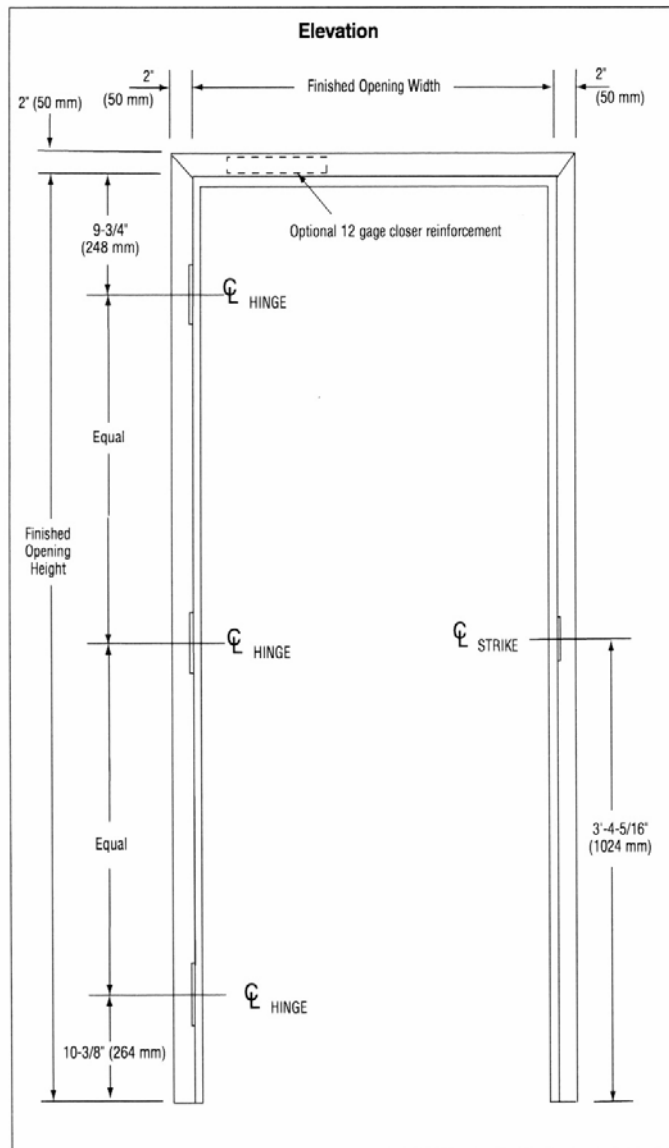
Interior Doors

- 18 Gage Steel
- Must Have Heavy Weight Hinge Reinforcements
- Must Have 14 Gage Closer Reinforcement

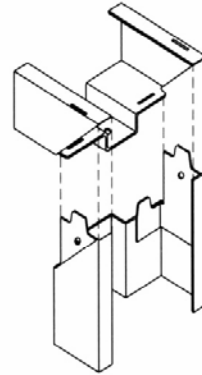
- Note: -All Doors/Frames Must Be Properly Reinforced
For Surface Mounted Hardware
- All Doors/Frames Must Be From The Same
Manufacturer
 - All Frames To Be Welded Construction

Approved Manufacturers

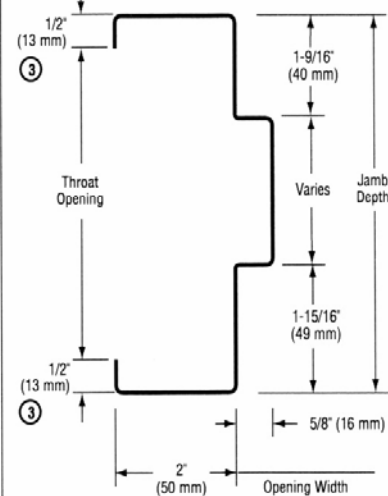
Steelcraft, Curries



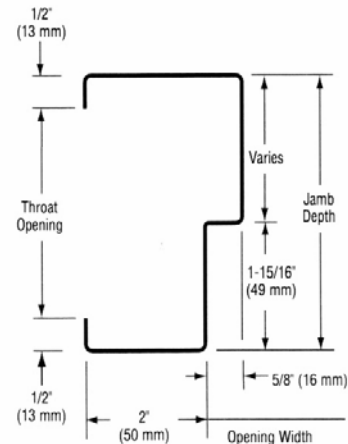
KD Corner Detail



Standard Double Rabbet Frame



Single Rabbet Frame



CONSTRUCTION NOTES:

1. Door opening size maximum:

Single door opening size 5'0" x 11'0"
(1524mm x 3353mm)
Double door opening size 10'0" x 11'0"
(3048mm x 3353mm)

2. Jamb depths (profile) availability:

Single rabbet:

minimum = 3" (76mm)
maximum = 12 3/4" (324mm)

Double rabbet:

minimum = 4 3/4" (121mm)
maximum = 14 3/4" (375mm)

3. Standard profile dimensions (variations available):

Face = 2" (50mm)
Stop = 5/8" (16mm)
Returns = 1/2" (13mm) all frames
except 5 3/4" (146mm) which
is 7/16" (11mm)

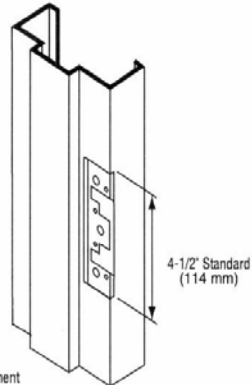
4. Standard die-mitered corners:

Four (4) concealed tabs interlocking
head and jambs

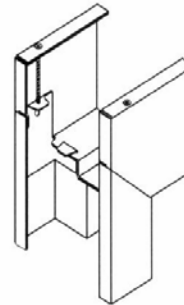
F16 AND F14-SERIES

STEELCRAFT®

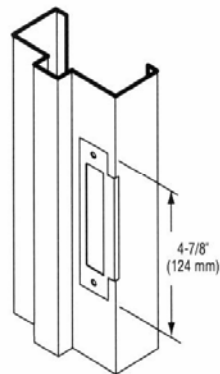
Universal Mortise Hinge Prep



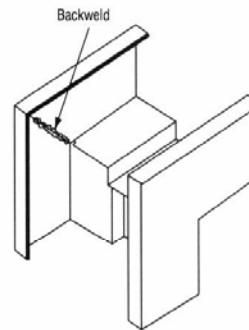
Optional 4" (102mm) Head Detail



47/8" Strike Prep



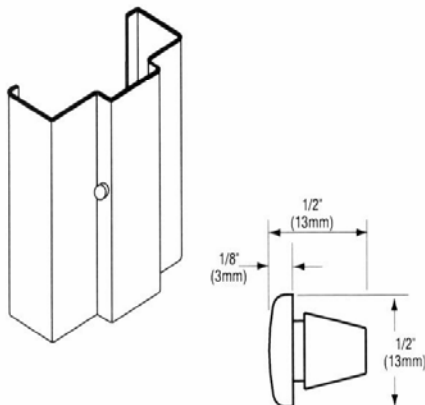
Welded Corner

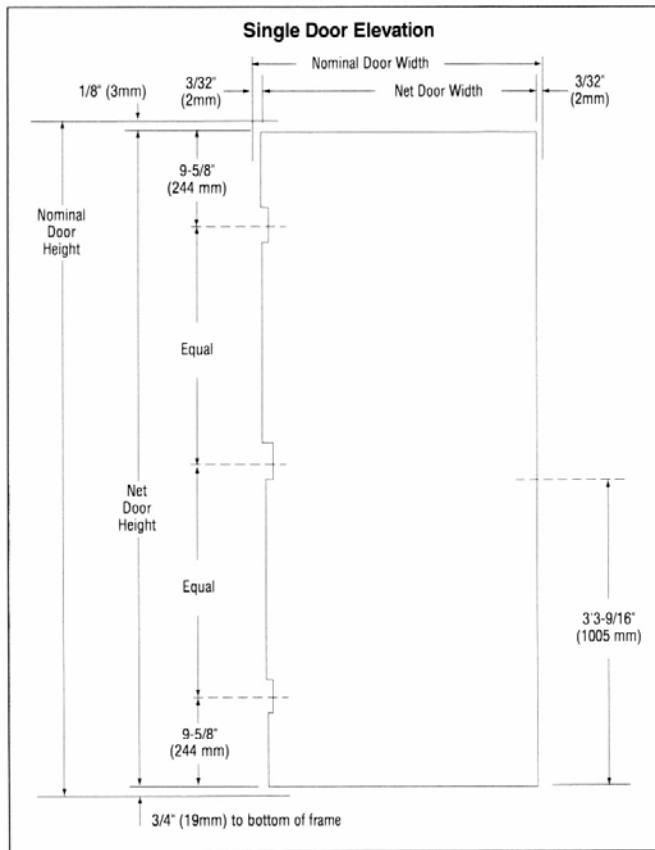


GENERAL NOTES:

- 1. Frame profile** – variations in jamb depths available in 1/8" (3mm) increments:
Single rabbet – typically for walls less than 33/4" (95mm) thick (2" min.[50mm])
Double rabbet – typically for walls 33/4" (95mm) thick and over
- 2. Corner connections:**
 - KD (knock-down)** – Factory die-mitered
 - Double rabbet frames** – 4 tabs per miter
 - Single rabbet frames** – 3 tabs per miter
 - Corner Connections – SUA (set-up and welded)**
 Available when specified, and in accordance with ANSI A250.8-1998.
- 3. 4" (102mm) heads** – die mitered for use with 2" (50mm) face double rabbet jambs. Available when specified for KD or SUA applications.
- 4. Standard hardware preparations:**
 Standard mortised and reinforced with mortar guards for:
 - Universal hinge preps** – 41/2" (114mm) patented preparation which allows easy and quick conversion from standard to heavy weight hinges.
 - Strikes** – 47/8" (124mm) conforming to ANSI A115.1 and ANSI A115.2.
- 5. Rubber silencers:** All frames are supplied with factory installed silencers to cushion the closing of the door and to eliminate the field problems related to installing the silencers after the frames are installed and grouted. Three (3) silencers per strike jamb and two (2) per double door head.

Rubber Silencer

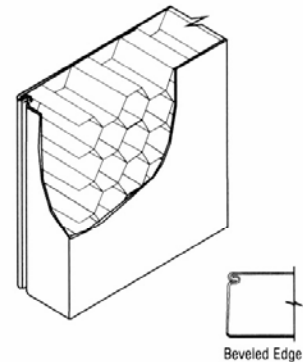




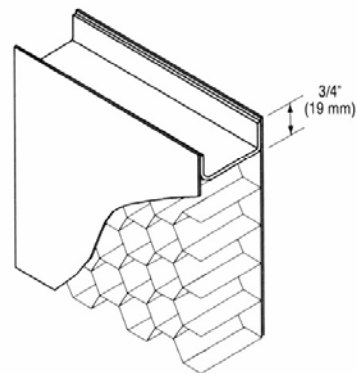
CONSTRUCTION NOTES:

- Doors** are 1 3/4" (45mm) thick.
- Door opening size maximum:**
Single door opening size 4'0" x 10'0" (1219mm x 3048mm)
Double door opening size 8'0" x 10'0" (2438mm x 3048mm)
- Standard operating clearances** (*installed in frame*):
Head = 1/8" (3mm) to bottom of head or transom panel
Hinge and lock side = 3/32" (2mm) to rabbet on jamb
- Standard core system:**
1" (25mm) cell Kraft honeycomb core is laminated to both face sheets with contact adhesive. The honeycomb is phenolic resin impregnated and sanded to insure ultimate lamination and performance. To further enhance the structural stability of the door the honeycomb core material is subjected to several unique operations prior to assembly. If any of these operations are eliminated, the strength and durability of the door is compromised.
- Hardware preparations:** to meet specifications, doors can be prepared for all commercial mortised hardware, and can be factory reinforced for surface applied hardware applications.
 - Lock preps** – details and dimensions shown are for cylindrical (ANSI 115.2) type locks. For mortise (ANSI A115.1) locks, the centerline of the lock is located 3/8" (9mm) lower.
- Glass lites with Dezigner® trim and louvers:** doors with glazed cutouts and doors with louvers are available (see *Lites and Louvers* section of *Spec Manual*).

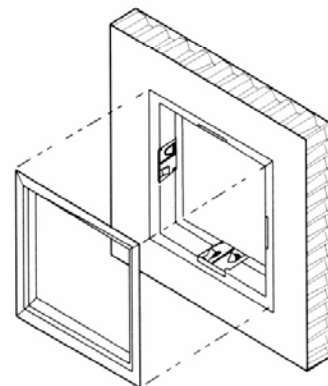
Beveled Edge with Full Height Mechanical Interlock



Inverted Top & Bottom Channels



Dezigner Trim Option



WOOD DOORS

Requirements

- All Wood Door To Be Plain Red Oak
- All Wood Doors To Have Matching Edges
- All Wood Doors To Have 5-Ply Construction

Approved Manufacturers

Marshfield, Algoma, VT Industries, Eggers Industries, Graham

* Full Lite Wood Doors Require An LSL Core

No Substitutions

Particleboard Core Doors

Neutral Pressure - NON-RATED (DPC-1) and 20-MINUTE (DFP-20)

Product Features and Specifications

Interior Only (1)

Thickness Maximum Size

1-3/4" or 1-3/8"
DPC-1: Single: 4/0 x 10/0 Pair: 8/0 x 10/0
DFP-20: ITS-WH & UL:
1-3/4": Single: 4/0 x 10/0 Pair: 8/0 x 10/0 (2)
Double Egress Pair: 8/0 x 8/0 (2)
1-3/8": Single Only: 3/0 x 7/0

Minimum Size Faces

0/8 x 1/10 (3)
• Wood Veneer (5-Ply) • Decorative Laminate*
• Medium-Density Overlay (MDO) • Styled™ Door Face

Crossbands

Engineered fiber. *Standard construction is edgeband after decorative laminate face, no crossband is used (3-ply).
If doors require edgeband before decorative laminate face, the crossband is used (5-ply).

Stiles

1-3/8" LSL with veneer band or decorative laminate to match face (2) (4)

Top and Bottom Rails

1-1/8", mill option (5) (6) (7)

Face Assembly Adhesive

Type I (waterproof)

Core Assembly Adhesive

Type II (water-resistant)

Core

Particleboard (which complies with ANSI A208.1-LD-2)

Maximum Size of Lite Openings (8)

METAL VISION FRAMES OR WOOD MOULDING:

DPC-1: (9) (10)
Total area of openings not to exceed 1,296 sq. in. of visible glass or one continuous dimension of 38" W or 54" H

METAL VISION FRAMES OR WOOD MOULDING (11):

DFP-20: (12) 1-3/4" thickness: 1/4" wired glass only:
Total area of openings not to exceed 1,296 sq. in. of visible glass or one continuous dimension of 36" W or 54" H

METAL VISION FRAMES (13):

DFP-20: (12) 1-3/4" thickness: 3/16" Firelite® NT glass only (14):
Total area of openings not to exceed 1,296 sq. in. of visible glass or one continuous dimension of 36" W or 54" H

DFP-20: (12) 1-3/8" thickness: 1/4" wired glass only:
Total area of openings not to exceed 100 sq. in. of visible glass or one continuous dimension of 12" W or 33" H

Other Detail Work (15) Factory Finish (16)

• Fitting • Machining • Standard Louvers • Applied Moulding • Glazing
• Clear or stain with satin gloss Enviroclad UV™ finish
• Prime only
• Opaque with flat gloss topcoat

Warranty

Full; life of original installation (1)

Security Rating

Class 40 (17), highest security rating possible

Acoustic Rating

STC 31 (Inoperable)

- (1) Use of Marshfield DoorSystems, Inc. doors in exterior applications is not recommended and not warranted.
- (2) Fire retardant stiles eliminate the need for metal edge and astragal.
- (3) Either the width or length dimension must be at least 22".
- (4) 2-ply full outer stile available.
- (5) Laminated Strand Lumber (LSL) or hardwood at mill option.
- (6) Wider rails available.
- (7) Bottom rails are a minimum 2-1/2" in doors requiring deep mortise machining for closers, holders, pivots, bottom seals, etc.
- (8) Marshfield DoorSystems, Inc. does not assume responsibility for choice of glazing materials used. Refer to Consumer Product Safety Commission 16 CFR 1201 CAT. II (1-1-97 Edition) to determine the need for safety-rated glazing.
- (9) Lites will be allowed up to 110" in length on DPC-1 doors but will not be covered by the Marshfield DoorSystems, Inc. warranty.
- (10) Minimum 5" from lite to any edge and adjacent openings, including hardware cutouts.
- (11) If 1/4" wired glass is used in doors that are shipping to Canada or anywhere that requires hose stream testing, Trim-Lite™ moulding is required.
- (12) Minimum 5-1/2" from lite to any edge and adjacent openings, including hardware cutouts.
- (13) All Metal 118M vision frame required.
- (14) Metal vision frame is All Metal stamping 115-I for ITS-WH and a 117 or 118M for UL.
- (15) All fire-rated doors must be machined by Marshfield DoorSystems, Inc. or other approved fire door machiners. Factory machining of surface-mounted exit devices with face holes 1" and larger is available.
- (16) All colors may not be available.
- (17) Per UBC standard 41-1 and ASTM F-476.

Particleboard Core Doors

Positive Pressure with Concealed Intumescents (1) (2) - 20-MINUTE (DFP-20PP)

Product Features and Specifications

Interior Only (3)

Thickness	1-3/4"
Maximum Size	ITS-WH & UL: 1-3/4": Single: 4/0 x 10/0 Pair: 8/0 x 9/0 (4) Double Egress Pair: 8/0 x 9/0 (4)
Minimum Size	0/8 x 1/10 (5)
Faces	<ul style="list-style-type: none"> • Wood Veneer (5-Ply) • Medium-Density Overlay (MDO) • Decorative Laminate* • Styled™ Door Face
Crossbands	Engineered fiber. *On decorative laminate doors, standard construction is edgeband after decorative laminate face; no crossband is used (3-ply). If doors require edgeband before decorative laminate face, the crossband is used (5-ply).
Stiles	1-3/8" concealed intumescent positive pressure stiles with veneer band or decorative laminate to match face
Top and Bottom Rails	1-1/8" Mill Option (6) (7) (8)
Face Assembly Adhesive	Type I (waterproof)
Core Assembly Adhesive	Type II (water-resistant)
Core	Particleboard (which complies with ANSI A208.1 1-LD-2)
Maximum Size of Lite Openings (9) (10)	<p>METAL VISION FRAMES or WOOD MOULDING (11):</p> <p>DFP-20PP: <u>1/4" wired glass only:</u> Total area of openings not to exceed 1,296 sq. in. of visible glass or one continuous dimension of 36" W or 54" H</p> <p>FIRE-TRIM (12) MOULDING:</p> <p>DFP-20PP: <u>5/16" Firelite® Plus glass only:</u> Total area of openings not to exceed 1,296 sq. in. of visible glass or one continuous dimension of 36" W or 54" H</p> <p>METAL VISION FRAMES:</p> <p>DFP-20PP: <u>3/16" Firelite® NT glass only (13):</u> Total area of openings not to exceed 1,296 sq. in. of visible glass or one continuous dimension of 36" W or 54" H</p>
Other Detail Work (14)	<ul style="list-style-type: none"> • Fitting • Machining • Applied Mouldings • Glazing
Factory Finish (15)	<ul style="list-style-type: none"> • Clear or stain with satin gloss Enviroclad UV™ finish • Prime only • Opaque with flat gloss topcoat
Warranty	Full; life of original installation (3)
Security Rating	Class 40 (16), highest security rating possible
Acoustic Rating	STC 31 (Inoperable)

- (1) Meets UBC 7-2 (97) Positive Pressure requirements.
- (2) Frame mounted listed and approved gasket required for these doors to receive positive pressure S (smoke) label.
- (3) Use of Marshfield DoorSystems, Inc. doors in exterior applications is not recommended and not warranted.
- (4) On pairs of doors, Pemko S77 gasket used with concealed intumescent stiles eliminates the need for metal edge and astragal (MEA). Pemko S77 gasket or MEA is required for pairs of doors to receive the positive pressure S (smoke) label.
- (5) Either the width or length dimension must be at least 22".
- (6) Wider rails available.
- (7) Bottom rails are a minimum 2-1/2" in doors requiring deep mortise machining for bottom seals.
- (8) Laminated Strand Lumber (LSL) or hardwood at mill option.
- (9) Marshfield DoorSystems, Inc. does not assume responsibility for choice of glazing materials used. Refer to Consumer Product Safety Commission 16 CFR 1201 CAT. II (1-1-97 Edition) to determine the need for safety-rated glazing.

- (10) Minimum distance requirement is 5-1/2" from cutout to any edge and adjacent openings, including hardware cutouts.
- (11) If 1/4" wired glass is used in doors that are shipping to Canada or anywhere that requires hose stream testing, Trim-Lite™ moulding is required.
- (12) 5/16" Firelite® Plus glass required with Fire-Trim wood moulding.
- (13) All Metal 115-I vision frame required.
- (14) All fire-rated doors must be machined by Marshfield DoorSystems, Inc. or other approved fire door machiners. Factory machining of surface-mounted exit devices with face holes 1" and larger is offered.
- (15) All colors may not be available.
- (16) Per UBC standard 41-1 and ASTM F-476.

Standard Lite Mouldings

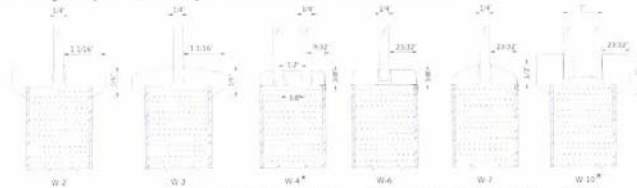
Appendix A

Lite mouldings are installed on one side and the other side is precut for field installation after glazing. Mouldings are set for 1/4" glass or upon request for different glass thickness. Marshfield DoorSystems will factory glaze upon request. Lite mouldings are installed on one side and the other side is precut for field installation after glazing.

*** On doors with cut-out only, Marshfield DoorSystems does not square out the corners of the cut-out.**

Wood Lite Kits for Non-Rated and 20-Minute Rated Doors

Glazing compound/caulking must be used when installing glass.



ITS-WH and UL approved with 1/4" wired glass only and W-2, W-3, W-6, or W-7

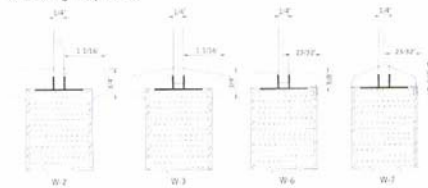
True divided lites are available on non-rated doors using a 1/2" wide divider bar and W-2, W-3, W-6 or W-7 profiles.

Downset may vary due to allowable tolerance deviations in components. 1/4" lip on face on W-2, W-3, W-10

*** Not available as 20-Minute Rated**

Canada Trim-Lite™ Moulding for 20-Minute Rated Doors Requiring Hose Stream

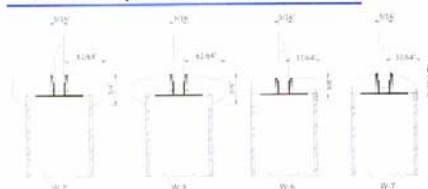
Caulking required.



ITS-WH and UL approved with 1/4" wired glass only. Trim-Lite™ is only required on doors shipping to Canada or any Jurisdiction that requires hose stream testing.

Downset may vary due to allowable tolerance deviations in components.

Wood Fire-Trim System for 20-Minute Rated Doors.



Fire-Trim lite mouldings are for use with 20-minute positive pressure doors and structural composite lumber core neutral pressure doors. Fire-Trim lite mouldings are set for 5/16" FireLite® Plus glass thickness. Marshfield DoorSystems will factory glaze upon request.

ITS-WH and UL approved with 5/16" FireLite® Plus glass only.

Downset may vary due to allowable tolerance deviations in components.

Veneer Clad, Wood Wrapped or Metal Lite Kits for 90, 60 and 45-Minute Rated Doors

Metacaulk caulking required for veneer clad lites over 100 sq. in. (Metacaulk supplied by Marshfield DoorSystems)



ITS-WH and UL approved with 1/4" wired glass only.

Downset may vary due to allowable tolerance deviations in components.

****available in 1" increments only**

Marshfield DoorSystems does not assume responsibility for the choice of glazing materials used. Refer to consumer Product Safety Commission 16 CFR 1201 CAT. II (1-1-97 Edition) to determine the need for safety-rated glazing.

- #117 or #118M Metal Vision Frame available for doors with glass thickness other than 1/4" or doors other than 1-3/4" thick.
- Anemostat LO-FP frames available for circle lites.

Field Glazing Instructions for Non-Labeled and 20-Minute Rated Marshfield DoorSystems doors

- Apply a 1/8" to 1/4" bead of DAP Alex Plus Acrylic Latex Caulk Plus Silicone in the corner made by the glass and the door core. This bead should be applied on both sides.

- Moulding should be installed with 16 gauge 2" finish nails. Nails should be placed 3" from the end of each moulding piece and at 6" intervals thereafter.

- Factory finished doors with applied mouldings, louvers or factory glazed lites will have nail holes filled.

- Doors to be glazed in the field will not have nail holes filled, even if the doors are factory finished.

Note: For more information on lite kits to be used with other glazing materials for rated and non-rated doors, please contact Marshfield DoorSystems Sales & Service Center.

Information on Fire-Rated Doors

Appendix F

MINERAL CORE

Choosing the Right Fire-Rated Door

The rating of the fire door you need is determined by the local building code and the authority having jurisdiction. Marshfield DoorSystems fire-rated doors have successfully completed over 1,000,000 slams without failure (tested per WDMA, TM-7).

Basic Requirements for Installing Fire-Rated Doors

1. Do not remove the classified label.
2. Install in accordance with Marshfield DoorSystems Care & Handling Instructions and NFPA 80.
3. Install listed glass in approved lite kits and carefully follow directions enclosed.
4. Install steel full-mortised butt hinges by drilling 9/64" pilot holes and use #12 x 1-1/4" threaded-to-the-head Type AB screws in accordance with ANSI B18.6.4-1981. Install steel half-surface hinges with fireplates, backerplates and through bolts.

Hinges

The National Fire Protection Association Standard specifies that two hinges must be used for doors up to 60" in height. An additional hinge is required for each additional 30" in height or fraction thereof.

Closers

The Underwriters Laboratories Building Materials Directory catalogs a number of surface-type closers that may be used with labeled fire-rated doors. A surface-type closer is one that does not require the removal of wood except for fasteners. Concealed closers may not be used.

- Surface-mounted hardware can be used on doors with inner blocking, without through bolts.

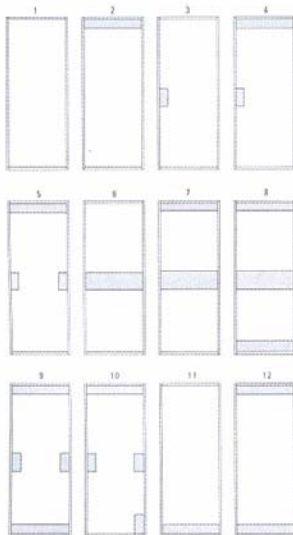
Installation Note

Surface mounted hardware, on mineral core doors, must be anchored on an inner blocked door using a No. 12 screw which penetrates the door by a minimum of 1-1/4". 9/64" pilot holes must be drilled the depth of the screws. Do not use combination screws.

No-Bolt Inner Blocking

The purpose of No-Bolt Inner Blocking is to attach surface hardware and exit devices with screws, thus eliminating through bolts on mineral core fire doors. It is not necessary to use No-Bolt inner blocking on Marshfield DoorSystems fire doors where doors are machined for standard locks.

- Screw Withdrawal Exceeds 700 lbs. (tested per WDMA, TM-10)
- Options for No-Bolt Blocking*:



Note: The blocking in the door is gray in color to distinguish it from the white mineral core.

- Top blocking is 5" high and the full width of the door core.
- Center blocking is 10" high and the full width of the door core.
- Bottom blocking is 5" high and the full width of the door core.
- Exit device blocks may be 5" x 10" or 5" x 18", please specify size required, and corner blocks are 5" x 10".

*This blocking is not required for use with mortise hardware.

Note: Center blocking and exit device blocks can not be in the same door.

AT Rails on Mineral Core Doors

"AT" stands for "Advanced Technology". The AT rail is a white, non-combustible material. There is no lumber or wood in an AT rail. Marshfield DoorSystems uses AT rails for mineral core doors with the following approvals:

Agency Approvals:

Intertek Testing Services – Warnock Hersey and Underwriters Laboratories have authorized usage of:

- Magnetic switches listed for use on wood or composite 45-90-minute fire doors with 2-1/16" AT top rail.
- Bottom seals listed for use on wood or composite 45-90-minute fire doors that are no larger than 1-15/16" deep and 15/16" wide with 3-1/4" AT bottom rails. Bottom seal must be installed with screws and silicone caulk.

Note: AT rails may be used on mineral core doors for other instances by request. They are not necessarily limited to use with magnetic switches and bottom seals. The AT rails can also be combined with No-Bolt inner blocking for closers that require greater than 5" blocking.

Multiple AT rails available in the following sizes: 2-1/16", 3-1/4", 4-7/16", 5"

Kickplates

Kickplates may be attached to the face of the door. The plate used must be an approved material (metal, high pressure laminate, PVC, or acrovyn). The surfaced applied kickplate may be applied with screws or suitable adhesive. The height is not to exceed:

- Up to 48" from the bottom of the door on 20-90 minute doors

Acrovyn Kickplates and PVC by Inpro can be the "full height" of the door for all ratings 20 thru 90-minute, UL label only.

Fire-Rated Lite Systems

Underwriters Laboratories and Intertek Testing Services – Warnock Hersey procedures require that openings be cut at the factory or by a licensed machiner and that approved lite systems be used.

Marshfield DoorSystems will factory glaze upon request. More than one lite opening per door is permitted. For the allowable combined area of the lite opening and limitations, see Appendix G, H and I. There must be at least 5-1/2 inches from lite to any edge and adjacent openings on any fire-rated door in order to retain a classified fire rating.

Independent Certification

The Marshfield DoorSystems fire-rated product line has been tested, and is listed and labeled by Intertek Testing Services – Warnock Hersey (ITS-WH) and Underwriters Laboratories (UL) in accordance with ASTM E-152-73, NFPA 252-73, UBC 43-2(73), UL 10B and CAN4-S104 with hose stream.

For Additional Information on Installation of Fire-Rated Doors

For more information on how to install fire-rated doors, see NFPA 80. For application information, see NFPA 101:

National Fire Protection
Association
P.O. Box 9101
1 Batterymarch Park
Quincy, MA 02269
or
Installation Guide for Doors
and Hardware
Door and Hardware Institute
7711 Old Springhouse Road
McLean, VA 22102

For More Information on Fire-Rated Doors

Underwriters Laboratories, Inc.
333 Pfingsten Road
Northbrook, IL 60062
708-272-8800
or
Intertek Testing Services –
Warnock Hersey
8431 Murphy Drive
Middleton, WI 53562
608-836-4400

Entrances & Storefronts

Requirements

- All Aluminum Door Finishes To Be Clear Anodized or Dark Bronze
- All Glass Type to be Solar Ban 60 #2 Surface
- All Glass Color to be Bronze Or Gray

Approved Manufacturers and Product

Curtain Wall:	Kawneer 1600 UT System 1
Entrance Door:	Kawneer 500 Wide Stile
Fixed Window / Store Front:	Kawneer Trifab 451 UT

* Acceptable Substitution of Aluminum Framing, Doors, Window: Manco (use Comparable System)

350/500 Heavy Wall™ Entrances

Managing Heavy Traffic with
Reliability, Strength and
Protection that Lasts



Kohl Center, University of Wisconsin, Madison, WI

Architects: Hok Sport Facilities Group, Kansas City, MO; Venture Architects, Milwaukee, WI; Heinlein & Schrock, Kansas City, MO

Glazing Contractor: Lurie Glass Company, Milwaukee, WI

HIGH DURABILITY – 350/500 Heavy Wall™

HURRICANE RESISTANT – 350/500 Heavy Wall™ IR

Kawneer's Medium Stile 350 and Wide Stile 500 Heavy Wall™ Entrance lines provide quality, durability and protection that lasts. The entrances were designed for heavy-traffic areas such as schools, universities and office buildings where traffic and motion create rigorous usage. 350/500 Heavy Wall™ Entrances have 3/16" (4.8 mm) walls throughout for additional strength and durability, and two framing options to provide a choice for designers. Additionally, the 350/500 Heavy Wall™ IR Entrances provide a solution for blast mitigation as well as offer hurricane resistance where they have been tested to meet the highest level of impact protection for entrances in the industry.

Performance

To resist both lever arm and torsion forces that constantly act upon any door, all 350/500 Heavy Wall™ Entrances feature four Sigma deep penetration and fillet welds plus mechanical fastening at each corner. In addition to the standard two-year warranty covering every Kawneer door, each door corner for the 350/500 Heavy Wall™ Entrances comes with a limited lifetime warranty, good for the life of the door under normal-use operation.

Aesthetics

Like all Kawneer entrances, 350/500 Heavy Wall™ Entrances offer classic lines and clean aesthetics and can blend into any type of architecture, whether traditional or modern, remodel or new construction. The door is 2" (50.8 mm) deep with 3-1/2" (88.9 mm) vertical stiles for the 350 Heavy Wall™ and 5" (127 mm) vertical stiles for the 500 Heavy Wall™ with a 6-1/2" (165.1 mm) bottom rail. A deeper 10-1/4" (260.4 mm) bottom rail is also available. Glazing infills range from 1/4" to 1" (6.4 mm to 25.4 mm). Muntins are optional and can be added to complement any design.

350/500 Heavy Wall™ Entrances provide a choice of framing: Trifab® VG (VersaGlaze®) 450 or 451 with 3/32" (2.4 mm) thickness for economical applications that do not require additional strength throughout the entire entrance. Alternatively, the Heavy Wall™ Trifab® VG framing with 3/16" (4.8 mm) wall thickness provides a solution for applications facing heavier traffic and substantial, or possibly abusive, usage.

Heavy Wall™ is a single-acting entrance with offset pivots, butt hinges or continuous geared hinges. The classic lines of 350/500 Heavy Wall™ Entrances push-pull hardware blend into any design.

Protective Glazing

350/500 Heavy Wall™ IR Entrances

Wind-borne debris, persistent rain and internal/external pressure changes are major causes of property damage and injury stemming from violent weather, and building codes in coastal areas often require enhanced safety for occupants. To meet these needs, 350/500 Heavy Wall™ IR Entrances have been rigorously tested to meet the forces of nature as well as human directed attacks.

These impact resistant entrances have been tested to meet TAS 201, 202 and 203 requirements of the Florida Building Code (FBC) as well as Level D requirements of ASTM E 1996. The entrances have also been tested to meet the even more stringent Level E (Enhanced Facilities) requirements of ASTM E 1996. For comprehensive safety assurance, 350/500 Heavy Wall™ IR Entrances have also been tested for blast mitigation per the requirements of ASTM F 1642.



Montana State Fund Office Building, Helena, MT
Architect: Mosaic Architecture, Helena, MT
Glazing Contractor: Frontline Glass Inc., Helena, MT

For the Finishing Touch

Permanodic® anodized finishes are available in Class I and Class II in seven different color choices.

Painted finishes, including fluoropolymer, that meet or exceed AAMA 2605 are offered in many standard choices and an unlimited number of specially designed colors.

Solvent-free powder coatings add the green element with high performance, durability and scratch resistance that meet the standards of AAMA 2604.

Kawneer Company, Inc.
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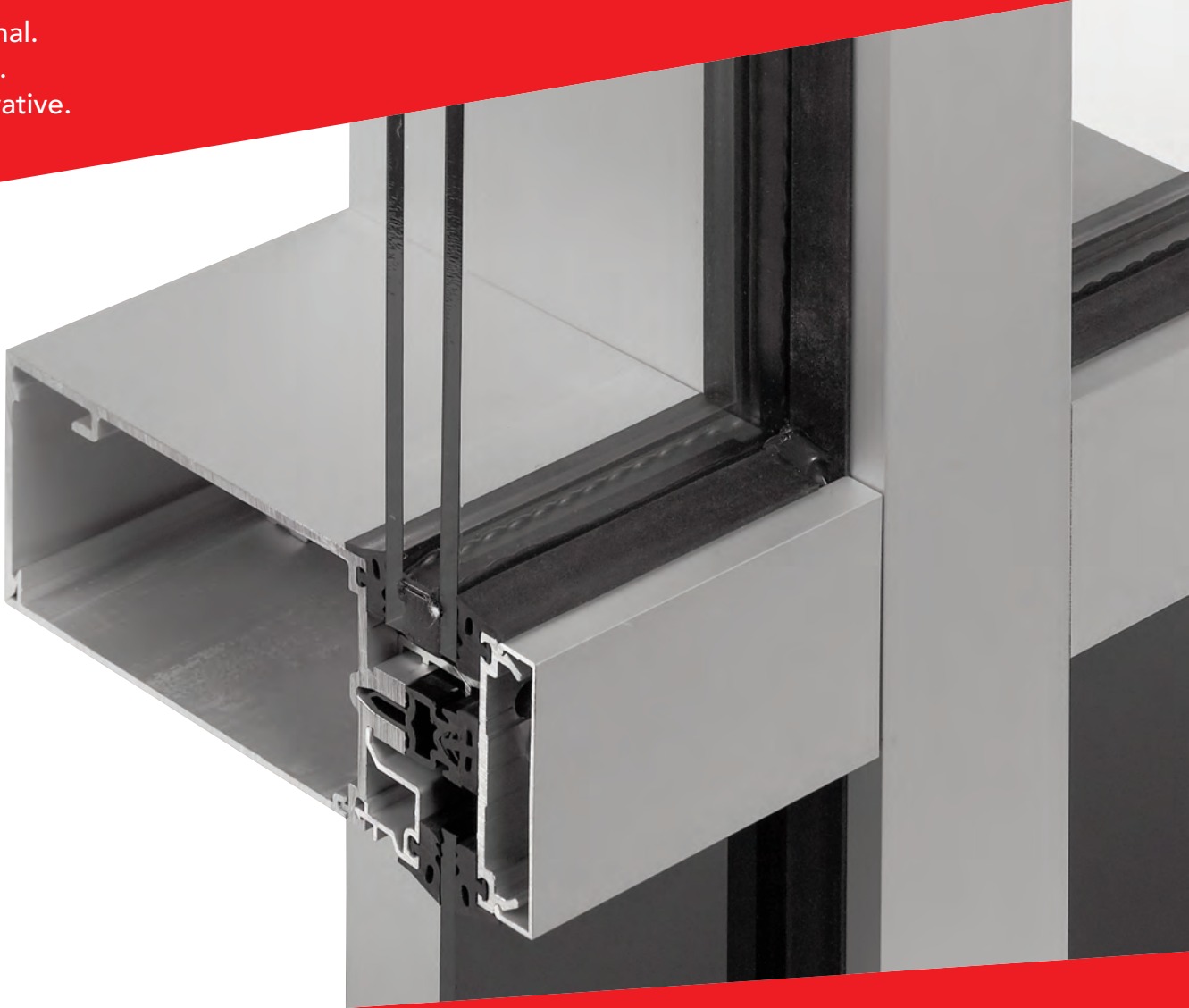
 **KAWNEER**
AN ALCOA COMPANY



1600UT (Ultra Thermal) Curtain Wall System™

1600UT System™1 / System™2

Ultra thermal.
Ultra value.
Ultra innovative.



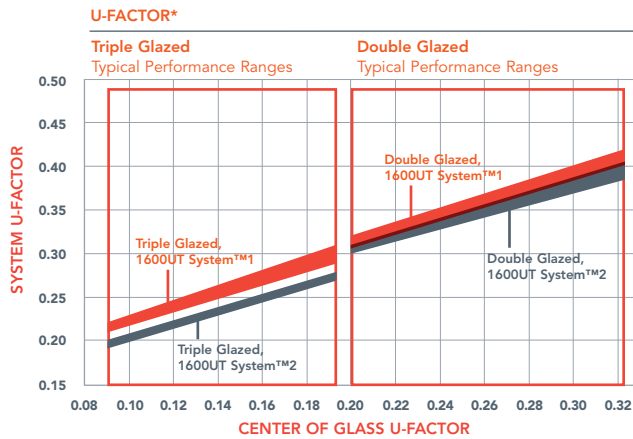
With increasing energy costs and stringent code requirements, building owners, architects and glaziers need high-performing products that can help them stay ahead of codes. Kawneer's 1600UT (Ultra Thermal) Curtain Wall System™ is an ultra innovative solution that raises the standards for pre-engineered performance. Built on the success of the flagship 1600 curtain wall platform, the 1600UT System™1 and 1600UT System™2 deliver high thermal performance, versatility, reliability and value. Both are stick fabricated, pressure glazed and ideal for low- to mid-rise commercial applications where high thermal performing façades are needed. 1600UT System™1 is an outside glazed, captured curtain wall system, while 1600UT System™2 is a Structural Silicone Glazed (SSG) curtain wall system. No matter the system, the end result is an ultra innovative, performance-driven, high-value curtain wall solution.

Setting the Standard in Thermal Innovation

For the utmost in energy efficiency, Kawneer's 1600UT Curtain Wall System™ features an engineered polymer thermal separator and accommodates either double or triple insulating glass. Additionally, an optional fiberglass pressure plate can further enhance condensation resistance and thermal performance. 1600UT Curtain Wall System™ integrates seamlessly with other high thermal performing windows and doors from Kawneer to create a complete, advanced, thermally efficient solution for commercial buildings. The system is tested in accordance with North American performance standards, including seismic, thermal cycling and dynamic water.

Performance

Kawneer's 1600UT Curtain Wall System™ is designed to proactively address code requirements, including the International Energy Conservation Code (IECC), ASHRAE/IESNA 90.1, 189.1 and state codes. Both 1600UT Curtain Wall Systems™ are capable of beating these code requirements with double- and triple-glazed configurations.



Each infill option offers two levels of performance ranges. These depend on pressure plate choice (aluminum or fiberglass) and system type. The fiberglass pressure plate option not only enhances thermal performance, but also improves condensation resistance.

CONDENSATION RESISTANCE

	PRESSURE PLATE TYPE	CRF		I	
		FRAME	GLASS	FRAME	GLASS
1" DOUBLE GLAZED INFILL	Aluminum	79	76	71	67
	Fiberglass			76	68
1-3/4" TRIPLE GLAZED INFILL	Aluminum	82	81	74	77
	Fiberglass			76	78

The 1600UT Curtain Wall System™ has been rigorously tested against the following performance standards.

PERFORMANCE TEST STANDARDS

Air Infiltration	ASTM E 283
Water – static	ASTM E 331
Water – dynamic	AAMA 501.1, 520
Structural – uniform wind load	ASTM 330
Thermal Cycling	AAMA 501.5
Thermal Transmittance – U-Factor	AAMA 1503, 507; NFRC 100
Condensation Resistance (CRF, I, CR)	AAMA 1503; CSA A440.2; NFRC 500
Overall Solar Heat Gain Coefficient (SHGC, VT)	AAMA 507, NFRC 200
Sound Transmission (STC, OITC)	ASTM E90, E1425
Seismic	AAMA 501.4

*U-factor values are simulated using NFRC sizes and procedures. This chart is for general illustration purposes only. Please refer to thermal charts in the Kawneer Architectural Detail Manual on kawneer.com.

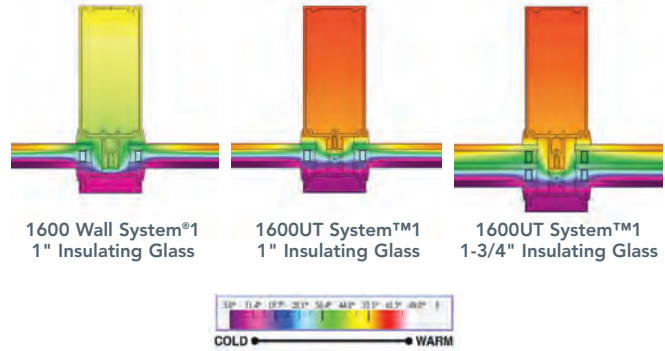
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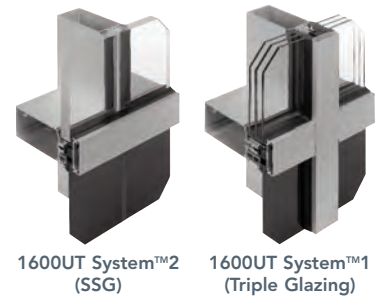
Thermal simulations showing temperature variations from exterior/cold side to interior/warm side.



Aesthetics

Kawneer solutions are widely respected for their ability to deliver optimum energy performance without compromising aesthetics. The innovative 1600UT Curtain Wall System™ is no exception. Kawneer designed the system to integrate many of the aesthetic and functional options found in the industry benchmark Kawneer 1600 Wall Systems®.

Among the aesthetic benefits of the versatile 1600UT Curtain Wall System™ is a unique design for the glass setting block chair, which allows for larger glass lites than other triple-glazed, high-performing curtain wall systems. Along with expansive glass sizes, the 1600UT System™2 offers a two-sided vertical SSG mullion solution that permits greater uninterrupted sightlines while providing enhanced thermal performance. To create flush and unbroken sightlines, both systems use concealed fasteners in their joinery construction.



Fabrication and Installation

The 1600UT Curtain Wall System™ minimizes installation time and effort in a number of ways:

- Installers can leverage their existing knowledge of Kawneer's time-tested 1600 Wall System®1 and System®2 fabrication and installation methods.
- Straight cuts without notching simplify fabrication.
- A pre-engineered rain screen back pan option is available that uses easy-to-install spandrel adapters.

For the Finishing Touch

Architectural Class I anodized aluminum finishes are available in clear and color choices. Painted finishes, including fluoropolymer, that meet AAMA 2605 standards and solvent-free powder coatings that meet AAMA 2604 standards are available in a variety of color choices.



Features

- TRIFAB® 451UT is 4-1/2" deep with a 2" sightline
- Center Plane glass applications
- Flush glazed from either the inside or outside
- Screw Spline fabrication
- Dual Isolock® lanced and debridged thermal break
- Infill options up to 1-1/8" thickness
- Permanodic® anodized finishes in 7 choices
- Painted finishes in standard and custom choices

Optional Features

- High performance sill flashing
- Acoustical rating per AAMA 1801 and ASTM E 1425
- Project specific U-factors (See Thermal Charts)

Product Applications

- Storefront, Ribbon Window or Punched Openings
- Single-span
- Integrated entrance framing allowing Kawneer standard entrances or other specialty entrances to be incorporated
- Kawneer windows or GLASSvent® are easily incorporated

For specific product applications,
Consult your Kawneer representative.

Windows

Requirements

- All Aluminum Window Finishes To Be Clear Anodized or Dark Bronze
- All Glass Type to be Solar Ban 60 #2 Surface
- All Glass Color to be Bronze Or Gray

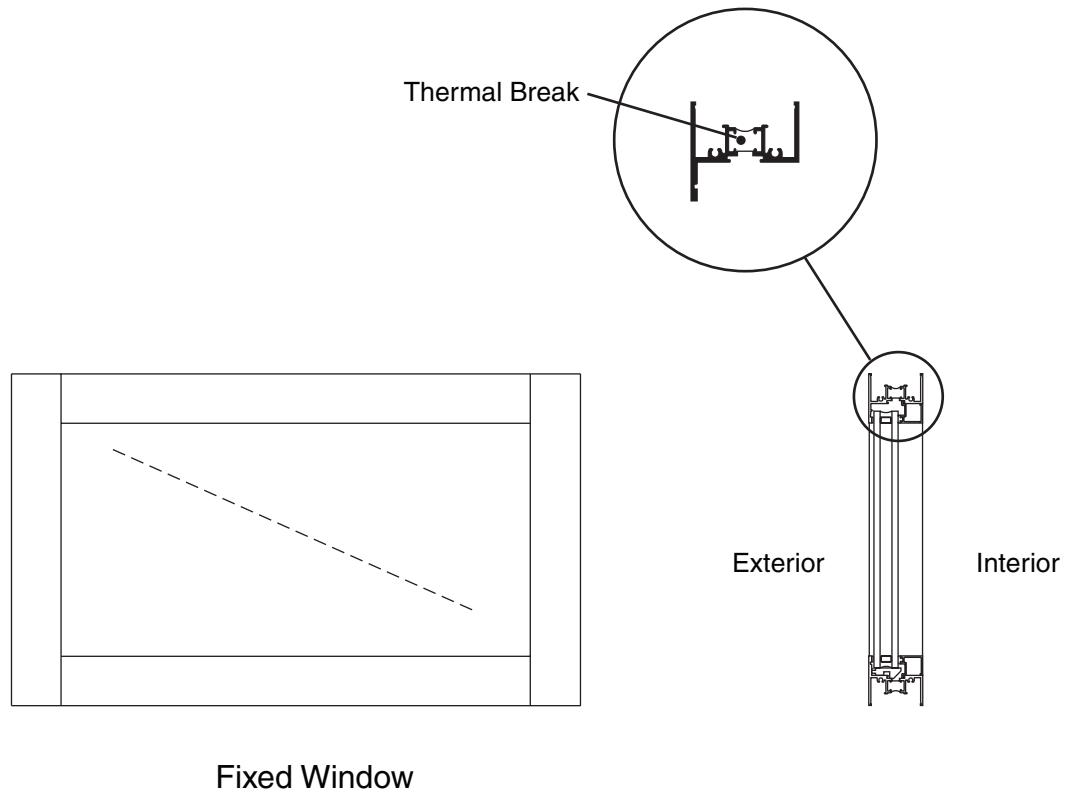
Approved Manufacturers and Product

Operable / Vent Windows: Kawneer 8225 TL

* Acceptable Substitution Of Aluminum Framing: Manco (use Comparable System)

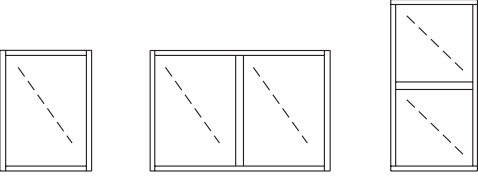
Standard Features

- Heavy Commercial Grade Window
- IsoLock® Thermal Break
- Screw and Spline Frame Corner Joinery
- Factory Silicone Glazed
- Interior Applied Glazing Bead with Bulb Gasket
- Architectural Anodized Finishes and Applied Coatings
- Two Year Manufacturer's Warranty



Fixed Window

For specific product applications,
Consult your Kawneer representative.

CLASS and GRADE		Heavy Commercial F-HC100 / F-AW100				
TESTING STANDARD		AAMA / WDMA / CSA 101 / I.S. 2 / A440-05				
FRAME DEPTH		2-1/4" Overall Frame Depth				
TYPICAL WALL THICKNESS		.090 and .125 Nominal				
TYPICAL MAXIMUM SIZE		60" x 99"				
TYPICAL MINIMUM SIZE		12" x 12"				
TYPICAL CONFIGURATIONS						
STANDARD INFILL OPTIONS		1/4" and 1"				
STANDARD HARDWARE		Not Applicable				
OPTIONAL HARDWARE		Not Applicable				
OTHER OPTIONS		Unequal Leg Frames Exterior and/or Interior Applied Muntins Perimeters and Sills Exterior Pannings and Interior Trims Structural Mullions Vertically or Horizontally Stacked Access Panels and Blinds Silicone Field Glazing upon Request				
PERFORMANCE	Air Infiltration Cfm/ft ²	Water Resistance PSF	Design Load PSF	Thermal Transmittance "U" Value	Condensation Resistance CRF	Sound Transmittance STC
	.10 @ 6.24 psf	15	100	.58	59	34

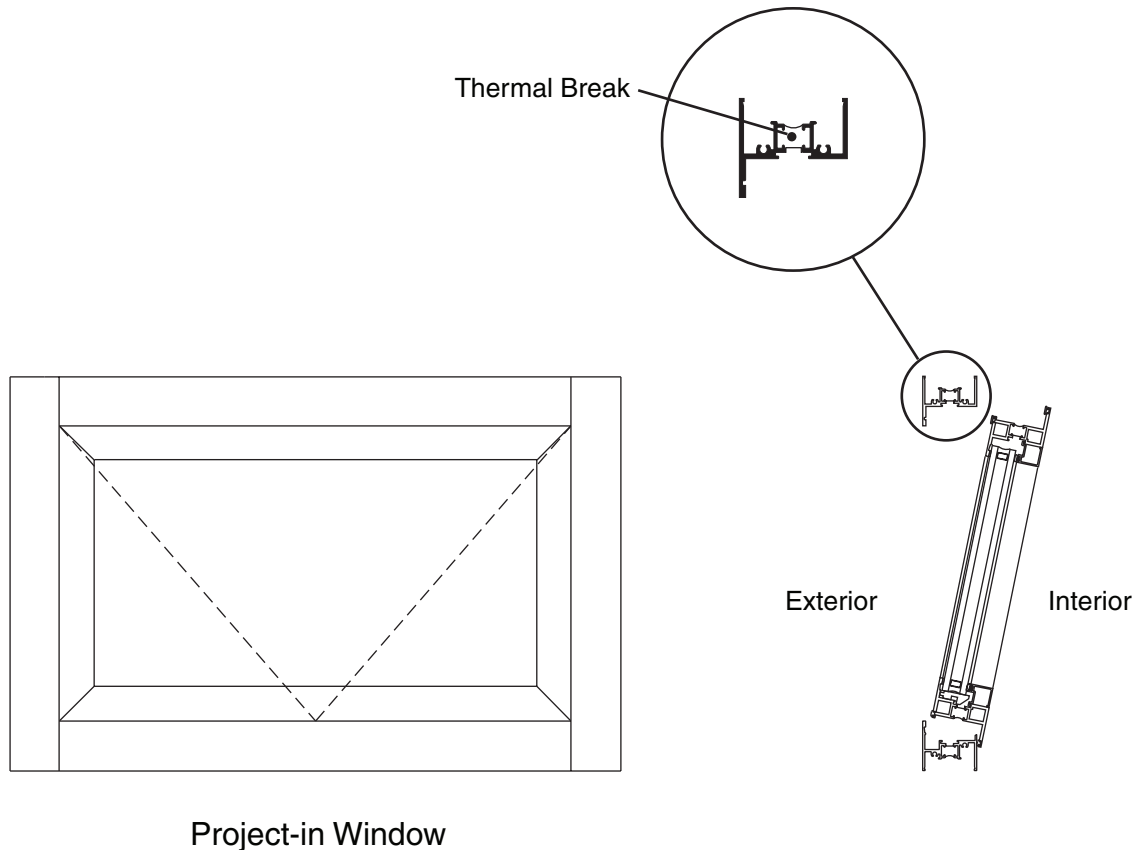
Note: Thermal values are based upon 1" clear insulating glass.

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

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.
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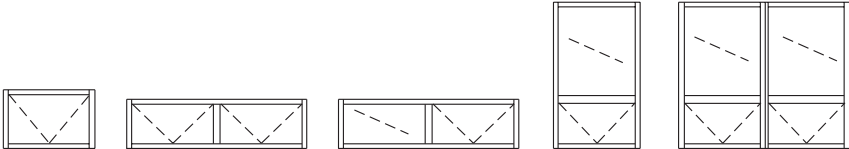
Standard Features

- Heavy Commercial Grade Window
- IsoLock® Thermal Break
- Mitered, Clipped and Staked Vent Corner Joinery
- Screw and Spline Frame Corner Joinery
- Factory Silicone Glazed
- Interior Applied Glazing Bead with Bulb Gasket
- Architectural Anodized Finishes and Applied Coatings
- Two Year Manufacturer's Warranty
- Compatible with Storefront and Curtain Wall Systems



Project-in Window

For specific product applications,
Consult your Kawneer representative.

CLASS and GRADE		Heavy Commercial Grade AP-HC90 / AP-AW90				
TESTING STANDARD		AAMA / WDMA / CSA 101 / I.S. 2 / A440-05				
FRAME DEPTH		2-1/4" Overall Frame Depth				
TYPICAL WALL THICKNESS		.090 and .125 Nominal				
TYPICAL MAXIMUM SIZE		60" x 48"				
TYPICAL MINIMUM SIZE		17" x 17"				
TYPICAL CONFIGURATIONS						
STANDARD INFILL OPTIONS		1/4" and 1"				
STANDARD HARDWARE		Stainless Steel 4-Bar Hinges Cast White Bronze Cam Locks				
OPTIONAL HARDWARE		Access Control Locks Limit Stop Pole and Pole Ring				
OTHER OPTIONS		Unequal Leg Frames Exterior and/or Interior Applied Muntins Insect Screens Perimeters and Sills Exterior Pannings and Interior Trims Structural Mullions Vertically or Horizontally Stacked Access Panels and Blinds Silicone Field Glazing upon Request				
PERFORMANCE	Air Infiltration Cfm/ft ²	Water Resistance PSF	Design Load PSF	Thermal Transmittance "U" Value	Condensation Resistance CRF	Sound Transmittance STC
	.10 @ 6.24 psf	15	90	.62	56	n/a

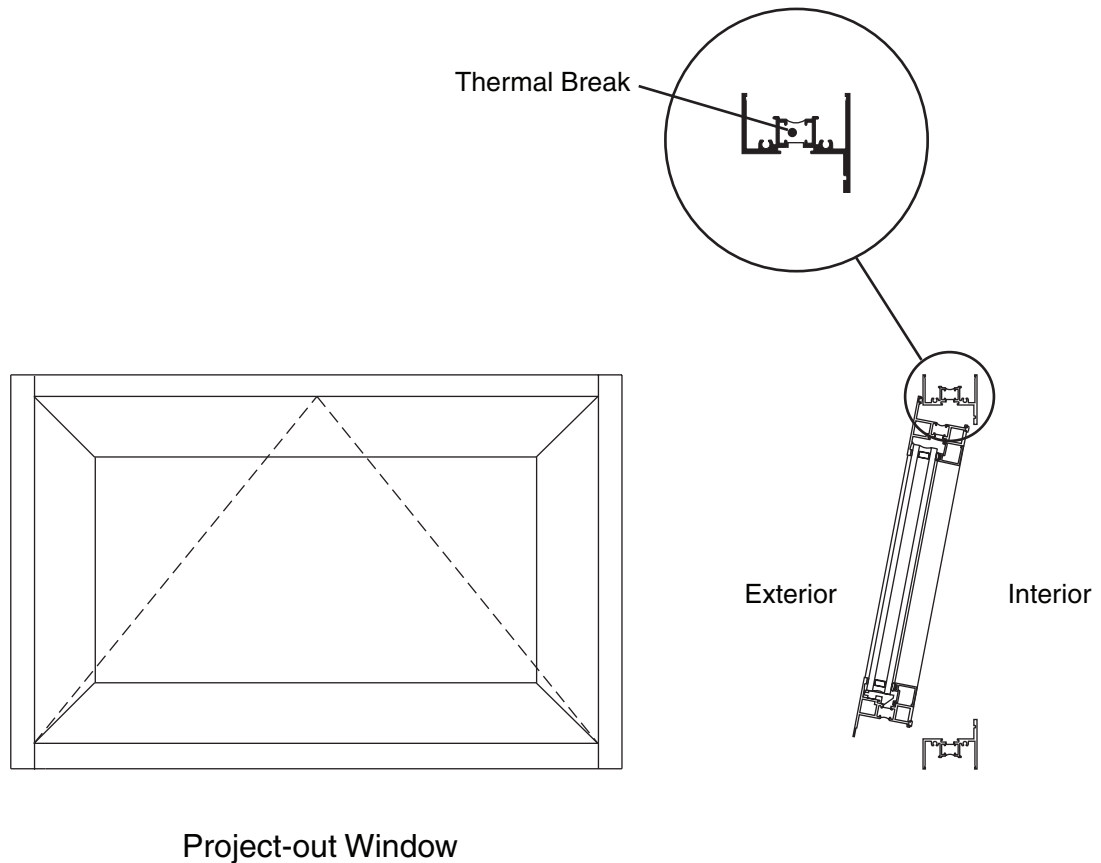
Note: Thermal values are based upon 1" clear insulating glass.

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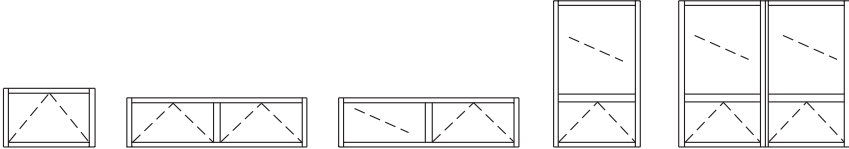
Standard Features

- Heavy Commercial Grade Window
- IsoLock® Thermal Break
- Mitered, Clipped and Staked Vent Corner Joinery
- Screw and Spline Frame Corner Joinery
- Factory Silicone Glazed
- Interior Applied Glazing Bead with Bulb Gasket
- Architectural Anodized Finishes and Applied Coatings
- Two Year Manufacturer's Warranty
- Compatible with Storefront and Curtain Wall Systems



Project-out Window

For specific product applications,
Consult your Kawneer representative.

CLASS and GRADE		Heavy Commercial Grade AP-HC90 / AP-AW90				
TESTING STANDARD		AAMA / WDMA / CSA 101 / I.S. 2 / A 440-05				
FRAME DEPTH		2-1/4" Overall Frame Depth				
TYPICAL WALL THICKNESS		.090 and .125 Nominal				
TYPICAL MAXIMUM SIZE		60" x 89"				
TYPICAL MINIMUM SIZE		17" x 17"				
TYPICAL CONFIGURATIONS						
STANDARD INFILL OPTIONS		1/4" and 1"				
STANDARD HARDWARE		Stainless Steel 4-Bar Hinges Cast White Bronze Cam Locks 88SS Support Arm (Units over 50" in height)				
OPTIONAL HARDWARE		Access Control Locks Hook Bolt Lock Handle Pivot Shoe Roto-Operator Scissors Arm Roto-Operator Limit Stop Pole and Pole Ring				
OTHER OPTIONS		Unequal Leg Frames Exterior and/or Interior Applied Muntins Insect Screens Perimeters and Sills Exterior Pannings and Interior Trims Structural Mullions Vertically or Horizontally Stacked Access Panels and Blinds Silicone Field Glazing upon Request				
PERFORMANCE	Air Infiltration Cfm/ft ²	Water Resistance PSF	Design Load PSF	Thermal Transmittance "U" Value	Condensation Resistance CRF	Sound Transmittance STC
	.10 @ 6.24 psf	15	90	.60	56	33

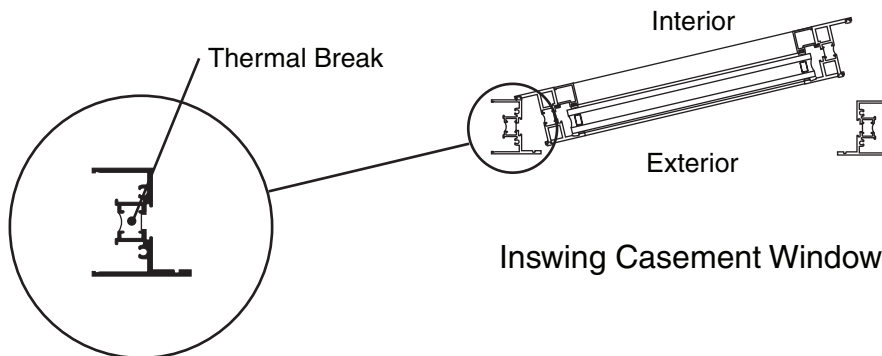
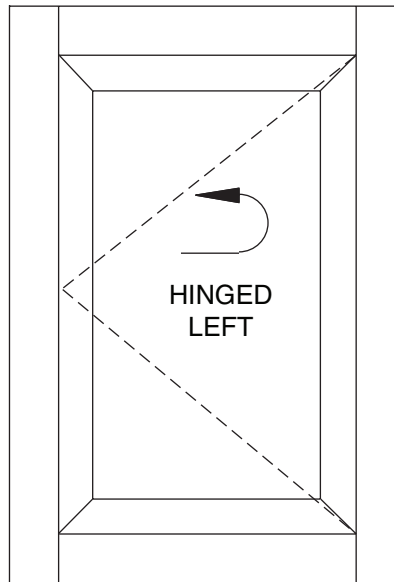
Note: Thermal values are based upon 1" clear insulating glass.

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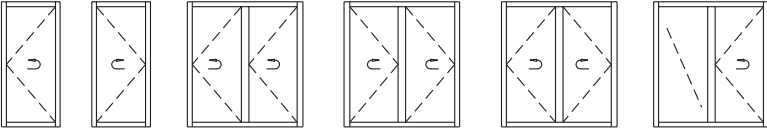
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Standard Features

- Heavy Commercial Grade Window
- IsoLock® Thermal Break
- Mitered, Clipped and Staked Vent Corner Joinery
- Screw and Spline Frame Corner Joinery
- Factory Silicone Glazed
- Interior Applied Glazing Bead with Bulb Gasket
- Architectural Anodized Finishes and Applied Coatings
- Two Year Manufacturer's Warranty
- Compatible with Storefront and Curtain Wall Systems



For specific product applications,
Consult your Kawneer representative.

CLASS and GRADE		Heavy Commercial Grade C-HC90 / C-AW90				
TESTING STANDARD		AAMA / WDMA / CSA 101 / I.S. 2 / A 440-05				
FRAME DEPTH		2-1/4" Overall Frame Depth				
TYPICAL WALL THICKNESS		.090 and .125 Nominal				
TYPICAL MAXIMUM SIZE		36" x 60"				
TYPICAL MINIMUM SIZE		17" x 17"				
TYPICAL CONFIGURATIONS						
STANDARD INFILL OPTIONS		1/4" and 1"				
STANDARD HARDWARE		Stainless Steel 4-Bar Hinges Cast White Bronze Cam Locks				
OPTIONAL HARDWARE		Access Control Locks Limit Stop Pole and Pole Ring Butt Hinges Friction Adjustor Keyed Limit Arm				
OTHER OPTIONS		Unequal Leg Frames Exterior and/or Interior Applied Muntins Insect Screens Perimeters and Sills Exterior Pannings and Interior Trims Structural Mullions Vertically or Horizontally Stacked Access Panels and Blinds Silicone Field Glazing upon Request				
PERFORMANCE	Air Infiltration Cfm/ft ²	Water Resistance PSF	Design Load PSF	Thermal Transmittance "U" Value	Condensation Resistance CRF	Sound Transmittance STC
	.10 @ 6.24 psf	15	90	.58	52	n/a

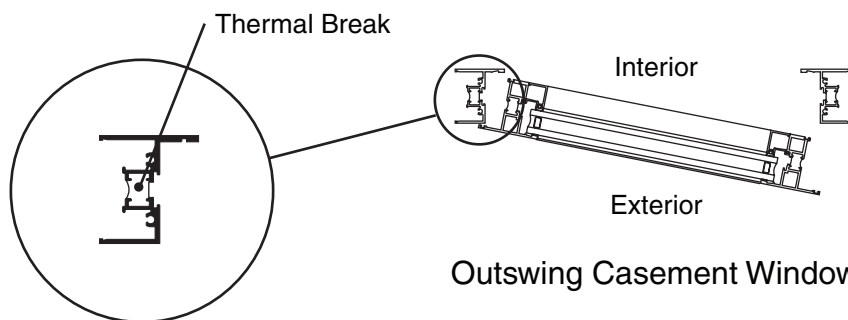
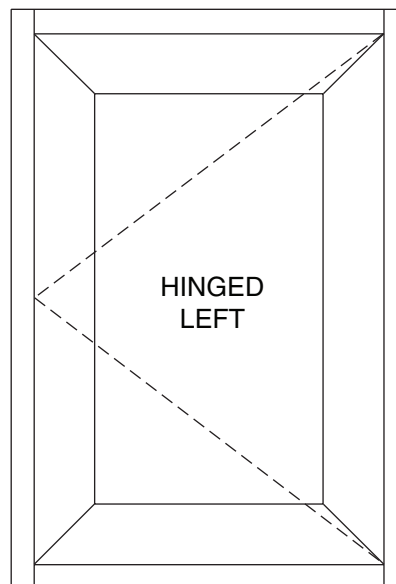
Note: Thermal values are based upon 1" clear insulating glass.

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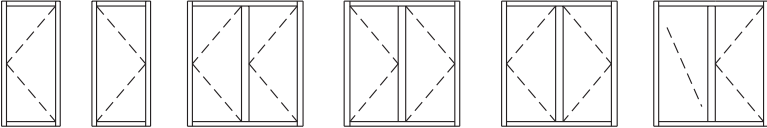
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Standard Features

- Heavy Commercial Grade Window
- IsoLock® Thermal Break
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- Screw and Spline Frame Corner Joinery
- Factory Silicone Glazed
- Interior Applied Glazing Bead with Bulb Gasket
- Architectural Anodized Finishes and Applied Coatings
- Two Year Manufacturer's Warranty
- Compatible with Storefront and Curtain Wall Systems



For specific product applications,
Consult your Kawneer representative.

CLASS and GRADE		Heavy Commercial Grade C-HC90 / C-AW90				
TESTING STANDARD		AAMA / WDMA / CSA 101 / I.S. 2 / A 440-05				
FRAME DEPTH		2-1/4" Overall Frame Depth				
TYPICAL WALL THICKNESS		.090 and .125 Nominal				
TYPICAL MAXIMUM SIZE		36" x 60"				
TYPICAL MINIMUM SIZE		17" x 17"				
TYPICAL CONFIGURATIONS						
STANDARD INFILL OPTIONS		1/4" and 1"				
STANDARD HARDWARE		Stainless Steel 4-Bar Hinges Cast White Bronze Cam Locks				
OPTIONAL HARDWARE		Butt Hinges Access Control Locks Hook Bolt Lock or Multi-Point Lock Limit Stop Pole and Pole Ring Friction Adjustor Keyed Limit Arm Roto Operator				
OTHER OPTIONS		Unequal Leg Frames Exterior and/or Interior Applied Muntins Insect Screens Perimeters and Sills Exterior Pannings and Interior Trims Structural Mullions Vertically or Horizontally Stacked Access Panel and Blinds Silicone Field Glazing upon Request				
PERFORMANCE	Air Infiltration Cfm/ft ²	Water Resistance PSF	Design Load PSF	Thermal Transmittance "U" Value	Condensation Resistance CRF	Sound Transmittance STC
	.10 @ 6.24 psf	15	90	.60	50	37

Note: Thermal values are based upon 1" clear insulating glass.

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Hinges

Requirements

- Hinges on new projects to be 3 knuckle type
- Use Fasteners Supplied By Manufacturer
- All hinges to be 626/652 dull chrome finish
- All hinges at exterior openings to have non removable pins

Number Of Hinges Per Door

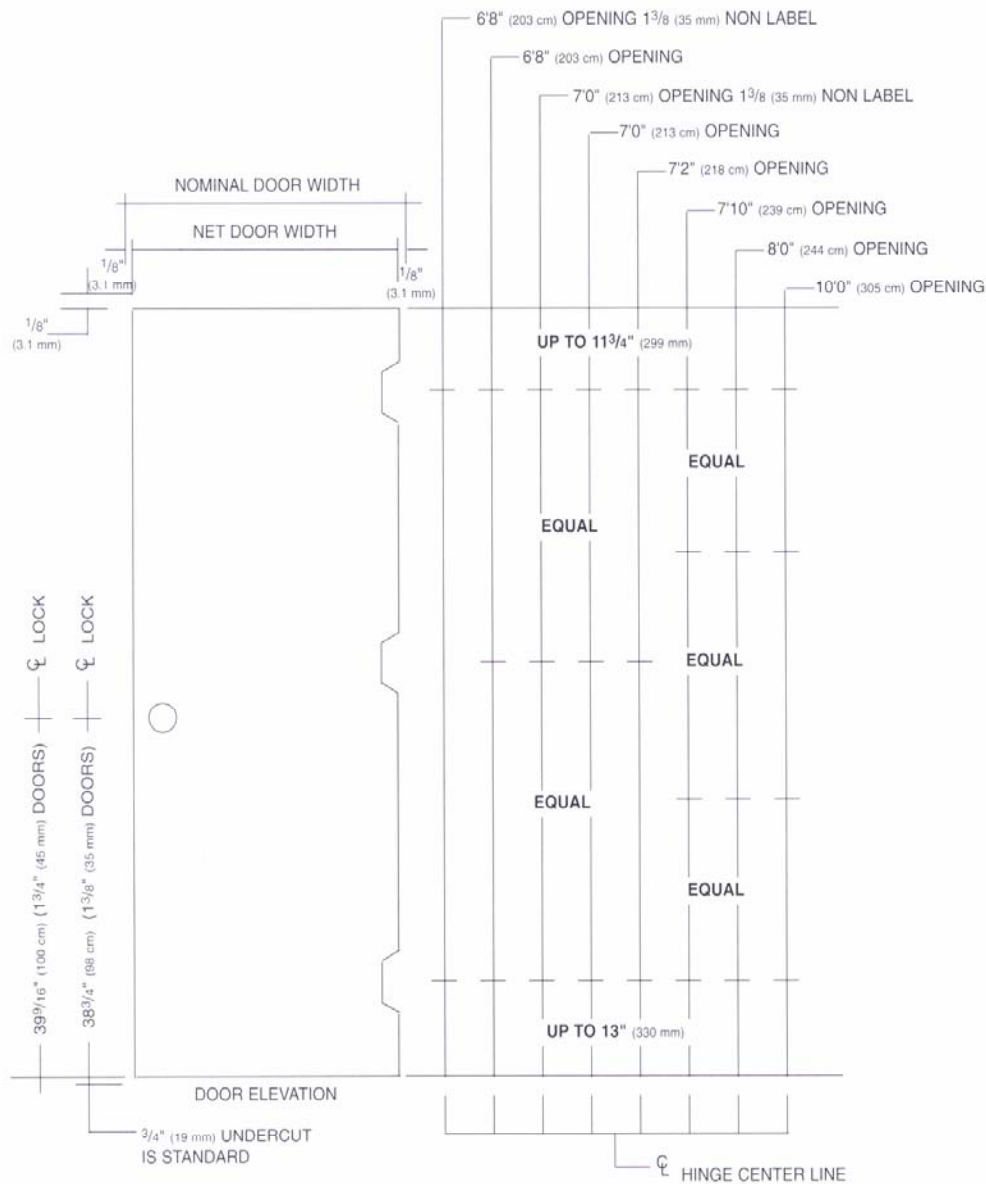
- 2 Hinges Doors Up To 60" In Height
- 3 Hinges Doors Over 60" Up To 90"
- 4 Hinges Doors Over 90" Up To 120"

For Doors Over 120" Add 1 Hinge For Each Additional 30" Or Fraction Thereof

Approved Manufacturers

Hager, Stanley

Standard Hinge Locations



METRIC CONVERSION

Inches to Millimeters = Inches x 25.4

Millimeters to Inches = Millimeters x .03937

HINGE BACKSET

1/4" (6.4 mm) FOR 1 3/4" (45 mm) DOOR

3/8" (9.5 mm) FOR DOORS OVER 2 1/4" (57 mm)

Full Mortise Hinges

Plain Bearing • Standard Weight • Template

For use on Medium Weight Doors or Doors Requiring Low Frequency Service

700

Steel with steel pin ANSI A8133

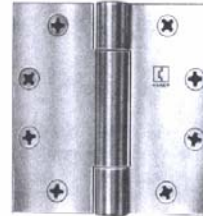
800

Brass with brass pin ANSI A2133

Stainless Steel with stainless steel pin ANSI A5133

Three knuckle non-rising removable pin with concealed pin and plug. Identical in appearance to Tri-Con bearing hinges except "AB" does not appear on leaf under Hager trademark. Specify screw requirements.

**LIFETIME
TRI-CON
WARRANTY**



For Hospital type prefix "HT" to catalog number

Hinge Size		Gauge of metal	Number of holes	Screw Size		Quantity		Avg weight per case (lbs)	
Inches	Millimeters			Machine	Wood	Box	Case	Steel/SSSteel	Brass
3 1/2 x 3 1/2	89 x 89	0.119	6	1/2 x 10-24	1 x 9	2 each	100 each	66	72
4 x 4	102 x 102	0.129	8	1/2 x 12-24	1 1/4 x 12	3 each	48 each	43	47
4 1/2 x 4	114 x 102	0.134	8	1/2 x 12-24	1 1/4 x 12	3 each	48 each	55	60
4 1/2 x 4 1/2	114 x 114	0.134	8	1/2 x 12-24	1 1/4 x 12	3 each	48 each	55	60
5 x 4	127 x 102	0.145	8	1/2 x 12-24	1 1/2 x 12	3 each	24 each	37	40
5 x 4 1/2	127 x 114	0.145	8	1/2 x 12-24	1 1/2 x 12	3 each	24 each	37	40
5 x 5	127 x 127	0.145	8	1/2 x 12-24	1 1/2 x 12	3 each	24 each	37	40

Concealed Bearing • Standard Weight • Template

For use on Medium Weight Doors or Doors Requiring Medium Frequency Service

AB700

Steel with steel pin ANSI A8112

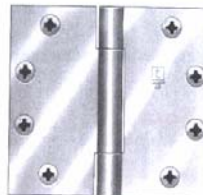
AB800

Brass with brass pin ANSI A2112

Stainless Steel with stainless steel pin ANSI A5112

Three knuckle with concealed hinge bearings, non-rising removable pin, concealed pin head and plug. Specify screw requirements.

**LIFETIME
TRI-CON
WARRANTY**



For Hospital type prefix "HT" to catalog number

Hinge Size		Gauge of metal	Number of holes	Screw Size		Quantity		Avg weight per case (lbs)	
Inches	Millimeters			Machine	Wood	Box	Case	Steel/SSSteel	Brass
3 1/2 x 3 1/2	89 x 89	0.119	6	1/2 x 10-24	1 x 9	2 each	100 each	66	72
4 x 4	102 x 102	0.129	8	1/2 x 12-24	1 1/4 x 12	3 each	48 each	43	47
4 1/2 x 4	114 x 102	0.134	8	1/2 x 12-24	1 1/4 x 12	3 each	48 each	55	60
4 1/2 x 4 1/2	114 x 114	0.134	8	1/2 x 12-24	1 1/4 x 12	3 each	48 each	55	60
5 x 4	127 x 102	0.145	8	1/2 x 12-24	1 1/2 x 12	3 each	24 each	37	40
5 x 4 1/2	127 x 114	0.145	8	1/2 x 12-24	1 1/2 x 12	3 each	24 each	37	40
5 x 5	127 x 127	0.145	8	1/2 x 12-24	1 1/2 x 12	3 each	24 each	37	40

Concealed Bearing • Standard Weight • Template • Wide Throw

For use on Medium Weight Doors or Doors Requiring Medium Frequency Service

AB700 - Wide Throw

Steel with steel pin ANSI A8112

AB800 - Wide Throw

Brass with brass pin ANSI A2112

Stainless Steel with stainless steel pin ANSI A5112

Three knuckle with concealed hinge bearings, non-rising removable pin, concealed pin head and plug. Specify screw requirements.

**LIFETIME
TRI-CON
WARRANTY**



Hinge Size		Gauge of metal	Number of holes	Screw Size		Quantity		Avg weight per case (lbs)	
Inches	Millimeters			Machine	Wood	Box	Case	Steel/SSSteel	Brass
4 1/2 x 5	114 x 127	0.134	8	1/2 x 12-24	1 1/4 x 12	3 each	24 each	42	47
4 1/2 x 6	114 x 152	0.134	8	1/2 x 12-24	1 1/4 x 12	3 each	24 each	42	47
4 1/2 x 7	114 x 178	0.134	8	1/2 x 12-24	1 1/4 x 12	3 each	24 each	42	47
4 1/2 x 8	114 x 203	0.134	8	1/2 x 12-24	1 1/4 x 12	3 each	24 each	42	47
5 x 6	127 x 152	0.145	8	1/2 x 12-24	1 1/4 x 12	3 each	12 each	27	29
5 x 7	127 x 178	0.145	8	1/2 x 12-24	1 1/4 x 12	3 each	12 each	27	29
5 x 8	127 x 203	0.145	8	1/2 x 12-24	1 1/4 x 12	3 each	12 each	27	29

Hinge testing conforms to ANSI A156.1. Furnished with screw hole locations that conform to standards approved by ANSI A156.7.

HAGER WEBSITE: WWW.HAGERHINGE.COM

1A

"THE FIRST FAMILY OF SUPERIOR HARDWARE"

Full Mortise Hinges

Concealed Bearing • Heavy Weight • Template
For use on Heavy Weight Door or Doors Requiring High Frequency Service

AB750

Steel with steel pin ANSI A8111

AB850

Brass with brass pin ANSI A2111

Stainless Steel with stainless steel pin ANSI A5111

Three knuckle with concealed hinge bearings. Non-rising removable pin, concealed pin head and plug.
Specify screw requirements.

**LIFETIME
TRI-CON
WARRANTY**



For Hospital type
prefix "HT" to
catalog number

Hinge Size		Gauge of metal	Number of holes	Screw Size		Quantity		Avg weight per case (lbs)	
Inches	Millimeters			Machine	Wood	Box	Case	Steel	SSteel/Brass
4 1/2 x 4 1/2	114 x 114	0.180	8	1/2 x 12-24	1 1/4 x 12	3 each	24 each	38	35
5 x 4 1/2	127 x 114	0.190	8	1/2 x 12-24	1 1/4 x 12	3 each	24 each	48	44
5 x 5	127 x 127	0.190	8	1/2 x 12-24	1 1/4 x 12	3 each	24 each	48	44
6 x 4 1/2	152 x 114	.203 Steel & Brass .190 SS	10	1/2 x 1/4-20	1 1/2 x 14	3 each	24 each	70	61
6 x 5	152 x 127	.203 Steel & Brass .190 SS	10	1/2 x 1/4-20	1 1/2 x 14	3 each	24 each	70	61
6 x 6	152 x 152	.203 Steel & Brass .190 SS	10	1/2 x 1/4-20	1 1/2 x 14	3 each	24 each	70	61

Concealed Bearing • Heavy Weight • Template • Wide Throw

For use on Heavy Weight Door or Doors Requiring High Frequency Service

AB750 - Wide Throw

Steel with steel pin ANSI A8111

AB850 - Wide Throw

Brass with brass pin ANSI A2111

Stainless Steel with stainless steel pin ANSI A5111

Three knuckle with concealed hinge bearings non-rising removable pin, concealed pin head and plug.
Specify screw requirements.

**LIFETIME
TRI-CON
WARRANTY**



Hinge Size		Gauge of metal	Number of holes	Screw Size		Quantity		Avg weight per case (lbs)	
Inches	Millimeters			Machine	Wood	Box	Case	Steel	SSteel/Brass
4 1/2 x 5	114 x 127	0.180	8	1/2 x 12-24	1 1/4 x 12	3 each	24 each	55	60
4 1/2 x 6	114 x 152	0.180	8	1/2 x 12-24	1 1/4 x 12	3 each	24 each	55	60
4 1/2 x 7	114 x 178	0.180	8	1/2 x 12-24	1 1/4 x 12	3 each	24 each	55	60
4 1/2 x 8	114 x 203	0.180	8	1/2 x 12-24	1 1/4 x 12	3 each	24 each	55	60
5 x 6	127 x 152	0.190	8	1/2 x 12-24	1 1/4 x 12	3 each	12 each	32	35
5 x 7	127 x 178	0.190	8	1/2 x 12-24	1 1/4 x 12	3 each	12 each	32	35
5 x 8	127 x 203	0.190	8	1/2 x 12-24	1 1/4 x 12	3 each	12 each	32	35

Hinge testing conforms to ANSI A156.1. Furnished with screw hole locations that conform to standards approved by ANSI A156.7.

2A

Ph. 1-800-325-9995 or 1-314-772-4400 • Fax 1-800-782-0149 or 1-314-772-0744

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