STEWARD STEEL

DOOR DIVISION PO BOX 551 • 101 N. INTERSTATE DR. • SIKESTON, MO 63801 • PH 573.472.2121 • FX 573.471.4070

Thank you for your interest in Steward Steel, Inc. Steward Steel has been manufacturing standard and custom hollow metal doors, frames, and borrow lites since 1959. We were one of the first custom manufacturers to offer "Quick Ship" hollow metal doors and frames to the industry. We have never advertised throughout our 50+ years. Our business has grown over the years through word of mouth. We think our reputation for quality and service plays a huge role in our success.

Our standard lead time for custom frames is (7) to (10) working days. Our standard lead time for custom doors is (10) working days. However, all of our products are available through our Quick Ship program. This includes Stainless Steel, Arch Top, Lead-Lined, Bullet Resistant, Over-sized, and Detention Hollow Metal Doors and Frames. Just tell us what lead-time you're looking for – (5) days, (3) days, (1) day? If we can't do it, we won't quote it! We've documented a 99% on time shipping record over the past ten years!

We would like the opportunity to quote you on any Custom or Quick Ship Hollow Metal requirements you have. Just fax us or call us with your information and our Distributor Sales Department will get your quote back the same day. If you need it immediately, let us know and we'll get it back to you within the hour.

We look forward to hearing from you!

NAAMM
The National Association of Architectural Metal Manufacturers

Standard & Custom Hollow Metal Doors and Frames

STEWARD STEEL, INC.

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History

Steward Steel opened for business in 1950 to supply steel building materials to the construction industry in Southeast Missouri. We were, primarily, a structural steel fabricator. We also supplied steel doors, frames, and finish hardware as a distributor for Truscon Metal Windows and Doors (now Republic Building Products).

In 1959, we began to manufacture hollow metal door frames in order to better serve the contractors in our area. The demand for quicker delivery and for custom doors and frames allowed us to expand into other states through existing door and frame distributors. Word of mouth has been our only advertising. We intentionally grew at a controlled pace in order to maintain our reputation for service and quality.

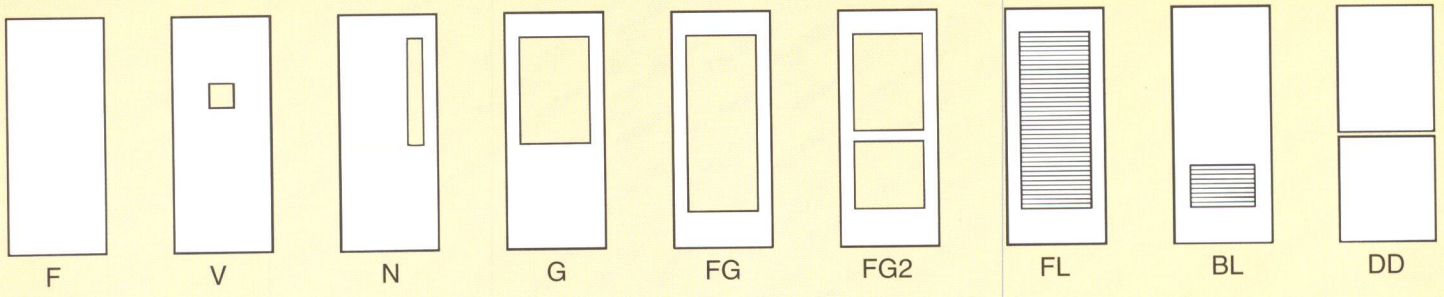
Today, with skilled and knowledgeable plant and office personnel, as well as programmable and numerically controlled machinery, Steward Steel is capable of quickly preparing material for the most demanding and creative specifications. We furnish standard, custom, stainless steel, and security doors and frames throughout the United States.

We remain dedicated to providing you with the best service and quality possible.

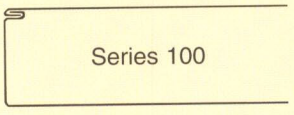
Front Cover Photograph of Houston High School, Memphis, Tennessee by Greg Campbell
Fleming/Associates, Architects

STEWARD STEEL, INC.

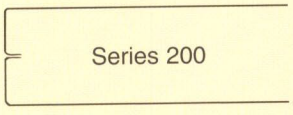
Doors



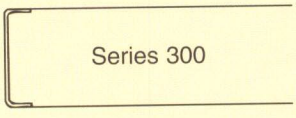
EDGE Construction



Series 100
20 - 18 - 16 ga.
Lock seam construction
Edge seam exposed

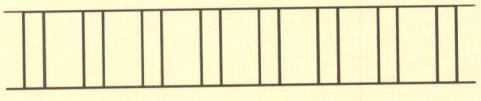


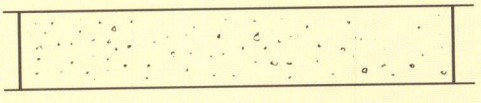
Series 200
18 - 16 - 14 - 12 - 10 ga.
Door edges continuously welded
Finished smooth

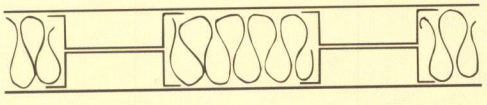


Series 300
18 - 16 - 14 - 12 - 10 ga.
Door edges continuously welded
Finished smooth

CORES - *Options at all Door Series*

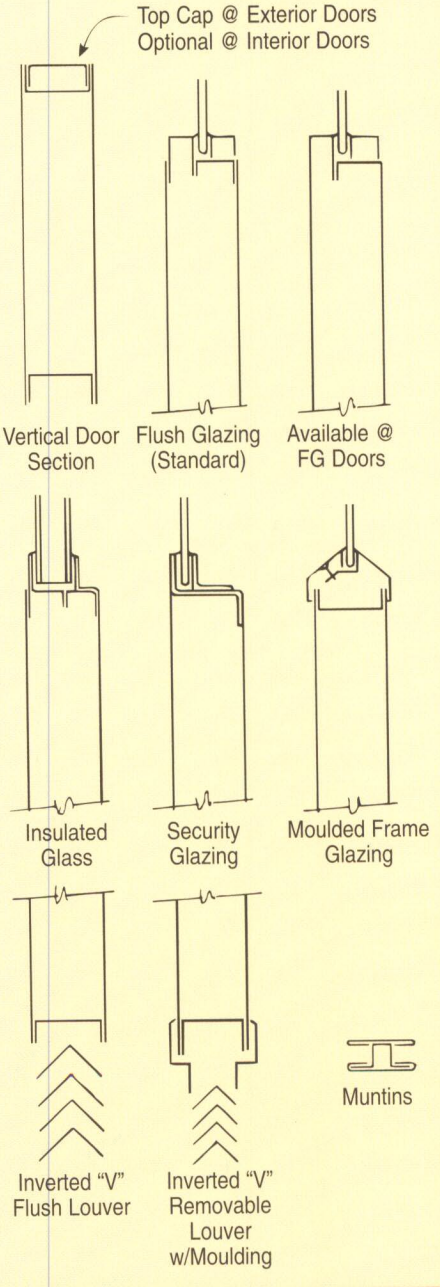
DH  Honeycomb

DP  Polystyrene

DS  Steel stiffened with insulation between stiffeners

GENERAL

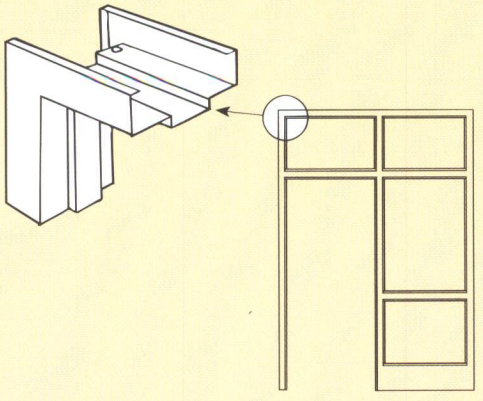
- Square Edge - Optional Beveled
- CR Steel - Galvanized - Stainless
- Full Width Top and Bottom Channels
- Flush (Steel) Top Cap at Exterior Doors
- 1 3/4" Thick - Other Thicknesses Available
- 7 Gauge (3/16") Hinge Reinforcement Standard
- 10 Gauge Angle Hinge Reinforcement Optional



STEWARD STEEL, INC.

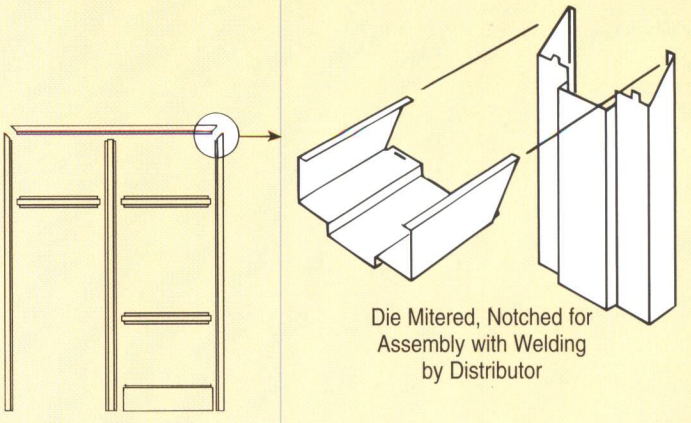
Frames

Steward Steel manufactures standard and custom door & borrow light frames in depths, profiles, and gauges to meet virtually any architectural requirement.



FW Frames (welded)

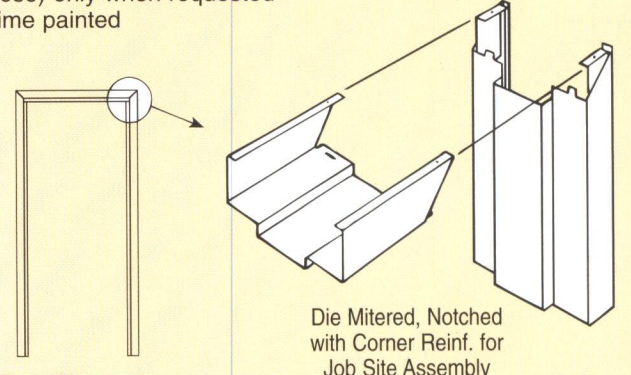
- With hardware preps and reinforcements as scheduled
- Complete with glazing bead, floor and wall anchors
- Prime painted



Die Mitered, Notched for Assembly with Welding by Distributor

FKD Frames

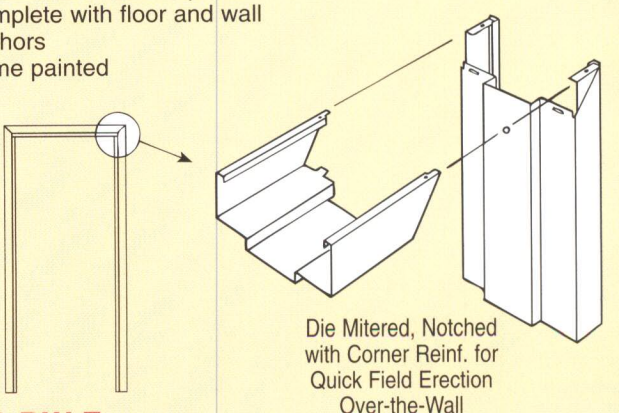
- Hardware preps as specified
- Glazing bead and wall anchors furnished (loose) only when requested
- Prime painted



Die Mitered, Notched with Corner Reinf. for Job Site Assembly

FKDJ Frames

- With hardware preps and reinforcements as required
- Complete with floor and wall anchors
- Prime painted



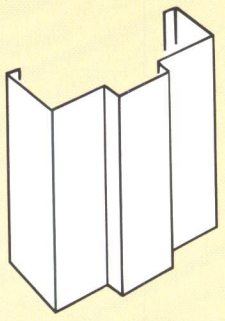
Die Mitered, Notched with Corner Reinf. for Quick Field Erection Over-the-Wall

FKD DW Frames

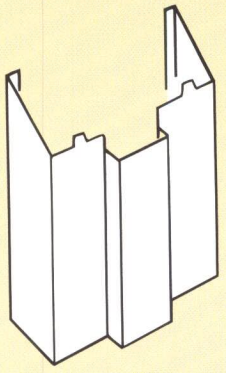
- With drywall compression anchors
- Screw holes at bottom of jambs
- Prime painted

FRAMES *fabricated from*

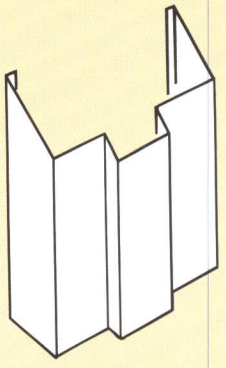
- Cold Rolled Steel, commercial quality, conforming to ASTM A-366.
- Gauges 18 - 16 - 14 - 12 - 10.
- CR Steel is dip-cleaned, phosphatized and finished with one coat of rust inhibitive primer.
- Prime Paint exceeded 190 hour salt spray test per ASTM B-117.
- Optional - Galvannealed A60 (.6 oz./sq. ft. hot-dipped galv. ASTM 525). G90 available.
- Stainless Steel type 304 #4 polish standard. Type 316 available.
- Hinge Reinforcement No. 7 U.S. Gauge (3/16").
- No. 14 U.S. Gauge combination strike and mortar box standard. No. 12 U.S. Gauge optional.
- No. 12 U.S. Gauge closer reinforcements and miscellaneous hardware reinforcements.



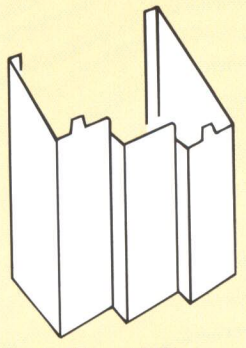
Square End (SE)
Jambs & Sections



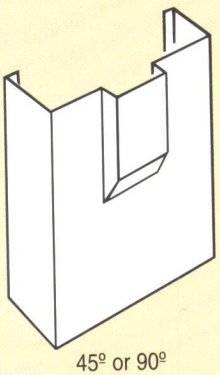
Die Mitered (KD)
- Double or Single Rab.
- Cased Opening



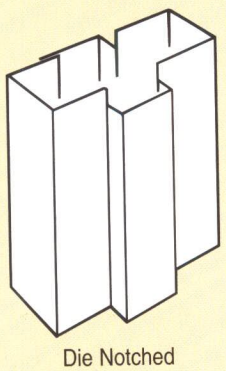
Full Mitered (M)



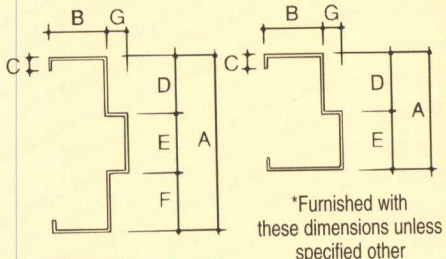
Die Mitered (KD)
Double Egress Jambs
and Heads



45º or 90º
Hospital (Sanitary) Stops

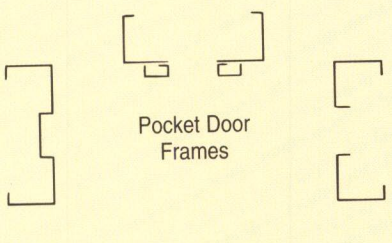


Die Notched
Mullions

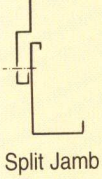


*Furnished with these dimensions unless specified other

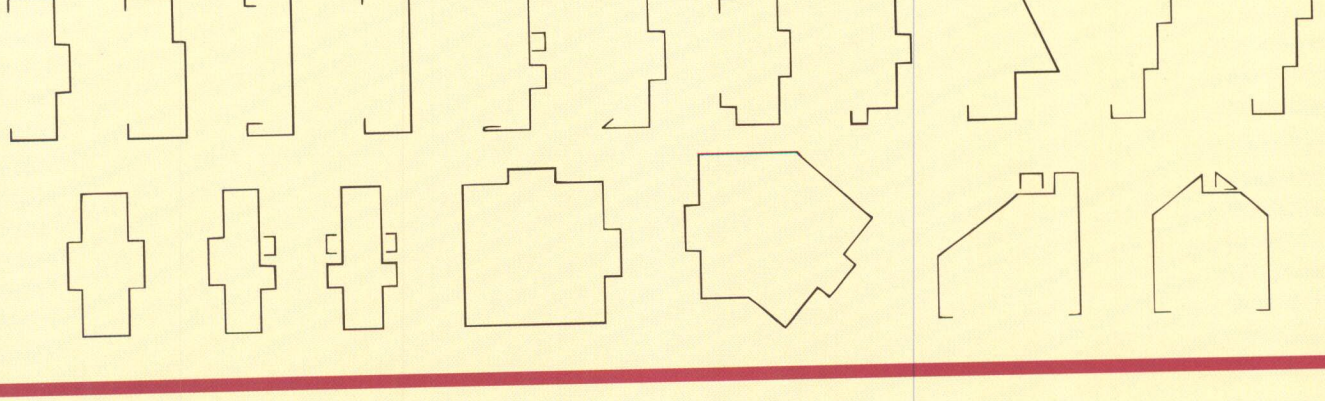
DIM	STD*	MIN	
A		3 1/8"	Depth (Double Rab.)
A		2 1/2"	Depth (Single Rab.)
B	2"	1/2"	Face
C	1/2"	5/16"	Return
D	1 15/16"		Door Rabbet
E		9/16"	Soffit Width
F	1 15/16"	5/8"	Rab. Opp Door
G	5/8"	1/2"	Stop Height



Pocket Door
Frames



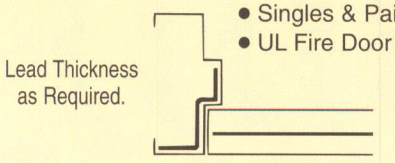
Split Jamb
Frames



STEWARD STEEL, INC.

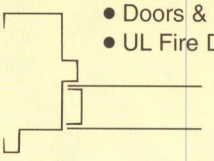
Custom/Security

LEAD-LINED Doors/Frames

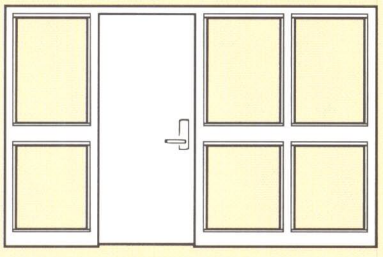


- Singles & Pairs
- UL Fire Door Label Available

POCKET PIVOTS



- Doors & Frames Prepped for Pocket Pivots
- UL Fire Door Label Available

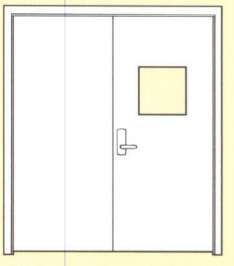


STAINLESS STEEL Doors/Frames/Borrow Light Frames

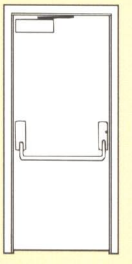
- Type 304, #4 Polish Standard
- Type 316 Available
- UL Fire Door/Frame Label Available

UL BULLET RESISTANT Door and Frame Assembly

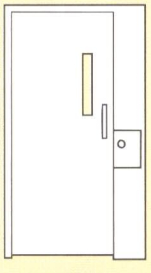
- UL752 Level 3 SPSA (Super Power Small Arms) .44/.357 Magnum
- Available with Transom and Sidelites
- Borrow Light Frames
- Available with Approved Bullet Resistant Glass
- Inswing or Outswing
- Prepped for Govt. 86 Mortise Lock or Reinforced for Rim Exit Device

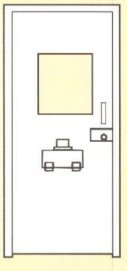


Pair to 80100



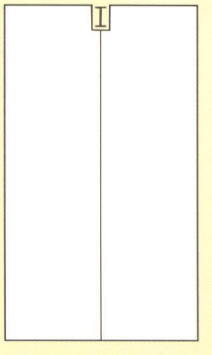
Single to 40100





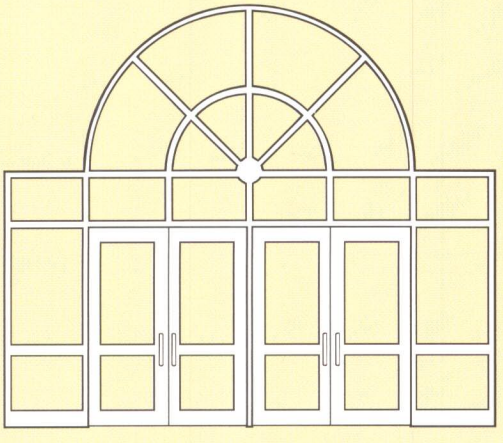
SECURITY/DETENTION

- 14 Ga., 12 Ga., 10 Ga.
- Prepped for Security Hardware
- Food Pass Doors



OVERSIZE/SPECIAL

- Monorail Cutouts
- 2" - 3" Thick Doors
- Doors Within a Door
- Sliding Doors



RADIUSED or CURVED Frames

- Borrow Light Frames
- Curved Windows

STEWARD STEEL, INC.

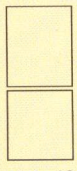
Ⓤ Fire Doors & Frames

UL Labeled Hollow Metal Fire Doors and Frames - Swinging Type

DOORS - *Gauges 20, 18, 16, 14* *A (3 hr.), B (1 1/2 hr.), C (3/4 hr.), D (1 1/2 hr.), E (3/4 hr.)*

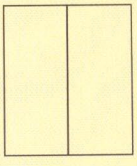
3 hr., 1/ 1/2 hr., 3/4 hr.
Max. Size: 4'-0" x 10'-0"
Temp. Rise: 250º, 450º, 650º, (to 4080)
Stainless Steel Max. 4080

Single



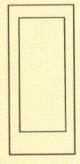
3 hr., 1/ 1/2 hr., 3/4 hr.
Max. Size: 3'-6" x 7'-6"
Temp. Rise: N/A
18 Gauge Only
Shelf Available

Dutch (Single)



3 hr., 1/ 1/2 hr., 3/4 hr.
Max. Size: 8'-0" x 10'-0"
Temp. Rise: 450º, 650º, (to 8080)
Double Egress Max. 80100 (3-Hr.)
Stainless Steel Max. 8080

Pair

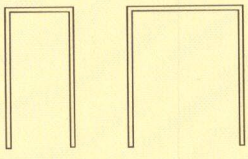


20 minute
Max Size: 3'-0" x 9'-0"
18, 16 Gauge Only

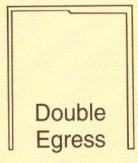
Full Glass (Single)

- Some Restrictions Apply
- Consult Factory for Size, Gauge and Hardware Requirements
- **A Label -** No Glazed Area *(exceptions ... see below)*
- **B Label -** 100 sq. in. Glazed Area
- **C Label -** 1296 sq. in. Glazed Area
- **D Label -** No Glazed Area
- **E Label -** 1296 sq. in. Glazed Area

FRAMES - *Gauges 18, 16, 14, 12*

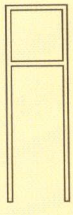


3 hr., 1/ 1/2 hr., 20 min.
Max. Size Single: 40100
Max. Size Pair: 80100

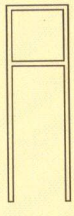


Double Egress

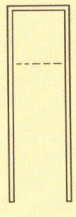
3 hr., 1/ 1/2 hr.
Max. Size: 80100



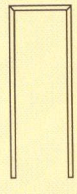
For Metal or Wood Transom Panel ①



Glass in Transom ①

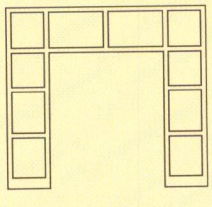


Without Mullion ①



20 min. - 3 hr.
Max. Size
Single: 4090
Pair: 8090

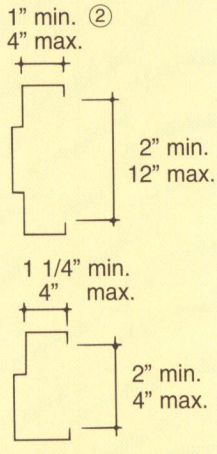
Dry Wall (DW)



With Metal Transom and Side Panels

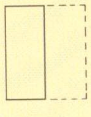
With Transom and Side Lites ①

① Maximum sizes and hour rating may vary with wall construction and other factors. Consult factory.

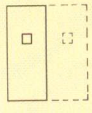


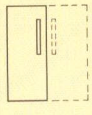
Some design restrictions apply - consult factory

② 1" min. @ Masonry Walls
1 1/4" min. Other Walls

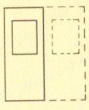


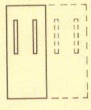
- 3 hour class A walls separating buildings or dividing building into fire areas
- 1 1/2 hour class D exterior walls subject to severe fire exposure
- No glass permitted (except 3 hour available with 10 x 10 Fire Lite® glass)



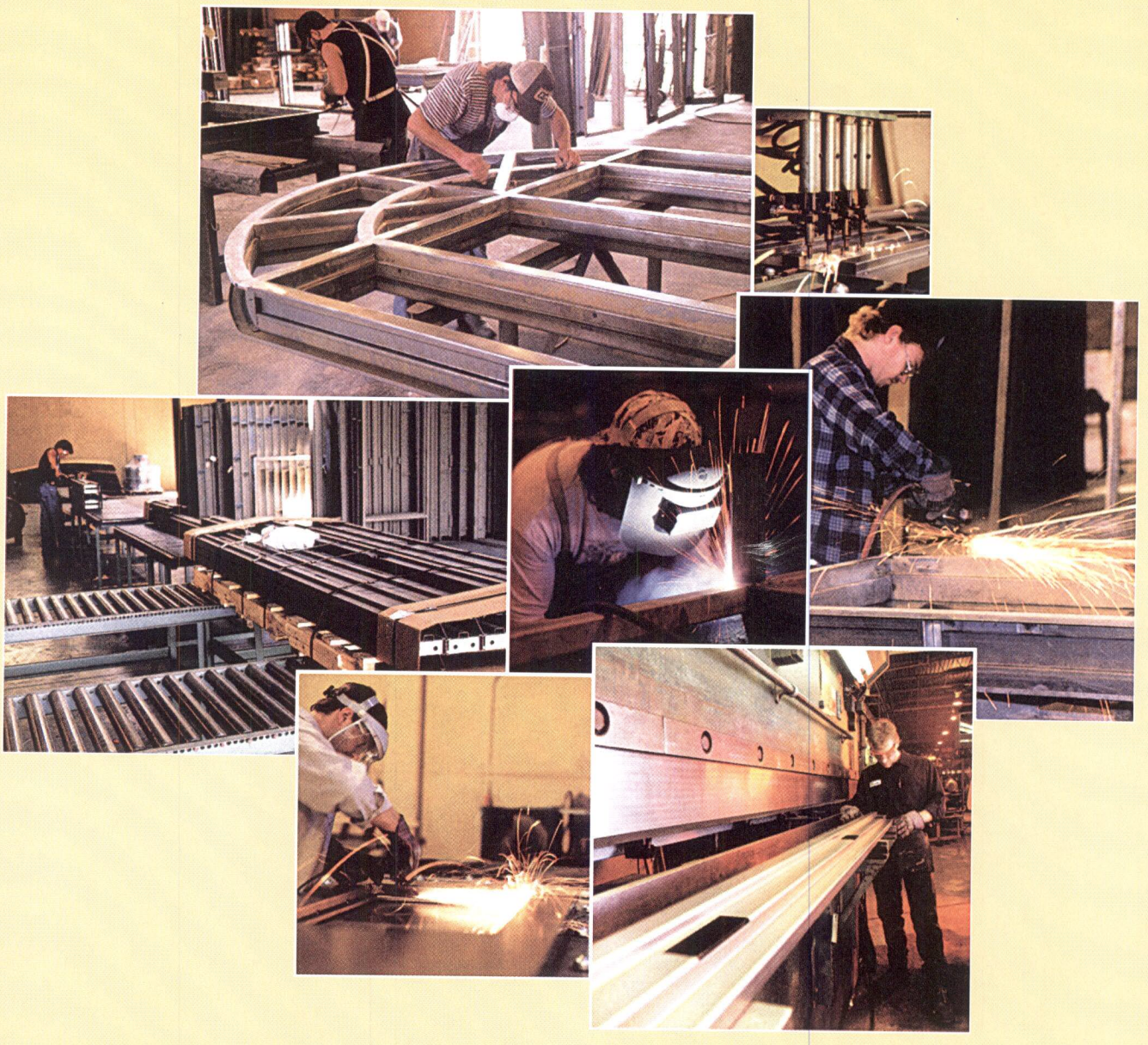


- 1 1/2 hour class B enclosure or vertical communications (e.g. stairs)
- 100 sq. in. exposed glass/leaf max. (10" max. width, 33" max. height)
- May be flush or w/Vision Lites





- 3/4 hour class C (1296 sq. in. exposed glass) corridors & room partitions
- 3/4 hour class E (720 sq. in. exposed glass) ext. walls subject to moderate or light fire exposure (e.g. fire escapes)
- No glass dim. to exceed 54", may be flush or divided into individual lites separated by horizontal and/or vertical Muntin bars or 6" min. rails



"Our Employees Are Our Most Important Asset"

STEWARD STEEL, INC.

Door & Frame Division
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P. O. Box 551 • Sikeston, MO 63801
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Fax (573) 471-4070
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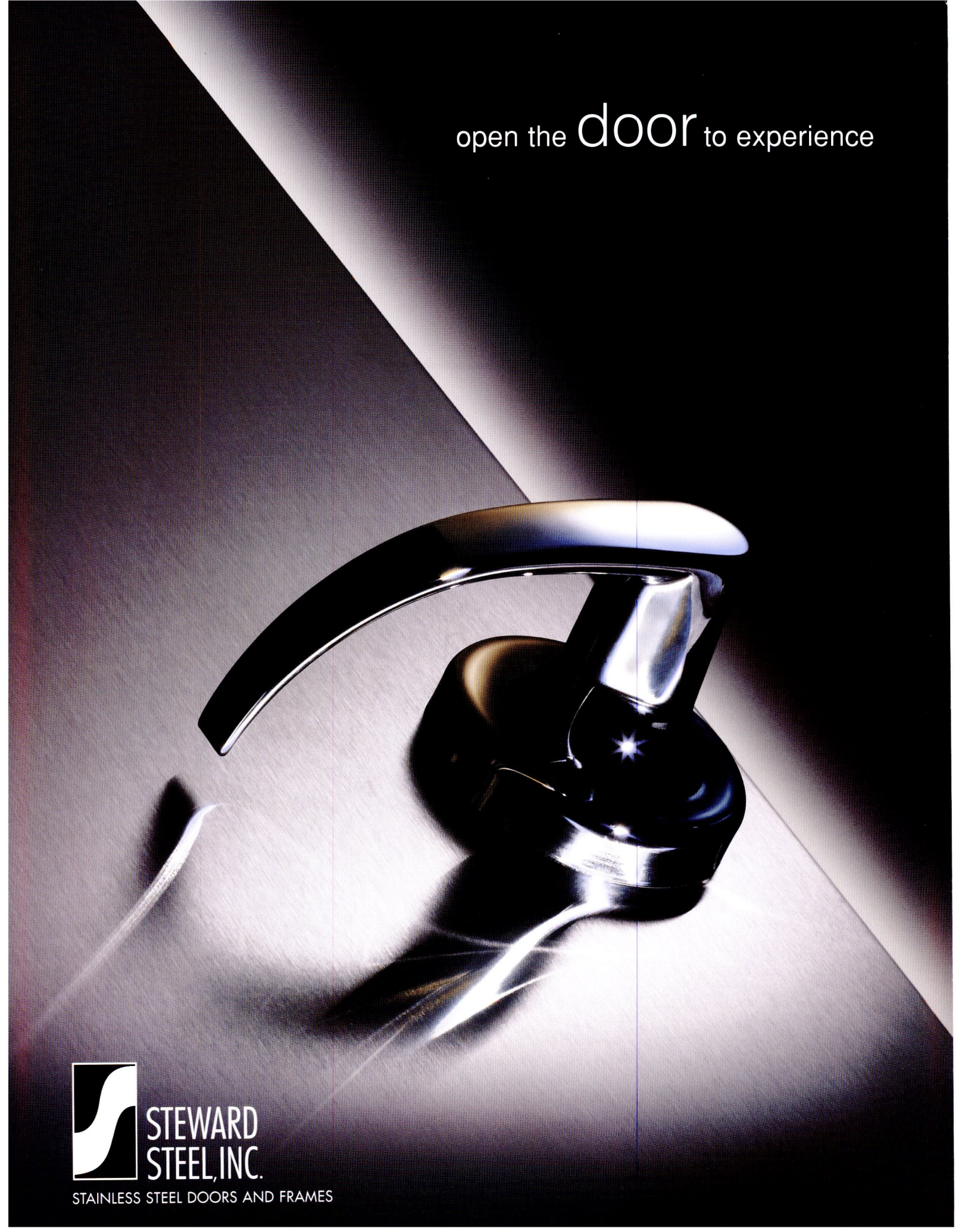
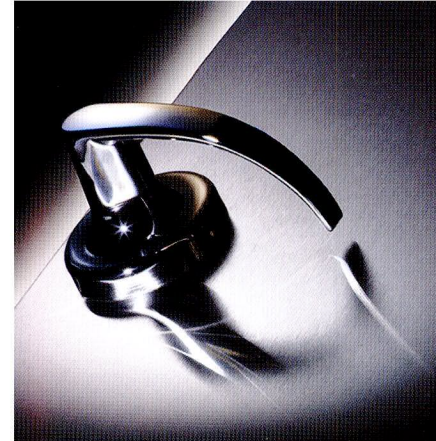

open the door to experience
STEWARD
STEEL, INC.
STAINLESS STEEL DOORS AND FRAMES



STEP

and experience the quality of

Today, with skilled and knowledgeable plant and office personnel, as well as programmable and numerically controlled machinery, Steward Steel is capable of producing quality stainless steel doors and frames for the most demanding and creative specifications.

Our commitment to both ***Quality*** and ***Service*** is one of the reasons Steward Steel has been successfully manufacturing stainless steel doors and frames since 1965. We continue to invest in the latest manufacturing equipment and believe we have assembled a team of experts unparalleled in the industry. Our goal is to get you the products you need, when you need them, with outstanding quality.

Steward Steel's standard lead times are the best in the industry. If that's not fast enough, ask about our ***Quick Ship Program***. Our goal is to get your material to the job site when it's needed. Our track record proves we're the experts when it comes to on-time shipping.

Why Use Stainless Steel?

- ***Aesthetically Appealing***
- ***Hygiene***
- ***Corrosion Resistance***
- ***Long-Term Value***

Finishes Available

Standard Finish is **#4 Polish**. 2B (Mill Finish) also available.

Types of Stainless Steel Available

1. **Type 304**
2. **Type 316** (Typically used in harsh environments where exposed to chemicals)

Door Construction Features

Doors are available with face sheets of 18ga, 16ga, 14ga, and 12ga stainless steel. They can be manufactured with a ***Mechanically Inter-Locked Edge Seam*** (18ga only) or ***Continuously Welded Edge Seam***. Optional Cores include ***Polystyrene, Honeycomb, Plastic Honeycomb, or Steel Stiffened***. Doors available in thicknesses up to 3-1/2" thick. Consult factory for doors thicker than 3-1/2". 7ga stainless steel hinge reinforcements and 11ga stainless steel lock reinforcements are used on all doors in order to provide superior strength and durability. Internal components are made of stainless steel. Reinforcing for surface mounted hardware may be made of stainless steel or zinc coated steel. Drilling and tapping of surface mounted hardware to be done in the field.

Standard Glass Kits to be low profile style, minimum 22ga stainless steel. Flush Glazing and Louvers available upon request.

Clean Room Applications

Steward Steel doors can be manufactured with fully welded tops and bottoms, and fully welded lock and hinge edges. The entire perimeter of the door is finished smooth, eliminating all cracks, gaps, and joints where particles collect. These doors can also be made with beveled glass kit molding which eliminates flat surfaces for dust and dirt accumulation.

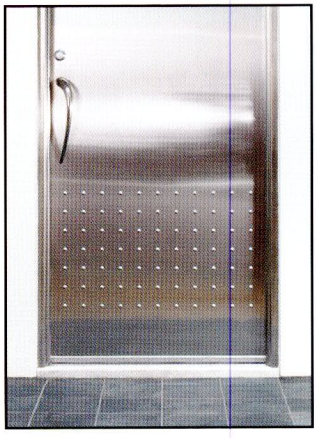
INSIDE

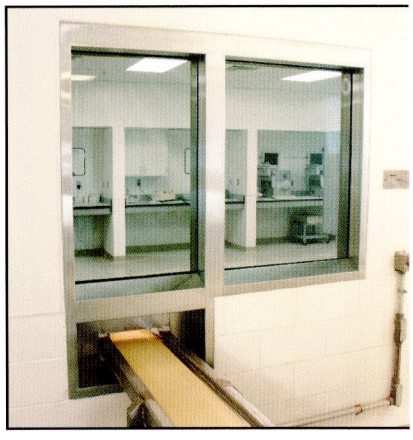
Steward Steel's Stainless Steel Doors and Frames

Frame Construction Features

All frames are manufactured with die mitered corners. Frames are available as ***Knock-Down*** for field assembly, ***Knock-Down Drywall,*** or ***Welded***. At welded frames, all face joints are welded, finished smooth, and polished to produce an invisible joint.

Frames can be manufactured from 16ga, 14ga, 12ga, and 10ga stainless steel. For thicker material, consult factory. 7ga stainless steel hinge reinforcements and 11ga stainless steel strike reinforcements are projection welded to frame for superior strength and durability. Other frame components and anchors are made of stainless steel. Reinforcing for surface mounted hardware may be made of stainless steel or zinc coated steel. Drilling and tapping of surface mounted hardware to be done in the field. Floor anchors and a minimum of three wall anchors per jamb will be supplied to match wall condition.





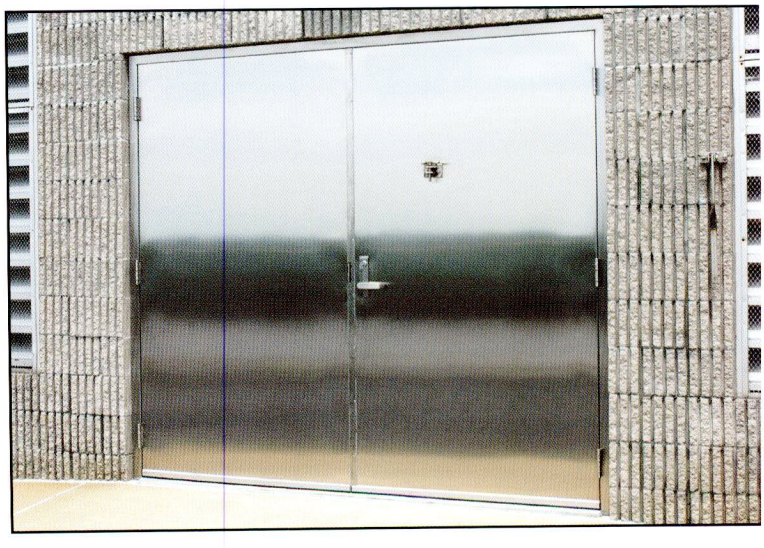
Fire Ratings

Steward Steel Fire Rated Doors and Frames have been tested in accordance with NFPA 80 and are certified by UL. Doors and frames are also available that meet UBC 7-2 and UL 10C Standards for Positive Pressure.

Specialty Doors and Frames

Bullet Resistant Doors and Frames: Stainless Steel Doors, Frames, and Borrow Lites are available with UL 752 Bullet Resistant rating up to Level III standard to protect against super power small arms (.44 Magnum Revolver).

Lead Lined Doors and Frames: Stainless Steel Doors, Frames, and Borrow Lites can be lead-lined for radiation protection. Lead thickness is available from 1/16" to 3/8". For thicker lead lining, consult factory.



Specialty Doors and Frames (cont.)

Hospital Stop Frames: Stainless Steel Door Frames are available with 45 or 90 degree cut off stops, commonly referred to as Hospital Stops. Hospital Stops are typically used in Hospitals and Clean Room applications where sanitary conditions are required.

Typical Stainless Steel Door and Frame Environments

- ***Hospitals***
- ***Food Processing Facilities***
- ***Chemical Plants***
- ***Pharmaceutical Research***
- ***Clean Rooms***
- ***Swimming Pools***
- ***Wastewater Treatment Plants***
- ***Marine Environments***
- ***Public Restrooms***
- ***Bottling Plants***

Shipping

All stainless steel doors and frames are shipped fully enclosed in crates for maximum protection from freight damage. Steward Steel is committed to making sure your material arrives undamaged in order to keep your project on schedule.

STEWARD STEEL, INC.
DOORS AND FRAMES

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HOLLOW METAL BY HMMA

A DIVISION OF NAAMM

GUIDE SPECIFICATIONS FROM HMMA

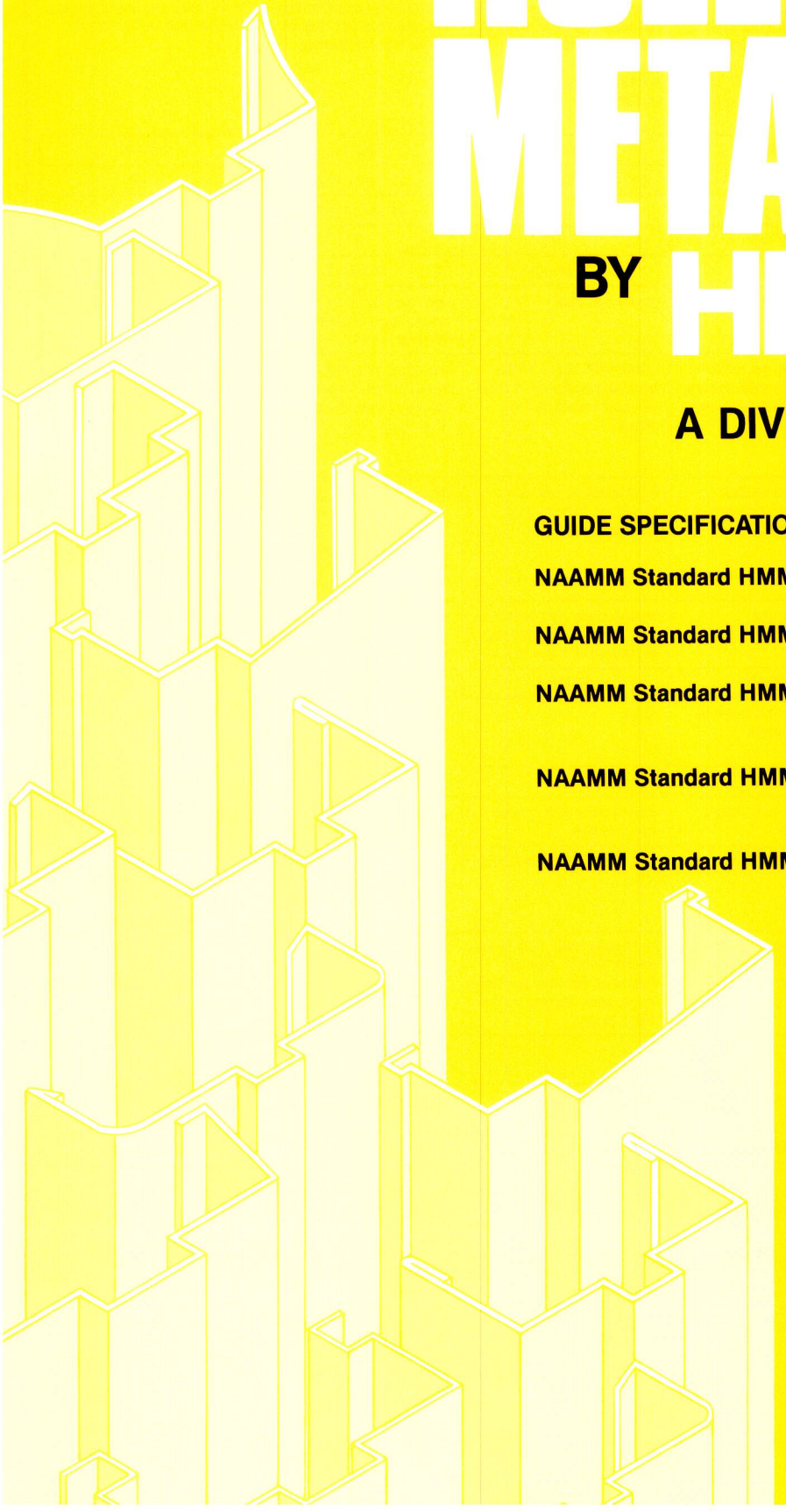
NAAMM Standard HMMA 860 - Guide Specifications for Hollow Metal Doors and Frames...

NAAMM Standard HMMA 861 - Guide Specifications for Commercial Hollow Metal Doors and Frames...

NAAMM Standard HMMA 862 - Guide Specifications for Commercial Security Hollow Metal Doors and Frames...

NAAMM Standard HMMA 863 - Guide Specifications for Detention Security Hollow Metal Doors and Frames...

NAAMM Standard HMMA 865 - Guide Specifications for Swinging Sound Control Hollow Metal Doors and Frames...



Total capability in hollow metal doors and frames from companies of the Hollow Metal Manufacturers Association Division of NAAMM, the National Association of Architectural Metal Manufacturers

HMMA GUIDE SPECIFICATIONS

HMMA Guide Specifications At a Glance

HMMA 860 – Hollow Metal Doors and Frames – For use in apartment and other building projects where traffic is relatively light and hard usage is not anticipated.

HMMA 861 – Commercial Hollow Metal Doors and Frames – For use in commercial and industrial applications where rigorous use is anticipated... schools, hospitals, industrial buildings, office buildings, hotels, nursing homes, airports and convention centers.

HMMA 862 – Commercial Security Hollow Metal Doors and Frames – In applications where security is paramount... entrances and back doors of businesses, storerooms, warehouses, strip stores, apartments and condominiums.

HMMA 863 – Detention Security Hollow Metal Doors and Frames – For applications in jails, prisons, detention centers, and secured areas in hospitals or courthouses.

HMMA 865 – Swinging Sound Control Hollow Metal Doors and Frames – For applications in TV, radio and sound studios; theaters and music rooms.

DOORS	DOORS	DOORS	DOORS	DOORS	DOORS
Face Sheets, Interior Doors	20 ga.	18 ga.	14 ga.	14 ga. or 12 ga.	18 ga.
Face Sheets, Ext. Doors (1)	18 ga.	16 ga.	14 ga.	14 ga. or 12 ga.	18 ga.
Minimum Thickness	1 3/4"	1 3/4"	1 3/4"	2"	1 3/4"
Stiffeners	22 ga. (2)	22 ga. (2)	18 ga. (2)	18 ga. (3)	Manufacturers standard
Vertical Edges	continuous weld or interlocking seam welded at top and bottom of door	continuous weld	continuous weld	reinforced by 10 ga. continuous steel channel, continuous weld	continuous weld
Top and Bottom Edges	closed with 16 ga. continuous recessed steel channel	closed with 16 ga. continuous recessed steel channel, spot welded to face sheets	closed with 12 ga. continuous recessed steel channel (4), spot welded to face sheets	reinforced with continuous steel channel, 10 ga. spot welded to face sheets 4" o.c. (5)	inverted continuous recessed steel channel, 16 ga.; full width of door, spot welded to each face sheet, weep holes in bottom closure, exterior doors. (5)
Glass Moldings and Stops	fixed moldings welded to door on security side; loose stops, 20 ga.	fixed moldings welded to door on security side; loose stops, 20 ga.	fixed moldings welded to door on security side; all stops, 16 ga.	fixed moldings, 12 ga. spot welded to face sheets 5" o.c.; removable glass stops, 14 ga. pressed steel channel (6)	in dual glazed systems, each glass must be independently removable; single systems, fixed moldings welded to door on security side, loose stops, 20 ga.
Louvers	welded blade type construction	welded blade type construction	welded blade type construction, 14 ga. blades welded or tenoned to frame (7)	welded inverted vee or wye type construction, inverted vee vanes, 12 ga. (8)	not applicable
FRAMES	**FRAMES**	**FRAMES**	**FRAMES**	**FRAMES**	**FRAMES**
Interior Openings	16 ga. (18 ga. for wood doors, 20 ga. for hollow core wood doors)	16 ga.; 14 ga. for openings over 4' 0" in width	12 ga.	12 ga.	14 ga.
Exterior Openings (1)	16 ga.	14 ga.	12 ga.	12 ga.	14 ga.
Construction	welded or knocked-down with integral stop and trim	welded units with integral stop and trim	welded units with integral stop and trim	welded units with integral stop and trim	welded units with integral trim
Floor Anchors	16 ga. welded inside jambs	14 ga. welded inside jambs	14 ga. welded inside jambs	same ga. as frame, welded inside jambs with at least 4 spot welds per anchor	14 ga., welded inside each jamb with 2 holes at each jamb; adjustable anchors, with min. of 2" height adjustment.
Jamb Anchors	in masonry walls (9) 16 ga. steel or 0.156" diameter steel wire. For stud partitions, 18 ga. steel anchors welded inside jambs	in masonry walls (9) 16 ga. steel or 0.156" diameter wire. For stud partitions 18 ga. steel anchors welded inside jambs	in masonry walls (10) 14 ga. steel or 0.156" diameter steel wire. For stud partitions, 16 ga. steel anchors welded inside jambs	same ga. as frame (11)	in masonry walls (11), 16 ga. For stud partitions, 18 ga. steel anchors welded inside jambs.
Dust Covers (or Mortar Guards) (12)	26 ga.	26 ga.	26 ga.	plaster guards, 26 ga.	26 ga.
Loose Glazing Stops	20 ga. cold-rolled steel (13)	20 ga. cold-rolled steel	16 ga. cold-rolled steel	10 ga. pressed steel angle (14)	not applicable
For Complete Specifications	**See HMMA 860**	**See HMMA 861**	**See HMMA 862**	**See HMMA 863**	**See HMMA 865**

General Notes:

Materials: For doors and frames – commercial quality, level, cold-rolled steel conforming to ASTM A 366 or hot-rolled, pickled and oiled steel conforming to ASTM A 569.

Gages: Gages listed in chart are minimum.

Testing and Performance: HMMA 862 incorporates testing procedures and performance requirements promulgated by NILECJ for Class IV doors (ASTM F 476-84) including Jamb/Wall Stiffness Test. Jamb/Wall Stiffness Performance, Door Impact Test, Door and Glazing Panel Impact Resistance Performance. **HMMA 863** requires five tests: Static Load Test; Rack Test; Impact Load Test; Removable Glazing Stop Test; and Bullet Resistance Test. Manufacturers must submit an independent laboratory report certifying minimum performance required by these tests of a 3' 0" × 7' 0" × 14 gage minimum, flush door.

Reference Notes:

(1) Face sheets for exterior doors and for frames for exterior openings shall have a zinc coating applied by the hot-dip process conforming to ASTM A 526 (A60 or G60) with a coating weight of not less than 0.60 ounces per square foot (0.30 ounces per square foot per side).
(2) Continuous vertical formed steel sections, 6" apart, spot welded to both face sheets 5" o.c.
(3) Vertical interior webs no more than 4" o.c., spot welded to both face sheets a minimum of 3" o.c.
(4) Jamb edges of door reinforced with continuous steel channel not less than 12 ga.
(5) Top end channel shall be fitted with an additional flush closing channel of not less than 16 ga. welded in place at corners and center.
(6) Where glass thickness dictates, 12 ga. offset surface mounted glass stops shall be used. Where shown, pressed steel angle glazing stops, no less than 10 ga. shall be provided.
(7) Louvers for exterior doors shall have steel-framed screens secured to back of louvers; wire screen shall be 1/4" galvanized hardware cloth.
(8) For speaking devices and food pass openings refer to HMMA 863.
(9) Frames for installation in masonry walls shall be provided with adjustable jamb anchors of the T-strap or stirrup-and-strap or wire type. Stirrup straps not less than 2" × 10" in size.
(10) Frames for installation in masonry walls shall be provided with adjustable jamb anchors of the T-strap or wire type. Straps shall be not less than 2" × 10" in size.
(11) Frames for installation in masonry walls shall be provided with adjustable jamb anchors of the strap and stirrup type. Straps not less than 2" × 10" in size.
(12) Provided at all hardware mortises on frames to be set in masonry or plaster partition.
(13) Interior frames may be provided with snap-on glazing stops.
(14) Where shown in non-security locations, 14 ga. pressed steel channel stops shall be provided.

HMMA FIRE-RATED DOORS AND FRAMES AT A GLANCE

HMMA leading the way in joint fire door testing, research and development; hose stream testing, positive pressure testing to UBC-43-2 and ISO-3008.

FIRE FRAME FEATURES

Frame Description	Hourly Rating: 3 hour Class A	1-1/2 hour Class B & D	3/4 hour Class C & E	Maximum Frame Opening Sizes	Swinging Single	Swinging in Pairs	(1) Wall: 12 gage Metal	14 gage Metal	16 gage Metal	New Masonry	Existing Masonry	Steel Studs	Wood Studs	Adjustable Floor Knee	Cut Off Stop	Stainless Steel	Maximum Door or Window Opening Sizes	Maximum Transom Light or Panel Opening Sizes	Maximum Side Light or Panel Opening Sizes
Three-Sided Frame	•	•	•	4′ 0″ × 10′ 0″ 8′ 0″ × 10′ 0″	•	•	•	•	•	•	•	•	•	•	•	•	4′ 0″ × 10′ 0″ 8′ 0″ × 10′ 0″		
Double Egress Frame	•	•	•	8′ 0″ × 8′ 0″		•	•	•	•	•	•	•	•	•			8′ 0″ × 8′ 0″		
Transom Frame with Bar and 1-3/4″ Panel	• •	• •	• •	3′ 6″ × 11′ 0″ 7′ 0″ × 10′ 4″	•	•	• •	• •	• •	• •	• •	• •	• •	•	• •		3′ 6″ × 7′ 2″ 7′ 0″ × 7′ 2″	3′ 6″ × 3′ 6″ 7′ 0″ × 3′ 0″	
Transom Frame with Bar and 3/8″ to 3/4″ Panels	• •	• •	• •	4′ 0″ × 10′ 0″ 8′ 0″ × 10′ 0″	•	•	• •	• •	• •	• •	• •	• •	• •	•	• •	• •	4′ 0″ × 10′ 0″ 8′ 0″ × 10′ 0″	4′ 0″ × 2′ 8″ 8′ 0″ × 2′ 8″	
Transom Frame with No Bar and 1-3/4″ Panel		• •	• •	4′ 0″ × 11′ 4″ 8′ 0″ × 11′ 2″	•	•	• •	• •	• •	• •	• •	• •	• •	•	• •	• •	4′ 0″ × 9′ 0″ 8′ 0″ × 8′ 0″	4′ 0″ × 4′ 6″ 8′ 0″ × 4′ 0″	
Multiple Swing Door Opening Frame			•	12′ 0″ × 8′ 0″			•		•	•	•	•	•	•	•		8′ 0″ × 8′ 0″		
Fire Door Frame with Transom and Side Light		•	• •	8′ 0″ × 10′ 0″ 8′ 0″ × 11′ 4″ 12′ 0″ × 11′ 4″	• •	•	• •	• •	• •	• •	• •	• •	• •	• •	• •	• •	4′ 0″ × 8′ 0″ 4′ 0″ × 8′ 0″ 8′ 0″ × 8′ 0″	3′ 0″ × 2′ 0″ 3′ 0″ × 4′ 0″ 3′ 0″ × 4′ 0″	2′ 9″ × 3′ 4″ 2′ 9″ × 3′ 4″ 2′ 9″ × 3′ 4″
Fire Window Frame		•	•	7′ 0″ × 10′ 0″			• •	• •	• •	• •	• •	• •					3′ 0″ × 4′ 0″		
Three-Sided Frame, Positive Pressure. (UBC 43-2, ISO 3008)	• •	• •	• •	4′ 0″ × 8′ 0″ 6′ 0″ × 8′ 0″ 8′ 0″ × 8′ 0″	•	• •		• • • •	• • • •	• • • •	• • • •								

NOTE: When glass is used instead of panels in transoms and side lights, the maximum permitted rating is 3/4 hour for Class C and E exposures.

FIRE DOOR FEATURES

Door Description	Hourly Rating: 3 hour Class A	1-1/2 hour Class B & D	3/4 hour Class C & E	Maximum Door Opening Sizes	Swinging Single	Swinging in Pairs	Face Sheets (1): 12 or 14 gage	16 gage	18 gage	Single Door or Active Leaf of Pair: Latch Throw	Latch	Mortise	Fire Exit Hardware: Rim	Vertical Rods, Concealed or Exposed	Vertical Rods, Concealed or Exposed	Pairs, Inactive Leaf: Open Back Strike	Automatic Flush Bolt	Manual Flush Bolt	With Astragal	Without Astragal (Up to 1-1/2 hours)
Basic Fire Door	•	•	•	4′ 0″ × 8′ 0″ 4′ 0″ × 10′ 0″ 8′ 0″ × 8′ 0″ 8′ 0″ × 8′ 0″ 8′ 0″ × 10′ 0″	•	•	•	•	•	½″ ¾″ ½″ ½″ ¾″	•	•	•	•	•					•
Pairs of Doors in Means of Egress	•	•	•	8′ 0″ × 8′ 0″ 8′ 0″ × 7′ 2″		•		•	•	⅝″	•	•		•	•	•				•
Double Egress Doors	•	•	•	8′ 0″ × 8′ 0″	•			•	•					•	•					•
Stainless Steel Door	•	•	•	3′ 4″ × 8′ 0″ 4′ 0″ × 8′ 0″ 8′ 0″ × 8′ 0″	•			•	•	¾″	•									
Dutch Door	•	•	•	3′ 6″ × 7′ 6″	•			•	•	¾″	•									
Louvered Doors	•	•	•	4′ 0″ × 8′ 0″ 8′ 0″ × 8′ 0″	•	•		•	•	½″ ¾″	•	•								•
Sound Door	•	•	•	3′ 8″ × 7′ 2″	•			•	•	½″	•									
Radiation Retarding Door	•	•	•	4′ 0″ × 8′ 0″ 8′ 0″ × 7′ 2″ 8′ 0″ × 8′ 0″	•	•		•	•	½″ ¾″ ¾″	•	•	•	•	•		•	•		
Pressure Resistant Door	•	•	•	3′ 6″ × 7′ 2″	•			•		¾″	•	•								
Positive Pressure (UBC 43-2, ISO 3008)	•	•	•	4′ 0″ × 8′ 0″ 6′ 0″ × 8′ 0″ 8′ 0″ × 8′ 0″	•	•		•	•	½″ ½″ ½″	•	•	•	•	•					•

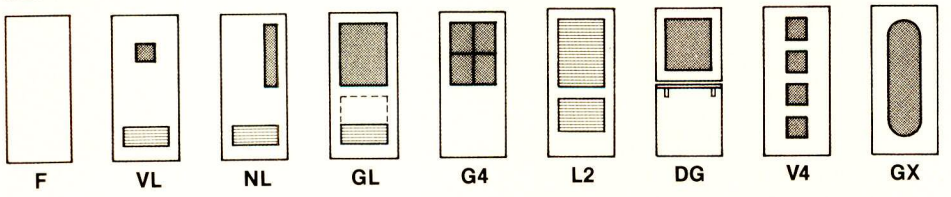
(1) Gages may be thicker or thinner for some approved products.

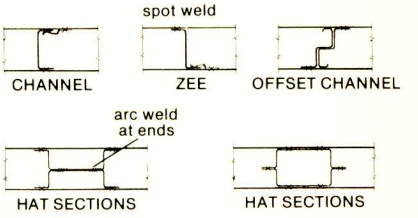
The HMMA Division of NAAMM and its 50-plus member firms are leaders in fire door research and development. Through their ongoing joint fire test program, these hollow metal manufacturers construct and test a variety of fire rated door and frame configurations. Some of the recent successful testing has been completed under "positive pressure" furnace conditions in accordance with UBC 43-2 and ISO 3008.

HMMA HOLLOW METAL DOORS

NAAMM's HMMA member companies offer wide variations in door design and construction. Illustrated below are just a few of the almost limitless designs available to meet hollow metal door requirements. For the complete picture contact any of the HMMA member companies listed on the last page of this catalog.

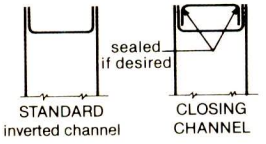
REPRESENTATIVE DOOR DESIGNS



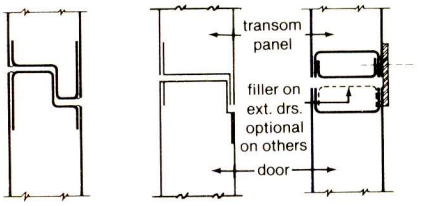


REPRESENTATIVE STIFFENER SECTIONS
Other sections used by some manufacturers

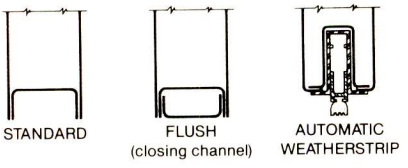
TOP EDGE DETAILS



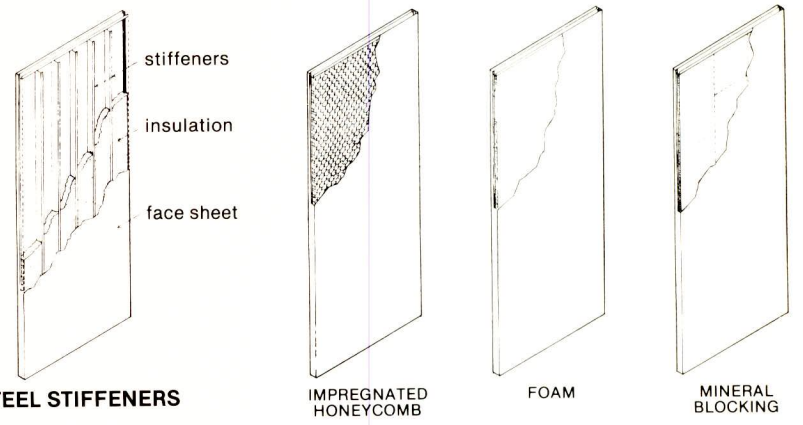
TOP EDGE DETAILS WITH FLUSH TRANSOM PANEL ABOVE



BOTTOM EDGE DETAILS

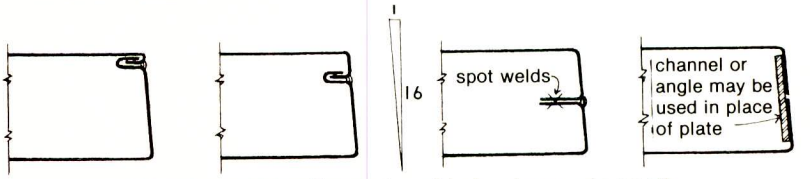


Other designs available as required



LAMINATED CONSTRUCTIONS

COMMON MEETING STILE EDGE PROFILES



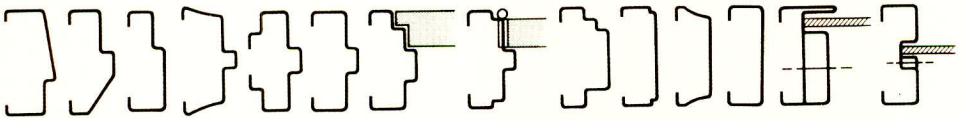
All joint seams continuously welded and ground smooth

STILE EDGE DETAILS–TYPE A DOORS

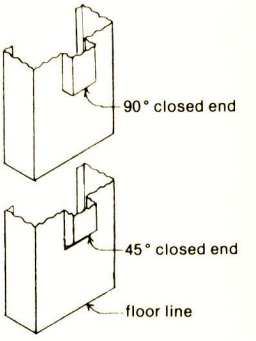
HMMA HOLLOW METAL FRAMES

The widest variety of frame profiles are available from NAAMM HMMA member companies. A sampling of profile configurations is shown.

PROFILE VARIATIONS

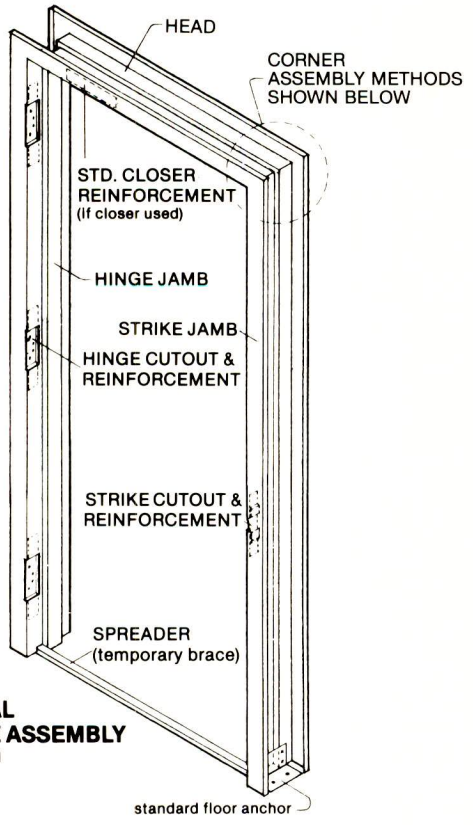


HMMA member companies furnish many combinations of features to meet special design considerations, functions and applications. For all the details, take your design problems to a HMMA member listed on the last page of this catalog.

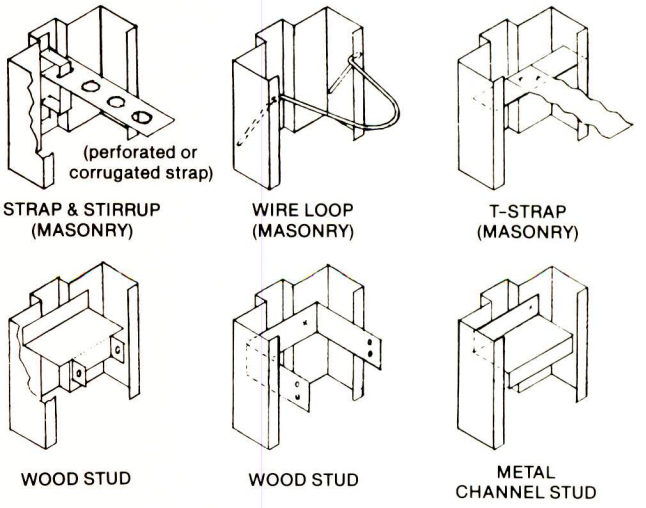


CUTOFF (SANITARY) STOPS

HMMA FRAME CONSTRUCTION INFORMATION AND DETAILS

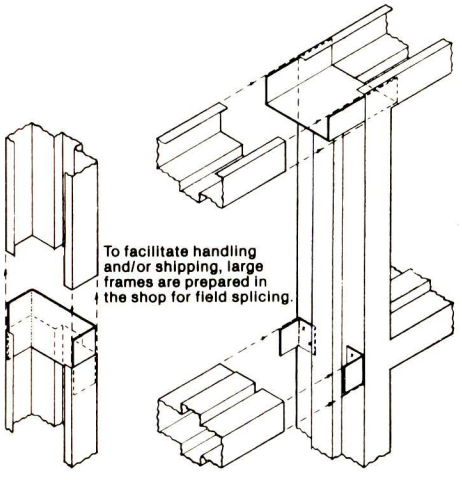


TYPICAL FRAME ASSEMBLY
As shipped

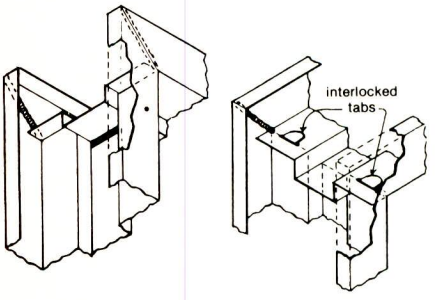


for information about the choice of anchor type see HMMA 840, Installation and Storage of Hollow Metal Doors and Frames

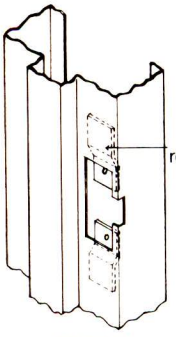
COMMON TYPES OF JAMB ANCHOR FOR PRE-SET FRAMES



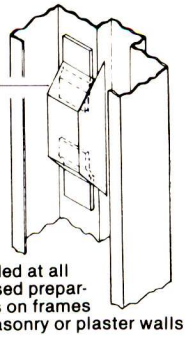
FIELD SPLICES FOR LARGE MULTI-OPENING FRAMES



MACHINE-MITERED, FACES AND SOFFIT WELDED

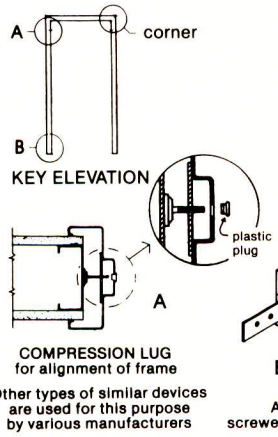


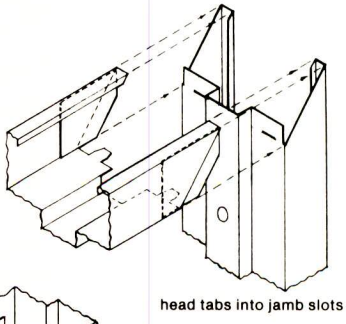
STRIKE PREPARATION



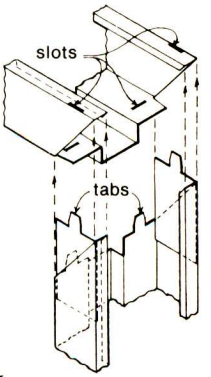
Provided at all mortised preparations on frames for masonry or plaster walls

MORTAR GUARD



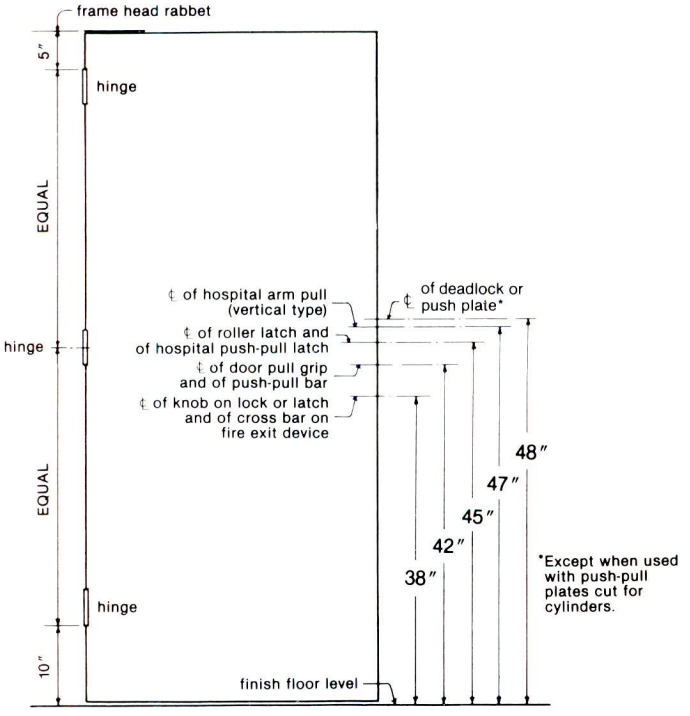


REPRESENTATIVE CORNER DETAILS
Other methods also used — systems vary with manufacturer



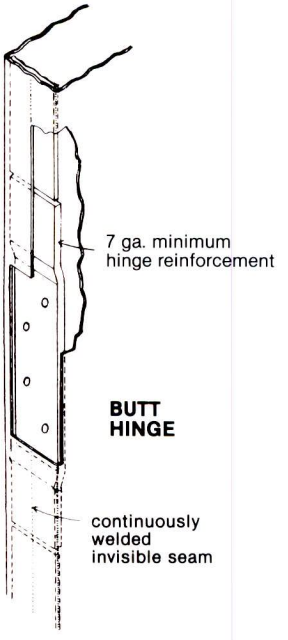
FIELD-ASSEMBLED (DRY-WALL) FRAMES — TYPICAL ASSEMBLY DETAILS

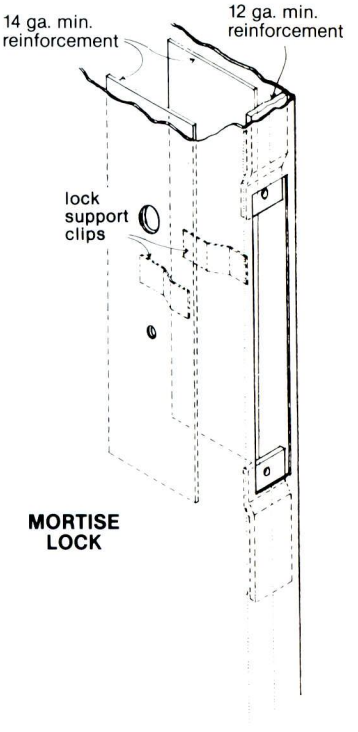
HMMA DOOR CONSTRUCTION INFORMATION AND DETAILS

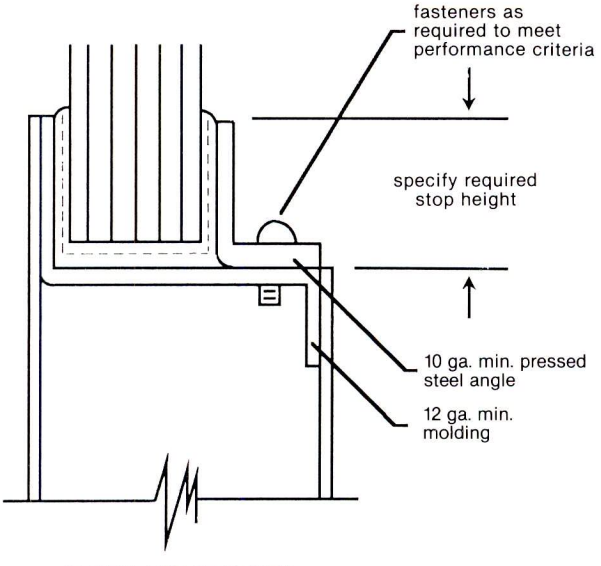


AS RECOMMENDED BY THE HOLLOW METAL MANUFACTURERS ASSOCIATION — A DIVISION OF NAAMM

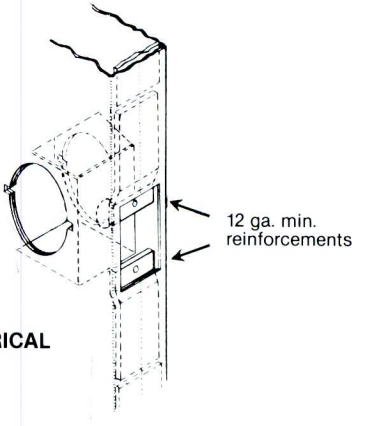
TYPICAL HARDWARE PREPARATION



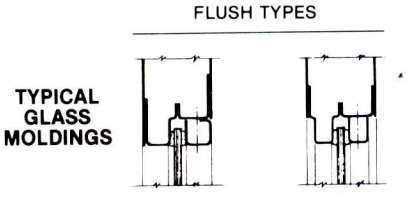




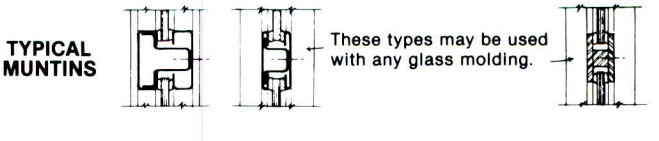
DETENTION SECURITY ANGLE STOP



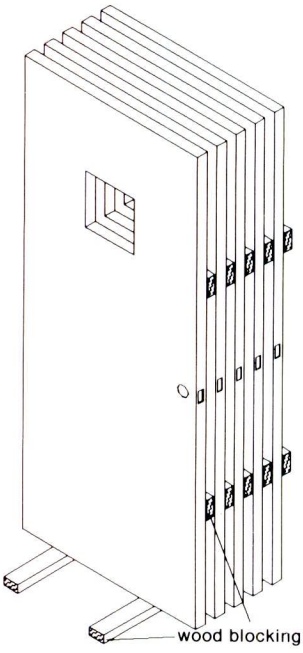
GLASS LIGHT AND RECESSED PANEL MOLDINGS



Special moldings and muntins of architect's design may be provided on custom doors.

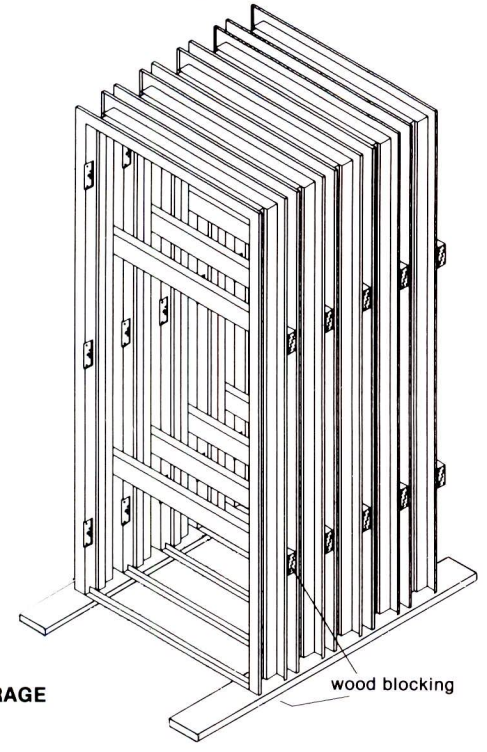


HMMA INSTALLATION AND STORAGE INFORMATION, MANUFACTURING TOLERANCES

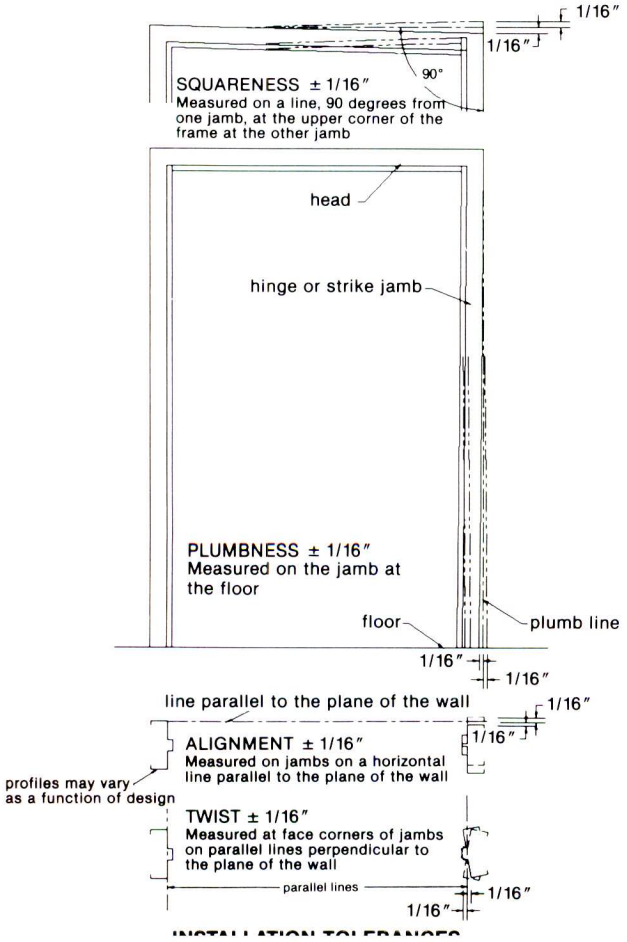


The contractor responsible for installation shall see that materials are properly stored on planks or dunnage in a dry location. Doors shall be stored in a vertical position and spaced by blocking. Materials shall be covered to protect them from damage but in such a manner as to permit air circulation.

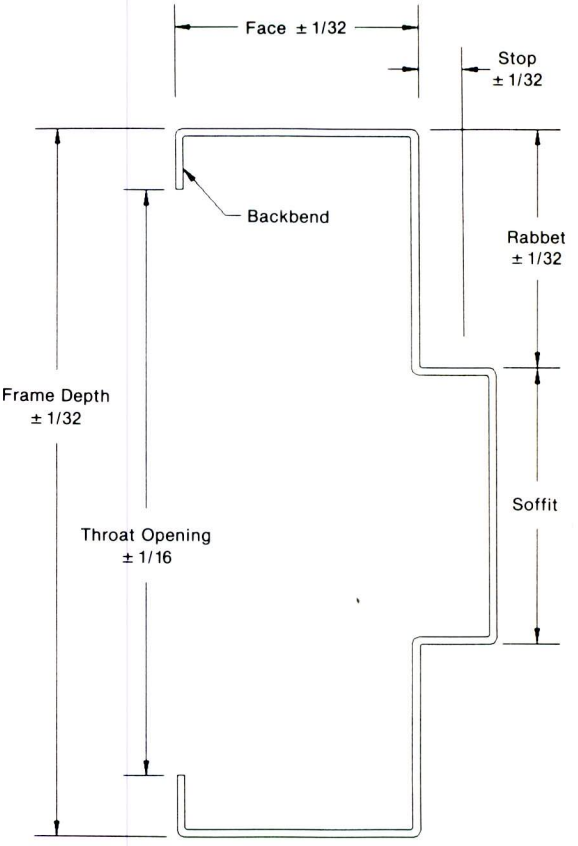
The contractor responsible for installation shall remove wraps or covers from doors and frames upon delivery at the building site. The contractor responsible for installation shall see that any scratches or disfigurements caused in shipping or handling are promptly cleaned and touched up with a rust inhibitive primer.



RECOMMENDED STORAGE



CLEARANCES AND TOLERANCES



Manufacturing tolerance shall be maintained within the following limits:

1. Frames for single door or pair of doors:
   a. Width, measured between rabbets at the head: Nominal opening width + 1/16″,-1/32″.
   b. Height (total length of jamb rabbet): Nominal opening height ± 3/64″.
   c. Frames overlapping walls to have throat dimension 1/8″ greater than dimensioned wall thickness to accommodate irregularities in wall construction.

2. Doors:

Width	± 3/64″
Height	± 3/64″
Thickness	± 1/16″
Hardware cutout dimensions	
Template dimensions	+ 0.015′,-0″
Hardware location	± 1/32″

The Hollow Metal Manual

The Hollow Metal Manufacturers Association (HMMA) Division of NAAMM, the National Association of Architectural Metal Manufacturers, publishes the "Hollow Metal Manual" including five guide specifications to aid building design professionals in specifying hollow metal doors and frames for a variety of applications.

The Hollow Metal Manual is in a "sectionalized" format, thirteen separate saddle-stitched sections presented in an attractive three-ring binder. It gives design professionals the most current information on manufacturing, door and frame designs and details, hardware preparation and location, installation and storage, fire-rated applications, common terms, plus the guide specifications.

The HMMA guide specifications cover a broad range of door and frame applications. HMMA 860 addresses doors and frames for light traffic areas. HMMA 861 covers doors and frames appropriate for use in higher traffic commercial applications. HMMA 862 details doors and frames for commercial security applications; HMMA 863 covers detention security doors and frames. HMMA 865 is a guide for specifying swinging sound control doors and frames. Member companies of the HMMA Division of NAAMM can fill all of your door and frame needs; from rest homes, to schools, to prisons. HMMA companies build the products.

The Hollow Metal Manual includes the following sections:

- Introduction to Hollow Metal
- Glossary of Terms for Hollow Metal Doors and Frames
- Manufacturing of Hollow Metal Doors and Frames
- Hollow Metal Doors
- Hollow Metal Frames
- Hardware Preparation and Locations for Hollow Metal Doors and Frames
- Installation and Storage of Hollow Metal Doors and Frames
- Fire Rated Hollow Metal Doors and Frames
- Guide Specifications HMMA 860, 861, 862, 863, and 865.

To obtain a copy of the Hollow Metal Manual, contact any of the HMMA member firms listed below or NAAMM Headquarters in Chicago.

HOLLOW METAL MANUFACTURERS ASSOCIATION

NAAMM

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600 S. Federal St., Suite 400
Chicago, IL 60605 (312) 922-6222