

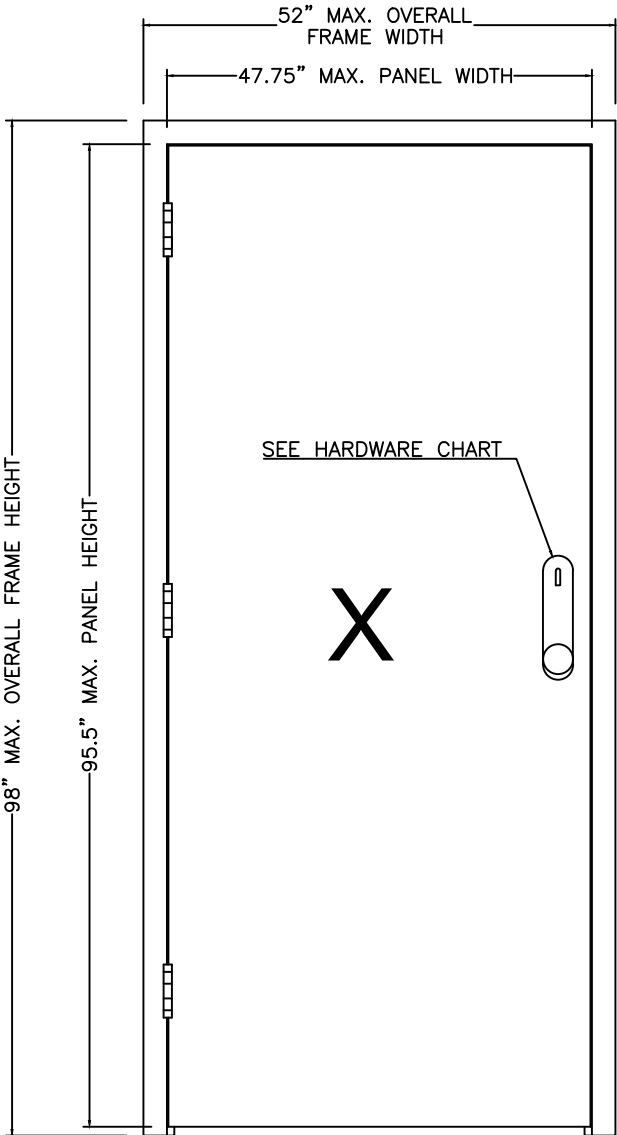


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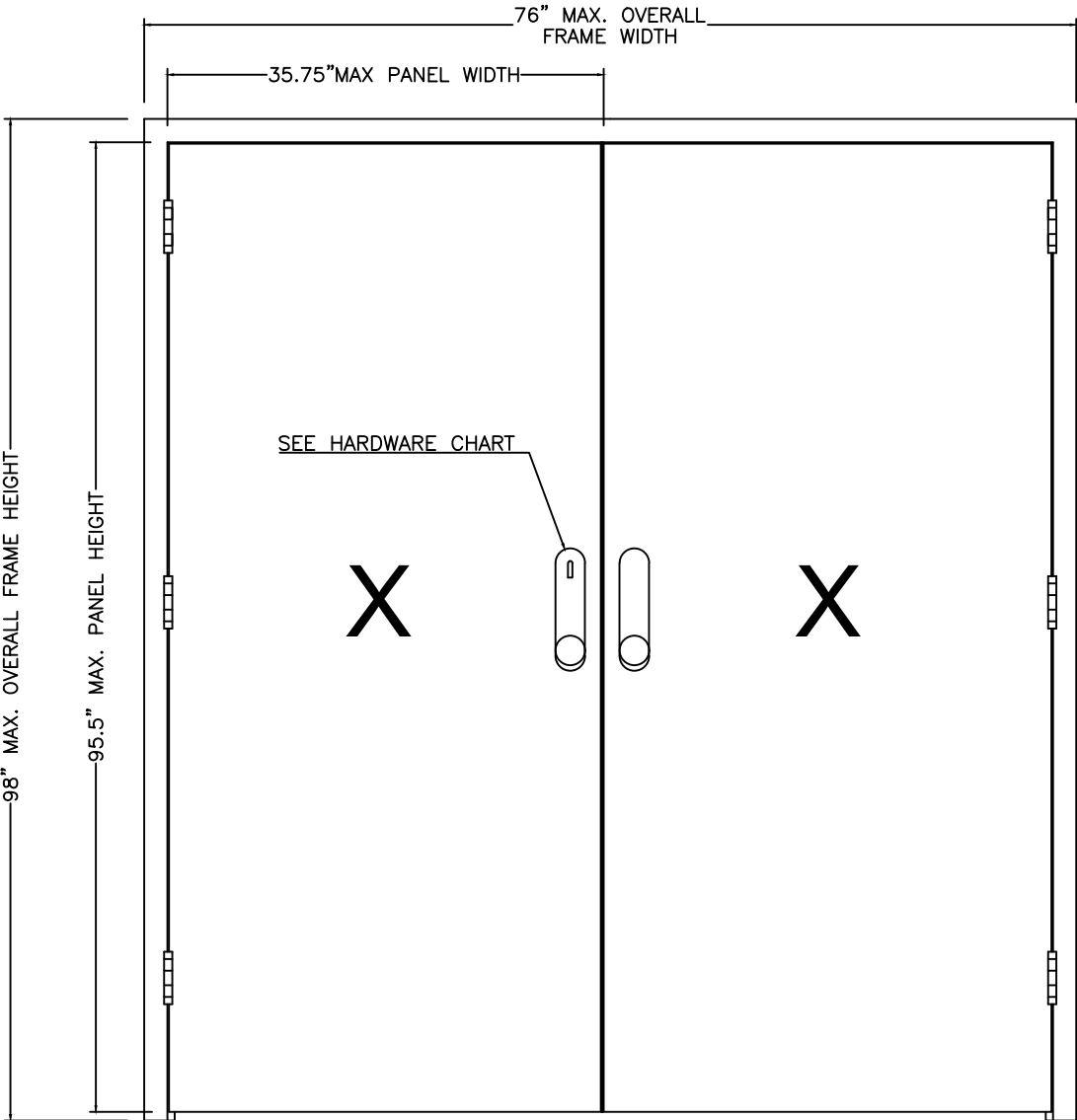
SERIES HSS STEEL DOOR, OUTSWING, IMPACT (X, XX)

GENERAL NOTES

- 1. THIS PRODUCT HAS BEEN EVALUATED AND IS IN COMPLIANCE WITH THE 8TH EDITION (2023) FLORIDA BUILDING CODE (FBC) REQUIREMENTS INCLUDING THE HIGH VELOCITY HURRICANE ZONE (HVHZ) AND HAS BEEN EVALUATED TO THE FOLLOWING IN CERTIFIED TESTING LABORATORIES REPORT NO. CTLA-887W & CTLA-887W-1.
 - 1.1. TAS 201-1994
 - 1.2. TAS 202-1994
 - 1.3. TAS 203-1994
- 2. PRODUCT ANCHORS SHALL BE AS LISTED AND SPACED AS SHOWN ON DETAILS. ANCHOR EMBEDMENT TO BASE MATERIAL SHALL BE BEYOND WALL DRESSING OR STUCCO.
- 3. WHEN USED IN THE "HVHZ" THIS PRODUCT COMPLIES WITH SECTION 1626 OF THE FLORIDA BUILDING CODE AND DOES NOT REQUIRE AN IMPACT RESISTANT COVERING.
- 4. WHEN USED IN AREAS OUTSIDE OF THE "HVHZ" REQUIRING WIND BORNE DEBRIS PROTECTION THIS PRODUCT COMPLIES WITH SECTION 1609.1.2 OF THE FBC AND DOES NOT REQUIRE AN IMPACT RESISTANT COVERING. THIS PRODUCT MEETS MISSILE LEVEL "D" AND INCLUDES WIND ZONE 4 AS DEFINED IN ASTM E1996 AND SECTION 1609.1.2.2 OF THE FBC.
- 5. SITE CONDITIONS THAT DEViate FROM THE DETAILS OF THIS DRAWING REQUIRE FURTHER ENGINEERING ANALYSIS BY A LICENSED ENGINEER OR REGISTERED ARCHITECT.
- 6. ALL STEEL SHALL BE PROTECTED AS SPECIFIED IN SECTION 2222.6 OF THE FBC.
- 7. SEE CURRENT MIAMI-DADE NOTICE OF ACCEPTANCE (NOA) FOR CARPENTER CO. PREFORMED BLOCK TYPE EPS INSULATION COMPONENT APPROVAL.
- 8. SEE SHEET 11 FOR FRAME AND PANEL CONSTRUCTION DETAILS.
- 9. POWER TRANSFER PREPS, DOOR POSITION SWITCH AND ELECTRICAL HINGE PREPS ARE ALLOWED AS LONG AS THE STRUCTURAL INTEGRITY OF THE DOOR PANEL IS NOT AFFECTED.



1 SINGLE OPAQUE STEEL DOOR



2 DOUBLE OPAQUE STEEL DOOR

STEEL DOOR SKIN: 18GA. A60 GALV. (MIN. 0.047 THK., Fy=36,800 PSI MIN.)
CORE MATERIAL: EPS FOAM (POLYSTYRENE - 1.0PCF MIN. DENSITY)

NOTE:

PANEL AND/OR FRAME DIMENSIONS SHOWN ARE FOR THE AS-TESTED DOOR CONFIGURATIONS. ALTERNATE HARDWARE SELECTIONS SHOWN ON SHEET 3 & 4 MAY LIMIT WIDTHS AND HEIGHTS TO A SMALLER SIZE. SEE SHEET 3 & 4 FOR DETAILS.

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SHEET#	DESCRIPTION
1	TYPICAL ELEVATIONS, DESIGN PRESSURES AND GENERAL NOTES
2, 3 & 4	HARDWARE SELECTION TABLES
5	DOOR PANEL DETAILS
6	ELEVATION & HORIZONTAL CROSS SECTIONS - X DOOR
7	ELEVATION & HORIZONTAL CROSS SECTIONS - XX DOOR
8	VERTICAL CROSS SECTIONS - X & XX DOORS
9	ANCHORING DERAILS
10	BILL OF MATERIALS AND COMPONENTS
11	PANEL AND FRAME CONSTRUCTION DETAILS

DOOR TYPES	MAXIMUM OVERALL DIMENSION	DESIGN PRESSURE (PSF)	
	DOOR FRAME	POSITIVE	NEGATIVE
SINGLE DOOR	52" x 98"	+47	-47
DOUBLE DOOR	76" x 98"	+47	-47
IMPACT RATING: LARGE AND SMALL MISSILE - HVHZ & WIND ZONE 4, MISSILE LEVEL D			

HMF EXPRESS
2501 NORTHCHASE
PARKWAY SE
WILMINGTON, NC 28405

SERIES HSS STEEL DOOR, OUTSWING, IMPACT (X, XX) INSTALLATION ANCHORAGE DETAILS	DATE	BY	REVISION DESCRIPTION	NO.
	1/27/26	RJA	ADD ALTERNATE LOCKING HARDWARE	

DATE: 2/27/2019	DWN BY: DAS/RJA	CHK BY: RJA	SCALE: NONE
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ROBERT J. AMORUSO, P.E. #49752
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by Robert J
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Date: 2026.01.30
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PROJECT#:	ACE-2025-126
DWG/REV:	HMF0002, Rev C
SHT:	1 of 11



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AS-TESTED HARDWARE (SEE
TABLE NOTES BELOW)

HMF EXPRESS
2501 NORTHCHASE
PARKWAY SE
WILMINGTON, NC 28405

Company Name	Type of Hardware	Hardware Model (used in testing) (6)	HM-Z (Y/N) (2)	Impact Tested (Y/N) (2)	Water Infiltration (Y/N) (1)	Swing Type (In/Out)	Single/Pair	DP (Positive) (psf)	DP (Negative) (psf)	Max Panel Width (in)	Max Panel Height (in)	Skin Thickness (6)
Schlage	161 w/ TB + DB	LOCK: D-SERIES & DEADBOLT: D100	Y	Y	Y	Outswing	Single	47	47	47.75	95.5	18 GA
Schlage	Mortise Lock + DB	MORTISE LOCK: L9457 W/DEADBOLT	Y	Y	Y	Outswing	Single	47	47	47.75	95.5	18 GA
Von Duprin	Mortise Rm Exit	9975 PANIC EXIT DEVICE W/MORTISE LOCK (575 STRIKE PLATE) for	Y	Y	Y	Outswing	Single	47	47	47.75	95.5	18 GA
Von Duprin	Rm Exit	98NL PANIC EXIT DEVICE (499 STRIKE PLATE) for use on one active panel only	Y	Y	Y	Outswing	Single	47	47	47.75	95.5	18 GA
Schlage	161 w/ TB + DB	LOCK: D-SERIES & DEADBOLT: D100	Y	Y	Y	Outswing	Pair	47	47	35.75	95.5	18 GA
Schlage	Mortise Lock + DB	MORTISE LOCK: L9457 W/DEADBOLT	Y	Y	Y	Outswing	Pair	47	47	35.75	95.5	18 GA
Von Duprin	Mortise Rm Exit	9975 PANIC EXIT DEVICE W/MORTISE LOCK (575 STRIKE PLATE) for use on one active panel only	Y	Y	Y	Outswing	Pair	47	47	35.75	95.5	18 GA
Von Duprin	Rm Exit	98NL PANIC EXIT DEVICE (499 STRIKE PLATE) for use on one active panel only	Y	Y	Y	Outswing	Pair	47	47	35.75	95.5	18 GA

HARDWARE TABLE NOTES
(SEE APPROVED HARDWARE TABLES ON SHEETS 3 AND 4)

1. DESIGN PRESSURE AND WATER INFILTRATION TESTING
- 1.1. AS-TESTED HARDWARE TABLE: DESIGN PRESSURE AND WATER INFILTRATION IS BASED ON HMF EXPRESS TESTING.

1.2. APPROVED HARDWARE TABLE: DESIGN PRESSURE AND WATER INFILTRATION IS BASED ON THE LOWER OF THE HMF EXPRESS TESTING OR THE REFERENCED PRODUCT APPROVAL.

1.3. IF THE PRODUCT DOES NOT MEET THE WATER INFILTRATION REQUIREMENTS OF THE FBC IT SHALL BE INSTALLED ONLY IN NON-HABITABLE AREAS OR IN HABITABLE LOCATIONS PROTECTED BY AN OVERHANG OR CANOPY SUCH THAT THE OVERHANG RATIO (OH) = OH LENGTH / OH HEIGHT IS EQUAL TO OR GREATER THAN 1.
2. PRODUCT TESTED FOR HVHZ AND/OR IMPACT MARKED WITH "Y" FOR YES. IF "N" FOR NO, PRODUCT TESTED FOR NON-HVHZ AND/OR NON-IMPACT USE ONLY.
3. MAX. PANEL WIDTH & HEIGHT BASED ARE SMALLER OF AS-TESTED HMF EXPRESS DOOR OR THE ALTERNATE HARDWARE DOOR IN THE REFERENCED PRODUCT APPROVAL.
4. SEE PRODUCT EVALUATION REPORT NO. 1167 FOR A LIST OF FLORIDA PRODUCT APPROVAL NUMBERS USED IN THE EVALUATION FOR HARDWARE SUBSTITUTIONS SHOWN IN THE "APPROVED HARDWARE" TABLE
5. REINFORCEMENT REQUIREMENTS OF THE REFERENCED FLORIDA PRODUCT APPROVAL WHICH SUBSTITUTION IS BASED ON AND LISTED IN PRODUCT EVALUATION REPORT NO. 1167 WILL BE MET WHEN ALTERNATE LOCKING HARDWARE IS USED.
6. HARDWARE SHOWN TESTED WITH THIS HMF EXPRESS PRODUCT AND DOCUMENTED CERTIFIED TESTING LABORATORIES REPORT NO. CTLA-887W & CTLA-887W-1 SHOWN IN "AS-TESTED HARDWARE" TABLE AT THE DOOR PANEL SKIN THICKNESS SHOWN.
7. IMPACT RATING FOR HVHZ LARGE AND SMALL MISSILE IMPACT PER TAS 201/203 ENVELOPE MISSILE LEVEL D/WIND ZONE 4 PER ASTM E1886/E1996.
8. DOOR PANEL SKIN THICKNESS REQUIRED BY THE TESTED ALTERNATE HARDWARE DOOR LISTED IN PRODUCT EVALUATION REPORT NO. 1167.

SERIES HSS STEEL DOOR, OUTSWING, IMPACT (X, XX)
INSTALLATION ANCHORAGE DETAILS

DATE
1/27/26

BY
RJA

REVISION DESCRIPTION
ADD ALTERNATE LOCKING HARDWARE

NO.
C

DATE:
2/27/2019

DWN BY:
DAS/RJA

CHK BY:
RJA

SCALE:
NONE

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PROJECT#: ACE-2025-126

DWG/REV: HMF0002, Rev C

SHT: 2 of 11



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APPROVED HARDWARE
PAIR "XX" DOUBLE DOORS
(SEE SHEET 2 FOR TABLE NOTES)

HMF EXPRESS
2501 NORTHCHASE
PARKWAY SE
WILMINGTON, NC 28405

Company Name	Type of Hardware	Hardware FBC Product Approval Number (4) (5)	Hardware Model (4)	HM-HZ (Y/N) (2)	Impact Tested (Y/N) (2)	Water Infiltration (Y/N) (1)	Swing Type (In/Out)	Single/Pair	DP (Positive) (psf) (1)	DP (Negative) (psf) (1)	Max Panel Width (in) (3)	Max Panel Height (in) (3)	Skin Thickness (8)
Allegion-Schlage	161 w/ TB	14482.3	Schlage AL Series	Y	Y	N	Outswing	Pair	47	47	35.75	95.5	16 GA
Allegion-Schlage	161 w/ TB	14482.3	Schlage D, ND, NDE Series	Y	Y	N	Outswing	Pair	47	47	35.75	95.5	16 GA
Dormakaba	161 w/ TB	16202.2	Best 9K	Y		N	Outswing	Pair	47	47	35.75	84	18 GA
Dormakaba	161 w/ TB	16202.8	Dorma C100 Series	Y	Y	N	Outswing	Pair	47	47	35.75	84	18 GA
Cal-Royal Products	161 w/ TB + DB	13922.6	Pioneer Series + T300 Series	Y	Y	N	Outswing	Pair	47	47	35.75	84	18 GA
Dormakaba	161 w/ TB + DB	16202.5	Dorma QCL 100 Series + QDB 100 Series	Y	Y	N	Outswing	Pair	47	47	35.75	95.5	18 GA
Dormakaba	161 w/ TB + DB	16202.5	Dorma QCL 100 Series + QDB 200 Series	Y	Y	N	Outswing	Pair	47	47	35.75	95.5	18 GA
Dormakaba	161 w/ TB + DB	16202.5	Dorma QCL 200 Series + QDB 100 Series	Y	Y	N	Outswing	Pair	47	47	35.75	95.5	18 GA
Dormakaba	161 w/ TB + DB	16202.5	Dorma QCL 200 Series + QDB 200 Series	Y	Y	N	Outswing	Pair	47	47	35.75	95.5	18 GA
Allegion-Schlage	Mortise Lock	14482.3	Schlage LE & LEB	Y	Y	N	Outswing	Pair	47	47	35.75	95.5	16 GA
Allegion-Schlage	Mortise Lock	14482.3	Falcon MA-Series	Y	Y	N	Outswing	Pair	47	47	35.75	95.5	16 GA
Dormakaba	Mortise Lock	16202.1	Best 45H & 47H	Y	Y	N	Outswing	Pair	35	35	35.75	95.5	18 GA
Schlage	Mortise Lock	14482.3	SCHLAGE L9000 MORTISE LOCK SERIES WITH ASA STRIKE	Y	Y	N	Outswing	Pair	47	47	35.75	95.5	16 GA
Allegion-Schlage	Mortise Lock + DB	14482.3	Schlage L/LV 9400 + Deadbolt	Y	Y	N	Outswing	Pair	47	47	35.75	95.5	16 GA
Allegion-Schlage	Mortise Lock + DB	14482.3	Schlage LE & LEB + Deadbolt	Y	Y	N	Outswing	Pair	47	47	35.75	95.5	16 GA
Allegion-Schlage	Mortise Lock + DB	14482.3	Falcon MA-Series + Deadbolt	Y	Y	N	Outswing	Pair	47	47	35.75	95.5	16 GA
Dormakaba	Mortise Lock + DB	16202.1	Best 45H & 47H with Deadbolt	Y	Y	N	Outswing	Pair	35	35	35.75	95.5	18 GA
Dormakaba	Mortise Lock + DB	16202.1	Best 48H & 49H with Deadbolt	Y	Y	N	Outswing	Pair	40.5	40.5	35.75	95.5	18 GA
Allegion-Schlage	Mortise Rim Exit	14482.2	Falcon F-25-M	Y	Y	N	Outswing	Pair	47	47	35.75	95.5	16 GA
Allegion-Schlage	Rim Exit	14482.2	Falcon F-25-R + HH9954 Removable Mullion	Y	Y	N	Outswing	Pair	47	47	35.75	95.5	16 GA
Dormakaba	Rim Exit	16202.4	Best HC2100 + HCKR822 Mullion	Y	Y	N	Outswing	Pair	47	47	35.75	95.5	16 GA
Von Duprin	Rim Exit	14482.3	Von Duprin NO. 98/99 SERIES WITH HH9954 HARDWARE MULLION	Y	Y	N	Outswing	Pair	47	70	35.75	95.5	16 GA
Allegion-Schlage	Surface Vertical Rod	14482.2	Falcon F-25-V	Y	Y	N	Outswing	Pair	47	47	35.75	95.5	16 GA
Dormakaba	Surface Vertical Rod	16202.4	Best HC2200	Y	Y	N	Outswing	Pair	47	47	35.75	95.5	16 GA
Von Duprin	Surface Vertical Rod	14482.3	Von Duprin SVR EXIT DEVICES NO. 9827/9927 SERIES	Y	Y	N	Outswing	Pair	47	70	35.75	95.5	16 GA

SERIES HSS STEEL DOOR, OUTSWING, IMPACT (X, XX)
INSTALLATION ANCHORAGE DETAILS

DATE	BY	DATE			
1/27/26	RJA				
REVISION DESCRIPTION	ADD ALTERNATE LOCKING HARDWARE				
NO.	C				

DATE:	DWN BY:	CHK BY:	SCALE:
2/27/2019	DAS/RJA	RJA	NONE

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by Robert J
Amoruso
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APPROVED HARDWARE
SINGLE "X" DOORS

(SEE SHEET 2 FOR TABLE NOTES)

Company Name	Type of Hardware	Hardware FBC Product Approval Number (4) (5)	Hardware Model (4)	HM-Z (Y/N) (2)	Impact Tested (Y/N) (2)	Water Infiltration (Y/N) (1)	Swing Type (In/Out)	Single/Pair	DP (Positive) (psf) (1)	DP (Negative) (psf) (1)	Max Panel Width (in) (3)	Max Panel Height (in) (3)	Skin Thickness (8)
Cal-Royal Products	161 w/ TB	13922.5	Genysis Series	Y	Y	N	Outswing	Single	47	47	35.75	83.125	18 GA
Allegion-Schlage	161 w/ TB	14482.1	Falcon B Series	Y	Y	N	Outswing	Single	47	47	36	84	18 GA
Allegion-Schlage	161 w/ TB	14482.1	Falcon T & TM Series	Y	Y	N	Outswing	Single	47	47	36	84	18 GA
Allegion-Schlage	161 w/ TB	14482.5	Schlage D, ND, NDE Series	Y	Y	N	Outswing	Single	47	47	47.75	95.5	16 GA
Dormakaba	161 w/ TB	16202.2	Best 9K	Y	Y	N	Outswing	Single	47	47	47.75	95.5	18 GA
Dormakaba	161 w/ TB	16202.8	Dorma C100 Series	Y	Y	N	Outswing	Single	47	47	47.75	95.5	18 GA
Cal-Royal Products	161 w/ TB+DB	13922.6	Pioneer Series + T300 Series	Y	Y	N	Outswing	Single	47	47	35.75	83.125	18 GA
Cal-Royal Products	161 w/ TB+DB	13922.6	Pioneer Series + T300 Series	Y	Y	N	Outswing	Single	47	47	47.75	95	18 GA
Dormakaba	161 w/ TB+DB	16202.5	Dorma QCL 100 Series + QDB 100 Series	Y	Y	N	Outswing	Single	47	47	47.75	95.5	18 GA
Dormakaba	161 w/ TB+DB	16202.5	Dorma QCL 100 Series + QDB 200 Series	Y	Y	N	Outswing	Single	47	47	47.75	95.5	18 GA
Dormakaba	161 w/ TB+DB	16202.5	Dorma QCL 200 Series + QDB 100 Series	Y	Y	N	Outswing	Single	47	47	47.75	95.5	18 GA
Dormakaba	161 w/ TB+DB	16202.5	Dorma QCL 200 Series + QDB 200 Series	Y	Y	N	Outswing	Single	47	47	47.75	95.5	18 GA
Hager Companies	161 w/ TB+DB	22010.1 22010.2 22010.3 22010.4 22010.5	2500/3400/3500 Series + 3100/3200 Series	N	Y	N	Outswing	Single	47	47	47.75	95.5	18 GA
Cal-Royal Products	Mortise Lock	13922.10	M Series	Y	Y	N	Outswing	Single	47	47	35.75	83.125	18 GA
Allegion-Schlage	Mortise Lock	14482.1	Falcon MA Series	Y	Y	N	Outswing	Single	47	47	36	84	18 GA
Dormakaba	Mortise Lock	16202.1	Best 45H & 47H	Y	Y	N	Outswing	Single	47	47	47.75	95.5	18 GA
Schlage	Mortise Lock	14482.5	Schlage L9000 MORTISE LOCK SERIES WITH ASA STRIKE (4-7/8")	Y	Y	N	Outswing	Single	47	60	47.75	95.5	16 GA
Allegion-Schlage	Mortise Lock + DB	3905.2	Schlage U/LV 9400 + Deadbolt	Y	Y	N	Outswing	Single	47	47	36	84	16 GA
Allegion-Schlage	Mortise Lock + DB	3905.2	Falcon MA Series + Deadbolt	Y	Y	N	Outswing	Single	47	47	36	84	16 GA
Allegion-Schlage	Mortise Lock + DB	3905.2	Schlage AD-MD & CO-MD + Deadbolt	Y	Y	N	Outswing	Single	47	47	36	84	16 GA
Allegion-Schlage	Mortise Lock + DB	3905.2	Schlage LE & LEB + Deadbolt	Y	Y	N	Outswing	Single	47	47	36	84	16 GA
Allegion-Schlage	Mortise Lock + DB	3905.2	Schlage XE360-M-D + Deadbolt	Y	Y	N	Outswing	Single	47	47	36	84	16 GA
Allegion-Schlage	Mortise Lock + DB	3905.2	Schlage PM400 + Deadbolt	Y	Y	N	Outswing	Single	47	47	36	84	16 GA
Dormakaba	Mortise Lock + DB	16202.1	Best 45H & 47H with Deadbolt	Y	Y	N	Outswing	Single	47	47	47.75	95.5	18 GA
Dormakaba	Mortise Lock + DB	16202.1	Best 48H & 49H with Deadbolt	Y	Y	N	Outswing	Single	40.5	40.5	47.75	95.5	18 GA
Hager Companies	Mortise Lock + DB	22010.6	3800 Series	N	Y	N	Outswing	Single	47	47	47.75	95.5	18 GA
Allegion-Schlage	Mortise Exit Device	14482.5	Von Duprin 8875	Y	Y	N	Outswing	Single	47	47	47.75	95.5	16 GA
Allegion-Schlage	Mortise Rim Exit	14482.2	Falcon F-25-M	Y	Y	N	Outswing	Single	47	47	47.75	95.5	16 GA
Cal-Royal Products	Rim Exit	13922.7	7700 Series	Y	Y	N	Outswing	Single	47	47	36	84	18 GA
Allegion-Schlage	Rim Exit	14482.2	Falcon F-25-R	Y	Y	N	Outswing	Single	47	47	47.75	95.5	16 GA
Dormakaba	Rim Exit	16202.3	Best ARM-A-DOR	Y	Y	N	Outswing	Single	47	47	47.75	86	16 GA
Dormakaba	Rim Exit	16202.4	Best HC2100	Y	Y	N	Outswing	Single	47	47	47.75	86	16 GA
Von Duprin	Rim Exit	14482.5	RIM EXIT X EXIT NO. 99/99 SERIES	Y	Y	N	Outswing	Single	47	70	47.75	95.5	16 GA
Allegion-Schlage	Surface Vertical Rod	14482.2	Falcon F-25-V	Y	Y	N	Outswing	Single	47	47	47.75	95.5	16 GA
Dormakaba	Surface Vertical Rod	16202.4	Best HC2200	Y	Y	N	Outswing	Single	47	47	47.75	95.5	16 GA

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	BY	RJA			
	REVISION DESCRIPTION	ADD ALTERNATE LOCKING HARDWARE			
	NO.	C			

DATE: 2/27/2019	DWN BY: DAS/RJA	CHK BY: RJA	SCALE: NONE
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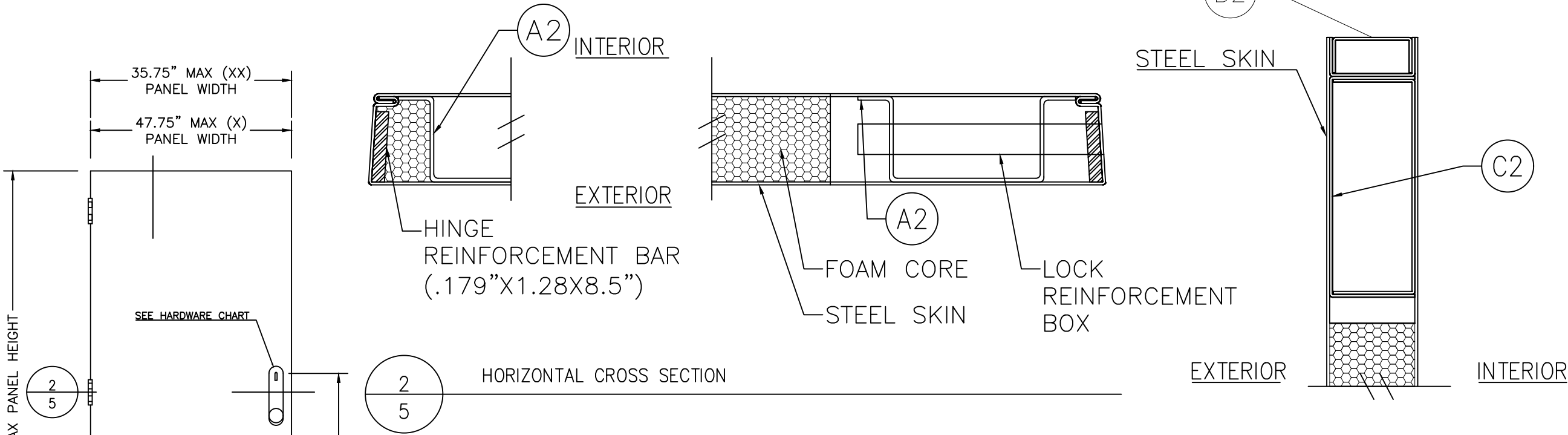


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Amoruso
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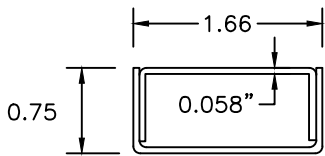
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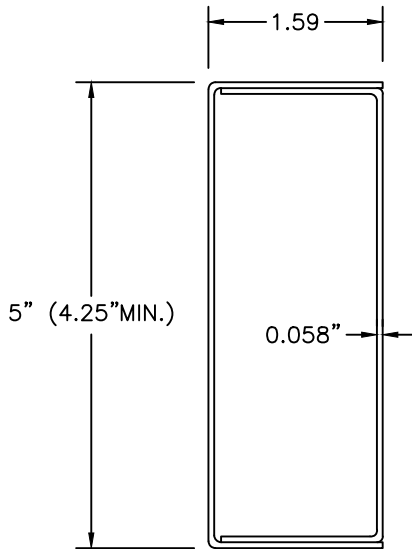


NOTE:
PANEL AND/OR FRAME DIMENSIONS SHOWN
ARE FOR THE AS-TESTED DOOR
CONFIGURATIONS. ALTERNATE HARDWARE
SELECTIONS SHOWN ON SHEET 3 & 4 MAY
LIMIT WIDTHS AND HEIGHTS TO A SMALLER
SIZE. SEE SHEET 3 & 4 FOR DETAILS.

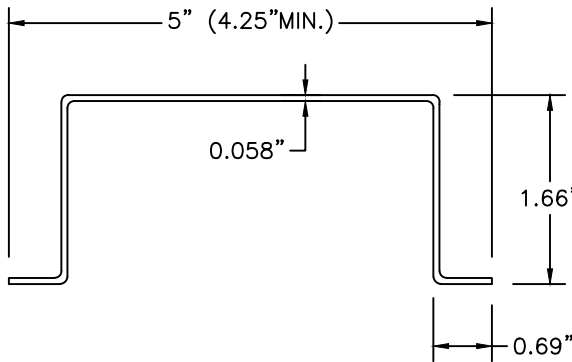
1 SINGLE OPAQUE STEEL DOOR
STEEL DOOR SKIN: 18GA. A60 GALV.
(MIN. 0.047\"/>



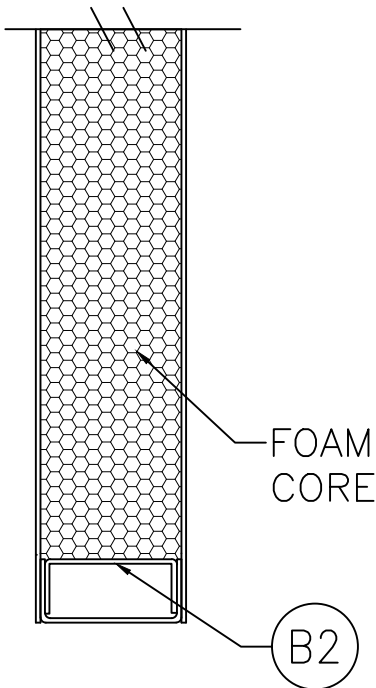
B2 CHANNEL BOTTOM REINFORCEMENT
A60 GALV. STEEL



C2 BOX CHANNEL TOP REINFORCEMENT
A60 GALV. STEEL



A2 RIB STIFFENER
A60 GALV. STEEL



1
5 VERTICAL CROSS SECTION

SERIES HSS STEEL DOOR, OUTSWING, IMPACT (X, XX) INSTALLATION ANCHORAGE DETAILS				
NO.	REVISION DESCRIPTION	BY	DATE	
C	ADD ALTERNATE LOCKING HARDWARE	RJA	1/27/26	

DATE: 2/27/2019	DWN BY: DAS/RJA	CHK BY: RJA	SCALE: NONE
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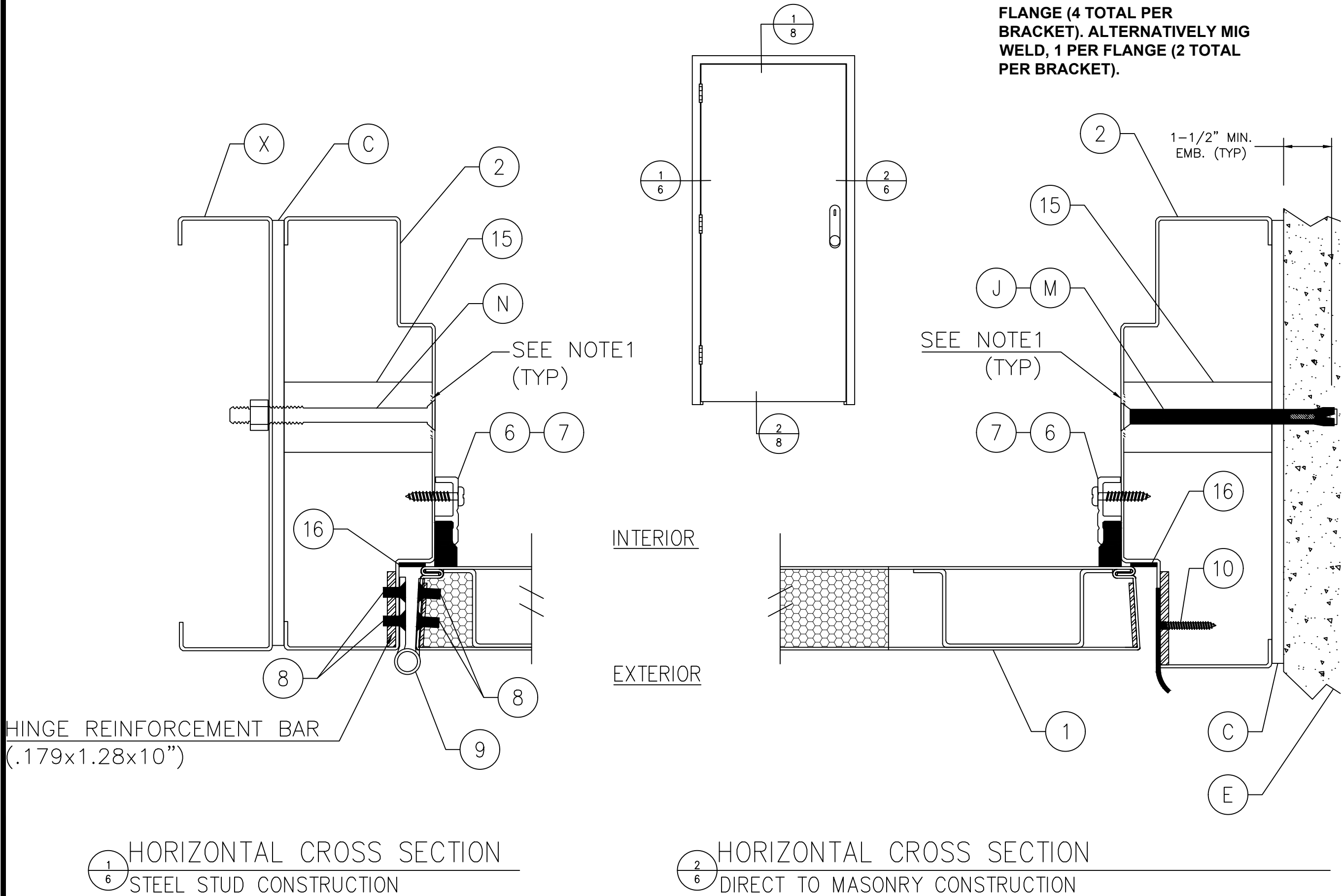
ROBERT J. AMORUSO, P.E. #49752
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226 N NOVA RD, NO. 142
ORMOND BEACH, FL 32174
RJAENGPE@GMAIL.COM



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by Robert J
Amoruso
Date: 2026.01.30
17:28:41 -05'00'

PROJECT#: ACE-2025-126
DWG/REV: HMF0002, Rev C
SHT: 5 of 11

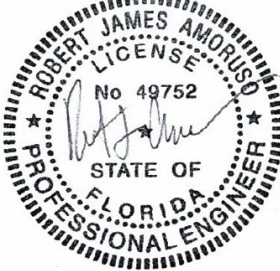
NOTE:
1. SPOT WELD ANCHOR BRACKET TO FRAME. 2 WELDS PER FLANGE (4 TOTAL PER BRACKET). ALTERNATIVELY MIG WELD, 1 PER FLANGE (2 TOTAL PER BRACKET).



SERIES HSS STEEL DOOR, OUTSWING, IMPACT (X, XX) INSTALLATION ANCHORAGE DETAILS	DATE	BY	1/27/26		
	REVISION DESCRIPTION	RJA			
	NO.	C			
	ADD ALTERNATE LOCKING HARDWARE				

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SHT:	6 of 11



2501 Northchase Parkway SE
Wilmington, NC 28405
Phone: (910) 452-1845
Fax: (910) 452-1848

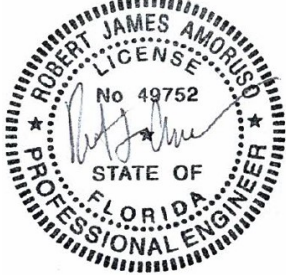
NOTES:
1. SPOT WELD ANCHOR BRACKET TO
FRAME: 2 WELDS PER FLANGE (4 TOTAL
PER BRACKET).

HMF EXPRESS
2501 NORTHCHASE
PARKWAY SE
WILMINGTON, NC 28405

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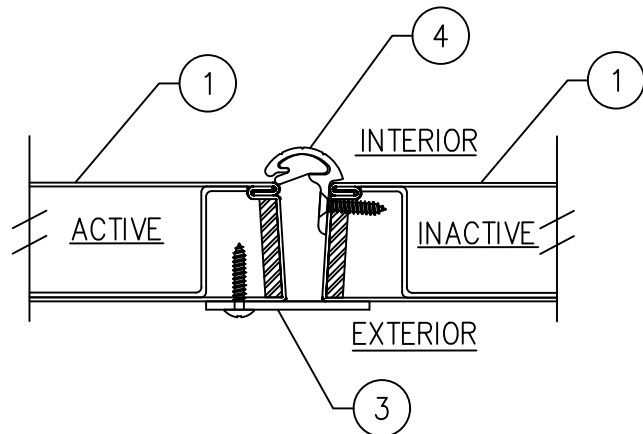
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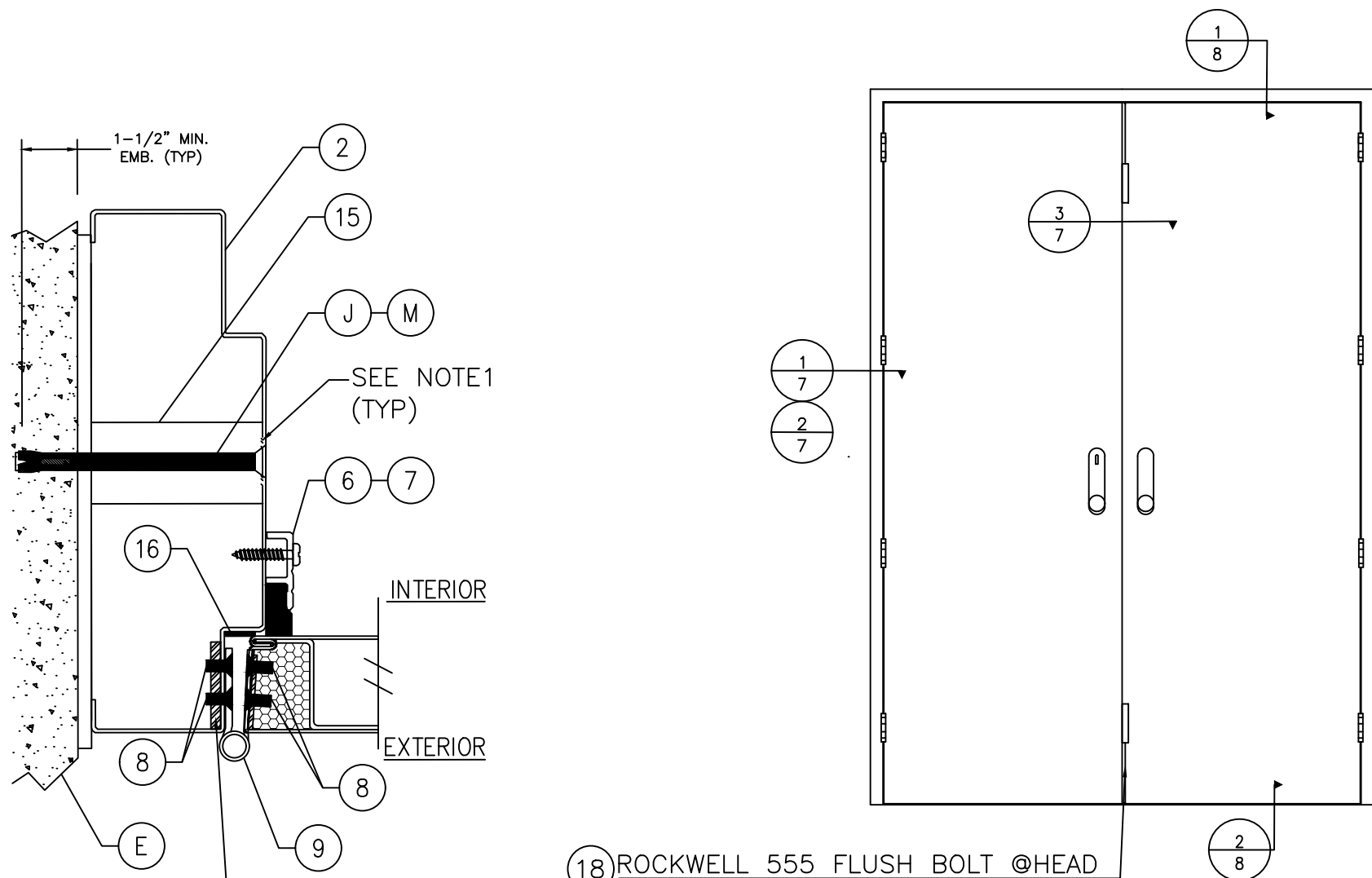


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SHT:	7 of 11

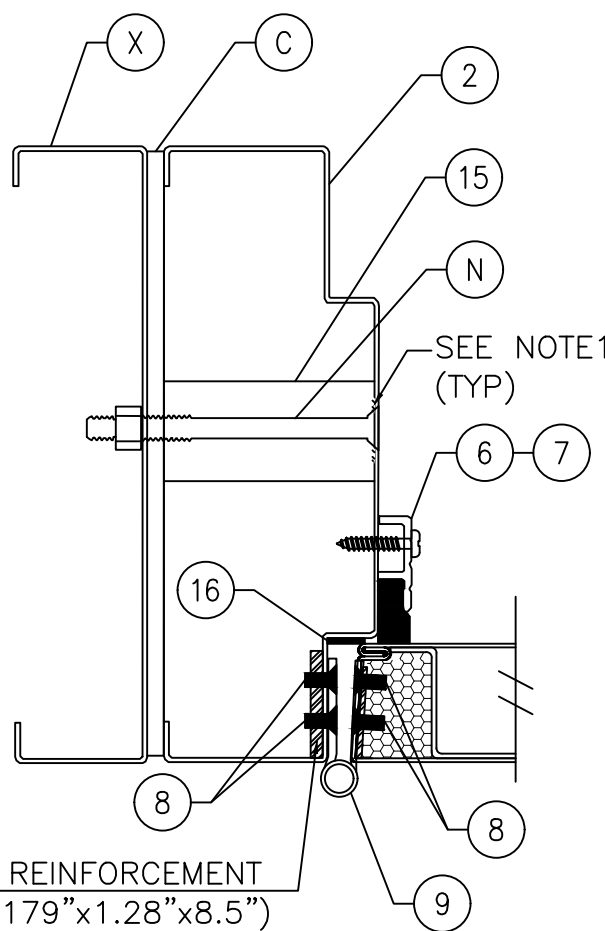


3
7 HORIZONTAL CROSS SECTION
PULL SIDE ASTRAGAL



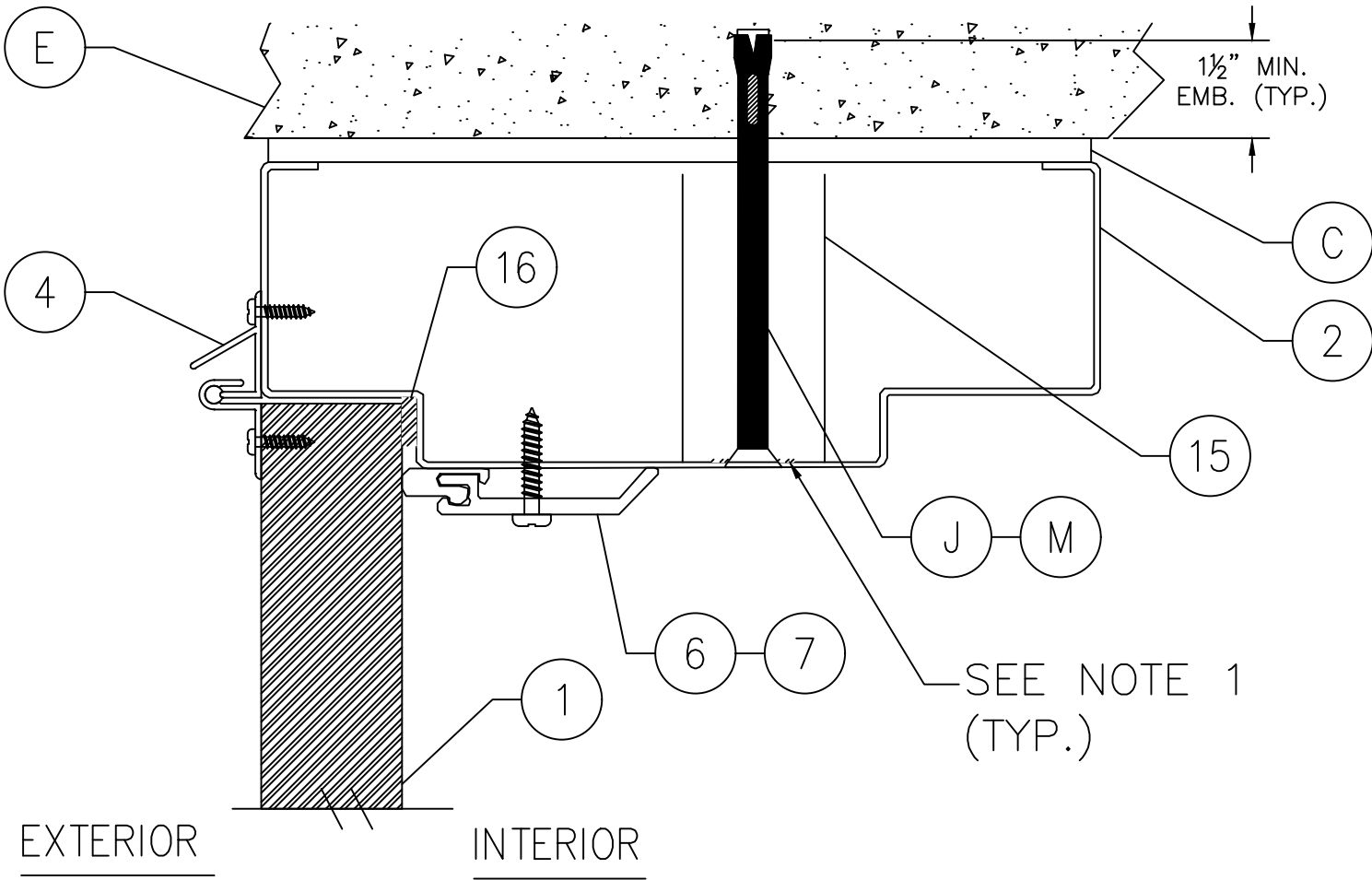
1
7 HORIZONTAL CROSS SECTION
DIRECT TO MASONRY CONSTRUCTION

18 ROCKWELL 555 FLUSH BOLT @HEAD
& SILL W/ 3/4" THROW. MORTISE
STRIKE PLATES (1 5/16" x 2-1/4")
ATTACHED TO FRAME HEAD AND
ALUMINUM THRESHOLD W/ (2) #8
COMB. WS/SMS EACH.

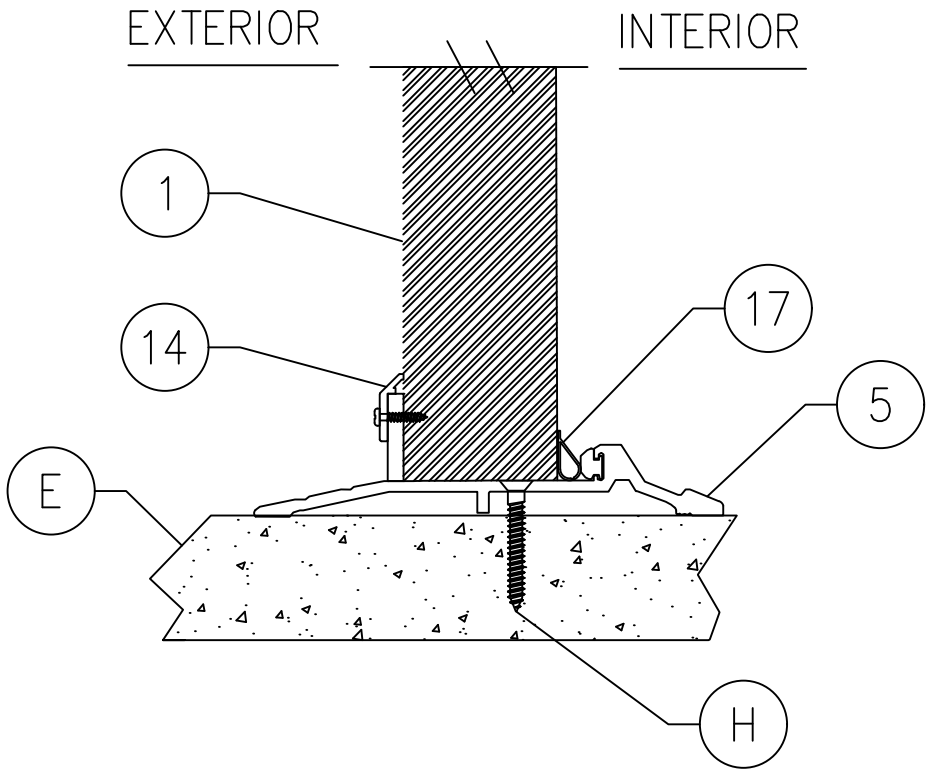


2
7 HORIZONTAL CROSS SECTION
STEEL STUD CONSTRUCTION

HINGE REINFORCEMENT
BAR (.179"x1.28"x8.5")



1
8 VERTICAL CROSS SECTION
DIRECT TO MASONRY CONSTRUCTION

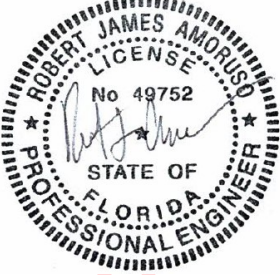


2
8 VERTICAL CROSS SECTION
CONCRETE SILL

NO.	REVISION DESCRIPTION	BY	DATE
C	ADD ALTERNATE LOCKING HARDWARE	RJA	1/27/26

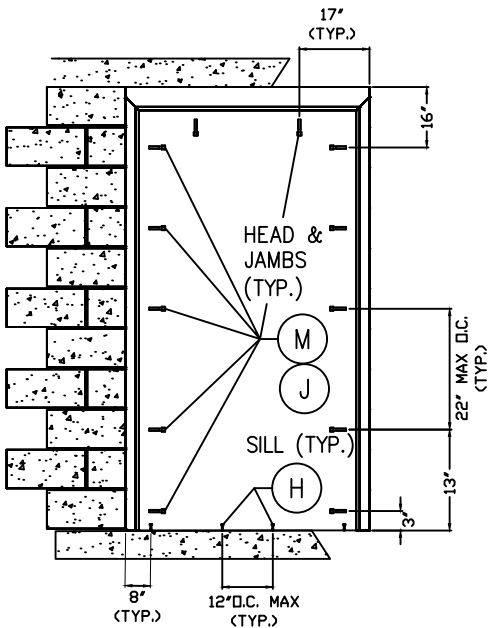
DATE: 2/27/2019	DWN BY: DAS/RJA	CHK BY: RJA	SCALE: NONE
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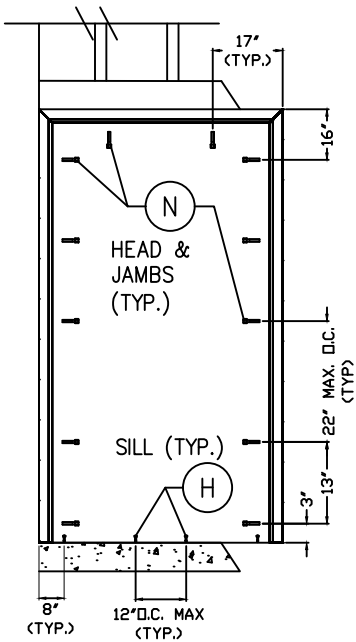


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Amoruso
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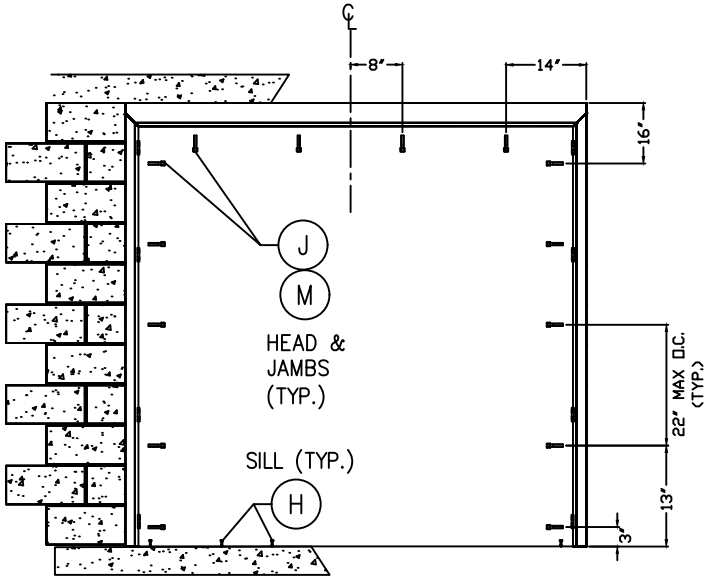
PROJECT#:	ACE-2025-126
DWG/REV:	HMF0002, Rev C
SHT:	8 of 11



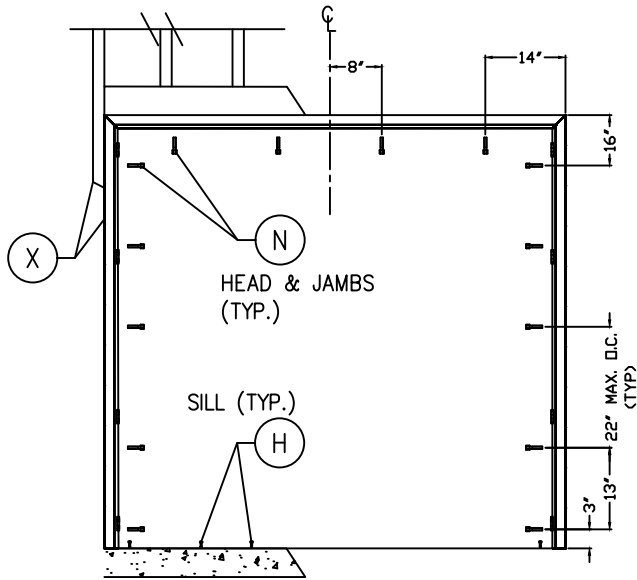
FRAME ANCHORING
DIRECT TO MASONRY



FRAME ANCHORING
STEEL STUDS



FRAME ANCHORING
DIRECT TO MASONRY



FRAME ANCHORING
STEEL STUDS

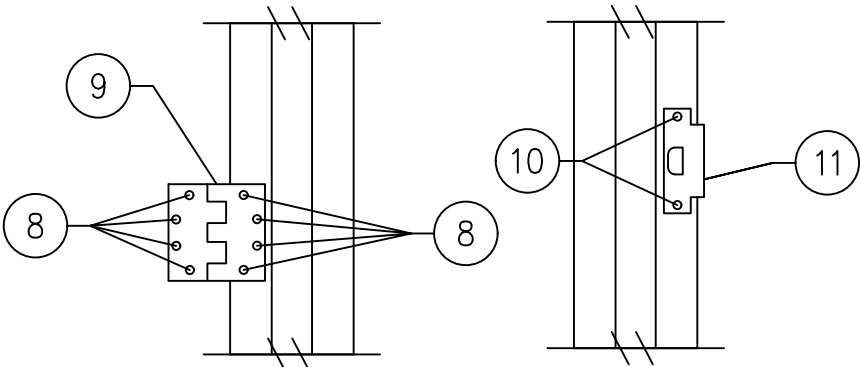
CONCRETE ANCHOR NOTES:

1. CONCRETE SCREW LOCATIONS MAY BE ADJUSTED TO MAINTAIN A MINIMUM 1" EDGE DISTANCE TO MORTAR JOINTS. IF CONCRETE SCREW LOCATIONS NOTED AS "MAX. O.C." MUST BE ADJUSTED TO MAINTAIN THE MINIMUM EDGE DISTANCE TO MORTAR JOINTS, ADDITIONAL CONCRETE SCREWS MAY BE REQUIRED TO ENSURE THE MAXIMUM ON CENTER DIMENSION IS NOT EXCEEDED.
2. CONCRETE ANCHOR TABLE:

ANCHOR TYPE	ANCHOR LOCATION	ANCHOR SIZE	MANUFACTURER	MIN. EDGE DISTANCE	MIN. EMBEDMENT
CONCRETE ANCHOR SCREW	HEAD/JAMBS	3/8"	LDT TAPCON (ITW BUILDEX)	3"	1-1/2"
	SILL	1/4"	TAPCON (ITW BUILDEX) ULTRA CON (ELCO) CRETE FLEX (ELCO)	2-1/2"	1-1/4"
			TAPPER+ (POWERS)	2-1/2"	1-3/4"
CONCRETE SLEEVE ANCHOR	HEAD/JAMBS	3/8"	DYNABOLT SLEEVE ANCHOR (ITW REDHEAD)	2-1/4"	1-1/2"

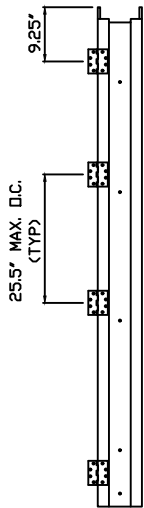
NOTE:

ANCHORAGE AND HINGE LOCATION DIMENSIONS SHOWN ARE FOR THE AS-TESTED DOOR CONFIGURATIONS. ALTERNATE HARDWARE SELECTIONS SHOWN ON SHEET 3 & 4 MAY LIMIT WIDTHS AND HEIGHTS OF THE FRAME TO A SMALLER SIZE. IN SUCH CASES, THE ANCHORAGE AND HINGE HARDWARE SPACING SHALL BE ADJUSTED BY DECREASING SPACING TO ACCOUNT FOR SMALLER FRAME WIDTH AND/OR HEIGHT. ANCHORAGE OR HINGE QUANTITIES CANNOT BE DECREASED. SEE SHEET 3 & 4 FOR DETAILS.

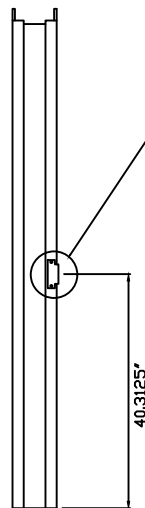


HINGE DETAIL

DETAIL 2



HINGE JAMB



STRIKE JAMB

SERIES HSS STEEL DOOR, OUTSWING, IMPACT (X, XX) INSTALLATION ANCHORAGE DETAILS	DATE	BY	REVISION DESCRIPTION	NO.
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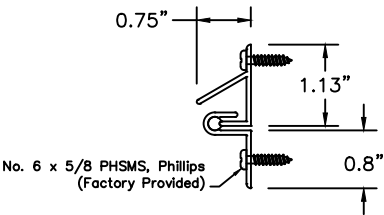
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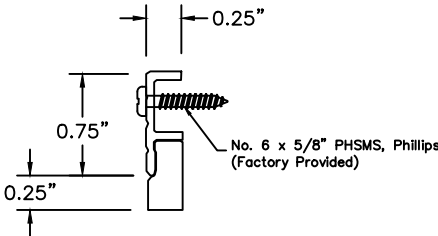
2501 Northchase Parkway SE
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WILMINGTON, NC 28405

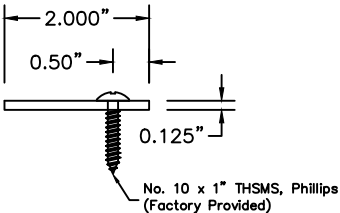
BILL OF MATERIALS		
ITEM #	DESCRIPTION	MATERAILS
C	1/4" MAX. SHIM SPACE	-
E	MASONRY-2,500 PSI MIN. CONCRETE TO ACI 301 OR HOLLOW BLOCK (GROUT FILLED) CONFORMING TO ASTM C90	CONCRETE
H	1/4" DIA. PFH CONCRETE SCREW (SEE ANCHOR TABLE ON SHEET 9)	STEEL
J	3/8" DIA. PFH DYNABOLT SLEEVE ANCHOR (SEE ANCHOR TABLE ON SHEET 9)	STEEL
M	3/8" DIA. LDT TAPCON CONCRETE SCREW (SEE ANCHOR TABLE ON SHEET 9)	STEEL
N	3/8" X 5" BOLT (ASTM A307) W/NUT AND WASHER	STEEL
X	STEEL STUD (14GA, Fu=50ksi, Fy=33ksi)	STEEL
1	STEEL DOOR PANEL	-
2	HOLLOW METAL FRAME (HEAD AND JAMB) - 16GA (0.058" THK)	STEEL
3	ASTRAGAL (EXTERIOR PEMKO #357SC)	ALUM
4	ASTRAGAL (INTERIOR PEMKO #352CR)	ALUM
5	THRESHOLD (PEMKO #179AV)	ALUM
6	PERIMETER GASKET (PEMKO #312CR)	-
7	PERIMETER GASKET (PEMKO #315CR)	-
8	.210 X .525" SELF TAP FH SCREW	STEEL
9	HINGE 4.5"X4.5"	STEEL
10	#12-24 X 1.0" COMBINATION MACHINE / WOOD SCREW	STEEL
11	LATCH STRIKE	STEEL
12	REINFORCEMENT (LOCK BOX)	STEEL
13	DOOR GASKET (PEMKO #347A / 68AR)	-
14	DOOR GASKET (PEMKO #368CN)	-
15	ANCHOR BRACKET	A60 GALV.
16	WEATHERSTRIPPING TAPE	NEOPRENE
17	PERIMETER GASKET (PEMKO #S88)	-
18	ROCKWOOD FLUSH BOLTS #555 X 12"	STEEL



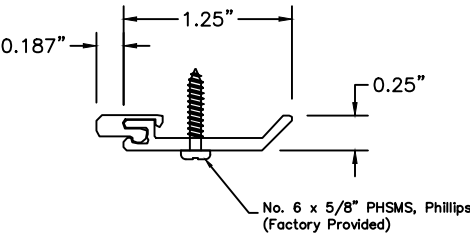
13 DOOR GASKET



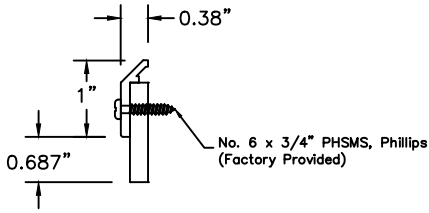
6 PERIMETER GASKETING



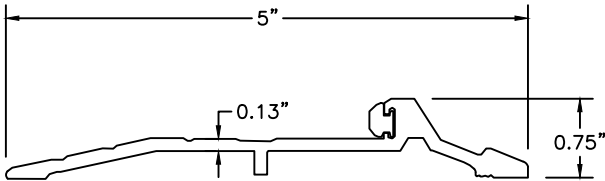
3 ASTRAGAL



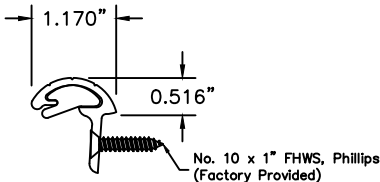
7 PERIMETER GASKETING



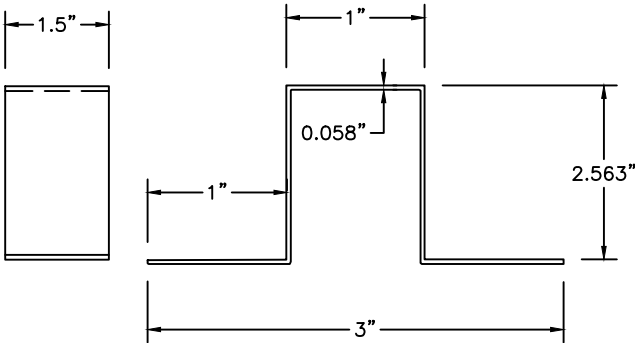
14 DOOR GASKET



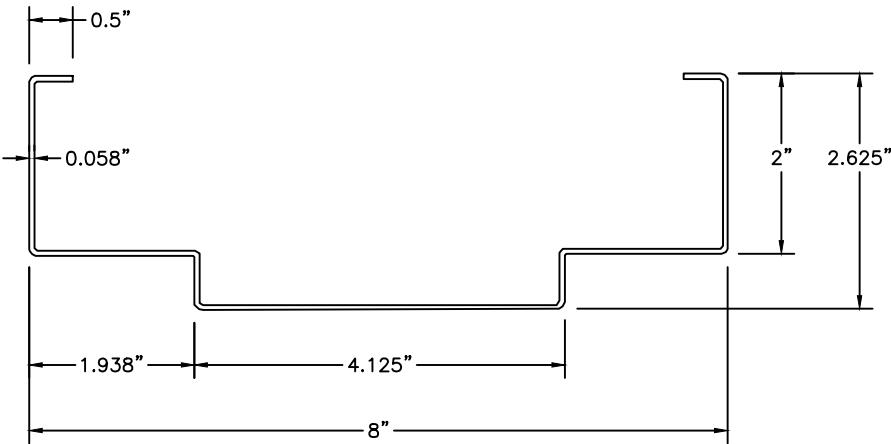
5 THRESHOLD



4 ASTRAGAL



15 ANCHOR BRACKET



2 HOLLOW METAL FRAME
(HEAD & JAMBS)

SERIES HSS STEEL DOOR, OUTSWING, IMPACT (X, XX) INSTALLATION ANCHORAGE DETAILS	DATE	1/27/26			
	BY	RJA			
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NO.	C				

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PROJECT#:	ACE-2025-126
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SHT:	10 of 11

FRAME CONSTRUCTION

THE HEAD AND SIDE JAMBS ARE A ONE-PIECE BRAKE PRESS FORMED STEEL FRAME FROM 16 GA. (0.053" MIN,) COLD ROLLED STEEL MEASURING 5.875" X 2.625". THE CORNERS OF BOTH THE HEADER AND SIDE JAMBS ARE MITERED AND BUTTED. WELDED FRAMES ARE SEAM WELDED ON THE FRAME FACE AND CONTINUOUSLY WELDED ON THE INTERIOR SURFACES.THE KNOCKED DOWN FRAME (KD) HEADER HAS SLOTS PUNCHED IN BOTH RETURN LEGS FOR THE 18GA. (0.048") FRAME TABS THAT ARE WELDED TO THE SIDE JAMBS. THE TABS ARE BENT 90 DEGREES OVER THE HEADER AFTER BEING SLIPPED THROUGH THE SLOTS TO CREATE A MECHANICAL JOINT. THE FRAME HAT SECTION OF EACH SIDE JAMB HAS ONE PUNCHED TAB THAT IS SLIPPED INTO THE PUNCHED SLOT IN THE HEADER AND BENT DOWN 90 DEGREES OVER THE HEADER TO CREATE ANOTHER MECHANICAL JOINT. EACH HINGE LOCATION ON BOTH THE WELDED FRAME AND THE KD FRAME HAVE A 7GA. (0.179") HOT ROLLED STEEL HINGE REINFORCEMENT MEASURING 1.25" WIDE X 10.0" WELDED TO THE FRAME. EACH SIDE JAMB HAS 16 GA. (0.053") STEEL L-SHAPED FLOOR ANCHOR PLATES MEASURING 1.5" WIDE FLOOR SIDE X 1.75" WIDE FRAME SIZE X 5.0" LONG WELDED TO THE INSIDE BOTTOM OF THE FRAME.

PANEL CONSTRUCTION

THE PANELS CONSTRUCTED FROM (2) 18 GA. (0.048"MIN.) COLD ROLLED STEEL FACE SHEETS. THE VERTICAL EDGES OF THE FACE SHEETS ARE FORMED TO JOIN TOGETHER AND CREATE A MECHANICAL INTERLOCK. THE HORIZONTAL EDGES ARE CUT STRAIGHT. THE TOP AND BOTTOM PERIMETER OF THE PANEL, ON THE INTERIOR, IS REINFORCED WITH A 14 GA. (0.074" MIN.) STEEL "U" CHANNEL MEASURING 1.632" WIDE X 0.75" DEEP X 35.75" LONG AT THE TOP AND BOTTOM. THE TOP AND BOTTOM "U" CHANNEL IS 0.125" BELOW THE HORIZONTAL EDGES OF THE PANEL AND IS SPOT / PROJECTION WELDED IN 5 PLACES ALONG EACH SIDE OF THE PANEL. THE PANEL IS REINFORCED IN THE INTERIOR WITH 2 GA. (0.025" MIN.) STEEL STIFFENERS RUNNING VERTICAL FROM TOP TO BOTTOM. THE STIFFENERS CAN ONLY BE A MAXIMUM OF 9" FROM MIDLINE. THE STIFFENERS ARE WELDED AT EACH SIDE OF THE STIFFENER UP 3.0" FROM BOTTOM AND A MAXIMUM OF 6.0" ON CENTER. THE SPACES BETWEEN THE STIFFENERS AND THE EDGES OF THE PANEL ARE FILLED WITH INSULATION (EPS OR FIBERGLASS). EACH PANEL HAS THREE STEEL HINGE REINFORCEMENTS WELDED TO ONE OF THE FACE SHEETS BEFORE BOTH FACE SHEETS ARE ASSEMBLED. THE REINFORCEMENT IS CONSTRUCTED FROM A 7 GA. (0.171" MIN.) HOT ROLLED STEEL MEASURING 1.25" WIDE X 8.5". THE REINFORCEMENTS ARE LOCATED AT 7.125, 39.275, AND 71.625" FROM THE TOP OF THE CENTER OF THE REINFORCEMENTS. (LOCATIONS VARY WITH THE HEIGHT OF THE DOOR WITH MAX 39.5" O.C. SPACING).

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