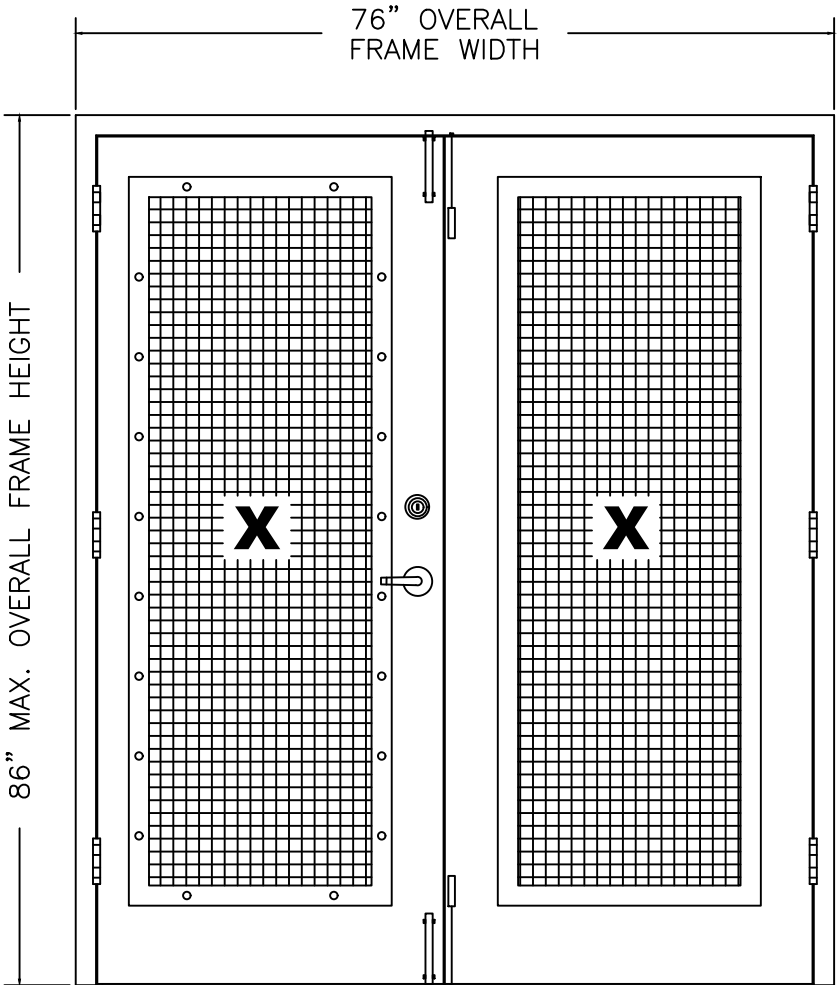


SERIES LOUVERED / GLAZED STEEL DOOR OUTSWING, IMPACT (X, XX)

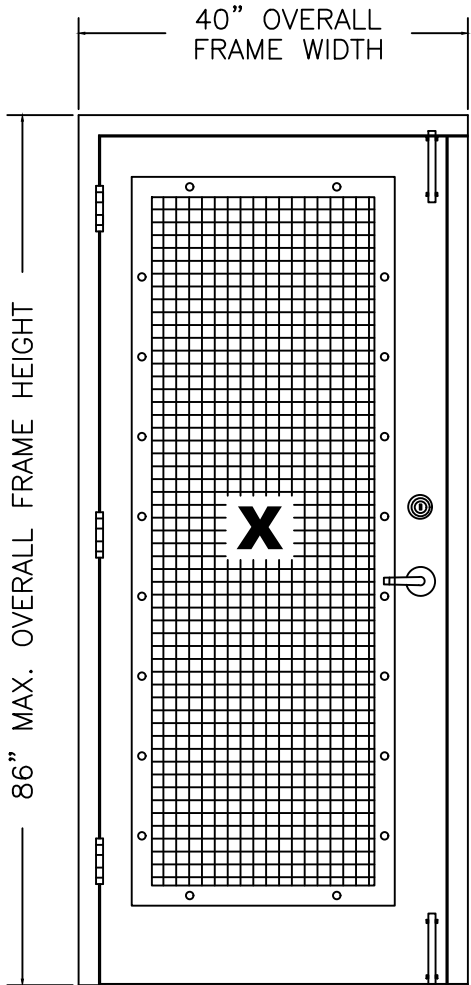
GENERAL NOTES

THIS PRODUCT HAS BEEN EVALUATED AND IS IN COMPLIANCE WITH THE 8TH EDITION (2023) FLORIDA BUILDING CODE (FBC) REQUIREMENTS EXCLUDING THE HIGH VELOCITY HURRICANE ZONE (HVHZ) AND HAS BEEN EVALUATED TO THE FOLLOWING IN CERTIFIED TESTING LABORATORIES REPORT NO. CTLA-1698W & CTLA-1698W-1.

- ASTM E330-02
 - ASTM E1886-02
 - ASTM E1996-02
- PRODUCT ANCHORS SHALL BE AS LISTED AND SPACED AS SHOWN ON DETAILS. ANCHOR EMBEDMENT TO BASE MATERIAL SHALL BE BEYOND WALL DRESSING OR STUCCO.
- WHEN USED IN AREAS 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.
- THIS PRODUCT DOES NOT MEET THE WATER INFILTRATION REQUIREMENTS OF THE FBC AND SHALL BE INSTALLED ONLY IN NON-HABITABLE AREAS OR AT 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.
- SITE CONDITIONS THAT DEVIATE FROM THE DETAILS OF THIS DRAWING REQUIRE FURTHER ENGINEERING ANALYSIS BY A LICENSED ENGINEER OR REGISTERED ARCHITECT.
- SEE CURRENT MIAMI-DADE NOTICE OF ACCEPTANCE (NOA) FOR CARPENTER CO. PREFORMED BLOCK TYPE EPS INSULATION COMPONENT APPROVAL.
- SEE CURRENT MIAMI-DADE NOTICE OF ACCEPTANCE (NOA) FOR OLDCASTLE BUILDING ENVELOPE, INC. STORMGLASS GLASS INTERLAYER COMPONENT APPROVAL.
- 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 STEEL DOOR (LOUVERED)



② STEEL DOOR (LOUVERED)

TABLE OF CONTENTS	
SHEET#	DESCRIPTION
1	LOUVERED STEEL DOOR TYP ELEVATIONS, DESIGN PRESSURES & GENERAL NOTES
2, 3 & 4	HARDWARE SELECTION TABLES
5	GLAZED STEEL DOOR TYP ELEVATIONS, DESIGN PRESSURES & GENERAL NOTES
6	LOUVERED STEEL DOOR PANEL DETAILS
7	GLAZED STEEL DOOR PANEL DETAILS
8	ELEVATIONS
9 & 10	HORIZONTAL CROSS SECTIONS
11	HORIZONTAL & VERTICAL CROSS SECTIONS
12 TO 14	ANCHORING DETAILS
15	COMPONENTS
16	BILL OF MATERIALS & COMPONENTS

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.

DOOR TYPES	MAXIMUM OVERALL DIMENSION		DESIGN PRESSURE (PSF)	
	DOOR FRAME	OPERABLE PANEL (*)	POSITIVE	NEGATIVE
DOUBLE DOOR LOUVERED	76" x 86"	35.75" x 83.5"	+55	-55
SINGLE DOOR LOUVERED	40" x 86"	35.75" x 83.5"	+65	-70
WIND ZONE 4, MISSILE LEVEL D IMPACT RATED				
(*) WITH ASTRAGAL, 35.875" X 83.5"				

SERIES LOUVERED / GLAZED STEEL DOOR OUTSWING, IMPACT (X, XX) INSTALLATION ANCHORAGE DETAILS	DATE	BY	1/27/26		
	REVISION DESCRIPTION	RJA			
	UPDATE TITLE BLOCK				
	NO.	C			

DATE: 2/27/2019	DWN BY: DAS/RJA	CHK BY: RJA	SCALE: NONE
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AS TESTED HARDWARE (SEE
TABLE NOTES BELOW)

Company Name	Type of Hardware	Hardware Model (used in testing) (6)	HMZ (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	Schlage Lockset #ND96PD x ASA 4-7/8" strike	N	Y	N	Outswing	Pair	55	55	35.75	83.5	16 GA
Schlage	161 w/ TB+DB	Schlage Lockset #ND96PD x ASA 4-7/8" strike	N	Y	N	Outswing	Single	65	70	35.75	83.5	16 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.
- 2.1. AS-TESTED HARDWARE TESTED TO ASTM E330, E1886 AND E1996 ONLY AND THEREFORE DOES NOT MEET HVHZ REQUIREMENTS. APPROVED HARDWARE TESTED TO HVHZ REQUIREMENTS IS LIMITED TO NON-HVHZ LOCATIONS DUE TO ORIGINAL TESTING OF THE HMF EXPRESS PRODUCT DEPICTED.
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.

HMF EXPRESS

2501 NORTHCHASE PARKWAY SE

WILMINGTON, NC 28405

SERIES LOUVERED / GLAZED STEEL DOOR

OUTSWING, IMPACT (X, XX)

INSTALLATION ANCHORAGE DETAILS

REVISION DESCRIPTION

DATE

BY

NO.

1/27/26

RJA

C

DATE:

2/27/2019

DWN BY:

DAS/RJA

CHK BY:

RJA

SCALE:

NONE

ROBERT J. AMORUSO, P.E. #49752

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Robert James Amoruso

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STATE OF FLORIDA

PROFESSIONAL ENGINEER

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PROJECT#:

ACE-2025-126

DWG/REV:

HMF0004, Rev C

SHT:

2 of 16



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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 Model (4)	HMZ (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)
Alegion-Schlage	161 w/ TB	Schlage AL Series	Y	Y	N	Outswing	Pair	55	55	35.75	83.5	16 GA
Alegion-Schlage	161 w/ TB	Schlage D, ND, NDE Series	Y	Y	N	Outswing	Pair	55	55	35.75	83.5	16 GA
Dormakaba	161 w/ TB	Best 9K	Y		N	Outswing	Pair	50	50	35.75	83.5	18 GA
Dormakaba	161 w/ TB	Dorma C100 Series	Y	Y	N	Outswing	Pair	50	50	35.75	83.5	18 GA
Cal-Royal Products	161 w/ TB + DB	Pioneer Series + T300 Series	Y	Y	N	Outswing	Pair	55	55	35.75	83.5	18 GA
Dormakaba	161 w/ TB + DB	Dorma QCL 100 Series + QDB 100 Series	Y	Y	N	Outswing	Pair	55	55	35.75	83.5	18 GA
Dormakaba	161 w/ TB + DB	Dorma QCL 100 Series + QDB 200 Series	Y	Y	N	Outswing	Pair	55	55	35.75	83.5	18 GA
Dormakaba	161 w/ TB + DB	Dorma QCL 200 Series + QDB 100 Series	Y	Y	N	Outswing	Pair	55	55	35.75	83.5	18 GA
Dormakaba	161 w/ TB + DB	Dorma QCL 200 Series + QDB 200 Series	Y	Y	N	Outswing	Pair	55	55	35.75	83.5	18 GA
Alegion-Schlage	Mortise Lock	Schlage LE & LEB	Y	Y	N	Outswing	Pair	55	55	35.75	83.5	16 GA
Alegion-Schlage	Mortise Lock	Falcon MA Series	Y	Y	N	Outswing	Pair	50	50	35.75	83.5	16 GA
Dormakaba	Mortise Lock	Best 45H & 47H	Y	Y	N	Outswing	Pair	35	35	35.75	83.5	18 GA
Schlage	Mortise Lock	SCHLAGE L9000 MORTISE LOCK SERIES WITH ASA STRIKE	Y	Y	N	Outswing	Pair	55	55	35.75	83.5	16 GA
Alegion-Schlage	Mortise Lock + DB	Schlage L/LV9400 + Deadbolt	Y	Y	N	Outswing	Pair	55	55	35.75	83.5	16 GA
Alegion-Schlage	Mortise Lock + DB	Schlage LE & LEB + Deadbolt	Y	Y	N	Outswing	Pair	55	55	35.75	83.5	16 GA
Alegion-Schlage	Mortise Lock + DB	Falcon MA Series + Deadbolt	Y	Y	N	Outswing	Pair	55	55	35.75	83.5	16 GA
Dormakaba	Mortise Lock + DB	Best 45H & 47H with Deadbolt	Y	Y	N	Outswing	Pair	35	35	35.75	83.5	18 GA
Dormakaba	Mortise Lock + DB	Best 48H & 49H with Deadbolt	Y	Y	N	Outswing	Pair	40.5	40.5	35.75	83.5	18 GA
Alegion-Schlage	Mortise Rm Exit	Falcon F-25-M	Y	Y	N	Outswing	Pair	55	55	35.75	83.5	16 GA
Alegion-Schlage	Rm Exit	Falcon F-25-R + HH9954 Removable Mullion	Y	Y	N	Outswing	Pair	55	55	35.75	83.5	16 GA
Dormakaba	Rm Exit	Best HC2100 + HCKR822 Mullion	Y	Y	N	Outswing	Pair	55	55	35.75	83.5	16 GA
Von Duprin	Rm Exit	Von Duprin NO. 98/99 SERIES WITH HH9954 HARDWARE MULLION	Y	Y	N	Outswing	Pair	55	55	35.75	83.5	16 GA
Alegion-Schlage	Surface Vertical Rod	Falcon F-25-V	Y	Y	N	Outswing	Pair	55	55	35.75	83.5	16 GA
Dormakaba	Surface Vertical Rod	Best HC2200	Y	Y	N	Outswing	Pair	55	55	35.75	83.5	16 GA
Von Duprin	Surface Vertical Rod	Von Duprin SVR EXIT DEVICES NO. 9827/9927 SERIES	Y	Y	N	Outswing	Pair	55	55	35.75	83.5	16 GA

SERIES LOUVERED / GLAZED STEEL DOOR OUTSWING, IMPACT (X, XX) INSTALLATION ANCHORAGE DETAILS	DATE	1/27/26			
	BY	RJA			
	REVISION DESCRIPTION	UPDATE TITLE BLOCK			
	NO.	C			

DATE: 2/27/2019	DWN BY: DAS/RJA	CHK BY: RJA	SCALE: NONE
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APPROVED HARDWARE
SINGLE "X" DOORS

(SEE SHEET 2 FOR TABLE NOTES)

Company Name	Type of Hardware	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	Genysis Series	Y	Y	N	Outswing	Single	65	70	35.75	83.125	18 GA
Allegion-Schlage	161 w/ TB	Falcon B Series	Y	Y	N	Outswing	Single	65	60	35.75	83.5	18 GA
Allegion-Schlage	161 w/ TB	Falcon T & TM Series	Y	Y	N	Outswing	Single	65	70	35.75	83.5	18 GA
Allegion-Schlage	161 w/ TB	Schlage D, ND, NDE Series	Y	Y	N	Outswing	Single	65	70	35.75	83.5	16 GA
Dormakaba	161 w/ TB	Best 9K	Y	Y	N	Outswing	Single	65	70	35.75	83.5	18 GA
Dormakaba	161 w/ TB	Dorma C100 Series	Y	Y	N	Outswing	Single	65	70	35.75	83.5	18 GA
Cal-Royal Products	161 w/ TB + DB	Pioneer Series + T300 Series	Y	Y	N	Outswing	Single	65	70	35.75	83.125	18 GA
Cal-Royal Products	161 w/ TB + DB	Pioneer Series + T300 Series	Y	Y	N	Outswing	Single	65	70	35.75	83.5	18 GA
Dormakaba	161 w/ TB + DB	Dorma QCL 100 Series + QDB 100 Series	Y	Y	N	Outswing	Single	65	70	35.75	83.5	18 GA
Dormakaba	161 w/ TB + DB	Dorma QCL 100 Series + QDB 200 Series	Y	Y	N	Outswing	Single	65	70	35.75	83.5	18 GA
Dormakaba	161 w/ TB + DB	Dorma QCL 200 Series + QDB 100 Series	Y	Y	N	Outswing	Single	65	70	35.75	83.5	18 GA
Dormakaba	161 w/ TB + DB	Dorma QCL 200 Series + QDB 200 Series	Y	Y	N	Outswing	Single	65	70	35.75	83.5	18 GA
Hager Companies	161 w/ TB + DB	2500/3400/3500 Series + 3100/3200 Series	N	Y	N	Outswing	Single	65	65	35.75	83.5	18 GA
Cal-Royal Products	Mortise Lock	M Series	Y	Y	N	Outswing	Single	65	70	35.75	83.125	18 GA
Allegion-Schlage	Mortise Lock	Falcon MA-Series	Y	Y	N	Outswing	Single	65	70	35.75	83.5	18 GA
Dormakaba	Mortise Lock	Best 45H & 47H	Y	Y	N	Outswing	Single	60	60	35.75	83.5	18 GA
Schlage	Mortise Lock	Schlage L9000 MORTISE LOCK SERIES WITH ASA STRIKE (4-7/8")	Y	Y	N	Outswing	Single	60	60	35.75	83.5	16 GA
Allegion-Schlage	Mortise Lock + DB	Schlage L/LV9400 + Deadbolt	Y	Y	N	Outswing	Single	65	70	35.75	83.5	16 GA
Allegion-Schlage	Mortise Lock + DB	Falcon MA-Series + Deadbolt	Y	Y	N	Outswing	Single	65	70	35.75	83.5	16 GA
Allegion-Schlage	Mortise Lock + DB	Schlage AD-MD & CO-MD + Deadbolt	Y	Y	N	Outswing	Single	65	70	35.75	83.5	16 GA
Allegion-Schlage	Mortise Lock + DB	Schlage LE & LEB + Deadbolt	Y	Y	N	Outswing	Single	65	70	35.75	83.5	16 GA
Allegion-Schlage	Mortise Lock + DB	Schlage XE360-M-D + Deadbolt	Y	Y	N	Outswing	Single	65	70	35.75	83.5	16 GA
Allegion-Schlage	Mortise Lock + DB	Schlage PM400 + Deadbolt	Y	Y	N	Outswing	Single	65	70	35.75	83.5	16 GA
Dormakaba	Mortise Lock + DB	Best 45H & 47H with Deadbolt	Y	Y	N	Outswing	Single	60	60	35.75	83.5	18 GA
Dormakaba	Mortise Lock + DB	Best 48H & 49H with Deadbolt	Y	Y	N	Outswing	Single	40.5	40.5	35.75	83.5	18 GA
Hager Companies	Mortise Lock + DB	3800 Series	N	Y	N	Outswing	Single	65	65	35.75	83.5	18 GA
Allegion-Schlage	Mortise Exit Device	Von Duprin 8875	Y	Y	N	Outswing	Single	65	70	35.75	83.5	16 GA
Allegion-Schlage	Mortise Rim Exit	Falcon F-25-M	Y	Y	N	Outswing	Single	65	70	35.75	83.5	16 GA
Cal-Royal Products	Rim Exit	7700 Series	Y	Y	N	Outswing	Single	65	70	35.75	83.5	18 GA
Allegion-Schlage	Rim Exit	Falcon F-25-R	Y	Y	N	Outswing	Single	65	55	35.75	83.5	16 GA
Dormakaba	Rim Exit	Best ARM-A-DOR	Y	Y	N	Outswing	Single	65	70	35.75	83.5	16 GA
Dormakaba	Rim Exit	Best HC2100	Y	Y	N	Outswing	Single	65	70	35.75	83.5	16 GA
Von Duprin	Rim Exit	RIM EXIT X EXIT NO. 98/99 SERIES	Y	Y	N	Outswing	Single	65	70	35.75	83.5	16 GA
Allegion-Schlage	Surface Vertical Rod	Falcon F-25-V	Y	Y	N	Outswing	Single	65	70	35.75	83.5	16 GA
Dormakaba	Surface Vertical Rod	Best HC2200	Y	Y	N	Outswing	Single	65	70	35.75	83.5	16 GA

HMF EXPRESS
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WILMINGTON, NC 28405

SERIES LOUVERED / GLAZED STEEL DOOR OUTSWING, IMPACT (X, XX) INSTALLATION ANCHORAGE DETAILS	DATE			
	BY			
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	REVISION DESCRIPTION	UPDATE TITLE BLOCK		

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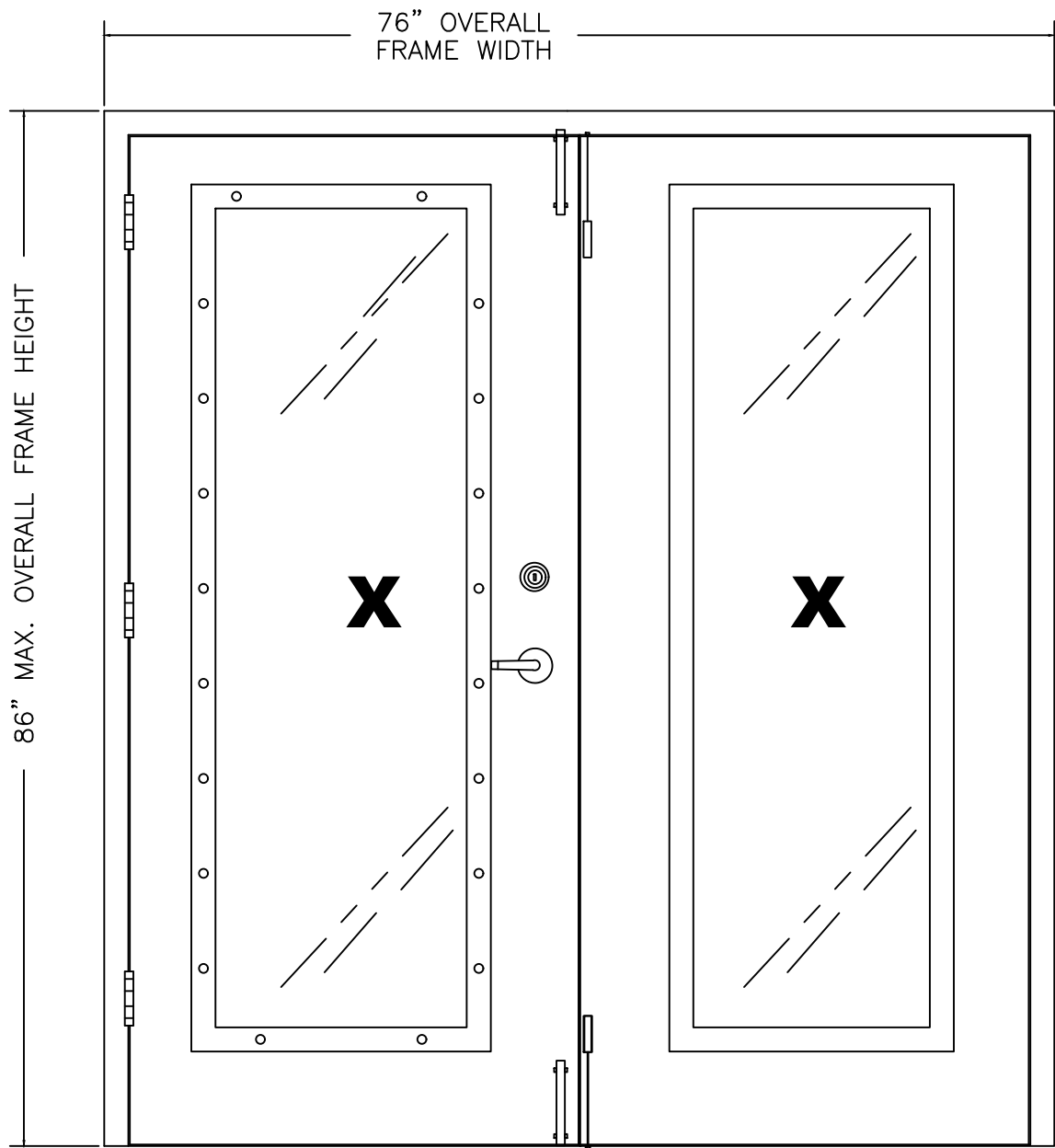


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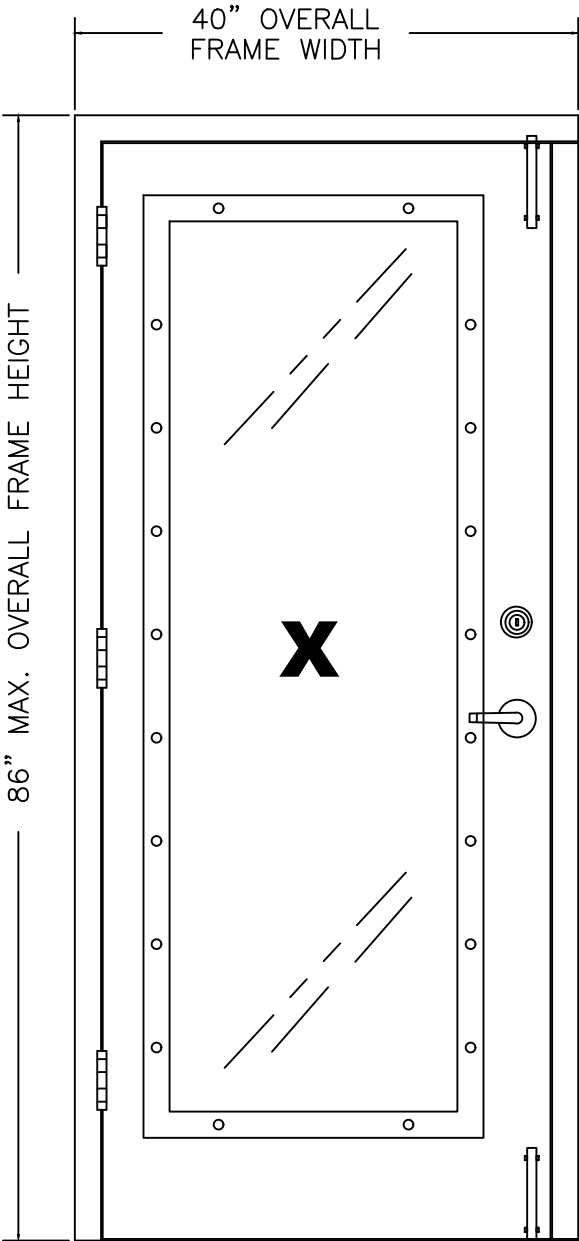
PROJECT#:	ACE-2025-126
DWG/REV:	HMF0004, Rev C
SHT:	4 of 16

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

HMF EXPRESS
2501 NORTHCHASE
PARKWAY SE
WILMINGTON, NC 28405



1 STEEL DOOR (GLAZED)



2 STEEL DOOR (GLAZED)

DOOR TYPES	MAXIMUM OVERALL DIMENSION			DESIGN PRESSURE (PSF)	
	DOOR FRAME	OPERABLE PANEL (*)	GLAZED PANEL D.L.O.	POSITIVE	NEGATIVE
DOUBLE DOOR GLAZED	76" x 86"	35.75" x 83.5"	22" x 66"	+55	-55
SINGLE DOOR GLAZED	40" x 86"	35.75" x 83.5"	22" x 66"	+65	-70
WIND ZONE 4, MISSILE LEVEL D IMPACT RATED					
(*) WITH ASTRAGAL, 35.875" X 83.5"					

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.

SERIES LOUVERED / GLAZED STEEL DOOR OUTSWING, IMPACT (X, XX) INSTALLATION ANCHORAGE DETAILS				DATE			
NO.	REVISION DESCRIPTION	BY	DATE	C	RJA		
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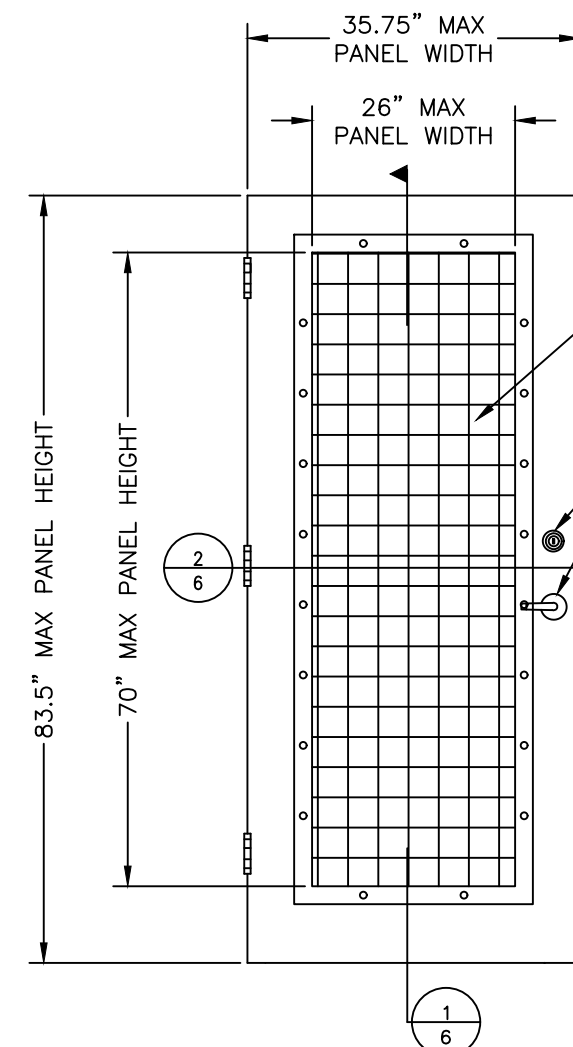
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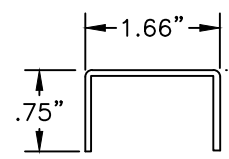
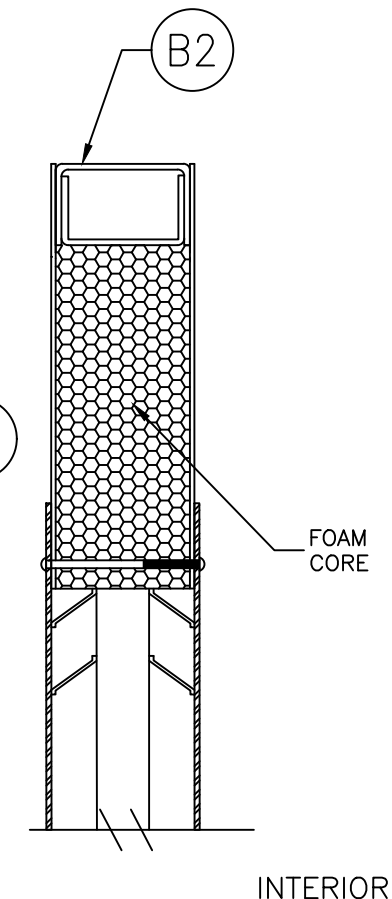
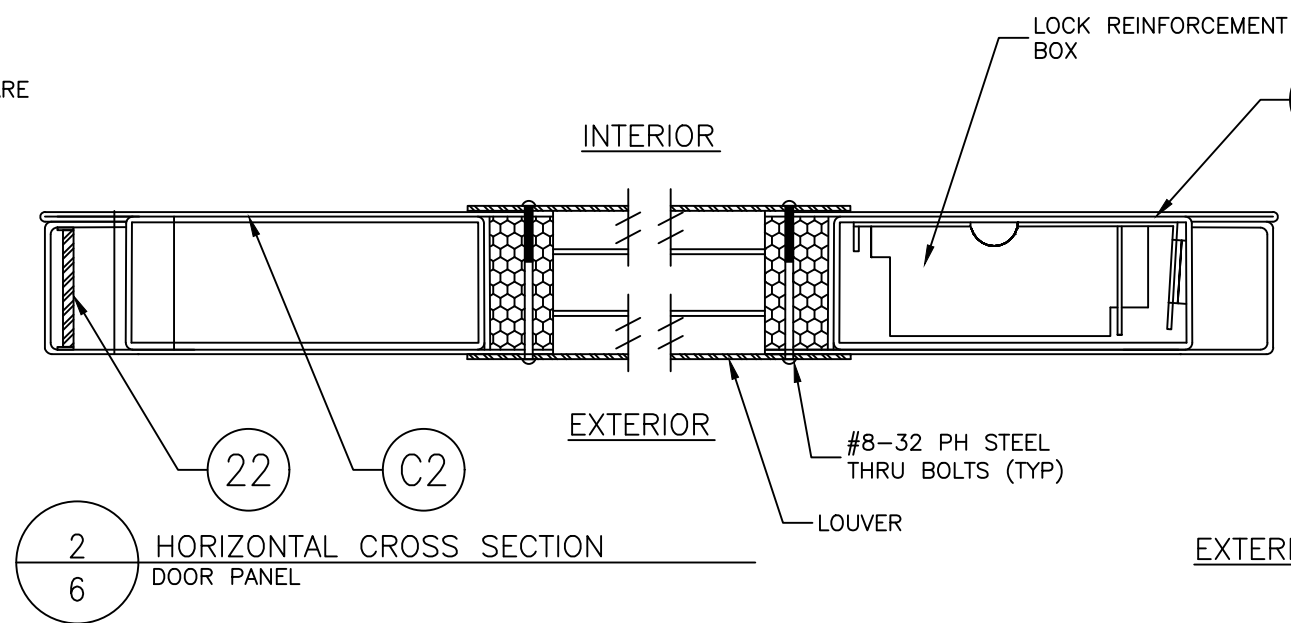
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Date: 2026.01.30
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PROJECT#:	ACE-2025-126
DWG/REV:	HMF0004, Rev C
SHT:	5 of 16



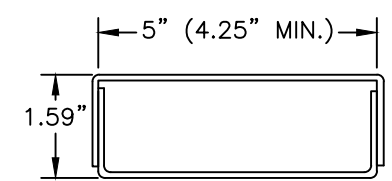
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SEE
 HARDWARE
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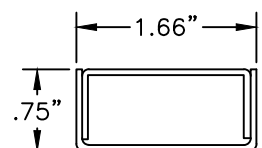


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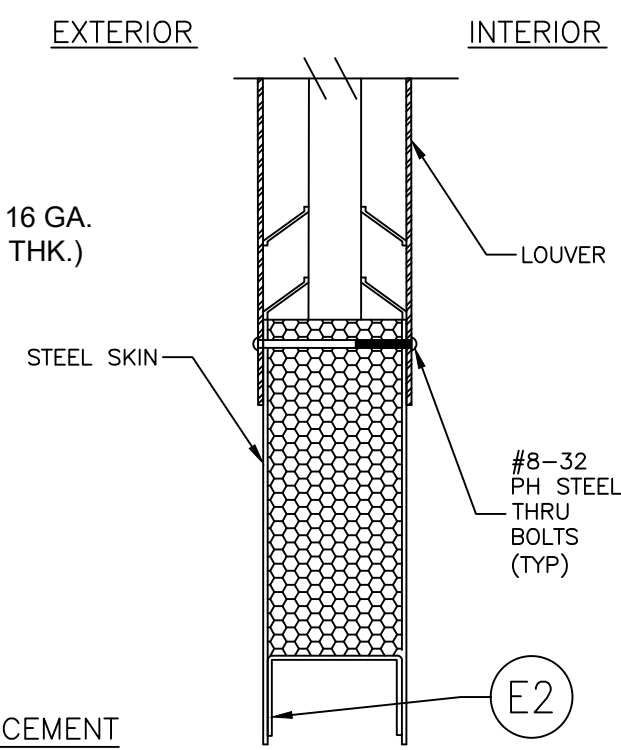
E2 BOTTOM CHANNEL
 A60 GALV. STEEL



C2 BOX CHANNEL REINFORCEMENT
 A60 GALV. STEEL



B2 TOP CHANNEL
 A60 GALV. STEEL



1 VERTICAL CROSS SECTION
 6 DOOR PANEL

STEEL DOOR SKIN: 16 GA. A60 GALV.
 (MIN. 0.058\"/>

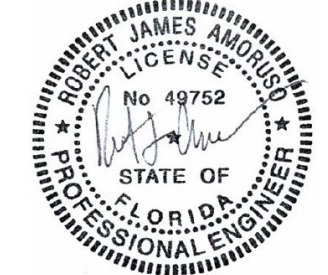
NOTE:
 PANEL AND/OR FRAME DIMENSIONS SHOWN ARE FOR THE AS-TESTED
 DOOR CONFIGURATIONS. ALTERNATE HARDWARE SELECTIONS SHOWN ON
 SHEET 3 & 4 MAY LIMIT WIDTHS AND HEIGHTS TO A SMALLER SIZE. SEE
 SHEET 3 & 4 FOR DETAILS.

HMF EXPRESS
 2501 NORTHCHASE
 PARKWAY SE
 WILMINGTON, NC 28405

SERIES LOUVERED / GLAZED STEEL DOOR OUTSWING, IMPACT (X, XX) INSTALLATION ANCHORAGE DETAILS				
NO.	REVISION DESCRIPTION	BY	DATE	
C	UPDATE TITLE BLOCK	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
 AMORUSO CONSULTING ENG., LLC
 FBPE REGISTRATION NO. 38327
 226 N NOVA RD, NO. 142
 ORMOND BEACH, FL 32174
 RJAENGPE@GMAIL.COM

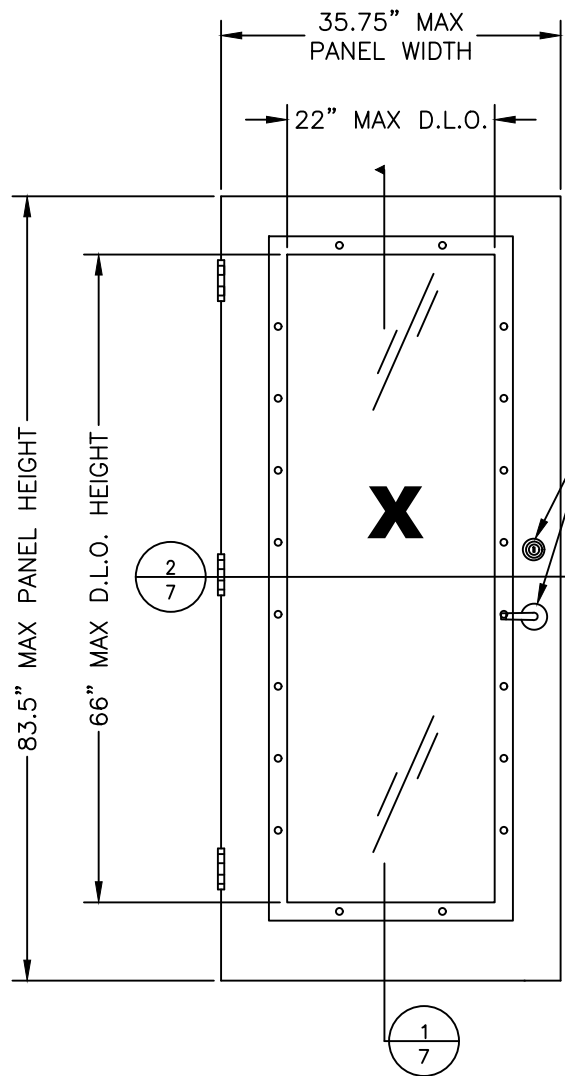


Digitally signed
 by Robert J
 Amoruso
 Date: 2026.01.30
 17:17:50 -05'00'

PROJECT#: ACE-2025-126

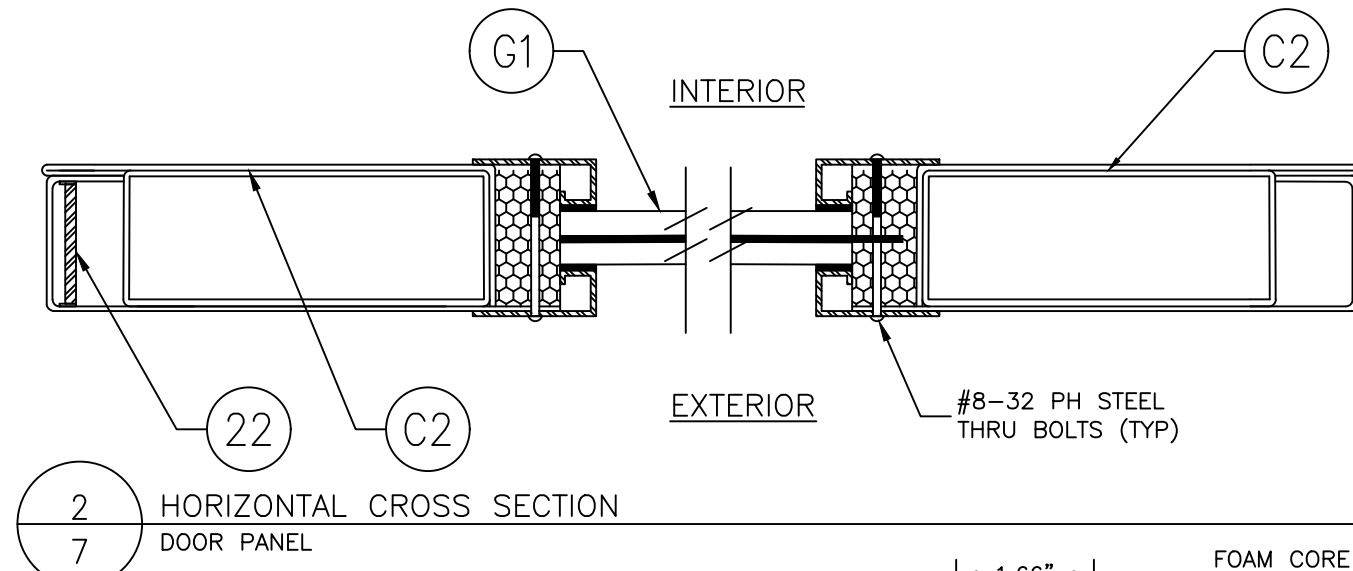
DWG/REV: HMF0004, Rev C

SHT: 6 of 16

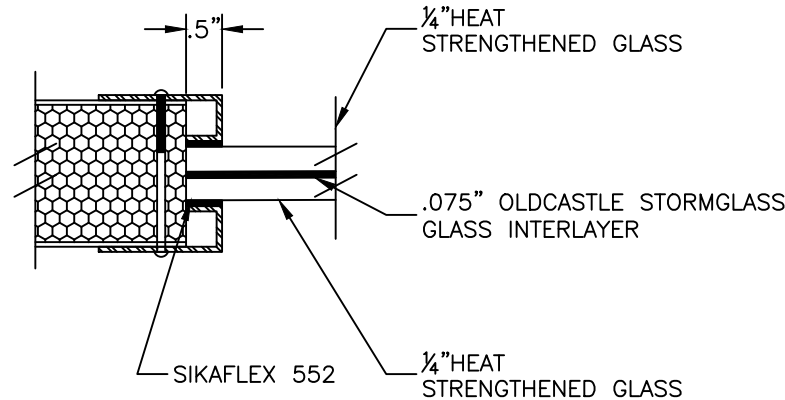


1 GLAZED STEEL DOOR PANEL

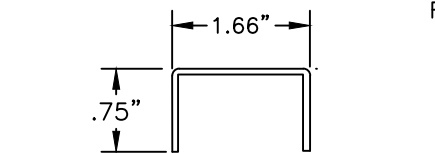
SEE
HARDWARE
CHART



2/7 HORIZONTAL CROSS SECTION
DOOR PANEL

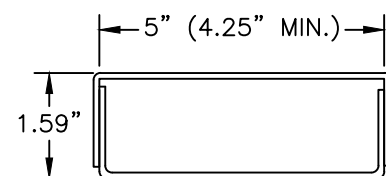


G1 GLAZING DETAIL

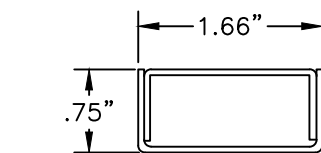


E2 BOTTOM CHANNEL
A60 GALV. STEEL

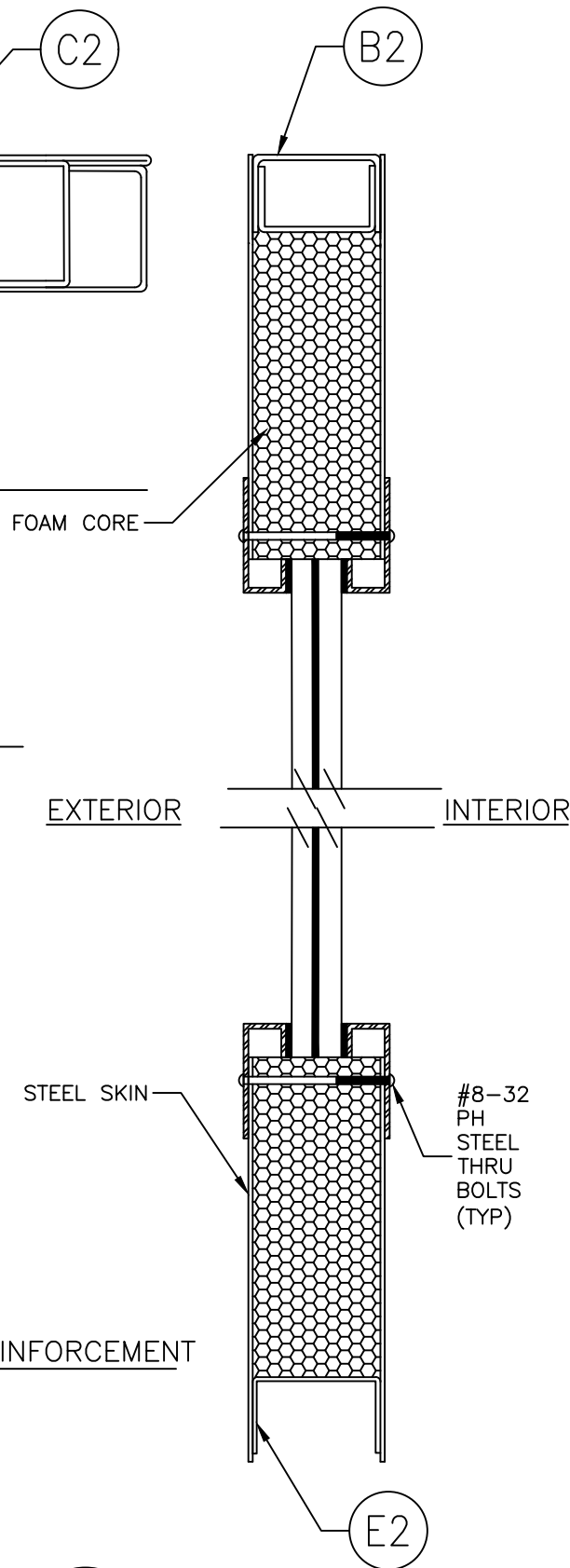
CHANNELS: 16 GA.
(MIN. 0.058\"/>



C2 BOX CHANNEL REINFORCEMENT
A60 GALV. STEEL



B2 TOP CHANNEL
A60 GALV. STEEL



1/7 VERTICAL CROSS SECTION
DOOR PANEL

STEEL DOOR SKIN: 16 GA. A60 GALV.
(MIN. 0.058\"/>

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
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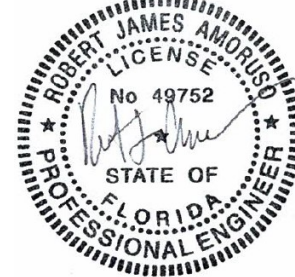
HMF EXPRESS
2501 NORTHCHASE
PARKWAY SE
WILMINGTON, NC 28405

SERIES LOUVERED / GLAZED STEEL DOOR
OUTSWING, IMPACT (X, XX)
INSTALLATION ANCHORAGE DETAILS

NO.	REVISION DESCRIPTION	BY	DATE
C	UPDATE TITLE BLOCK	RJA	1/27/26

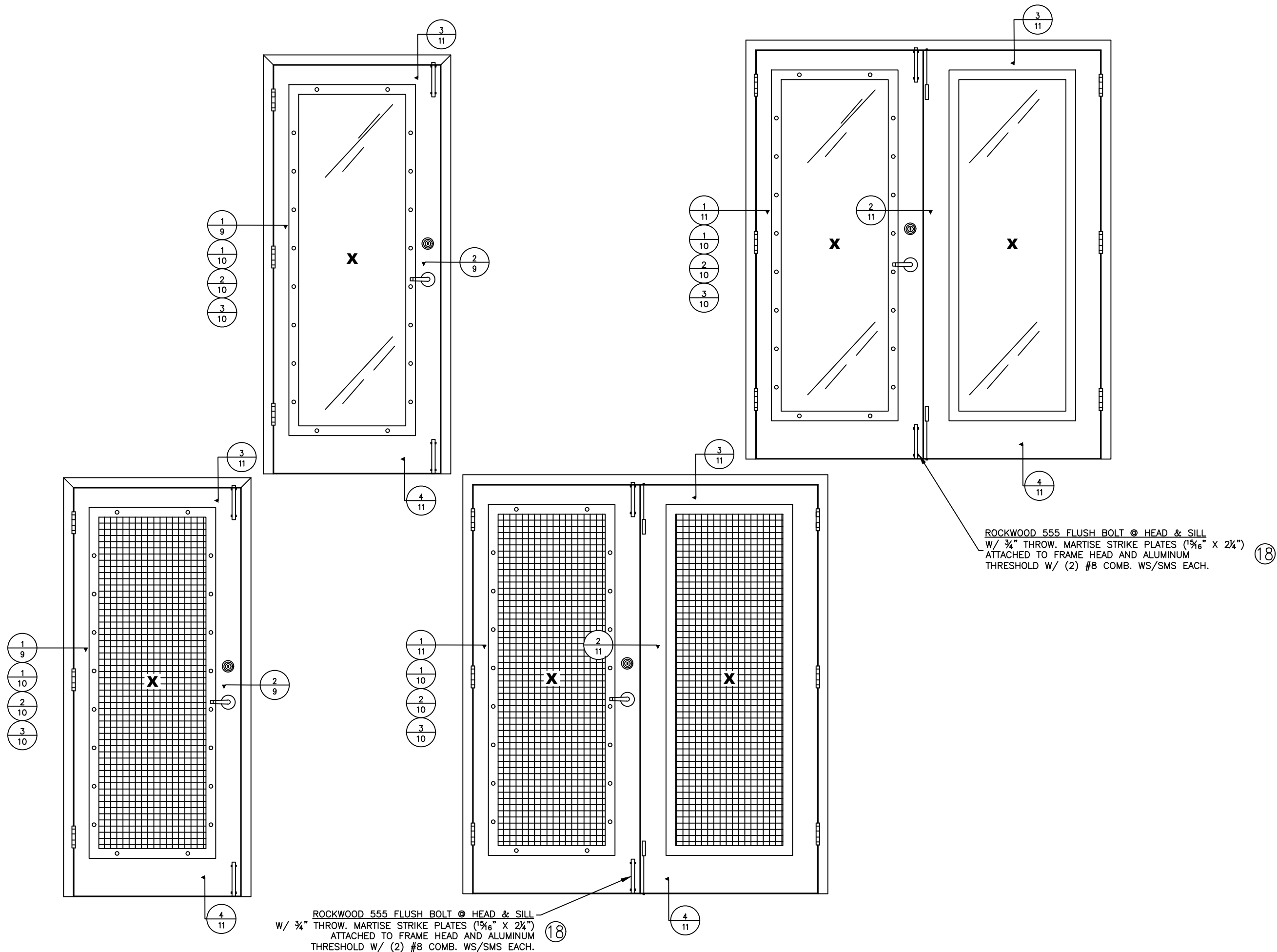
DATE: 2/27/2019	DWN BY: DAS/RJA	CHK BY: RJA	SCALE: NONE
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ROBERT J. AMORUSO, P.E. #49752
AMORUSO CONSULTING ENG., LLC
FBPE REGISTRATION NO. 38327
226 N NOVA RD, NO. 142
ORMOND BEACH, FL 32174
RJAENGPE@GMAIL.COM



Digitally signed
by Robert J
Amoruso
Date: 2026.01.30
17:18:01 -05'00'

PROJECT#:	ACE-2025-126
DWG/REV:	HMF0004, Rev C
SHT:	7 of 16

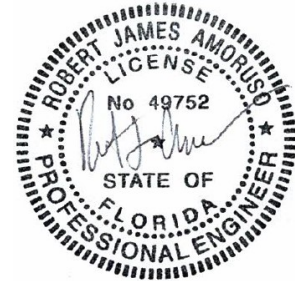


HMF EXPRESS
2501 NORTHCHASE
PARKWAY SE
WILMINGTON, NC 28405

SERIES LOUVERED / GLAZED STEEL DOOR OUTSWING, IMPACT (X, XX) INSTALLATION ANCHORAGE DETAILS				
NO.	REVISION DESCRIPTION	BY	DATE	
C	UPDATE TITLE BLOCK	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



Digitally signed
by Robert J
Amoruso
Date: 2026.01.30
17:18:11 -05'00'

PROJECT#:	ACE-2025-126
DWG/REV:	HMF0004, Rev C
SHT:	8 of 16

SERIES LOUVERED / GLAZED STEEL DOOR OUTSWING, IMPACT (X, XX) INSTALLATION ANCHORAGE DETAILS	DATE	BY	NO.	REVISION DESCRIPTION	DATE	BY	NO.	REVISION DESCRIPTION
	1/27/26	RJA	C	UPDATE TITLE BLOCK				

DATE: 2/27/2019	DWN BY: DAS/RJA	CHK BY: RJA	SCALE: NONE
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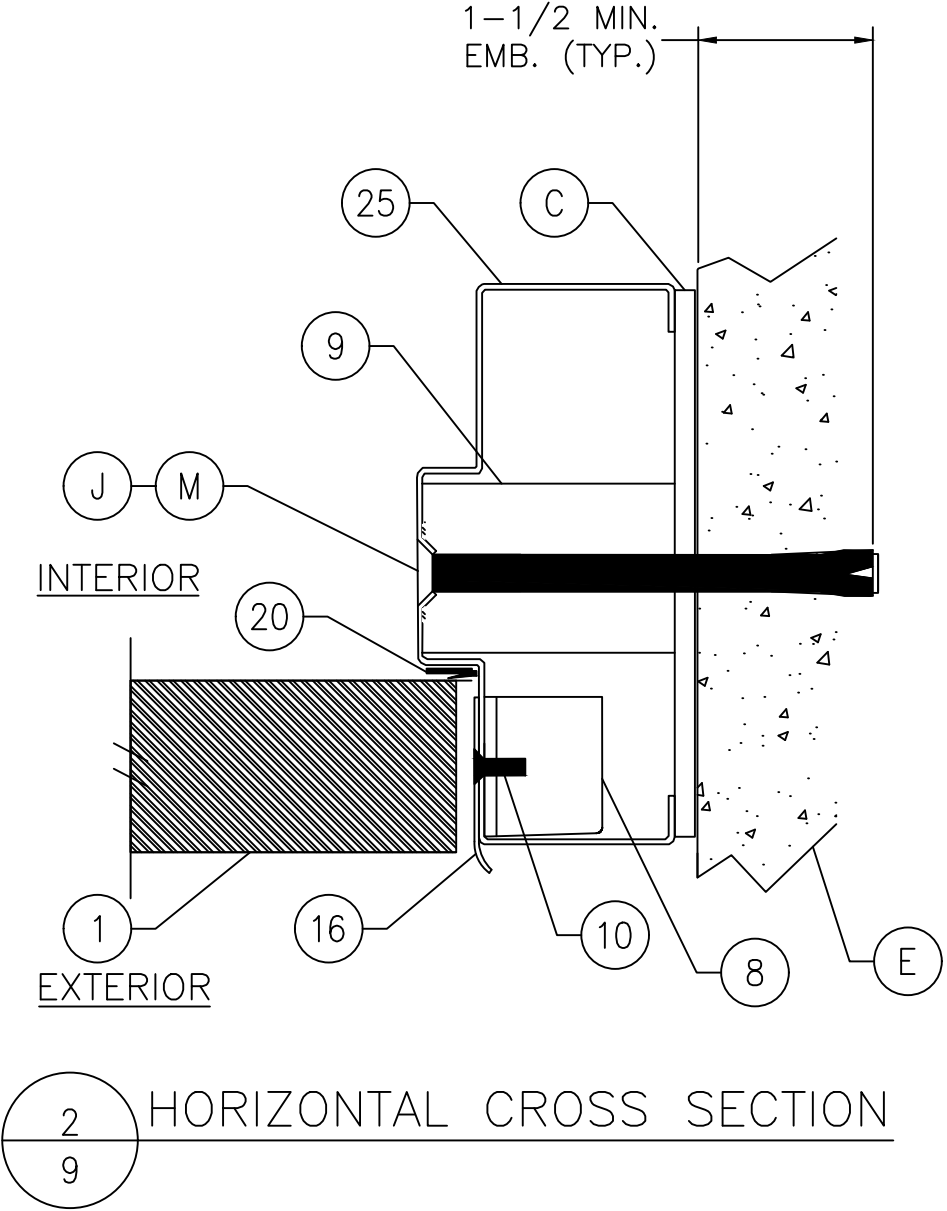
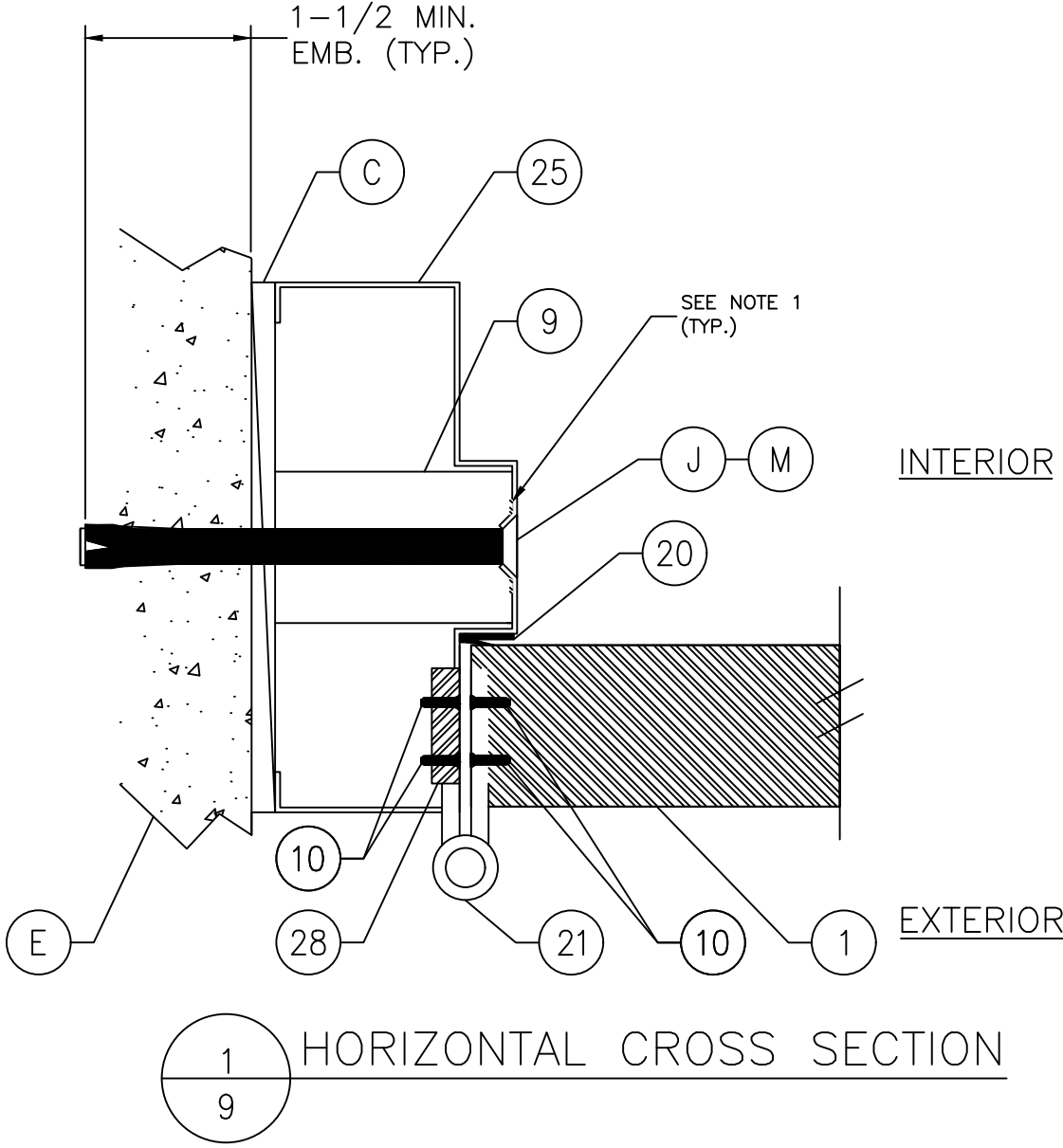
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by Robert J
Amoruso
Date: 2026.01.30
17:18:28 -05'00'

PROJECT#: ACE-2025-126

DWG/REV: HMF0004, Rev C

SHT: 9 of 16

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).



NO.	REVISION DESCRIPTION	BY	DATE			
	UPDATE TITLE BLOCK	RJA	1/27/26			

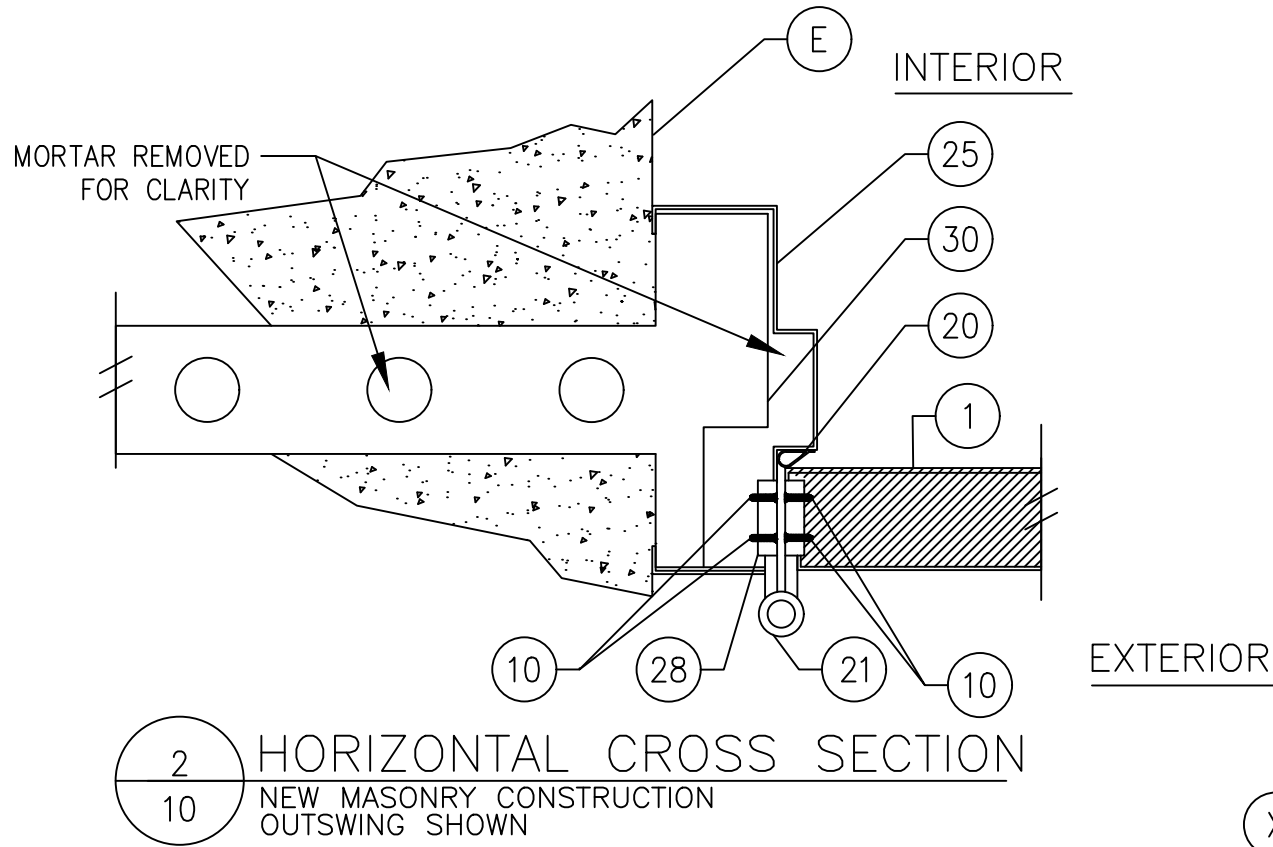
DATE: 2/27/2019	DWN BY: DAS/RJA	CHK BY: RJA	SCALE: NONE
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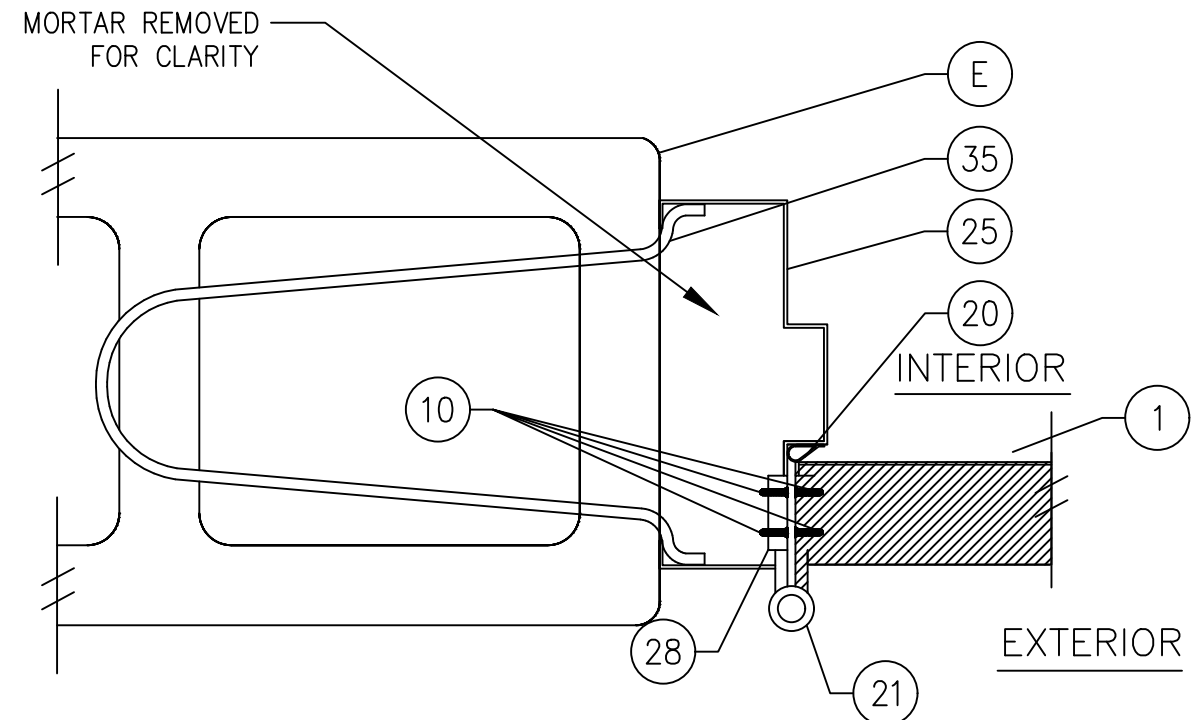


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by Robert J
Amoruso
Date: 2026.01.30
17:18:38 -05'00'

PROJECT#:	ACE-2025-126
DWG/REV:	HMF0004, Rev C
SHT:	10 of 16

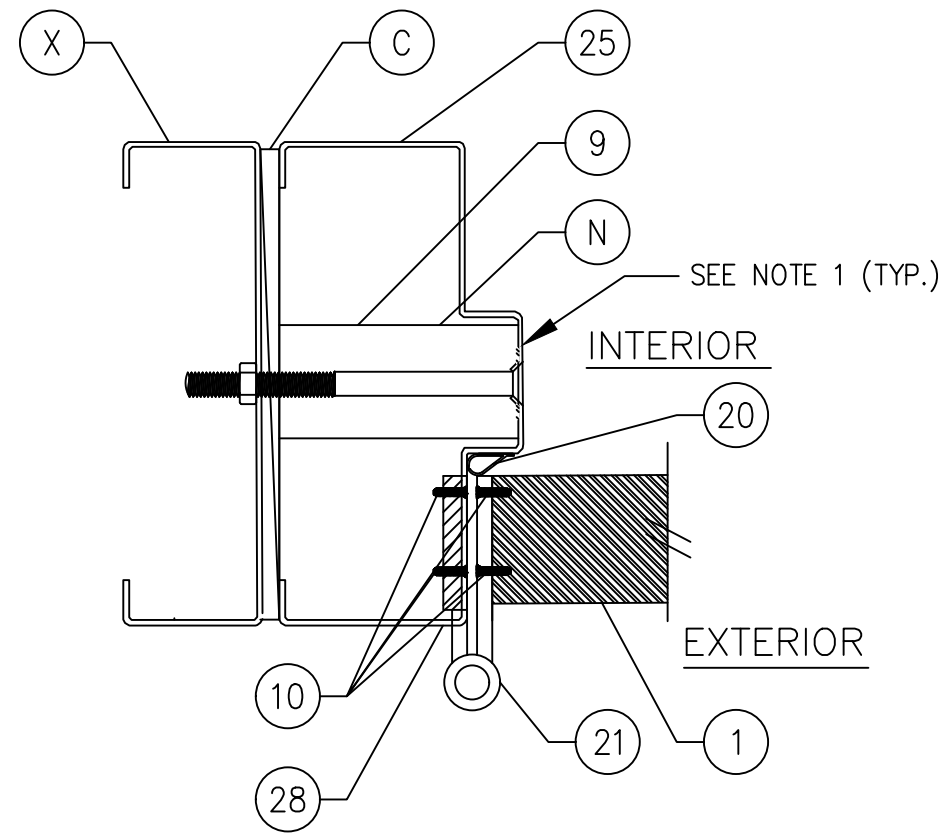


2
10 HORIZONTAL CROSS SECTION
NEW MASONRY CONSTRUCTION
OUTSWING SHOWN

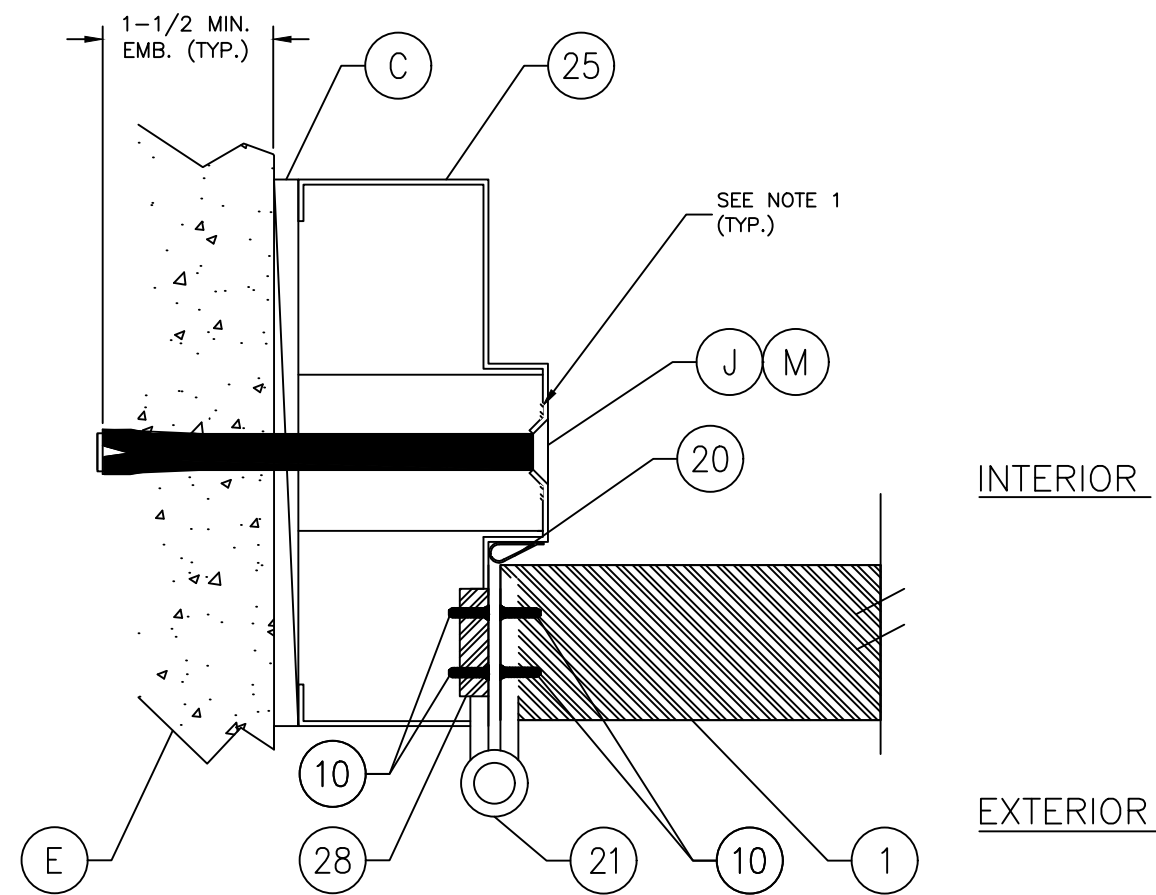


1
10 HORIZONTAL CROSS SECTION
NEW MASONRY CONSTRUCTION
OUTSWING SHOWN

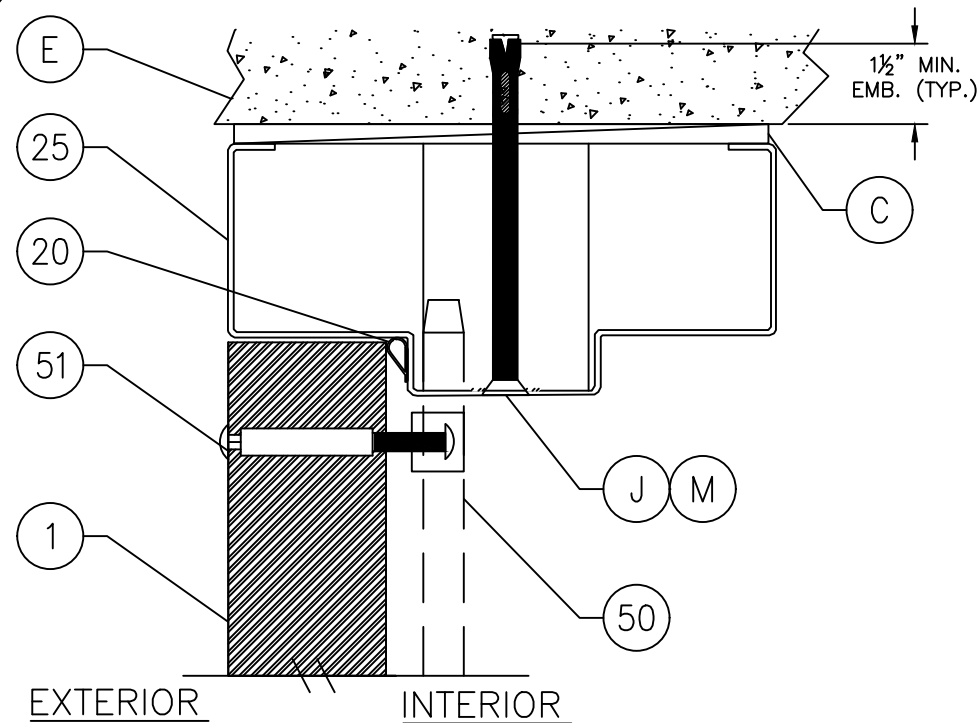
NOTE:
1. SPOT WELD ANCHOR BRACKET TO FRAME. 2 WELDS PER
FLANGE (4 TOTAL PER BRACKET). ALTERNATIVELY MIG WELD, 1
PER FLANGE (2 TOTAL PER BRACKET).



3
10 HORIZONTAL CROSS SECTION
STEEL STUD CONSTRUCTION

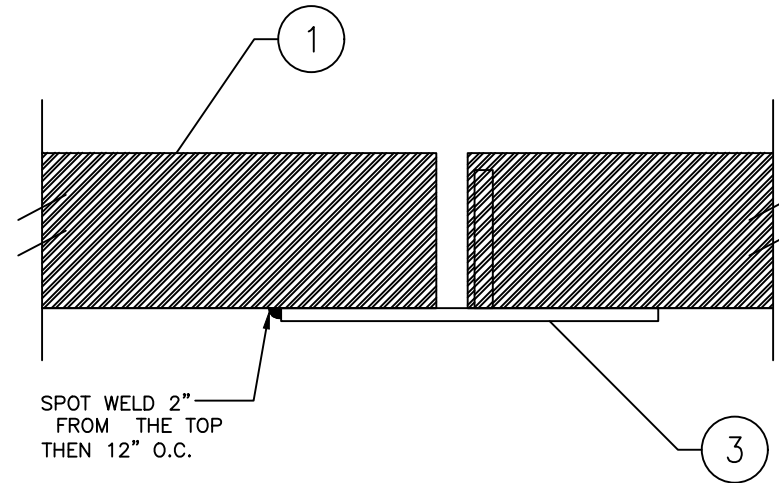


1
11 HORIZONTAL CROSS SECTION

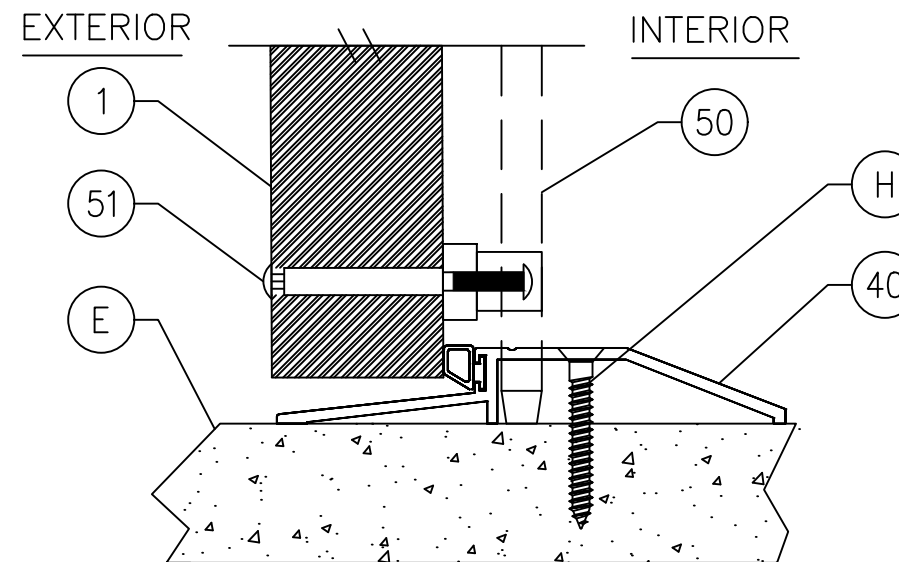


3
11 VERTICAL CROSS SECTION

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).



2
11 HORIZONTAL CROSS SECTION



4
11 VERTICAL CROSS SECTION

HMF EXPRESS
2501 NORTHCHASE
PARKWAY SE
WILMINGTON, NC 28405

NO.	REVISION DESCRIPTION	BY	DATE
C	UPDATE TITLE BLOCK	RJA	1/27/26

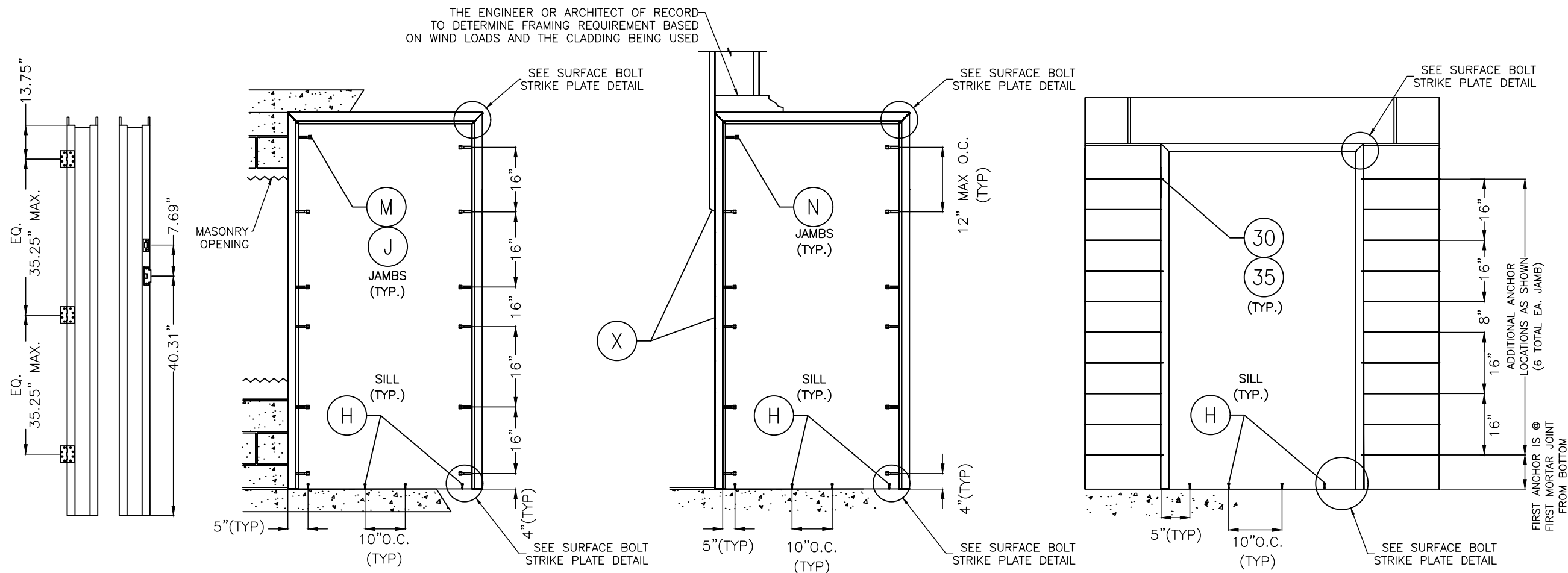
DATE: 2/27/2019	DWN BY: DAS/RJA	CHK BY: RJA	SCALE: NONE
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226 N NOVA RD, NO. 142
ORMOND BEACH, FL 32174
RJAENGPE@GMAIL.COM



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by Robert J
Amoruso
Date: 2026.01.30
17:18:48 -05'00'

PROJECT#: ACE-2025-126
DWG/REV: HMF0004, Rev C
SHT: 11 of 16



HINGE JAMB STRIKE JAMB

FRAME ANCHORING
MASONRY CONSTRUCTION
CONCRETE ANCHORS
SHOWN WITH 4" HEAD (2" HEAD SIMILAR)

FRAME ANCHORING
STEEL STUD CONSTRUCTION

FRAME ANCHORING
MASONRY CONSTRUCTION
CONCRETE ANCHORS

CONCRETE ANCHOR NOTES:

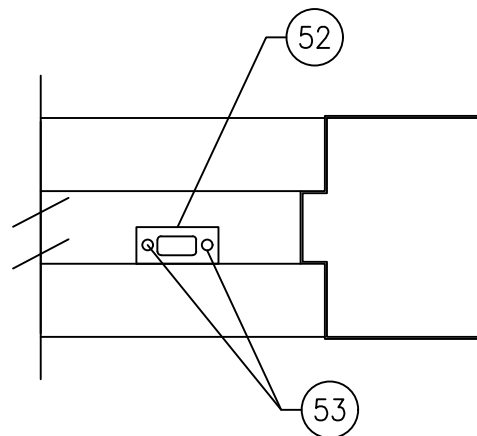
1. CONCRETE SCREW LOCATIONS MAY BE ADJUSTED TO MAINTAIN A MINIMUM 1" EDGE DISTANCE TO MORTAR JOINTS. IF CONCRETE SCREW LOCATIONS NOTED AS "MAX. O.C." MUST BE ADJUSTED TO MAINTAIN THE MINIMUM EDGE DISTANCE TO MORTAR JOINTS, ADDITIONAL CONCRETE SCREWS MAY BE REQUIRED TO ENSURE THE MAXIMUM ON CENTER DIMENSION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

2. CONCRETE ANCHOR TABLE:

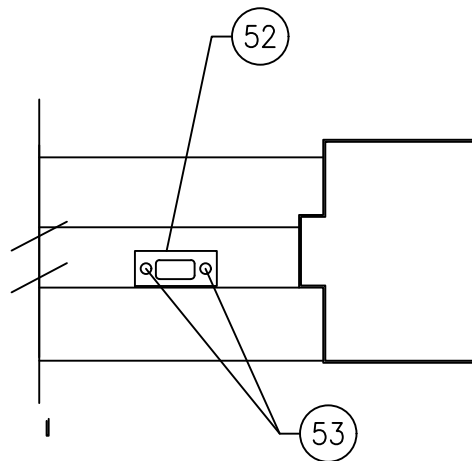
ANCHOR TYPE	ANCHOR LOCATION (AS APPLICABLE)	ANCHOR SIZE	MANUFACTURER	MIN. EDGE DISTANCE	MIN. EMBEDMENT
CONCRETE ANCHOR SCREW	HEAD/JAMBS	3/8"	LDT TAPCON (ITW BUILDEX)	3"	1-1/2"
	SILL	1/4"	TAPCON (ITW BUILDEX) ULTRA CON CRETE FLEX (ELCO)	2-1/2"	1-1/4"
			TAPPER+ (POWERS)	2-1/2"	1-3/4"
CONCRETE SLEEVE ANCHOR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

NOTE:

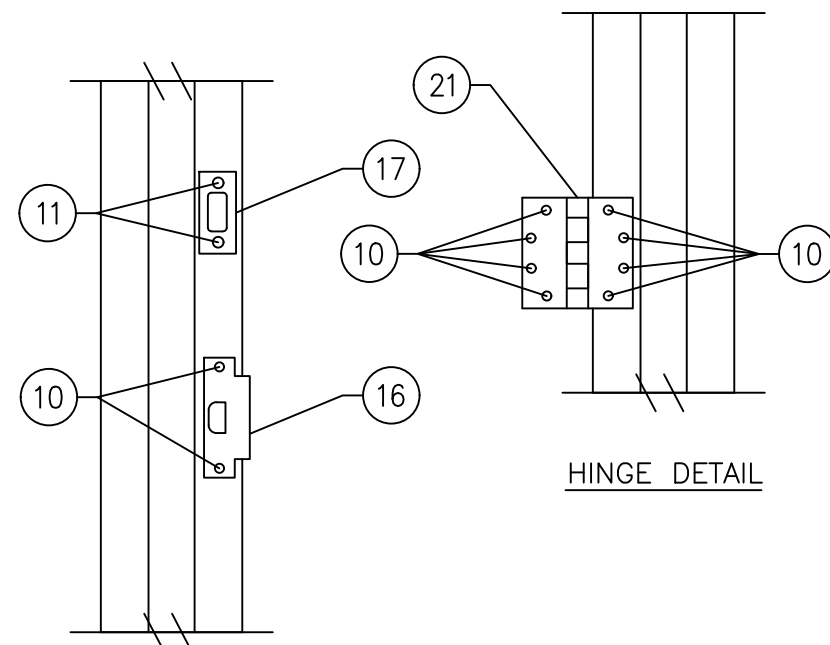
ANCHORAGE AND HINGE LOCATION DIMENSIONS SHOWN ARE FOR THE AS-TESTED DOOR CONFIGURATIONS. ALTERNATE HARDWARE SELECTIONS SHOWN ON SHEET 3 & 4 MAY LIMIT WIDTHS AND HEIGHTS OF THE FRAME TO A SMALLER SIZE. IN SUCH CASES, THE ANCHORAGE AND HINGE HARDWARE SPACING SHALL BE ADJUSTED BY DECREASING SPACING TO ACCOUNT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



SURFACE BOLT STRIKE PLATE @ HEAD



SURFACE BOLT STRIKE PLATE @ SILL



STRIKE DETAIL

HINGE DETAIL

HMF EXPRESS
2501 NORTHCHASE
PARKWAY SE
WILMINGTON, NC 28405

SERIES LOUVERED / GLAZED STEEL DOOR
OUTSWING, IMPACT (X, XX)
INSTALLATION ANCHORAGE DETAILS

NO.	REVISION DESCRIPTION	BY	DATE
C	UPDATE TITLE BLOCK	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
AMORUSO CONSULTING ENG., LLC
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226 N NOVA RD, NO. 142
ORMOND BEACH, FL 32174
RJAENGPE@GMAIL.COM



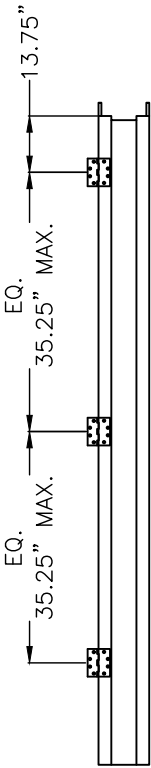
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by Robert J
Amoruso
Date: 2026.01.30
17:19:03 -05'00'

PROJECT#: ACE-2025-126

DWG/REV: HMF0004, Rev C

SHT: 12 of 16

THE ENGINEER OR ARCHITECT OF RECORD
TO DETERMINE FRAMING REQUIREMENT BASED
ON WIND LOADS AND THE CLADDING BEING USED



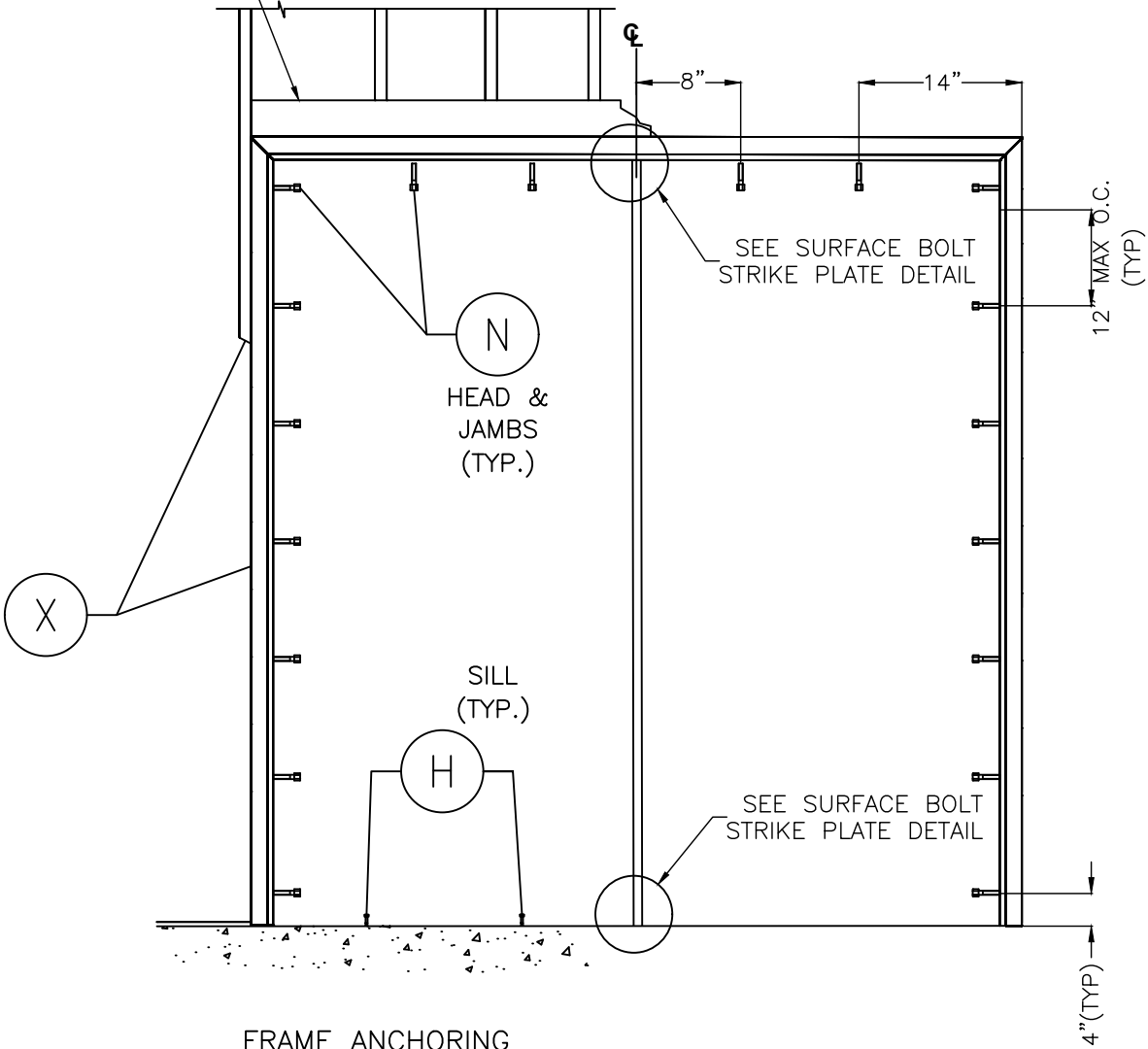
HINGE JAMB

CONCRETE ANCHOR NOTES:

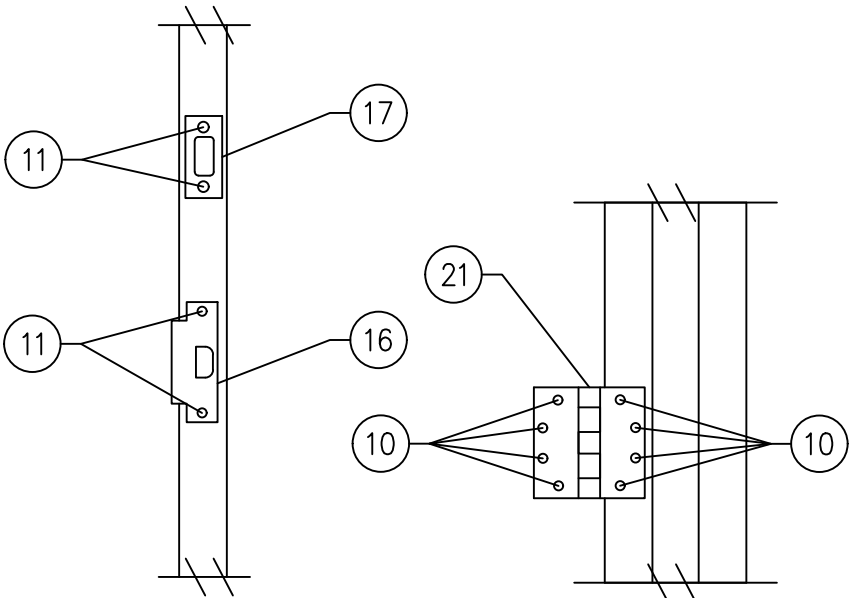
1. CONCRETE SCREW LOCATIONS MAY BE ADJUSTED TO MAINTAIN A MINIMUM 1" EDGE DISTANCE TO MORTAR JOINTS. IF CONCRETE SCREW LOCATIONS NOTED AS "MAX. O.C." MUST BE ADJUSTED TO MAINTAIN THE MINIMUM EDGE DISTANCE TO MORTAR JOINTS, ADDITIONAL CONCRETE SCREWS MAY BE REQUIRED TO ENSURE THE MAXIMUM ON CENTER DIMENSION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

2. CONCRETE ANCHOR TABLE:

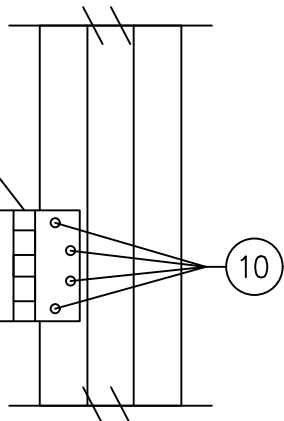
ANCHOR TYPE	ANCHOR LOCATION (AS APPLICABLE)	ANCHOR SIZE	MANUFACTURER	MIN. EDGE DISTANCE	MIN. EMBEDMENT
CONCRETE ANCHOR SCREW	HEAD/JAMBS	3/8"	LDT TAPCON (ITW BUILDEX)	3"	1-1/2"
	SILL	1/4"	TAPCON (ITW BUILDEX) ULTRAICON CRETE FLEX (ELCO)	2-1/2"	1-1/4"
			TAPPER+ (POWERS)	2-1/2"	1-3/4"
CONCRETE SLEEVE ANCHOR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



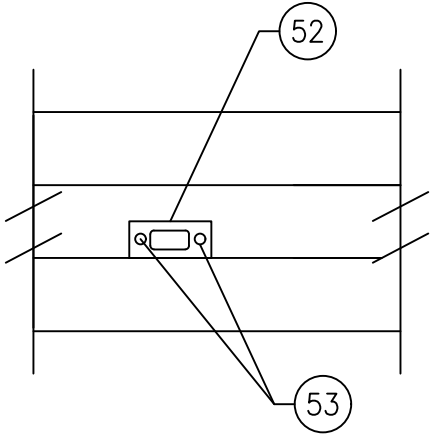
FRAME ANCHORING
STEEL STUD
SHOWN WITH 4" HEAD (2" HEAD SIMILAR)



STRIKE DETAIL



HINGE DETAIL

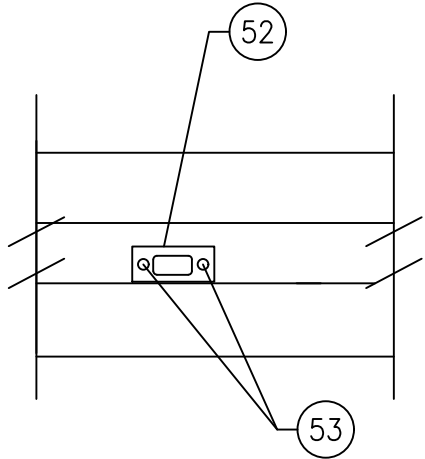


SURFACE BOLT STRIKE PLATE @ HEAD

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.

FLUSHBOLT STRIKE
NOT SHOWN.



SURFACE BOLT STRIKE PLATE @ SILL

HMF EXPRESS
2501 NORTHCHASE
PARKWAY SE
WILMINGTON, NC 28405

SERIES LOUVERED / GLAZED STEEL DOOR

OUTSWING, IMPACT (X, XX)

INSTALLATION ANCHORAGE DETAILS

NO.	REVISION DESCRIPTION	BY	DATE
C	UPDATE TITLE BLOCK	RJA	1/27/26

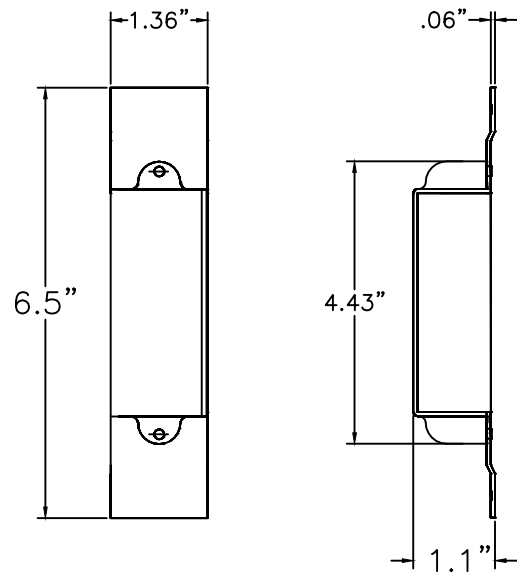
DATE: 2/27/2019
DWN BY: DAS/RJA
CHK BY: RJA
SCALE: NONE

ROBERT J. AMORUSO, P.E. #49752
AMORUSO CONSULTING ENG., LLC
FBPE REGISTRATION NO. 38327
226 N NOVA RD, NO. 142
ORMOND BEACH, FL 32174
RJAENGPE@GMAIL.COM

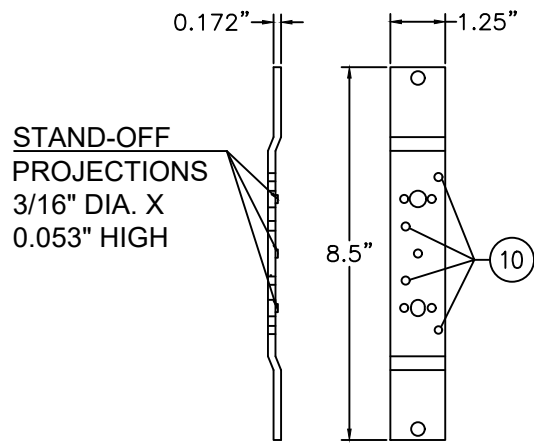


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Amoruso
Date: 2026.01.30
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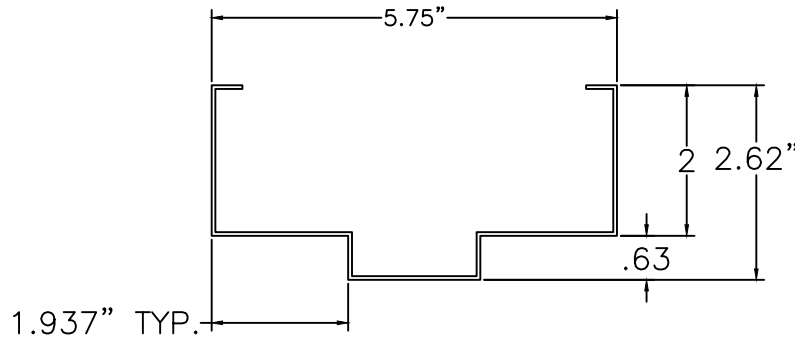
PROJECT#: ACE-2025-126
DWG/REV: HMF0004, Rev C
SHT: 14 of 16



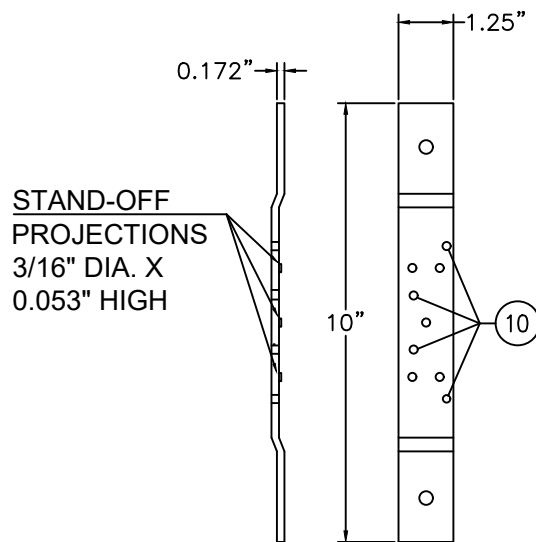
8 DUST BOX



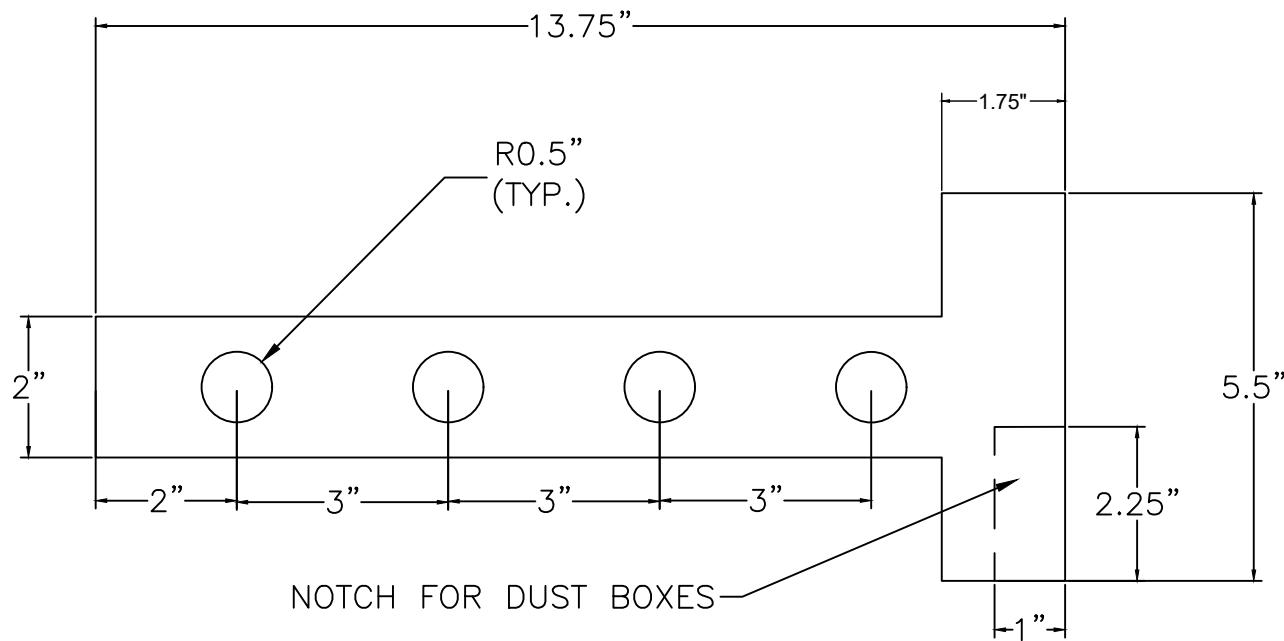
22 DOOR HINGE REINFORCEMENT
7 GAUGE STEEL



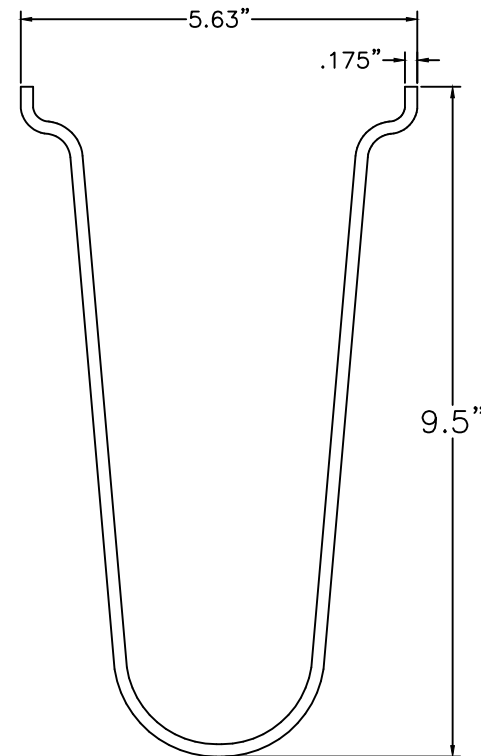
25 HOLLOW METAL FRAME
2" JAMB



28 FRAME HINGE REINFORCEMENT
7 GAUGE STEEL



30 "T" ANCHOR
16 GA. (0.058" THK. MIN.)



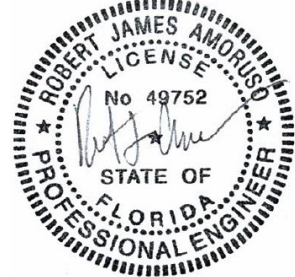
35 WIRE ANCHOR

HMF EXPRESS
2501 NORTHCHASE
PARKWAY SE
WILMINGTON, NC 28405

NO.	REVISION DESCRIPTION	BY	DATE
C	UPDATE TITLE BLOCK	RJA	1/27/26

DATE: 2/27/2019	DWN BY: DAS/RJA	CHK BY: RJA	SCALE: NONE
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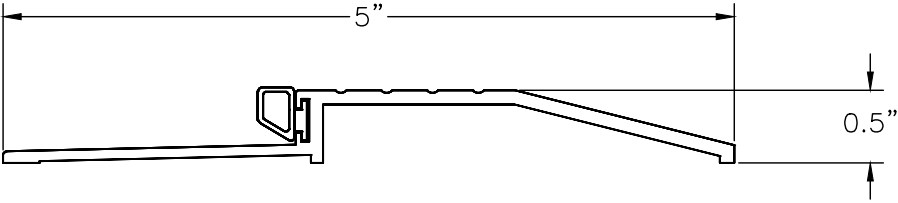
ROBERT J. AMORUSO, P.E. #49752
AMORUSO CONSULTING ENG., LLC
FBPE REGISTRATION NO. 38327
226 N NOVA RD, NO. 142
ORMOND BEACH, FL 32174
RJAENGPE@GMAIL.COM



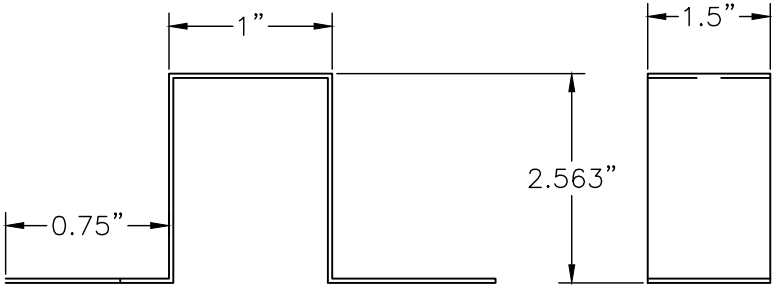
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by Robert J
Amoruso
Date: 2026.01.30
17:19:39 -05'00'

PROJECT#:	ACE-2025-126
DWG/REV:	HMF0004, Rev C
SHT:	15 of 16

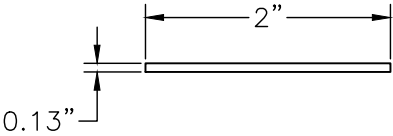
BILL OF MATERIALS		
ITEM #	DESCRIPTION	MATERIALS
C	¼" MAX. SHIM SPACE	–
D	¼" X 2¾" ELCO OR ITW CONCRETE SCREW	STEEL
E	MASONRY – 2,500 PSI MIN. CONCRETE CONFORMING TO ACI 301 OR HOLLOW BLOCK (GROUT FILLED) CONFORMING TO ASTM C90	CONCRETE
H	¼" DIA. PFH CONCRETE SCREW (SEE ANCHOR TABLE ON SHEET 9 THRU 11)	STEEL
J	¾" DIA. PFH DYNABOLT SLEEVE ANCHOR (SEE ANCHOR TABLE ON SHEET 9 THRU 11)	STEEL
M	¾" DIA. LDT TAPCON CONCRETE SCREW (SEE ANCHOR TABLE ON SHEET 9 THRU 11)	STEEL
N	¾" X 5" BOLT (ASTM A307) W/NUT AND WASHER	STEEL
X	STEEL STUD (14GA., Fu = 50ksi, Fy = 33ksi	STEEL
1	STEEL DOOR PANEL	–
2	GLAZING BEAD	STEEL
3	DOOR STOP	STEEL
8	DUST BOX	STEEL
9	ANCHOR BRACKET	STEEL
10	#12–24 X ½" PFH MACHINE SCREW	STEEL
11	#8 X ¾" COMBINATION WOOD / MACHINE SCREW	STEEL
16	ANSI LATCH STRIKE	STEEL
17	DEADBOLT STRIKE	STEEL
18	ROCKWOOD FLUSH BOLTS #555 X 12"	STEEL
19	DEADBOLT STRIKE REINFORCEMENT	STEEL
20	WEATHERSTRIP (PEMKO 303A)	NEOPRENE
21	4½" X 4½" HINGE	STEEL
22	DOOR HINGE REINFORCEMENT	STEEL
24	MULLION – 16GA. (0.058"THK)	STEEL
25	HOLLOW FRAME (2" JAMB)–16 GA. (0.058"THK)	STEEL
26	HOLLOW FRAME (2" HEAD)–16 GA. (0.058"THK)	STEEL
28	FRAME HINGE REINFORCEMENT	STEEL
30	MASONARY "T" ANCHOR	STEEL
35	WIRE ANCHOR	STEEL
40	THRESHOLD (NATIONAL GUARD 950)	ALUMINIUM
50	ROCKWOOD SURFACE BOLTS (580)	STEEL
51	¼"X 2–1/2" PPH MS	STEEL
52	SURFACE BOLT STRIKE PLATE	STEEL
53	#12 X ⅝" FH SCREW	STEEL



40 THRESHOLD



9 ANCHOR BRACKET



3 DOOR STOP

HMF EXPRESS
2501 NORTHCHASE
PARKWAY SE
WILMINGTON, NC 28405

SERIES LOUVERED / GLAZED STEEL DOOR OUTSWING, IMPACT (X, XX) INSTALLATION ANCHORAGE DETAILS	DATE			
	BY			
	REVISION DESCRIPTION			
	NO.			
	1/27/26	RJA		
	UPDATE TITLE BLOCK			
	C			

DATE: 2/27/2019	DWN BY: DAS/RJA	CHK BY: RJA	SCALE: NONE
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Digitally signed
by Robert J
Amoruso
Date: 2026.01.30
17:19:51 -05'00'

PROJECT#: ACE-2025-126

DWG/REV: HMF0004, Rev C

SHT: 16 of 16