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SERIES FLUSH STEEL COMMERCIAL
DOOR, OUTSWING, IMPACT (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-1089W.
 - 1.1. TAS 201-94
 - 1.2. TAS 202-94
 - 1.3. TAS 203-94
2. ADEQUACY OF THE EXISTING STRUCTURAL CONCRETE/MASONRY AND 2X FRAMING AS A MAIN WIND FORCE RESISTING SYSTEM CAPABLE OF WITHSTANDING AND TRANSFERRING APPLIED PRODUCT LOADS TO THE FOUNDATION IS THE RESPONSIBILITY OF THE ENGINEER OR ARCHITECT OF RECORD FOR THE PROJECT OF INSTALLATION.
3. 1X AND 2X BUCKS (WHEN USED) SHALL BE DESIGNED AND ANCHORED TO PROPERLY TRANSFER ALL LOADS TO THE STRUCTURE. BUCK DESIGN AND ANCHOR LAYOUT IS THE RESPONSIBILITY OF THE ENGINEER OR ARCHITECT OF RECORD FOR THE PROJECT OF INSTALLATION.
4. THE INSTALLATION DETAILS DESCRIBED HEREIN ARE GENERIC AND MAY NOT REFLECT ACTUAL CONDITIONS FOR A SPECIFIC SITE. IF SITE CONDITIONS CAUSE INSTALLATION TO DEVIATE FROM THE REQUIREMENTS DETAILED HEREIN, A LICENSED ENGINEER OR ARCHITECT SHALL PREPARE SITE SPECIFIC DOCUMENTS FOR USE WITH THIS DOCUMENT IN NON-HVHZ AREA. IN HVHZ AREA, ONE TIME PRODUCT APPROVAL TO BE OBTAINED FROM MIAMI-DADE PRODUCT CONTROL OR AUTHORITY HAVING JURISDICTION (AHJ).
5. THIS PRODUCT IS A LARGE AND SMALL MISSILE IMPACT RESISTANT APPROVED. AN IMPACT PROTECTIVE SYSTEM IS NOT REQUIRED ON THIS PRODUCT IN AREAS REQUIRING IMPACT RESISTANCE.
6. STEEL COMPONENTS SHALL BE COATED OR PROVIDED WITH CORROSION RESISTANCE PROTECTION IN CONFORMANCE WITH THE MATERIAL PROTECTION PROVISIONS OF THE CURRENT EDITION OF THE FLORIDA BUILDING CODE.
7. DOOR FRAME MATERIAL:
 - 7.1 MIN. 16GA. STEEL (.058" MIN.)
 - MIN. Fy = 39,200 PSI
 - MIN. Fu = 52,100 PSI
8. DOOR PANEL
 - 8.1 18GA. FACE SHEET
 - MIN. Fy = 21,400 PSI
 - MIN. Fu = 41,900 PSI
 - 8.2 16GA. FACE SHEET
 - MIN. Fy = 39,200 PSI
 - MIN. Fu = 52,100 PSI
9. SEE SHEET 6 FOR DOOR LEAF CONSTRUCTION, SEE SHEET 7 FOR DOOR FRAME CONSTRUCTION.
10. DESIGNATION "X" STANDS FOR OPERABLE PANEL
11. 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.

INSTALLATION NOTES:

1. ONE (1) INSTALLATION ANCHOR IS REQUIRED AT EACH ANCHOR LOCATION SHOWN.
2. THE NUMBER OF INSTALLATION ANCHORS DEPICTED IS THE MINIMUM NUMBER OF ANCHORS TO BE USED FOR PRODUCT INSTALLATION.
3. INSTALL INDIVIDUAL INSTALLATION ANCHORS WITHIN A TOLERANCE OF ±1/4 INCH OF THE DEPICTED LOCATION IN THE ANCHOR LAYOUT DETAIL (I.E., WITHOUT CONSIDERATION OF TOLERANCES). TOLERANCES ARE NOT CUMULATIVE FROM ONE INSTALLATION ANCHOR TO THE NEXT.
4. SHIM AS REQUIRED AT EACH INSTALLATION ANCHOR WITH LOAD BEARING SHIM(S). MAXIMUM ALLOWABLE SHIM STACK TO BE 1/4 INCH. SHIM WHERE SPACE OF 1/16 INCH OR GREATER OCCURS. SHIM(S) SHALL BE CONSTRUCTED OF HIGH DENSITY PLASTIC OR BETTER.
5. REFER TO SHEET 4 & 5 FOR ANCHOR TYPE AND SPACING DETAILS.
6. MINIMUM EMBEDMENT AND EDGE DISTANCE EXCLUDE WALL FINISHES, INCLUDING BUT NOT LIMITED TO STUCCO, FOAM, BRICK VENEER, AND SIDING.
7. INSTALLATION ANCHORS AND ASSOCIATED HARDWARE MUST BE MADE OF CORROSION RESISTANT MATERIAL OR HAVE A CORROSION RESISTANT COATING.
8. FOR HOLLOW BLOCK AND GROUT FILLED BLOCK, DO NOT INSTALL INSTALLATION ANCHORS INTO MORTAR JOINTS. EDGE DISTANCE IS MEASURED FROM FREE EDGE OF BLOCK OR EDGE OF MORTAR JOINT INTO FACE SHELL OF BLOCK.
9. INSTALLATION ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTALLATION INSTRUCTIONS, AND ANCHORS SHALL NOT BE USED IN SUBSTRATES WITH STRENGTHS LESS THAN THE MINIMUM STRENGTH SPECIFIED BY THE ANCHOR MANUFACTURER.
10. INSTALLATION ANCHOR CAPACITIES FOR PRODUCTS HEREIN ARE BASED ON SUBSTRATE MATERIALS WITH THE FOLLOWING PROPERTIES:
 - A. WOOD – MINIMUM SPECIFIC GRAVITY OF 0.55.
 - B. CONCRETE –MINIMUM COMPRESSIVE STRENGTH OF 2500 PSI.
 - C. CMU – UNIT STRENGTH CONFORMS TO ASTM C-90 (MIN 2.0KSI COMPRESSIVE STRENGTH).
 - D. GROUT FILLED CMU – UNIT STRENGTH CONFORMS TO ASTM C-90 (MIN. 2.0KSI COMPRESSIVE STRENGTH) & GROUT CONFORMS TO ASTM C476. GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI. SEE FBC CHAPTER 21 FOR GROUTED MASONRY REQUIREMENTS.
 - E. STEEL – MINIMUM 20GA. (33MILS), MINIMUM 33KSI TENSILE YIELD STRENGTH.

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This item has been
digitally signed and
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Amoruso, PE on the
date adjacent to the
seal. Signature must
be verified on any
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SERIES FLUSH STEEL COMMERCIAL DOOR OUTSWING, IMPACT (XX)	DATE	BY	REVISION DESCRIPTION	NO.	C			
	1/5/26	RJA	ADD ALTERNATE LOCKING HARDWARE					

DATE: 2/27/2019	DWN BY: RJA	CHK BY: RJA	SCALE: NONE
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PROJECT#:	ACE-2025-126
DWG/REV:	HMF0005, Rev C
SHT:	1 of 16

AS-TESTED HARDWARE (SEE TABLE NOTES BELOW)

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) (1)	DP (Negative) (psf) (1)	Max Panel Width (in) (3)	Max Panel Height (in) (3)	Skin Thickness (6)
Corbin/Ruswin	161 w/ TB + DB	Corbin Ruswin CK 4251 GRC260 Heavy Duty Cylindrical Lockset with Corbin Ruswin DL3000	Y	Y	N	Outswing	Pair	80	80	35.6875	85.5	16 GA
Corbin/Ruswin	Mortise Lock + DB	Corbin Ruswin ML2000 Series Mortise Lock & Deadbolt w/ Lever	Y	Y	N	Outswing	Pair	80	80	35.6875	85.5	16 GA
Dormakaba	Rim Exit Device	Dorma 9300 Serie Rim Device w/ Panic Bar and Removable F1300 Mullion	Y	Y	N	Outswing	Pair	80	80	35.6875	85.5	18 GA
Dormakaba	Surface Vertical Rod	Dorma 9400 Series Surface Vertical Rods w/ Panic Bar	Y	Y	N	Outswing	Pair	80	80	35.6875	85.5	18 GA

APPROVED HARDWARE (SEE TABLE NOTES BELOW)

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)
Allegion-Schlage	161 w/ TB	Schlage AL Series	Y	Y	N	Outswing	Pair	55	55	35.6875	85.5	16 GA
Allegion-Schlage	161 w/ TB	Schlage D, ND, NDE Series	Y	Y	N	Outswing	Pair	65	65	35.6875	85.5	16 GA
Dormakaba	161 w/ TB	Best 9K	Y	Y	N	Outswing	Pair	50	50	35.6875	84	16 GA
Dormakaba	161 w/ TB	Dorma C100 Series	Y	Y	N	Outswing	Pair	50	50	35.6875	84	16 GA
Dormakaba	161 w/ TB + DB	Dorma QCL 100 Series + QDB 100 Series	Y	Y	N	Outswing	Pair	65	65	35.6875	85.5	16 GA
Dormakaba	161 w/ TB + DB	Dorma QCL 100 Series + QDB 200 Series	Y	Y	N	Outswing	Pair	65	65	35.6875	85.5	16 GA
Dormakaba	161 w/ TB + DB	Dorma QCL 200 Series + QDB 100 Series	Y	Y	N	Outswing	Pair	65	65	35.6875	85.5	16 GA
Dormakaba	161 w/ TB + DB	Dorma QCL 200 Series + QDB 200 Series	Y	Y	N	Outswing	Pair	65	65	35.6875	85.5	16 GA
Cal-Royal Products	161 w/ TB + DB	Pioneer Series + T300 Series	Y	Y	N	Outswing	Pair	55	55	35.6875	84	16 GA
Allegion-Schlage	Mortise Lock + DB	Schlage L/LV 9400 + Deadbolt	Y	Y	N	Outswing	Pair	75	75	35.6875	85.5	16 GA
Allegion-Schlage	Mortise Lock + DB	Schlage LE & LEB + Deadbolt	Y	Y	N	Outswing	Pair	75	75	35.6875	85.5	16 GA
Allegion-Schlage	Mortise Lock + DB	Falcon MA-Series + Deadbolt	Y	Y	N	Outswing	Pair	75	75	35.6875	85.5	16 GA
Dormakaba	Mortise Lock + DB	Best 45H & 47H + 48H & 49H Deadbolt	Y	Y	N	Outswing	Pair	35	35	35.6875	85.5	16 GA
Allegion-Schlage	Mortise Lock w/o DB	Schlage L9000 w/o Deadbolt	Y	Y	N	Outswing	Pair	60	60	35.6875	85.5	16 GA
Allegion-Schlage	Rim Exit Device	Falcon F-25-R + HH9954 Removable Mullion	Y	Y	N	Outswing	Pair	70	55	35.6875	85.5	16 GA
Allegion-Schlage	Rim Exit Device	Von Duprin 98, 99 Rim Exit Device with HH9954 Hardware Mullion	Y	Y	N	Outswing	Pair	70	70	35.6875	85.5	16 GA
Dormakaba	Rim Exit Device	Best HC2100 + HCKR822 Mullion	Y	Y	N	Outswing	Pair	65	65	35.6875	85.5	16 GA
Allegion-Schlage	Surface Vertical Rod	Falcon F-25-V	Y	Y	N	Outswing	Pair	70	70	35.6875	85.5	16 GA
Allegion-Schlage	Surface Vertical Rod	Von Duprin 9827, 9927 SVR Exit Device at Both	Y	Y	N	Outswing	Pair	70	70	35.6875	85.5	16 GA
Dormakaba	Surface Vertical Rod	Best HC2200	Y	Y	N	Outswing	Pair	80	80	35.6875	85.5	16 GA

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-1089W 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.

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SERIES FLUSH STEEL COMMERCIAL DOOR OUTSWING, IMPACT (XX) INSTALLATION ANCHORAGE DETAILS	DATE	1/5/26			
	BY	RJA			
	REVISION DESCRIPTION	ADD ALTERNATE LOCKING HARDWARE			
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DATE: 2/27/2019	DWN BY: RJA	CHK BY: RJA	SCALE: NONE
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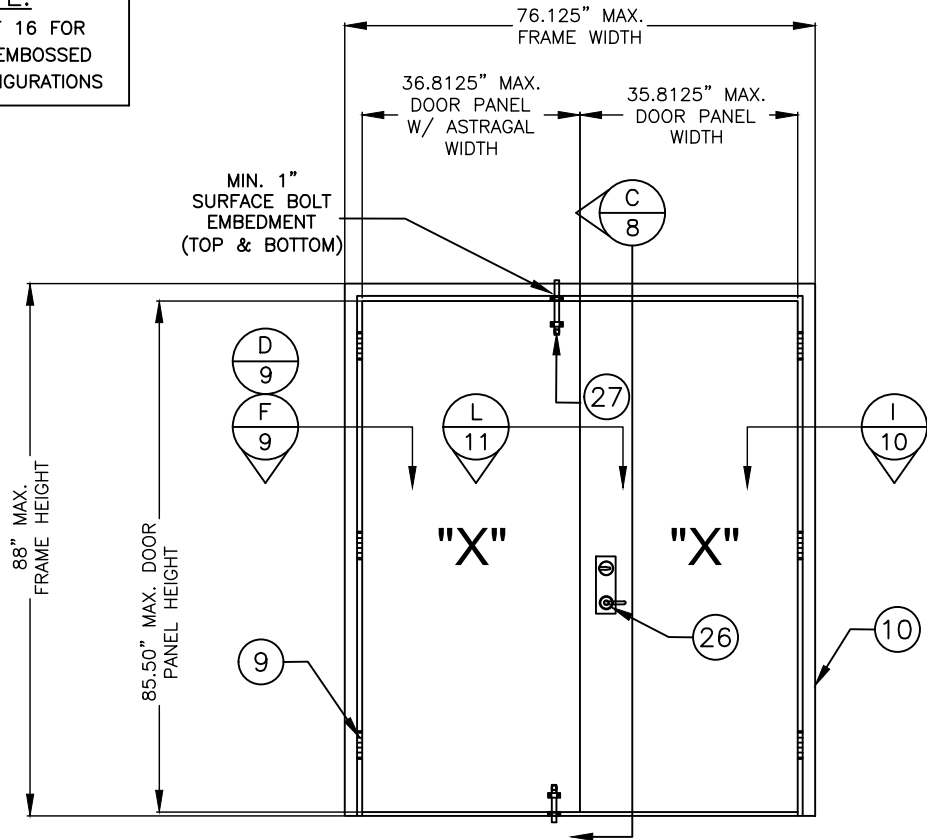
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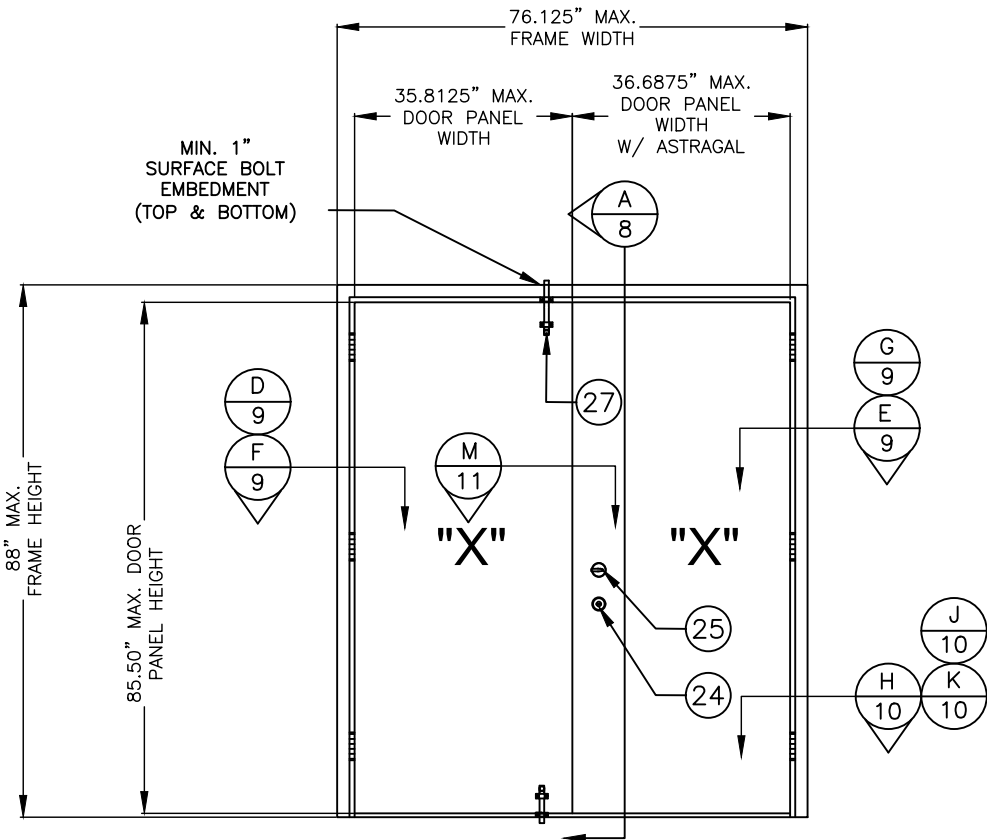
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DWG/REV:	HMF0005, Rev C
SHT:	2 of 16

NOTE:
SEE SHEET 16 FOR
QUALIFIED EMBOSSED
PANEL CONFIGURATIONS

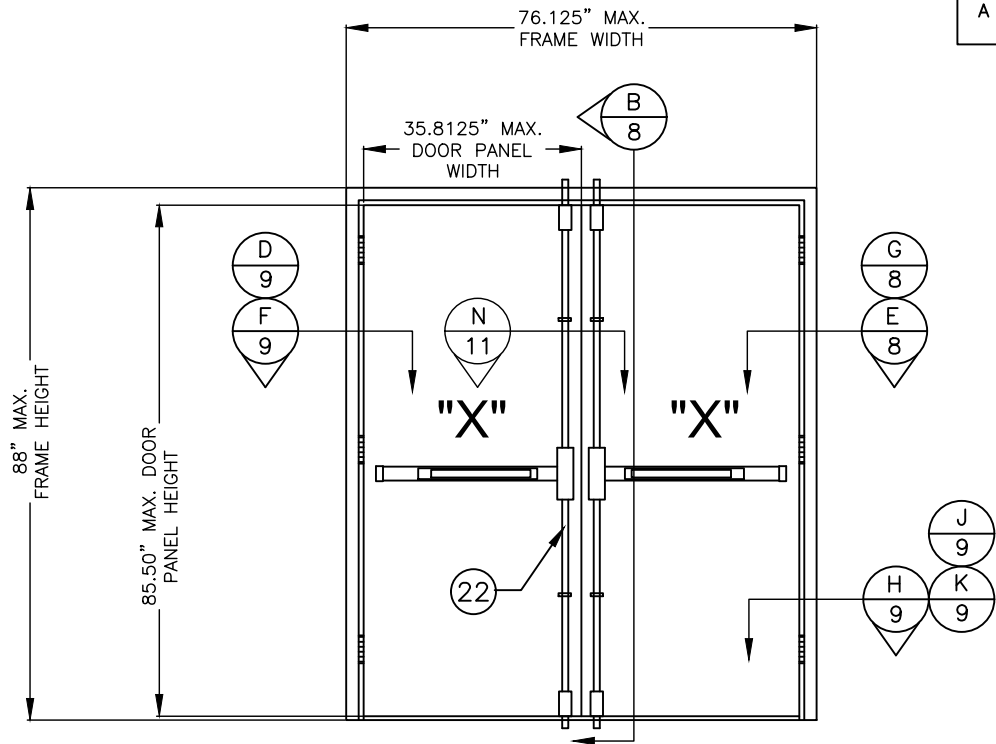


ELEVATION
INTERIOR VIEW
MORTISE LOCK

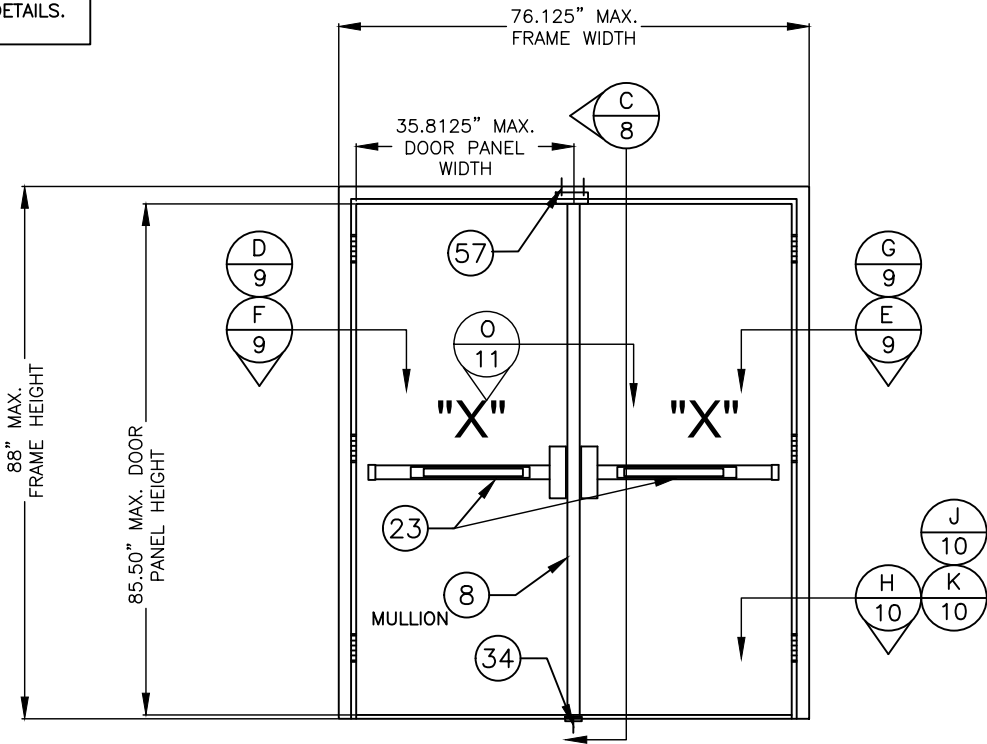


ELEVATION
CYLINDRICAL LOCKSET AND CYLINDRICAL DEAD LOCK

NOTE:
PANEL AND FRAME DIMENSIONS SHOWN ARE
FOR THE AS-TESTED DOOR CONFIGURATIONS.
ALTERNATE HARDWARE SELECTIONS SHOWN ON
SHEET 2 MAY LIMIT WIDTHS AND HEIGHTS TO
A SMALLER SIZE. SEE SHEET 2 FOR DETAILS.



ELEVATION
INTERIOR VIEW
SURFACE VERTICAL RODS W/ PANIC BAR



ELEVATION
INTERIOR VIEW
PANIC BAR & DORMA
REMOVABLE MULLION F-1300

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SERIES FLUSH STEEL COMMERCIAL DOOR OUTSWING, IMPACT (XX) INSTALLATION ANCHORAGE DETAILS	DATE	1/5/26			
	BY	RJA			
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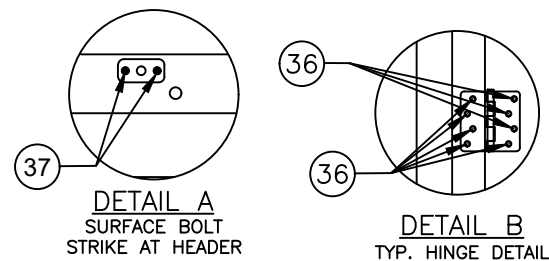
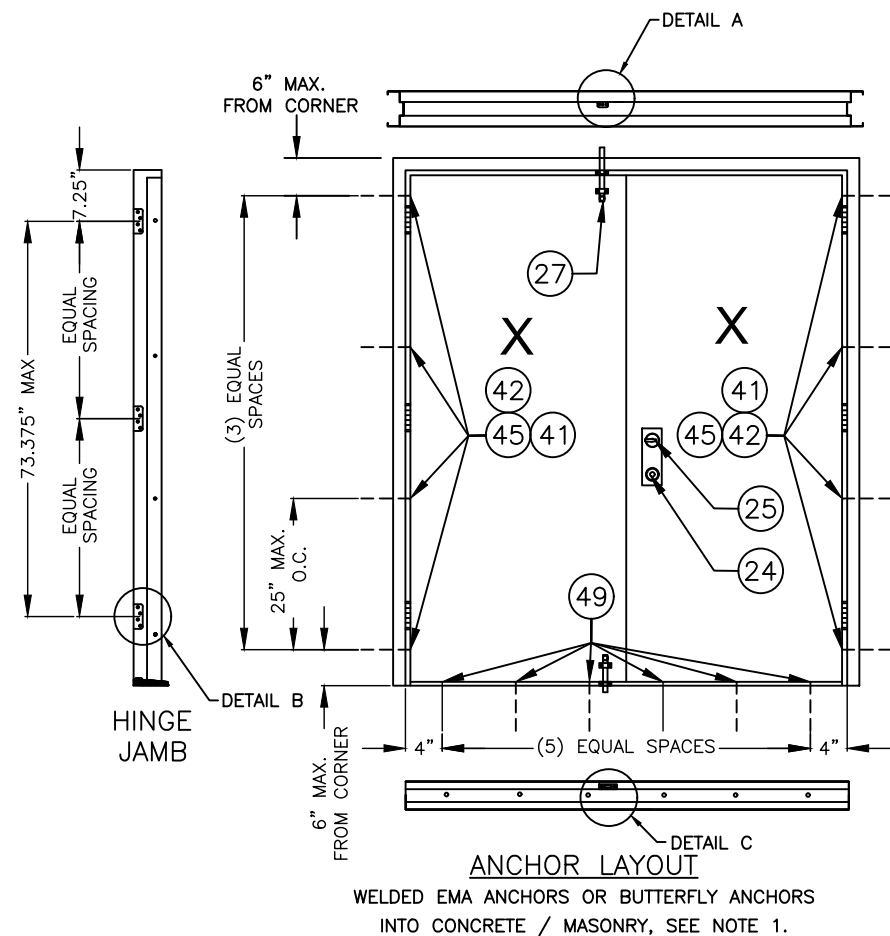
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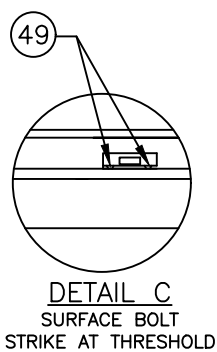
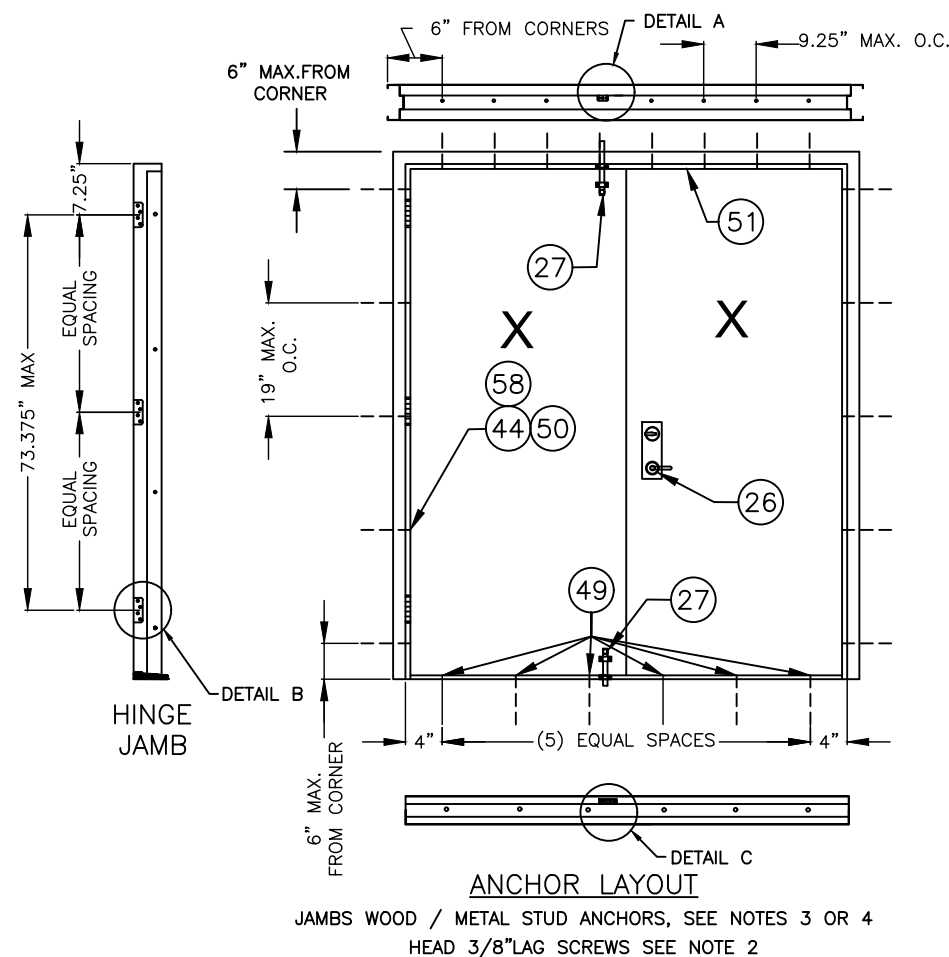
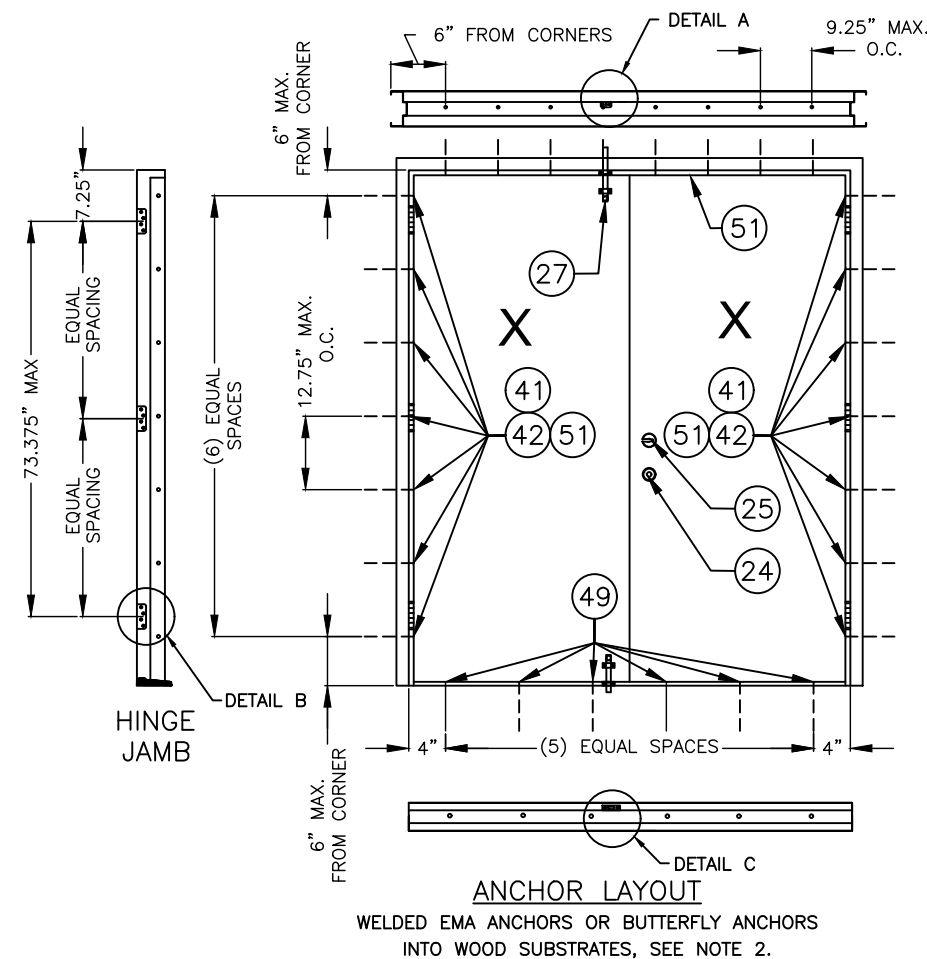


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DWG/REV: HMF0005, Rev C



NOTE:
ANCHORAGE AND HINGE LOCATION DIMENSIONS SHOWN ARE FOR THE AS-TESTED DOOR CONFIGURATIONS. ALTERNATE HARDWARE SELECTIONS SHOWN ON SHEET 2 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 2 FOR DETAILS.



NOTE: THE SURFACE BOLTS MUST BE USED WITH MORTISE LOCK & CYLINDRICAL LOCKSET & CYLINDRICAL DEAD LOCK

INSTALLATION NOTES:

- INSTALLATION INTO CONCRETE / MASONRY SUBSTRATES WHICH UTILIZE HMF EXPRESS EMA WELDED ANCHORS (ITEM #41) OR EMA BUTTERFLY ANCHORS (ITEM #42) SHALL BE FASTENED WITH $\frac{3}{8}$ " DYNA BOLTS BY ITW RED HEAD. INSTALLATION SHALL MAINTAIN THE FOLLOWING:
 - 1.1 MINIMUM EMBEDMENT OF $1\frac{1}{2}$ "
 - 1.2 MINIMUM EDGE DISTANCE OF $2\frac{1}{4}$ "
- INSTALLATION INTO WOOD SUBSTRATES WHICH UTILIZE HMF EXPRESS EMA WELDED ANCHORS (ITEM #41) OR EMA BUTTERFLY ANCHORS (ITEM #42) SHALL BE FASTENED WITH $\frac{3}{8}$ " SLOTTED FLATHEAD LAG SCREWS. INSTALLATION SHALL MAINTAIN THE FOLLOWING:
 - 2.1 MINIMUM PENETRATION OF 3"
 - 2.2 MINIMUM EDGE DISTANCE OF $1\frac{1}{2}$ "
- INSTALLATION INTO MIN. 20GA. STEEL STUD SUBSTRATES WHICH UTILIZE HMF EXPRESS WOOD / METAL STUD ANCHORS (ITEM #44) SHALL BE FASTENED WITH FOUR (4) $\frac{1}{4}$ "-14 ITW TEK SCREWS PER WOOD / METAL STUD ANCHOR. INSTALLATION SHALL MAINTAIN THE FOLLOWING:
 - 3.1. MINIMUM PENETRATION OF 3 THREADS BEYOND STEEL STRUCTURE
 - 3.2. MINIMUM EDGE DISTANCE OF $1\frac{1}{2}$ "
- INSTALLATION INTO WOOD SUBSTRATES WHICH UTILIZE HMF EXPRESS WOOD / METAL STUD ANCHORS (ITEM #44) SHALL BE FASTENED WITH FOUR (4) #8 WOOD SCREWS PER WOOD / METAL STUD ANCHOR. INSTALLATION SHALL MAINTAIN THE FOLLOWING:
 - 4.1 MINIMUM EMBEDMENT OF $1\frac{1}{2}$ "
 - 4.2 MINIMUM EDGE DISTANCE OF $\frac{3}{4}$ "

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SERIES FLUSH STEEL COMMERCIAL DOOR

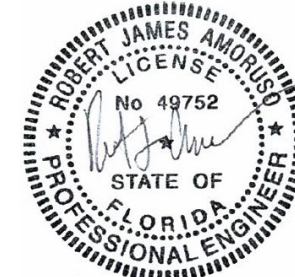
OUTSWING, IMPACT (XX)

INSTALLATION ANCHORAGE DETAILS

NO.	REVISION DESCRIPTION	BY	DATE
C	ADD ALTERNATE LOCKING HARDWARE	RJA	1/5/26

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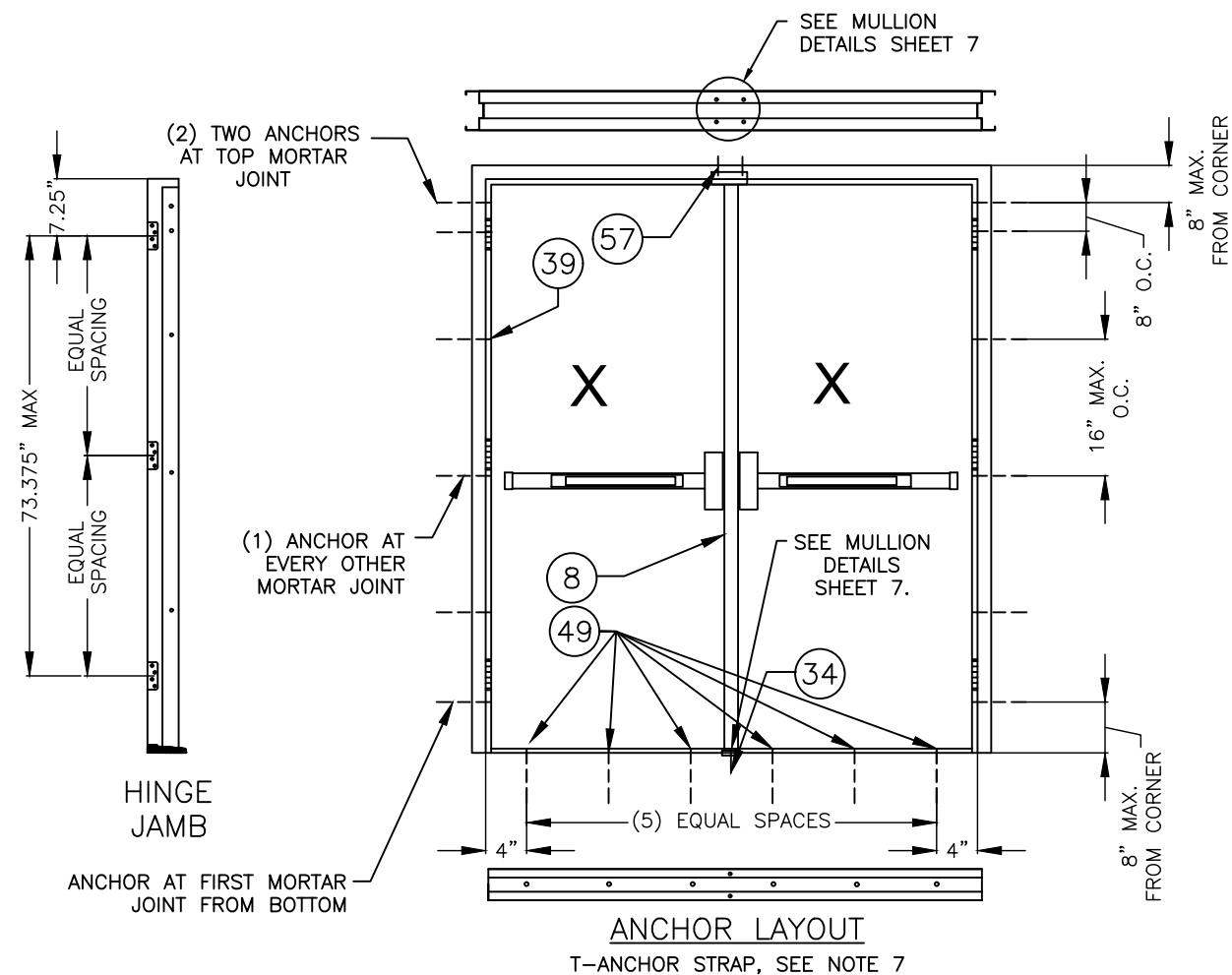
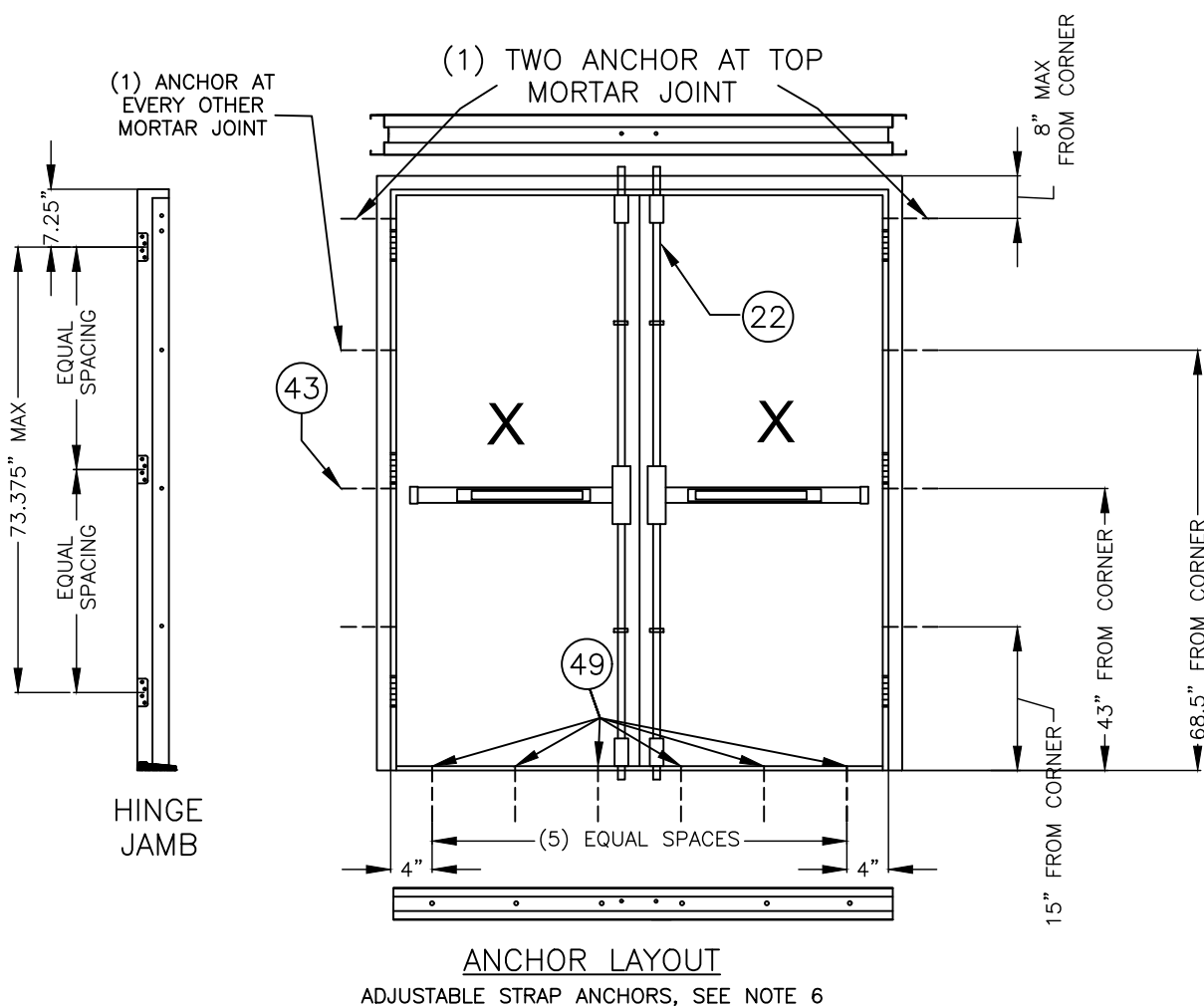
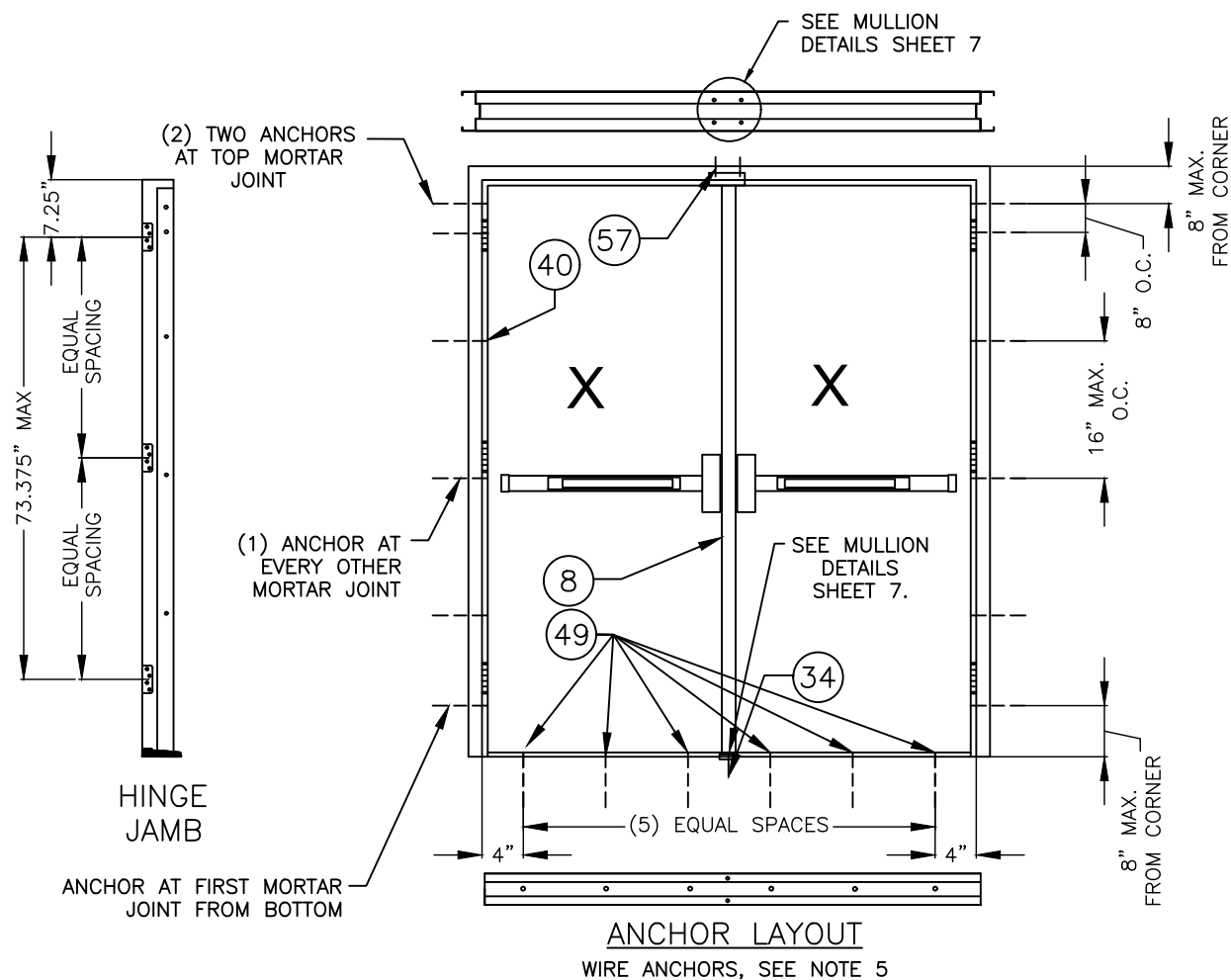


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PROJECT#: ACE-2025-126

DWG/REV: HMF0005, Rev C

SHT: 4 of 16



NOTE:

ANCHORAGE AND HINGE LOCATION DIMENSIONS SHOWN ARE FOR THE AS-TESTED DOOR CONFIGURATIONS. ALTERNATE HARDWARE SELECTIONS SHOWN ON SHEET 2 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 2 FOR DETAILS.

INSTALLATION NOTES (CONTINUED):

5. ~~INSTALLATION INTO GROUT FILLED CMU BLOCK SUBSTRATES WHICH UTILIZE HMF EXPRESS WIRE ANCHORS (ITEM #40) SHALL MAINTAIN THE FOLLOWING~~
 - 5.1 MINIMUM EMBEDMENT OF $7\frac{1}{2}$ "
 - 5.2 MINIMUM EDGE DISTANCE OF $1\frac{5}{16}$ "
6. INSTALLATION INTO GROUT FILLED CMU BLOCK SUBSTRATES WHICH UTILIZE HMF EXPRESS ADJUSTABLE STRAP ANCHORS (ITEM #43) SHALL MAINTAIN THE FOLLOWING:
 - 6.1 MINIMUM EMBEDMENT OF 2"
 - 6.2 MINIMUM EDGE DISTANCE OF $2\frac{1}{2}$ "
7. INSTALLATION INTO GROUT FILLED CMU BLOCK SUBSTRATE WHICH UTILIZE HMF EXPRESS TEE ANCHOR STRAPS (ITEM #39) SHALL MAINTAIN THE FOLLOWING:
 - 7.1 MINIMUM EMBEDMENT OF 2"
 - 7.2 MINIMUM EDGE DISTANCE OF $2\frac{1}{2}$ "
8. ALL ANCHORS: WELDED EMA (ITEM #41), WELDED EMA BUTTERFLY (ITEM #42), TEE STRAP ANCHOR (ITEM #39). WIRE ANCHOR (ITEM #40). AND ADJUSTABLE STRAP ANCHORS (ITEM# 43) SHALL BE SUPPLIED BY HMF EXPRESS, LLC.

SERIES FLUSH STEEL COMMERCIAL DOOR OUTSWING, IMPACT (XX) INSTALLATION ANCHORAGE DETAILS			
NO.	REVISION DESCRIPTION	BY	DATE
C	ADD ALTERNATE LOCKING HARDWARE	RJA	1/5/26

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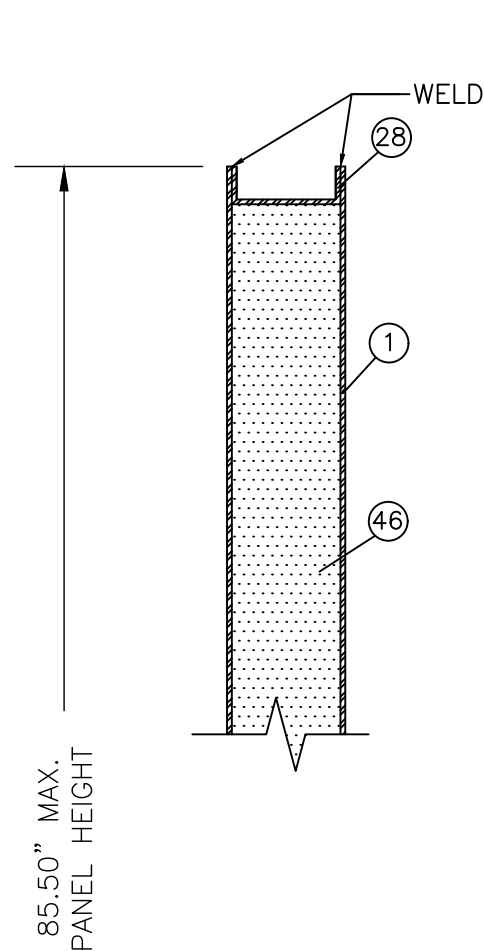


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PROJECT#: ACE-2025-126

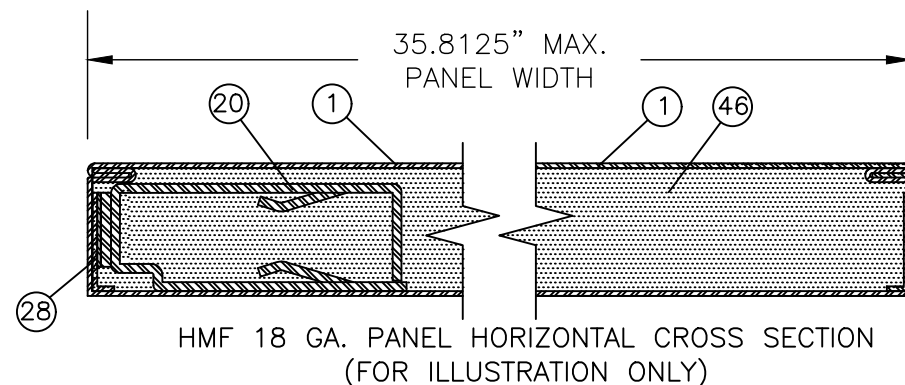
DWG/REV: HMF0005, Rev C

SHT: 5 of 16



HMF 18 GA. PANEL VERTICAL CROSS SECTION

NOTE:
PANEL AND FRAME DIMENSIONS SHOWN ARE FOR THE AS-TESTED DOOR CONFIGURATIONS. ALTERNATE HARDWARE SELECTIONS SHOWN ON SHEET 2 MAY LIMIT WIDTHS AND HEIGHTS TO A SMALLER SIZE. SEE SHEET 2 FOR DETAILS.



18 GA. DOOR PANEL CONSTRUCTION NOTE:

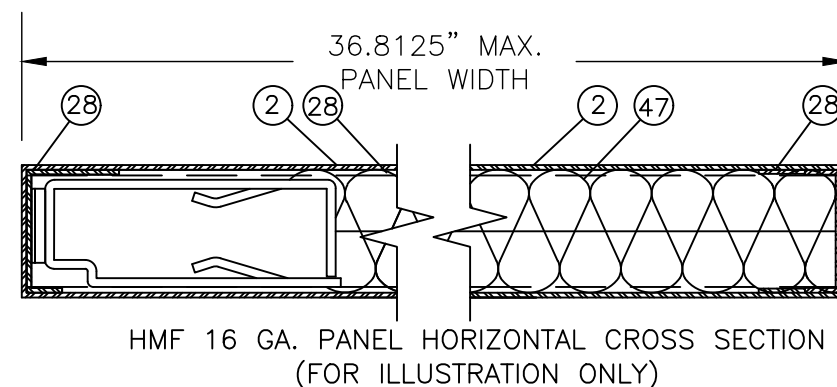
THE HMF 18 GA. PANELS ARE CONSTRUCTED FROM (2) 18 GA. (0.048" MIN.) COLD ROLLED OR A60 GALVANNEALED STEEL FACE SHEETS, ITEM #2. THE VERTICAL EDGES OF THE FACE SHEETS HAVE ROLL FORMED EDGES AND ARE PLACED TOGETHER AT PANEL CONSTRUCTION TO FORM A MECHANICAL INTERLOCK. THE VERTICAL EDGES AT THE HINGE AND LOCK STILES ARE REINFORCED WITH THE 14 GA. (0.074") "U" CHANNEL WITH OPEN END FACING INWARD. EACH FACE SHEET IS SPOT WELDED TO THE VERTICAL CHANNELS 0.430" IN FROM THE EDGE AND 2" FROM THE BOTTOM AND 4" MAX. O.C. THEREAFTER. THE HORIZONTAL EDGES ARE CUT STRAIGHT AND ARE CLOSED WITH A 14 GA.(0.074") STEEL TOP & BOTTOM "U" CHANNEL CLOSER, ITEM #28. THE TOP AND BOTTOM "U" CHANNELS ARE PLACED IN THE PANEL WITH OPEN EDGE FACING OUTWARD.THE "U" CHANNEL IS 0.125" BELOW THE HORIZONTAL EDGES OF THE PANEL AND IS SPOT/PROJECTION WELDED IN (5) PLACES ON EACH SIDE OF THE PANEL. THE INTERIOR CAVITY OF EACH PANEL IS FILLED WITH EXPANDED POLYSTYRENE (EPS)1.0lbs. DENSITY, ITEM #46. THERE ARE THREE HINGE REINFORCEMENTS, ITEM #18, WELDED TO THE FACE SHEETS BEFORE BOTH FACE SHEETS ARE ASSEMBLED. THE REINFORCEMENT IS CONSTRUCTED FROM 7 GA. (0.179") HOT ROLLED STEEL MEASURING 1.25" X 8.5". THE REINFORCEMENTS ARE LOCATED AT 7.125", 39.375" AND 71.625" FROM TOP OF THE DOOR TO THE CENTER OF THE REINFORCEMENTS.

*HINGE LOCATIONS VARY WITH HEIGHT OF DOOR WITH MAX. 36-11/16" O.C. SPACING.

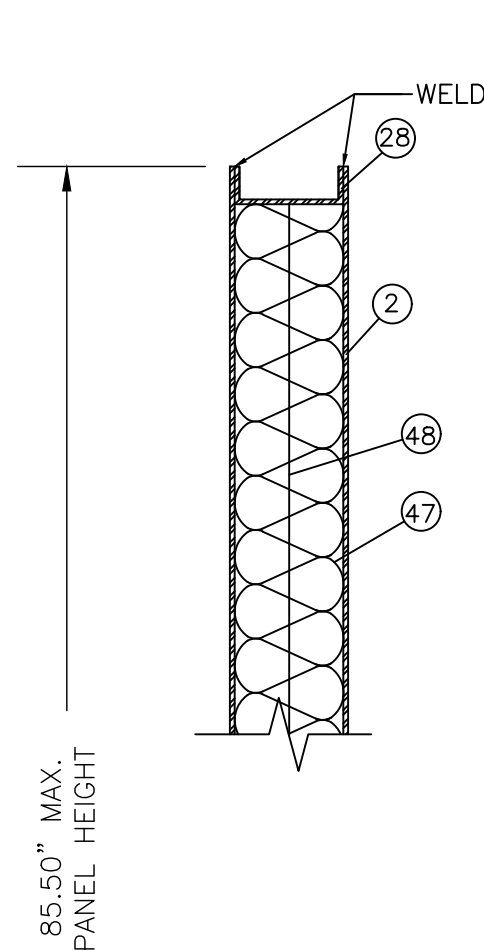
16 GA. DOOR PANEL CONSTRUCTION NOTE:

THE HMF 16 GA. STEEL STIFFENED PANELS, ARE CONSTRUCTED FROM (2) 16 GA. (0.058" MIN.) COLD ROLLED STEEL FACE SHEETS ITEM #2. THE VERTICAL EDGES OF THE FACE SHEETS ARE BENT 90° x 0.860" IN TOWARD THE CENTER. THE HORIZONTAL EDGES ARE CUT STRAIGHT. THE OUTSIDE PERIMETER OF THE PANEL, ON THE INTERIOR, IS REINFORCED WITH A 14 GA. (0.074" MIN.) STEEL "U" CHANNEL ITEM #28. THE "U" CHANNEL IS PLACED IN THE PANEL ON THE HINGE AND LOCK STILES WITH THE OPEN END FACING INWARD AGAINST THE 90 DEG. x 0.860" BEND IN THE FACE SHEETS. EACH FACE SHEET IS SPOT WELDED TO THE "U" CHANNEL 0.430" IN FROM THE EDGE AND 2.0" UP FROM THE BOTTOM AND 4.0" MAXIMUM OF CENTER. THE TOP AND BOTTOM "U" CHANNELS ARE PLACED IN THE PANEL WITH THE OPEN EDGE FACING OUTWARD. THE "U" CHANNEL IS 0.125" BELOW THE HORIZONTAL EDGES OF THE PANEL AND IS SPOT/PROJECTION WELDED IN (5) PLACES ON EACH SIDE OF THE PANEL. THE PANEL IS REINFORCED ON THE INTERIOR WITH (3) 22 GA. (0.025" MIN.) STEEL STIFFENERS, ITEM #48, RUNNING VERTICAL FROM TOP TO BOTTOM. THE TWO OUTBOARD STIFFENERS ARE LOCATED 6.5" MAXIMUM IN FROM THE EDGE OF THE PANEL. THE MIDDLE STIFFENER IS LOCATED IN THE CENTER OF THE PANEL. THE THREE STIFFENERS CAN ONLY BE A MAXIMUM 6.0" APART. THE STIFFENERS ARE WELDED AT EACH SIDE OF THE STIFFENER UP 3.0" FROM THE BOTTOM AND A MAXIMUM OF 6.0" ON CENTER. THE SPACES BETWEEN THE THREE STIFFENERS AND THE EDGES OF THE PANEL ARE FILLED WITH FIBERGLASS INSULATION, ITEM #47. EACH PANEL HAS THREE STEEL HINGE REINFORCEMENTS, ITEM #18, 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.THE REINFORCEMENTS ARE LOCATED 7.125", 39.375" AND 71.625" FROM THE TOP OF THE DOOR TO THE CENTER OF THE REINFORCEMENTS.

*HINGE LOCATIONS VARY WITH HEIGHT OF DOOR WITH MAX. 36-11/16" O.C. SPACING.



HMF 16 GA. PANEL HORIZONTAL CROSS SECTION (FOR ILLUSTRATION ONLY)



HMF 16 GA. PANEL VERTICAL CROSS SECTION

HMF EXPRESS
2501 NORTHCHASE
PARKWAY SE
WILMINGTON, NC 28405

SERIES FLUSH STEEL COMMERCIAL DOOR OUTSWING, IMPACT (XX) INSTALLATION ANCHORAGE DETAILS	DATE	BY	DATE		
	REVISION DESCRIPTION	NO.	DATE	BY	DATE
	ADD ALTERNATE LOCKING HARDWARE	C	1/5/26	RIA	

DATE:	DWN BY:	CHK BY:	SCALE:
2/27/2019	RIA	RIA	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



Digitally signed
by Robert J
Amoruso
Date: 2026.01.31
12:27:52 -05'00'

PROJECT#: ACE-2025-126

DWG/REV: HMF0005, Rev C

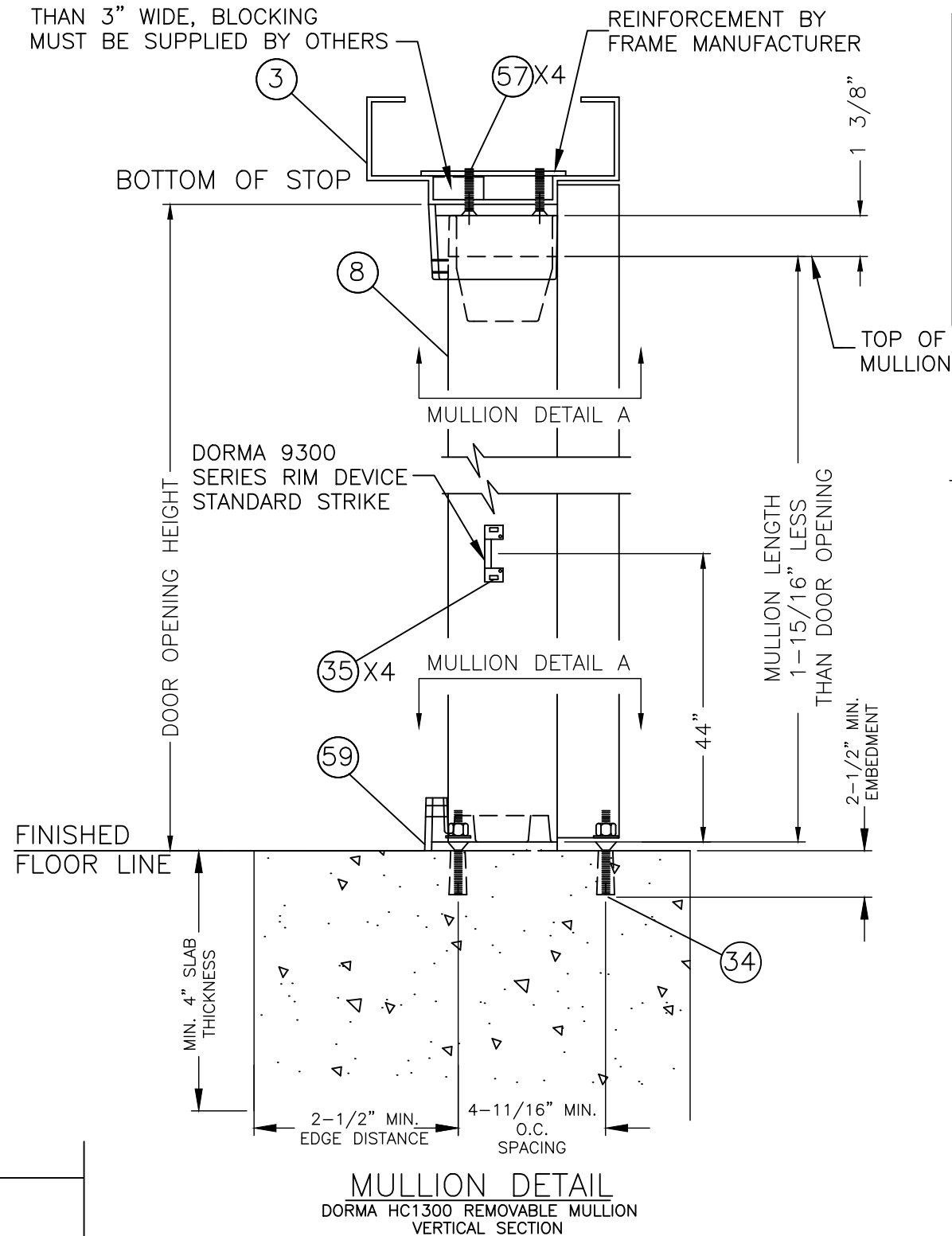
SHT: 6 of 16

– K.D. AND WELDED FRAME – THE HEADER, ITEM #3 AND THE SIDE JAMBS, ITEM #4 ARE A ONE-PIECE BRAKE PRESS FORMED STEEL FRAME FROM MIN. 16 GA. (0.058" MIN.) OR GREATER COLD ROLLED STEEL. THE CORNERS OF BOTH THE HEADER AND SIDE JAMBS ARE MITERED AND BUTTED. THE HEADER HAS SLOTS PUNCHED IN BOTH RETURN LEGS (SEE DETAIL B, SHEET 7) FOR THE 18 GA. (0.048" MIN.) FRAME TABS, ITEM #52 THAT ARE WELDED TO SIDE JAMBS. THE TABS ARE BENT 90° OVER THE HEADER AFTER BEING SLIPPED THROUGH THE SLOTS TO CREATE A MECHANICAL JOINT. THE HEADER ALSO HAS A PUNCHED SLOT IN THE HAT SECTION, SEE DETAIL B SHEET 7. THE SIDE JAMBS HAVE ONE FORMED TAB IN THE HAT SECTION, SEE DETAIL A SHEET 7. THE FORMED TABS ON THE SIDE JAMBS ARE SLID INTO THE PUNCHED SLOTS IN THE HEADER AND BENT OVER 90° TO CREATE A MECHANICAL LOCK. WELDED FRAME ONLY AT THE HEADER AND SIDE JAMBS ARE ASSEMBLED. THEY ARE SEAM WELDED ON THE FRAME FACE AND CONTINUOUS WELDED ON THE INTERIOR FACES.

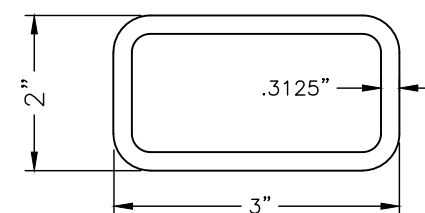
– EACH HINGE LOCATION ON BOTH THE WELDED FRAME AND THE K.D. FRAME HAVE A 7 GA. (0.179") HOT ROLLED STEEL HINGE REINFORCEMENT, ITEM #19, WELDED TO THE FRAME. EACH SIDE JAMB HAS A 16 GA. (0.058") STEEL L-SHAPED FLOOR ANCHOR PLATE WELDED TO THE INSIDE BOTTOM OF THE FRAME. THE SYSTEM CAN BE FITTED WITH AN EXTRUDED ALUMINUM OUT-SWING ADA BUMP FACE THRESHOLD MANUFACTURED BY NATIONAL GUARD PRODUCTS #896N, ITEM #5, OR AN EXTRUDED ALUMINUM ADA PASS OVER THRESHOLD #415S BY HAGAR, ITEM #7. THE FRAME SYSTEM CAN UTILIZE A SOLID STEEL REMOVABLE MULLION BY DORMA #F1300, ITEM #8, COLD ROLLED STEEL. THE MULLION IS HELD INTO THE FRAME WITH A SOLID STEEL TOP AND BOTTOM MULLION FITTING. THE FITTING AT THE TOP IS SECURED TO THE FRAME HEADER WITH (4) 5/16" X 1/2" FHPMS, ITEM #57. THE FITTING AT THE BOTTOM IS SECURED TO THE CONCRETE FLOOR WITH (2) 3/8" X 1-3/8" DROP-IN ANCHORS INTO CONCRETE SILL, ITEM # 34.



NOTE:
IF DOOR STOP IS LESS
THAN 3" WIDE, BLOCKING
MUST BE SUPPLIED BY OTHERS



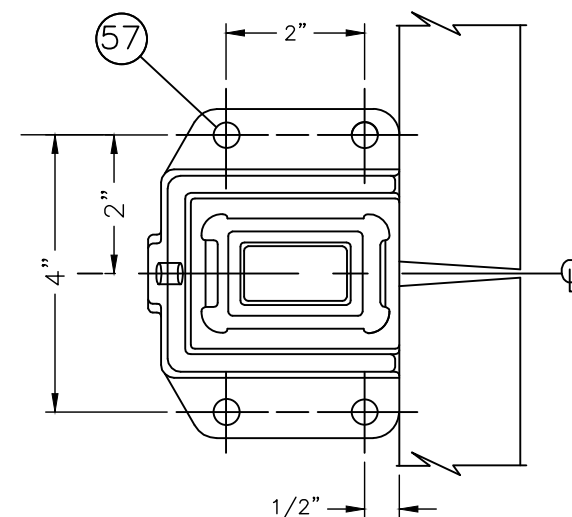
DORMA HC1300 MULLION:
ASTM A500 GR. B
MIN. $F_y = 46$ KSI
 $E = 29,000$ KSI
 $I_x = 2.3800$ in.⁴
 $S_x = 1.5900$ in.³



8 DORMA HC1300 FIRE MULLION
STEEL TYPICAL WALL THICKNESS: 0.3125"

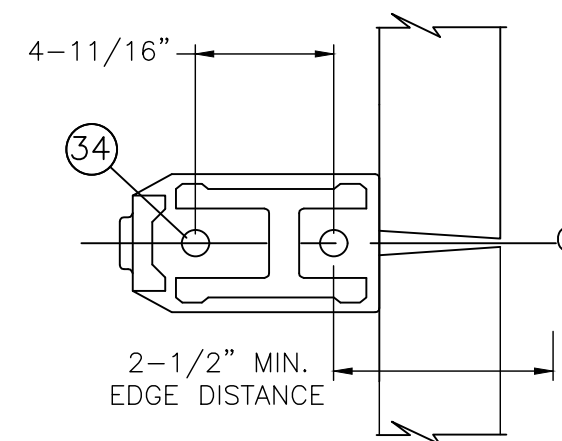
NOTE:

PANEL AND FRAME DIMENSIONS
SHOWN ARE FOR THE AS-TESTED
DOOR CONFIGURATIONS.
ALTERNATE HARDWARE
SELECTIONS SHOWN ON SHEET 2
MAY LIMIT WIDTHS AND HEIGHTS
TO A SMALLER SIZE. SEE SHEET
2 FOR DETAILS.



MULLION DETAIL A

TOP FITTING

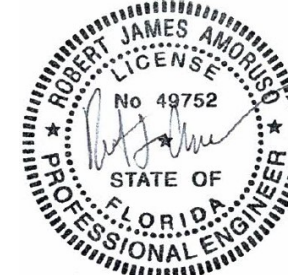


MULLION DETAIL B
BOTTOM FITTING

HMF EXPRESS
2501 NORTHCHASE
PARKWAY SE
WILMINGTON, NC 28405

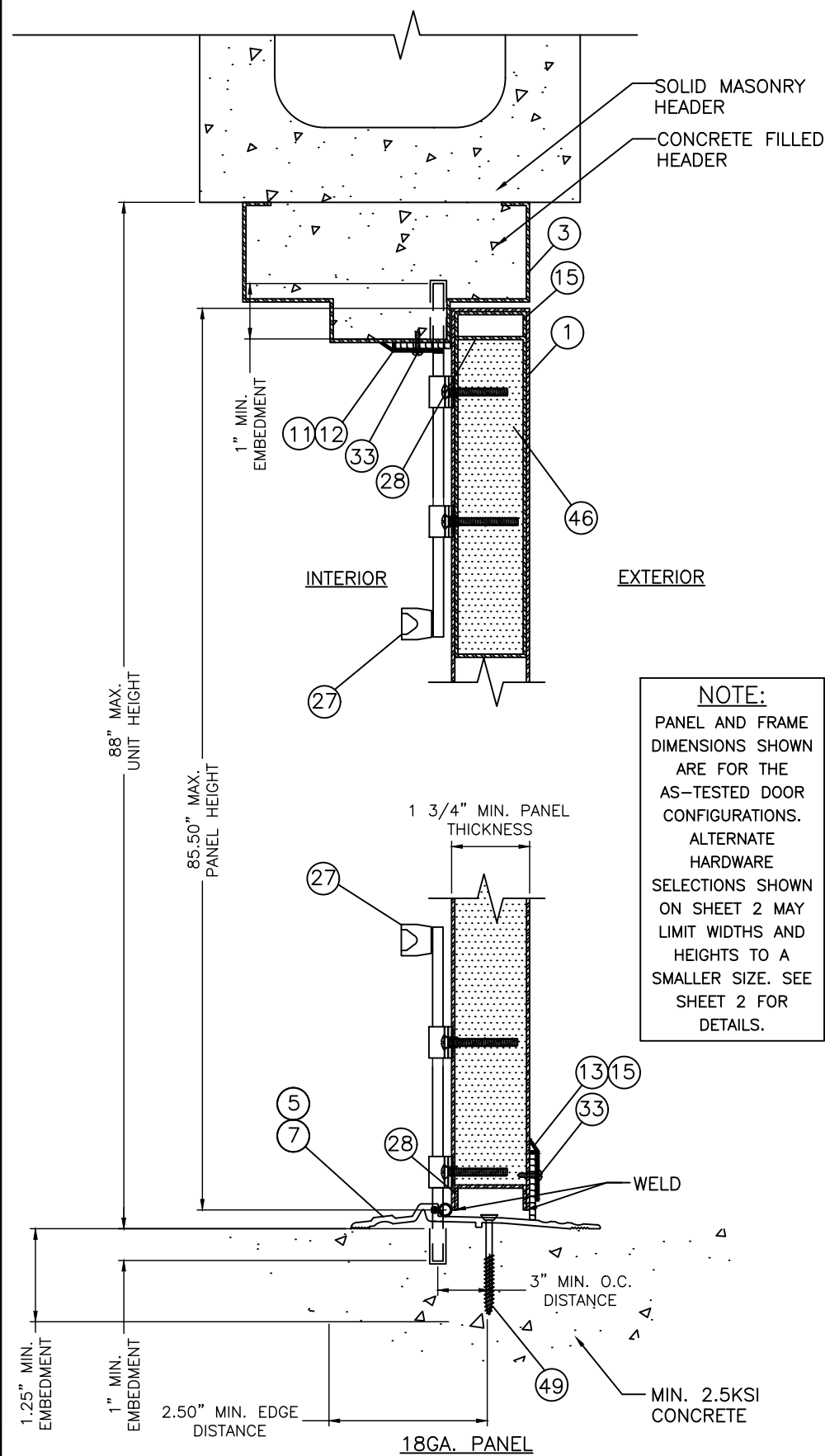
DATE: 2/27/2019	SERIES FLUSH STEEL COMMERCIAL DOOR OUTSWING, IMPACT (XX) INSTALLATION ANCHORAGE DETAILS			
DWN BY: RJA	NO.	REVISION DESCRIPTION	BY	DATE
	C	ADD ALTERNATE LOCKING HARDWARE	RJA	1/5/26
CHK BY: RJA				
SCALE: NONE				

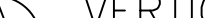
ROBERT J. AMORUSO, P.E. #49752
AMORUSO CONSULTING ENG., LLC
FBPE REGISTRATION NO. 38327
226 N NOVA RD, NO. 142
ORMOND BEACH, FL 32174
RJAENGPE@GMAIL.COM

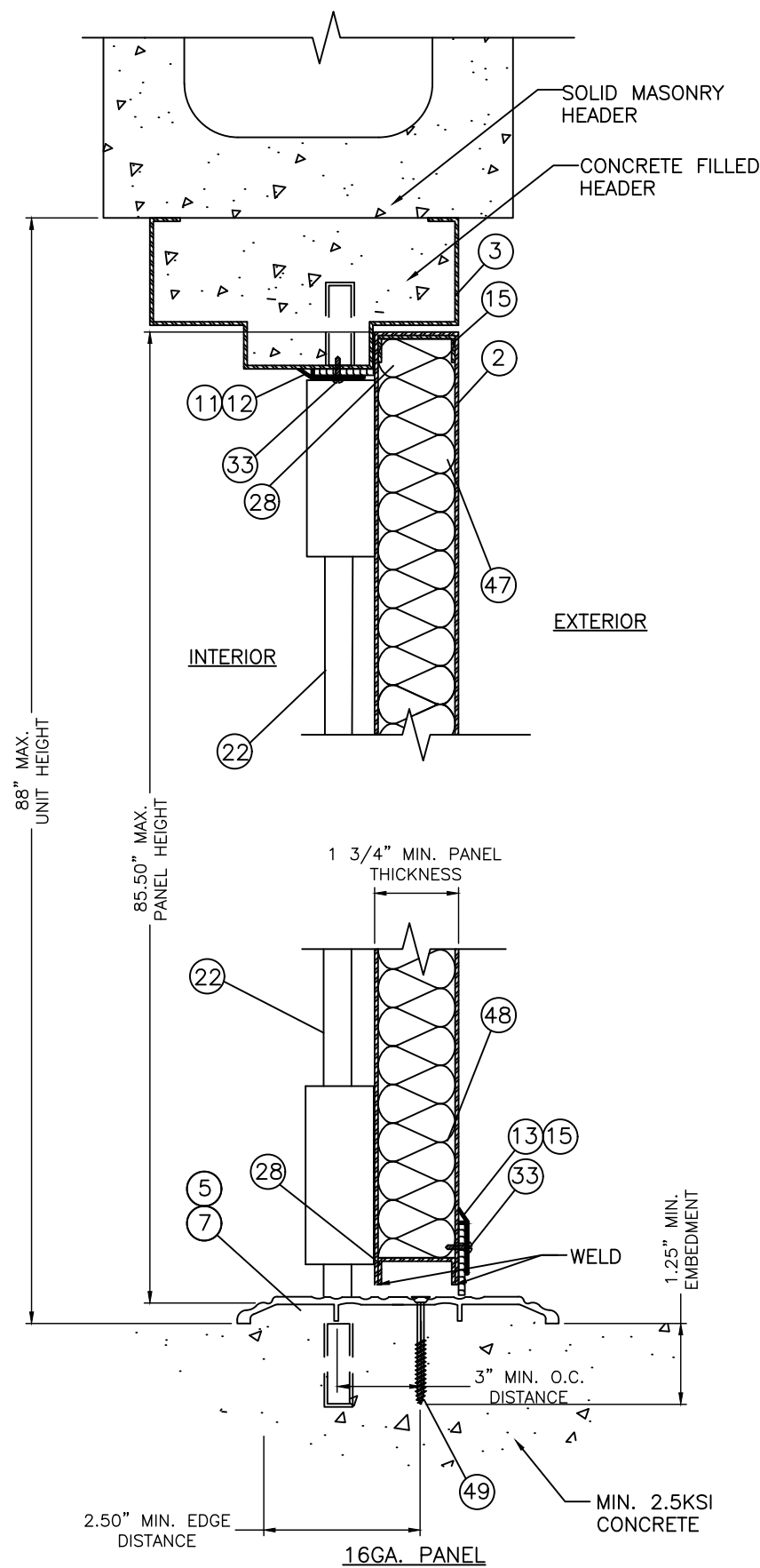


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by Robert J
Amoruso
Date: 2026.01.31
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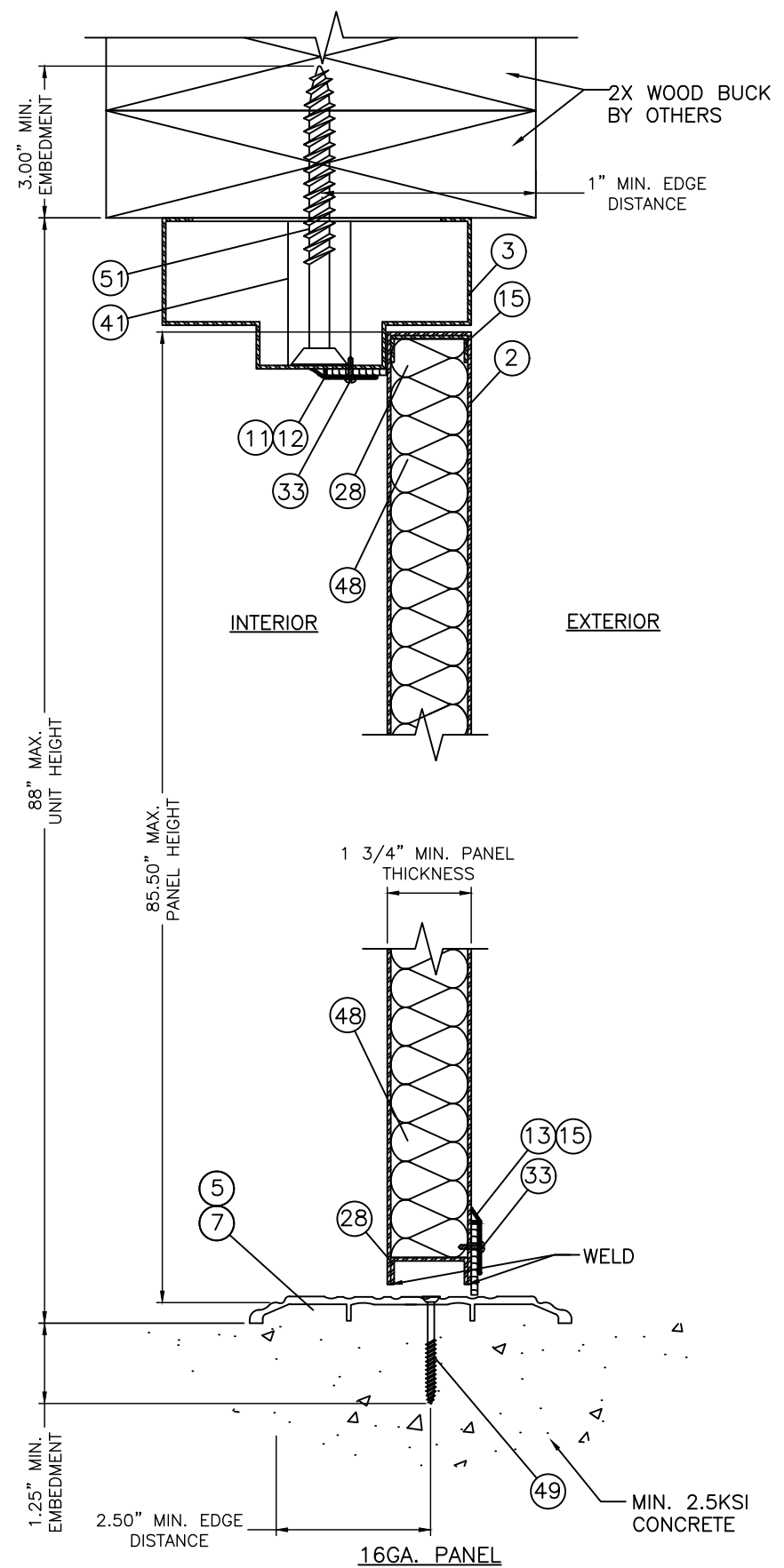
PROJECT#: ACE-2025-126
DWG/REV: HMF0005, Rev C
SHT: 7 of 16







VERTICAL SECTION
HEAD/SILL - CONCRETE / GROUT -
FILLED CMU
(SURFACE VERTICAL ROD)



VERTICAL SECTION

HEAD - 2X WOOD FRAME
SILL - CONCRETE
(REMOVABLE MULLION)

HMF EXPRESS
2501 NORTHCHASE
PARKWAY SE
WILMINGTON, NC 28405

SERIES FLUSH STEEL COMMERCIAL DOOR OUTSWING, IMPACT (XX) INSTALLATION ANCHORAGE DETAILS		
NO.	REVISION DESCRIPTION	BY
C	ADD ALTERNATE LOCKING HARDWARE	RJA

DATE: 2/27/2019	DWN BY: 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

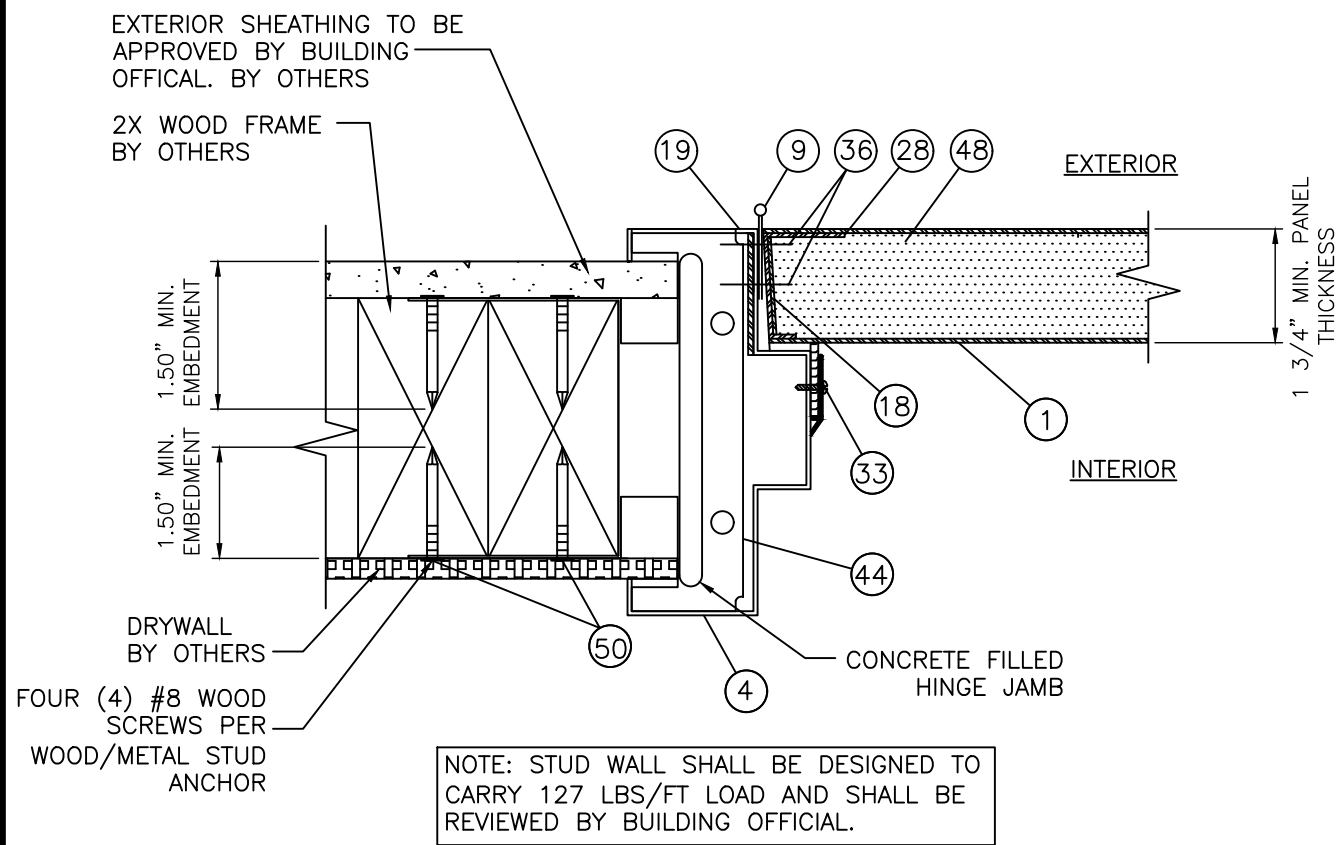


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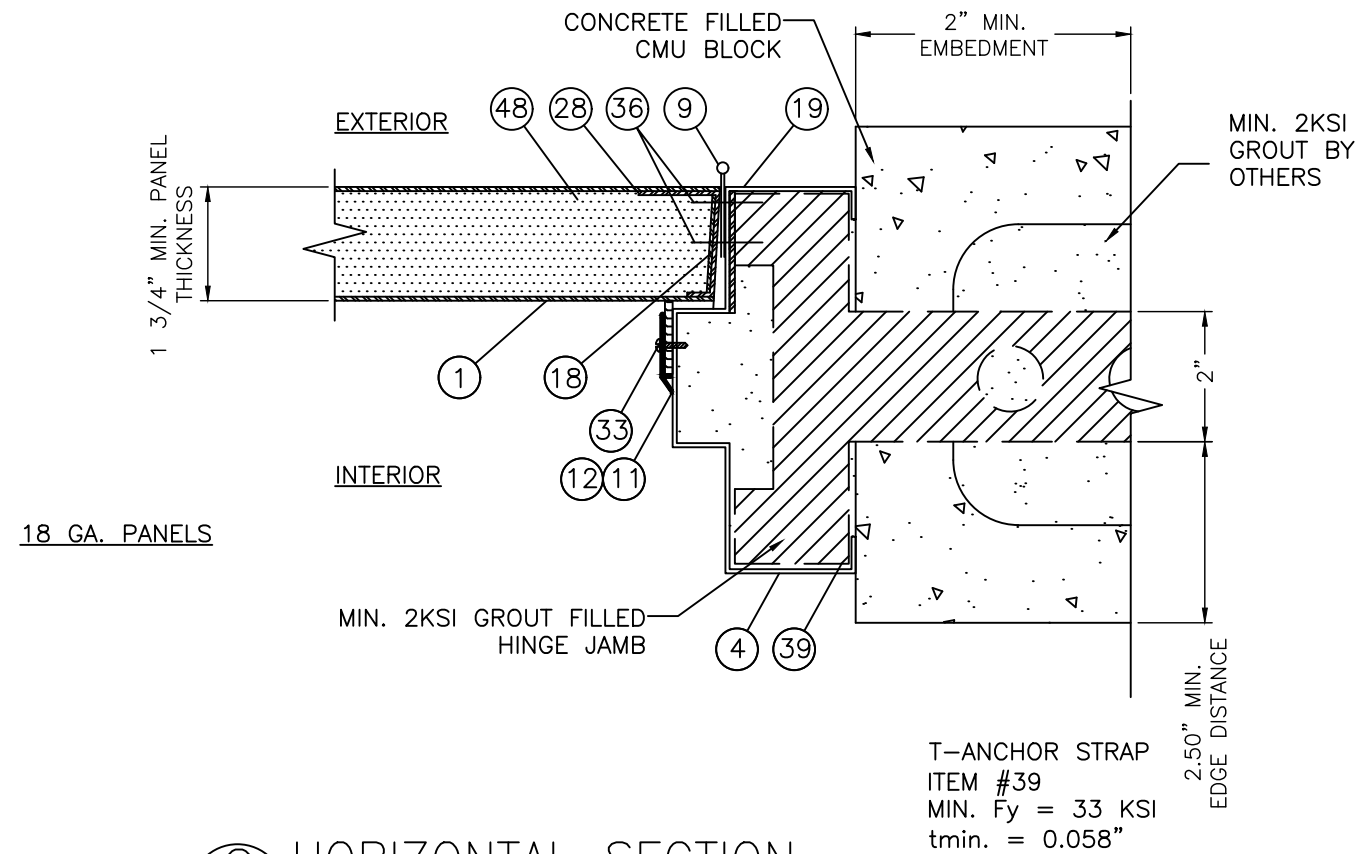
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DWG/REV: HMF0005, Rev C

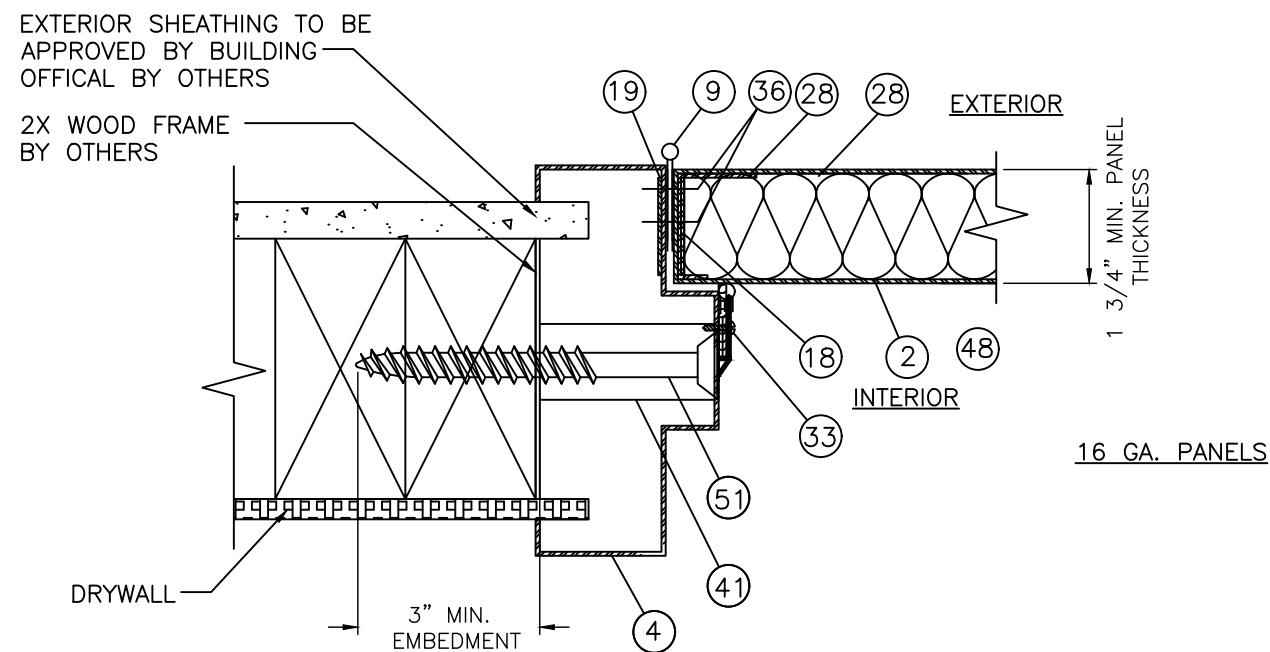
SHT: 8 of 16



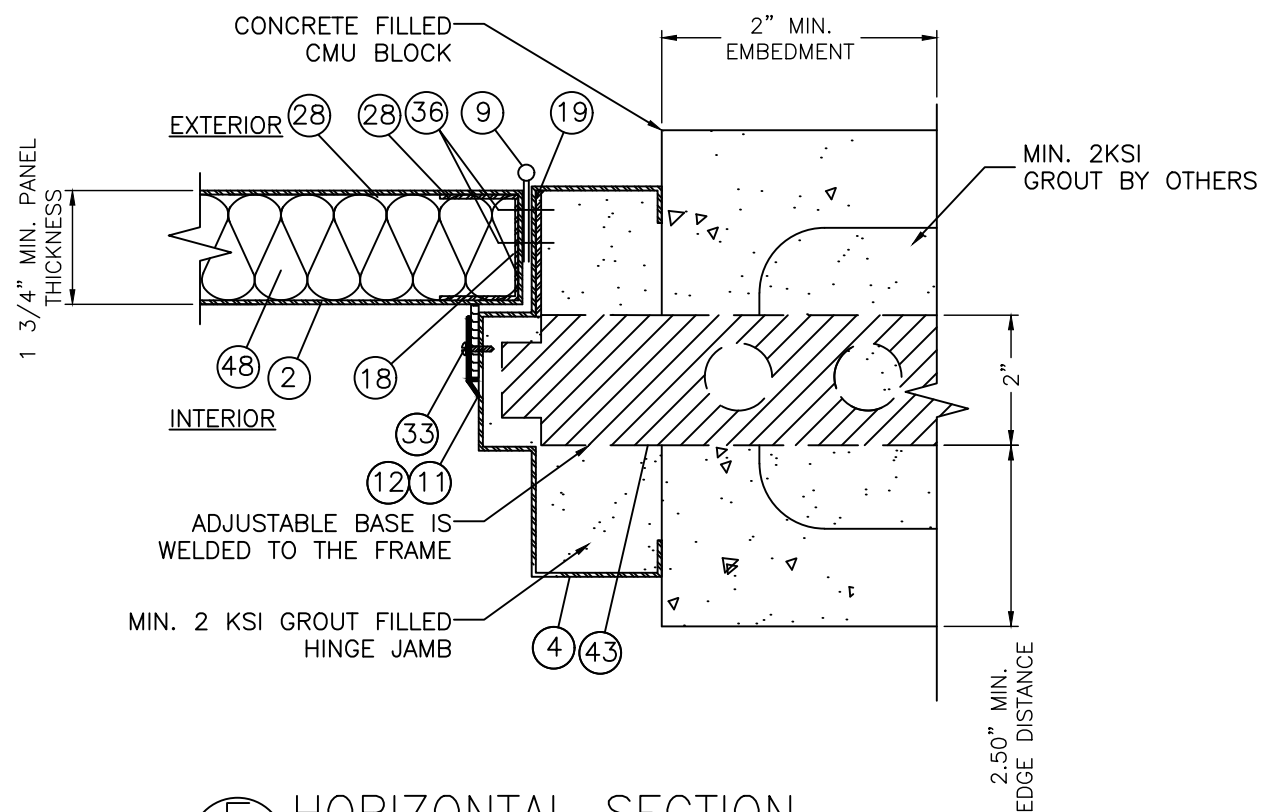
F
9 HORIZONTAL SECTION
JAMB - WOOD FRAME
WOOD/METAL STUD ANCHOR



G
9 HORIZONTAL SECTION
JAMB - CONCRETE/MASONRY
TEE ACNCHOR



D
9 HORIZONTAL SECTION
JAMB - WOOD FRAME
LAG SCREW/EMA WELDED ANCHOR



E
9 HORIZONTAL SECTION
JAMB - CONCRETE/MASONRY
ADJUSTABLE STRAP

HMF EXPRESS
2501 NORTHCHASE
PARKWAY SE
WILMINGTON, NC 28405

SERIES FLUSH STEEL COMMERCIAL DOOR OUTSWING, IMPACT (XX) INSTALLATION ANCHORAGE DETAILS				
REVISION DESCRIPTION	BY	DATE		
ADD ALTERNATE LOCKING HARDWARE	RJA	1/5/26		
NO.	C			

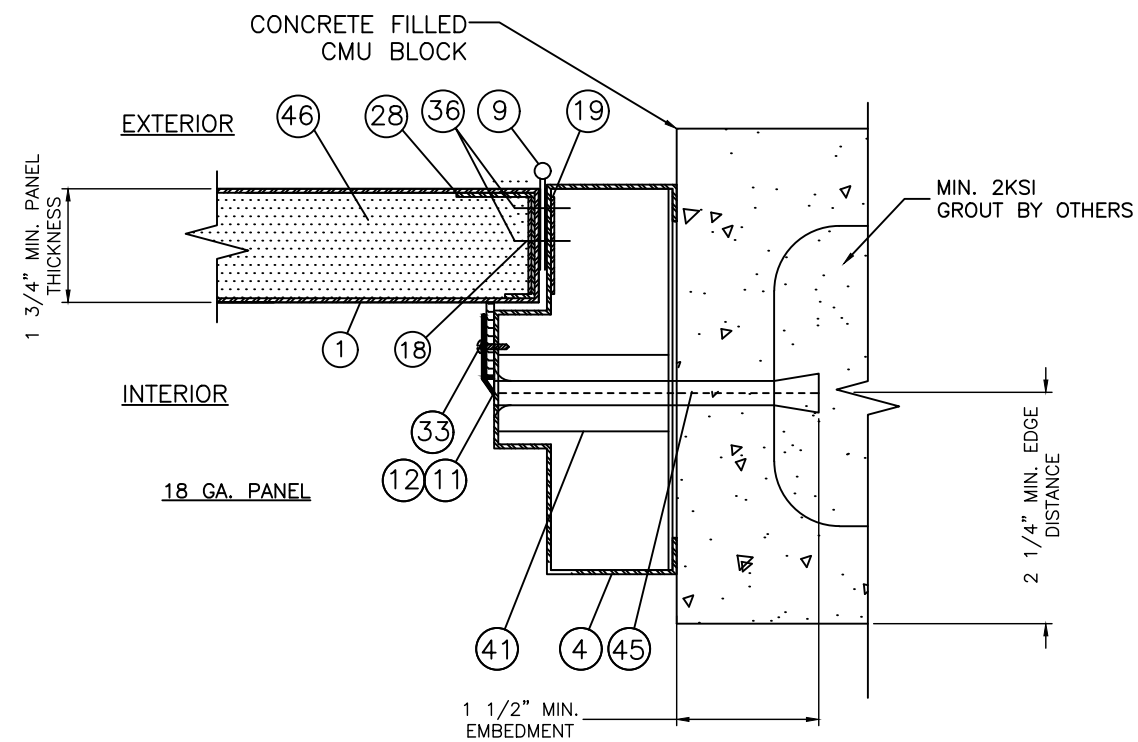
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ROBERT J. AMORUSO, P.E. #49752
AMORUSO CONSULTING ENG., LLC
FBPE REGISTRATION NO. 38327
226 N NOVA RD, NO. 142
ORMOND BEACH, FL 32174
RJAENGPE@GMAIL.COM

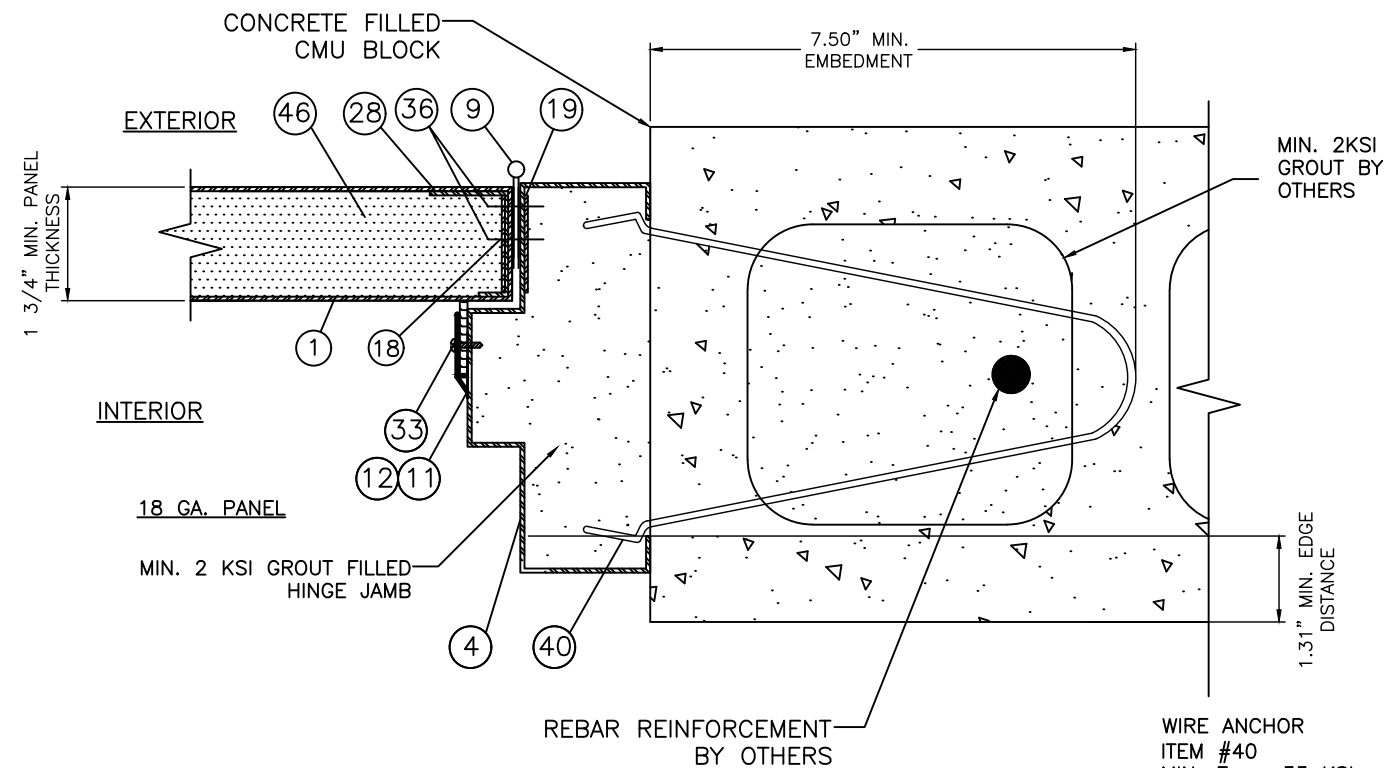


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Amoruso
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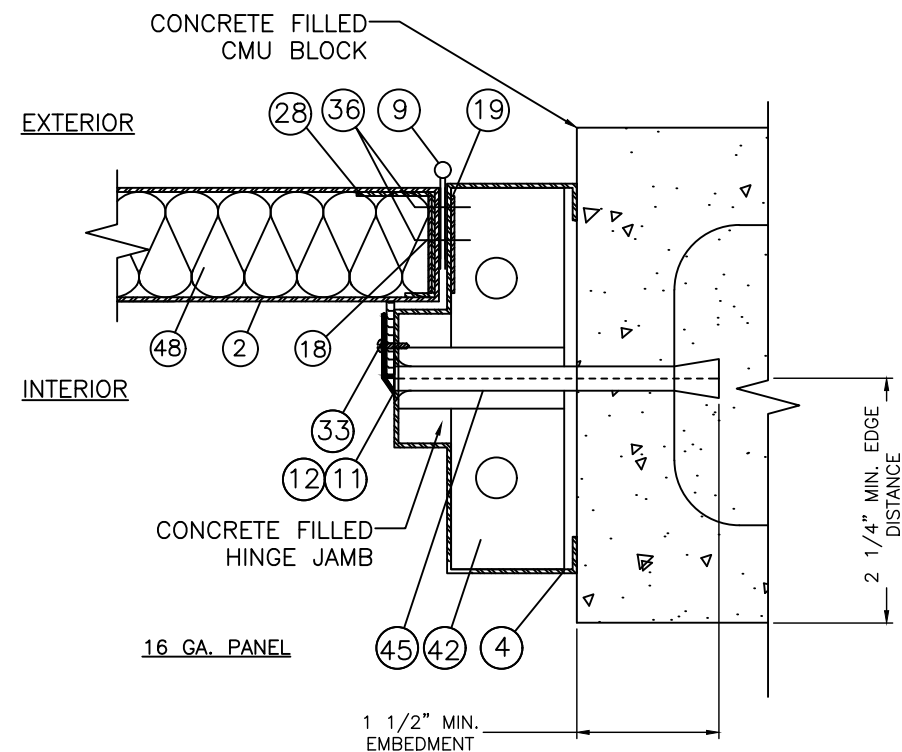
PROJECT#:	ACE-2025-126
DWG/REV:	HMF0005, Rev C
SHT:	9 of 16



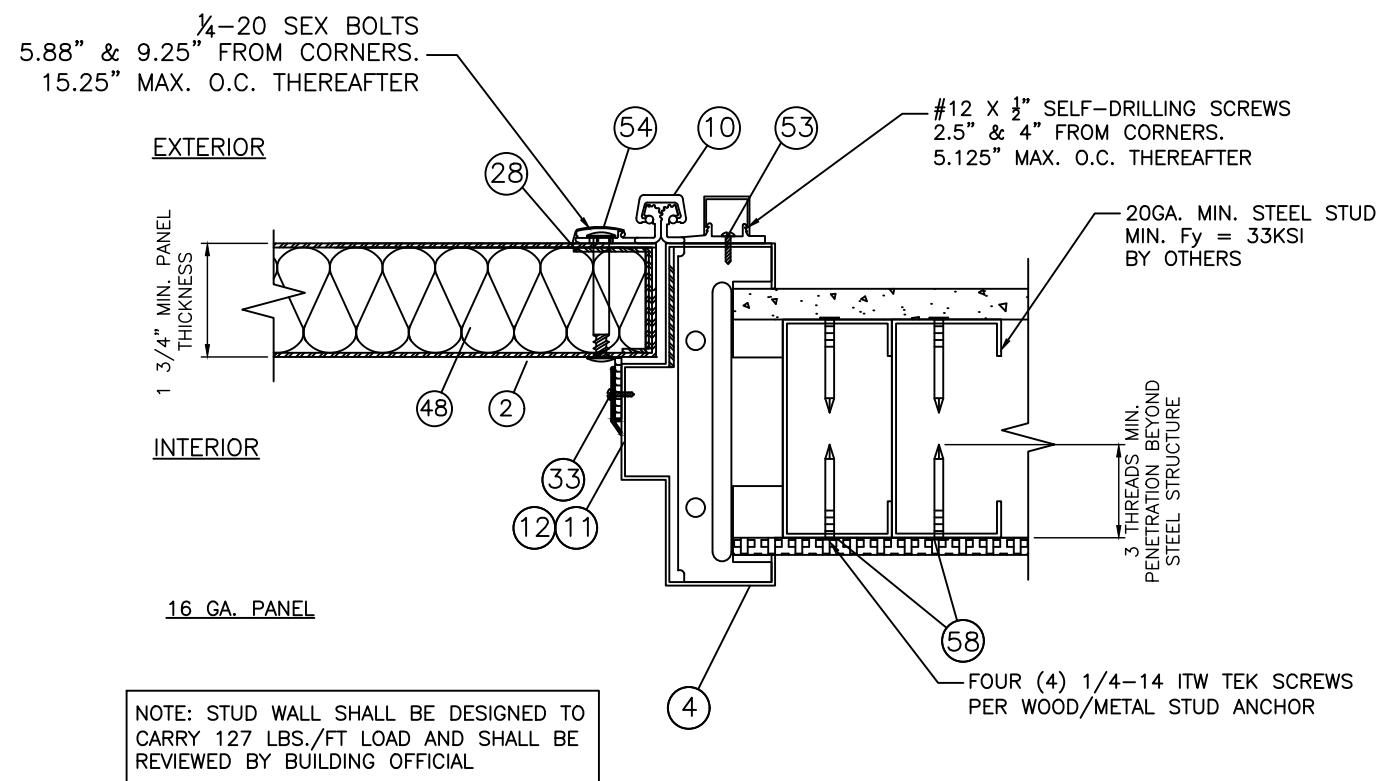
J
10 HORIZONTAL SECTION
JAMB - CONCRETE/MASONRY
LOK-BOLT/ EMA. WELDED ANCHOR



K
10 HORIZONTAL SECTION
JAMB - CONCRETE/MASONRY
WIRE ANCHOR/HMF 18GA PANEL



H
10 HORIZONTAL SECTION
JAMB - CONCRETE/MASONRY
LOK-BOLT/ EMA BUTTERFLY ANCHOR



I
10 HORIZONTAL SECTION
JAMB - CONTINUOUS HINGE

HMF EXPRESS
2501 NORTHCHASE
PARKWAY SE
WILMINGTON, NC 28405

SERIES FLUSH STEEL COMMERCIAL DOOR OUTSWING, IMPACT (XX) INSTALLATION ANCHORAGE DETAILS				
NO.	REVISION DESCRIPTION	BY	DATE	
C	ADD ALTERNATE LOCKING HARDWARE	RJA	1/5/26	

DATE: 2/27/2019	DWN BY: RJA	CHK BY: RJA	SCALE: NONE
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ROBERT J. AMORUSO, P.E. #49752
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ORMOND BEACH, FL 32174
RJAENGPE@GMAIL.COM



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Amoruso
Date: 2026.01.31
12:28:42 -05'00'

PROJECT#:	ACE-2025-126
DWG/REV:	HMF0005, Rev C
SHT:	10 of 16

SERIES FLUSH STEEL COMMERCIAL DOOR

OUTSWING, IMPACT (XX)

INSTALLATION ANCHORAGE DETAILS

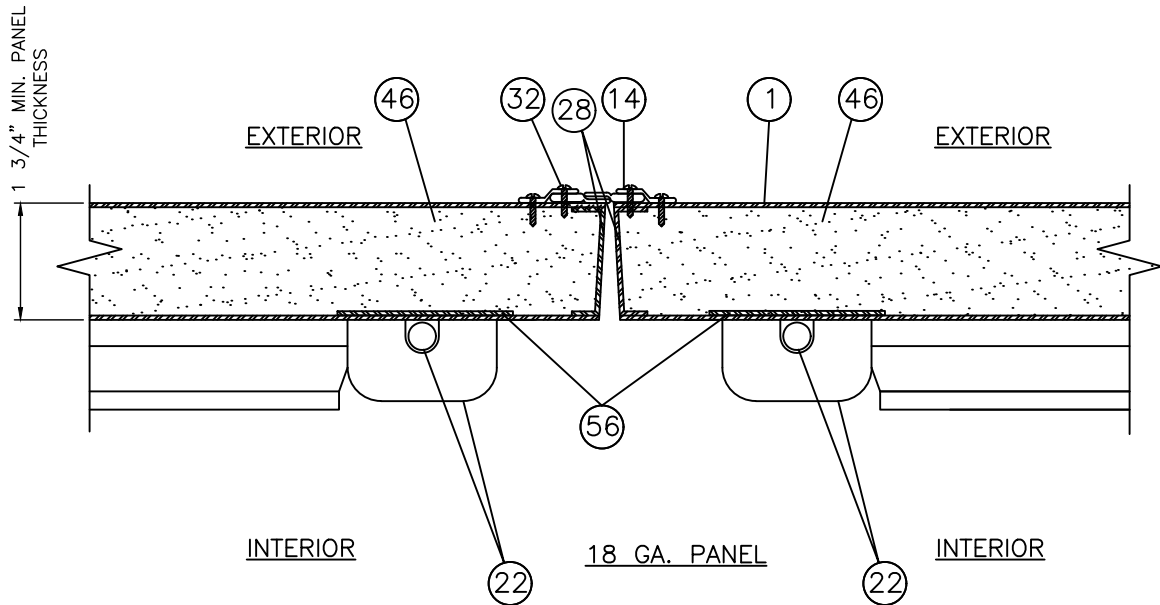
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DATE: 2/27/2019	DWN BY: RJA	CHK BY: RJA	SCALE: NONE
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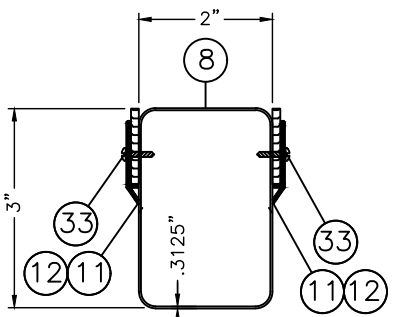
ROBERT J. AMORUSO, P.E. #49752
AMORUSO CONSULTING ENG., LLC
FBPE REGISTRATION NO. 38327
226 N NOVA RD, NO. 142
ORMOND BEACH, FL 32174
RJAENGPE@GMAIL.COM



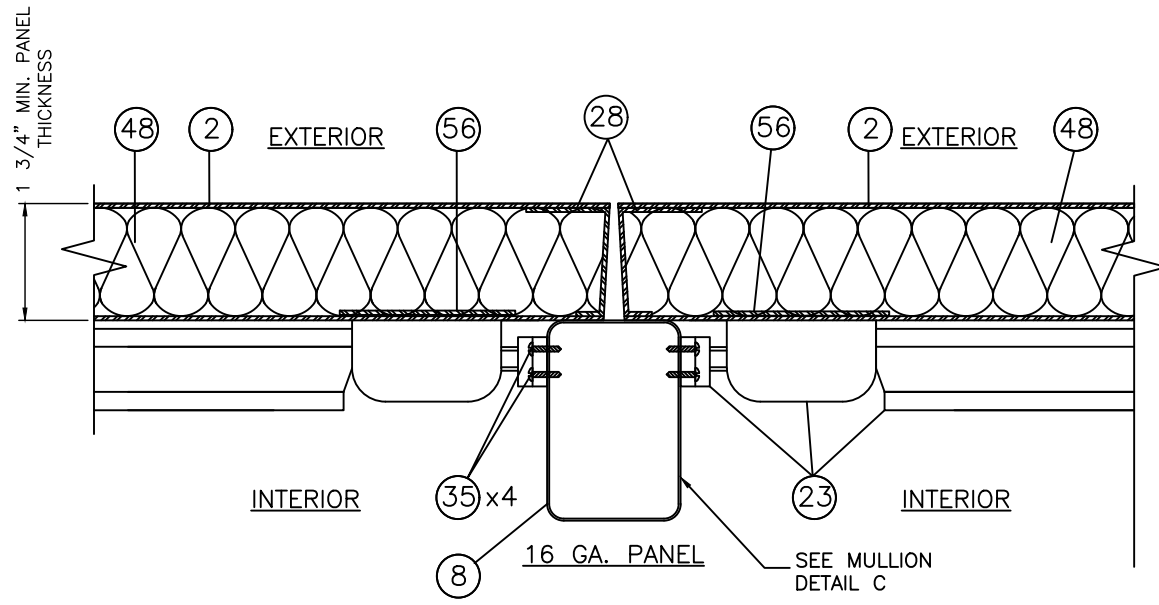
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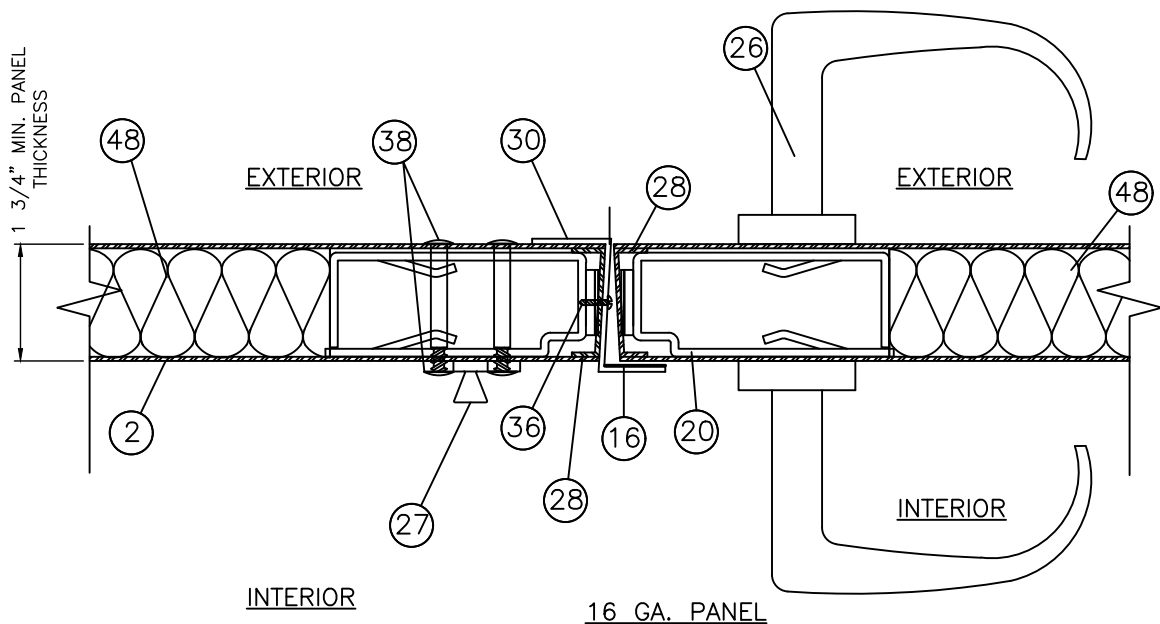
N
11
HORIZONTAL SECTION
SURFACE VERTICAL RODS



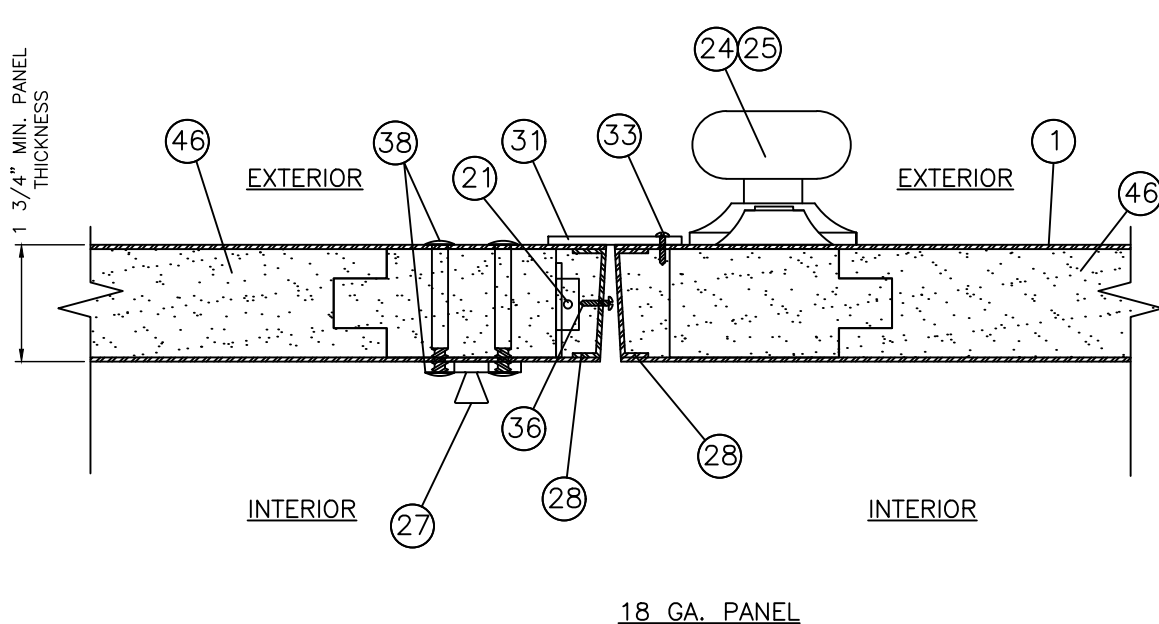
MULLION DETAIL C
DORMA HC1300 REMOVABLE MULLION
(SEE MULLION TOP & BOTTOM
INSTALLATION DETAILS, SHEET 7)



O
11
HORIZONTAL SECTION
RIM DEVICE W/ PUSH BAR

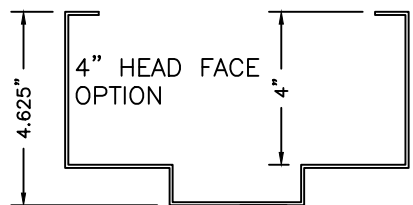
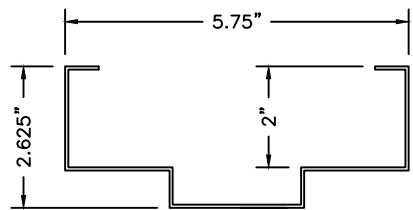


L
11
HORIZONTAL SECTION
MORTISE LOCKSET



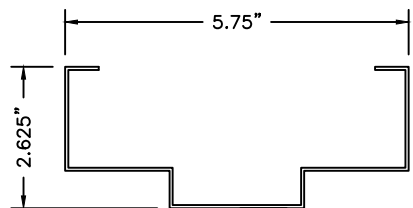
M
11
HORIZONTAL SECTION
CYLINDRCAL LOCKSET
W/ CYLINDRCAL DEADLOCK

- 3 H.M.F. HEADER C.R.S.
16 GA. STEEL MIN.
TYPICAL MIN. WALL THICKNESS: 0.058" OR GREATER

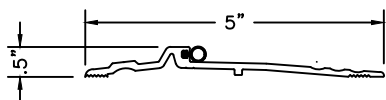


NOTE: WHEN 4" HEAD
FACE OPTION IS USED,
O.A. FRAME HEIGHT SHALL
NOT EXCEED 88"
AND DOOR PANEL HEIGHT
SHALL NOT EXCEED 83.5".

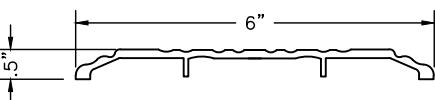
- 4 H.M.F. JAMBS C.R.S.
16 GA. STEEL MIN.
TYPICAL WALL THICKNESS: 0.058" OR GREATER



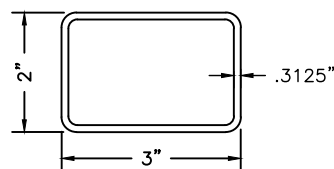
- 5 PANIC THRESHOLD NATIONAL GUARD #896N
ALUMINIUM
TYPICAL WALL THICKNESS: .125"



- 7 ADA PASS OVER THRESHOLD BY HAGER #415S
ALUMINIUM
TYPICAL WALL THICKNESS: .140"

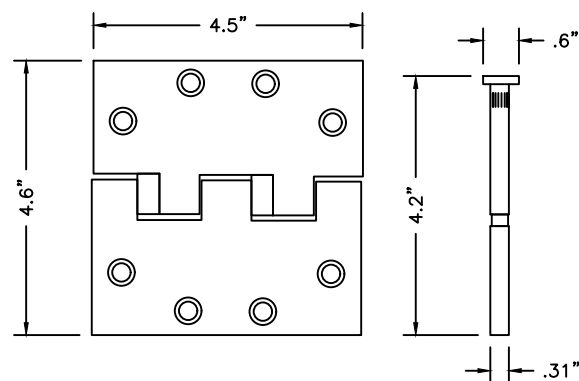


- 8 DORMA F1300 FIRE MULLION
STEEL
TYPICAL WALL THICKNESS: .3125"

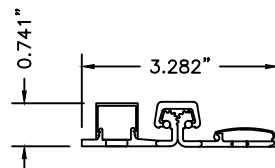


DORMA HC1300 MULLION
ASTM A500 GR. B
MIN. $F_y = 46$ KSI
 $E = 29,000$ KSI
 $I_x = 2,3800$ in. 4
 $S_x = 15900$ in. 3

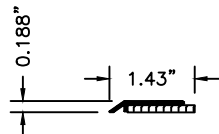
- 9 4 1/2" TEMPLATE HINGE BY HAGER
STEEL
TYPICAL WALL THICKNESS: .130"



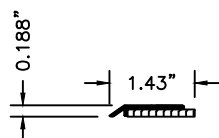
- 10 CONTINUOUS STEEL HINGE HAGER



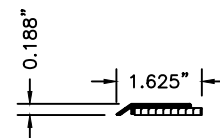
- 11 SURFACE MOUNTED FRAME WEATHERSTRIP
NATIONAL GUARD PRODUCTS #130NA



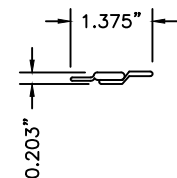
- 12 SURFACE MOUNTED FRAME WEATHERSTRIP
NATIONAL GUARD PRODUCTS #130NA



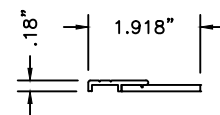
- 13 SURFACE MOUNTED DOOR BOTTOM SWEEP
NATIONAL GUARD PRODUCTS #200NA



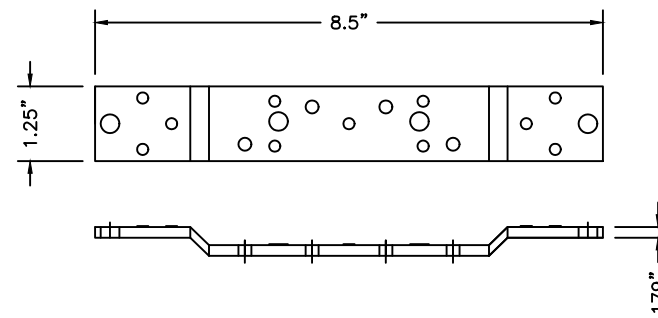
- 14 SURFACE MOUNTED DOOR MEETING STILE SEAL
NATIONAL GUARD PRODUCTS #125NA



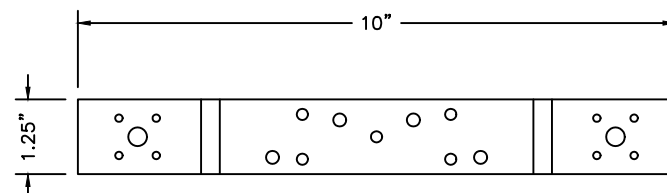
- 15 SURFACE MOUNTED DOOR BOTTOM SWEEP
PEMCO #321CN49



- 18 STEEL DOOR HINGE REINFORCEMENT
7 GA. STEEL
TYPICAL WALL THICKNESS: .179"



- 19 H.R.S. FRAME HINGE REINFORCEMENT
7 GA. STEEL
TYPICAL WALL THICKNESS: .179"



HMF EXPRESS
2501 NORTHCHASE
PARKWAY SE
WILMINGTON, NC 28405

SERIES FLUSH STEEL COMMERCIAL DOOR
OUTSWING, IMPACT (XX)
INSTALLATION ANCHORAGE DETAILS

NO.	REVISION DESCRIPTION	BY	DATE
C	ADD ALTERNATE LOCKING HARDWARE	RJA	1/5/26

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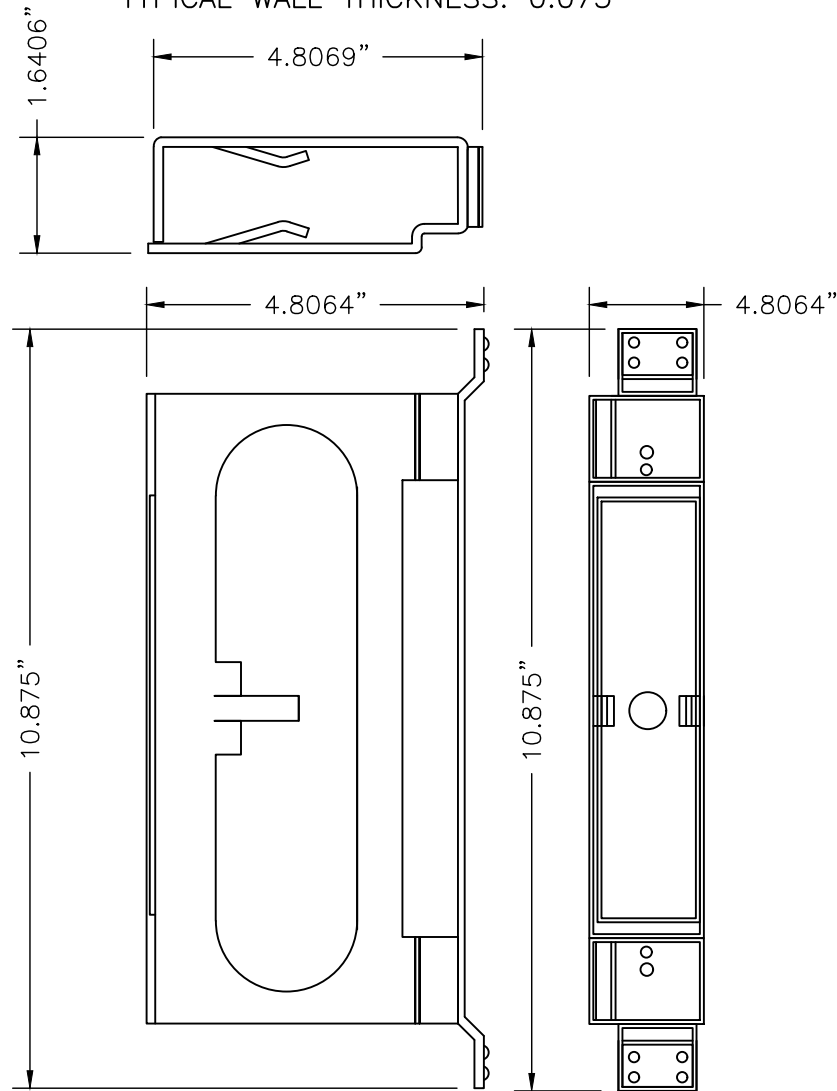
ROBERT J. AMORUSO, P.E. #49752
AMORUSO CONSULTING ENG., LLC
FBPE REGISTRATION NO. 38327
226 N NOVA RD, NO. 142
ORMOND BEACH, FL 32174
RJAENGPE@GMAIL.COM



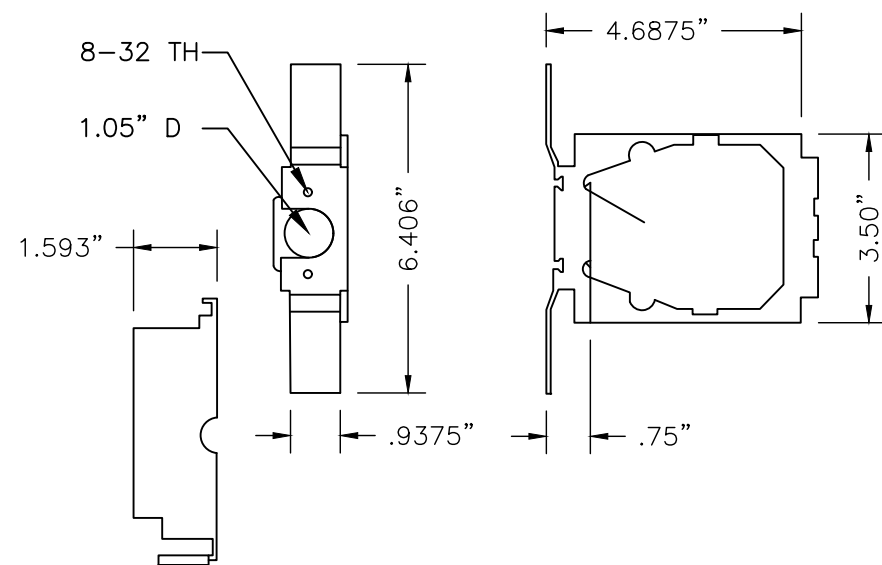
Digitally signed
by Robert J
Amoruso
Date: 2026.01.31
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PROJECT#: ACE-2025-126
DWG/REV: HMF0005, Rev C
SHT: 12 of 16

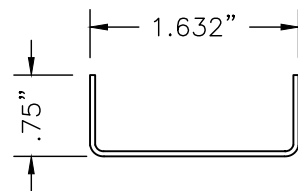
20 DAYTON MORTISE LOCK BOX
14 GA. STEEL
TYPICAL WALL THICKNESS: 0.075"



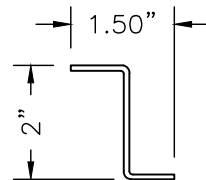
21 2 PART 161 LOCK REINFORCEMENT
16 GA. STEEL
TYPICAL WALL THICKNESS: 0.058"



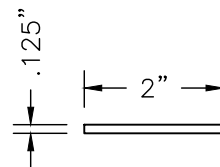
28 TOP, SIDE, & BOTTOM CHANNEL
14 GA. STEEL TYPICAL WALL THICKNESS: 0.025"



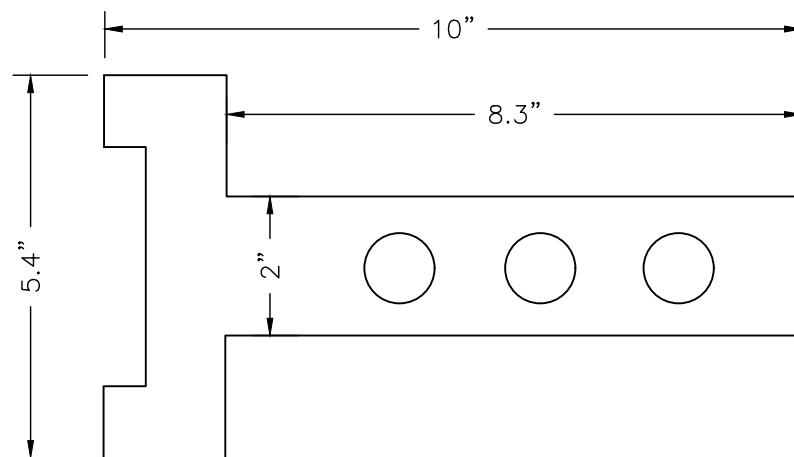
30 COMMERCIAL Z-ASTRAGAL
16 GA. STEEL TYPICAL WALL THICKNESS: 0.058" MIN.



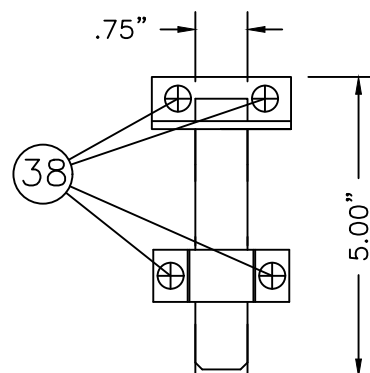
31 COMMERCIAL FLAT ASTRAGAL
12 GA. STEEL TYPICAL WALL THICKNESS: 0.125"



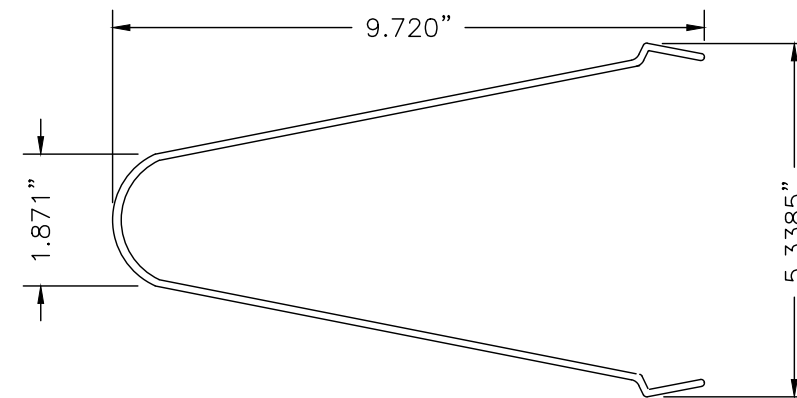
39 MASONRY "TEE" ANCHOR
16 GA. STEEL
TYPICAL WALL THICKNESS: .0.058" MIN.
SEE SHEET 9 FOR SPECIFICATIONS



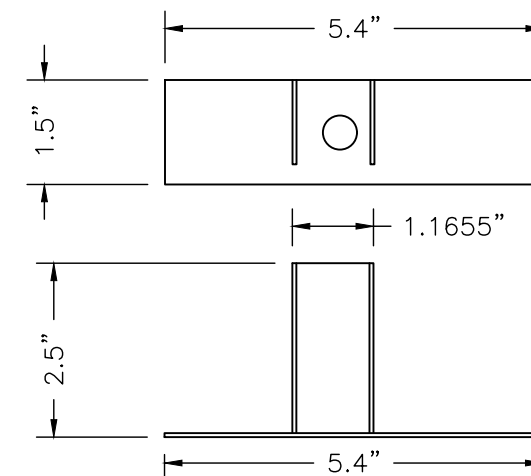
27 IVES SURFACE BOLT (STEEL)



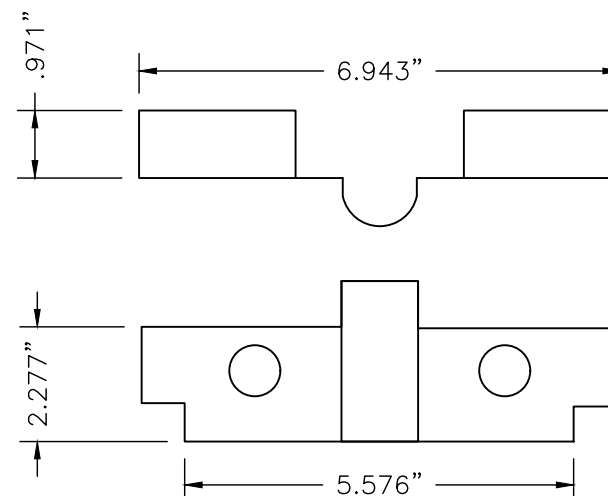
40 MASONRY WIRE ANCHOR
7 GA. STEEL (ASTM A653)
TYPICAL WALL THICKNESS: .185"Ø
SEE SHEET 10 FOR SPECIFICATIONS



41 EMA WELDED ANCHOR
16 GA. STEEL
TYPICAL WALL THICKNESS: .0.058" MIN.



42 EMA BUTTERFLY ANCHOR
17 GA. STEEL
TYPICAL WALL THICKNESS: .054" MIN.



HMF EXPRESS
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DATE: 2/27/2019	DWN BY: 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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Amoruso
Date: 2026.01.31
12:29:28 -05'00'

PROJECT#: ACE-2025-126

DWG/REV: HMF0005, Rev C

SHT: 13 of 16

SERIES FLUSH STEEL COMMERCIAL DOOR OUTSWING, IMPACT (XX) INSTALLATION ANCHORAGE DETAILS	DATE	BY	1/5/26		
	REVISION DESCRIPTION	NO.	ADD ALTERNATE LOCKING HARDWARE		
		C			

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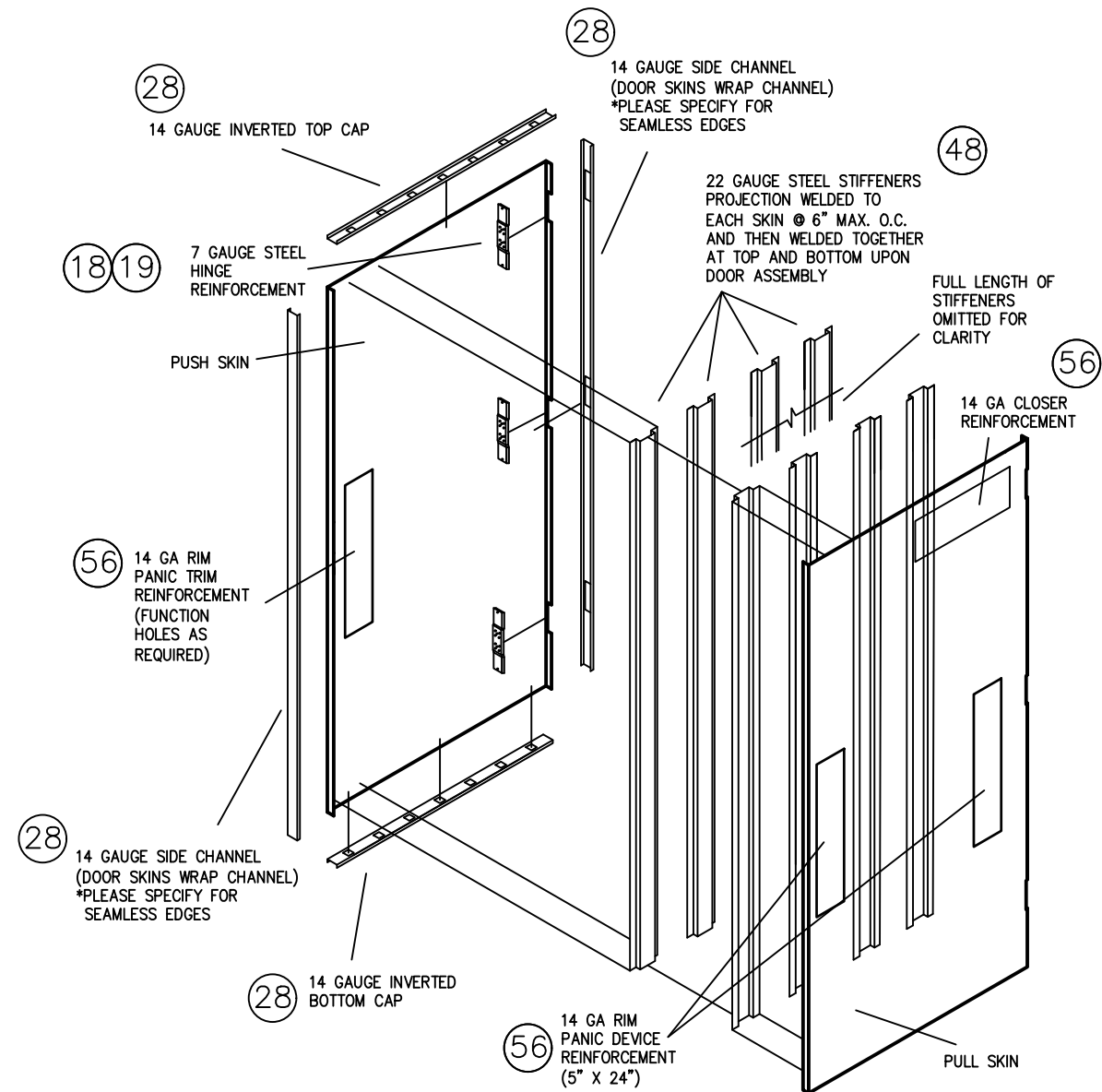


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by Robert J
Amoruso
Date: 2026.01.31
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PROJECT#: ACE-2025-126

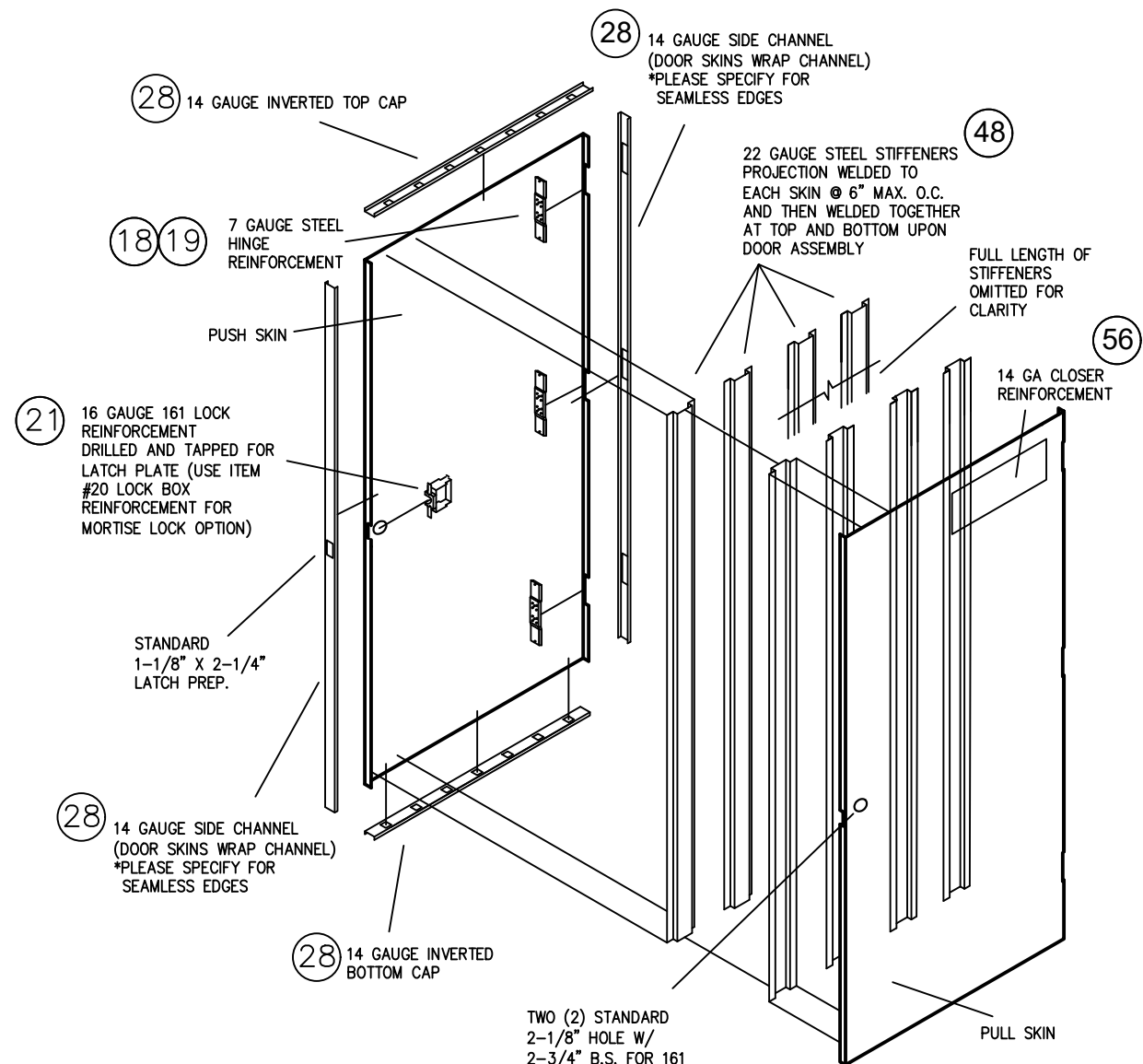
DWG/REV: HMF0005, Rev C

SHT: 14 of 16



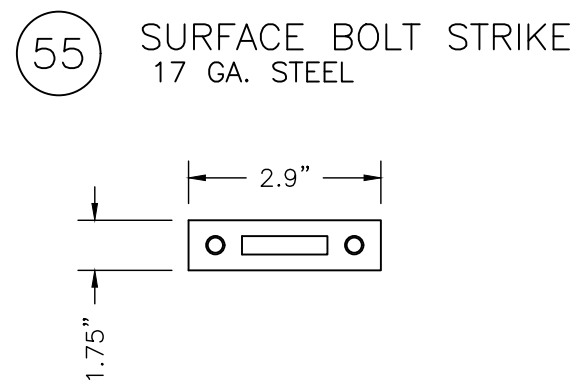
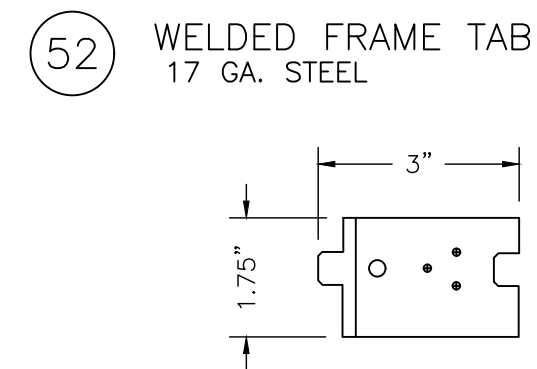
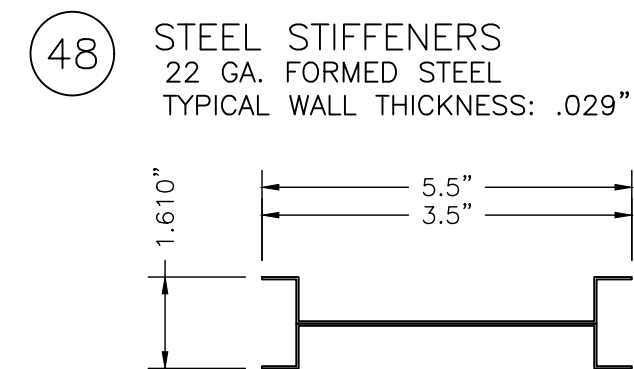
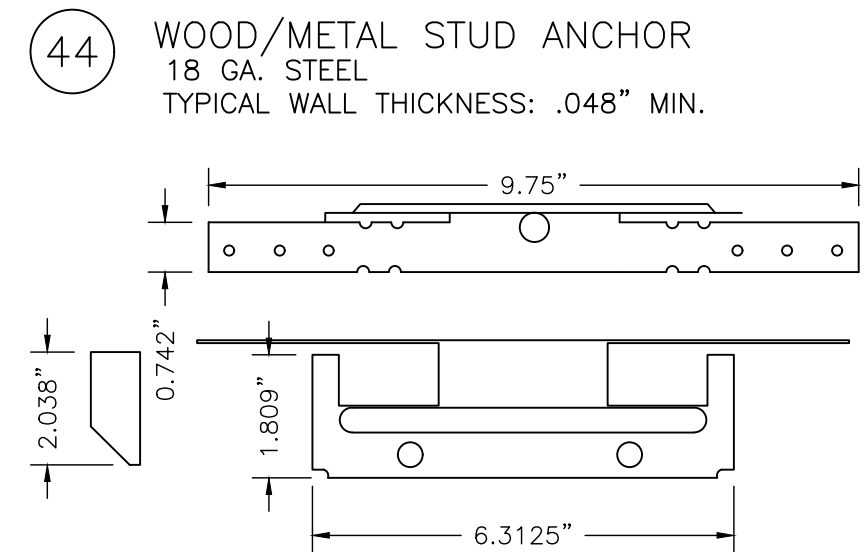
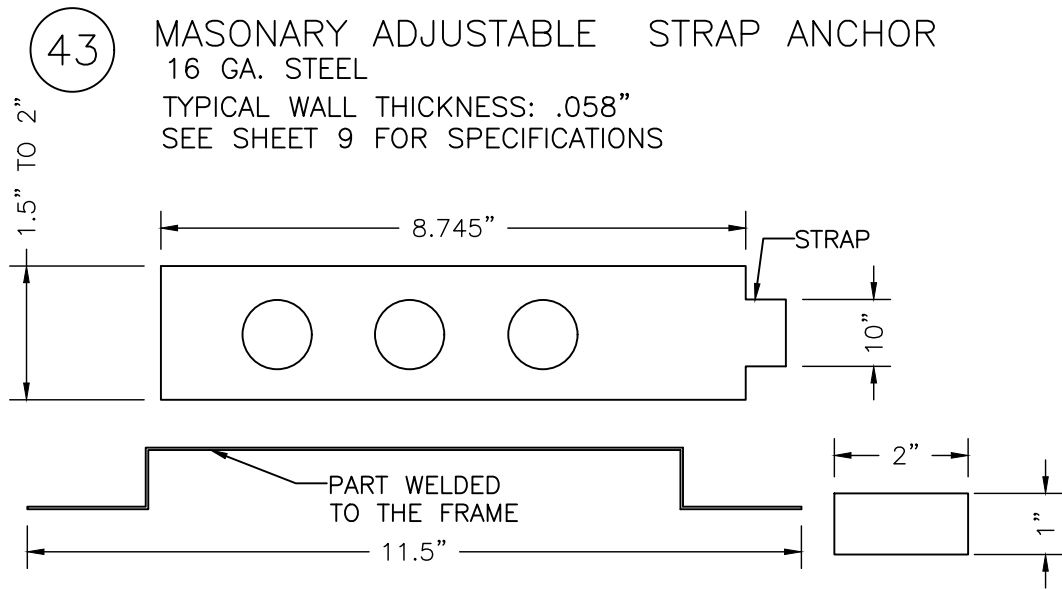
NOTES:
-35.8125 MAX DOOR WIDTH (86.8125 W/ ASTRAGAL)
-85.5 MAX DOOR HEIGHT
-ESTIMATED PERFORMANCE STC 24, R 1.17, U .855
-TESTING STANDARDS - UBC 7.2, NFPA 252, UL 10-C
-BUTT EDGE FLUSH DOORS 16 AND 18 GAUGE STEEL (CRS OR A60)
-SQUARE EDGE STANDARD/ BEVELED UPON REQUEST
-SPACES BETWEEN STIFFENERS FILLED W/ FIBERGLASS INSULATION
-MAXIMUM SPACING FOR STIFFENERS @ 6\"/>

22GA. STIFFENER DETAIL
PANIC DEVICE



NOTES:
-35.8125 MAX DOOR WIDTH (86.8125 W/ ASTRAGAL)
-85.5 MAX DOOR HEIGHT
-ESTIMATED PERFORMANCE STC 24, R 1.17, U .855
-TESTING STANDARDS - UBC 7.2, NFPA 252, UL 10-C
-BUTT EDGE FLUSH DOORS 16 AND 18 GAUGE STEEL (CRS OR A60)
-SQUARE EDGE STANDARD/ BEVELED UPON REQUEST
-SPACES BETWEEN STIFFENERS FILLED W/ FIBERGLASS INSULATION
-MAXIMUM SPACING FOR STIFFENERS @ 6\"/>

22GA. STIFFENER DETAIL
MORTISE/
CYLINDRICAL LOCK



BILL OF MATERIALS				
ITEM	PART NUMBER	DESCRIPTION	MATERIAL	MANUFACTUER
1		HMF DOOR SLAB - ASTM A1008/A653	18 GA. STEEL	HMF EXPRESS
2		STIFFENED DOOR SLAB - ASTM A1008/A653	16 GA. STEEL	HMF EXPRESS
3		H.M.F. HEADER C.R.S. - ASTM A1008/A653	16 GA. STEEL	HMF EXPRESS
4		H.M.F. HINGE JAMB C.R.S. - ASTM A1008/A653	16 GA. STEEL	HMF EXPRESS
5	896N	PANIC THRESHOLD	ALUMINUM	NATIONAL GUARD PRODUCTS
6		THRESHOLD WEATHERSTRIP	VINYL	
7	415S	ADA PASS OVER THRESHOLD	ALUMINUM	HAGER
8		F1300 FIRE MULLION 21' x 3" x .116"	STEEL	DORMA
9		4 1/2" TEMPLATE HINGE	STEEL	HAGER
10		CONTINUOUS STEEL HINGE3.282" W. ROTON HINGE	STEEL	HAGER
11	137NA	SURFACE MOUNTED FRAME WEATHERSTRIP		NATIONAL GUARD PRODUCTS
12	130NA	SURFACE MOUNTED FRAME WEATHERSTRIP		NATIONAL GUARD PRODUCTS
13	200NA	SURFACE MOUNTED DOOR BOTTOM SWEEP		NATIONAL GUARD PRODUCTS
14	125NA	SURFACE MOUNTED DOOR MEETING STILE SEAL		NATIONAL GUARD PRODUCTS
15	3210119	SURFACE MOUNTED DOOR BOTTOM SWEEP		PEMKO
16	63644	ASTRAGAL FACE WEATHERSTRIP	CELLULAR RUBBER	M-D BUILDING PRODUCTS
17	2873	ASTRAGAL FACE WEATHERSTRIP	FOAM	M-D BUILDING PRODUCTS
18		DOOR HINGE REINFORCEMENT - ASTM A1008/A653	7 GA. STEEL	HMF EXPRESS
19		FRAME HINGE REINFORCEMENT - ASTM A1008/A653	7 GA. STEEL	HMF EXPRESS
20		MORTISE LOCK BOX - ASTM A1008/A653	18 GA. STEEL	HMF EXPRESS
21		2 PART 161 LOCK REINFORCEMENT - ASTM A1008/A653	STEEL	HMF EXPRESS
22		SURFACE VERTICAL RODS W/ PUSH BAR		SEE SHEET 2 TABLE
23		RIM DEVICE W/ PUSH BAR		SEE SHEET 2 TABLE
24		CYLINDRICAL LOCKSET		SEE SHEET 2 TABLE
25		CYLINDRICAL DEADBOLT (DEAD LOCK)		SEE SHEET 2 TABLE
26		MORTISE LOCKSET		SEE SHEET 2 TABLE
27	454	SURFACE BOLTS 5" LONG	STEEL	IVES
28		TOP, BOTTOM, & SIDE CHANNEL - ASTM A1008/A653	14 GA. STEEL	HMF EXPRESS
29		FOAM STOPPER	FOAM	HMF EXPRESS
30		COMMERCIAL Z-ASTRAGAL 0.062" MIN. - ASTM A1008/A653	STEEL	HMF EXPRESS
31	W030317028	COMMERCIAL FLAT ASTRAGAL 0.125" - ASTM A1008/A653	STEEL	HMF EXPRESS
32		#8 X 1/2" PPH SELF TAPPING SHEET METAL SCREW (WEATHERSTRIP TO FRAME)	STEEL	
33		#10 X 3/4" PPH SELF TAPPING SHEET METAL SCREW (SWEEP TO DOOR)	STEEL	
34		3/8" X 1 3/8" DROP-IN ANCHORS (MULLION ANCHOR BRACKET TO SILL)	STEEL	PORTEOUS FASTENERS
35		#12 - 24 X 5/8" LG. MACHINE SCREW (RIM DEVICE STRIKE TO MULLION)	STEEL	
36		#12 - 24 X 1/2" MACHINE SCREW (HINGE TO FRAME & DOOR)	STEEL	
37		#12 - 24 X 1 1/2" PFH WOOD SCREW (SURFACE BOLT STRIKE TO BUCK AT SILL)	STEEL	
38		3/8" X 1 1/2" PPH SCREW W/ 3/8" SEX BOLT (SURFACE BOLT ATTACHMENT)	STEEL	
39		MASONRY "TEE" ANCHOR 0.058" MIN.	STEEL	HMF EXPRESS
40		MASONRY WIRE ANCHOR 0.185" DIA.	STEEL	HMF EXPRESS
41		EMA WELDED ANCHOR 0.058" MIN.	STEEL	HMF EXPRESS
42		EMA BUTTERFLY ANCHOR 0.048" MIN.	STEEL	HMF EXPRESS
43		MASONRY ADJUSTABLE STRAP ANCHOR 0.058" MIN.	STEEL	HMF EXPRESS
44		WOOD/METAL STUD ANCHOR 0.042" MIN.	STEEL	HMF EXPRESS
45		3/8" DYNA BOLT BY ITW RED HEAD (USED W/ EMA WELDED & EMA BUTTERFLY ANCHORS)	STEEL	ITW RED HEAD
46		EXPANDED POLYSTYRENE (EPS) FOAM CORE USED IN THE HMF 18 GA. DOOR	FOAM	
47		FIBERGLASS INSULATION CORE (USED IN THE HMF 16 GA. DOOR)	FIBERGLASS	
48		STEEL STIFFNERS	22 GA. STEEL	HMF EXPRESS
49		3/16" X 1 3/4" TAPCON ANCHOR	STEEL	ITW
50		8d COMMON BRIGHT X 2.0" NAIL	STEEL	COMMON BRIGHT
51		3/8" X 5.0" SLOTTED FLAT HEAD LAG SCREW	STEEL	
52		WELDED FRAME TAB	STEEL	HMF EXPRESS
53		#12 X 1/2" PAN HEAD SELF DRILL & TAPPING SCREW	STEEL	
54		1/4 - 20 SEX BOLT	STEEL	
55		SURFACE BOLT STRIKE	STEEL	IVES
56		RIM DEVICE/CLOSER REINFORCEMENT	14 GA. STEEL	HMF EXPRESS
57		5/16" X 1/2" FHPMS (MULLION ANCHOR BRACKET TO FRAME HEAD)	STEEL	
58		1/4-14 ITW TEK SCREWS (WOOD/METALSTUD ANCHOR TO STEEL STUD)	STEEL	ITW BUILDDEX
59		STEEL MOUNTING PLATE, 2" X 6" X 1/4" (FOR MULLION BRACKET TO CONCRETE)	STEEL	DORMA

HMF EXPRESS
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SERIES FLUSH STEEL COMMERCIAL DOOR

OUTSWING, IMPACT (XX)

INSTALLATION ANCHORAGE DETAILS

DATE

1/5/26

BY

RIA

REVISION DESCRIPTION

ADD ALTERNATE LOCKING HARDWARE

NO.

C

DATE:
2/27/2019

DWN BY:
RIA

CHK BY:
RIA

SCALE:
NONE

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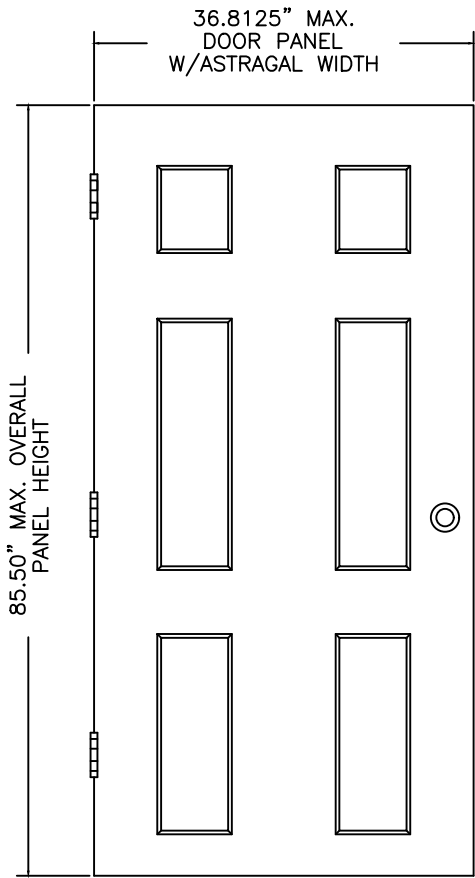


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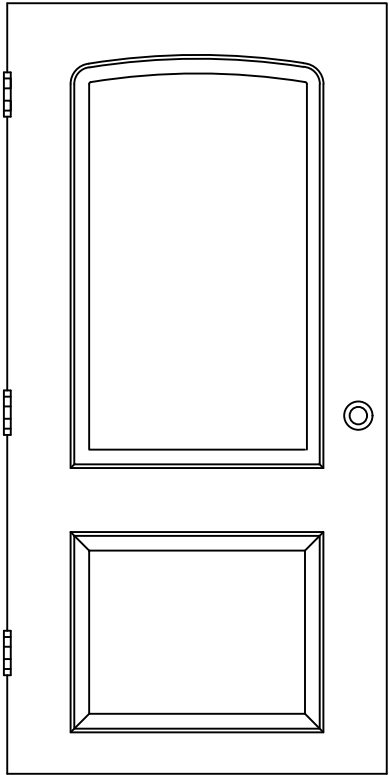
PROJECT#: ACE-2025-126

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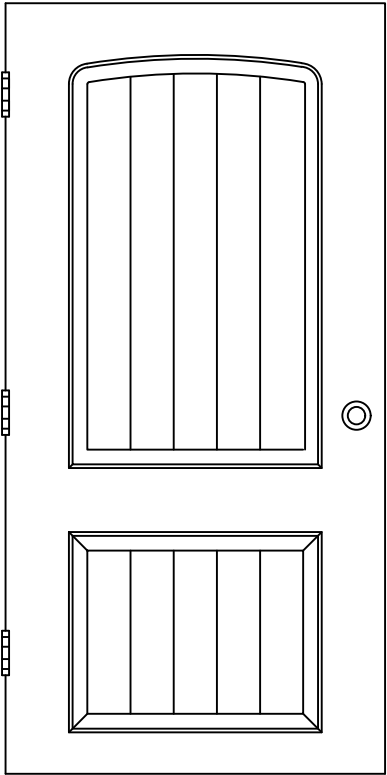
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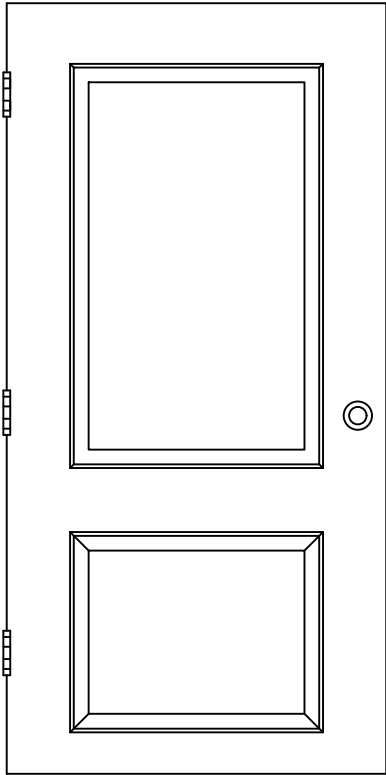
CLASSIC 6-PANEL



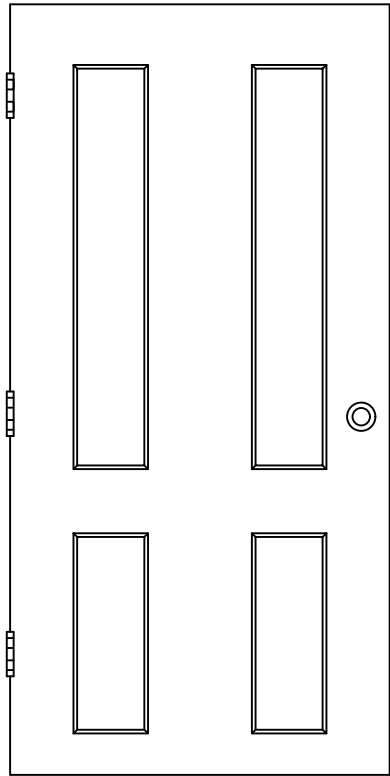
HIGH-DEFINITION 2-PANEL ARCH



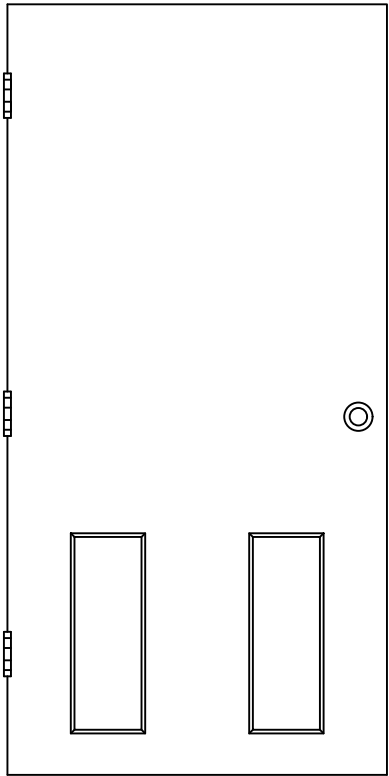
HIGH-DEFINITION 2-PANEL ARCH
WITH PLANK



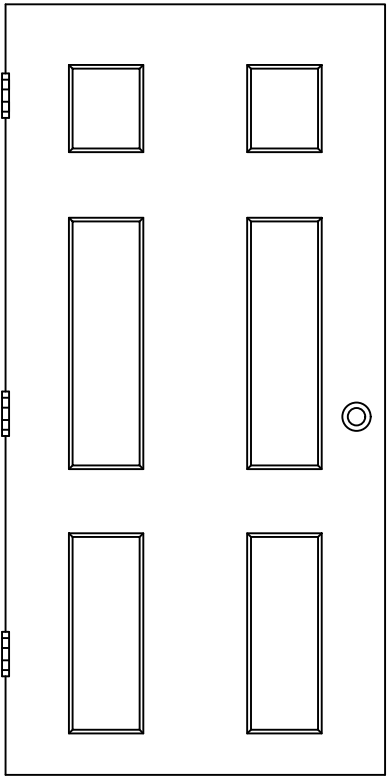
HIGH-DEFINITION 2-PANEL



CLASSIC 4-PANEL



2-PANEL TOP BLANK



NARROW 6-PANEL

HMF EXPRESS
2501 NORTHCHASE
PARKWAY SE
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SERIES FLUSH STEEL COMMERCIAL DOOR OUTSWING, IMPACT (XX) INSTALLATION ANCHORAGE DETAILS	NO.	DATE	BY			
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RJA

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SCALE:
NONE

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SHT: 16 of 16