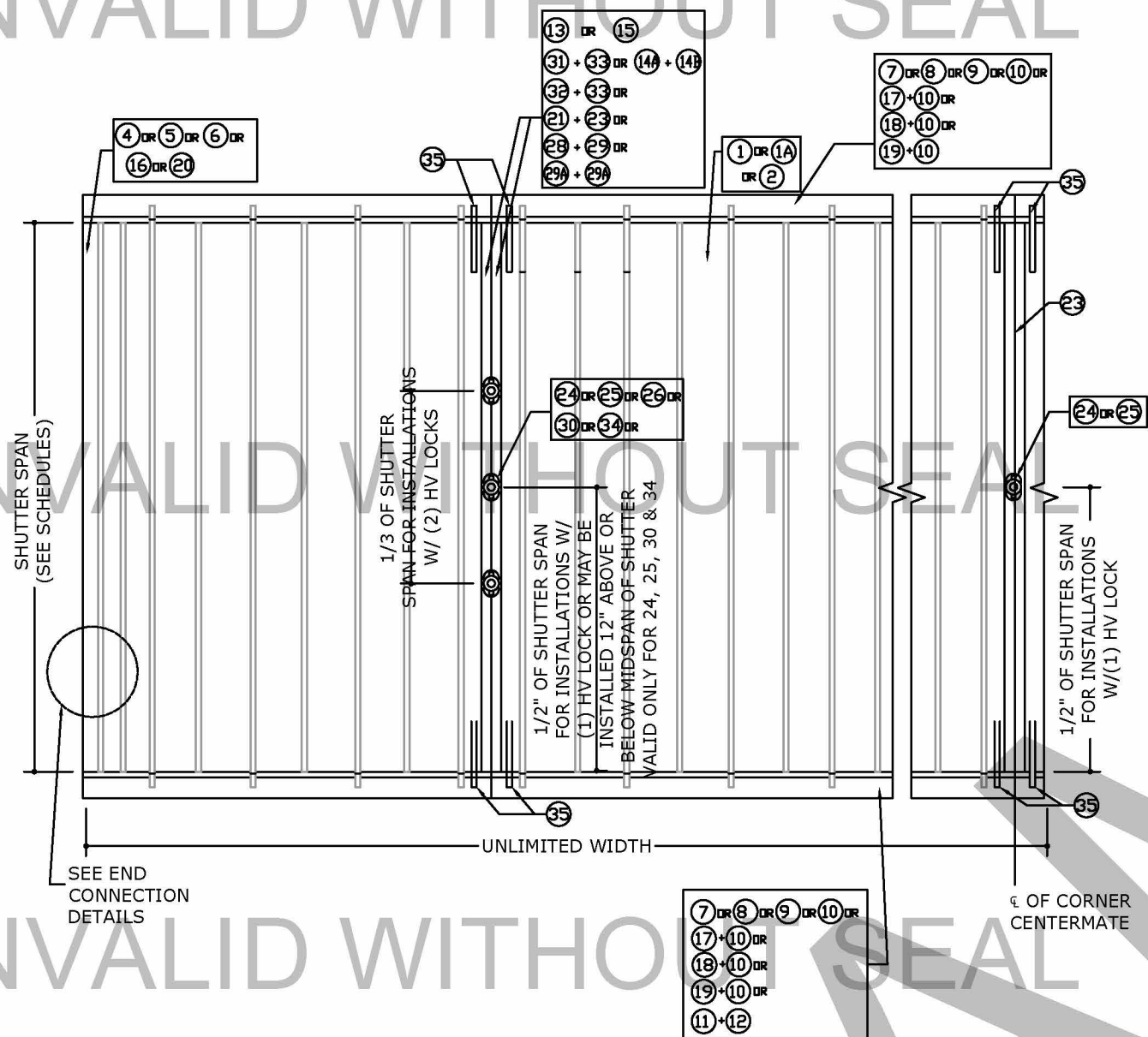


BERTHA HV ESSENTIAL ACCORDION SHUTTER

HV BLADE 1, HV WINDOW BLADE 1A & HV BLADE 2



1 TYPICAL HV ESSENTIAL SHUTTER
1 N.T.S. EXTERIOR ELEV

GENERAL NOTES

- THE SYSTEM DESCRIBED HEREIN HAS BEEN DESIGNED AND TESTED IN ACCORDANCE WITH THE 2018 INTERNATIONAL BUILDING CODE (IBC) AND THE INTERNATIONAL RESIDENTIAL CODE (IRC) FOR USE INSIDE AND OUTSIDE THE HIGH VELOCITY HURRICANE ZONE, PER ASTM E330, E1886, AND E1996 AND TAS 201, 202 & 203 STANDARDS. SEE PRODUCT APPROVAL EVALUATION FOR ADDITIONAL INFORMATION.
- NO 33-1/3% INCREASE IN ALLOWABLE STRESS HAS BEEN USED IN THE DESIGN OF THIS SYSTEM. WIND LOAD DURATION FACTOR $C_d=1.6$ HAS BEEN USED FOR WOOD ANCHOR DESIGN.
- POSITIVE AND NEGATIVE DESIGN PRESSURES CALCULATED FOR USE WITH THIS SYSTEM SHALL BE DETERMINED PER SEPARATE ENGINEERING IN ACCORDANCE WITH THE GOVERNING CODE. PRESSURE REQUIREMENTS AS DETERMINED IN ACCORDANCE WITH ASCE 7 AND CHAPTER 1609 OF THE FLORIDA BUILDING CODE SHALL BE LESS THAN OR EQUAL TO THE POSITIVE OR NEGATIVE ASD DESIGN PRESSURE CAPACITY VALUES LISTED HEREIN FOR ANY ASSEMBLY AS SHOWN.
- DESIGN PRESSURES NOTED HEREIN ARE BASED ON MAXIMUM TESTED PRESSURES DIVIDED BY A 1.5 SAFETY FACTOR.

- THE SYSTEM DETAILED HEREIN IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SPECIFIC SITE. FOR SITE CONDITIONS DIFFERENT FROM THE CONDITIONS DETAILED HEREIN, A LICENSED ENGINEER OR REGISTERED ARCHITECT SHALL PREPARE SITE SPECIFIC DOCUMENTS FOR USE IN CONJUNCTION WITH THIS DOCUMENT.
- EACH UNIT MUST BEAR A PERMANENT LABEL IN A VISIBLE PLACE WITH WARNING NOTE: DURING PERIODS OF HURRICANE WARNINGS HOME OWNER, TENANT OR OTHERS MUST PROPERLY CLOSE A HV AND HD CENTERMATES AND ENGAGE OR LOCK ALL HV/HD LOCKS.
- THIS DOCUMENT CONTAINS INFORMATION RELEVANT TO THE NECESSARY STRUCTURAL REQUIREMENTS OF THE SYSTEM INSTALLATION. COMPONENTS AND FASTENERS NOT REFERENCED WHICH ARE PART OF THE INTERNAL FABRICATION OF THE SPECIFIED SYSTEMS OR ASSEMBLIES SHALL BE PER MANUFACTURER PUBLISHED SPECIFICATIONS.
- THE STRUCTURAL ADEQUACY OF THE EXISTING STRUCTURE TO WITHSTAND SUPERIMPOSED LOADS BY THIS SYSTEM SHALL BE VERIFIED BY OTHERS.

- ALL EXTRUSIONS SHALL BE MINIMUM 6063-T6 ALUMINUM ALLOY, UNLESS NOTED OTHERWISE.
- EACH SHUTTER ASSEMBLY SHALL BEAR A PERMANENT LABEL PER SECTION 1709.9.3 OF THE FBC 2017 WITH THE FOLLOWING MINIMUM INFORMATION:
AMERICAN SHUTTER SYSTEMS ASSOC., INC.
WEST PALM BEACH, FL
MISSILE LEVEL D - ASTM E1886, E1996 & E330 - TAS 201, 202 & 203
FLORIDA PRODUCT APPROVAL NUMBER
- ALL BOLTS & WASHERS SHALL BE ZINC COATED STEEL, GALVANIZED STEEL, OR STAINLESS STEEL WITH A MINIMUM TENSILE YIELD STRENGTH OF 60 KSI. ALL ALUMINUM 3/16"Ø OR 1/4"Ø POP RIVETS SHALL BE 7075-T6 OR STRONGER.
- ALL STEEL IN CONTACT WITH ALUMINUM SHALL BE PAINTED OR PLATED AS PRESCRIBED IN THE ABOVE-NOTED BUILDING CODE.

SCHEDULE #1 (ALL BLADE OPTIONS)		
MAXIMUM SHUTTER SPAN FOR ALL INSTALLATION OPTIONS SHOWN HEREIN EXCEPT TO STEEL WALL STUDS. SEE STEEL WALL STUD DETAIL FOR LIMITATIONS		
MAXIMUM DESIGN PRESSURE RATING (+/-)	CONCRETE & WOOD INSALLATIONS	
	ALL MOUNTING OPTIONS	
	MAX SPAN (+)	MAX SPAN (-)
30 psf	144.0 in	144.0 in
35 psf	144.0 in	144.0 in
40 psf	144.0 in	144.0 in
45 psf	140.5 in	140.5 in
50 psf	137.0 in	137.0 in
55 psf	133.5 in	133.5 in
60 psf	130.0 in	130.0 in
65 psf	126.5 in	126.5 in
70 psf	123.0 in	123.0 in
75 psf	119.5 in	119.5 in
80 psf	116.0 in	116.0 in

SCHEDULE #2 (GLASS SEPARATION)	
SHUTTER SPAN	MINIMUM GLASS SEPARATION FOR ALL CONFIGURATIONS HEREIN
UP TO 116"	3.5 in
>116" UP TO 144"	5.0 in

SCHEDULE 2 NOTES:

- GLASS SEPARATION ONLY REQUIRED WITHIN WIND ZONE 4 AND THE HIGH VELOCITY HURRICANE ZONE (HVHZ).
- GLASS SEPARATION VALUES SHOWN APPLY TO INSTALLATIONS LESS THAN 30 FEET FROM GRADE.
- INSTALLATIONS ABOVE 30 FEET FROM GRADE SHALL HAVE A MINIMUM GLASS SEPARATION OF 3.25".

VISIT [ECALC.IO/31289](https://ecalculator.com/31289)

FOR ENGINEER CERTIFIED ORIGINALS
& MORE INFORMATION ABOUT THIS DOCUMENT
OR SCAN THE QR CODE TO THE RIGHT >

VISIT [ENGINEERINGEXPRESS.COM/EASTERN](https://engineeringexpress.com/eastern)
FOR ADDITIONAL PLANS, REPORTS & RESOURCES



FRANK BENNARDO PE
PE# 0046549 CA# 9885

09/17/2020

FL#32030.2

ENGINEERING EXPRESS
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
(954) 354-0660 | (866) 396-9999
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

EASTERN METAL SUPPLY

4268 WESTROADS DR
WEST PALM BEACH, FL
(800) 432-2204

BERTHA HV ESSENTIAL ACCORDION SHUTTER
HV BLADE 1, HV WINDOW BLADE 1A & HV BLADE 2
PRODUCT APPROVAL #FL32030.2

REMARKS	DRWN	CHKD	DATE
INIT ISSUE	FRWN	RWN	5/28/2020
2018 IBC UPDATE	JC	RN	09/16/20

THIS DOCUMENT IS THE PROPERTY OF ENGINEERING EXPRESS AND SHALL NOT BE REPRODUCED IN WHOLE OR PART WITHOUT WRITTEN CONSENT OF ENGINEERING EXPRESS. ALTERATIONS, ADDITIONS OR OTHER MARKINGS TO THIS DOCUMENT ARE NOT PERMITTED AND INVALIDATE OUR CERTIFICATION.

COPYRIGHT ENGINEERING EXPRESS®

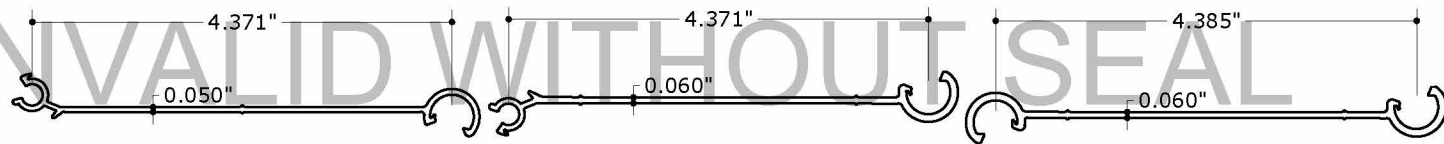
20-31289

SCALE: NTS UNLESS NOTED

1

15

BLADE 1, 1A & 2 COMPONENTS



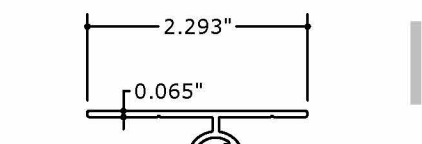
1 1A HV BLADE 1
N.T.S. 6063-T6 ALUM
*W/ OR W/ OUT WINDOW



2 HV BLADE 2
N.T.S. 6063-T6 ALUM



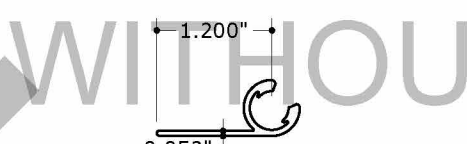
3 HV UNIVERSAL FLOATER
N.T.S. 6063-T6 ALUM



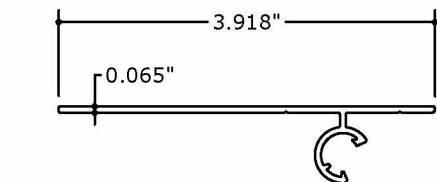
4 HV ESSENTIAL 3/8" DIRECT MOUNT
N.T.S. 6063-T6 ALUM



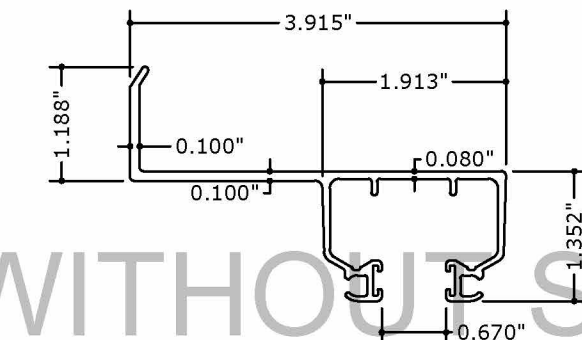
5 HV ESSENTIAL 1" DIRECT MOUNT
N.T.S. 6063-T6 ALUM



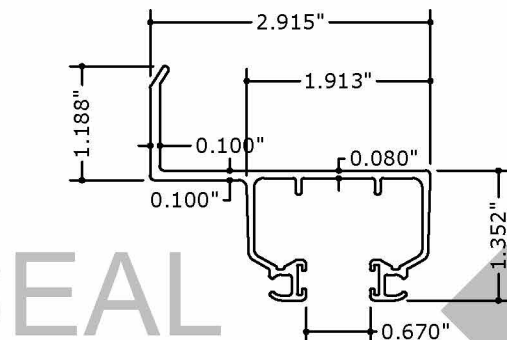
5A HV 90°/180° STARTER
N.T.S. 6063-T6 ALUM
HV 90/180 STARTER
41-COLOR-415



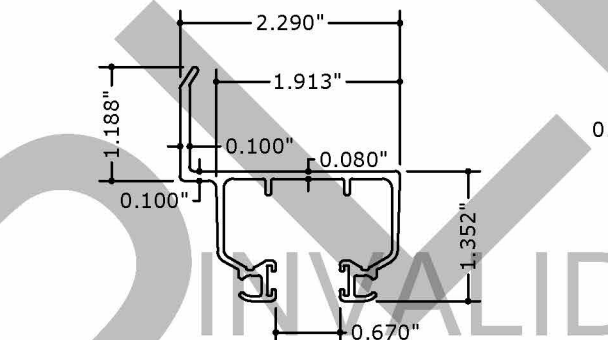
6 HV ESSENTIAL 2" DIRECT MOUNT
N.T.S. 6063-T6 ALUM



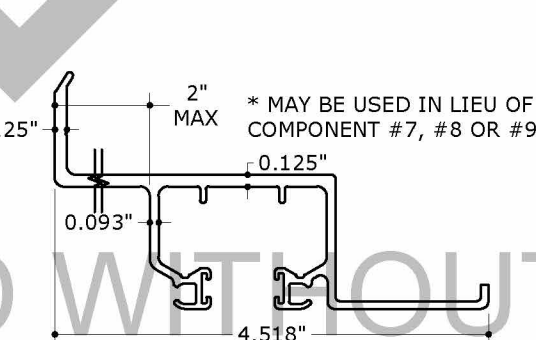
7 HV ESSENTIAL 2" BUILD-OUT
N.T.S. 6063-T6 ALUM



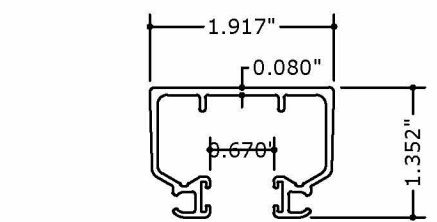
8 HV ESSENTIAL 1" BUILD-OUT
N.T.S. 6063-T6 ALUM



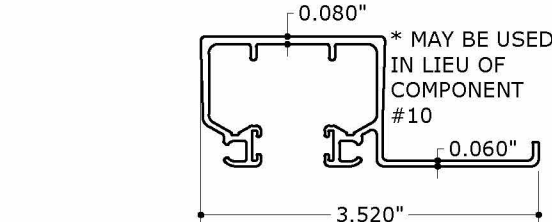
9 HV ESSENTIAL 3/8" BUILD-OUT
N.T.S. 6063-T6 ALUM



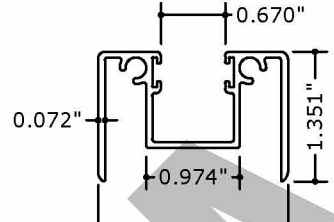
9A HV HEADER/SILL
N.T.S. 6063-T6 ALUM
2" MAX
* MAY BE USED IN LIEU OF COMPONENT #7, #8 OR #9



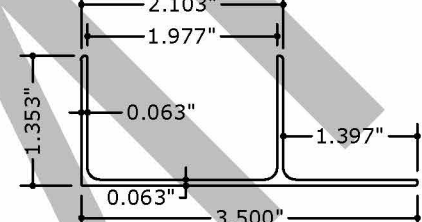
10 HV ESSENTIAL HEADER
N.T.S. 6063-T6 ALUM



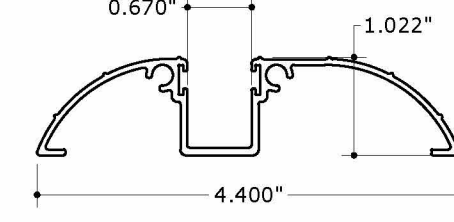
10A HV CEILING HEADER
N.T.S. 6063-T6 ALUM
* MAY BE USED IN LIEU OF COMPONENT #10



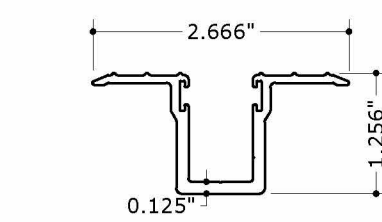
11 HV ESSENTIAL ADJ. ADAPTOR W/ FELT
N.T.S. 6063-T6 ALUM



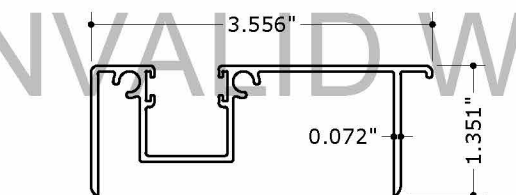
12 HV ESSENTIAL ADJ. ADAPTOR W/ LIP
N.T.S. 6063-T6 ALUM



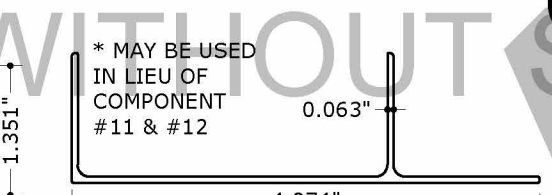
11C HV WALK OVER TRACK
N.T.S. 6063-T6 ALUM



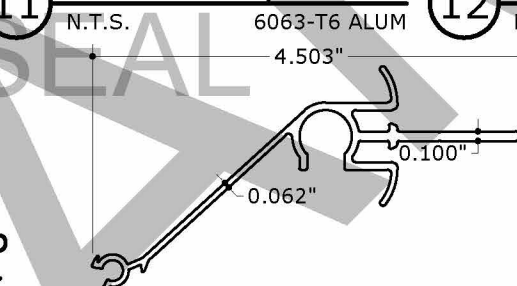
11D HV TRENCH TRACK
N.T.S. 6063-T6 ALUM



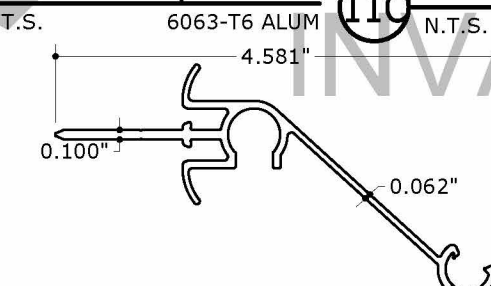
11A HV ADJ. FLOOR TRACK
N.T.S. 6063-T6 ALUM



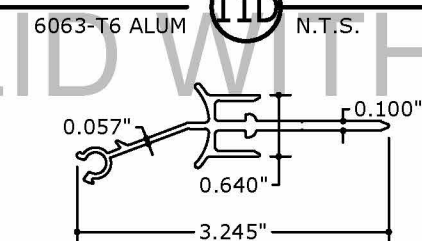
12A HV ADJ. ADAPTOR W/ LIP
N.T.S. 6063-T6 ALUM
* MAY BE USED IN LIEU OF COMPONENT #11 & #12



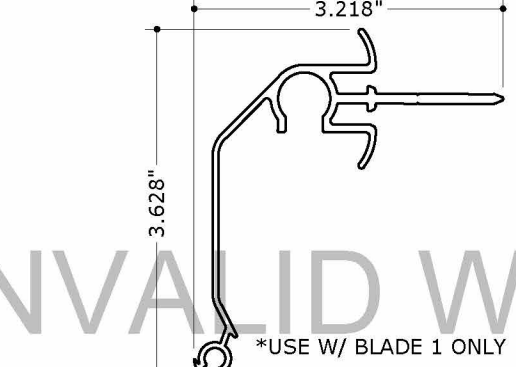
14A HV CENTERMATE
N.T.S. 6063-T6 ALUM
*USE W/ BLADE 1 ONLY



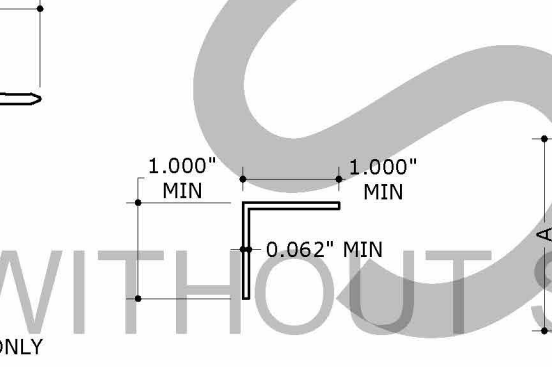
14B HV FLOATING CENTERMATE
N.T.S. 6063-T6 ALUM
*USE W/ BLADE 1 ONLY



13 HV ESSENTIAL FLAT CENTERMATE
N.T.S. 6063-T6 ALUM



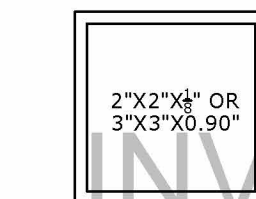
15 HV CORNER CENTERMATE
N.T.S. 6063-T6 ALUM
*USE W/ BLADE 1 ONLY



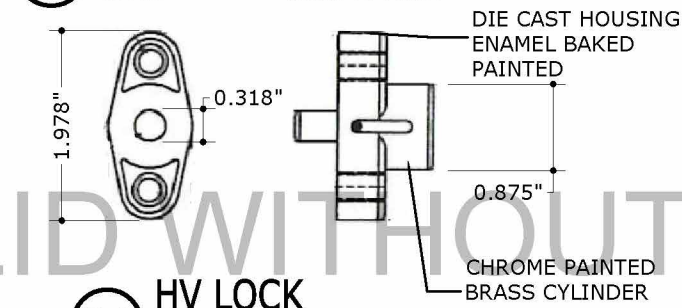
16 SIDE ANGLE
N.T.S. 6063-T6 ALUM

COMPONENT	A	B	T1	T2	BLADE QUALIFIED
17	2"	5" MAX	0.125"	0.125"	ALL
18	2"	5" MAX	0.192"	0.192"	ALL
19	2.5"	7" MAX	0.190"	0.190"	ALL

17 18 19 ALUM ANGLES
N.T.S. 6063-T6 ALUM



20 CORNER POST
N.T.S. 6063-T6 ALUM



24 HV LOCK
N.T.S. 6063-T6 ALUM
*USE W/ BLADE 1 ONLY
DIE CAST HOUSING ENAMEL BAKED PAINTED
CHROME PAINTED BRASS CYLINDER

FRANK BENNARDO PE
PE# 0046549 CA# 9885

09/17/2020

FL#32030.2

ENGINEERING EXPRESS
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
(954) 354-0660 | (866) 396-9999
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

EASTERN METAL SUPPLY

4268 WESTROADS DR
WEST PALM BEACH, FL
(800) 432-2204

BERTHA HV ESSENTIAL ACCORDION SHUTTER
HV BLADE 1, HV WINDOW BLADE 1A & HV BLADE 2
PRODUCT APPROVAL #FL32030.2

REMARKS	DRWN	CHKD	DATE
INITIALS	FWN	RWN	5/28/2020
2018 IBC UPDATE	JC	RN	09/16/20

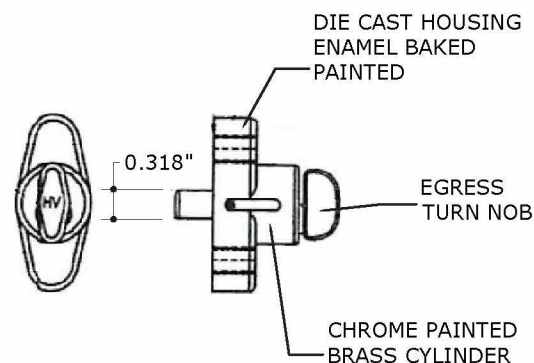
THIS DOCUMENT IS THE PROPERTY OF ENGINEERING EXPRESS, AND SHALL NOT BE REPRODUCED IN WHOLE OR PART WITHOUT WRITTEN CONSENT OF ENGINEERING EXPRESS. ALTERATIONS, ADDITIONS OR OTHER MARKINGS TO THIS DOCUMENT ARE NOT PERMITTED AND INVALIDATE OUR CERTIFICATION.

COPYRIGHT: ENGINEERING EXPRESS

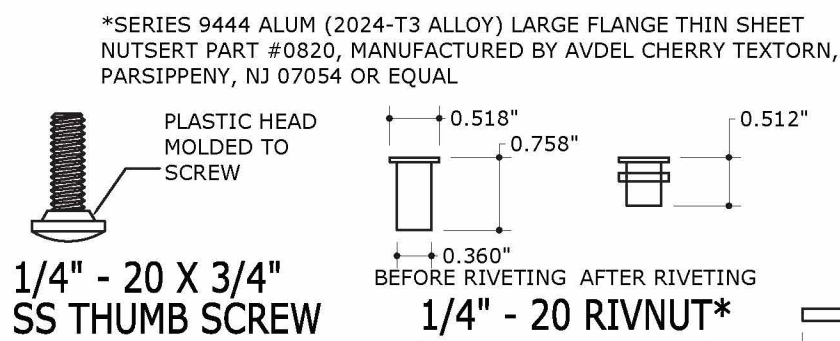
20-31289

SCALE: NTS UNLESS NOTED

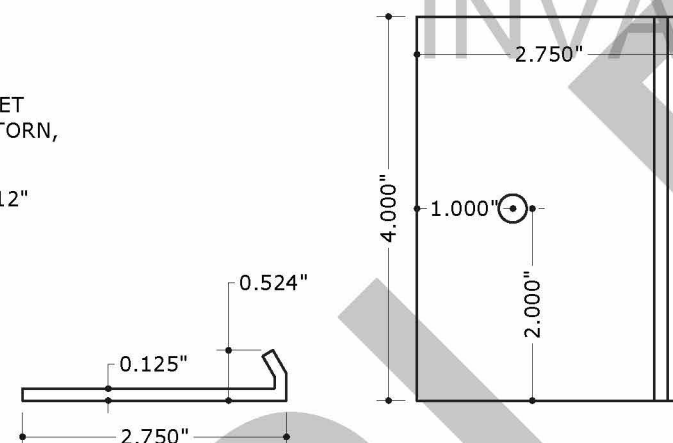
BLADE 1, 1A & 2 COMPONENTS (CONT'D)



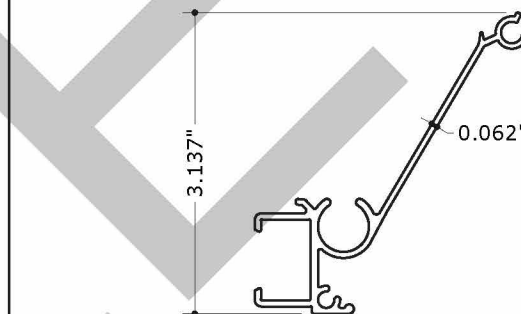
25 HV EGRESS LOCK
N.T.S.
*USE W/ BLADE 1 ONLY



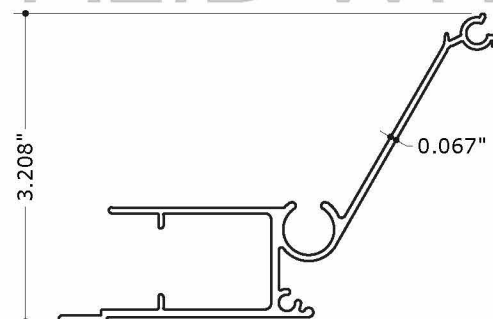
26 HV ALTERNATIVE LOCK
N.T.S.
*USE W/ BLADE 1 ONLY



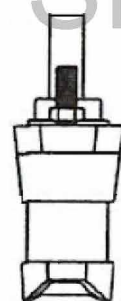
27 LOCKER FOR "T" LOCK CENTERMATE
N.T.S.
*USE W/ BLADE 1 ONLY



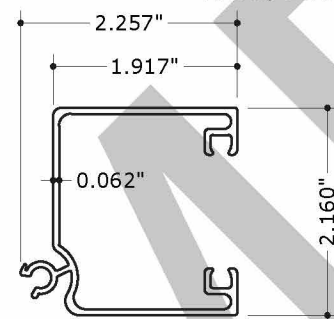
28 HV MALE "T" LOCK CENTERMATE
N.T.S.
*USE W/ BLADE 1 ONLY



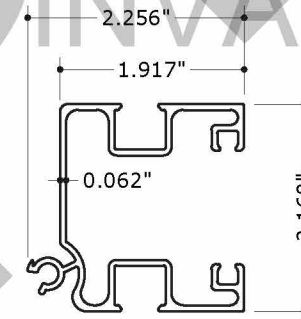
29 HV FEMALE "T" LOCK CENTERMATE
N.T.S.
*USE W/ BLADE 1 ONLY



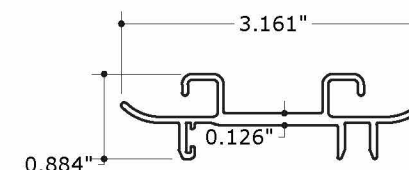
30 HV "T" LOCK
N.T.S.
*USE W/ BLADE 1 ONLY



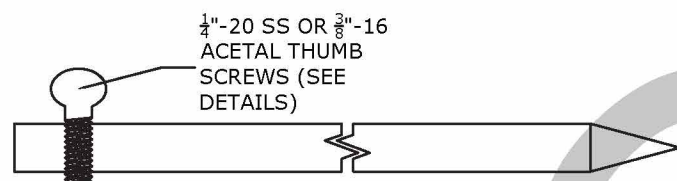
31 HD CENTERMATE W/
NO LOCKING ROD
N.T.S.



32 HD CENTERMATE W/
LOCKING ROD
N.T.S.



33 HD CENTERMATE
INSERT
N.T.S.



36 HV 1/4"-20 THUMBSCREW
N.T.S.

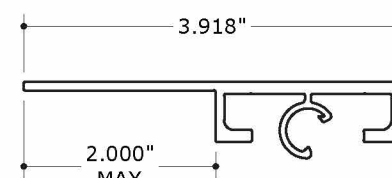


37 HV 3/8"-16 ACETAL THUMBSCREW
N.T.S.

35 LOCKING ROD
N.T.S.

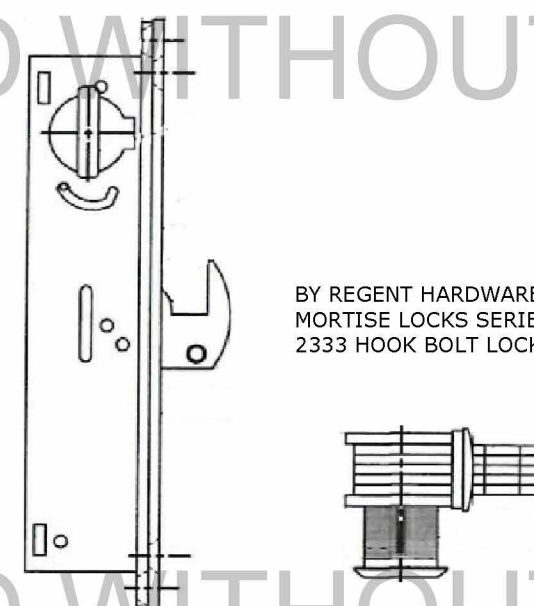
*TOP/BOTTOM TRACK SHALL HAVE RAINGUARD LIP TO HOLD LOCK ROD

**LOCKING ROD MAY BE USED TO HOLD SYSTEM IN OPEN POSITION WITHOUT EXTENDING THROUGH RAINGUARD (VIA FRICTION). WHEN LOCKING ROD IS USED TO LOCK IN SYSTEM IN CLOSED POSITION, ROD SHALL EXTEND THROUGH RAINGUARD LIP, TYP.



38 HV DIRECT MOUNT
N.T.S.

*CAN BE USED IN LIEU OF COMPONENT #4, #5, OR #6



34 HD LOCK
N.T.S.

FRANK BENNARDO PE
PE# 0046549 CA# 9885

09/17/2020

FL#32030.2

ENGINEERING
EXPRESS
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
(954) 354-0660 | (866) 396-9999
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

EASTERN METAL SUPPLY

4268 WESTROADS DR
WEST PALM BEACH, FL
(800) 432-2204

BERTHA HV ESSENTIAL ACCORDION SHUTTER
HV BLADE 1, HV WINDOW BLADE 1A & HV BLADE 2
PRODUCT APPROVAL #FL32030.2

REMARKS	DRWN	CHKD	DATE
INITI ISSUE	RWN	RWN	5/28/2020
2018 IBC UPDATE	JC	RN	09/16/20

THIS DOCUMENT IS THE PROPERTY OF ENGINEERING EXPRESS, AND SHALL NOT BE REPRODUCED IN WHOLE OR PART WITHOUT WRITTEN CONSENT OF ENGINEERING EXPRESS. ALTERATIONS, ADDITIONS OR OTHER MARKINGS TO THIS DOCUMENT ARE NOT PERMITTED AND INVALIDATE OUR CERTIFICATION.

COPYRIGHT: ENGINEERING EXPRESS®

20-31289

SCALE: NTS UNLESS NOTED

3

15