GENERAL NOTES:

1. BERTHA H.V. ACCORDION SHUTTER SYSTEM WITH H.V. BLADE #3 W/ OR W/O H.V. WINDOW BLADE #3 SHOWN ON THIS PRODUCT EVALUATION DOCUMENT (P.E.D.) HAS BEEN VERIFIED FOR COMPLIANCE IN ACCORDANCE WITH THE 2007 EDITION OF THE FLORIDA BUILDING CODE.
   THIS ACCORDION SHUTTER SYSTEM MAY BE INSTALLED AT HIGH VELOCITY HURRICANE ZONES. DESIGN WIND LOADS SHALL BE DETERMINED AS PER SECTION 1620 OF THE ABOVE MENTIONED CODE FOR A BASIC WIND SPEED AS REQUIRED BY THE JURISDICTION WHERE SHUTTER WILL BE INSTALLED, AND FOR A DIRECTIONALITY FACTOR Kd=0.85, IN ACCORDANCE WITH ASCE 7-05 STANDARD.
   DIRECTIONALLY FACTOR Kd=0.85, IN ACCORDANCE WITH ASCE 7-05 STANDARD.
   IN ORDER TO VERIFY THAT ANCHORS ON THIS P.E.D., AS TESTED, WERE NOT OVER STRESSED, A 33 % INCREASE IN ALLOWABLE STRESS FOR WIND LOADS WAS NOT USED IN THEIR ANALYSIS. A WIND LOAD DURATION FACTOR Co=1.60 WAS USED FOR VERIFICATION OF FASTENERS SPACING IN WOOD.
   BERTHA H.V. ACCORDION SHUTTER SYSTEM WITH H.V. BLADE #3 W/ OR W/O H.V. WINDOW BLADE #3 ADEQUACY FOR WIND AND IMPACT LOADS HAS BEEN VERIFIED IN ACCORDANCE WITH SECTION 1625 OF THE ABOVE MENTIONED CODE AS PER AMERICAN TEST LAB OF SOUTH FLORIDA REPORTS:

   - (1) H.V. BLADE #3 #0403.01-08 AS PER PROTOCOLS TAS 201, 202 & 203, LARGE MISSILE AND 0825.01-10 (ADDENDUM TO 0403.01-08) AS PER PROTOCOLS TAS-201, TAS 202 & TAS-203, LARGE MISSILE.

   - (1) H.V. BLADE #3 WORKING IN UNISON WITH (1A) H.V. WINDOW BLADE #3 #0829.01-08 AS PER PROTOCOLS TAS-201, TAS 202 & TAS-203, LARGE MISSILE.

   (1) H.V. BLADE #3 AND (1A) H.V. WINDOW BLADE #3 ARE ENGINEERED TO WORK IN UNISON WITH EACH OTHER UNDER THE GENERAL LIMITATIONS AND CONDITIONS OF USE INDICATED ON SHEET 18.

2. BERTHA H.V. ACCORDION PINS (HV SCREWS), USED AT BLADES KNUCKLE SHALL BE #10 X 2 3/4". BERTHA H.V. ACCORDION PINS USED AT HV CENTERMATE SHALL BE #14 X 2 3/4". BERTHA H.V. ACCORDION PINS USED AT HV DIRECT MOUNT SHALL BE #14 X 1 3/4", 410-HT MINIMUM SERIES STAINLESS STEEL SCREWS WITH 135.0 KSI YIELD STRENGTH AND 180 KSI TENSILE STRENGTH. PINS SHALL BE COATED WITH BERTHA HV DACROSHIELD® COATING SYSTEM AS MANUFACTURED BY APPROVED COATING APPLICATORS, REGISTERED WITH AMERICAN SHUTTER SYSTEMS ASSOCIATION. PINS MUST BEAR THE HV MARKING ON THEIR HEAD.

3. ALL ALUMINUM EXTRUSIONS SHALL BE ALUMINUM ASSOCIATION 6063-T6 ALLOY AND TEMPER, WITH Fy = 29.8 ksi MINIMUM (UNLESS OTHERWISE NOTED).

4. ALL SCREWS TO BE STAINLESS STEEL 304 OR 316 AISI SERIES OR CORROSION RESISTANT COATED CARBON STEEL AS PER DIN 50018 AND SECTION 2411.3.3.4 OF THE FLORIDA BUILDING CODE 2007 WITH 50 ksi YIELD STRENGTH AND 90 ksi TENSILE STRENGTH.

5. BOLTS TO BE ASTM A-307 GALVANIZED STEEL, OR AISI 304 SERIES STAINLESS STEEL WITH 35 ksi MINIMUM YIELD STRENGTH.

6. SEE SHEETS 6 & 8 FOR ANCHORS SPECIFICATIONS ON DIFFERENT SUBSTRATES.

7. THIS BERTHA H.V. ACCORDION SHUTTER SYSTEM BEARS A U.S. PATENT #6779582. COMPONENTS OF THIS APPROVAL ARE COVERED, IN WHOLE OR IN PART BY U.S. PATENT #5458179 ISSUED TO EASTERN METAL SUPPLY, INC.

8. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE SOUNDNESS OF THE STRUCTURE WHERE SHUTTER IS TO BE ATTACHED TO INSURE PROPER ANCHORAGE. CONTRACTOR TO SEAL/CAULK ALL SHUTTER COMPONENT EDGES WHICH REMAIN, THRU FASTENING IN CONTINUOUS CONTACT WITH THE BUILDING TO PREVENT WIND/RAIN INTRUSION.

9. EACH UNIT MUST BEAR PERMANENT LABEL IN A VISIBLE PLACE WITH WARNING NOTE: DURING PERIODS OF HURRICANE WARNINGS HOME OWNER, TENANT, OR OTHERS, MUST PROPERLY CLOSE ALL CENTERMATES AND ENGAGE OR LOCK ALL LOCKS.

10. SHUTTER MANUFACTURER'S LABEL SHALL BE LOCATED ON A READILY VISIBLE LOCATION AT ACCORDION SHUTTER IN ACCORDANCE WITH SECTION 1714.8.3 OF FLORIDA BUILDING CODE. ONE LABEL SHALL BE PLACED FOR EVERY OPENING. LABELING TO COMPLY WITH SECTION 1714.8.2 OF THE FLORIDA BUILDING CODE.

11. BERTHA H.V. ACCORDION SHUTTER SYSTEM WITH H.V. BLADE #3 W/ OR W/O H.V. WINDOW BLADE #3 INSTALLATION SHALL COMPLY WITH SPECS INDICATED IN THIS DRAWING PLUS ANY BUILDING AND ZONING REGULATIONS PROVIDED BY THE JURISDICTION WHERE PERMIT IS APPLIED TO.

12. (a) THIS P.E.D. PREPARED BY THIS ENGINEER IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SITE SPECIFIC PROJECT; i.e. WHERE THE SITE CONDITIONS DEVIATE FROM THE P.E.D.

    (b) CONTRACTOR TO BE RESPONSIBLE FOR THE SELECTION, PURCHASE AND INSTALLATION INCLUDING LIFE SAFETY OF THIS PRODUCT, BASED ON THIS P.E.D., PROVIDED HE/SHE DOES NOT DEVIATE FROM THE CONDITIONS DETAILED ON THIS DOCUMENT. CONSTRUCTION SAFETY AT SITE IS THE CONTRACTOR'S RESPONSIBILITY.

    (c) THIS P.E.D. WILL BE CONSIDERED INVALID IF ALTERED BY ANY MEANS.

    (d) SITE SPECIFIC PROJECTS SHALL BE PREPARED BY A FLORIDA REGISTERED ENGINEER OR ARCHITECT WHICH WILL BECOME THE ENGINEER OF RECORD (E.O.R.) FOR THE PROJECT AND WHO WILL BE RESPONSIBLE FOR THE PROPER USE OF THE P.E.D. ENGINEER OF RECORD, ACTING AS A DELEGATED ENGINEER TO THE P.E.D. ENGINEER SHALL SUBMIT TO THIS LATTER THE SITE SPECIFIC DRAWINGS FOR REVIEW.

    (e) THIS P.E.D. SHALL BEAR THE DATE AND ORIGINAL SEAL AND SIGNATURE OF THE PROFESSIONAL ENGINEER OF RECORD THAT PREPARED IT.

TABLE OF CONTENTS

F.B.C.(High Velocity Hurricane Zone)

WALTER A. TILLIT JR. LICENSE No. 44167 STATE OF FLORIDA PROFESSIONAL ENGINEER

P.E. SEAL/SIGNATURE/DATE

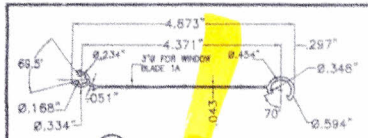
TILLECO INC.

TILLIT TESTING & ENGINEERING COMPANY
8355 N.W. 36th. St., Ste. 305, VIRGINIA GARDENS, FLORIDA 33166
Phone : (305)871-1530 , Fax : (305)871-1531
e-mail: tilleco@aol.com
EB-0006719
WALTER A. TILLIT Jr. P.E.
FLORIDA Lic. # 44167

A.S.S.A.
American Shutter Systems Association, Inc.
4268 Westroads Drive
West Palm Beach, FL 33407

BERTHA HV™
Accordion Shutter System
H.V. BLADE #3 W/ OR W/O H.V. WINDOW BLADE #3

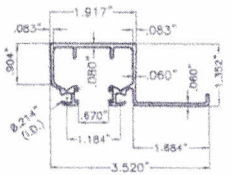
REV. No	DESCRIPTION	DATE	DRAWN BY: M.C.V.
1			DATE: 10/05/10
2			DRAWING No 10-069
3			
4			
5			SHEET 1 OF 18
6			



1 HV BLADE #3

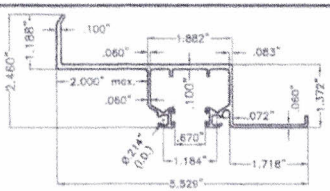
1A HV WINDOW BLADE #3 *

* SEE LIMITATIONS OF USE FOR BLADE 1A ON SHEET 18



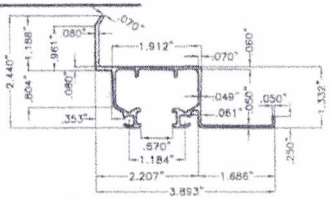
2 HV HEADER

QUALIFIED FOR USE W/ HV BLADES 1, 1A



3 HV B.O. TRACK

QUALIFIED FOR USE W/ HV BLADES 1, 1A

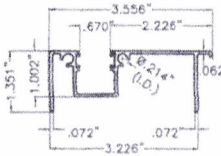


4 HV HEADER/SILL

QUALIFIED FOR USE W/ HV BLADES 1, 1A

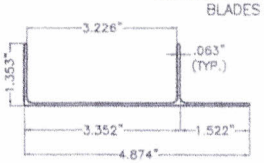
5 ALUMINUM ANGLE

QUALIFIED FOR USE W/ HV BLADE 1



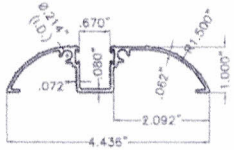
6 HV ADJ. FLOOR TRACK

QUALIFIED FOR USE W/ HV BLADES 1, 1A



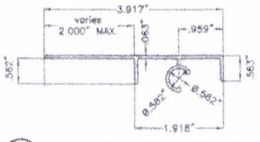
7 HV ADJ. ADAPTER W/ LIP

QUALIFIED FOR USE W/ HV BLADES 1, 1A



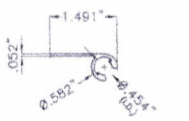
8 HV WALK-OVER TRACK

QUALIFIED FOR USE W/ HV BLADE 1



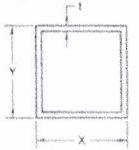
9 HV DIRECT MOUNT

QUALIFIED FOR USE W/ HV BLADES 1, 1A



10 HV 90°/180° STARTER

QUALIFIED FOR USE W/ HV BLADES 1, 1A



X	Y	t
2"	2"	0.125"
3"	3"	0.090"

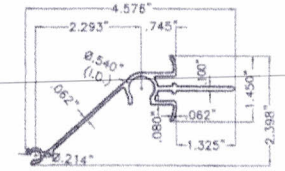
11 CORNER POSTS

QUALIFIED FOR USE W/ HV BLADES 1, 1A

X	Y	t
1"	1"	0.062"
1"	2"	0.062"
2"	2"	0.062"
2"	3"	0.062"
2"	4"	0.062"
2"	5"	0.062"

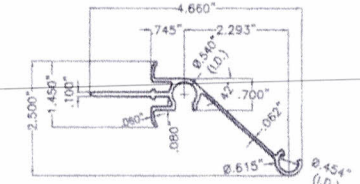
12 SIDE ANGLES

QUALIFIED FOR USE W/ HV BLADES 1, 1A



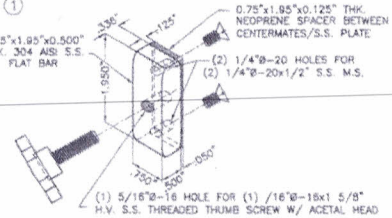
13 HV CENTERMATE

QUALIFIED FOR USE W/ HV BLADES 1, 1A



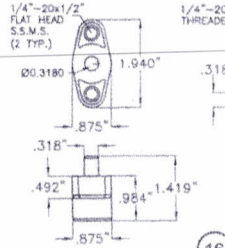
14 HV FLOATING CENTERMATE

QUALIFIED FOR USE W/ HV BLADES 1, 1A



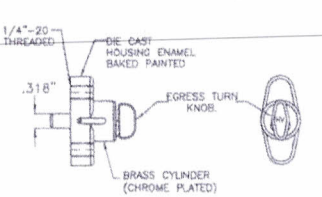
15 S.S. SALT WATER LOCK

QUALIFIED FOR USE W/ HV BLADE 1



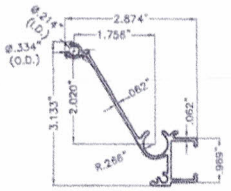
16 H.V. LOCK

QUALIFIED FOR USE W/ HV BLADES 1, 1A



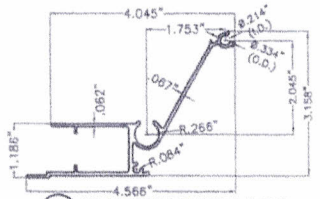
17 H.V. EGRESS LOCK

QUALIFIED FOR USE W/ HV BLADES 1, 1A



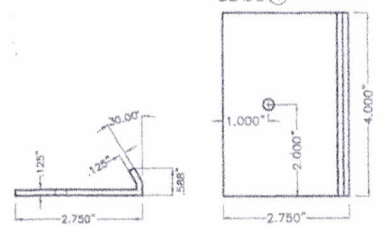
18 HV MALE "T" LOCK CENTERMATE

QUALIFIED FOR USE W/ HV BLADE 1



19 HV FEMALE "T" LOCK CENTERMATE

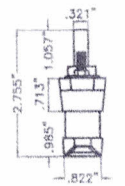
QUALIFIED FOR USE W/ HV BLADE 1



20 "J" CLIP FOR "T" LOCK CENTERMATE

QUALIFIED FOR USE W/ HV BLADE 1

PLAN FRONT ELEVATION



21 HV "T" LOCK

QUALIFIED FOR USE W/ HV BLADE 1

COMPONENTS

6063-T6 ALLOY AND TEMPER

SCALE 3/8"=1"

F.B.C. (High Velocity Hurricane Zone)

P.E. SEAL/SIGNATURE/DATE

WALTER A. TILLIT JR. LICENSE No. 44167 STATE OF FLORIDA PROFESSIONAL ENGINEER

TILLECO INC.

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EB-0006719

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FLORIDA Lic. # 44167

A.S.S.A.

American Shutter Systems Association, Inc.

4268 Westroads Drive

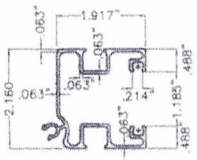
West Palm Beach, FL 33407

BERTHA HV™

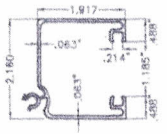
Accordion Shutter System

H.V. BLADE #3 W/ OR W/O H.V. WINDOW BLADE #3

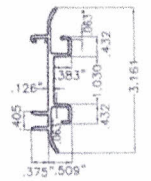
REV. No	DESCRIPTION	DATE	DRAWN BY: M.C.V.
1			DATE: 10/05/10
2			DRAWING No 10-069
3			
4			
5			SHEET 2 OF 18
6			



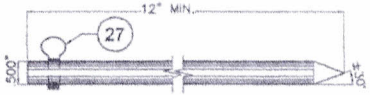
(22) **HD CENTERMATE W/ LOCKING ROD**
QUALIFIED FOR USE W/ HV BLADE (1)



(23) **HD CENTERMATE W/ NO LOCKING ROD**
QUALIFIED FOR USE W/ HV BLADE (1)

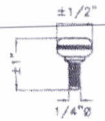


(24) **HD CENTERMATE'S INSERT**
QUALIFIED FOR USE W/ HV BLADE (1)

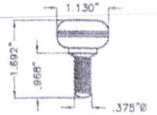


(26) **12" LOCKING ROD**
QUALIFIED FOR USE W/ HV BLADE (1)

(26A) **6" LOCKING ROD**
QUALIFIED FOR USE W/ HV BLADE (1)



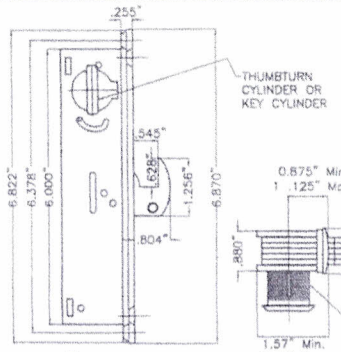
(27) **HV 1/4" Ø-20 AISI 304 SERIES S.S. THUMBSCREWS**
QUALIFIED FOR USE W/ HV BLADE (1)



(27A) **HV 3/8" Ø-16 ACETAL THUMBSCREWS**
QUALIFIED FOR USE W/ HV BLADE (1)

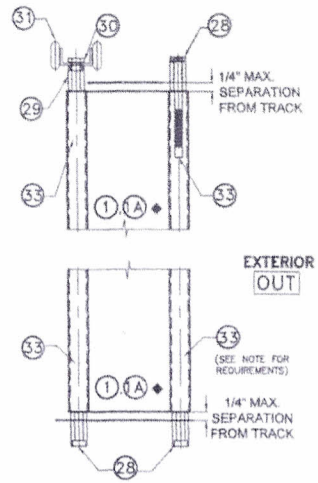
COMPONENTS (CONTINUED)

6063-T6 ALLOY AND TEMPER
SCALE 3/8"=1"



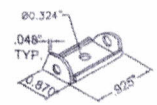
(25) **HD LOCK** BY REGENT HARDWARE MORTISE LOCKS SERIES 2333 HOOK BOLT LOCK.
QUALIFIED FOR USE W/ HV BLADE (1)

SHUTTER ASSEMBLY SCHEDULE FOR HV BLADE #3 AND HV WINDOW BLADE #3	
(1)	HV BLADE #3
(1A)	HV WINDOW BLADE #3
(28)	HV LONG RECESSED NYLON BUSHING
(29)	HV SHORT RECESSED NYLON BUSHING
(30)	HV NYLON HAT WASHER
(31)	HV WHEEL CARRIAGE AISI 302-303 SERIES Ø.870"x3/16" THICK NYLON WHEEL. 0.188"Ø AISI 302 SERIES S.S. RIVETS
(32)	H.V. # 14 x 1 3/4" ACCORDION H.V. DIRECT MOUNT PIN W/ #8 HEAD *
(33)	H.V. # 10 x 2 3/4" ACCORDION H.V. BLADE PIN W/ #8 HEAD *
(33A)	H.V. # 14 x 2 3/4" ACCORDION H.V. CENTERMATE PIN W/ #8 HEAD *

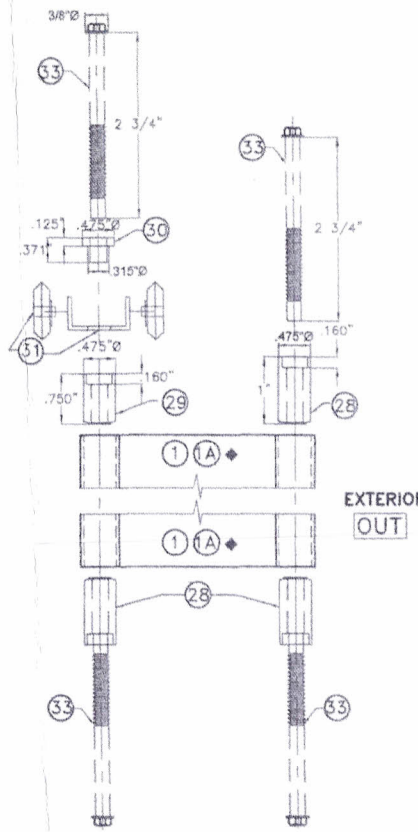


TYPICAL SHUTTER ASSEMBLY

SCALE: 1/4" = 1"



WHEEL CARRIAGE DETAIL
N.T.S.



ASSEMBLY LAYOUT
N.T.S.

◆ SEE LIMITATIONS OF USE FOR BLADE (1A) ON SHEET 18.

* HV PIN REQUIREMENTS FOR (1) HV BLADE #3 & (1A) HV WINDOW BLADE #3.

(1) HV PIN (33) SHALL ALWAYS BE USED AT ALL EXTERIOR AND INTERIOR TOP AND BOTTOM KNUCKLES OF HV ACCORDION SYSTEM W/ (1) HV BLADE #3 & (1A) HV WINDOW BLADE #3.

(2) HV PIN (32) W/ 1/2" O.D. 1/16" THICK S.S. WASHER SHALL BE USED FOR DIRECT MOUNT INSTALLATION PER DETAIL X, SHEETS 13 & 16.

(3) HV PIN (33A) SHALL ALWAYS BE USED AT H.V., H.V. "T" LOCK AND H.D. CENTERMATES.

F.B.C.(High Velocity Hurricane Zone)

WALTER A. TILLIT JR. LICENSE No. 44167 STATE OF FLORIDA PROFESSIONAL ENGINEER
P.E. SEAL/SIGNATURE/DATE

TILTECO INC.
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Phone : (305)871-1530 . Fax : (305)871-1531
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BERTHA HV™
Accordion Shutter System
H.V. BLADE #3 W/ OR W/O H.V. WINDOW BLADE #3

REV. No	DESCRIPTION	DATE	DRAWN BY: M.C.V.
1			DATE: 10/05/10
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