1. EXTRUDED BERTHA BAHAMA SHUTTER SHOWN ON THIS PRODUCT EVALUATION DOCUMENT (P.E.D.) HAS BEEN VERIFIED FOR COMPLIANCE IN ACCORDANCE WITH THE 2010 EDITION OF THE FLORIDA BUILDING CODE. THIS BAHAMA SHUTTER SHALL NOT BE INSTALLED AT HIGH VELOCITY HURRICANE ZONES (MIAMI DADE/BROWARD COUNTY).


3. IN ORDER TO VERIFY THAT ANCHORS ON THIS P.E.D. AS TESTED, WERE NOT OVERSTRESSSED, A 33% INCREASE IN ALLOWABLE STRESS FOR WIND LOADS WAS USED IN THEIR ANALYSIS. HOWEVER, FOR LAG SCREWS INTO WOOD, A 1.60 WIND LOAD DURATION FACTOR WAS USED TO CALCULATE SCREWS' SPACING.

4. EXTRUDED BERTHA BAHAMA SHUTTER'S ADEQUACY FOR IMPACT WITH WIND STRESS HAS BEEN VERIFIED IN ACCORDANCE WITH SECTION 1809.2 OF THE ABOVE MENTIONED CODE AS PER I.T.I REPORTS #923.01-97 AND #3099.01-94 AS PER TAE-201, TAE-202 AND TAE-203 PROTOCOLS.

5. ALL ALUMINUM EXTRUSIONS SHALL BE ALUMINUM ASSOCIATION 6063-T6 ALLOY AND TEMPER, WITH Fy = 25.0 ksi MINIMUM (UNLESS OTHERWISE NOTED).

6. ALL SCREWS TO BE STAINLESS STEEL 304 OR 316 AISI SERIES OR CORROSION RESISTANT COATED CARBON STEEL AS PER DIN 501015 WITH 50 ksi YIELD POINT AND 90 ksi TENSILE STRENGTH AND SHALL COMPLY WITH FLORIDA BUILDING CODE SECTION 2411.3.3.4.

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

8. ALL ALUMINUM POP RIVETS TO BE 5052 ALUMINUM ALLOY WITH ALUMINUM MANDREL.

9. ANCHORS TO WALL SHALL BE AS FOLLOWS (UNLESS OTHERWISE NOTED):

   (A) TO EXISTING POURED CONCRETE: (MIN. Fc=3000 p.s.i.)
   - 1/4" x 7/8" CALK-IN ANCHORS AS MANUFACTURED BY THE POWERS FASTENERS, INC.

   (A1) Minimum Embedment of Tapcon Anchors into Poured Concrete is 1 1/2".

   (A2) Calk-in Anchors Shall be Entirely Embedded into the Poured Concrete. No Embedment into Stucco Shall be Permitted.
   - 1/4" #20 Screws used shall be 1 1/2" long minimum should stucco exist and 1" minimum for walls with no stucco.

   (A3) In Case that Precast Stone, Precast Concrete Panels, or Pavers be Found on the Existing Wall or Floor, Anchors shall be Long Enough to Reach the Main Structure Behind Such Panels. Anchorage Shall be as Indicated on Notes A1) & A2) Above.

10. TO EXISTING CONCRETE BLOCK WALL:
   - 1/4" # Tapcon Anchors as Manufactured by I.T.I. BUILDEX.
   - 1/4" x 7/8" Calk-in Anchors as Manufactured by the Powers Fasteners, Inc.

11. SHUTTER MANUFACTURER'S LABEL SHALL BE LOCATED ON A READILY VISIBLE LOCATION AT SURFACE OF THE BAHAMA FRAME SO AS TO COMPLY WITH SECTION 1715.8.3 OF FLORIDA BUILDING CODE ONE LABEL SHALL BE PLACED FOR EVERY OPENING. LABELING TO COMPLY WITH SECTION 1715.8.2 OF THE FLORIDA BUILDING CODE.

   (A) THIS PRODUCT EVALUATION DOCUMENT (P.E.D.) PREPARED BY THIS ENGINEER IS SPECIFIC 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 PRODUCT EVALUATION DOCUMENT, PROVIDED HE SHELVES THE CONDITIONS DETAILED ON THIS DOCUMENT. CONSTRUCTION SAFETY AT SITE IS THE CONTRACTOR'S RESPONSIBILITY.

   (C) THIS PRODUCT EVALUATION DOCUMENT WILL BE CONSIDERED INVAID 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.

---

**FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)**

**GENERAL NOTES:**

**A1, A2, A3**

**DRAWN BY:**

**FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)**

**ASSA / EXTRUDED BERTHA BAHAMA SHUTTER SHEETS 1 THRU 9 OF 33
draw by: TILLEY INC.**

**ASSA / BERTHA COLONIAL SHUTTER SHEETS 10 THRU 33 OF 33**

**A3**

**AMERICAN SHUTTER SYSTEMS ASSOC., INC.**

**11-139 DRAWING NO.**

**11-139**

**DATE:**

**01-01-06**

**REVISION DATE:**

**01-01-06**

**SHEET 1 OF 33**

---
ALTERNATE LOCATION FOR C

(1) 3/8" POWER BOLT 3/8" x 1 1/2" Min. Diam. \[\text{Erosion Protection} \]
CONCRETE BY CONCRETE (SEE SCHEDULE ON \[\text{SHEET R} \])

SECTION C - C

HURRICANE POSITION SCALE: 3/8" = 1" 

NOTE:
\[2,000 \times \text{W.E} \]

ALTERNATE SECTION C' - C'

NON HURRICANE POSITION SCALE: 3/8" = 1" 

NOTE:
\[E, D = 3 1/2" \text{ Min.} \]
WALL MOUNTING INSTALLATION & BUILD-OUT

SECTION A

INSTALLATION DETAILS ON EXISTING WOOD BUILDINGS

NOTES:

1. INSTALLATIONS ARE ONLY VALID FOR INSTALLATIONS WITH MAX. 450, DESIGN PRESSURE RATING LESS THAN 825, 750 P.S.I., AND MAX. SHUTTER SPAN AS PER SCHEDULED ON SHEET B.

2. FOR NEW WOOD FRAME CONSTRUCTION: WOOD MEMBERS TO BE SOUTHERN PINE NO. 2, NF SPECIFIC GRADE OF 0.05 OR EQUAL.

ALTERNATIVE 1
HURRICANE POSITION
SCALE: 3/8" = 1" (74 m.p.h. OR LESS WIND SPEED)

ALTERNATIVE 2
HURRICANE POSITION
SCALE: 3/8" = 1"

ALTERNATIVE 3
HURRICANE POSITION
SCALE: 3/8" = 1"
GENERAL NOTES:

1. COLONIAL SHUTTER SHOWN ON THIS PRODUCT EVALUATION DOCUMENT (P.E.D.) HAS BEEN VERIFIED FOR COMPLIANCE IN ACCORDANCE WITH THE 2010 EDITION OF THE FLORIDA BUILDING CODE. THIS COLONIAL SHUTTER SHALL NOT BE INSTALL AT HIGH VELOCITY HURRICANE ZONES (MIAMI DADE/BROWARD COUNTY).


3. IN ORDER TO VERIFY THE ABOVE CONDITION, ULTIMATE DESIGN WIND LOADS DETERMINED PER ASCE 7-10 SHALL BE FIRST REDUCED TO A S.D. DESIGN WIND LOAD BY MULTIPLYING THEM BY 0.6 IN ORDER TO COMPILE THESE W/ MAX. (A.S.D.) DESIGN PRESSURE RATINGS INDICATED ON SHEETS 13, 14, 22 & 28.

4. IN ORDER TO VERIFY THAT ANCHORS ON THIS P.E.D., AS TESTED, WERE NOT OVERSTRESSED, A 33% INCREASE IN ALLOWABLE STRESS FOR WIND LOADS WAS USED IN THEIR ANALYSIS. HOWEVER, FOR LAG SCREWS INTO WOOD, 1.00 WIND LOAD DURATION FACTOR WAS USED TO CALCULATE SCREWS SPACING.

5. COLONIAL SHUTTER'S ADEQUACY FOR IMPACT AND FATIGUE RESISTANCE HAS BEEN VERIFIED IN ACCORDANCE WITH SECTION 1908.1.2 OF THE ABOVE MENTIONED CODE AS PER ATL REPORTS #6264.01-98R, #1005.01-00, #0309.01-04 AND #0926.01-07 AS PER TAS-201, TAS-202 AND TAS-203 PROTOCOLS.

6. ALL ALUMINUM EXTRUSIONS SHALL BE ALUMINUM ASSOCIATION 6063-T6 ALLOY AND TEMPER, WITH YS = 25.0 ksi MINIMUM YIELD STRENGTH (UNLESS OTHERWISE NOTED).

7. ALL SCREWS TO BE STAINLESS STEEL 304 OR 316 AISI SERIES OR CORROSION RESISTANT COATED CARBON STEEL AS PER ZIN-5000 WITH 50 ksi YIELD STRENGTH and 90 ksi TENSILE STRENGTH & SHALL COMPLY WITH Ф FLORIDA BUILDING CODE SECTION 2401.3.3.3.

8. BOLTS TO BE ALUMINUM ASSOCIATION 2024-T8 ALLOY AND TEMPER, ASTM A-307 GALVANIZED STEEL, OR AISI 304 SERIES STAINLESS STEEL WITH 35 ksi MINIMUM YIELD STRENGTH.

9. ALL ALUMINUM POP RIVETS TO BE 5052 ALUMINUM ALLOY WITH ALUMINUM NAILHEAD.

10. ANCHORS TO WALL SHALL BE AS FOLLOWS (UNLESS OTHERWISE NOTED) SEE DETAILS FOR APPLICABILITY:

(A) TO EXISTING Poured CONCRETE: (Min f'c = 2000 psi)
- 1/4" x 7/8" CALK-IN ANCHORS AS MANUFACTURED BY POWERS FASTENERS, INC.

(B) TO EXISTING CONCRETE BLOCK WALL: (Min. f'c = 1500 psi)
- 1/4" x 7/8" CALK-IN ANCHORS AS MANUFACTURED BY POWERS FASTENERS, INC.

(C) TO EXISTING WOOD (MIN. SPECIFIC GRAVITY, G=0.55 MIN.) FRAME BUILDING, ANCHORAGE SHALL BE PERFORMED BEYOND ANY FINISH MATERIAL AT WALL LIKE BRICK VENEER, PLYWOOD, STUCCO OR ANY OTHER FINISH.

(D) ANCHORS SHALL BE INSTALLED FOLLOWING ALL OF THE RECOMMENDATIONS AND SPECIFICATIONS OF THE ANCHOR'S MANUFACTURER.

7. EACH SHUTTER SHALL HAVE A LEGIBLE AND READILY VISIBLE MARKING INSTRUCTING OWNER OR TENANT TO SECURE SHUTTER WITH HEAD & SILL BRACKETS WHEN USED W/O STORM BARS OR TO SECURE SHUTTERS W/ STORM BARS AND SAFETY BOLTS DURING PERIODS OF HURRICANE WARNING.

8. OWNER TO BE RESPONSIBLE FOR PROVIDING A SUITABLE PLATFORM OR BALCONY WHEN SECURING UNIT DURING HURRICANE WARNING.

9. 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 IN CONTINUOUS CONTACT WITH THE BUILDING TO PREVENT WIND/RAIN INTRUSION. CAULK AND SEAL SHUTTER TRACKS ALL AROUND FULL LENGTH.

10. BERTHA COLONIAL SHUTTER'S INSTALLATION SHALL COMPLY WITH SPECS INDICATED IN THIS DRAWING PLUS ANY BUILDING AND ZONING REGULATIONS PROVIDED BY THE JURISDICTION WHERE PERMIT IS APPLIED TO.

11. SHUTTER MANUFACTURER'S LABEL SHALL BE LOCATED ON A READILY VISIBEL LOCATION AT SURFACE OF THE COLONIAL FRAME OR AS IN ACCORDANCE WITH SECTION 1715.8.5.3 OF FLORIDA BUILDING CODE. ONE LABEL SHALL BE PLACED FOR EVERY OPENING, LABELING TO COMPARE WITH SECTION 1715.8.5.3 OF THE FLORIDA BUILDING CODE.

12. THIS PRODUCT EVALUATION DOCUMENT (P.E.D.) PREPARED BY THIS ENGINEER IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SPECIFIC PROJECT I.E., WHERE THE SITE CONDITIONS deviate FROM THE P.E.D.

13. CONTRACTOR TO BE RESPONSIBLE FOR THE SELECTION, PURCHASE AND INSTALLATION INCLUDING LIFE SAFETY OF THIS PRODUCT, BASED ON THIS PRODUCT EVALUATION DOCUMENT, PROVIDED HE/SHE DOES NOT DEViate FROM THE CONDITIONS DETAILED ON THIS DOCUMENT. CONSTRUCTION SAFETY AT SITE IS THE CONTRACTOR'S RESPONSIBILITY.

14. THIS PRODUCT EVALUATION DOCUMENT WILL BE CONSIDERED INVALID IF ALTERED BY ANY MEANS.

15. SITE SPECIFIC PROJECTS SHALL BE PREPARE 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 OR RECORD, ACTING AS A DELEGATED ENGINEER TO THE P.E.D. ENGINEER, SHALL SUBMIT TO THIS LATTER THE SITE SPECIFIC DRAWINGS FOR REVIEW.

16. THIS P.E.D. SHALL BEAR THE DATE AND ORIGINAL SEAL AND SIGNATURE OF THE PROFESSIONAL ENGINEER OF RECORD THAT PREPARED IT.
1. SPRING TEMPERED BRASS "U" CHANNEL (1" LONG) & 1/4" ELCO TEXTRON MALE OR FEMALE PANELMATE ANCHOR W/ 360 BRASS THREADED NUT

2. WALL MOUNT ALUM. BRACKET 4" LONG ALUMINUM EXTRUSION

3. ALTERNATE ALUMINUM "U" CHANNEL (1" LONG) & 1/4" ELCO TEXTRON MALE PANELMATE ANCHOR OR W/ 1/4"#-20 S.S. MACHINE ROD

COMPONENTS
SCALE: 1/2" = 1"
DOUBLE PANEL

MINIMUM SEPARATION TO GLASS SCHEDULE
FOR PERFORATED OR NOT SHUTTER BLADES

<table>
<thead>
<tr>
<th>BLADES</th>
<th>MINIMUM SEPARATION TO GLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERFORATED BLADES AS SHOWN ON SHEET 11</td>
<td>3&quot;</td>
</tr>
<tr>
<td>NOT PERFORATED (SOILD) BLADES</td>
<td>1&quot;</td>
</tr>
</tbody>
</table>

QUADRUPLE PANEL

MAXIMUM A.S.D. DESIGN PRESSURE RATING (p.s.f.)
AND CORRESPONDING MAXIMUM PANEL'S WIDTH (B)
AND SHUTTER'S HEIGHT (L) SCHEDULE

<table>
<thead>
<tr>
<th>MAXIMUM A.S.D. DESIGN PRESSURE RATING (p.s.f.)</th>
<th>B (in.)</th>
<th>L (ft.)</th>
<th>FLAT BAR REQUIREMENTS AT CENTER OF SHUTTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>+36.0, -40.0</td>
<td>18&quot;</td>
<td>8&quot;-6&quot;</td>
<td>YES</td>
</tr>
<tr>
<td>+36.0, -40.0</td>
<td>36&quot;</td>
<td>6&quot;-0&quot;</td>
<td>YES</td>
</tr>
<tr>
<td>+60.0, -65.0</td>
<td>36&quot;</td>
<td>4&quot;-6&quot;</td>
<td>NO</td>
</tr>
<tr>
<td>+69.0, -75.0</td>
<td>18 1/4&quot;</td>
<td>6&quot;-2 1/2&quot;</td>
<td>NO</td>
</tr>
<tr>
<td>+80.0, -87.5</td>
<td>18 1/4&quot;</td>
<td>6&quot;-1&quot;</td>
<td>NO</td>
</tr>
<tr>
<td>+100.0, -120.0</td>
<td>18&quot;</td>
<td>4&quot;-8&quot;</td>
<td>NO</td>
</tr>
</tbody>
</table>

FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)
**Double Panel Elevation**

**Minimum Separation to Glass Schedule**

<table>
<thead>
<tr>
<th>Blades Condition</th>
<th>Minimum Separation to Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perforated Blades</td>
<td>0.5&quot;</td>
</tr>
<tr>
<td>Not Perforated (Solid) Blades</td>
<td>1&quot;</td>
</tr>
</tbody>
</table>

**Maximum A.S.D. Design Pressure Rating (p.s.f.)**

<table>
<thead>
<tr>
<th>Maximum A.S.D. Design Pressure Rating (p.s.f.)</th>
<th>B (in.)</th>
<th>L (ft.)</th>
<th>H (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>+20.0 - 65.0</td>
<td>36&quot;</td>
<td>4'-6&quot;</td>
<td>20 1/8&quot;</td>
</tr>
<tr>
<td>+80.0 - 67.5</td>
<td>18&quot;</td>
<td>5'-9&quot;</td>
<td>51 1/4&quot;</td>
</tr>
</tbody>
</table>

**Quantity of Hinges W/ Max. Separation Between Hinges and Corresponding Height H (in)**

<table>
<thead>
<tr>
<th>Quantity of Hinges</th>
<th>Max. Separation Between Hinges</th>
<th>H (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>11 1/2&quot;</td>
<td>20 1/8&quot;</td>
</tr>
<tr>
<td>3</td>
<td>21 7/8&quot;</td>
<td>51 1/4&quot;</td>
</tr>
</tbody>
</table>
DETAIL 8A: NON HURRICANE POSITION ONLY

PLAN

SCALE: 3/8" = 1'

ALTERNATE DETAIL 8A: NON HURRICANE POSITION ONLY

PLAN

SCALE: 3/8" = 1'
TYPICAL EXTERIOR ELEV. DOUBLE PANEL (HURRICANE POSITION)

SCALE: 3/16"=1'

MAXIMUM A.S.D. DESIGN PRESSURE RATING = +60.0, -81.0 p.s.f. FOR INSTALLATION INTO CONCRETE OR CONCRETE BLOCK WALL SUBSTRATE.
DETAIL 1
(ISOMETRIC)
N.T.S
TYPICAL EXTERIOR ELEV. QUADRUPLE PANEL FOR

(HURRICANE POSITION)

SCALE: 3/16"=1'

MAXIMUM A.S.D. DESIGN PRESSURE RATING = +51.0, -70.0 p.s.f. FOR INSTALLATION INTO CONCRETE OR CONCRETE BLOCK WALL SUBSTRATE.

MAX Width = 5'-1"
DETAIL 2
(ISOMETRIC)
N.T.S

† 1/4" - 20 x 3/4", AS DISTRIBUTED BY ALL POINT SCREW, BOLT AND SPECIALITY CO. (PART # 25CRFNA)

(2) 1/4" - 20 x 3/4" SS PHILLIPS FLAT HEAD BOLT INTO ALUMINUM RIVET NUTS † TO Ø OR Ø (TYP.)

H OR I (TYP.)

E (TYP.)

N (TYP.)

D1 CONT.

D1

* SHOWN ON ITS DRIVING (INSTALLATION) POSITION

11-139

AMERICAN SHUTTER SYSTEMS ASSOC., INC.
4285 WES ROAD DR
WEST PALM BEACH, FL 33407
PHONE: (561)343-2204, FAX: (561)205-8380
DATE: 11/08/11
DRAWN BY: WALTER A. TILLIE JR.
STATE OF FLORIDA PROFESSIONAL ENGINEER
No. 44467

FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)
ASSA / EXTRUDED BERTHA BAHAMA SHUTTER (SHEETS 1 THRU 9 OF 33)
ASSA / BERTHA COLONIAL SHUTTER (SHEETS 10 THRU 33 OF 33)

COMBINATION DRAWING
ASSA / BERTHA COLONIAL SHUTTER (WITH STORM BARS)

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FLORIDA LIC. # 44467