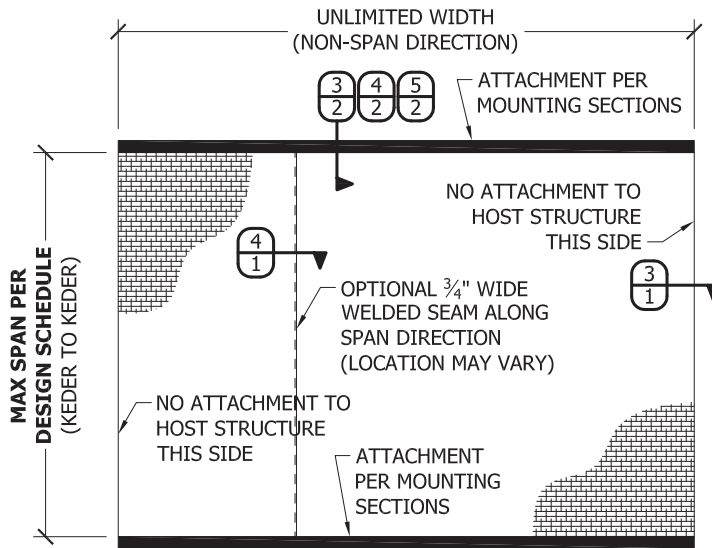


SSP-09001\_01e\_Typhoon Armor (FPA).dwg (Cr: 5/2/2011 11:38) dangley 5/2/2011 15:00

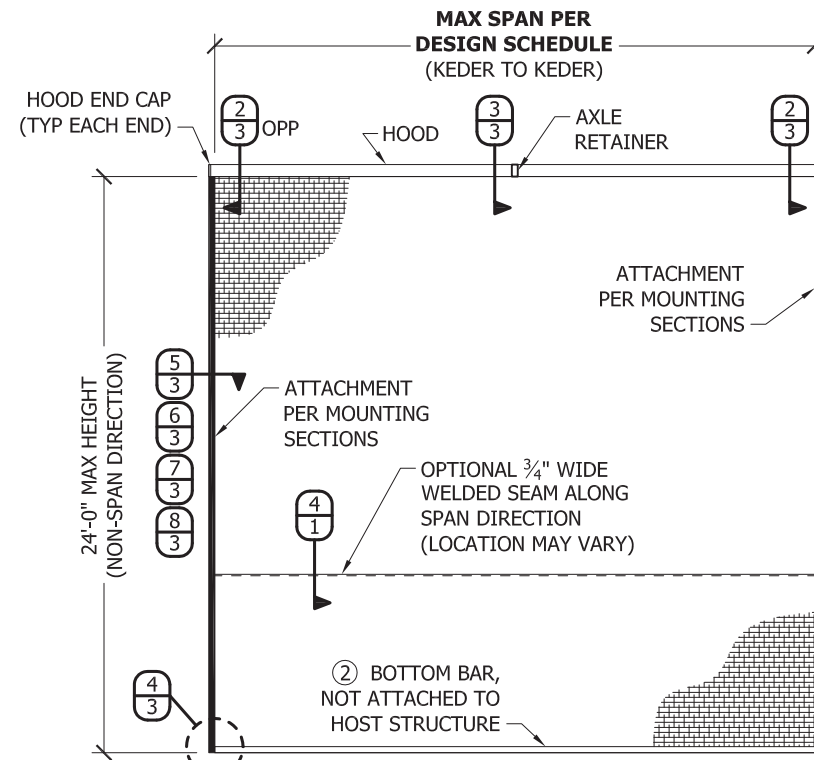
# TYPHOON ARMOR

## GENERAL NOTES

1. THE SYSTEM DEPICTED HEREIN HAS BEEN TESTED & EVALUATED IN ACCORDANCE WITH THE 2007 FLORIDA BUILDING CODE WITH 2009 SUPPLEMENTS, FOR USE ONLY OUTSIDE THE HIGH VELOCITY HURRICANE ZONE (HVHZ).
2. THIS SYSTEM HAS BEEN TESTED AND EVALUATED AS A NON-POROUS LARGE MISSILE IMPACT PROTECTION DEVICE.
3. POSITIVE AND NEGATIVE DESIGN PRESSURES CALCULATED FOR USE WITH THIS SYSTEM SHALL BE DETERMINED BY OTHERS ON A SITE-SPECIFIC BASIS IN ACCORDANCE WITH THE GOVERNING CODE.
4. 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 PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT SHALL PREPARE SITE-SPECIFIC DOCUMENTS FOR USE IN CONJUNCTION WITH THIS APPROVAL.
5. THE ADEQUACY OF THE EXISTING STRUCTURE TO WITHSTAND SUPERIMPOSED LOADS SHALL BE VERIFIED BY OTHERS ON A SITE-SPECIFIC BASIS.
6. ALL FABRIC COMPONENTS SHALL HAVE MATERIAL PROPERTIES AS NOTED HEREIN AND IN THE ASSOCIATED EVALUATION REPORT FOR THIS PRODUCT.
6. ALL ALUMINUM EXTRUSIONS SHALL BE 6063-T6 ALLOY & TEMPER, UNLESS NOTED OTHERWISE.
7. PANELS SHALL BE PERMANENTLY LABELED WITH A MINIMUM OF ONE LABEL PER UNIT CONTAINING ALL INFORMATION SPECIFIED IN THE ABOVE-NOTED BUILDING CODE, AS WELL AS THE FOLLOWING:  
SENTINEL STORM PROTECTION  
NAPLES, FL
8. MOUNTING SECTION DETAILS SHOWN MAY BE INTERCHANGED AS FIELD CONDITIONS DICTATE. SHUTTER SYSTEMS MAY BE MOUNTED VERTICALLY OR HORIZONTALLY AS APPLICABLE. WHERE MOUNTING CONDITIONS DIFFER ON A SINGLE UNIT, THE MINIMUM ALLOWABLE WIND PRESSURE RATING AND MINIMUM ANCHOR SPACING SHALL APPLY.
9. NOTE TO LOCAL BUILDING OFFICIAL: THIS PRODUCT INCORPORATES AND IS DESIGNED TO USE SPECIFIC MATERIALS AND PROCESSES. THE UNAUTHORIZED USE OF THIS PRODUCT APPROVAL BY ANY COMPANIES OTHER THAN SENTINEL STORM PROTECTION MUST NOT BE ALLOWED. A JOB SPECIFIC APPROVAL CAN BE FAXED TO YOUR OFFICE AT A MOMENTS NOTICE TO CONFIRM THE AUTHENTICITY OF THE ORIGINATION OF THIS PRODUCT. PLEASE CONTACT OUR OFFICE AT 239-263-9888 OR FAX 239-263-9666 WITH THE NAME OF THE ENTITY PULLING A PERMIT, THE JOB ADDRESS AND JOB NAME.
10. ALL SCREWS, BOLTS, NUTS & WASHERS SHALL BE ZINC COATED STEEL, GALVANIZED STEEL, OR STAINLESS STEEL WITH A MINIMUM TENSILE YIELD STRENGTH OF 60 KSI.
11. ANY STEEL IN CONTACT WITH ALUMINUM SHALL BE PAINTED OR PLATED AS PRESCRIBED IN THE ABOVE-NOTED BUILDING CODE.



**1** REMOVABLE SHUTTER  
SCALE: 1/8" = 1'-0" EXTERIOR ELEVATION



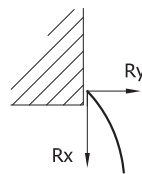
**2** ROLL-UP SHUTTER  
SCALE: 1/8" = 1'-0" EXTERIOR ELEVATION

## ANCHOR TYPES

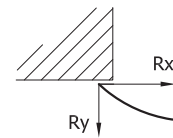
|                   | NOMINAL DIAMETER | CONC | G.F. BLOCK | WOOD | NOTES  |
|-------------------|------------------|------|------------|------|--|
| POWERS WEDGE-BOLT | 1/2"             | A1   | A2         |      | TO CONC: 4" EMBED, 4.5" EDGE DIST TO G.F. BLOCK: 4" EMBED, 12" EDGE DIST                                       |
|                   | 3/8"             | B1   | B2         |      | TO CONC: 3.5" EMBED, 3" EDGE DIST TO G.F. BLOCK: 3.5" EMBED, 12" EDGE DIST                                     |
| POWERS DROPIN     | 1/2"             | C1   |            |      | TO CONC: 2" EMBED, 4.375" EDGE DIST  |
| HILTI HIT-HY 150  | 1/2"             | D1   | D2         |      | TO CONC: 4.25" EMBED, 8.5" EDGE DIST TO G.F. BLOCK: 4.25" EMBED, 4" EDGE DIST                                  |
| ELCO CONFLEX      | 3/8"             | E1   |            |      | TO CONC: 3.5" EMBED, 3.75" EDGE DIST   |
| ITW TAPCON        | 5/16"            | F1   | F2         | F3   | TO CONC: 2.25" EMBED, 4" EDGE DIST TO G.F. BLOCK: 2.25" EMBED, 4" EDGE DIST TO WOOD: 3" EMBED, 1.25" EDGE DIST |
| LAG SCREW         | 1/2"             |      |            | G3   | TO WOOD: 3" EMBED, 2" EDGE DIST  |
|                   | 3/8"             |      |            | H3   | TO WOOD: 3" EMBED, 1.25" EDGE DIST   |

## REACTIONS AT HOST STRUCTURE

REFER TO DESIGN SCHEDULES FOR REACTIONS UNDER APPLICABLE CONDITIONS

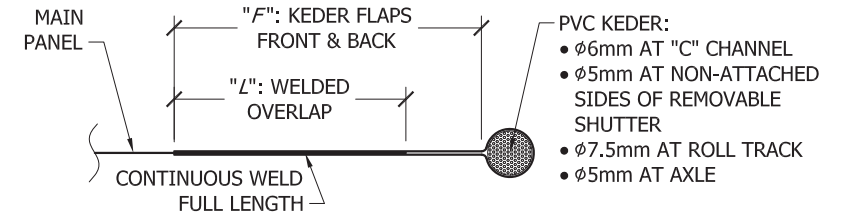


**REMOVABLE SHUTTER**  
VERT SECTION AT HEAD (REFER TO MOUNTING SECTIONS FOR ATTACHMENT OPTIONS)

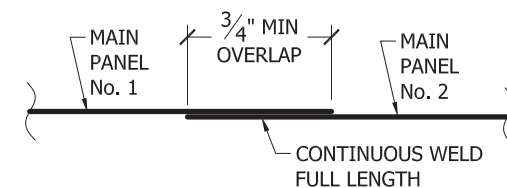


**ROLL-UP SHUTTER**  
HORIZ SECTION AT SIDE (REFER TO MOUNTING SECTIONS FOR ATTACHMENT OPTIONS)

KEDER FLAP & WELD DIMENSIONS:  
 ϕ5mm: F: 1.0" L: 0.55"  
 ϕ6mm: F: 1.3" L: 0.85"  
 ϕ7.5mm: F: 1.6" L: 1.18"



**3** PERIMETER KEDER DETAIL  
SCALE: 1:1 < DETAIL TYPE >



**4** WELDED SEAM (OPTIONAL)  
SCALE: 1:1 < DETAIL TYPE >

CA # 28511  
**NU-WIND ENGINEERING**  
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 BOCA RATON, FL 33432

May 02 2011  
 CHRISTIAN LANGLEY, PE  
 FL PE #67382 CA #28511

| DATE    | DESCRIPTION       | BY | CL |
|---------|-------------------|----|----|
| 4/27/11 | INITIAL SUBMITTAL |    |    |
|         |                   |    |    |
|         |                   |    |    |
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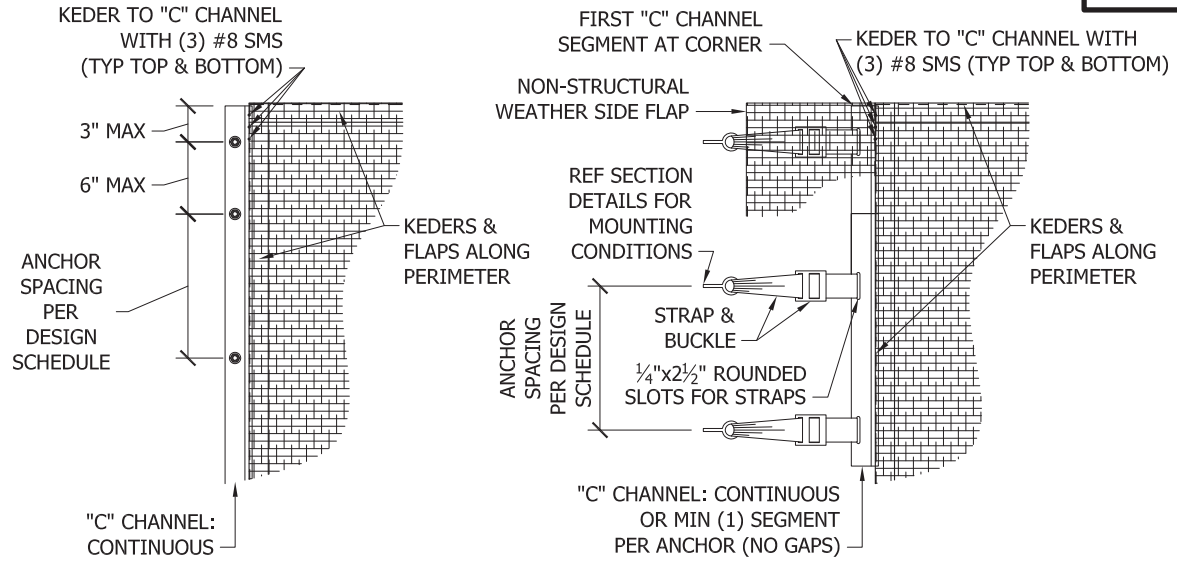
**TYPHOON ARMOR**  
 (NON-HVHZ)  
 FLORIDA PRODUCT APPROVAL

**SENTINEL Storm Protection**  
 3673 EXCHANGE AVE, SUITE 1  
 NAPLES, FL 34104  
 (239) 263-9888

DRAWING NUMBER:  
**SSP.09001**

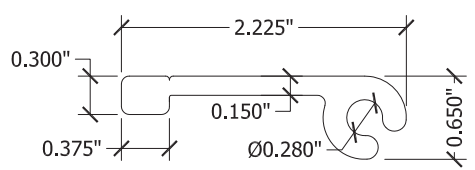
SHEET  
**1** OF **3**

# REMOVABLE SHUTTER DETAILS



**1** DIRECT MOUNT  
SCALE: 3/4" = 1'-0" EXTER ELEV

**2** STRAP & BUCKLE MOUNT  
SCALE: 3/4" = 1'-0" EXTER ELEV



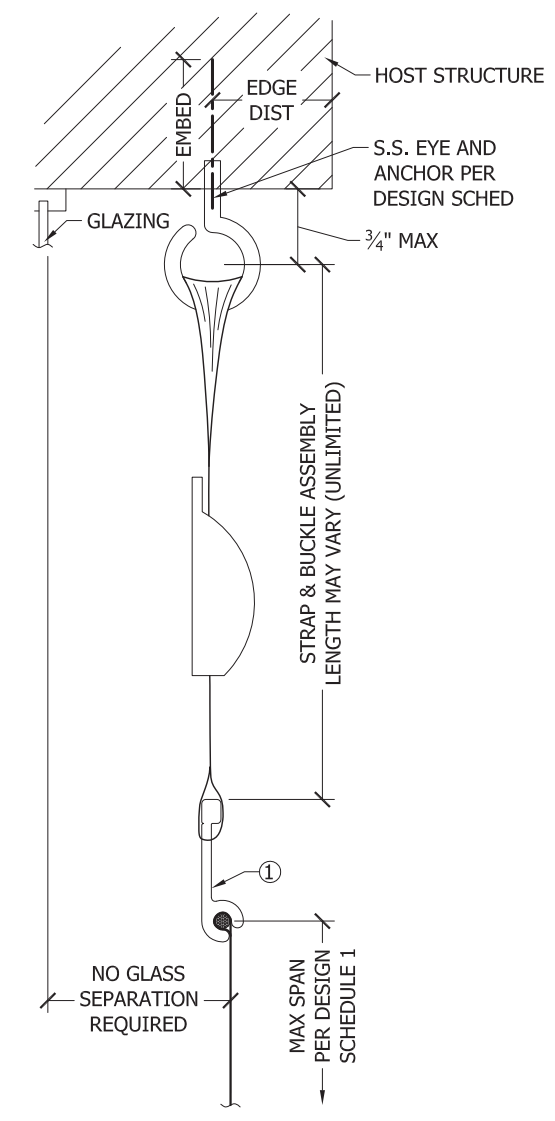
**1** "C" CHANNEL  
SCALE: 1:1.5

## DESIGN SCHEDULE NOTES:

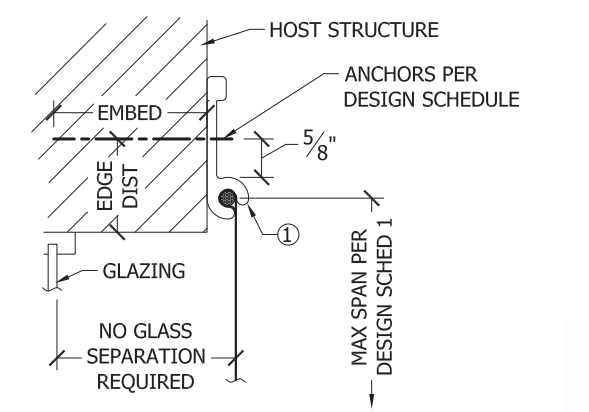
- SEE EXTERIOR ELEVATIONS FOR ANCHOR LOCATIONS AND/OR SPACING.
- REFERENCE "ANCHOR TYPES" SCHEDULE FOR ANCHOR TYPES.
- ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS.
- MINIMUM EMBEDMENT AND EDGE DISTANCE SHALL BE AS NOTED IN "ANCHOR TYPES" SCHEDULE. MINIMUM EMBEDMENT AND EDGE DISTANCE EXCLUDES STUCCO, FOAM, BRICK, AND OTHER WALL FINISHES.
- CONCRETE HOST STRUCTURE SHALL HAVE MIN STRENGTH 3,000 PSI.
- "G.F. BLOCK" SHALL BE ASTM C90 MASONRY UNITS FILLED WITH MIN 2,000 PSI GROUT.
- WOOD HOST STRUCTURE SHALL BE "SOUTHERN PINE" G=0.55 OR GREATER DENSITY.
- WHERE EXISTING STRUCTURE IS WOOD FRAMING, EXISTING CONDITIONS MAY VARY. FIELD VERIFY THAT FASTENERS ARE INTO ADEQUATE WOOD FRAMING MEMBERS, NOT INTO PLYWOOD (U.N.O.).
- DESIGNATES ANCHOR CONDITIONS WHICH ARE NOT ACCEPTABLE FOR USE.

## DESIGN SCHEDULE 1

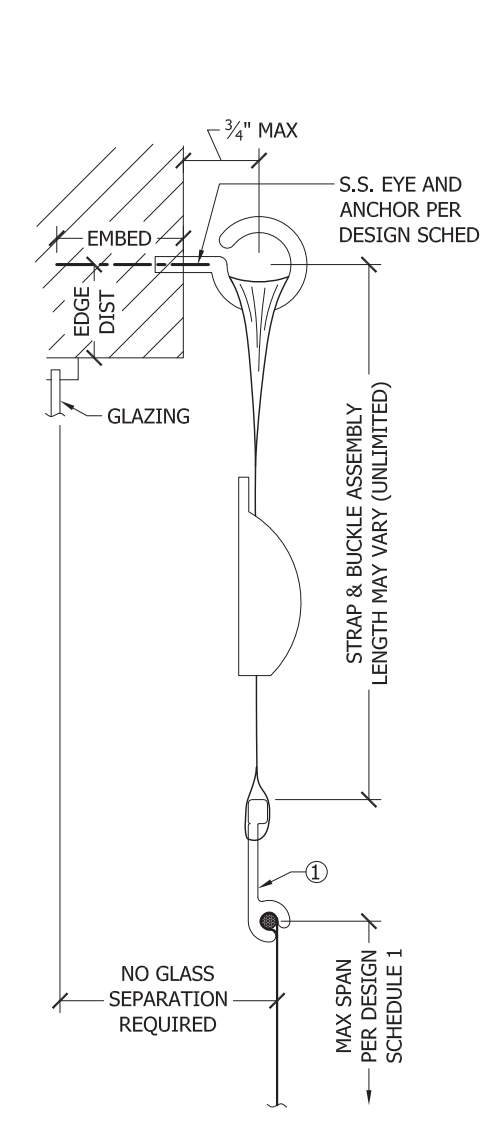
| MOUNT. COND.                 | SPAN   | DESIGN PRESSURE | REACTION AT HOST |        | CONCRETE |     |     |     |     |     | G.F. BLOCK |     |     |     | WOOD |     |    |
|------------------------------|--------|-----------------|------------------|--------|----------|-----|-----|-----|-----|-----|------------|-----|-----|-----|------|-----|----|
|                              |        |                 | Rx               | Ry     | A1       | B1  | C1  | D1  | E1  | F1  | A2         | B2  | D2  | F2  | F3   | G3  | H3 |
| DIRECT WALL MOUNT            | 8'-0"  | 70 PSF          | 607 lb           | 280 lb | 12"      | 12" | 12" | 12" | 12" | 12" | 12"        | 12" | 12" | 12" | 4"   | 8"  | 4" |
|                              | 16'-0" | 53 PSF          | 1026 lb          | 424 lb | 12"      | 11" | 12" | 12" | 12" | 10" | 12"        | 12" | 12" | 9"  | 3"   | 4"  | 2" |
|                              | 16'-0" | 70 PSF          | 1214 lb          | 560 lb | 12"      | 9"  | 10" | 12" | 12" | 8"  | 12"        | 11" | 12" | 8"  | 2"   | 4"  | 2" |
| STRAP & BUCKLE WALL MOUNT    | 8'-0"  | 70 PSF          | 607 lb           | 280 lb | 12"      | 12" | 12" | 12" | 12" | 12" | 12"        | 12" | 12" | 10" | 12"  | 9"  |    |
|                              | 16'-0" | 53 PSF          | 1026 lb          | 424 lb | 12"      | 12" | 12" | 12" | 12" | 9"  | 12"        | 12" | 12" | 11" | 6"   | 11" | 6" |
|                              | 16'-0" | 70 PSF          | 1214 lb          | 560 lb | 12"      | 12" | 11" | 12" | 12" | 8"  | 12"        | 12" | 12" | 9"  | 5"   | 8"  | 4" |
| STRAP & BUCKLE TRAPPED MOUNT | 8'-0"  | 70 PSF          | 607 lb           | 280 lb | 12"      | 12" | 12" | 12" | 12" | 12" | 12"        | 12" | 12" | 4"  | 8"   | 4"  |    |
|                              | 16'-0" | 53 PSF          | 1026 lb          | 424 lb | 12"      | 11" | 12" | 12" | 12" | 10" | 12"        | 12" | 12" | 9"  | 3"   | 4"  | 2" |
|                              | 16'-0" | 70 PSF          | 1214 lb          | 560 lb | 12"      | 9"  | 10" | 12" | 12" | 8"  | 12"        | 11" | 12" | 8"  | 2"   | 4"  | 2" |



**4** STRAP & BUCKLE: TRAPPED MOUNT  
SCALE: 4" = 1'-0" MOUNTING SECTION



**3** DIRECT WALL MOUNT  
SCALE: 4" = 1'-0" MOUNTING SECTION



**5** STRAP & BUCKLE: WALL MOUNT  
SCALE: 4" = 1'-0" MOUNTING SECTION

CA # 28511  
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1200 N FEDERAL HWY, #200  
BOCA RATON, FL 33432  
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**NU-WIND ENGINEERING**  
UNIQUE PROBLEMS... UNUSUAL SOLUTIONS

May 02 2011  
CHRISTIAN LANGLEY, PE  
FL PE #67382 CA #28511

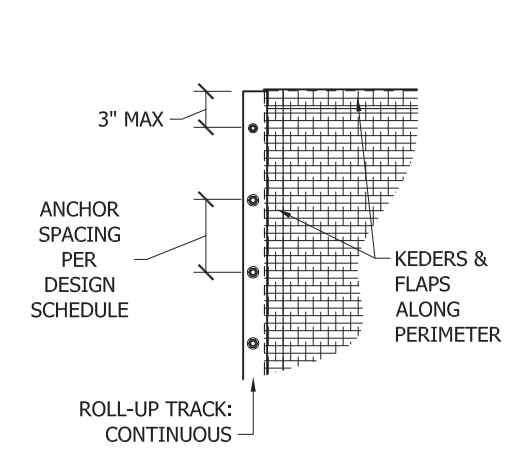
| DATE    | DESCRIPTION       | BY |
|---------|-------------------|----|
| 4/27/11 | INITIAL SUBMITTAL | CL |
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**TYPHOON ARMOR**  
(NON-HVHZ)  
FLORIDA PRODUCT APPROVAL

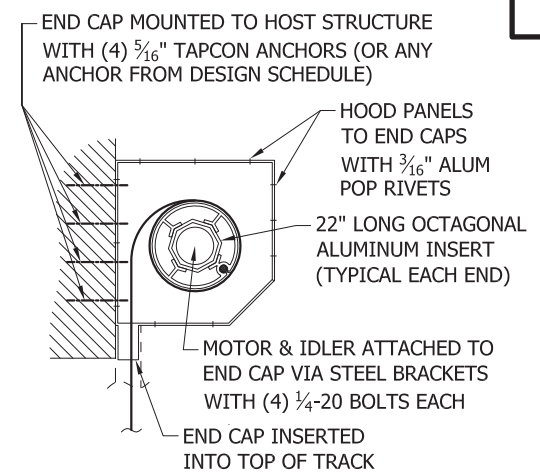
**SENTINEL Storm Protection**  
3673 EXCHANGE AVE, SUITE 1  
NAPLES, FL 34104  
(239) 263-9888

DRAWING NUMBER:  
**SSP.09001**

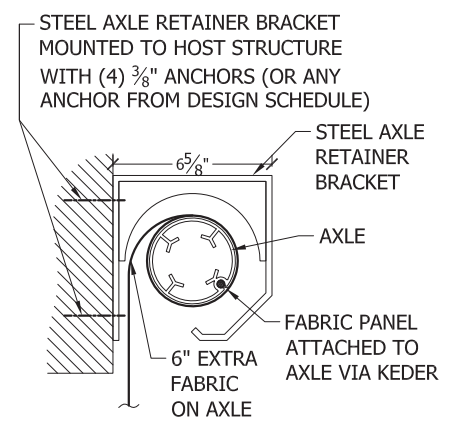
**ROLL-UP SHUTTER DETAILS**



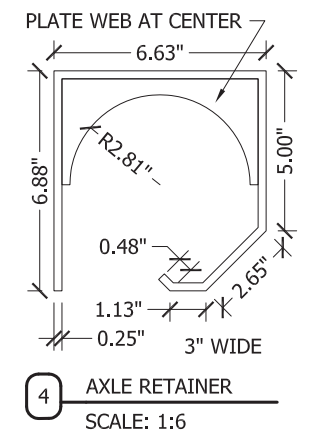
**1 ROLL-UP TRACK MOUNT**  
SCALE: 3/4" = 1'-0" EXTER ELEV



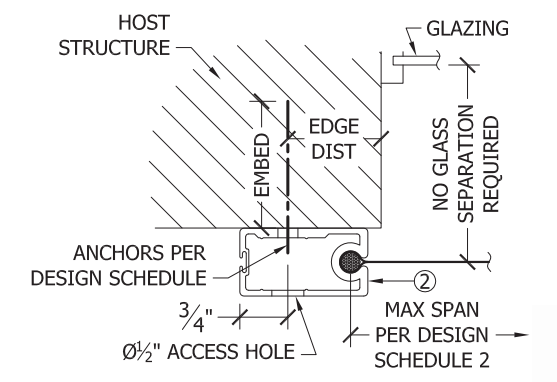
**2 HOOD ATTACHMENT: END CAP**  
SCALE: 1 1/2" = 1'-0" VERT SECTION



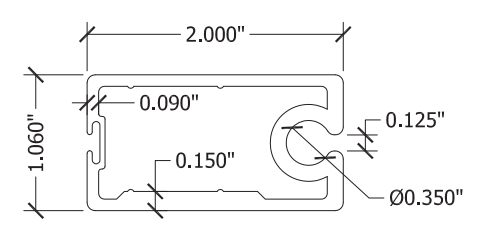
**3 HOOD ATTACHMENT: AXLE RETAINER**  
SCALE: 1 1/2" = 1'-0" VERT SECTION



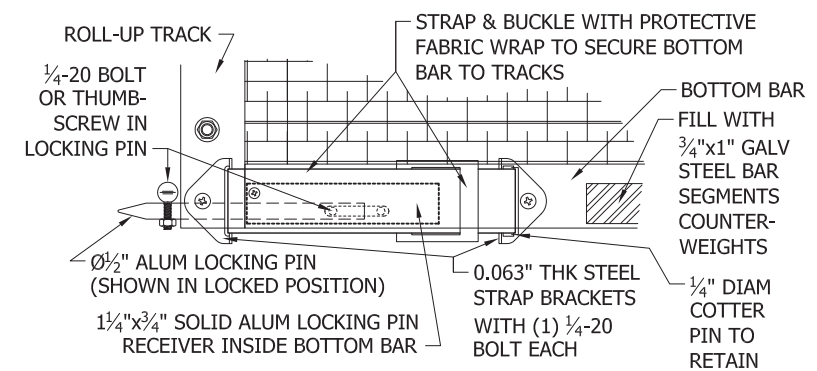
**4 AXLE RETAINER**  
SCALE: 1:6



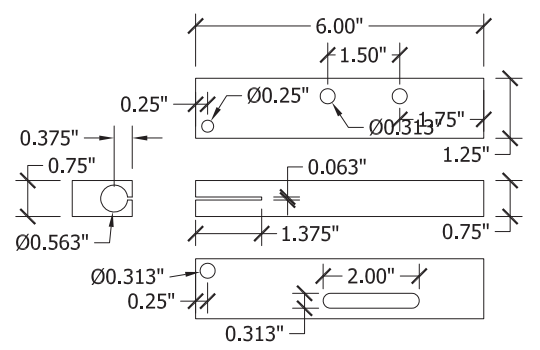
**5 ROLL-UP TRACK: WALL MOUNT**  
SCALE: 4" = 1'-0" MOUNTING SECTION



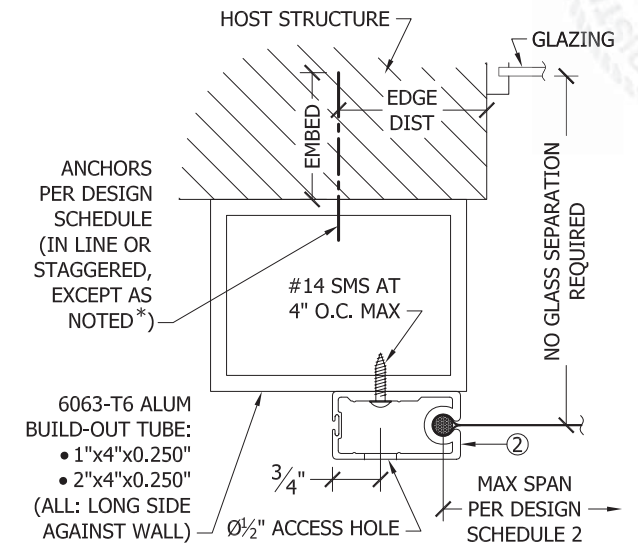
**2 ROLL-UP TRACK**  
SCALE: 1:1.5



**4 BOTTOM BAR LOCKING DETAIL**  
SCALE: 2" = 1'-0" EXTERIOR ELEVATION



**3 LOCKING PIN RECEIVER**  
SCALE: 1:4



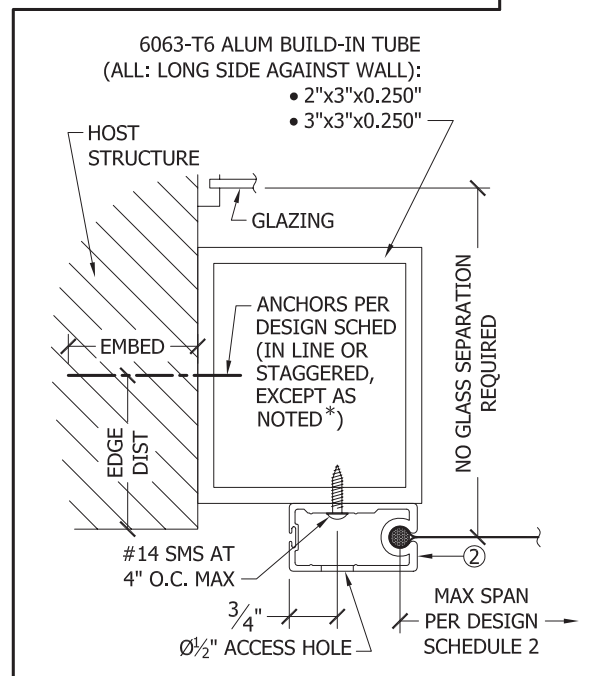
**6 ROLL-UP TRACK: WALL BUILD-OUT MOUNT**  
SCALE: 4" = 1'-0" MOUNTING SECTION

**DESIGN SCHEDULE 2**

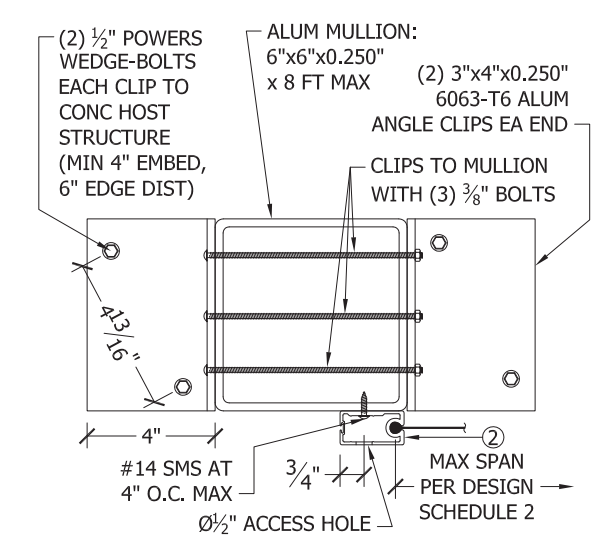
| MOUNT. COND.           | ALLOWABLE SPAN | ALLOWABLE DESIGN PRESSURE | REACTION AT HOST |        | CONCRETE |    |    |    | G.F. BLOCK |    |    | WOOD |    |    |
|------------------------|----------------|---------------------------|------------------|--------|----------|----|----|----|------------|----|----|------|----|----|
|                        |                |                           | Rx               | Ry     | A1       | B1 | E1 | F1 | A2         | B2 | F2 | F3   | G3 | H3 |
| DIRECT WALL MOUNT      | 16'-0"         | 53 PSF                    | 1272 lb          | 420 lb | 6"       | 6" | 6" | 4" | 6"         | 6" | 4" | 2"   | 4" | 2" |
|                        | 16'-0"         | 70 PSF                    | 1455 lb          | 560 lb | 6"       | 6" | 6" | 4" | 6"         | 6" | 4" | 2"   | 3" | 2" |
|                        | 25'-0"         | 38 PSF                    | 1277 lb          | 469 lb | 6"       | 6" | 6" | 4" | 6"         | 6" | 4" | 2"   | 4" | 2" |
|                        | 25'-0"         | 56 PSF                    | 1556 lb          | 700 lb | 6"       | 6" | 6" | 4" | 6"         | 6" | 4" | 2"   | 3" | 2" |
| BUILD-OUT WALL MOUNT   | 16'-0"         | 53 PSF                    | 1272 lb          | 420 lb | 6"       | 6" | 6" | 4" | 6"         | 6" | 4" | 2"   | 4" | 2" |
|                        | 16'-0"         | 70 PSF                    | 1455 lb          | 560 lb | 6"       | 6" | 6" | 4" | 6"         | 6" | 4" | 2"   | 3" | 2" |
|                        | 25'-0"         | 38 PSF                    | 1277 lb          | 469 lb | 6"       | 6" | 6" | 4" | 6"         | 6" | 4" | 2"   | 4" | 2" |
|                        | 25'-0"         | 56 PSF                    | 1556 lb          | 700 lb | 6"       | 6" | 6" | 4" | 6"         | 6" | 4" | 2"   | 3" | 2" |
| BUILD-IN TRAPPED MOUNT | 16'-0"         | 53 PSF                    | 1272 lb          | 420 lb | 6"       | 6" | 6" | 4" | 6"         | 6" | 4" | 3"   | 6" | 4" |
|                        | 16'-0"         | 70 PSF                    | 1455 lb          | 560 lb | 6"       | 6" | 6" | 4" | 6"         | 6" | 4" | 3"   | 6" | 4" |
|                        | 25'-0"         | 38 PSF                    | 1277 lb          | 469 lb | 6"       | 6" | 6" | 4" | 6"         | 6" | 4" | 3"   | 6" | 4" |
|                        | 25'-0"         | 56 PSF                    | 1556 lb          | 700 lb | 6"       | 6" | 6" | 4" | 6"         | 6" | 4" | 2"   | 6" | 4" |

**DESIGN SCHED NOTES:**

- SEE EXTERIOR ELEVATIONS FOR ANCHOR LOCATIONS AND/OR SPACING.
- REFERENCE "ANCHOR TYPES" SCHEDULE FOR ANCHOR TYPES.
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- WHERE EXISTING STRUCTURE IS WOOD FRAMING, EXISTING CONDITIONS MAY VARY. FIELD VERIFY THAT FASTENERS ARE INTO ADEQUATE WOOD FRAMING MEMBERS, NOT INTO PLYWOOD (U.N.O.).
- DESIGNATES ANCHOR CONDITIONS WHICH ARE NOT ACCEPTABLE FOR USE.
- \* INDICATES WHERE ANCHORS MUST BE STAGGERED, NOT IN LINE.



**7 ROLL-UP TRACK: TRAPPED BUILD-IN MOUNT**  
SCALE: 4" = 1'-0" MOUNTING SECTION



**8 ROLL-UP TRACK: MULLION MOUNT**  
SCALE: 2" = 1'-0" MOUNTING SECTION

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 ...SPECIALIZED SOLUTIONS

May 02, 2011  
 CHRISTIAN LANGLEY, PE  
 FL PE #67382 CA #28511

| DATE    | DESCRIPTION       | BY | CL | TS | HS | NS |
|---------|-------------------|----|----|----|----|----|
| 4/27/11 | INITIAL SUBMITTAL |    |    |    |    |    |

**TYPHOON ARMOR**  
 (NON-HVHZ)

FLORIDA PRODUCT APPROVAL

**SENTINEL Storm Protection**  
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DRAWING NUMBER:  
**SSP.09001**

SHEET  
**3 OF 3**