

## GENERAL NOTES:

1. ROLL-UP SHUTTER SHOWN ON THIS PRODUCT EVALUATION DOCUMENT (P. E. D.) HAS BEEN VERIFIED FOR CODE COMPLIANCE IN ACCORDANCE WITH THE 2003 EDITION OF THE INTERNATIONAL BUILDING CODE. DESIGN WIND LOADS SHALL BE DETERMINED AS PER SECTION 1609 OF THE ABOVE MENTIONED CODE, FOR A BASIC WIND SPEED AS REQUIRED BY THE JURISDICTION WHERE SHUTTER WILL BE INSTALLED, AND IN ACCORDANCE WITH ASCE 7-02 STANDARD. 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 NOT USED IN THEIR ANALYSIS.

ROLL-UP SHUTTER'S ADEQUACY FOR IMPACT AND FATIGUE RESISTANCE HAS BEEN VERIFIED IN ACCORDANCE WITH SECTION 1609.1.4 OF THE ABOVE MENTIONED CODE AS PER ASTM E-1886, E-1996 & E-330 STANDARDS, AS PER ARCHITECTURAL TESTING LAB REPORT # 49124.01-122-44.

THIS SHUTTER SHALL ONLY BE INSTALLED WITHIN WIND ZONES 1, 2 OR 3, AS DEFINED BY SECTION 6.2.2 OF THE ASTM E-1996 STANDARD.

2. MAXIMUM DESIGN PRESSURE RATING:

**+50.0 PSF , -55.0 PSF**

ANY DESIGN WIND LOAD, SLAT SPAN, SHUTTER HEIGHTS AND WIDTHS EQUAL OR SMALLER THAN MAXIMUM ALLOWABLE INDICATED IN THIS DRAWING ARE ACCEPTABLE FOR INSTALLATION.

3. ALL ALUMINUM EXTRUSIONS SHALL BE 6063-T6 ALLOY (UNLESS OTHERWISE NOTED).

4. ALL SCREWS TO BE STAINLESS STEEL 304 OR 316 SERIES W/ 50 ksi YIELD POINT AND 90 ksi TENSILE STRENGTH OR CORROSION RESISTANT COATED CARBON STEEL AS PER DIN 50018 OR ASTM A 510-03.

5. BOLTS TO BE 2024-T4 ALUMINUM ALLOY, ASTM A-307 GALVANIZED OR AISI 304 SERIES STAINLESS STEEL WITH 35 ksi MINIMUM YIELD STRENGTH.

6. STORM BARS AT FLOOR AND CEILING MOUNTING INSTALLATIONS MAY BE REMOVABLE AT NON HURRICANE CONDITIONS. HOWEVER, EACH STORM BAR SHALL BEAR A PERMANENT LABEL IN A VISIBLE PLACE WITH A WARNING NOTE INSTRUCTING THE TENANT OR OWNER THAT STORM BARS MUST BE INSTALLED WITH CORRESPONDING HARDWARE DURING PERIODS OF HURRICANE WARNING AND THAT ROLL UP SHUTTERS WILL NOT OFFER HURRICANE PROTECTION UNLESS ALL STORM BARS ARE INSTALLED AS DIRECTED.

7. REMOVABLE STORM BARS SHALL BE STORED IN A CONSPICUOUS PLACE WITH EASY AND IMMEDIATE ACCESS SO THAT THEY CAN BE REACHED AND INSTALLED ANY TIME (HURRICANE CONDITIONS OR NOT) SLATS ARE ROLLED DOWN. THE EFFECT OF THE SLATS ROLLED DOWN WITHOUT STORM BARS IS; THOSE SLATS WILL SLIP OUT OF TRACK DUE TO THE DEFLECTION CAUSED BY WIND FORCES.

8. PROTEUS® FLAME RETARDANT 18G, IS A POLYPROPYLENE MANUFACTURED BY POLY HI SOLIDUR, INC., USED AT SPRING LOADED SYSTEM FOR REMOVABLE STORM BARS & COMPLIES W/ THE FOLLOWING SPECIFICATIONS:

DESIGNATION	PROPERTIES	VALUE
ASTM D-792	DENSITY	59.51 lbs/ft <sup>3</sup> (AVERAGE)
ASTM D-638	YIELD POINT	3200 psi (AVERAGE)
ASTM D-638	TENSILE BREAK	3250 psi (AVERAGE)
ASTM D-638	ELONGATION AT BREAK	600 % (AVERAGE)
ASTM D-790	FLEXURAL MODULUS	145000 psi (AVERAGE)
ASTM D-4020	IZOD IMPACT	0.15 ft-lbs/inch (AVERAGE)
UL 94	BURN RATING.	V-0/5-VA (AVERAGE)
ASTM E-84	FLAME SPREAD INDEX	15 °F (AVERAGE)
ASTM E-84	SMOKE DEVELOPMENT INDEX	375 °F (AVERAGE)

9. ANCHORS TO WALL FOR SIDE RAILS & BOX CONNECTION SHALL BE AS FOLLOWS:

- 1/4" Ø TAPCON ANCHORS, AS MANUFACTURED BY I.T.W. BUILDEX OR ELCO TEXTRON.

### NOTES:

A.1) MINIMUM EMBEDMENT OF TAPCON ANCHORS INTO POURED CONCRETE IS 1 3/4". NO EMBEDMENT INTO STUCCO SHALL BE CONSIDERED AS PART OF THE REQUIRED EMBEDMENT.

A.2) IN CASE THAT PRECAST STONE, PRECAST CONCRETE OR BRICK PANELS, VENEER OR PAVERS BE FOUND ON THE EXISTING WALL OR FLOOR, ANCHORS SHALL BE LONG ENOUGH TO REACH THE MAIN STRUCTURE BEHIND SUCH COVERS. ANCHORAGE SHALL BE AS INDICATED ON NOTE A.1 ABOVE.

(B) TO EXISTING CONCRETE BLOCK WALL:

- 1/4" Ø TAPCON ANCHORS AS MANUFACTURED BY I.T.W. BUILDEX OR ELCO TEXTRON.

### NOTES:

B.1) MINIMUM EMBEDMENT OF TAPCON ANCHORS INTO CONCRETE BLOCK UNIT SHALL BE 1 1/4".

B.2) IN CASE THAT PRECAST STONE, PRECAST CONCRETE OR BRICK PANELS, VENEER OR PAVERS BE FOUND ON THE EXISTING WALL OR FLOOR ANCHORS SHALL BE LONG ENOUGH TO REACH THE MAIN STRUCTURE BEHIND SUCH COVERS. ANCHORAGE SHALL BE AS INDICATED ON NOTE B.1 ABOVE.

(C) TO EXISTING WOOD FRAME WALL (MIN. SPECIFIC GRAVITY = 0.36):  
- 5/16" Ø WOOD SCREWS W/ 2" MIN. EMBEDMENT INTO WOOD BEYOND ANY WALL FINISH.

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

(E) ANCHORS REQUIRED FOR STORM BARS & HEADER CONNECTIONS SHALL BE AS SPECIFIED ON APPLICABLE SECTIONS SHOWN ON SHEETS 4 & 5 OF 5. POWER BOLT ANCHORS TO BE AS MANUFACTURER BY POWERS FASTENERS, INC., WOOD SCREWS SHALL BE COMPLY W/ THE NATIONAL DESIGN SPECIFICATION FROM AF&PA.

10. THE INSTALLATION CONTRACTOR IS TO SEAL/CAULK ALL SHUTTER COMPONENT EDGES WHICH REMAIN IN CONTINUOUS CONTACT WITH THE BUILDING TO PREVENT WIND/RAIN INTRUSION.

11. 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. THIS SHUTTER SHALL ONLY BE ATTACHED TO CONCRETE, CONCRETE BLOCK OR WOOD FRAME BUILDINGS.

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

13. LIFTING NOT PART OF THIS APPROVAL, BUT SHALL BE CERTIFIED BY AN INDEPENDENT TESTING AGENCY.

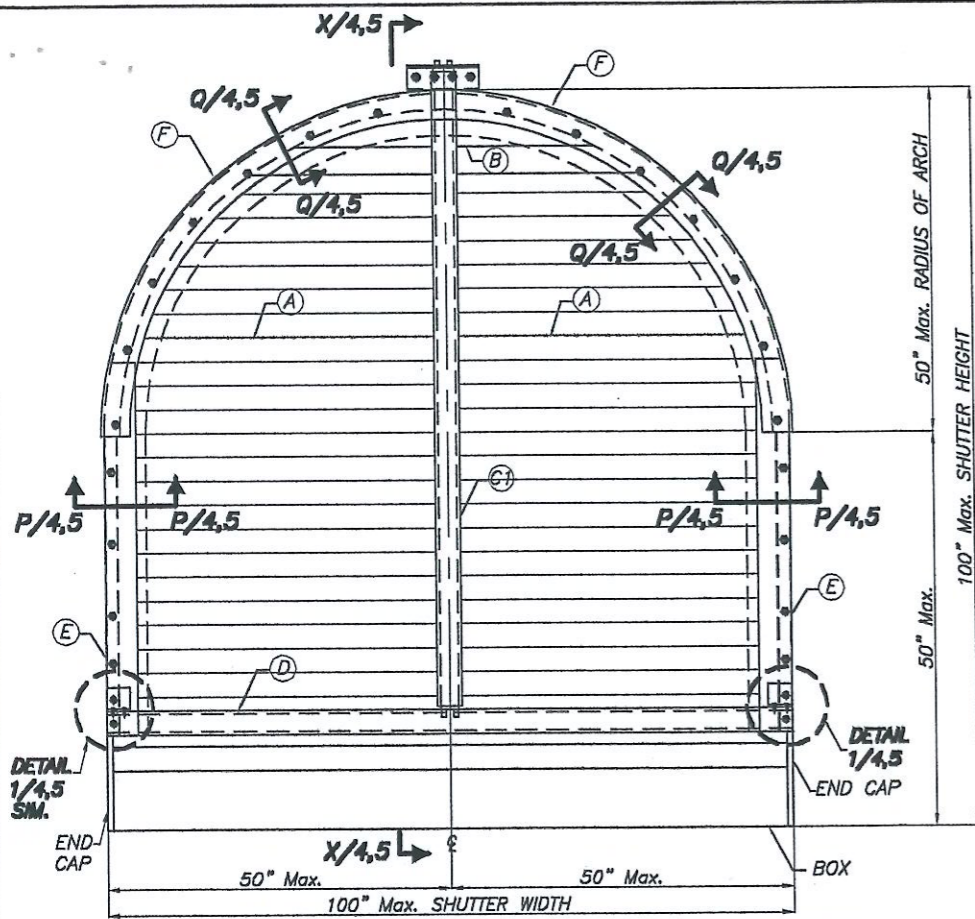
14. (a) THIS P.E.D. PREPARED BY THIS ENGINEER IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SITE SPECIFIC PROJECT; I.E. WHERE THE SITE CONDITIONS DEVIATE FROM THE P.E.D.

(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.

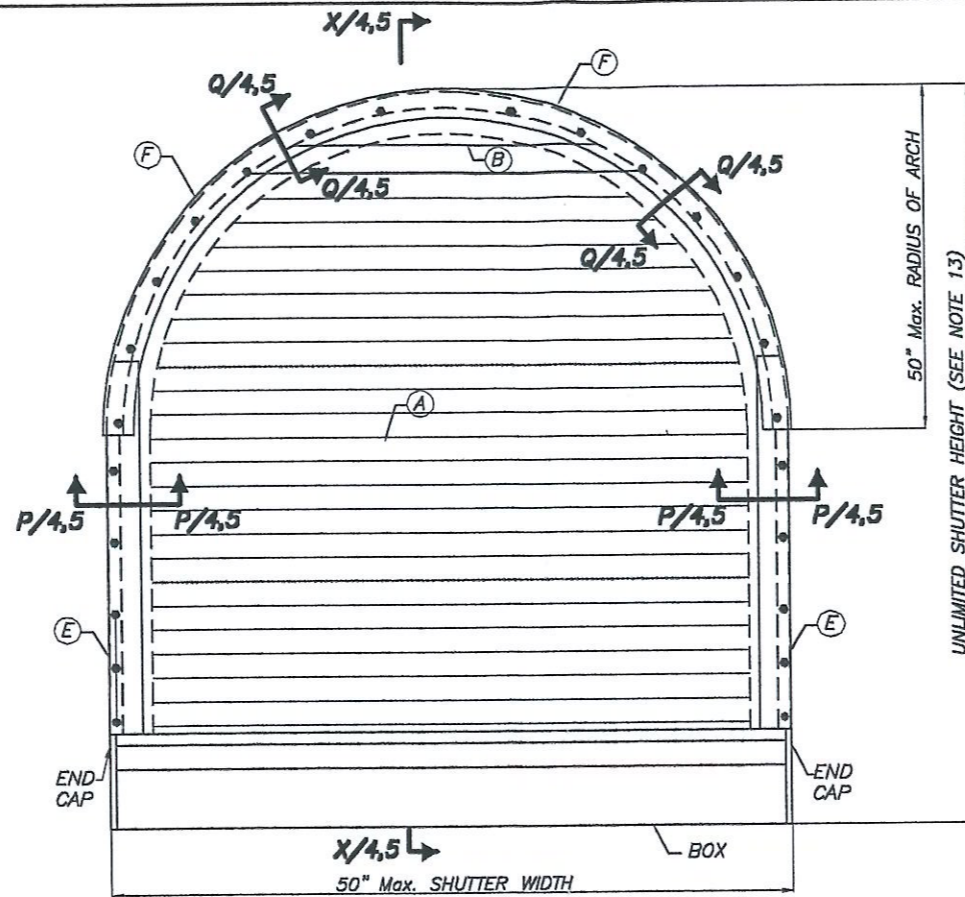
(d) SITE SPECIFIC PROJECTS SHALL BE PREPARED BY A FLORIDA REGISTERED ENGINEER OR ARCHITECT WHICH WILL BECOME THE ENGINEER OF RECORD (E.O.R.) FOR THE PROJECT AND WHO WILL BE RESPONSIBLE FOR THE PROPER USE OF THE P.E.D. ENGINEER OF RECORD, ACTING AS A DELEGATED ENGINEER TO THE P.E.D. ENGINEER, SHALL SUBMIT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



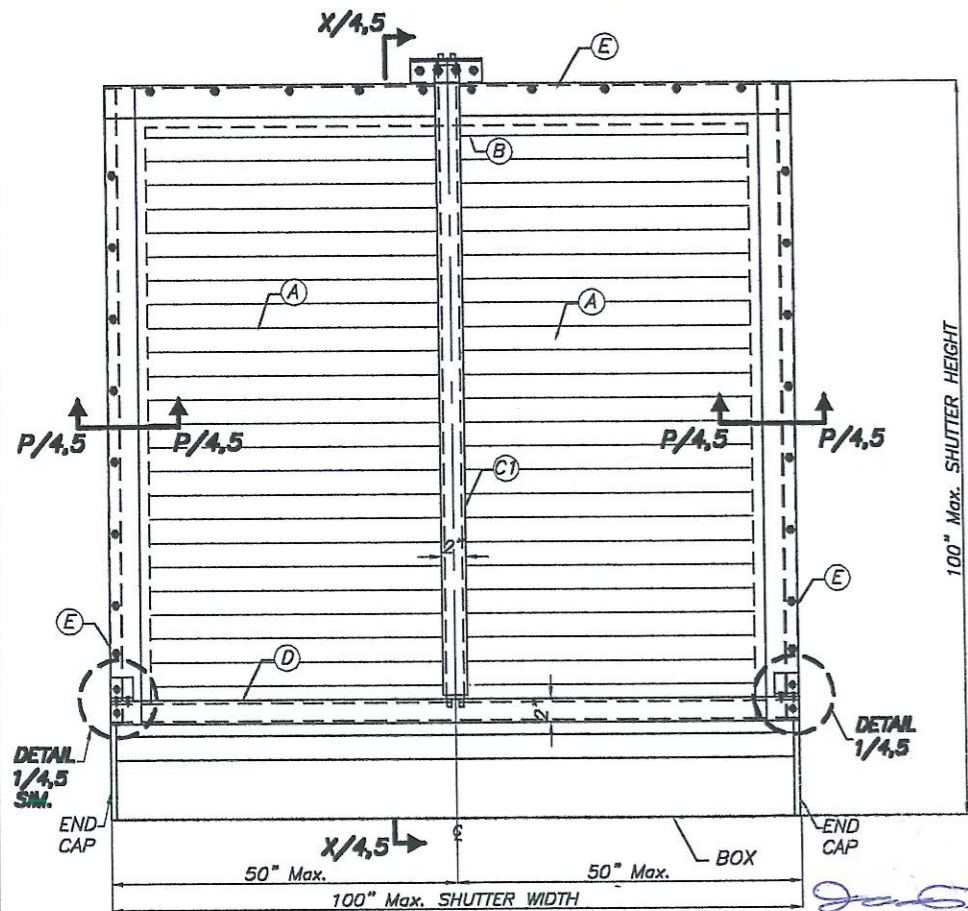
**TYPICAL DOUBLE UNIT ARCHED ELEVATION (STORM BARS REQUIRED)**

NOTE: SEE SHEET 3 OF 5 FOR COMPONENTS NOMENCLATURE  
SCALE: 3/4"=1'



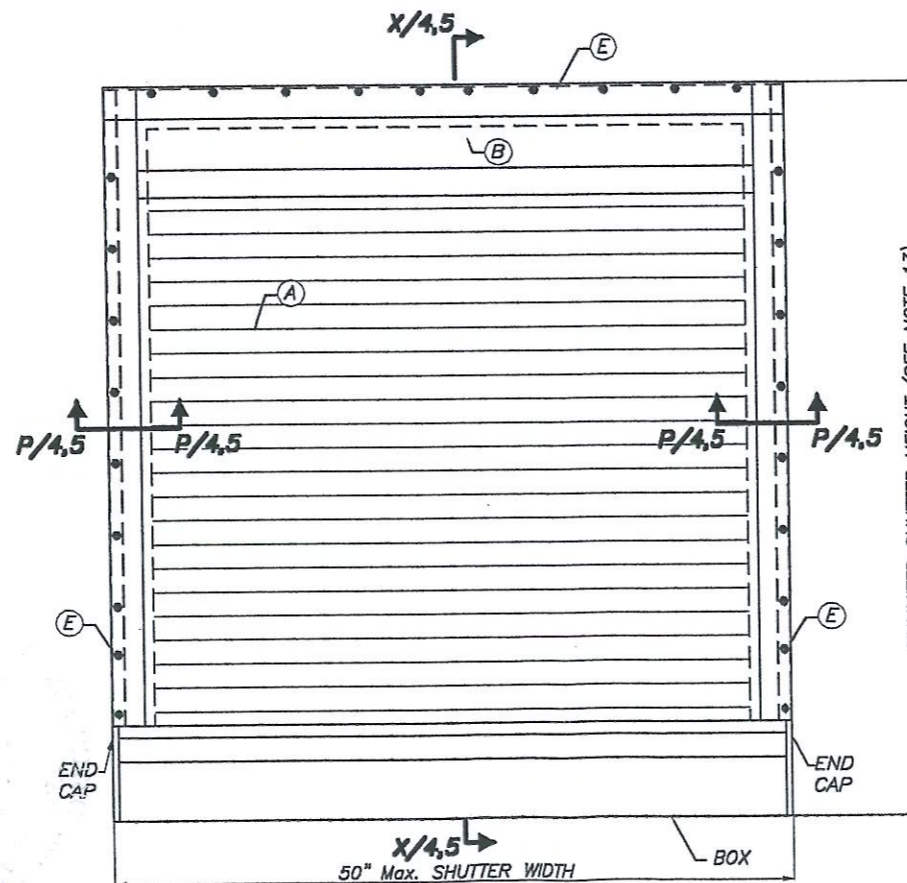
**TYPICAL SINGLE UNIT ARCHED ELEVATION (NO STORM BARS REQUIRED)**

NOTE: SEE SHEET 3 OF 5 FOR COMPONENTS NOMENCLATURE  
SCALE: 3/4"=1'



**TYPICAL DOUBLE UNIT ELEVATION (STORM BARS REQUIRED)**

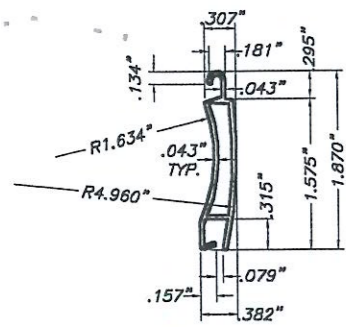
NOTE: SEE SHEET 3 OF 5 FOR COMPONENTS NOMENCLATURE  
SCALE: 3/4"=1'



**TYPICAL SINGLE UNIT ELEVATION (NO STORM BARS REQUIRED)**

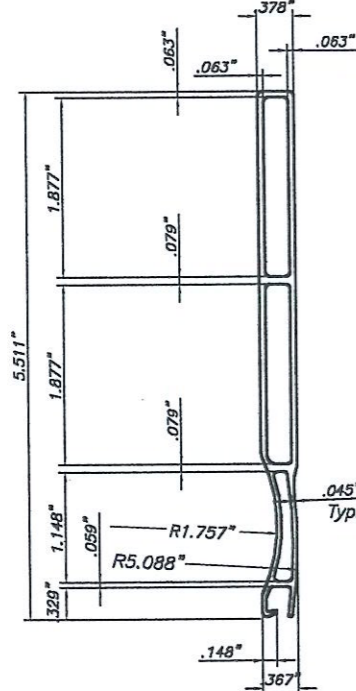
NOTE: SEE SHEET 3 OF 5 FOR COMPONENTS NOMENCLATURE  
SCALE: 3/4"=1'

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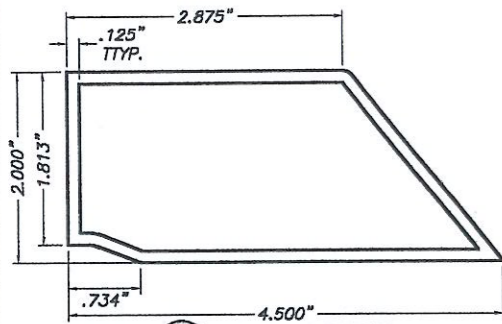
**A SLAT:**

EXTRUDED ALUMINUM SLAT  
(6063-T6 ALLOY)  
SCALE: 1/2" = 1"



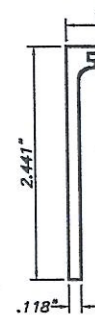
**B TOP SLAT FOR ARCH**

EXTRUDED ALUMINUM SLAT  
(6063-T5 ALLOY)  
SCALE: 1/2" = 1"



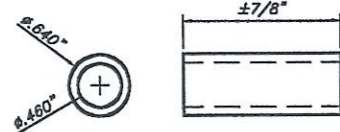
**D SILL TUBE:**

6063-T6 ALUMINUM ALLOY  
SCALE: 1/2" = 1"



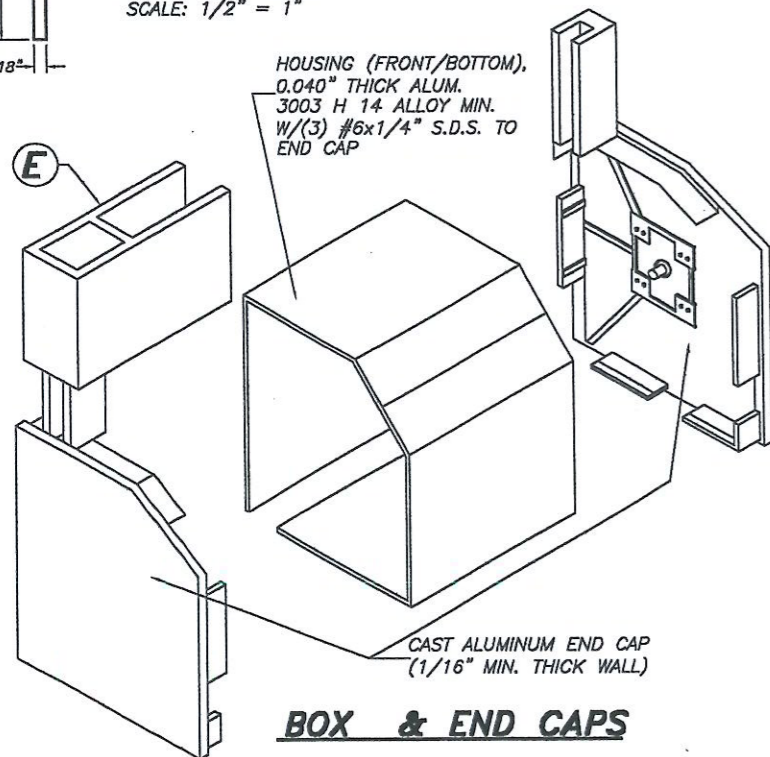
**F ARCH L-ANGLE**

STUDIO STAR  
6063-T6 Alum. ALLOY  
SCALE: 1/2" = 1"

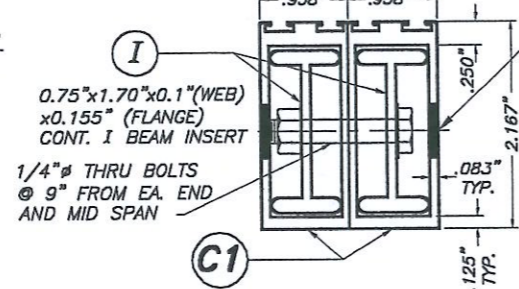


**G ANCHOR SPACER**

AT ARCH  
6063-T6 Alum. ALLOY  
SCALE: 1" = 1"

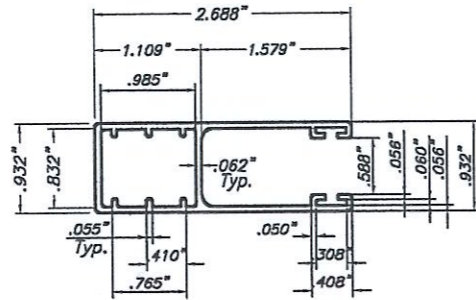


**BOX & END CAPS**



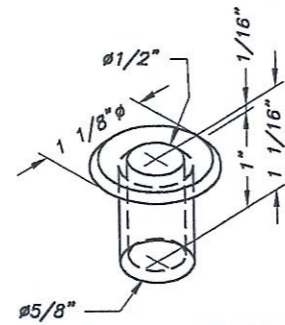
**C1 STORM BAR**

0.75"x1.70"x0.1"(WEB)  
x0.155"(FLANGE)  
CONT. I BEAM INSERT  
1/4" THRU BOLTS  
@ 9" FROM EA. END  
AND MID SPAN



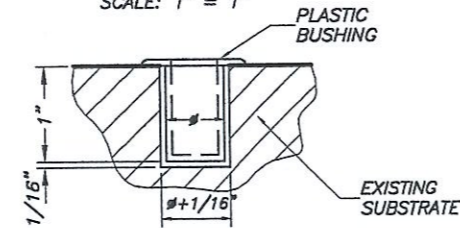
**E SIDE RAIL**

6063-T6 Alum. ALLOY  
SCALE: 1/2" = 1"



**PLASTIC BUSHING:**

DETAIL 1 (ISOMETRIC)  
SCALE: 1" = 1"

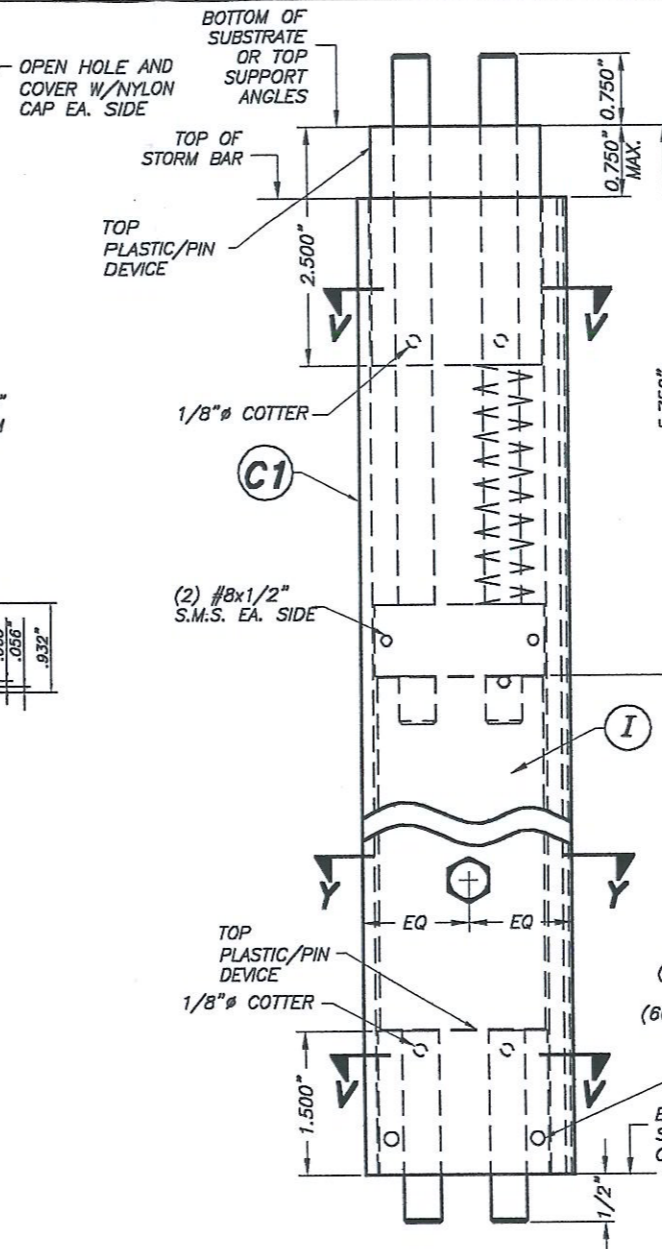


**ENGAGEMENT HOLE DETAIL**

(IN CONCRETE OR WOOD)  
FOR REMOVABLE STORM BARS  
SCALE: 1" = 1"

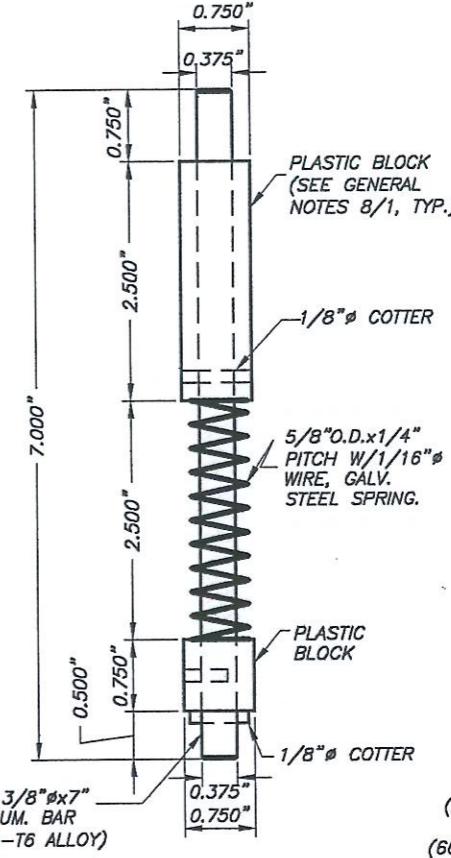
NOTES:  
(1) ENGAGEMENT HOLE DRILLED IN CONCRETE OR WOOD SUBSTRATES SHALL BE 5/8"Øx1" DEEP, W/1/16" Max. TOLERANCE IN BOTH DIAMETER & DEPTH.

(2) ENGAGEMENT HOLE DRILLED IN CONCRETE OR WOOD SUBSTRATES SHALL BE PERMANENTLY PROTECTED BY FITTING PLASTIC BUSHING (SEE DETAIL 1) INTO HOLE. IT SHALL BE THE RESPONSIBILITY OF SHUTTER'S OWNER TO PERMANENTLY KEEP BUSHING FREE OF DUST & MOLD BY REMOVING IT FROM ENGAGEMENT HOLE, CLEANING IT AND REPOSITIONING IT INTO HOLE AS INDICATED ON ABOVE DETAIL.



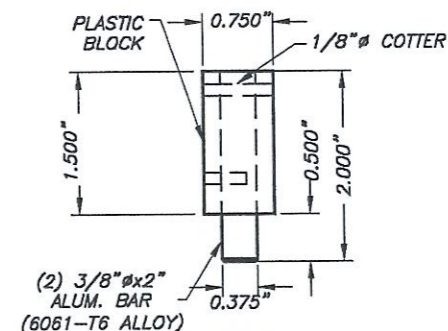
**SECTION V-V**

**SECTION Y-Y**



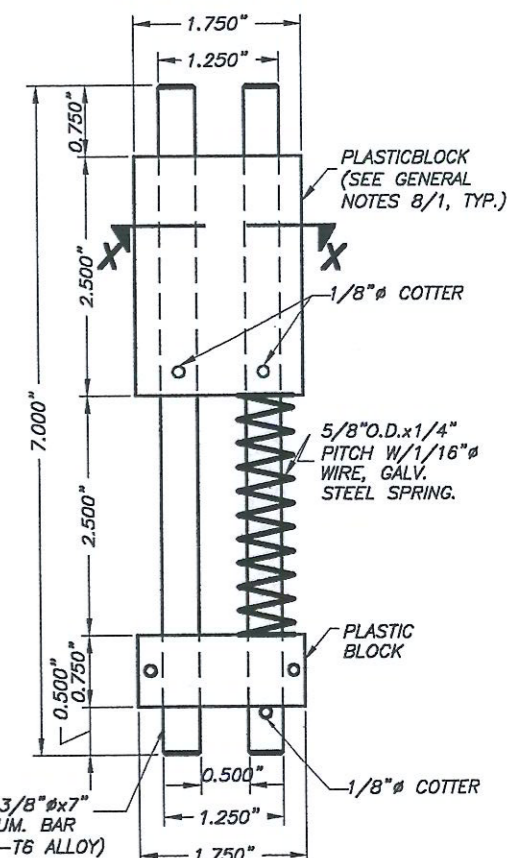
**FRONT**

(2) 3/8"Øx7" ALUM. BAR (6061-T6 ALLOY)



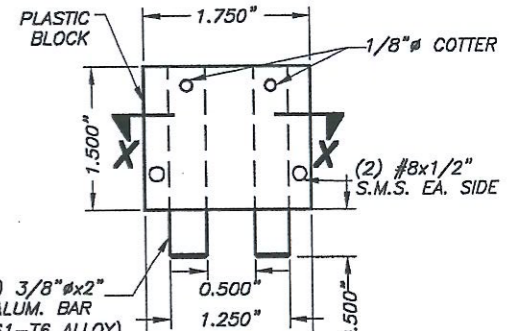
**FRONT**

(2) 3/8"Øx2" ALUM. BAR (6061-T6 ALLOY)



**SIDE VIEW**

**TOP PLASTIC/PIN DEVICE (2 REQ'D)**



**SIDE VIEW**

**BOTTOM PLASTIC/PIN DEVICE (2 REQUIRED)**

**TYPICAL PLASTIC/PIN DEVICE FOR REMOVABLE STORM BAR (C1)**

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(2) 3/8"  $\phi$  POWER BOLTS  
W/ 2 1/2" MIN.  
EMBEDMENT INTO WALL  
BEYOND ANY WALL FINISH.

OPEN 1/2"  $\phi$  HOLE TO  
ACCEPT 3/8"  $\phi$  ALUM. PINS

(2) 2"x5"x1/8"x0'-6" ALUM.  
ANGLES CONNECTED TOGETHER  
W/ (2) 3/8"  $\phi$  BOLTS W/NUT  
THRU ANGLES NOT SHOWN FOR  
CLARITY. (SEE VIEW X)

EXISTING  
POURED  
CONCRETE  
REQ'D.

EXISTING CONCRETE  
BLOCK W/ GROUT FILLED  
CELL'S OR POURED  
CONCRETE REQ'D.

2"x3"x1/4"x0'-3" (6061-T6 ALLOY) ALUM.  
ANGLE W/ (1) 3/8"  $\phi$  POWER BOLT  
W/ 3 1/2" MIN. EMBEDMENT INTO WALL  
BEYOND ANY WALL FINISH & (2) 3/8"  $\phi$  x 1"  
BOLTS W/NUT TO SILL TUBE.

(1) 3/8"  $\phi$  POWER BOLT  
W/ 2 1/2" MIN. EMBEDMENT INTO  
WALL BEYOND ANY WALL FINISH.

DRILL PILOT HOLE  
TO ACCESS FOR  
ANCHOR

(1) 3/8"  $\phi$  POWER BOLT  
W/ 2 1/2" MIN. EMBEDMENT  
INTO WALL BEYOND ANY  
WALL FINISH. (DRILL HOLE  
TO ACCESS FOR ANCHOR)

END CAP

END CAP

BOX

M

SECTION M-M

DETAIL 1

SCALE: 1/2"=1"

ELEVATION

EXISTING CONCRETE  
BLOCK W/ GROUT  
FILLED CELL'S OR  
POURED CONCRETE  
REQ'D.

(2) 2"x5"x1/8"x0'-6" ALUM.  
ANGLES CONNECTED TOGETHER  
W/ (2) 3/8"  $\phi$  BOLTS W/NUT  
THRU ANGLES.

STORM BAR

(2) 3/8"  $\phi$  POWER BOLT  
W/ 2 1/2" MIN. EMBEDMENT INTO  
WALL BEYOND ANY WALL FINISH.

EXISTING  
POURED  
CONCRETE  
REQ'D.

OPEN 1/2"  $\phi$  HOLE  
TO ACCEPT 3/8"  $\phi$   
ALUM. PINS

#8x3/4" S.D.S.  
@ ONE REQ'D EACH  
END OF CAP

BOX

VIEW X

SCALE: 1/2"=1"  
(STORM BAR NOT SHOWN FOR CLARITY)

3/16"  $\phi$  TAPCON  
ANCHORS  
@ 6" O.C. MAX.

3"  
MIN. E.D.  
POURED  
CONCRETE  
REQ'D.

SECTION Q-Q

SCALE: 1/2"=1"

EXISTING CONCRETE  
BLOCK W/ GROUT  
FILLED CELL'S OR  
POURED CONCRETE  
REQ'D.

3/16"  $\phi$  TAPCON  
ANCHORS  
@ 6" O.C. MAX.

3"  
MIN. ED.  
EXISTING CONCRETE  
BLOCK W/ GROUT  
FILLED CELL'S OR  
POURED CONCRETE  
REQ'D.

SECTION P-P

SCALE: 1/2"=1"  
International Building Code

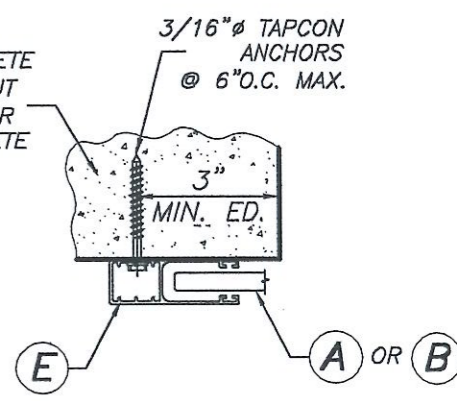
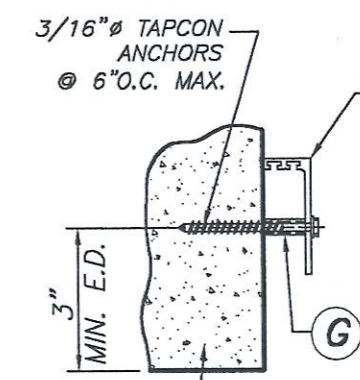
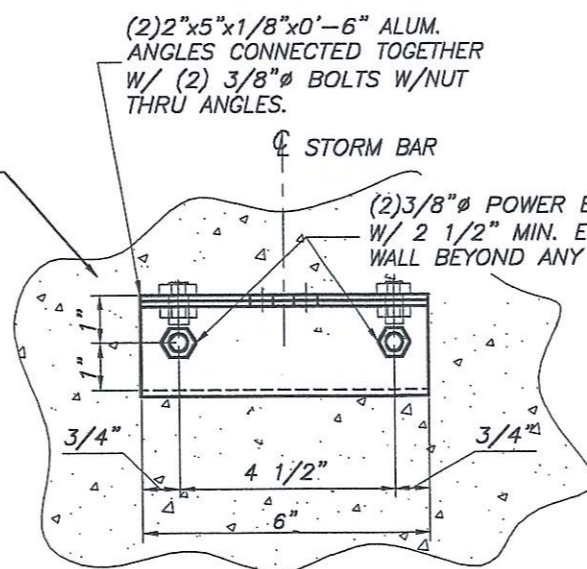
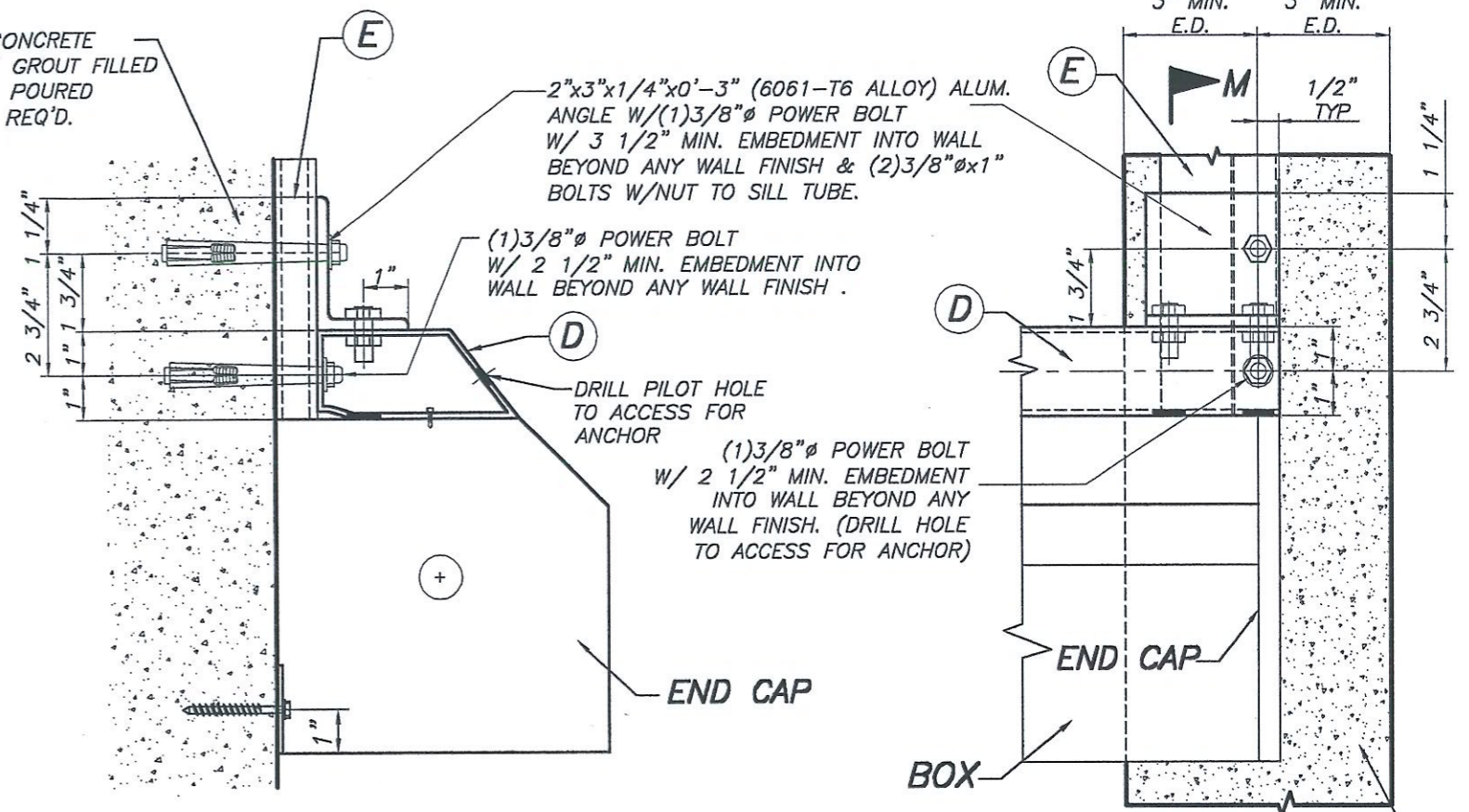
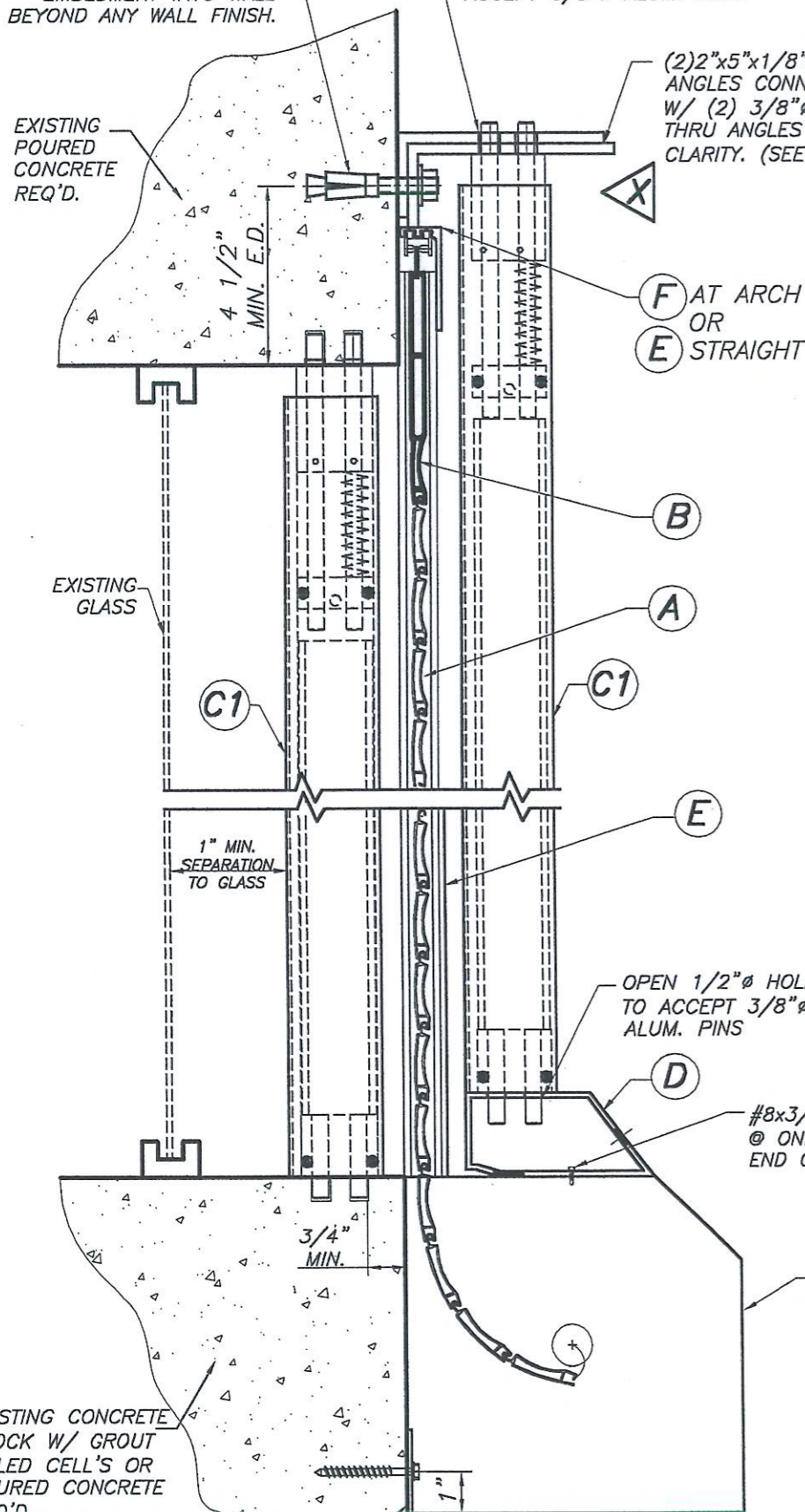
EXISTING CONCRETE  
BLOCK W/ GROUT  
FILLED CELL'S OR  
POURED CONCRETE  
REQ'D.

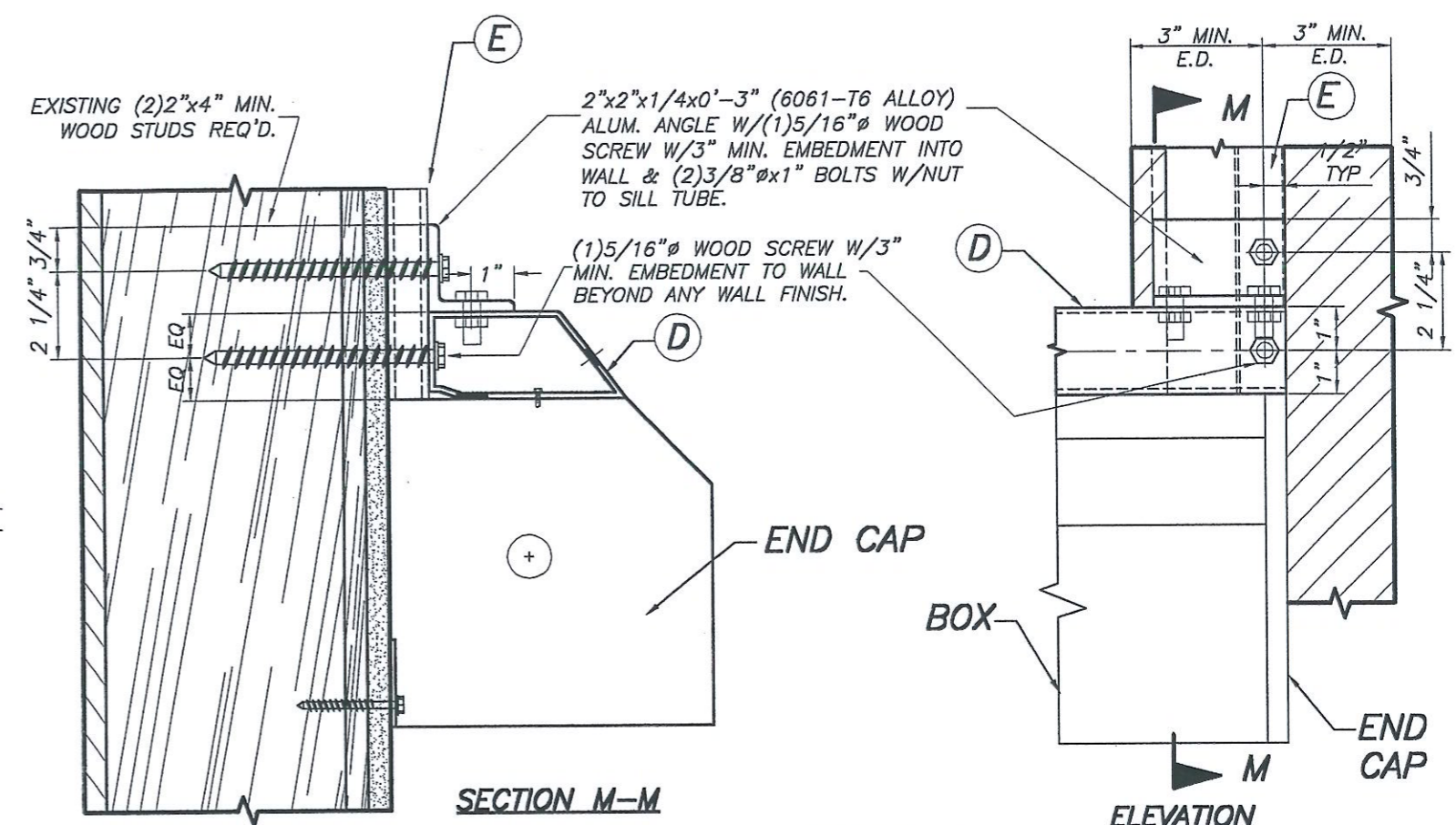
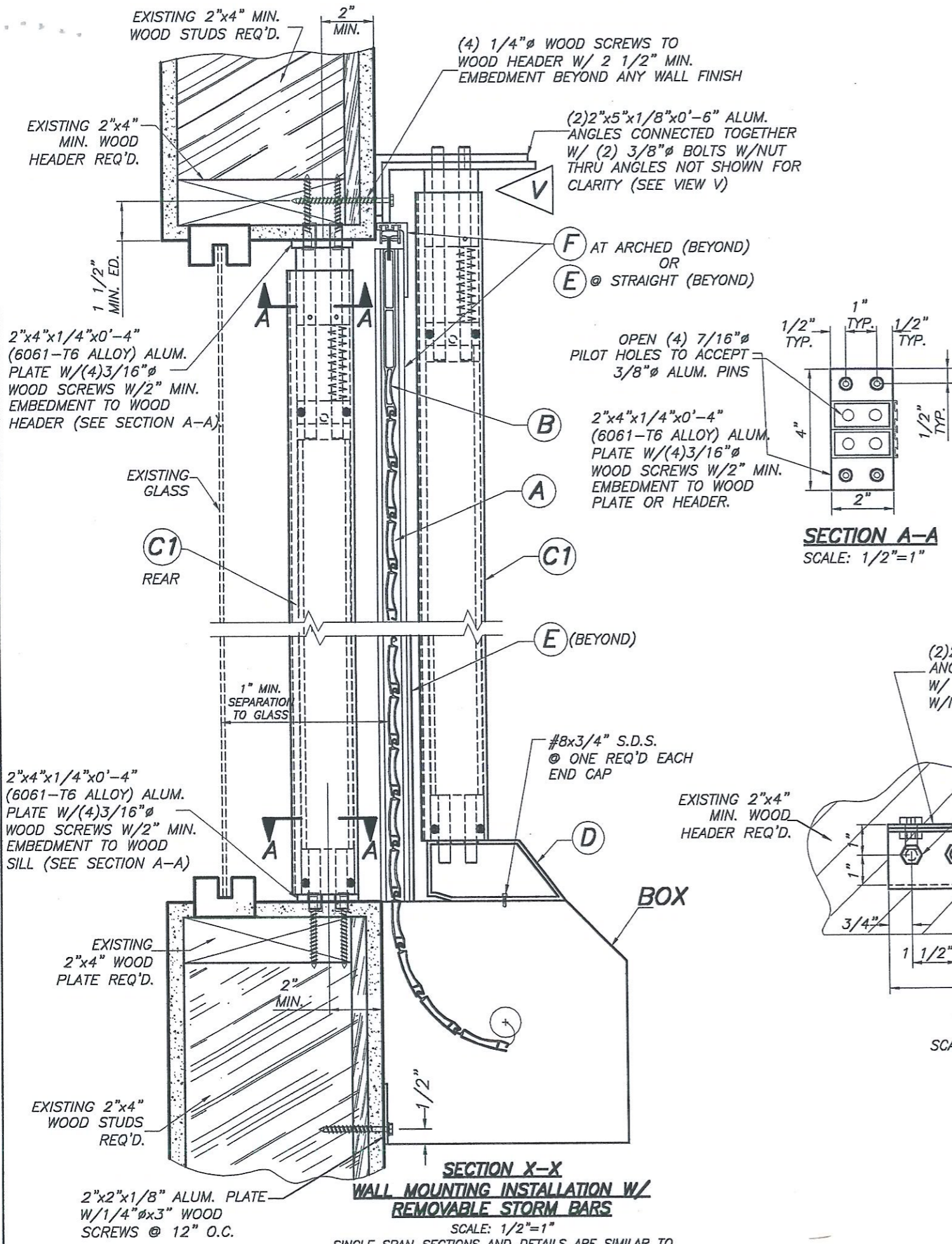
2"x2"x1/8" ALUM. PLATE  
W/ 3/16"  $\phi$  x 2 1/4" TAPCON  
ANCHORS @ 12" O.C.

SECTION X-X  
WALL MOUNTING INSTALLATION W/  
REMOVABLE STORM BARS

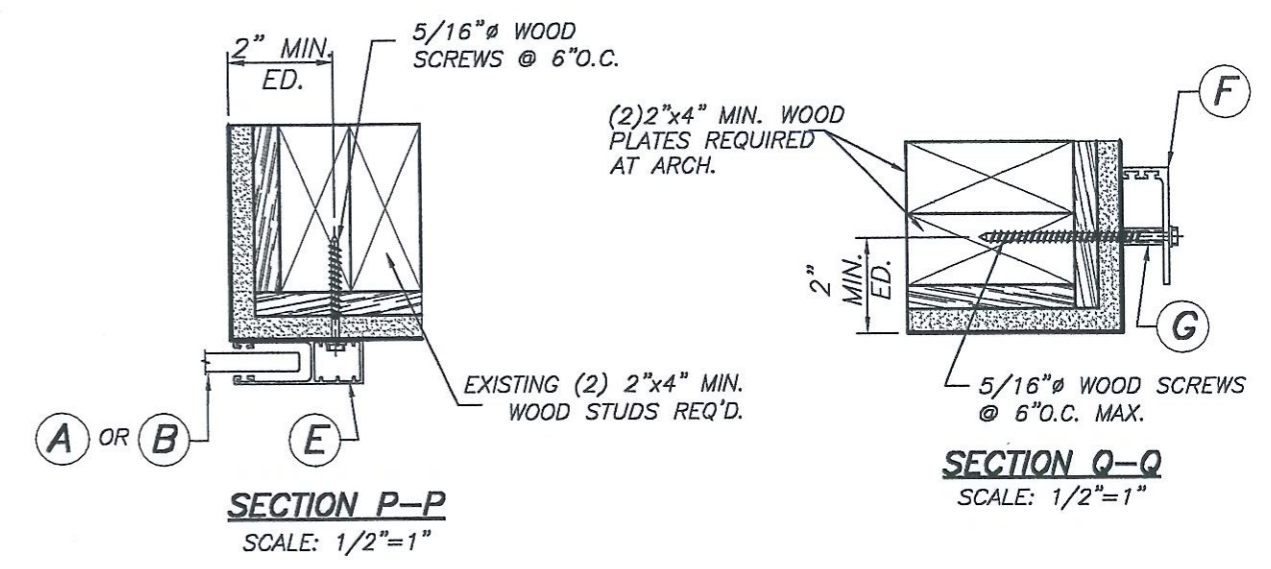
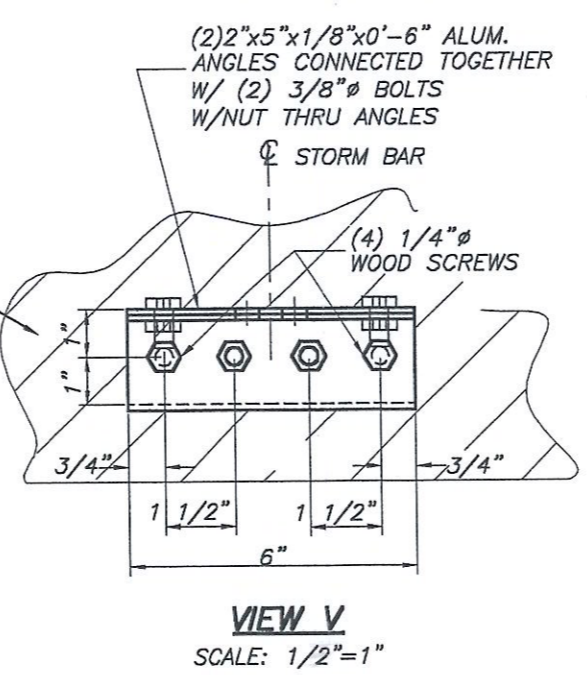
SCALE: 1/2"=1"

SINGLE SPAN SECTIONS AND DETAILS ARE SIMILAR TO  
ABOVE SHOWN WITHOUT STORM BARS AND SILL TUBE





**DETAIL 1**  
SCALE: 1/2"=1"



SINGLE SPAN SECTIONS AND DETAILS ARE SIMILAR TO ABOVE SHOWN WITHOUT STORM BARS AND SILL TUBE