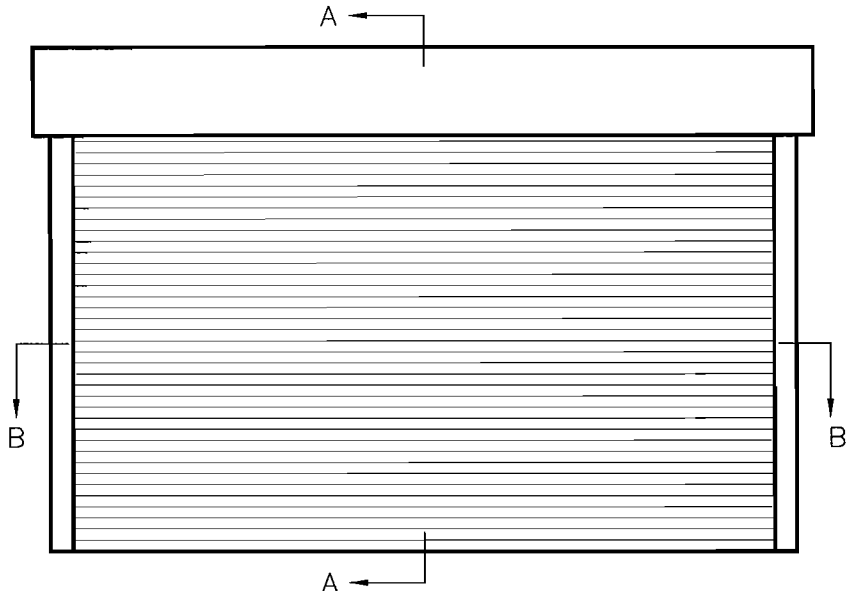
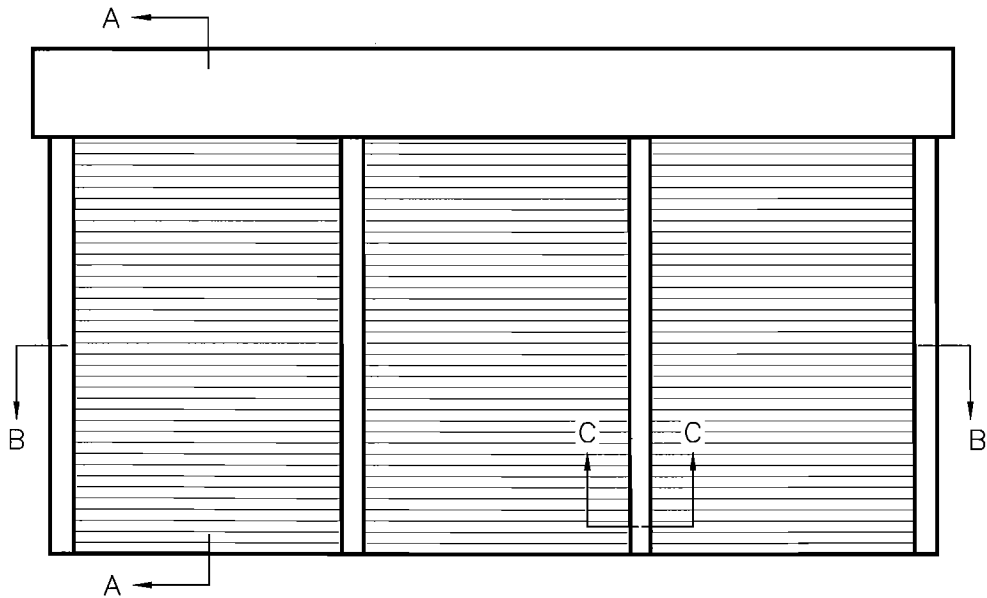


REVISION	BY	REVISION DESCRIPTION	DATE
1	BAH	SHT.1: ADD 5th TEST REPORT, SHT. 2: CHNG'D. MAX. SPAN 4" SIDE RAIL SLAT PERFORMANCE	12 JAN.'06



TYPICAL SINGLE UNIT ELEVATION

N.T.S. SINGLE SPAN UP TO 281"



TYPICAL MULTIPLE UNIT ELEVATION

N.T.S. SEE VERTICAL SUPPORTING MEMBER CHART PERFORMANCE

EVALUATION BASED ON:
FENESTRATION TESTING LABORATORY, INC.

LABORATORY No. 4596
DATE: APRIL 29, 2005
REPORT NO. 1
FILE NUMBER 05-418
TESTING PROTOCOL: E 330, 1886-02 & 1996-02
MAXIMUM WIDTH TESTED=242.5"
MAX. DESIGN PRESSURE = 80 PSF
STRUCTURAL LOAD = 120 PSF

AND

LABORATORY No. 4644
DATE: JUNE 17, 2005
REPORT NO. 2
FILE NUMBER 05-418
TESTING PROTOCOL: E 330, 1886-02 & 1996-02
MAXIMUM WIDTH TESTED=281"
MAX. DESIGN PRESSURE = 60 PSF
STRUCTURAL LOAD = 90 PSF

AND

LABORATORY No. 4740
DATE: NOVEMBER 14, 2005
REPORT NO. 3
FILE NUMBER 05-418
TESTING PROTOCOL: E 330, 1886-02 & 1996-02
MAXIMUM WIDTH TESTED=120"
MAX. DESIGN PRESSURE = 23 PSF
STRUCTURAL LOAD = 34.5 PSF

AND

LABORATORY No. 4744
DATE: NOVEMBER 14, 2005
REPORT NO. 4
FILE NUMBER 05-418
TESTING PROTOCOL: E 330, 1886 & 1996-02
MAXIMUM WIDTH TESTED=97"
MAX. DESIGN PRESSURE = 45 PSF
STRUCTURAL LOAD = 67.5 PSF

AND

LABORATORY No. 4760
DATE: DECEMBER 1, 2005
REPORT NO. 5
FILE NUMBER 05-418
TESTING PROTOCOL: E 330, 1886 & 1996-02
MAXIMUM WIDTH TESTED=120"
MAX. DESIGN PRESSURE = 140.0 PSF
STRUCTURAL LOAD = 210.0 PSF

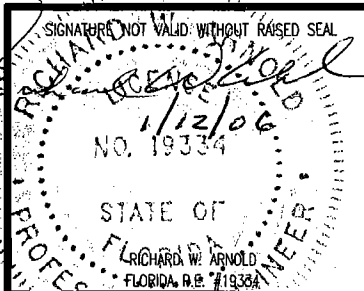
GENERAL NOTES:

- THESE DRAWINGS SHALL BE USED TO OBTAIN NO MORE THAN ONE BUILDING PERMIT. MASTER PERMITTING IS SPECIFICALLY NOT AUTHORIZED.
- LIMITATIONS OF USE:
 - THIS PRODUCT IS NOT TO BE USED IN HIGH VELOCITY HURRICANE ZONES.
 - MAXIMUM SIZE: 60 PSF MAX. PRESSURE @281" MAX. WIDTH
140 PSF MAX. PRESSURE @120" MAX. WIDTH
140 PSF MAX. PRESSURE FOR LESS THAN 120" WIDTH
 - IMPACT LEVEL: 9-1/4lb. LARGE MISSILE IMPACT.
- ROLL-UP SHUTTER SHOWN ON THIS PRODUCT EVALUATION DOCUMENT HAS BEEN DESIGNED IN ACCORDANCE WITH THE 2004 EDITION OF FLORIDA BUILDING CODE. THIS ROLL-UP SHUTTER SHALL NOT BE INSTALLED AT HIGH VELOCITY HURRICANE ZONES (DADE COUNTY/BROWARD COUNTIES). DESIGN WIND LOADS SHALL BE DETERMINED AS PER SECTION 1609 OF THE ABOVE MENTIONED CODE IN ACCORDANCE WITH ASCE 7-98 AND FOR A BASIC WIND SPEED AS REQUIRED BY THE JURISDICTION WHERE THE SHUTTER WILL BE INSTALLED. ROLL-UP SHUTTER ADEQUACY FOR IMPACT, DEFLECTION AND FATIGUE RESISTANCE HAS BEEN VERIFIED IN ACCORDANCE WITH SECTION 1609.1.4 OF THE ABOVE MENTIONED CODE AND AS PER TAS-201,202&203 AT FENESTRATION TESTING LABORATORY, INC. PER THEIR REPORT, LABORATORY NO. 4644, DATED JUNE 17, 2005, REPORT NUMBER 2, 3 PAGES.
- ALL ALUMINUM EXTRUSION SHALL BE 6063-T6 ALLOY (UNLESS OTHERWISE NOTED)
- ALL FASTENERS SHALL BE CORROSION RESISTANT COATED CARBON STEEL AS PER DIN 50018 OR STAINLESS STEEL 304 OR 316 SERIES WITH 50 KSI YIELD POINT AND 90 KSI ULTIMATE TENSILE STRENGTH.
- BOLTS SHALL BE CORROSION PROTECTED STEEL OR STAINLESS STEEL WITH 35 KSI MINIMUM YIELD POINT.
- SHUTTERS MAY BE MOTOR, TAPE PULLEY OR GEAR DRIVEN.
- ANCHORING OR LOADING CONDITIONS OTHER THAN THOSE SHOWN IN THESE DETAILS ARE NOT PART OF THIS APPROVAL.

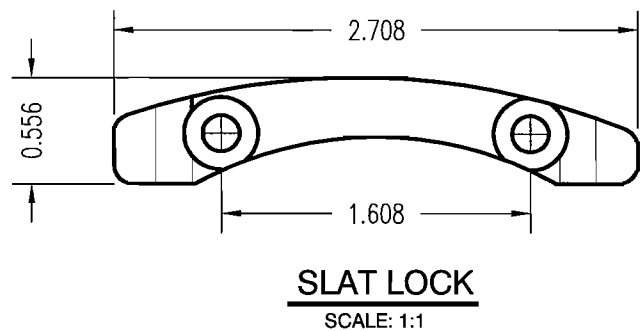
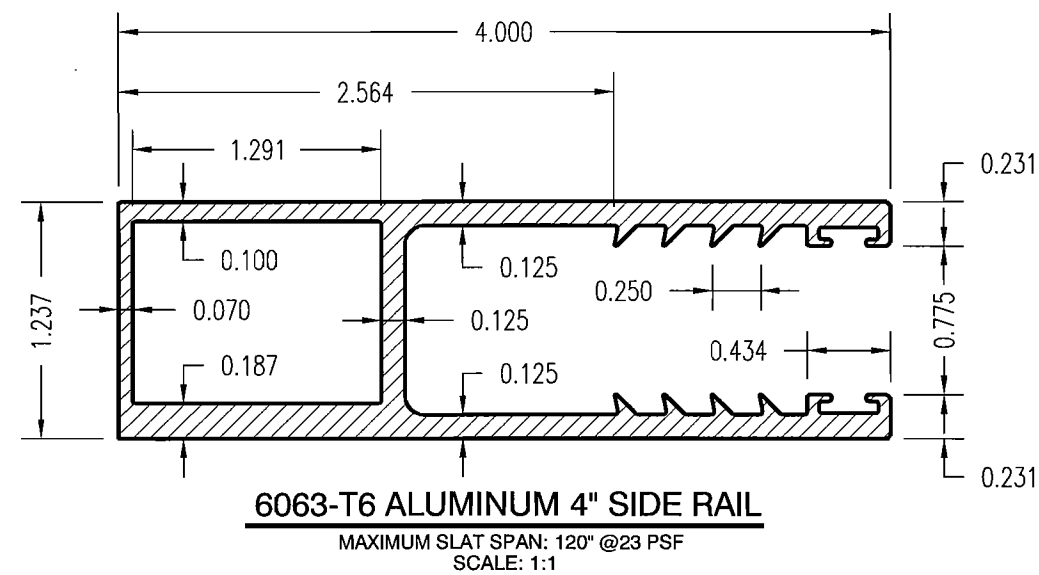
PRODUCT EVALUATION NOTES:

- THIS PRODUCT EVALUATION DOCUMENT (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.
- CONTRACTOR TO BE RESPONSIBLE FOR THE SELECTION, PURCHASE AND INSTALLATION OF THIS PRODUCT BASED ON THIS PRODUCT EVALUATION PROVIDED HE/SHE DOES NOT DEVIATE FROM THE CONDITIONS DETAILED ON THIS DOCUMENT.
- THIS PRODUCT EVALUATION DOCUMENT WILL BE CONSIDERED INVALID IF ALTERED (i.e. HIGHLIGHTED, MARKED ETC.) BY ANY MEANS.
- 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.
- THIS P.E.D. SHALL BEAR THE DATE AND ORIGINAL SEAL AND SIGNATURE OF THE PROFESSIONAL ENGINEER OF RECORD THAT PREPARED IT.

ENGINEERING REVIEW BY:
ARNOLD/SANDERS CONSULTING ENGINEERS, INC.
16681 MCGREGOR BLVD., SUITE 202
FORT MYERS, FL 33908
PHONE: (239) 267-3666



58mm BERTHA END RETENTION / NON-RETENTION ROLL SHUTTER SYSTEM		
AMERICAN SHUTTER SYSTEM ASSOCIATION, INC. 4268 WESTROADS DRIVE WEST PALM BEACH, FL 33407		
DATE: 27 DEC. 2005	DWG. No.: 05-12	REV.:
SCALE: AS SHOWN	SHEET: 01 OF 11	



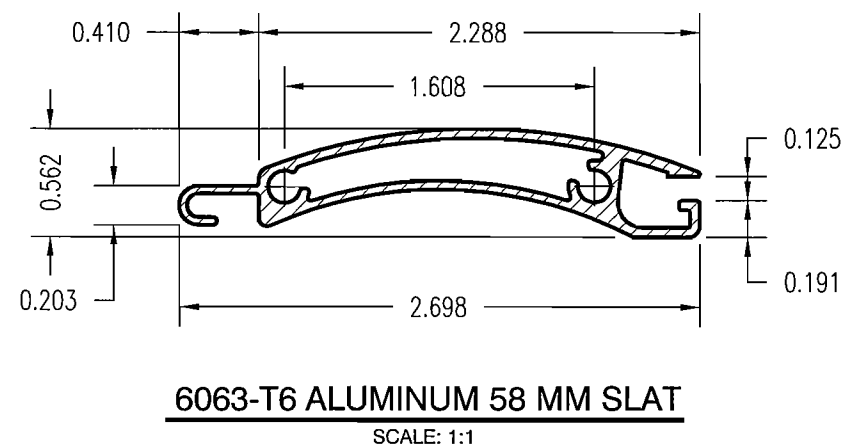
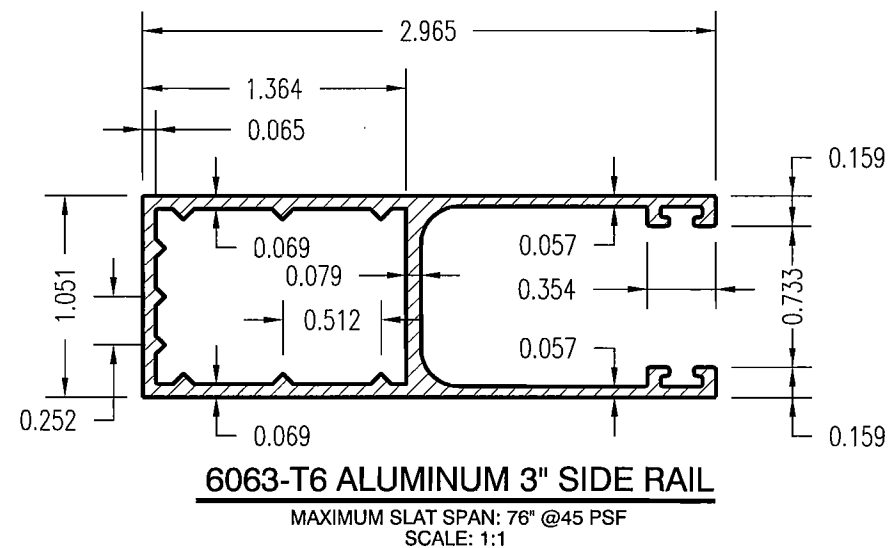
SLAT PERFORMANCE

3" SIDE RAIL

MAXIMUM PRESSURE	MAXIMUM SPAN
45 PSF	97"
55 PSF	72"
65 PSF	60"

4" SIDE RAIL

MAXIMUM PRESSURE	MAXIMUM SPAN
25 PSF	120"
35 PSF	108"
45 PSF	97"
50 PSF	80"
55 PSF	72"
65 PSF	60"



#10x1 SMS SS 318 FH
 OR LONGER

NYLON 6 END CONNECTOR

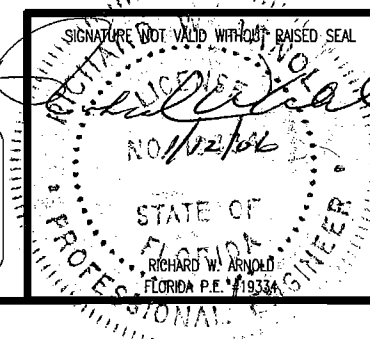
58 MM SLAT

SIDE RAIL

END CONNECTOR DETAIL
 N.T.S.

NON-RETENTION SHUTTER SYSTEM COMPONENTS

ENGINEERING REVIEW BY:
 ARNOLD/SANDERS CONSULTING ENGINEERS, INC.
 16681 MCGREGOR BLVD., SUITE 202
 FORT MYERS, FL 33908
 PHONE: (239) 267-3666

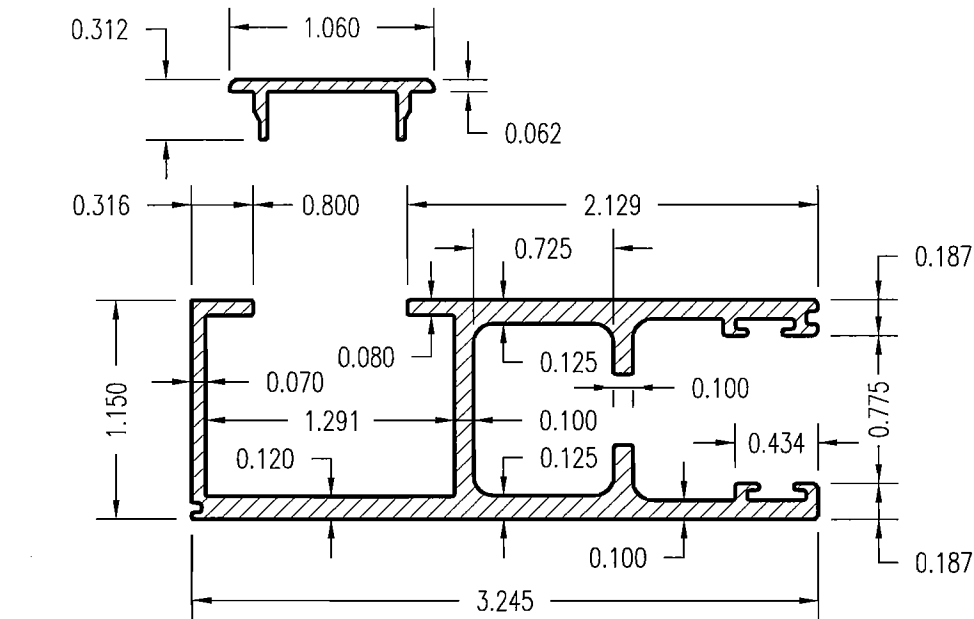


**58mm BERTHA END RETENTION /
 NON-RETENTION ROLL SHUTTER SYSTEM**

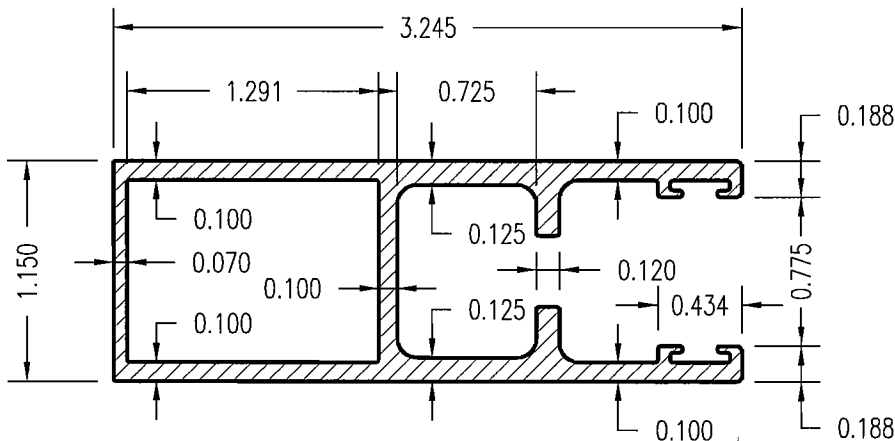
AMERICAN SHUTTER SYSTEM ASSOCIATION, INC.
 4268 WESTROADS DRIVE
 WEST PALM BEACH, FL 33407

DATE: 27 DEC. 2005	DWG. No.: 05-12	REV.:
SCALE: AS SHOWN	SHEET: 02 OF 11	

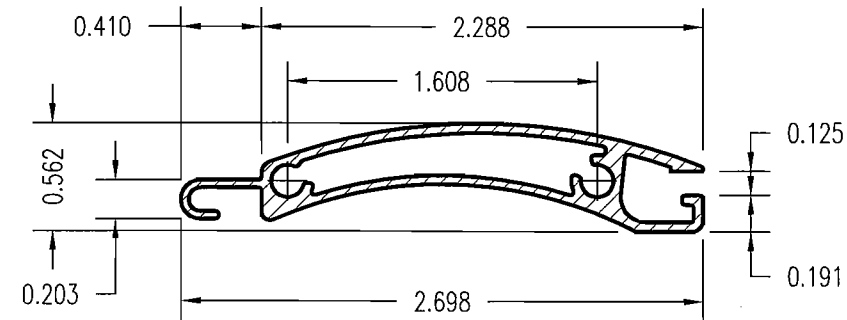
REVISION	BY	REVISION DESCRIPTION	DATE
1	BAH	SHT.1: ADD 5th TEST REPORT, SHT. 2: CHNG'D. MAX. SPAN 4" SIDE RAIL SLAT PERFORMANCE	12 JAN.'06



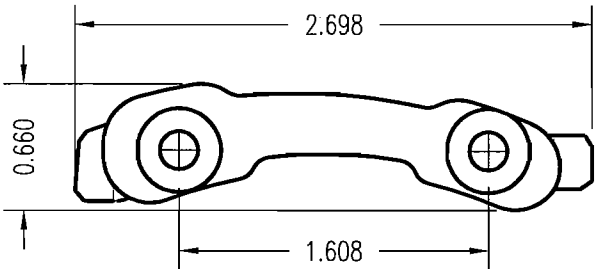
6063-T6 ALUMINUM 3" OPEN FACE SIDE RAIL
SCALE: 1:1



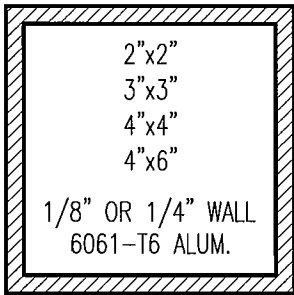
6063-T6 ALUMINUM 3" SIDE RAIL
SCALE: 1:1



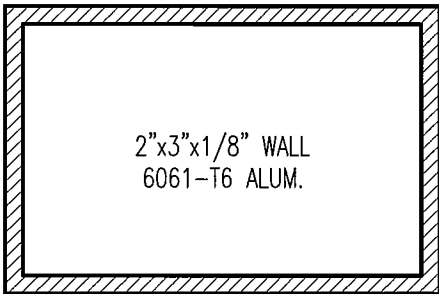
6063-T6 ALUMINUM 58 MM SLAT
SCALE: 1:1



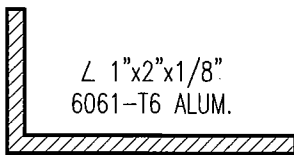
SLAT LOCK
SCALE: 1:1



NON-STRUCTURAL HEADER
N.T.S.

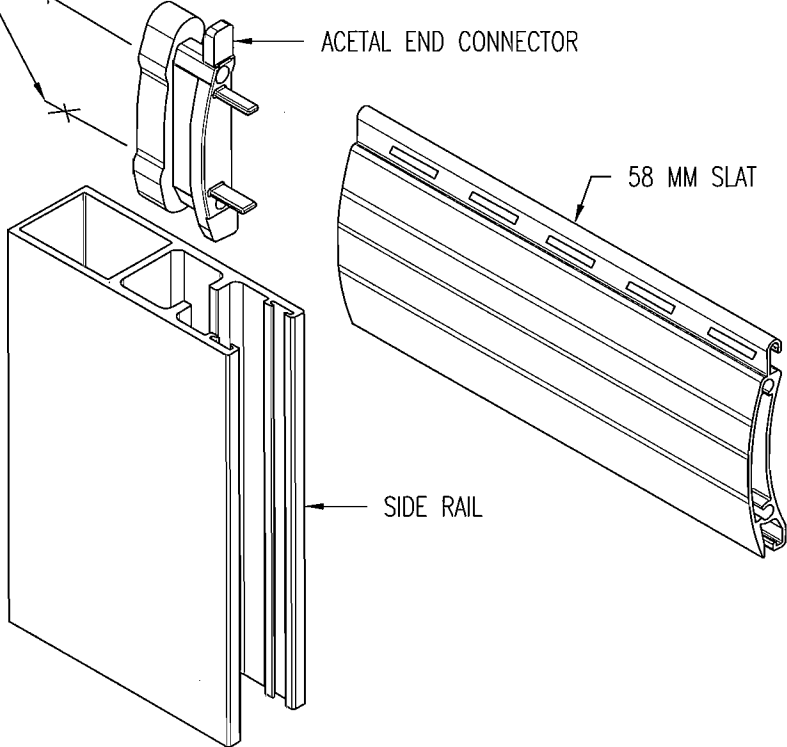


NON-STRUCTURAL HEADER
N.T.S.



SILL ANGLE
N.T.S.

#10x2-1/2 SMS SS 318 FH
OR LONGER
OR WOOD SCREW



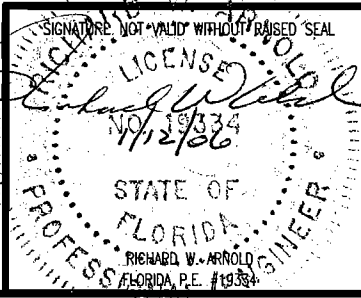
END CONNECTOR DETAIL
N.T.S.

SLAT LOCK PERFORMANCE CHART

MAXIMUM PRESSURE	MAXIMUM SPAN
60 PSF	281"
70 PSF	240"
80 PSF	210"
90 PSF	186"
100 PSF	168"
110 PSF	152"
120 PSF	140"
130 PSF	129"
140 PSF	120"

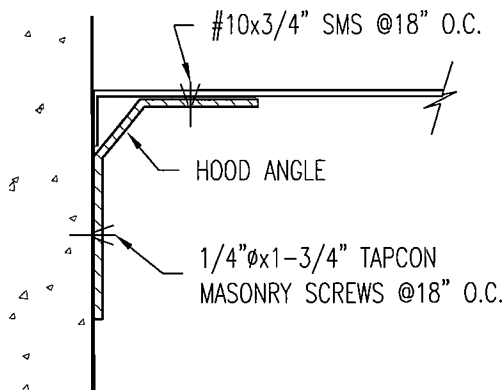
END RETENTION SHUTTER SYSTEM COMPONENTS

ENGINEERING REVIEW BY:
ARNOLD/SANDERS CONSULTING ENGINEERS, INC.
16681 MCGREGOR BLVD., SUITE 202
FORT MYERS, FL 33908
PHONE: (239) 267-3666

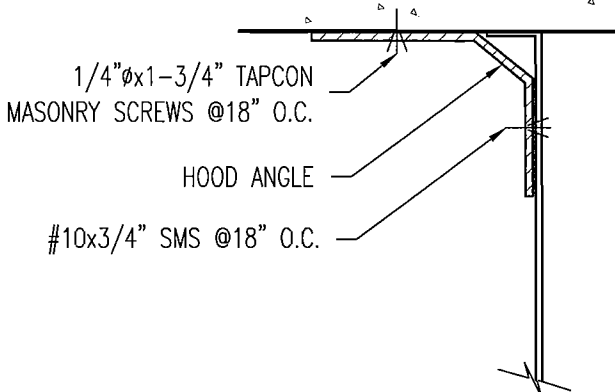


58mm BERTHA END RETENTION / NON-RETENTION ROLL SHUTTER SYSTEM		
AMERICAN SHUTTER SYSTEM ASSOCIATION, INC. 4268 WESTROADS DRIVE WEST PALM BEACH, FL 33407		
DATE: 27 DEC. 2005	DWG. No.: 05-12	REV.:
SCALE: AS SHOWN	SHEET: 03 OF 11	

REVISION	BY	REVISION DESCRIPTION	DATE
1	BAH	SHT.1: ADD 5th TEST REPORT, SHT. 2: CHNG'D. MAX. SPAN 4" SIDE RAIL SLAT PERFORMANCE	12 JAN.'06



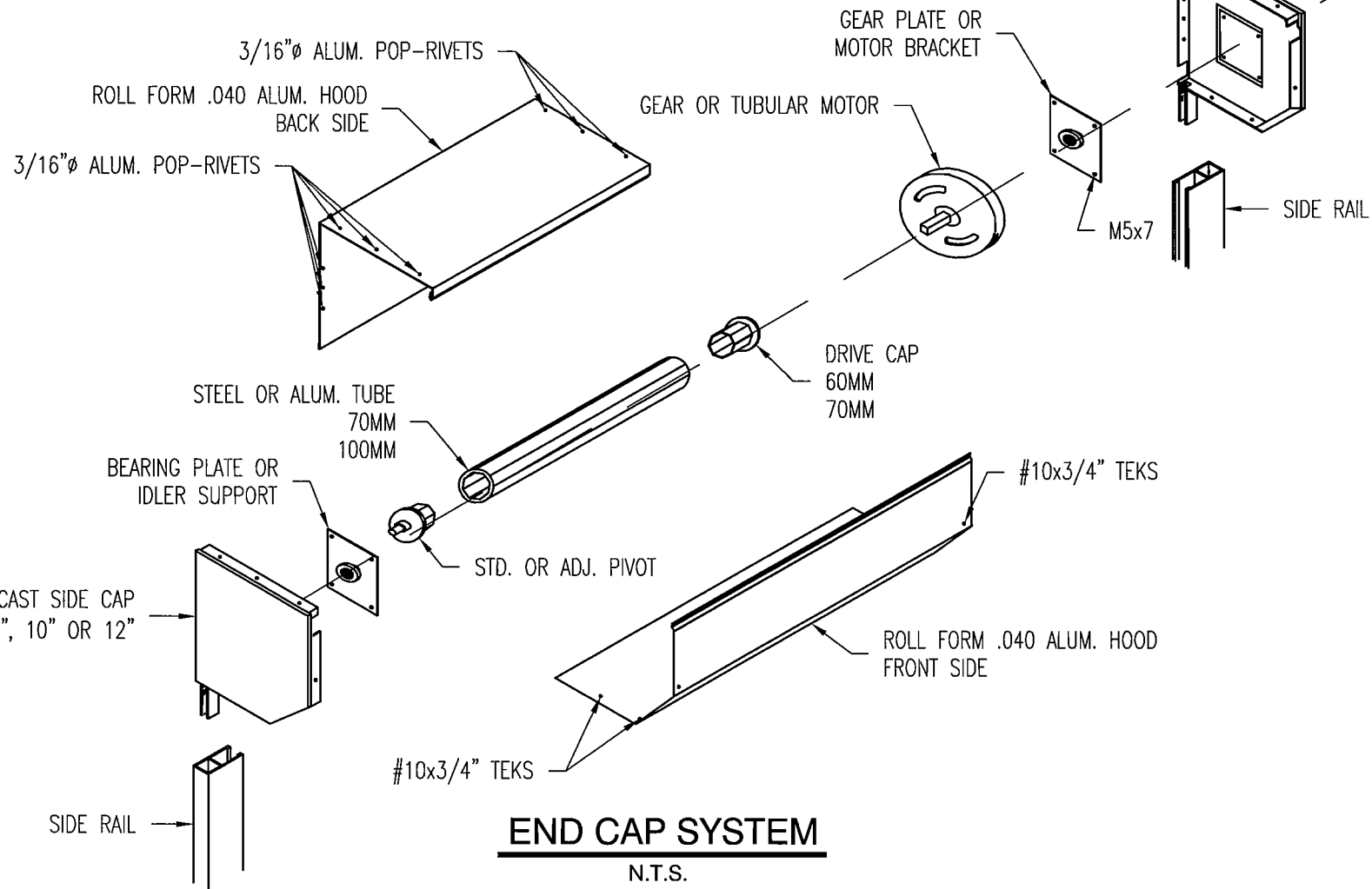
WALL HOOD ATTACHMENT



CEILING HOOD ATTACHMENT

CUSTOM HOOD ATTACHMENT DETAIL

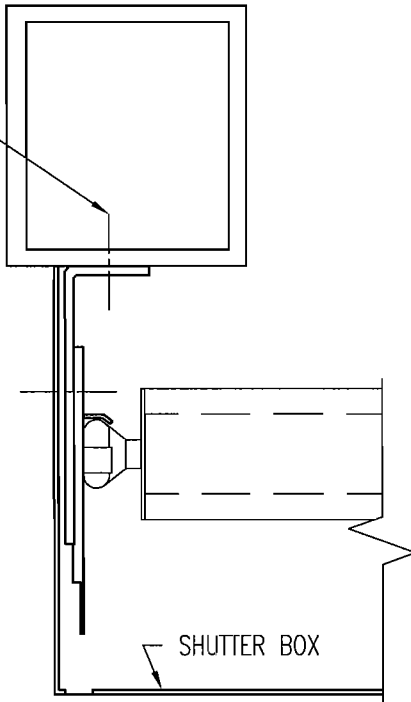
N.T.S.



END CAP SYSTEM

N.T.S.

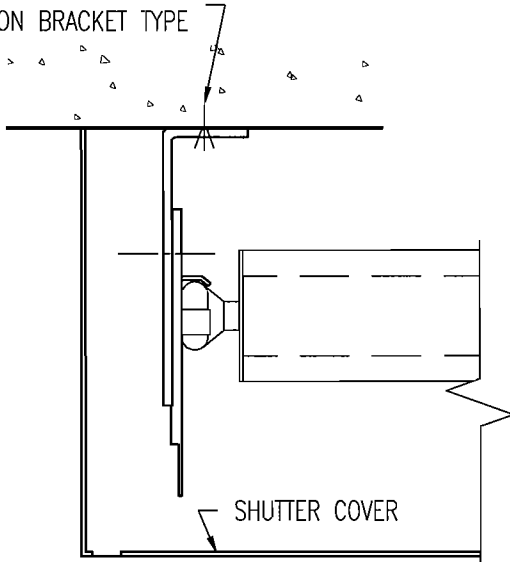
SEE NUMBER OF SCREWS BASED ON BRACKET TYPE



MEMBER INSTALLATION

BUILD-OUT OR VERTICAL SUPPORT
SCALE: 1:1

SEE NUMBER OF SCREWS BASED ON BRACKET TYPE



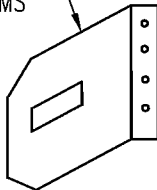
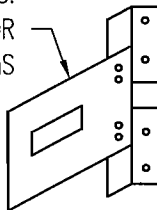
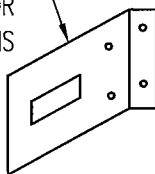
WALL INSTALLATION

N.T.S.

UP TO 100 LBS SHUTTER WEIGHT
MIN 2 ANCHORS:
1/4"Øx1-3/4" TAPCON OR
(3) 1/4"Øx1" SMS

UP TO 200 LBS SHUTTER WEIGHT
MIN 3 ANCHORS:
5/16"Øx2-1/4" OR
(4) 1/4"Øx1" SMS

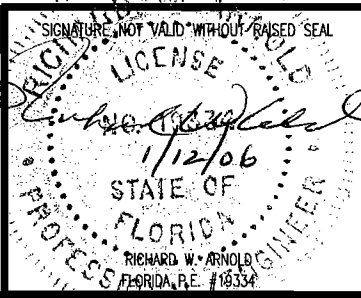
UP TO 350 LBS SHUTTER WEIGHT
MIN 4 ANCHORS:
5/16"Øx2-1/4" OR
(6) 1/4"Øx1" SMS



BRACKET SYSTEM

N.T.S.

ENGINEERING REVIEW BY:
ARNOLD/SANDERS CONSULTING ENGINEERS, INC.
16681 MCGREGOR BLVD., SUITE 202
FORT MYERS, FL 33908
PHONE: (239) 267-3666



58mm BERTHA END RETENTION /
NON-RETENTION ROLL SHUTTER SYSTEM

AMERICAN SHUTTER SYSTEM ASSOCIATION, INC.
4268 WESTROADS DRIVE
WEST PALM BEACH, FL 33407

DATE: 27 DEC. 2005	DWG. No.: 05-12	REV.:
SCALE: AS SHOWN	SHEET: 04 OF 11	

ANCHOR NOTES:
ALL FASTENER LENGTHS SHOWN ARE MINIMUM REQUIRED EMBEDMENT.

EMBEDMENT & EDGE DISTANCES SHOWN ARE BEYOND THE WALL & FLOOR COVERING (STUCCO, TILES, ETC.).
NO EMBEDMENT INTO STUCCO, TILE, ETC. SHALL BE CONSIDERED AS PART OF THE REQUIRED EMBEDMENT.

MAXIMUM ANCHORS SPACING ARE VALID FOR 3 1/2" EDGE DISTANCE, FOR EDGE DISTANCE LESS THEN 3 1/2",
REDUCE ANCHORS SPACING BY MULTIPLYING MAX. ANCHORS SPACING BY THE FOLLOWING FACTORS:
FOR 3" E.D. USE .86
FOR 2 1/2" E.D. USE .75
FOR 2" E.D. USE .50

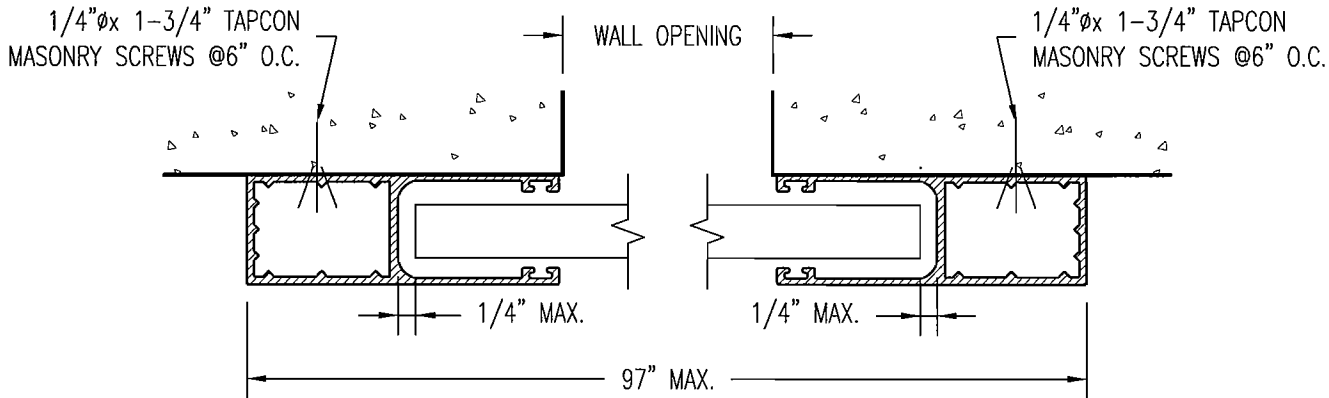
TYPICAL ANCHOR EMBEDMENT:

5/16" TAPCON: 2-1/2" EMBEDMENT TO CONCRETE
1-1/2" EMBEDMENT TO WOOD .64
1-1/4" EMBEDMENT TO BLOCK
3/8" POWER WEDGE BOLT 2-1/2" EMBEDMENT TO CONCRETE

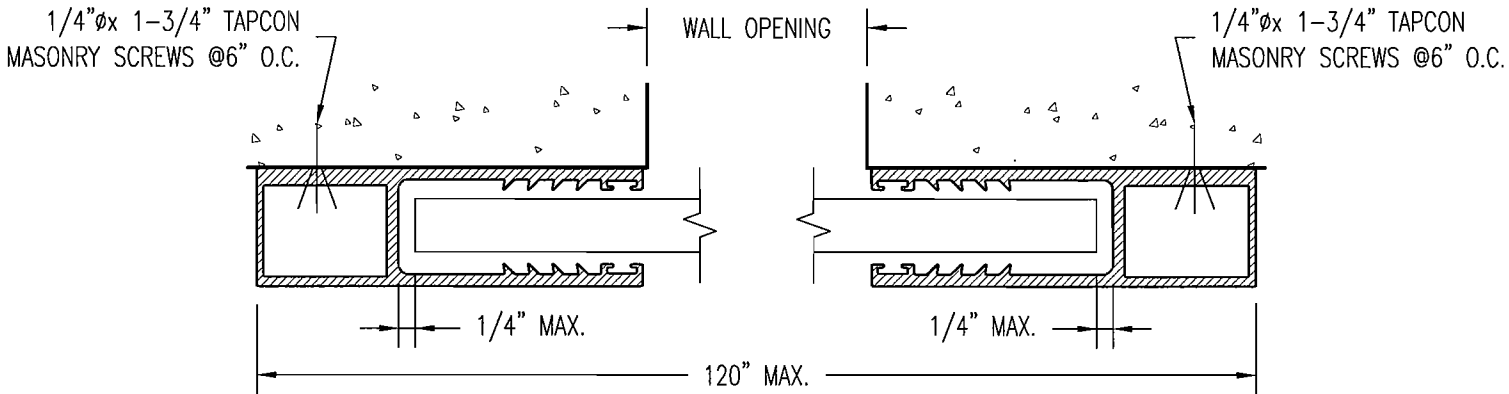
HOLLOW BLOCK: 1.872 PSI
CONCRETE: 3513 PSI
WOOD: SPECIFIC GRAVITY .64

TYPICAL EDGE DISTANCE IN WOOD = 1-1/4"
NO REDUCTION FACTOR IS REQUIRED.

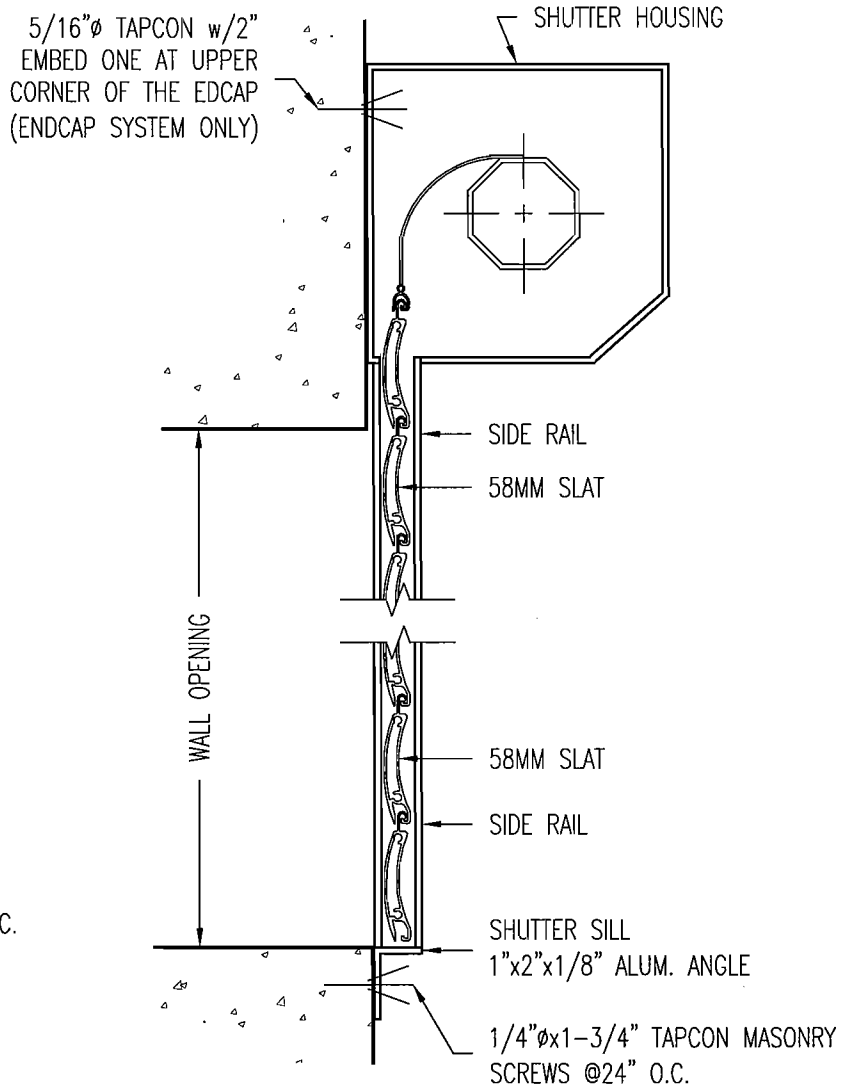
REVISION	BY	REVISION DESCRIPTION	DATE
1	BAH	SHT.1: ADD 5th TEST REPORT, SHT. 2: CHNG'D. MAX. SPAN 4" SIDE RAIL SLAT PERFORMANCE	12 JAN.'06



SECTION B-B (OPTION 1)
NON-RETENTION 3" TRACK - WALL MOUNT INSTALLATION
N.T.S.



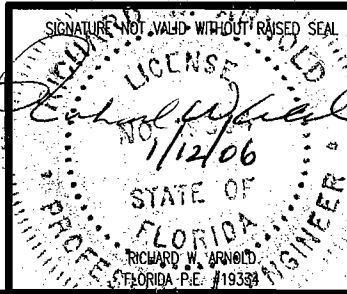
SECTION B-B (OPTION 2)
NON-RETENTION 4" TRACK - WALL MOUNT INSTALLATION
N.T.S.



SECTION A-A
DIRECT INSTALLATION
N.T.S.

**NON-RETENTION SHUTTER
SYSTEM COMPONENTS**

ENGINEERING REVIEW BY:
ARNOLD/SANDERS CONSULTING ENGINEERS, INC.
16681 MCGREGOR BLVD., SUITE 202
FORT MYERS, FL 33908
PHONE: (239) 267-3666



**58mm BERTHA END RETENTION /
NON-RETENTION ROLL SHUTTER SYSTEM**

AMERICAN SHUTTER SYSTEM ASSOCIATION, INC.
4268 WESTROADS DRIVE
WEST PALM BEACH, FL 33407

DATE: 27 DEC. 2005	DWG. No.: 05-12	REV.:
SCALE: AS SHOWN	SHEET: 05 OF 11	

ANCHOR NOTES:
ALL FASTENER LENGTHS SHOWN ARE MINIMUM REQUIRED EMBEDMENT.

EMBEDMENT & EDGE DISTANCES SHOWN ARE BEYOND THE WALL & FLOOR COVERING (STUCCO, TILES, ETC.).
NO EMBEDMENT INTO STUCCO, TILE, ETC. SHALL BE CONSIDERED AS PART OF THE REQUIRED EMBEDMENT.

MAXIMUM ANCHORS SPACING ARE VALID FOR 3 1/2" EDGE DISTANCE, FOR EDGE DISTANCE LESS THEN 3 1/2",
REDUCE ANCHORS SPACING BY MULTIPLYING MAX. ANCHORS SPACING BY THE FOLLOWING FACTORS:
FOR 3" E.D. USE .86
FOR 2 1/2" E.D. USE .75
FOR 2" E.D. USE .50

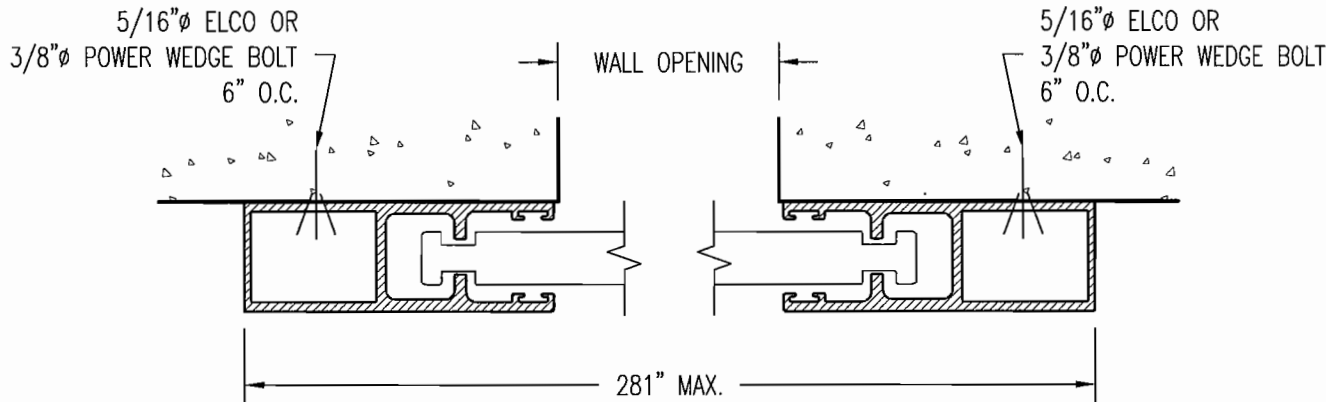
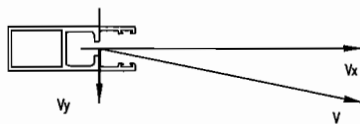
TYPICAL ANCHOR EMBEDMENT:

5/16" TAPCON: 2-1/2" EMBEDMENT TO CONCRETE
1-1/2" EMBEDMENT TO WOOD .64
1-1/4" EMBEDMENT TO BLOCK
3/8" POWER WEDGE BOLT 2-1/2" EMBEDMENT TO CONCRETE

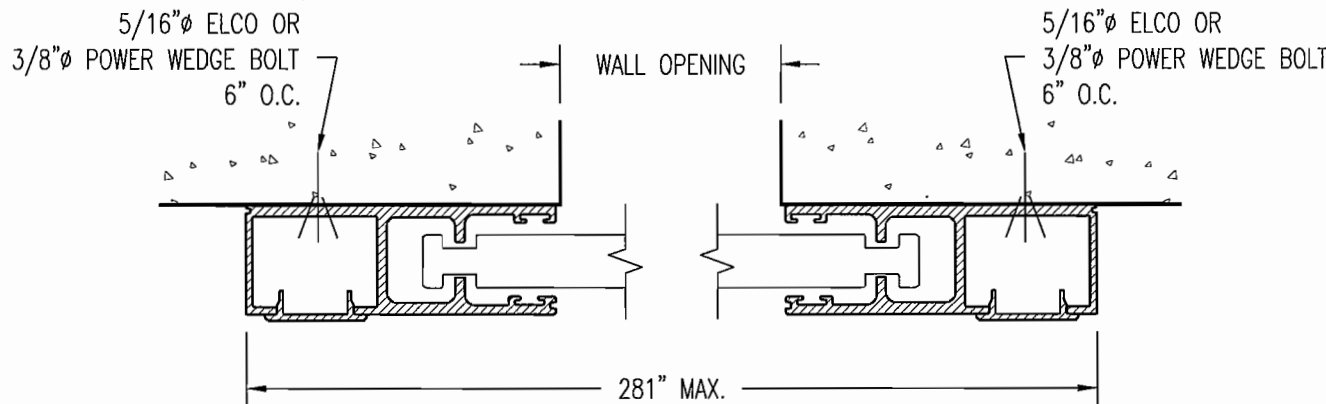
HOLLOW BLOCK: 1.872 PSI
CONCRETE: 3513 PSI
WOOD: SPECIFIC GRAVITY .64

TYPICAL EDGE DISTANCE IN WOOD = 1-1/4"
NO REDUCTION FACTOR IS REQUIRED.

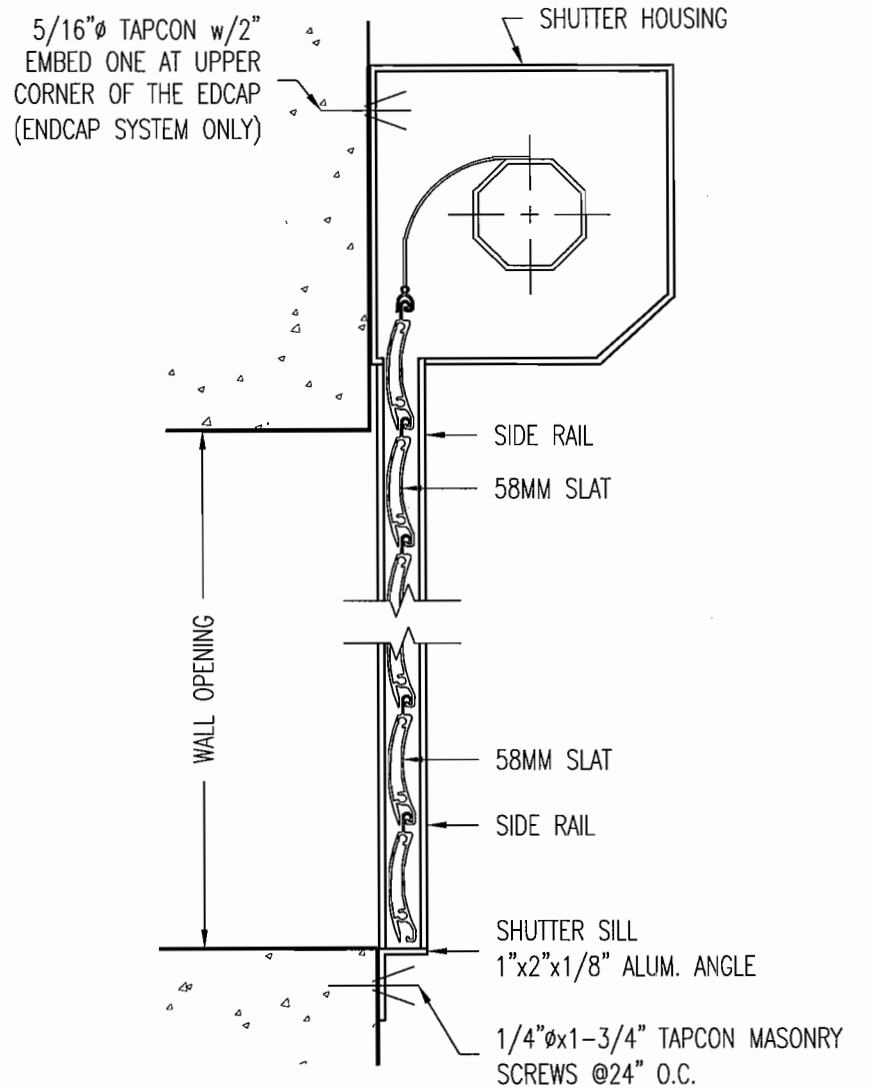
IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR
TO VERIFY THAT THE EXISTING STRUCTURE IS DESIGNED
TO SUPPORT A MINIMUM V= 1200LB/FT PER UNIT FOOT
OF SHUTTER TRACK ON X AND Y DIRECTION. IF THE
EXISTING STRUCTURE IS NOT ABLE TO SUPPORT 1200
LB/FT, A CASE BY CASE EVALUATION IS REQUIRED



SECTION B-B (OPTION 1)
3" END RETENTION TRACK - WALL MOUNT INSTALLATION
N.T.S.



SECTION B-B (OPTION 2)
3" OPEN FACE END RETENTION TRACK - WALL MOUNT INSTALLATION
N.T.S.



SECTION A-A
DIRECT INSTALLATION
N.T.S.

MAXIMUM DESIGN PRESSURE AND ANCHORS SPACING SCHEDULE FOR INSTALLATION IN CONCRETE, BLOCK OR WOOD FRAME STRUCTURE

FOR WOOD FRAME STRUCTURE:

LIMIT DESIGN PRESSURE TO 50 PSF, MAX SHUTTER SPAN TO 120" AND MAX. ANCHORS SPACING TO 6" O.C.

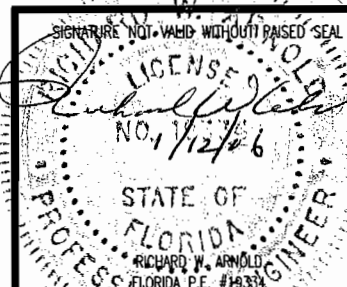
FOR BLOCK STRUCTURE:

LIMIT DESIGN PRESSURE TO 50 PSF, MAX SHUTTER SPAN TO 120" AND MAX. ANCHORS SPACING TO 6" O.C.

FOR CONCRETE STRUCTURE WITH 3500 PSI SEE BELOW:

SHUTTER SPAN 0-120" AND DESIGN PRESSURE UP TO 50 PSF USE MAX ANCHORS SPACING OF 12"
SHUTTER SPAN 121-280" AND DESIGN PRESSURE OF 50 PSF USE MAX ANCHORS SPACING OF 8"
SHUTTER SPAN 0-280" AND DESIGN PRESSURE ABOVE 51 PSF USE MAX ANCHORS SPACING OF 6"

ENGINEERING REVIEW BY:
ARNOLD/SANDERS CONSULTING ENGINEERS, INC.
16681 MCGREGOR BLVD., SUITE 202
FORT MYERS, FL 33908
PHONE: (239) 267-3666



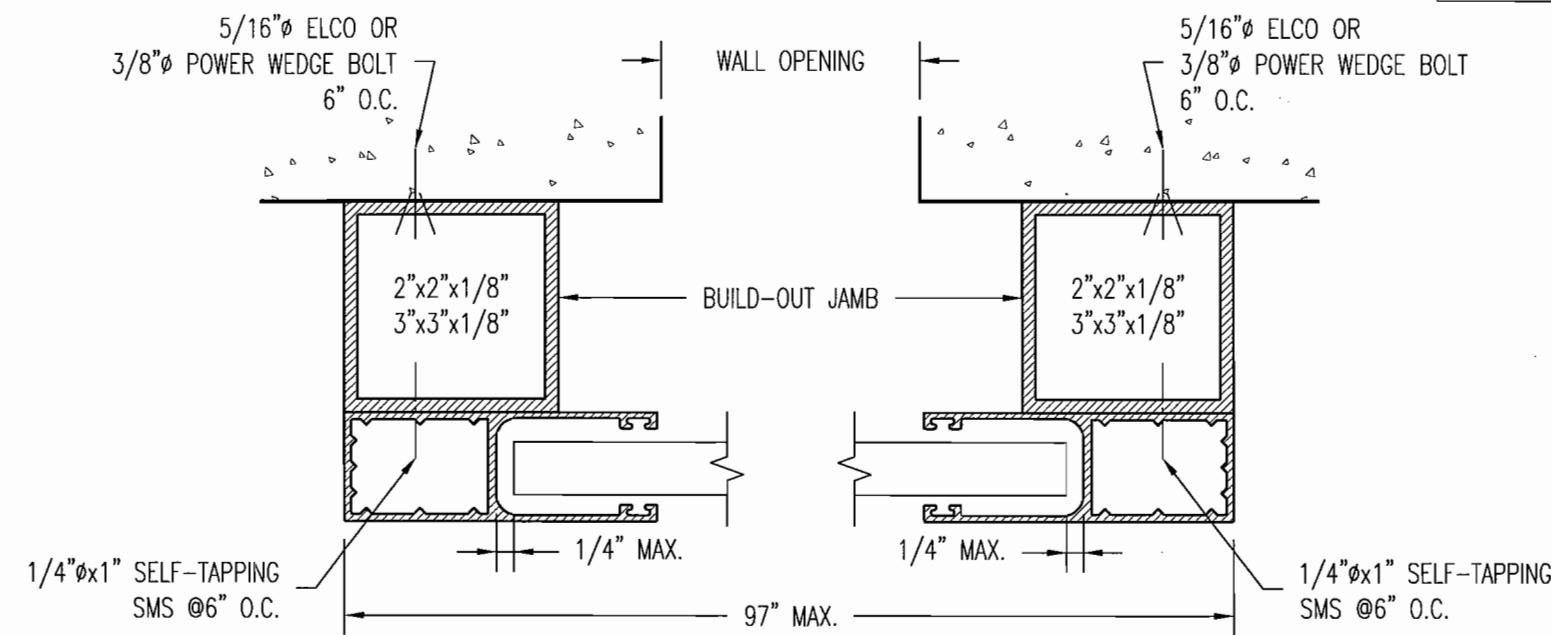
**END RETENTION SHUTTER
SYSTEM COMPONENTS**

**58mm BERTHA END RETENTION /
NON-RETENTION ROLL SHUTTER SYSTEM**

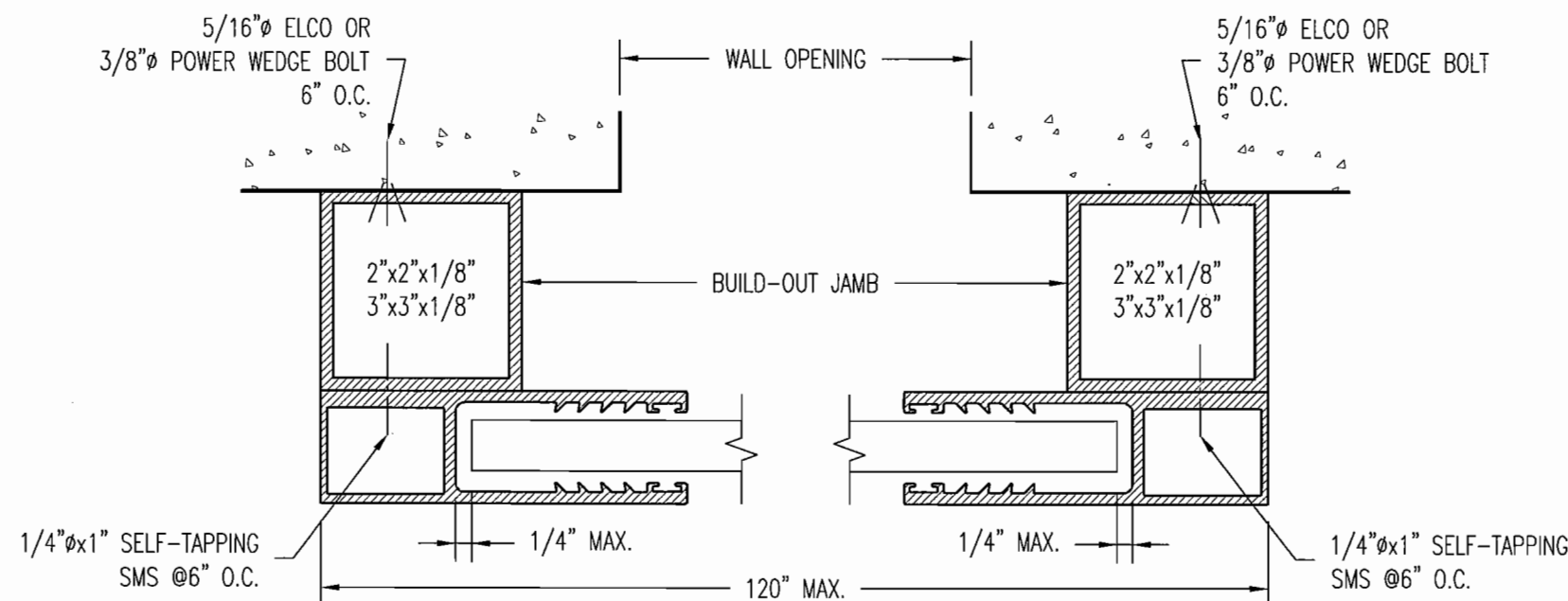
AMERICAN SHUTTER SYSTEM ASSOCIATION, INC.
4268 WESTROADS DRIVE
WEST PALM BEACH, FL 33407

DATE: 27 DEC. 2005 DWG. No.: 05-12 REV.:
SCALE: AS SHOWN SHEET: 06 OF 11

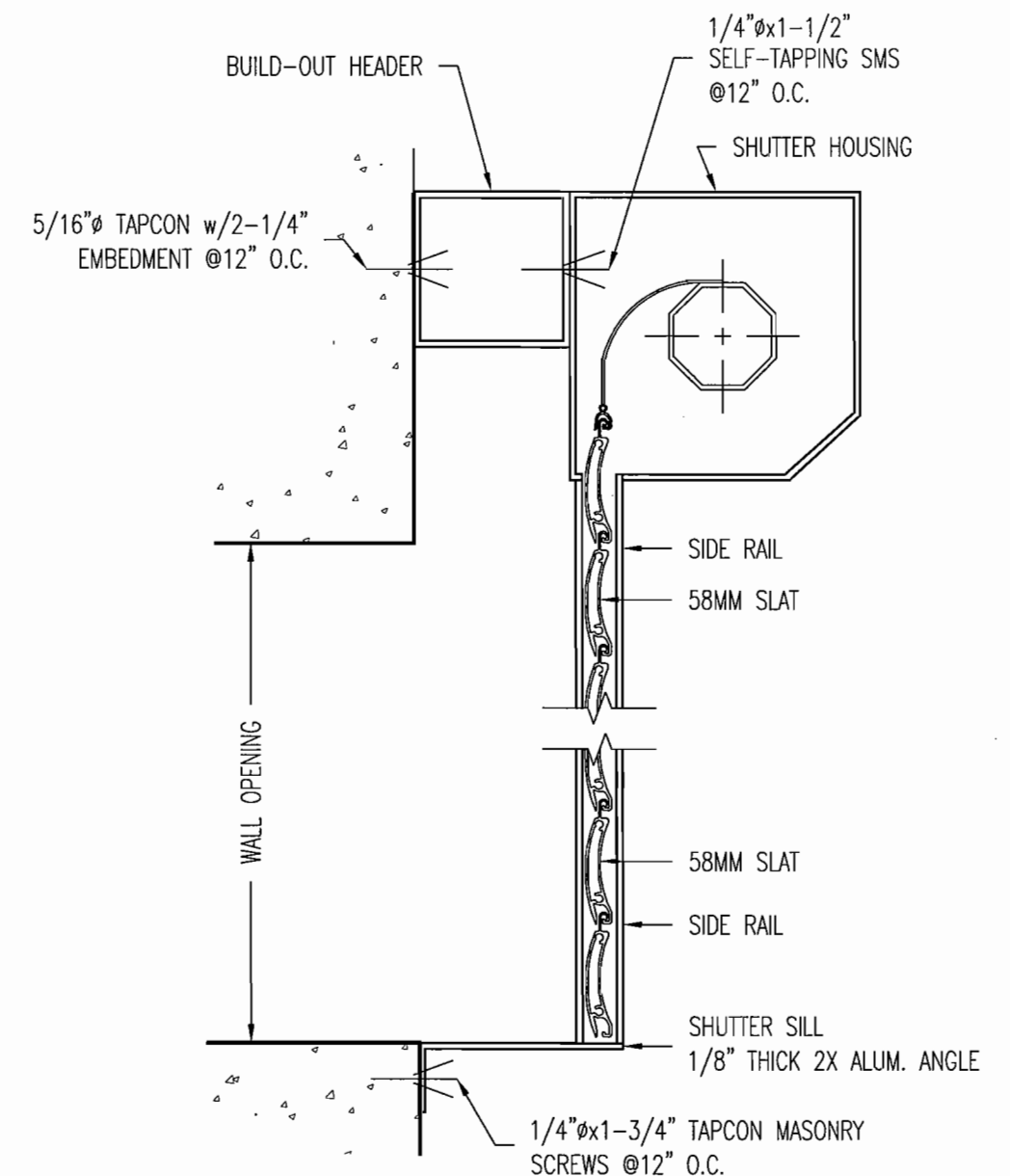
REVISION	BY	REVISION DESCRIPTION	DATE
1	BAH	SHT.1: ADD 5th TEST REPORT, SHT. 2: CHNG'D. MAX. SPAN 4" SIDE RAIL SLAT PERFORMANCE	12 JAN.'06



SECTION B-B (OPTION 1)
NON-RETENTION 3" TRACK - BUILD-OUT INSTALLATION
N.T.S.



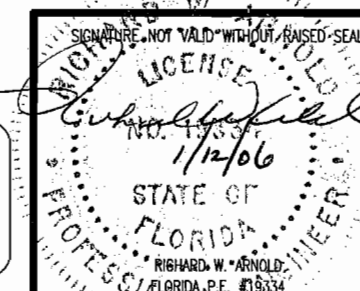
SECTION B-B (OPTION 2)
NON-RETENTION 4" TRACK - BUILD-OUT INSTALLATION
N.T.S.



SECTION A-A
BUILD-OUT INSTALLATION
N.T.S.

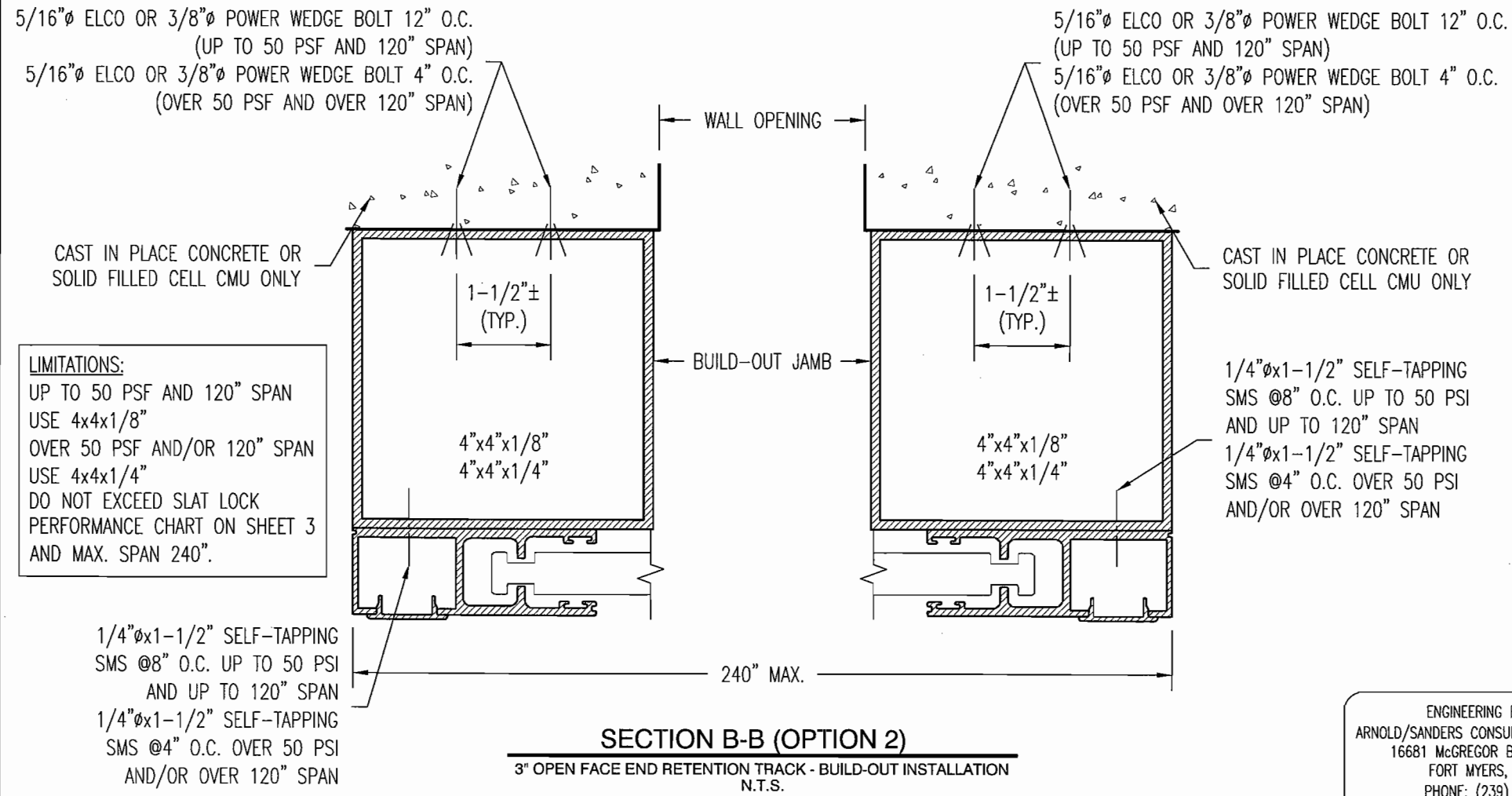
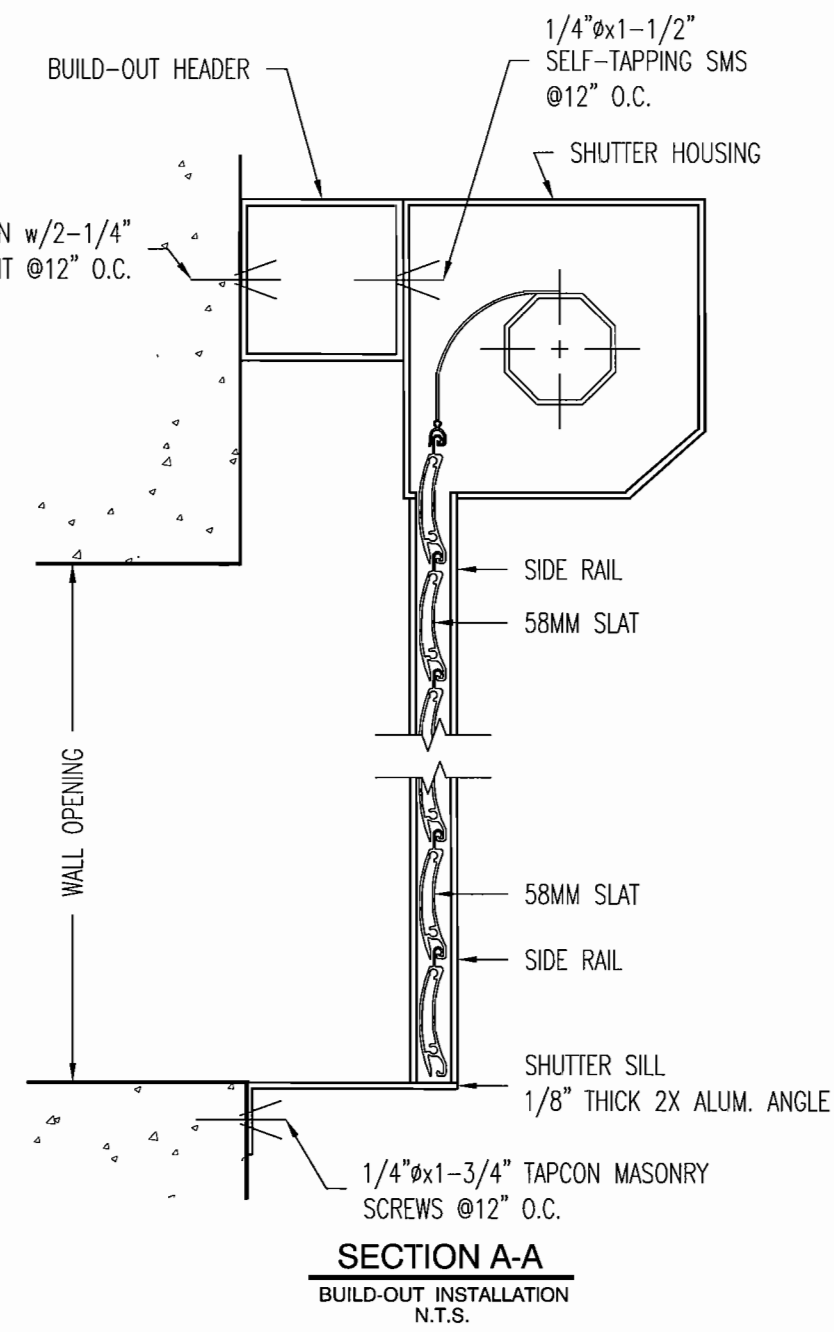
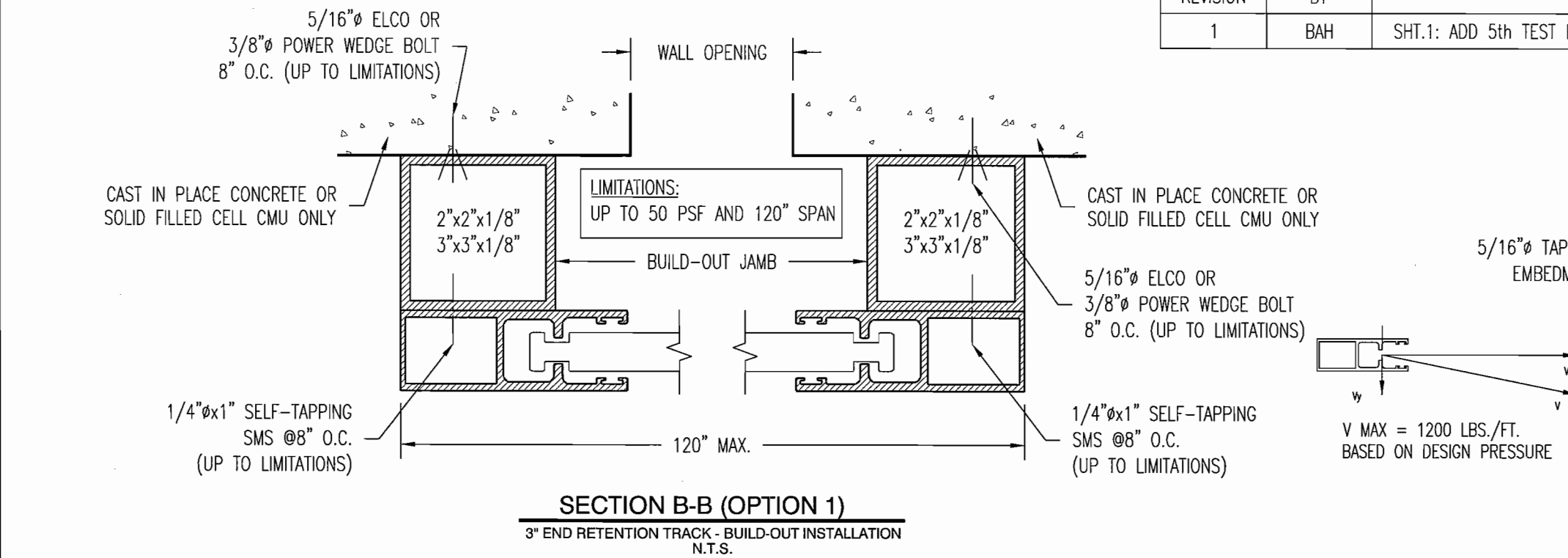
NON-RETENTION SHUTTER SYSTEM COMPONENTS

ENGINEERING REVIEW BY:
ARNOLD/SANDERS CONSULTING ENGINEERS, INC.
16681 MCGREGOR BLVD., SUITE 202
FORT MYERS, FL 33908
PHONE: (239) 267-3666



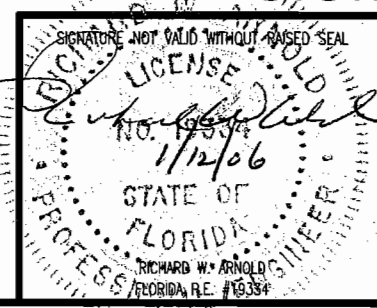
58mm BERTHA END RETENTION / NON-RETENTION ROLL SHUTTER SYSTEM		
AMERICAN SHUTTER SYSTEM ASSOCIATION, INC. 4268 WESTROADS DRIVE WEST PALM BEACH, FL 33407		
DATE: 27 DEC. 2005	DWG. No.: 05-12	REV.:
SCALE: AS SHOWN	SHEET: 07 OF 11	

REVISION	BY	REVISION DESCRIPTION	DATE
1	BAH	SHT.1: ADD 5th TEST REPORT, SHT. 2: CHNG'D. MAX. SPAN 4" SIDE RAIL SLAT PERFORMANCE	12 JAN.'06



LIMITATIONS:
UP TO 50 PSF AND 120" SPAN
USE 4x4x1/8"
OVER 50 PSF AND/OR 120" SPAN
USE 4x4x1/4"
DO NOT EXCEED SLAT LOCK
PERFORMANCE CHART ON SHEET 3
AND MAX. SPAN 240".

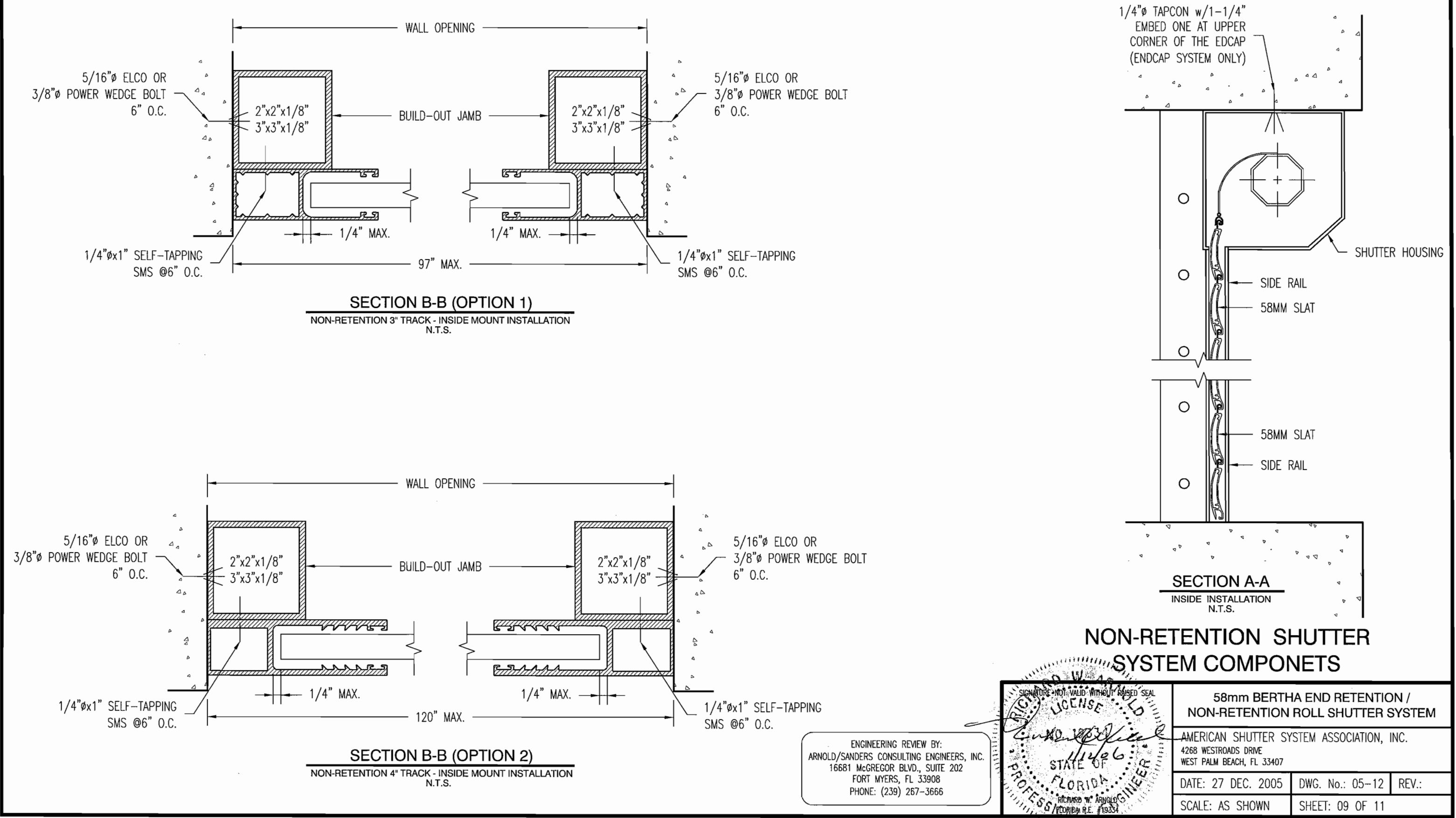
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END RETENTION SHUTTER SYSTEM COMPONENTS

58mm BERTHA END RETENTION / NON-RETENTION ROLL SHUTTER SYSTEM		
AMERICAN SHUTTER SYSTEM ASSOCIATION, INC. 4268 WESTROADS DRIVE WEST PALM BEACH, FL 33407		
DATE: 27 DEC. 2005	DWG. No.: 05-12	REV.:
SCALE: AS SHOWN	SHEET: 08 OF 11	

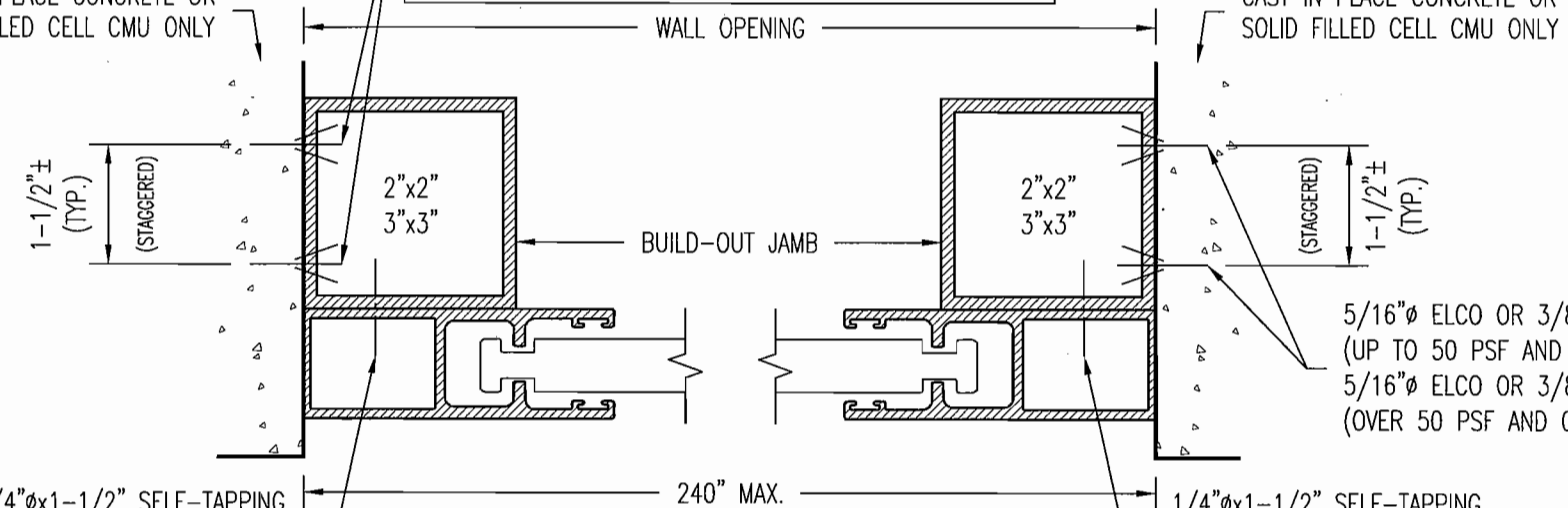
REVISION	BY	REVISION DESCRIPTION	DATE
1	BAH	SHT.1: ADD 5th TEST REPORT, SHT. 2: CHNG'D. MAX. SPAN 4" SIDE RAIL SLAT PERFORMANCE	12 JAN.'06



5/16"Ø ELCO OR 3/8"Ø POWER WEDGE BOLT 12" O.C.
(UP TO 50 PSF AND 120" SPAN)
5/16"Ø ELCO OR 3/8"Ø POWER WEDGE BOLT 4" O.C.
(OVER 50 PSF AND OVER 120" SPAN)

CAST IN PLACE CONCRETE OR
SOLID FILLED CELL CMU ONLY

LIMITATIONS:
UP TO 50 PSF AND 120" SPAN USE 1/8" WALL THICKNESS
OVER 50 PSF AND/OR 120" SPAN USE 1/4" WALL
THICKNESS
DO NOT EXCEED SLAT LOCK PERFORMANCE CHART ON
SHEET 3 AND MAX. SPAN 240".



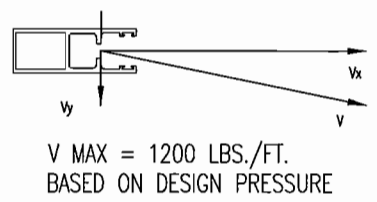
SECTION B-B (OPTION 1)

3" END RETENTION TRACK - INSIDE MOUNT INSTALLATION
N.T.S.

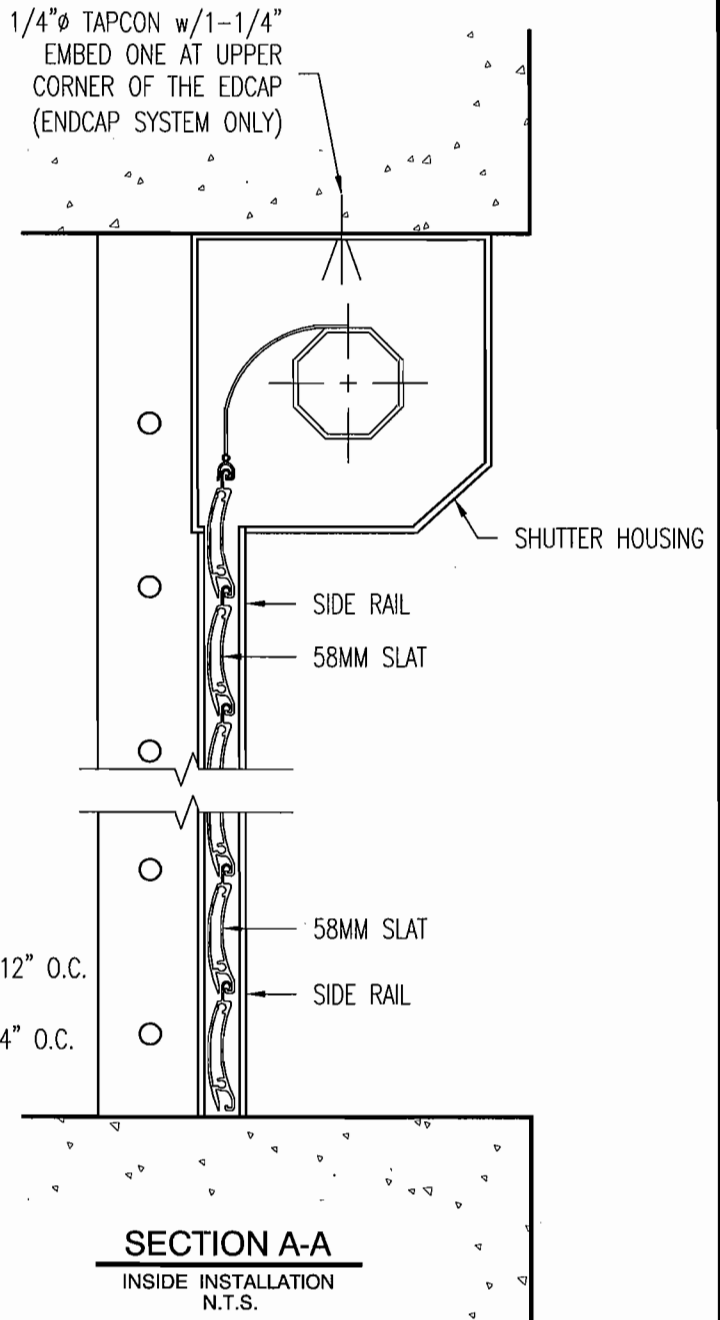
1/4"Øx1-1/2" SELF-TAPPING
SMS @8" O.C. UP TO 50 PSI
AND UP TO 120" SPAN
1/4"Øx1-1/2" SELF-TAPPING
SMS @4" O.C. OVER 50 PSI
AND/OR OVER 120" SPAN

1/4"Øx1-1/2" SELF-TAPPING
SMS @8" O.C. UP TO 50 PSI
AND UP TO 120" SPAN
1/4"Øx1-1/2" SELF-TAPPING
SMS @4" O.C. OVER 50 PSI
AND/OR OVER 120" SPAN

5/16"Ø ELCO OR 3/8"Ø POWER WEDGE BOLT 12" O.C.
(UP TO 50 PSF AND 120" SPAN)
5/16"Ø ELCO OR 3/8"Ø POWER WEDGE BOLT 4" O.C.
(OVER 50 PSF AND OVER 120" SPAN)



1/4"Ø TAPCON w/1-1/4"
EMBED ONE AT UPPER
CORNER OF THE EDCAP
(ENDCAP SYSTEM ONLY)



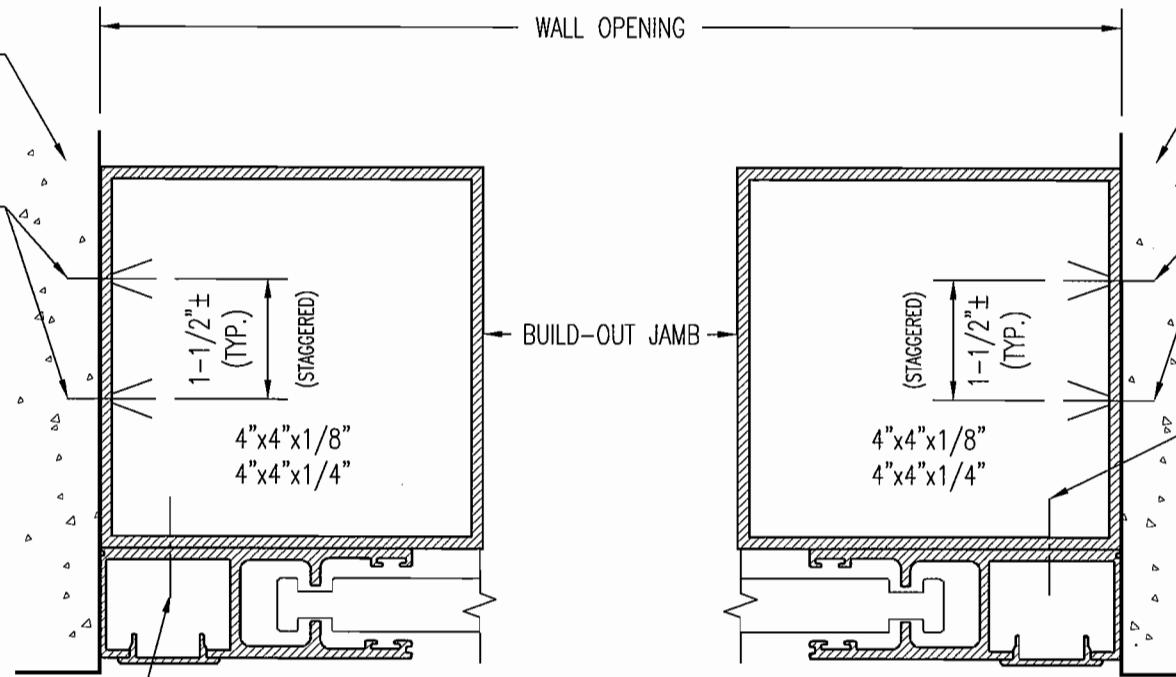
SECTION A-A

INSIDE INSTALLATION
N.T.S.

5/16"Ø ELCO OR 3/8"Ø POWER WEDGE BOLT 12" O.C.
(UP TO 50 PSF AND 120" SPAN)
5/16"Ø ELCO OR 3/8"Ø POWER WEDGE BOLT 4" O.C.
(OVER 50 PSF AND OVER 120" SPAN)

CAST IN PLACE CONCRETE OR
SOLID FILLED CELL CMU ONLY

LIMITATIONS:
UP TO 50 PSF AND 120" SPAN
USE 4x4x1/8"
OVER 50 PSF AND/OR 120" SPAN
USE 4x4x1/4"
DO NOT EXCEED SLAT LOCK
PERFORMANCE CHART ON SHEET 3
AND MAX. SPAN 240".



SECTION B-B (OPTION 2)

3" OPEN FACE END RETENTION TRACK - INSIDE MOUNT INSTALLATION
N.T.S.

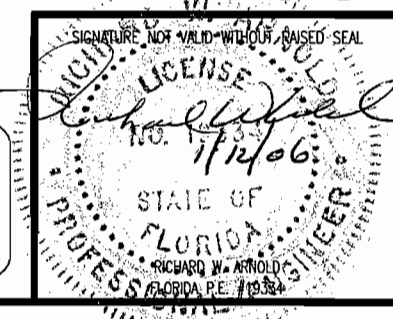
1/4"Øx1-1/2" SELF-TAPPING
SMS @8" O.C. UP TO 50 PSI
AND UP TO 120" SPAN
1/4"Øx1-1/2" SELF-TAPPING
SMS @4" O.C. OVER 50 PSI
AND/OR OVER 120" SPAN

CAST IN PLACE CONCRETE OR
SOLID FILLED CELL CMU ONLY

5/16"Ø ELCO OR 3/8"Ø POWER WEDGE BOLT 12" O.C.
(UP TO 50 PSF AND 120" SPAN)
5/16"Ø ELCO OR 3/8"Ø POWER WEDGE BOLT 4" O.C.
(OVER 50 PSF AND OVER 120" SPAN)

1/4"Øx1-1/2" SELF-TAPPING
SMS @8" O.C. UP TO 50 PSI
AND UP TO 120" SPAN
1/4"Øx1-1/2" SELF-TAPPING
SMS @4" O.C. OVER 50 PSI
AND/OR OVER 120" SPAN

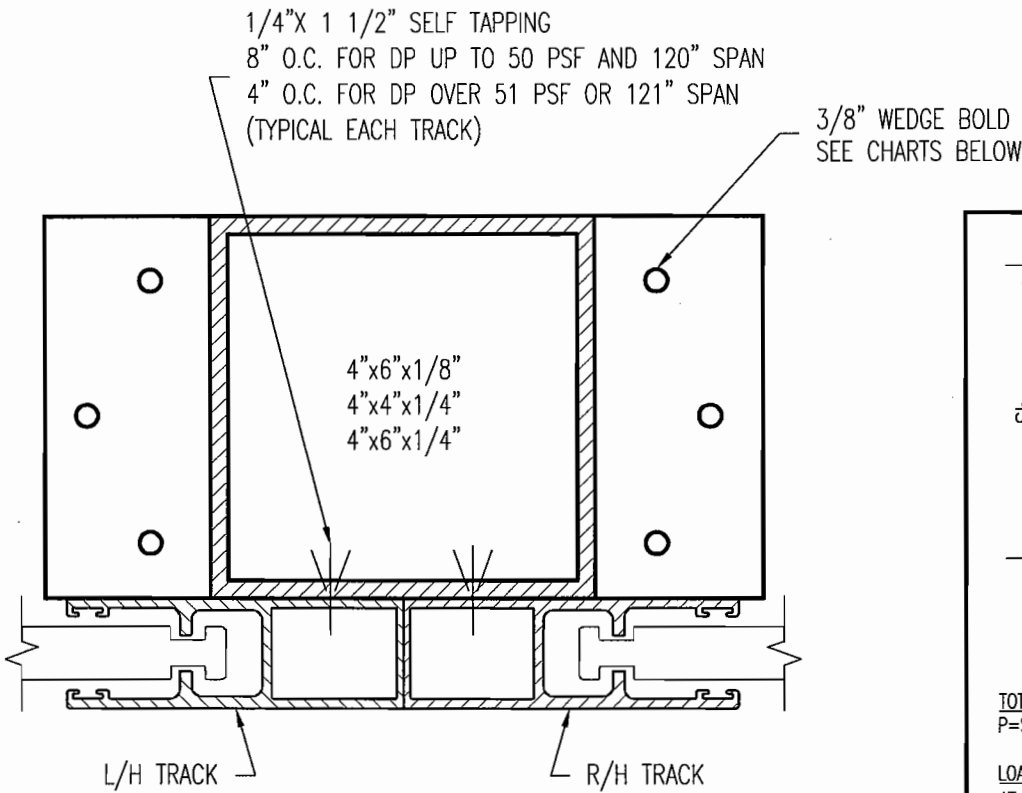
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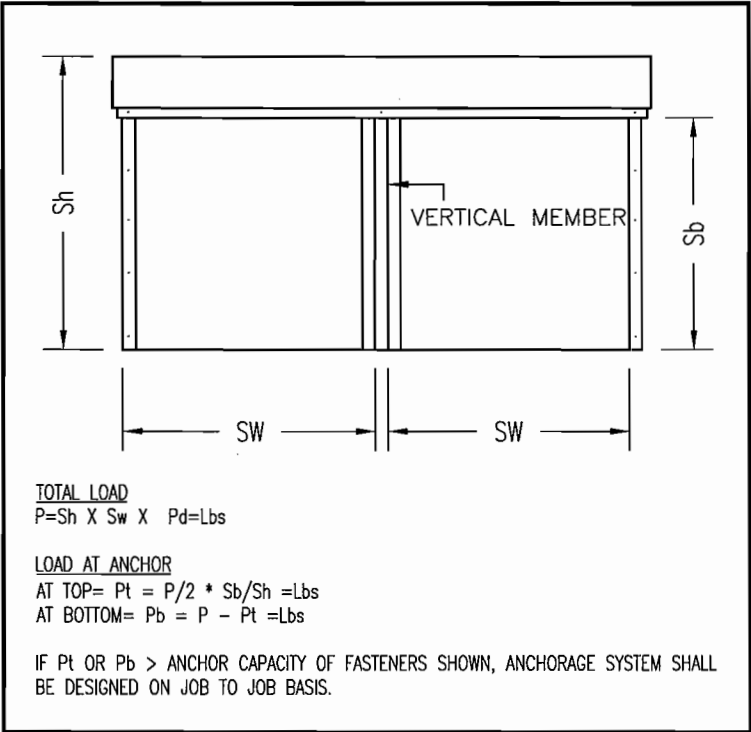
END RETENTION SHUTTER SYSTEM COMPONENTS

58mm BERTHA END RETENTION / NON-RETENTION ROLL SHUTTER SYSTEM		
AMERICAN SHUTTER SYSTEM ASSOCIATION, INC. 4268 WESTROADS DRIVE WEST PALM BEACH, FL 33407		
DATE: 27 DEC. 2005	DWG. No.: 05-12	REV.:
SCALE: AS SHOWN	SHEET: 10 OF 11	

REVISION	BY	REVISION DESCRIPTION	DATE
1	BAH	SHT.1: ADD 5th TEST REPORT, SHT. 2: CHNG'D. MAX. SPAN 4" SIDE RAIL SLAT PERFORMANCE	12 JAN.'06



SECTION C-C
N.T.S.



VERTICAL SUPPORT MEMBER PERFORMANCE CHART										
4 X 4 X 1/4" WALL										
HEIGHT \ PSF	40	55	70	85	90	105	120	135	145	
80	268	268	268	268	240	220	180	160	160	
100	268	200	160	140	120	100	80	80	80	
120	140	100	80	80	60	40	40	40	40	
140	100	60	40							
4 X 6 X 1/8" WALL										
HEIGHT \ PSF	40	55	70	85	90	105	120	135	145	
80	268	268	268	268	268	268	268	220	220	
100	268	268	220	200	180	160	140	120	120	
120	160	160	120	100	90	80	80	60	60	
140	140	80	80	60	60	60	40	40	40	
4 X 6 X 1/4" WALL										
HEIGHT \ PSF	40	55	70	85	90	105	120	135	145	
80	268	268	268	268	240	220	180	160	160	
100	268	268	268	220	200	180	160	140	120	
120	268	268	268	180	160	140	120	100	100	
140	268	268	200	160	140	120	100	100	80	

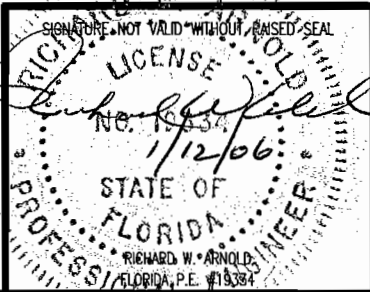
CONNECTION TO CEILING AND FLOOR		
ANCHOR PER SIDE	CONNECTION CAPACITY—lbs	CLIP LENGTH IN.
1	1600	4
2	3200	4
3	4800	6
4	6400	6

VERTICAL SUPPORTING MEMBER CONNECTION TO BRACKET		
ANCHOR PER SIDE	CONNECTION CAPACITY—lbs	CLIP LENGTH IN.
1	904	4
2	1808	4
3	2712	4
4	3616	6
5	4520	6
6	5424	6

- GUIDE TO USING CHARTS:
1. CALCULATE DESIGN WIND LOAD REQUIREMENTS USING ASCE 7 BASED ON BUILDING HEIGHT, EXPOSURE CATEGORY, ROOF SLOPE AND TRIBUTARY AREA.
 2. FROM SLAT PERFORMANCE CHART DETERMINE IF YOU MEET OR EXCEED THE DESIGN PRESSURE FOR THE OPENING TO BE COVERED.
 3. IDENTIFY THE MATERIAL USED TO CREATE THE STRUCTURE OF THE BUILDING WHERE THE SHUTTER WILL BE INSTALLED, EX. CONCRETE, BLOCK OR WOOD.
 4. TO DETERMINE MAXIMUM DISTANCE BETWEEN THE INSTALLATION ANCHORS USE THE APPROPRIATE ANCHORS CHARTS.

CONDITIONS NOT COVERED BY DETAILS OR SCHEDULES
SHALL BE ENGINEERED ON JOB TO JOB BASIS.

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58mm BERTHA END RETENTION /
NON-RETENTION ROLL SHUTTER SYSTEM

AMERICAN SHUTTER SYSTEM ASSOCIATION, INC.
4268 WESTROADS DRIVE
WEST PALM BEACH, FL 33407

DATE: 27 DEC. 2005	DWG. No.: 05-12	REV.:
SCALE: AS SHOWN	SHEET: 11 OF 11	